

# SPRINGFIELD WATER AND SEWER COMMISSION



## PROJECT MANUAL

FOR

### PROVIN MOUNTAIN RESERVOIR RESERVOIR NOS. 3 AND 4 IMPROVEMENTS CONTRACT NO. 1

BID NO. 24-12

Issue Date: January 24, 2023

General Bid Deadline Date: March 7, 2023, 2:00 P.M. EST

### COMMISSIONERS

Vanessa Otero, Chairwoman  
Daniel Rodriguez, Commissioner  
William E. Leonard, Commissioner

Joshua D. Schimmel, Executive Director

Theo G. Theocles, Esq. Director of Legal Affairs/Chief Procurement Officer



Tighe & Bond



**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1  
Springfield Water and Sewer Commission  
Agawam, Massachusetts  
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**DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS**



**SECTION 00010**

**LEGAL ADVERTISEMENT**

**LEGAL ADVERTISEMENT  
SPRINGFIELD WATER AND SEWER COMMISSION  
INVITATION FOR BIDS**

**SWSC Bid No. 24-12; PROVIN MOUNTAIN RESERVOIR –  
RESERVOIR NOS. 3 AND 4 IMPROVEMENTS CONTRACT NO. 1**

Sealed bids for a Prime Contractor contract are requested through the Springfield Water and Sewer Commission Chief Procurement Officer. Bidding procedures are per Massachusetts General Laws (M.G.L.) Chapter 30§39M as amended and other applicable statutes (a 5% bid bond is required of all bidders).

Bids for Prime/General Contractor will be accepted at Springfield Water and Sewer Commission, John J. Lyons Administration Building, Attn: Theo G. Theocles Esq., Director of Legal Affairs/Chief Procurement Officer, 250 M Street Extension, Agawam, MA 01001 until **2:00PM EST on March 7, 2024**, at which time they will be publicly opened and read.

**Provin Mountain Reservoir – Reservoir Nos. 3 and 4 Improvements Contract No. 1.** The Work includes, but is not necessarily limited to, the following major items: Extension of 34 access manholes with watertight locking hatches, installation of polyolefin waterproofing tape and epoxy adhesive on approximately 2,500 linear feet of buried storage tank roof slab joint, including excavation and restoration, Installation of approximately 1,550 linear feet of chain link fence and demolition of approximately 850 linear feet of existing chain link fence, installation of flanged ductile iron piping and bends with concrete bulkheads, concrete cradles, concrete splash pads, bituminous pavement, and stainless-steel mesh screens on 2 existing overflow pipe headwalls, and loam and seed of disturbed areas. Successful Contractor will be required to furnish the Commission with both a 100% Performance Bond and 100% Payment Bonds at the time of contract execution.

PRE-BID CONFERENCE. Optional Pre-Bid Conference will be held February 6, 2024, at 10:00A.M., at the Provin Mountain Reservoir, 1121 N West Street, Feeding Hills, MA 01030. Contact: [mark.johnson@waterandsewer.org](mailto:mark.johnson@waterandsewer.org).

Contractor must agree to pay MA Prevailing Wage rates whenever applicable. The Commission reserves the right to waive any informality in, or to revoke, any or all bids, if in the public interest to do so. All questions regarding bid or its specifications must be made in writing and received by the CPO by **February 29, 2024, 4:30 P.M.** in order to be considered (contact; [theo.theocles@waterandsewer.org](mailto:theo.theocles@waterandsewer.org)).

Springfield Water and Sewer Commission  
Theo G. Theocles Esq., Director of Legal Affairs/CPO

**SECTION 00015**

**ESTIMATED BIDDING SCHEDULE**

## **ESTIMATED BIDDING SCHEDULE**

### **PROVIN MOUNTAIN RESERVOIR RESERVOIRS NOS. 3 AND 4 IMPROVEMENTS CONTRACT NO. 1**

#### **SWSC Bid No. 24-12**

<b>1/17/24</b>	<b>Ad Sent to the Central Register</b>
<b>1/24/24</b>	<b>Published in the Republican</b>
<b>1/24/24</b>	<b>Bid Packages are Available (<a href="http://www.biddocsonline.com">www.biddocsonline.com</a>)</b>
<b>2/6/24</b>	<b>(10:00A.M.) Optional Pre-Bid Meeting. Bidders are strongly encouraged to attend the site visit. Site Visit contact: (Contact: Mark Johnson, SWSC at <a href="mailto:mark.johnson@waterandsewer.org">mark.johnson@waterandsewer.org</a>.)</b>
<b>2/29/24</b>	<b>(4:30P.M.) Written Questions Due to the CPO (<a href="mailto:theo.theocles@waterandsewer.org">theo.theocles@waterandsewer.org</a>)</b>
<b>3/7/24</b>	<b>(2:00P.M.) GC Bids are due and opened</b>
<b>4/12/24</b>	<b>Estimated Contract Start Date</b>

**SECTION 00020**  
**INVITATION FOR BIDS**

**SECTION 00020**

**INVITATION FOR BIDS**

**PROVIN MOUNTAIN RESERVOIR  
RESERVOIR NOS. 3 AND 4 IMPROVEMENTS  
CONTRACT NO. 1**

**SWSC Bid No. 24-12**

The Springfield Water and Sewer Commission, Springfield, Massachusetts, “Commission, “Owner”, “SWSC” or the “Awarding Authority”), is seeking sealed bids for the Project: **PROVIN MOUNTAIN RESERVOIR – RESRVOIR NOS. 3 AND 4 IMPROVEMENTS CONTRACT NO. 1 (SWSC Bid No. 24-10)**, in the Town of Agawam, Massachusetts.

Sealed bids will be received at the Offices of the Springfield Water and Sewer Commission, 250 M Street Extension, Agawam, MA 01101 or by mail at the Springfield Water and Sewer Commission, 250 M Street Extension, Agawam, MA 01101 until **March 7, 2024, 2:00 P.M.** at which time all bids will be publicly opened and read aloud.

The bidding and award of the Contract shall be in full compliance with Sections 3039M of the General Laws of the Commonwealth of Massachusetts as last revised. Complete instructions for filing Bids are included in the Instructions to Bidders.

Bidders shall note that the United States Postal Service and major commercial delivery or package express companies deliver to the Springfield Water and Sewer Commission John J. Lyons Administration Building, 250 M Street Extension, Agawam, MA 01001. It is the Bidder’s responsibility to ensure that their bid submission is received at the office of the Commission by the closing date and time.

Due to the size and scope of the associated project, Contract Documents will be available on **January 24, 2024**. Contract Documents will be available for pick-up at [www.biddocsonline.com](http://www.biddocsonline.com) online at [www.biddocsonline.com](http://www.biddocsonline.com) (may be viewed electronically and hard copy requested). Bidders requesting Contract Documents to be mailed to them shall include a separate check for \$40.00 per set for UPS Ground (or \$65.00 per set for UPS overnight), payable to BidDocs ONLINE Inc. to cover mail handling costs (these costs are estimated and are subject to increase).

A non-mandatory Pre-Bid Conference will be held at 10:00 A.M. on February 6, 2024, at Provin Mountain Reservoir, 1121 N West St, Feeding Hills, MA 01030. Site Visit contact: (Contact: Mark Johnson, PE, at [mark.johnson@waterandsewer.org](mailto:mark.johnson@waterandsewer.org)).

Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1  
SWSC Bid No. 22-23

Invitation To Bid 00020-1

**Nature and scope of work:** The Work includes, but is not necessarily limited to, the following major items:

- a. Extension of 34 access manholes with watertight locking hatches.
- b. Installation of approximately 2,500 linear feet of polyolefin waterproofing tape and epoxy adhesive.
- c. Installation of approximately 1,550 linear feet of chain link fence and demolition of approximately 850 linear feet of existing chain link fence.
- d. Installation of flanged ductile iron piping and bends with concrete bulkheads, concrete cradles, concrete splash pads, bituminous pavement, and stainless-steel mesh screens on 2 existing overflow pipe headwalls.
- e. Loam and seed of disturbed areas.

The time for substantial completion of this project is **170** calendar days from the date of the written Notice to Proceed.

The estimated project value is: **\$1.2 Million.**

All questions must be made in writing and received by the SWSC Chief Procurement Officer, Theo G. Theocles, Esq., no later than February 29, 2024, at 4:30 P.M. via the following contact: [theo.theocles@waterandsewer.org](mailto:theo.theocles@waterandsewer.org).

All bids shall be accompanied by a bid deposit in an amount no less than five percent (5%) of the value of the bid, in the form of a certified, cashier's or treasurer's check issued by a responsible bank or trust company made payable to the Springfield Water and Sewer Commission or a bid bond.

A performance bond in an amount equal to 100 percent of the total amount of the bid will be required for faithful performance of the contract as well as Labor and Materials bond in an amount equal to 100 percent of the total bid amount. The surety company must be qualified to do business in the Commonwealth of Massachusetts, and the form of surety must be satisfactory to the Springfield Water and Sewer Commission.

Every bid bond, performance bond, and payment bond issued for any construction work in the Commonwealth of Massachusetts shall be the bond of a surety company organized pursuant to Section 105 of Chapter 175 or of a surety company authorized to do business in the Commonwealth under the provisions of Section 106 of said Chapter 175 and be approved by the U.S. Department of Treasury and are acceptable as sureties and reinsurers on federal bonds under Title 31 of the United States Code, sections 9304 to 9308.

The Springfield Water and Sewer Commission reserves the right to reject any or all bids if it is in the public interest to do so. The Springfield Water and Sewer Commission

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Invitation To Bid 00020-2

reserves the right to waive any informality in if deemed it its best interest to do so as may be allowed by statute.

General Contractors shall be required to comply with all applicable Massachusetts General Laws. Bidders may not withdraw their Bids for a period of thirty days, excluding Saturdays, Sundays, and legal holidays after the actual date of the opening of the Bids.

Minimum Wage Rates as determined by the Executive Office of Labor and Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the bidder, before bid opening, to request, if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract.

THEO G. THEOCLES, ESQ.  
DIRECTOR OF LEGAL AFFAIRS/CHIEF PROCUREMENT OFFICER  
SPRINGFIELD WATER AND SEWER COMMISSION  
250 M STREET EXTENSION  
AGAWAM, MASSACHUSETTS 01001

END OF SECTION 00020

Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1  
SWSC Bid No. 22-23

Invitation To Bid 00020-3



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Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1  
SWSC Bid No. 22-23

Invitation To Bid 00020-4

**SECTION 00100**  
**INFORMATION TO BIDDERS**

SECTION 00100

INFORMATION TO BIDDERS

PROVIN MOUNTAIN RESERVOIR  
RESEVOIR NOS. 3 AND 4 IMPROVEMENTS  
CONTRACT NO. 1

SWSC Bid No. 24-12

ARTICLE 1 RECEIPT AND OPENING OF BIDS:

The Springfield Water and Sewer Commission, Springfield, Massachusetts, (herein called the "Owner"), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the Office of the Springfield Water and Sewer Commission, Springfield, Massachusetts, 250 M Street Extension, Agawam, MA 01101, as stated in the Invitation for Bids, at which time they will be publicly opened and read aloud (via remote bid opening). The envelopes containing the bids must be sealed, addressed to the attention of the Springfield Water and Sewer Commission, Attention: Chief Procurement Officer, 250 M Street Extension, Agawam, MA 01101 and designated as "**Provin Mountain Reservoir – Reservoir Nos. 3 and 4 Improvements Contract No. 1**". Any hand delivered Bid received after the deadline will not be accepted. Any other Bid received after the deadline will be returned to the addressee. Any Bid submitted to and received by the Springfield Water and Sewer Commission after the deadline for receipt of Bids will not be accepted. It is the responsibility of the Bidder to ensure that its Bid is received by the Springfield Water and Sewer Department in a timely fashion. The deadline for receipt of Bids can be extended by written Addendum only. Bids may not be submitted orally, by facsimile, by email, by telephone, or any other method except for the methods described above. A Bid may be modified only by submitting any such modification in the form of a document executed in the same manner as a Bid, delivered in a sealed envelope in the same manner as a Bid, designated as a modification to the original Bid and submitted to the Springfield Water and Sewer Commission prior to the time designated for the opening of Bids.

The Owner may waive any informalities or may reject any and all bids.

Any bid may be withdrawn prior to the scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered.

The time period for holding bids, where Federal approval is not required is 90 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids and where

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Information to Bidders  
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Federal approval is required, the time period for holding bids is 90 days, Saturdays, Sundays, and holidays excluded after such approval.

Public Bid Review and Inspection:

1. Upon opening, all Bids become public records except for portions thereof that are not subject to public disclosure as a matter of law.
2. Bids may be reviewed by the public in a manner set forth by the Owner.

ARTICLE 2 PREPARATION OF BID:

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, both in words and figures. All bids must be prepared in conformity with and shall be based upon and submitted subject to all requirements of the Specifications and Drawings together with all addenda thereto.

Each bid must be submitted in sealed inner and outer envelopes bearing on the outside of each envelope the name of the bidder, his address, and the name of the project for which the bid is submitted. Both envelopes shall be clearly labeled "BID DOCUMENTS" so as to guard against opening prior to the time set therefore, and no blame shall be attached to any agent or employee of the Springfield Water and Sewer Commission for the opening of any bid not so marked.

In submitting a Bid, the Bidder represents that:

1. It has read and examined the Specifications, Details, Drawings, and Bidding Documents thoroughly;
2. It understands the Specifications, Details, Drawings, and Bidding Documents;
3. The Bid is made in accordance with the Specifications, Details, Drawings, and Bidding Documents;
4. It has visited the site, has become familiar with the conditions of the site and the surrounding area, and has familiarized itself with the local conditions that may in any manner affect cost, progress, or performance of Work;
5. It has correlated its own observations with the Specifications, Details, Drawings, and Bidding Documents;
6. It has found no errors, conflicts, ambiguities, or omissions in the Specifications, Details, Drawings, and Bidding Documents, except for

those that it has brought to the Owner's attention in writing at least seven calendar days prior to submitting the Bid.

7. It is familiar with all applicable Federal, State, City and Springfield Water and Sewer Commission laws, rules, regulations, and procedures affecting its Bid and its Bid is in conformity with those laws, rules, regulations and procedures; and
8. The Bidder has complied with every requirement of these Instructions and that the Specifications, Details, Drawings, and Bidding Documents are sufficient in scope and detail to indicate and convey an understanding of all terms and conditions for the performance of the Work.

### ARTICLE 3 WITHDRAWAL OF BIDS:

Prior to Bid opening. A Bid may be withdrawn before the time designated for opening Bids. The Bidder requesting such withdrawal must make the request in writing and in a specific manner designated by the Owner if the Owner so requires. Withdrawal of a Bid prior to the Bid opening time will not prejudice the right of a Bidder to resubmit a Bid. A Bid cannot be withdrawn after the Bid opening time except as provided by law.

After Bid opening. In the case of death, disability, bona fide clerical error or mechanical error of a substantial nature or other unforeseen circumstances affecting a Bidder, a Bidder may withdraw its Bid after the time designated for the Bid opening, if within five days of the date designated for opening its Bid, such Bidder submits a statement under the penalties of perjury to the Springfield Water and Sewer Commission detailing the basis for withdrawal. The Owner will then make a determination as to whether such Bidder had satisfied both the statutory and Owner requirements for such withdrawal. If the Owner is satisfied, the Bid Deposit will be returned to such Bidder.

### ARTICLE 4 METHOD OF BIDDING:

The Owner invites a bid for the complete construction of the project, together with all related incidental and appurtenant work as described in these Specifications and/or outlined or shown on the Drawings.

### ARTICLE 5 QUALIFICATIONS OF BIDDER:

The Bidder is directed to review Section 00200 A6 – STATEMENT OF BIDDER'S QUALIFICATIONS. The Bidder shall complete statement of bidder's qualifications and submit with the bid. Conditional bids will not be accepted.

The Bidder is directed to the following requirements: the Bidder shall have completed three projects in the last five years which included coordination and work of a comparable scope and complexity as this Project.

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Information to Bidders  
00100-3

The Owner reserves the right to reject the Bid of any Bidder who the Owner has determined has not completed a prior project, whether with the Springfield Water and Sewer Commission or elsewhere, because of the fault of the Bidder, its Subcontractors or employees; has been declared in default on a prior contract whether with the Springfield Water and Sewer Commission or elsewhere; has failed to complete a prior project in a timely fashion whether with the Springfield Water and Sewer Commission or elsewhere; based on its work record, is not capable of performing the Work within Contract whether due to lack of sufficient prior experience, as determined by the Owner, or for any reason; does not meet the minimum qualifications and experience requirements stated above and elsewhere; has not completed three projects in the last five years which included coordination and work of a comparable scope and complexity as this Project; has a work record of its Subcontractors demanding direct payment from the Owner or other awarding authority; has a work record of its Subcontractors, employees or material suppliers complaining to the Owner or other awarding authority regarding the Bidder's failure to pay them; has a record of complaints made to the Owner or other awarding authority by persons offended by the behavior of the Bidder, its Subcontractors or employees; is currently in litigation with the Owner; or has a record of its failure to comply with the Commonwealth and/or Springfield Water and Sewer Commission laws or requirements. "Work record" or "record" constitutes a minimum of one event in the work history of the Bidder.

ARTICLE 6 BID SECURITY:

Each bid must be accompanied by treasurer's certified check or bank check of the bidder, or a bid bond prepared on the form of bid bond attached hereto, duly executed by the bidder as principal and having as Surety thereon a surety company meeting the statutory requirements below, in the amount of Five Percent (5%) of the bid. Such check or bid bond will be returned to all except the three lowest bidders within five days after the opening of bids, and the remaining checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the Contract; or if no award has been made within Thirty (30) days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as bidder has not been notified of the acceptance of its bid. The applicable requirements pertaining to the bid bond shall also apply to the certified check.

Every bid bond, every performance bond and every payment bond issued for any construction work in the Commonwealth of Massachusetts shall be the bond of a surety company organized pursuant to Section 105 of Chapter 175 or of a surety company authorized to do business in the Commonwealth under the provisions of Section 106 of said Chapter 175 and be approved by the U.S. Department of Treasury and are acceptable as sureties and reinsurers on federal bonds under Title 31 of the United States Code, sections 9304 to 9308.

The Owner shall reject every Bid that is not accompanied by a Bid deposit.

ARTICLE 7 LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO

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Information to Bidders  
00100-4

CONTRACT:

The successful bidder, upon its failure or refusal to execute and deliver the Contract and Bonds required within 10 days after bidder has received notice of the acceptance of its bid, shall forfeit to the Owner as liquidated damages for such failure or refusal the security deposited with its bid.

ARTICLE 8 TIME OF COMPLETION AND LIQUIDATED DAMAGES:

The bidder must agree to commence work on or before a date to be specified in a written notice to proceed by the Owner, and to fully complete the project within the period specified in the Bid. Bidder must also agree to pay as liquidated damages a minimum of One Thousand Five Hundred Dollars and 00/100 (\$1,500.00) for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

ARTICLE 9 CONDITIONS OF WORK:

All bidders shall inform themselves fully of the conditions relating to the Specifications, Details, Drawings, and Bidding Documents; construction; and labor, under which the work is now or will be performed; including personal examination of the sites. Failure to do so will not relieve the successful bidder of its obligation to furnish all material and all labor necessary to carry out the provisions of the Contract Documents, and to complete the contemplated work for the consideration set forth in their bid. There is an optional Site Visit/Briefing Session scheduled for this project, and prospective bidders are strongly encouraged to attend this meeting.

ARTICLE 10 ADDENDA AND INTERPRETATIONS:

No interpretation of the meaning of the Drawings, Specifications, or other pre-bid documents will be made to any bidder orally. Every request for such interpretations shall be made in writing addressed to Theo G. Theocles, Esq. Director of Legal Affairs and Chief Procurement, Springfield Water and Sewer Commission, 250 M Street Extension, Agawam, MA 01101 (theo.theocles@waterandsewer.org), and to be given consideration must be received by the date indicated in SECTION 00020 – INVITATION TO BID. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the Specifications; which, if issued, will be mailed to all prospective bidders (at the respective addresses furnished for such purposes), not later than 3 days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretations shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

Oral clarifications or interpretations will be without legal effect. Addenda will either be emailed to all persons having received Bidding Documents from the Springfield Water and Sewer Commission. Each Bidder shall be responsible for determining that it has received all Addenda issued.

Acknowledgment of Addenda: Each Bidder is required to acknowledge the receipt of all Addenda (the numbers of which are to be filled in on the Bid form by the Bidder).

ARTICLE 11 CONTRACT SECURITY:

Simultaneously with the delivery of the executed Contract, the General Contractor shall furnish the Owner with a Performance Bond and a Payment Bond in penal sums equal to the amount of the Contract price, conditioned upon the performance by the Contractor of all undertakings, covenants, terms, conditions and agreements of the Contract Documents, and upon the prompt payment by the Contractor to all persons supplying labor and materials in the prosecution of the work provided by the Contract Documents. Such bonds shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the state in which the work is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular No. 570. The expense of these bonds shall be borne by the Contractor. If at any time a surety on any such bond is declared a bankrupt or loses its right to do business in the state in which the work is to be performed, or is removed from the list of Surety Companies accepted on Federal bonds, the Contractor shall immediately notify the Owner and shall, within ten (10) days after notice from the Owner to do so, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new Surety or Sureties shall have furnished an acceptable Bond to the Owner.

Every bid bond, every performance bond and every payment bond issued for any construction work in the Commonwealth of Massachusetts shall be the bond of a surety company organized pursuant to Section 105 of Chapter 175 or of a surety company authorized to do business in the Commonwealth under the provisions of Section 106 of said Chapter 175 and be approved by the U.S. Department of Treasury and are acceptable as sureties and reinsurers on federal bonds under Title 31 of the United States Code, sections 9304 to 9308.

ARTICLE 12 POWER OF ATTORNEY:

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

ARTICLE 13 LAWS AND REGULATIONS:

The bidder's attention is directed to the fact that all applicable Federal and State laws, including Commonwealth of Massachusetts General Laws, requiring fair competition of bidders for the construction, reconstruction, alteration, remodeling, repair or demolition of public works, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, including Chapter 30, Sections 39L through 39P, Section 39R and Chapter Provin Mountain Reservoir

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00100-6



82, Section 40, Amendments, and they will be deemed to be included in the Contract the same as though herein written out in full.

Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provision in violation of the foregoing shall be deemed null, void and of no effect. Where conflict between Code of Federal Regulations and State Laws and Regulations exist, the more stringent requirement shall apply.

ARTICLE 14 METHOD OF AWARD-LOWEST RESPONSIBLE BIDDER:

Bids will be compared on the basis of the experience and competence of the bidder and on the basis of the totals of the quantities listed in the proposal under the enumerated items at the unit prices or lump sums bid for these items. The contract will be awarded to the lowest responsible and eligible bidder meeting the minimum qualifications and experience requirements. However, the Owner may reject any and all bids if it is in the public interest to do so.

The Owner shall award the contract to the lowest responsible (in Owner's sound discretion demonstrably possessing the skill, ability, qualifications, experience and integrity necessary to faithfully perform the work called for by the Contract, based upon determination of competent workmanship and financial soundness) and eligible (able to meet the requirements set forth in the Bidding Documents) Bidder within 30 Business Days after the date of the opening of the Bids. If the Bidder selected as the contractor fails to perform its agreement to execute a contract in accordance with the terms of its Bid and furnish a performance bond and a labor and materials or payment bond, as required by the Bidding Documents, an award shall be made to the next lowest responsible and eligible Bidder. The Ninety (90)day time limit shall not be applicable to a second or subsequent award made after the expiration of the time limit with the consent of the next lowest responsible and eligible bidder, and made because the original award made within the time limit was invalid, or because a bidder failed to execute the Agreement or to provide a performance and labor and materials or payment bond.

Any Bidder who fails to perform its agreement to execute a contract and furnish a performance bond and labor and materials or payment bond shall forfeit its Bid deposit which shall become property of the Owner, but shall not exceed the difference between its Bid price and the Bid price of the next lowest responsible and eligible bidder.

The Owner will notify the selected Bidder and all other Bidders of the award.

The Owner will submit, to the selected Bidder, a Notice of Award and at least six unsigned copies of the agreement between the Springfield Water and Sewer Commission and the Contractor. The selected Bidder will be required to return to the Springfield Water and Sewer Commission within Ten (10) business days of the date of notice of award, all copies of the Agreement between the Springfield Water and Sewer Commission and the Contractor executed by the Contractor together with, its

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performance bond, its labor and materials or payment bond; all required certificates of insurance; and any other required forms.

Failure of the Bidder to submit all the required documents in a timely fashion may result in the withdrawal of the award. The Owner will return one fully signed copy of the Agreement to the Contractor. Time is of the essence in the performance of the Agreement.

In the event there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the unit prices written in words and written in figures, the unit prices written in words shall govern. No bid will be accepted which does not contain a unit price or lump sum as indicated for each of the applicable items enumerated in the proposal form.

Bids for any item of work contained in the bid proposal which are abnormally high or low may be cause for rejection by the Owner of the total bid. Due to the nature of this contract where the exact scope of work cannot be exactly defined, unbalanced bids may not be acceptable and therefore may be rejected.

#### ARTICLE 15 AFFIRMATIVE ACTION PROGRAM:

Minimum Wage Rates as determined by the Executive Office of Labor and Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract. Federal Minimum Wage Rates as determined by the United States Department of Labor under the Davis-Bacon Act also apply to this project.

#### ARTICLE 16 ITEMS NOT LISTED IN THE BID:

The lump sum and unit price items listed in the bid form are intended to cover all items of work to be done and materials and work to be furnished to fully complete the work in accordance with the Specifications, Details, and Drawings. Appurtenant items of work shown on the Drawings or Details or specified or required, and parts of the work, materials, and equipment not listed separately and not shown or specified but necessary to complete the work but not listed separately under list of items in the bid, shall be provided and shall be considered and included in the cost of payment under the various applicable bid items of work, and no separate payment will be made for such items. It shall be the responsibility of the Contractor to verify any missing or incomplete data.

#### ARTICLE 17 BALANCED BIDDING:

Bids should be made on each separate item of work shown in the bid (proposal) with reasonable relation to the probable cost of doing the work included in such items, and the right is reserved to reject wholly any bid in case an item or items thereof are obviously

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unbalanced or appear to the Owner to be so unbalanced as to affect or to be liable to affect adversely any interests of the Owner. The attention of the bidder is called to the fact that unbalancing of bids may adversely affect the Contractor if certain portions of the work are increased or decreased as provided in the Specifications, Details, and Drawings.

ARTICLE 18 PRICES:

Bidder shall state the proposed price for the work; which price is to cover all the expenses incidental to the completion of the work in full conformity with the Contract, Specifications and Details, Special Provisions, and Drawings.

In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the unit prices written in words and written in figures, the unit prices written in words shall govern. No bid will be accepted which does not contain a unit price or lump sum as indicated for each of the applicable items enumerated in the Proposal Form.

ARTICLE 19 UNCERTAINTY OF QUANTITIES:

The quantities listed in the bid (Proposal) are approximate and are given only for use in comparing bids and to indicate approximately the total amount of the Contract, and the Owner does not expressly or by implication represent that the actual amounts of work will even approximately correspond therewith, but does call particular attention to the uncertainty in the quantities of the work involved which cannot be predicted in advance. The work under certain items may be materially greater or less than those given in the bid as may be necessary in the judgment of the Owner to complete the work contemplated in the Contract. Attention is particularly called to the fact that the quantity of work to be done under some bid items may be largely dependent on subsurface ground conditions encountered and, therefore, the quantities of work to be done under the various items may vary substantially from the estimated quantities or may even be omitted.

Under the Contract, the Owner reserves the right to increase or decrease the approximate quantities for, or to omit entirely any of the items as listed in the bid.

Only such quantities of the respective items of work actually performed and accepted will be paid for.

ARTICLE 20 ACCESS TO SITE:

Representatives of the Owner shall have access to the work wherever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection.

ARTICLE 21 CONTRACT:

A contract in the form set forth hereinafter will be required to be executed by the  
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successful bidder and the Springfield Water and Sewer Commission. The attention of all bidders, therefore, is called to the form of said proposed contract and the provisions thereof. Two (2) executed original counterparts of the contract security bonds will be required.

ARTICLE 22 WORK ON STATE MUNICIPAL, AND PRIVATE PROPERTY:

Particular attention is hereby directed to the fact that portions of the work included under this Contract may be done within the limits of properties that are State-owned, municipally owned, and/or privately-owned. The Contractor shall be responsible for coordinating the prosecution of the work of this Contract with the various property owners, and for providing the work in accordance with any additional requirements as specified herein.

ARTICLE 23 PAYMENT FOR DRAWINGS AND DOCUMENTS:

See Invitation to Bid.

ARTICLE 24 CORRECTIONS:

Erasures or other changes in the bid must be explained or noted over the signature of the bidder.

ARTICLE 25 INSURANCE REQUIREMENTS:

The Contractor agrees to indemnify and defend the Springfield Water and Sewer Commission, and Tighe & Bond Inc., acting as Engineer of Record for this project, their agents, and employees, and hold them harmless from loss, liability, damage, claims, demands and costs and expenses and reasonable in-house and outside attorney's fees, of any person or persons arising out of, or based upon, personal injury, death or property damage resulting directly from any negligent act or omission on the part of the Contractor, its agents, employees, subcontractors, and licensees in connection with this contract. The Owner and Engineer reserves the right to select outside counsel, subject to the approval of the Contractor and not to be unreasonably withheld or delayed, to defend any such actions.

The Springfield Water and Sewer Commission AS WELL AS Tighe & Bond Inc.; shall be named as an ADDITIONAL INSURED and as a certificate holder on each of the insurance policies obtained pursuant to this contract.

Upon execution of the contract, the Contractor will provide copies of certificate of insurance to the Springfield Water and Sewer Commission.

The Bidder's attention is directed to Article 5 "BONDS AND INSURANCE" contained in the General Conditions and in the Supplementary Conditions.

Provin Mountain Reservoir  
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Information to Bidders  
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ARTICLE 26 REQUIREMENTS FOR FOREIGN CORPORATIONS:

The attention of all bidders is called to the provision of the General Laws, Chapter 30, Section 39L, as amended by Chapter 3 of the Acts of 1967, which provides that awarding authority may not enter into a contract for construction work and may not approve as a subcontractor furnishing labor and materials for a part of any such work a foreign corporation which has not filed with the awarding authority a certificate of the State Secretary of the Commonwealth of Massachusetts stating that such corporation has complied with Sections 3 and 5 of Chapter 181 and the date of such compliance. The term "foreign corporation" means a corporation not incorporated under the laws of the Commonwealth of Massachusetts.

ARTICLE 27 PRE-CONSTRUCTION CONFERENCE:

The Contractor shall attend a pre-construction conference scheduled by the Owner after award of the contract, but prior to the actual commencement of work at the site. One item of discussion will be the Contractor's construction schedule.

In planning the Contractor's construction schedule the Contractor is invited to attend other pre-construction conferences which the Owner may conduct for other contiguous construction projects.

ARTICLE 28 TRAFFIC CONTROL AND PEDESTRIAN SAFETY:

The Bidder's attention is directed to the Contract requirements set forth in Section 01570 – MAINTENANCE AND PROTECTION OF TRAFFIC of the Technical Specifications.

ARTICLE 29 MINIMUM WAGE RATES

Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request, if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract.

**Added by St. 1973, c. 1164.  
IMPORTANT - READ CAREFULLY**

If the bidder is NOT subject to the Massachusetts Workers' Compensation Law, M.G.L. c. 152, the bidder MUST complete and submit with its bid the following affidavit entitled "WORKERS' COMPENSATION INSURANCE COVERAGE." (See page 00100-16)

**FAILURE TO SUBMIT THE AFFIDAVIT MAY RESULT IN THE REJECTION OF  
YOUR BID.**

Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
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ARTICLE 30 GUARANTEE

The contractor guarantees that the Work and Services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Drawings, Specifications, and other contract documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one year from and after the date of completion and acceptance of the Work as stated in the final estimate. If part of the Work is accepted in accordance with that subsection of this AGREEMENT titled "Partial Acceptance", the guarantee for that part of the Work shall be for a period of one year from the date fixed for such acceptance.

If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the contractor in writing to make the required repairs, correction, or replacements. If the Contractor neglects to commence making such repairs, corrections, or replacements to the satisfaction of the Owner within seven (7) days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make said repairs, correction or replacements, and charge the costs, including compensation for additional professional services, to the Contractor.

ARTICLE 31 MANUFACTURER’S EXPERIENCE:

Whenever it is written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period can be considered if the equipment supplier or manufacturer is willing to provide an "Efficiency Guarantee Bond" or cash deposit for the duration of the specified time period which will guarantee replacement of that equipment in the event of failure.

ARTICLE 32 MASSACHUSETTS SALES TAX AND USE TAX:

Materials and equipment purchased and installed for this project is exempt from Massachusetts Sales and Use Tax. The Bidder shall take this into account when calculating the bid. A tax exemption number will be provided to the Contractor.

ARTICLE 33 SAFETY AND HEALTH REGULATIONS:

This project is subject to the Safety and Health Regulations of the U.S. Department of Labor set forth in Title 29 CFR, Part 1926 and to all subsequent amendments, and to any applicable Massachusetts regulations. Contractors shall be familiar with the requirements of these regulations.

ARTICLE 34 RESERVED.

Provin Mountain Reservoir  
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ARTICLE 35 OSHA SAFETY TRAINING – CHAPTER 306 OF THE ACTS OF 2004

All Contractor employees and sub-contractor employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is a least 10 hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

ARTICLE 35 RESERVED.

ARTICLE 36 PRICE ADJUSTMENTS:

This Contract contains Base Prices for Diesel Fuel and Gasoline; Liquid Asphalt; Portland Cement Contained In Cast-in-place Concrete, and Reinforcing Steel and provisions for price adjustments for those commodities in accordance with Chapter 30, Section 39M of the Massachusetts General Laws. Reference Sections 00811, 00812, 00814 for Price Adjustment Clauses.

The Base Price(s) are specified below and will be updated five days prior to the final bid opening date.

Price adjustments will be paid only when the variance between the Base Price and the Period Price for the month during which the cost is incurred exceeds plus or minus five percent (5%). A price adjustment will either result in additional compensation to the Contractor or repayment to the Commission, depending on whether there is an increase or decrease.

Price adjustments will be based on the actual quantity included in a monthly Application for Payment, as supported by paid invoices, and will be made after the work has been performed, using the applicable Period Price.

The Contractor will be compensated for price adjustments from the allowance bid item 00100.1 in the Bid Items List in Section 00300.

The Commission will be repaid from retainage.

The entire difference between the Base Price and Period Price for the month in which the cost was incurred will be paid.

Base Prices and basis of payment are as follows:

A. Diesel Fuel and Gasoline

Diesel Fuel - Base Price: \$3.087 PER GALLON (including state tax)

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Gasoline - Base Price: \$2.975 PER GALLON (including state tax)

1. Price adjustments will be based on the Period Price of Gasoline and Diesel Fuel for each monthly period as it appears on the Massachusetts Department of Transportation (MassDOT) website [[www.massdot.state.ma.us/](http://www.massdot.state.ma.us/)].
2. The price adjustment only applies to actual fuel usage during each month for site dedicated equipment requiring gasoline or diesel fuel, including but not limited to construction equipment, trucks, and bypass pumps.
3. The price adjustment will be determined as outlined in Section 01270.

B. Liquid Asphalt

Base Price - \$625.00 PER TON

1. Price adjustments will be based on the New Asphalt Period Price for each monthly period as it appears on the MassDOT website. The Period Price will be posted on the MassDOT website within two (2) business days following receipt of this issue.
2. The Price Adjustment only applies to the actual virgin liquid asphalt content in the mixture placed.
3. The price adjustment will be determined as outlined in Section 01270.

C. Portland Cement Contained In Cast-in-place Concrete

Base Price - \$181.15 PER TON

1. Price adjustments will only be made on contracts using greater than 100 cubic yards of concrete containing Portland cement.
2. Price adjustments will be based on the Period Price of Portland cement for each monthly period as it appears on the MassDOT website. The Period Price will be posted on the MassDOT website the Wednesday immediately following the publication of the monthly price in ENR.
3. The price adjustment only applies to the actual Portland cement content in the mix placed based on the approved concrete mix design. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.
4. The price adjustment will be based on the variance between the Base Price and the Period Price for the Portland cement component only and will not include transportation or other charges.
5. The price adjustment will be determined as outlined in Section 01270.

Provin Mountain Reservoir  
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Information to Bidders  
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D. Reinforcing Steel

Base Price - \$1.58 PER POUND

1. Price adjustments will be based on the Steel Producer Price Index from the Bureau of Labor Statistics as it appears on the MassDOT website.
5. The price adjustment will be determined as outlined in Section 01270.

AFFIDAVIT  
WORKERS' COMPENSATION INSURANCE COVERAGE

RE: Contract for \_\_\_\_\_

Bidder: \_\_\_\_\_ ("the BIDDER")

I, \_\_\_\_\_, \_\_\_\_\_, do hereby state that:  
(print name) (title)

1. I am authorized to sign this document on behalf of the BIDDER and bind the BIDDER hereto;
2. the BIDDER is not subject to the Commonwealth of Massachusetts Workers' Compensation Law, M.G.L. c. 152;
3. in the event the BIDDER is awarded this contract and hires any employees for this contract which would subject it to such insurance law, the BIDDER shall provide the Springfield Water and Sewer Commission with a certificate of insurance indicating workers' compensation insurance coverage pursuant to the specification requirements prior to the commencement of work by those employees; and
4. the BIDDER understands that its failure to comply with the requirement set forth in paragraph 3 may result in the termination of its contract with the Springfield Water and Sewer Commission.

Signed under the penalties of perjury.

Dated: \_\_\_\_\_

\_\_\_\_\_

(Signature)

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Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contact No. 1  
SWSC Bid No. 24-12

Information to Bidders  
00100-17

**SECTION 00200**  
**REQUIRED FORMS**

SECTION 00200

REQUIRED FORMS

SWSC Bid No. 24-12

PART 1 GENERAL

1.01 SCOPE OF WORK

A. The checklist below is included for the bidders' convenience and in no way waive or abridge the Owner's right to reject any or all bids. Bidders are cautioned to include these required form(s):

1. Sealed Bid
  - a. Bid Form (Copy provided under Bid Form Section)
2. Contractor's Bid Bond
  - a. To be provided by Contractor (5%)
3. Tax Certification Affidavit for Contracts (SWSC blank form appended herein)
4. Collusion or Fraud Statement for Public Contracts (SWSC blank form appended herein)
5. Debarment Disclosure Form (SWSC blank form appended herein)
6. Equal Employment Opportunity Statement (SWSC form appended herein)
7. OSHA Safety Training Certification (SWSC blank form appended herein)
8. Statement of Bidder's Qualifications (SWSC blank form appended herein)
  - a. To be provided by Contractor to demonstrate compliance with Bidder's Eligibility requirements detailed in Invitation to Bidders Section
9. Springfield Water and Sewer Commission Corporate Certificate (SWSC blank form appended herein)
10. Projected Workforce Certification
11. Commonwealth of Massachusetts Worker's Compensation Law, MGL c. 152, Worker's Compensation Insurance Affidavit (if applicable).

SECTION 00200

REQUIRED FORMS

- B. In order to be determined to be a Successful Bidder, the Bidder must:
  - 1. Present clearly defined submittals as required, with completed required forms.
- C. The following forms must be submitted to the Commission before the Commission can enter into a formal Contract Agreement with the successful Bidder:
  - 1. Signed Agreement
  - 2. Contractor's Performance Bond (100%)
  - 3. Contractor's Payment Bond (100%)
  - 4. Certificate of Insurance- Naming Commission as "additional insured"

END OF SECTION

**ATTACHMENTS TO REQUIRED FORMS**

# TAX CERTIFICATION AFFIDAVIT FOR CONTRACTS

Individual Social Security Number \_\_\_\_\_

State Identification Number \_\_\_\_\_

Federal Identification Number \_\_\_\_\_

Pursuant to M.G.L. Ch. 62c. sec. 49a.

Company: \_\_\_\_\_

P.O. Box (if any): \_\_\_\_\_

Street Address Only: \_\_\_\_\_

City/State/Zip Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Fax Number: \_\_\_\_\_

**Please Identify if the bidder/proposer is a:**

Corporation \_\_\_\_\_

Individual \_\_\_\_\_

Name of Individual: \_\_\_\_\_

Partnership \_\_\_\_\_

Names of all Partners: \_\_\_\_\_

Limited Liability Company \_\_\_\_\_

Names of all Managers: \_\_\_\_\_

Limited Liability Partnership \_\_\_\_\_

Names of Partners: \_\_\_\_\_

Limited Partnership \_\_\_\_\_

Names of all General Partners: \_\_\_\_\_

Pursuant to M.G.L. c. 62C, Section 49A, I/WE certify under penalties of perjury that I/WE, to my/our best knowledge and belief, have filed all Massachusetts tax returns and paid all Massachusetts taxes as required under law, as well as paid all contributions and payments in lieu of contributions pursuant to M.G.L., c. 151A, Section 19A(b).

I/WE further certify that I/WE have complied with all federal, state and local laws relating to taxes, including but not limited to the withholding and reporting of any income taxes for employees and contractors, and the withholding and remittance of child support.

The contractor must be in compliance **at the time it submits its bid and afterwards if selected as the contractor**, with all Federal, Commonwealth of Massachusetts and Local Tax Laws.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Social Security or Federal ID No.

\_\_\_\_\_  
Date

**YOU MUST FILL THIS FORM OUT COMPLETELY AND YOU MUST FILE THIS FORM WITH YOUR BID/CONTRACT SUBMISSION. TAX AFFIDAVITS THAT ARE NOT SIGNED WILL BE REJECTED.**



## COLLUSION OR FRAUD STATEMENT FOR PUBLIC CONTRACTS

The undersigned certifies under penalties of perjury that this bid or proposal is in all respects bona fide, fair, and made in good faith without collusion or fraud with any other person. As used in this section the word "person" shall mean any natural person, business, joint venture, partnership, corporation, union, committee, club, any other organization, entity or legal entity, or group of individuals.

By: \_\_\_\_\_  
(Printed Authorized Person's Name)

By: \_\_\_\_\_  
(Authorized Person's Signature)

Its: \_\_\_\_\_  
(Corporate Title)

\_\_\_\_\_  
(Corporate Name)

Date: \_\_\_\_\_

**DEBARMENT DISCLOSURE FORM**

**PUBLIC CONTRACTS - DEBARMENT  
CHAPTER 550, ACTS OF 1991**

The said undersigned certifies under penalties of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of Section 29F of Chapter 29 of the General Laws, or any other applicable debarment provisions of any other Chapter of the General Laws, or any Rule or Regulation promulgated thereunder.

Date: \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

By: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Print Name & Title of Person Signing

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State, ZIP

**THIS FORM MUST BE SIGNED & RETURNED WITH YOUR BID OFFER.**

**EQUAL EMPLOYMENT OPPORTUNITY STATEMENT**

It is the policy of the Springfield Water and Sewer Commission not to discriminate against any employee or applicant for employment because of age, race, color, religion, sex, national origin, disability, or political affiliation.

The Springfield Water and Sewer Commission shall insure that applicants are employed and that employees are treated, during employment, without discrimination based on age, race, color, religion, sex, national origin, disability, or political affiliation. Such action shall include, but not limited to, the following: employment, promotion, transfer, recruitment advertising, layoff or termination, rate of pay or other forms of compensation, medical and other benefits, and selection of training, including apprenticeships.

Unanimously Voted May 1, 1997  
Springfield Water and Sewer Commission

**MASSACHUSETTS STATE REVOLVING FUND  
AFFIRMATIVE ACTION (MBE/WBE) REQUIREMENTS**

The Bidder/Proposer shall comply with Minority Business Enterprise / Women Business Enterprise (MBE / WBE) requirements of the Massachusetts State Revolving Fund agreements.

The undersigned certifies that the Bidder/Proposer has read the above Springfield Water and Sewer Commission Equal Opportunity Employment Statement and Massachusetts Affirmative Action requirements:

By: \_\_\_\_\_  
(Printed Authorized Person's Name)

By: \_\_\_\_\_  
(Authorized Person's Signature)

Its: \_\_\_\_\_  
(Corporate Title)

\_\_\_\_\_  
(Corporate Name)

Date: \_\_\_\_\_

OSHA SAFETY TRAINING CERTIFICATION

**Chapter 306 of the Acts of 2004**  
**An Act Relative to the Health and Safety on Construction Projects**

GENERAL CONTRACTOR'S CERTIFICATION - BID FORM

\_\_\_\_\_ (Name of General Bidder) hereby certifies that it, and all its subcontractors who are not filed subbidders shall:

(1) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

Signed under the penalties of perjury. \_\_\_\_\_ (date)

\_\_\_\_\_  
Signature of authorized representative of contractor

\_\_\_\_\_  
Print name of authorized representative of contractor

**RETURN THIS FORM WITH YOUR BID**

**STATEMENT OF BIDDER'S QUALIFICATIONS**

**SWSC Bid No. 24-12**

All questions must be answered, and the data given must be clear and comprehensive. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information it desires to supplement this form.

The bidder must provide references including telephone number and contact names in response to the questions in this section. References will be used in determining the responsibility of the bidder. The Springfield Water and Sewer Commission reserves the right to use itself as a reference.

1. Name of Bidder

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2. Business Address

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3. The names and titles of all persons and parties interested in this Bid as principals are as follows:

Note: Give the first and last names in full. In the case of corporation, give names of officers and directors; in the case of a partnership, give names of all partners.

Name

Title

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Bidder's Name \_\_\_\_\_

Last Modified: 01/24/2024 at 4:49PM EST

4. The date the company was organized.

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5. If a corporation, where incorporated.

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6. How many years have you been engaged in Reservoir Improvements, Concrete Joint Tape Installation, Manhole Replacements, Mechanical Piping, Fencing, and related Water Work under your present firm or trade name?

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7. Please explain the general character of work performed by your company.

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8. List all projects that your organization are currently performing or have been awarded at the time of this bid? Provide the following information:

Name and Address of Owner for Whom Work is Being Done	Whether Work Being Done as Contractor or Sub-contractor	Description of Work	Approximate Amount of Contract	Approximate Completion Date of Work
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Bidder's Name \_\_\_\_\_

9. Has your present organization ever failed to complete any work awarded to it? If so, state when, where, and why.

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10. Has your present organization ever defaulted on a contract? If so, state when, where, and why.

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11. What project(s) has/have your organization completed of character similar to this project? Provide the following information:

Name and Address of Owner for Whom Work Was Done	State Whether Work Was Done as Contractor or Sub-Description of Work	Approximate Amount of Contract	Approximate Completion Date of Work
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12. Describe equipment available for the performance of this contract by setting forth make, model and year, size, number, and type for each such piece of equipment (a) owned, (b) currently rented or (c) to be rented. Bidder must set forth description of all equipment it plans to use whether rented or owned.

(a) Owned

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Bidder's Name \_\_\_\_\_

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(b, c) Rented

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13. Describe the background and experience of the principal members of your organization, including the officers.

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14. Provide three (3) similar, successfully completed projects within the past five (5) years, involving **Reservoir Improvements** of a similar size and scope of the Project. State specific information (size and complexity) including referral and contact information.

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Bidder's Name \_\_\_\_\_



15. Provide three (3) similar, successfully completed projects within the past five (5) years, involving **Concrete Joint Tape Installation and Cast-in-Place Concrete** of a similar size and scope of the Project. State specific information (size and complexity) including referral and contact information.

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16. Provide three (3) similar, successfully completed projects within the past five (5) years, involving **Mechanical Piping** of a similar size and scope of the Project. State specific information (size and complexity) including referral and contact information.

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17. Who will be the contractor's project manager? State such person's qualifications. Also list names of any other key and/or supervisory employees who will be participating in this contract and their qualifications (years of experience, etc.).

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18. Who will be the contractor's full time on-site superintendent? Submit such person's

Bidder's Name \_\_\_\_\_

resume for review by Owner/Engineer. Also list names of other key and/or supervisory employees who will be participating in this contract and their qualifications (years of experience, etc.).

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19. Submit the number, size and equipment of crews to be established to complete the work as specified.

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20. Give below the name and address of one or more banks and the contact person's name(s) and phone number(s), at the bank(s), which have information that would enable them to advise regarding the financial ability of your company.

Name of Bank / Contact Person	Address / Phone Number
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21. Give below the name and address of the bidder's Surety / Bonding company and the contact person's name and phone number, at the Surety / Bonding company, which has information that would enable them to advise regarding the status of existing bonds and bonding capability of your company.

Name of Surety or Bonding Company / Contact Person	Address / Phone Number
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22. Give below the name, company (or owner), address and phone number of at least five

Bidder's Name \_\_\_\_\_

references (Owner or Engineer/Architect) who have information that would enable them to advise your performance on past or existing projects of the general nature similar to this Project.

Name of Owner or Company / Contact Person	Address / Phone Number
_____	_____
_____	_____
_____	_____
_____	_____

23. Name, Signature, and Title of officer preparing this Bid.

Name \_\_\_\_\_

Signature \_\_\_\_\_

Title \_\_\_\_\_

Bidder's Name \_\_\_\_\_

30. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Springfield Water and Sewer Commission in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
(Signature)

Tel. No. \_\_\_\_\_

By \_\_\_\_\_

Title \_\_\_\_\_

State of \_\_\_\_\_ )

County of \_\_\_\_\_ )

\_\_\_\_\_, being duly sworn,

deposes and says that he/she is

\_\_\_\_\_ of

\_\_\_\_\_  
(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
(Notary Public)

My commission expires \_\_\_\_\_, 20\_\_\_\_\_

Bidder's Name \_\_\_\_\_



PROJECTED WORKFORCE CERTIFICATION

THIS FORM MUST BE SUBMITTED WITH YOUR BID

I,

\_\_\_\_\_

Certify that the following is my projected workforce for this contract:

“Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1 Project”  
, Agawam, MA

GENERAL CONTRACTOR

ESTIMATED # OF NEW HIRES

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SUBTRADE

ESTIMATED # OF NEW HIRES

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signed under penalties of perjury,

\_\_\_\_\_

Bidder’s Name \_\_\_\_\_

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**SECTION 00300**

**BID FORM**



**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

The undersigned declares that the only persons or parties interested in this Bid as principals are as stated; that the Bid is made without any collusion with other persons, firms, or corporations; that all the Contract Documents as prepared by the Springfield Water and Sewer Commission, 250 M Street Extension, Agawam, Massachusetts, 01001, have been carefully examined; that the undersigned is fully informed in regard to all conditions pertaining to the Work and the place where it is to be done, and from them the undersigned makes this Bid. These prices shall cover all expenses incurred in performing the Work required under the Contract Documents, of which this Bid Form is a part.

Bids for this Contract are subject to the provisions of M.G.L. Chapter 30, Section 39M inclusive.

If a Notice of Award accompanied by at least six unsigned copies of the Agreement and all other applicable Contract Documents is delivered to the undersigned within thirty days, excluding Saturdays, Sundays, and SWSC holidays after the actual date of the opening of the Bids, the undersigned will within five days, excluding Saturdays, Sundays, and SWSC holidays, after the date of receipt of such notification, execute and return all copies of the Agreement and all other applicable Contract Documents to OWNER. The premiums for all Bonds required shall be paid by CONTRACTOR and shall be included in the Contract Price.

The undersigned hereby agrees that the Contract Time shall commence upon receipt of written authorization to proceed from the OWNER, and that the Work will be substantially completed and ready for final payment in accordance with the General Conditions within 200 days.

Bidder proposes to furnish all labor and materials required for construction of the Provin Mountain Reservoir - Reservoir Nos. 3 and 4 Improvements Contract No. 1, Agawam, MA in accordance with the accompanying Bidding Documents prepared by Tighe & Bond, Inc., for the Contract Price specified below, subject to additions and deductions according to the terms of the Bidding Documents.

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

This Bid includes Addenda numbered \_\_\_\_\_.

The proposed Base Bid Contract Price (Items 1 through 11) is:

\_\_\_\_\_ dollars  
(words)  
(\$ \_\_\_\_\_ )  
(figures)

The proposed Bid Alternate 1 Contract Price (Items 12 through 13) is:

\_\_\_\_\_ dollars  
(words)  
(\$ \_\_\_\_\_ )  
(figures)

The proposed Base Bid and Bid Alternate 1 Contract Price (Items 1 through 13) is:

\_\_\_\_\_ dollars  
(words)  
(\$ \_\_\_\_\_ )  
(figures)

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

The subdivision of the proposed Contract Price (base bid) is as follows:

<b>Bid Item</b>	<b>Item Name and Unit Bid Prices (Written in Words and Figures)</b>	<b>Estimated Quantity</b>	<b>Total Amount of Item (in Figures)</b>
<b>1</b>	Mobilization and Demobilization, per lump sum, the unit price of:  _____ (\$ _____ ) *Not to exceed 5 percent of the total Bid price	X 1 LS	\$ _____
<b>2</b>	Access Manhole Extension, per each, the unit price of:  _____ (\$ _____ )	X 34 EA	\$ _____
<b>3</b>	Access Manhole Safety System, per each, the unit price of:  _____ (\$ _____ )	X 34 EA	\$ _____
<b>4</b>	Polyolefin Waterproofing Tape and Epoxy Adhesive, per linear foot, the unit price of:  _____ (\$ _____ )	X 2,470 LF	\$ _____
<b>5</b>	Overflow Headwall Improvements, per each, the unit price of:  _____ (\$ _____ )	X 2 EA	\$ _____
<b>6</b>	Straw Wattle, per linear feet, the unit price of:  _____		

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

	(\$	)	X 2,000 LF	\$ _____
<b>7</b>	Monthly Price Adjustment for Diesel Fuel, the price of:			
	Five Hundred Dollars and Zero Cents	)	Allowance=	<u>\$500.00</u> _____
	(\$500.00	)		
<b>8</b>	Monthly Price Adjustment for Gasoline, the price of:			
	Five Hundred Dollars and Zero Cents	)	Allowance=	<u>\$500.00</u> _____
	(\$500.00	)		
<b>9</b>	Monthly Price Adjustment for Structural Steel and Reinforcing Steel, the price of:			
	Three Thousand Dollars and Zero Cents	)	Allowance=	<u>\$3,000.00</u> _____
	(\$3,000.00	)		
<b>10</b>	Monthly Price Adjustment for Portland Cement in Concrete, the price of:			
	One Thousand Dollars and Zero Cents	)	Allowance=	<u>\$1,000.00</u> _____
	(\$1,000.00	)		
<b>11</b>	Monthly Price Adjustment for Hot Mix Asphalt Mixtures, the price of:			
	Five Hundred Dollars and Zero Cents	)	Allowance=	<u>\$500.00</u> _____
	(\$500.00	)		

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

The subdivision of the proposed Contract Price (bid alternate 1) is as follows:

<b>Bid Item</b>	<b>Item Name and Unit Bid Prices (Written in Words and Figures)</b>	<b>Estimated Quantity</b>	<b>Total Amount of Item (in Figures)</b>
<b>12</b>	Demolition of Existing Chain Link Fence, per linear feet, the unit price of:  _____ ) (\$ _____ )	X 850 LF	\$ _____
<b>13</b>	Chain Link Fence, per linear feet, the unit price of:  _____ ) (\$ _____ )	X 1,550 LF	\$ _____

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

The following documents are attached to and made a condition of this Bid:

- A. Project Reference List and Project Team Resumes
- B. Forms as required per REQUIRED FORMS section.

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

**The undersigned certifies that he/she meets the Qualifications Requirements of the Instructions to Bidders, Article 1.**

The undersigned agrees that extra work, if any, will be performed in accordance with Article 10 of the General Conditions and Supplementary Conditions and will be paid for in accordance with Article 11 of the General Conditions and Supplementary Conditions.

The undersigned must furnish a 100% Performance Bond and a 100% Payment Bond with a surety company acceptable to Owner.

Amounts shall be shown in both words and figures, where indicated. In case of discrepancy, the amount shown in words will govern.

The above prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance and all incidentals required to complete the Work.

The names and residences of all persons and parties interested in the foregoing Bid as principals are as follows:

(Give first and last names in full. In the case of a corporation, see Article 8.3 of the Instructions to Bidders, in the case of a partnership, see Article 8.4 of the Instructions to Bidders.)

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Pursuant to M.G.L. Ch. 62C, sec. 49A, I certify under the penalties of perjury that the undersigned contractor, to my best knowledge and belief, has filed all state tax returns; has complied with all Massachusetts laws relating to taxes, reporting of employees and contractors, withholding and remitting child support, and paid all state taxes required under law.

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee, and that Bidder will comply fully with all laws and regulations applicable to awards made subject to MGL Chapter 149, Section 44A.

The undersigned hereby certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

Bidder certifies that, under penalties of perjury, there have been no substantial changes in Bidder's financial position or business organization other than those changes noted within the application since the applicant's most recent prequalification statement and that the Bid is in all respects bona fide, fair and made without collusion or fraud with any other person. "Person" here means any natural person, joint venture, partnership, corporation or other business or legal entity which sells materials, equipment or supplies used in or for, or engages in the performance of, the same or similar construction, reconstruction, installation, demolition, maintenance or repair work or any part thereof.

The undersigned further certifies that, under penalty of perjury, Bidder is not presently debarred from doing public construction work in the Commonwealth under the provisions of MGL Chapter 29, Section 29F or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder; and is not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.



**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**CONTRACT NO. 24-12**

**BID FORM**

\_\_\_\_\_  
Social Security Number or  
Federal Identification Number

\_\_\_\_\_  
Signature of Individual or  
Corporate Name

By: \_\_\_\_\_  
Corporate Officer (if applicable)

Notice of acceptance should be mailed, faxed, or delivered to the following:

\_\_\_\_\_  
(Name)

By: \_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Business Address)

\_\_\_\_\_  
(City and State)

Date \_\_\_\_\_

Note: If the Bidder is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.

**SECTION 00430**

**BID BOND**

# BID BOND

Any singular reference to Bidder, Surety, Owner, or other party shall be considered plural where applicable.

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

**BID**

Bid Due Date:

Project (Brief Description Including Location):

**BOND**

Bond Number:

Date (Not later than Bid due date):

Penal sum

\_\_\_\_\_ (Words)

\_\_\_\_\_ (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

**BIDDER**

**SURETY**

(Seal

(Seal)

\_\_\_\_\_  
Bidder's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature and Title

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_  
Signature and Title

Attest: \_\_\_\_\_  
Signature and Title

Note: Above addresses are to be used for giving required notice.

Last Modified: 01/24/2024 at 4:49PM EST

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Surety's liability.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

- 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
- 3.2. All Bids are rejected by Owner, or
- 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

Last Modified: 01/24/2024 at 4:49PM EST

**SECTION 00500**  
**AGREEMENT**

**SPRINGFIELD WATER AND SEWER COMMISSION  
SPRINGFIELD, MASSACHUSETTS**

**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1**

**SWSC Contract No. 2024-12  
AGREEMENT**

THIS AGREEMENT is dated as of the \_\_\_\_ day of \_\_\_\_\_ in the year 2024 by and between Springfield Water and Sewer Commission acting by and through its Board of Water Commissioners (hereinafter called COMMISSION, SWSC or OWNER), duly authorized therefor, acting herein solely for said Commission and without personal liability to the City/Town, and \_\_\_\_\_ (hereinafter called CONTRACTOR). COMMISSION AND CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

**ARTICLE 1. WORK**

1.1 CONTRACTOR shall perform the Work as specified or indicated in these Contract Documents. The scope of work is summarized in Section "Summary of Work" and described herein these specifications.

**ARTICLE 2. OWNER AND ENGINEER**

2.1 The Project has been designed by Tighe & Bond, Inc., 53 Southampton Rd, Westfield, MA 01085, who is hereinafter called ENGINEER and who is to act as COMMISSION'S representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

**ARTICLE 3. CONTRACT TIMES**

3.1 The Work will be substantially completed within 170 days from the date of the Notice to Proceed and completed and ready for final payment within 200 days in accordance with the General Conditions.

3.2 Project Schedule: Contractor shall submit a work schedule within 7 calendar days of receipt of signed Agreement.

3.3 CONTRACTOR agrees that the Work shall be prosecuted diligently and uninterruptedly and at such rate of progress as will ensure full completion thereof

within the Contract Time stated above. It is expressly understood and agreed, by and between CONTRACTOR and OWNER, that the Contract Time is reasonable for the completion of the Work.

3.4 Work hours shall be defined as follows:

3.4.1 Normal work hours: Monday-Friday, 7:00 a.m. to 3:30 p.m.

3.4.2 Extended work hours: Monday-Friday, 7:00 a.m. to 5:00 p.m. (Requires SWSC Approval in writing)

3.4.3 No work on Saturdays unless authorized by SWSC in writing.

3.4.4 No work is allowed on Sundays or Commission observed holidays.

#### **ARTICLE 4. CONTRACT PRICE**

4.1 COMMISSION shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the prices stipulated in the CONTRACTOR's BID Form attached to this Agreement.

#### **ARTICLE 5. APPLICATION FOR PAYMENT**

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be reviewed and certified by ENGINEER as provided in the General Conditions.

5.1 CONTRACTOR shall prepare a Schedule of Values (SOV) and submit for ENGINEER and OWNER's review and approval. The SOV shall be broken down into sufficient work tasks that detail the sequence of work. Applications for Payments shall be based on the Approved SOV.

5.2 CONTRACTOR shall submit Applications for Payment in accordance with the approved SOV. Applications for Payment will be reviewed by the Engineer and processed by OWNER as provided in the Conditions of the Contract.

5.3 Retainage shall be held in the amount of 5% until satisfactory substantial completion of the Work. Upon substantial completion the OWNER shall pay the CONTRACTOR the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the CONTRACTOR and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance

with the provisions of M.G.L. Chapter 30, Section 39F, or based on the record of payments by the CONTRACTOR to the subcontractors under this Contract if such record of payment indicates that the CONTRACTOR has not paid subcontractors as provided in Section 39F.

## **ARTICLE 6. PROGRESS AND FINAL PAYMENTS**

- 6.1 OWNER will make payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment. All payments will be on the basis of the progress of the Work measured by the approved SOV and certified by the ENGINEER. No payment can be reviewed or approved without an agreeable SOV.
- 6.2 OWNER will make progress and final payments after review and acceptance of the received applications for payment, in accordance with the applicable Massachusetts General Law.
- 6.3 Progress payments will be made for the approved amounts less 5% retainage.

## **ARTICLE 7. LIQUIDATED DAMAGES**

- 7.1 CONTRACTOR and OWNER recognize that time is of the essence and that Owner will suffer financial and other losses if the Work is not completed within the times specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$1,500.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 3.1 above for Substantial Completion until the Work is substantially complete.

## **ARTICLE 8. ASSURANCE**

- 8.1 CONTRACTOR has familiarized himself/herself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.
- 8.2 CONTRACTOR has studied carefully all and the physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by OWNER in the preparation of the Drawings and Specifications and which have been identified in Article 4 of the Supplementary Conditions.



- 8.3 CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in the above paragraph as CONTRACTOR deems necessary for the performance of the Work at the Contract Price within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required for such purposes.
- 8.4 CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.
- 8.5 CONTRACTOR has given OWNER written notice of any conflict, error or discrepancy that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.
- 8.6 CONTRACTOR agrees that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

## **ARTICLE 9. CONTRACT DOCUMENTS**

The Contract Documents which comprise the entire agreement between COMMISSION and CONTRACTOR concerning the Work consist of the following:

- 9.1 Invitation to Bid.
- 9.2 Instructions to Bidders.
- 9.3 CONTRACTOR's Bid Form.
- 9.4 This Agreement.
- 9.5 Performance Bond, EJCDC Document C-610, 2002 edition, Performance Bond; EJCDC Document C610, 2002.
- 9.6 Payment Bond, EJCDC Document C-615, 2002 edition, Payment Bond; EJCDC Document C615, 2002.
- 9.7 Standard General Conditions of the Construction Contract, EJCDC Document C-700, 2002 edition.
- 9.8 Certificate of Insurance

- 9.9 Supplementary Conditions
- 9.9 Specifications (Included in these Contract Documents).
- 9.10 Contract Documents
- 9.11 Addenda numbers \_\_\_\_\_ to \_\_\_\_\_, inclusive.
- 9.12 Any modification, including Change Orders, duly delivered after execution of Agreement.

**ARTICLE 10. MISCELLANEOUS**

- 10.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.
- 10.2 Neither OWNER nor CONTRACTOR shall, without the prior written consent of the other, assign or sublet in whole or in part any interest under any of the Contract Documents; and, specifically but without limitation, CONTRACTOR shall not assign any monies due or to become due without the prior written consent of OWNER. In case CONTRACTOR assigns all or any part of any monies due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to CONTRACTOR shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.
- 10.3 COMMISSION and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to all covenants, agreements, and obligations contained in the Contract Documents.
- 10.4 The Contract Documents constitute the entire agreement between OWNER and CONTRACTOR and may only be altered, amended or repealed by a Modification.
- 10.5 The Contractor warrants that any products developed hereunder do not infringe upon or violate any patent, copyright, trade secret, or any other propriety right of any third party. In the event of any claim alleging the aforementioned against the Owner, the Owner shall promptly notify Contractor and the Contractor shall defend such claim, in the Owner's name but at Contractor's expense, and shall indemnify the Owner against any loss, cost, expense or liability arising out of such claim, whether or not such claim is successful.

10.6 The Contractor, its employees and its subcontractors shall keep confidential all  
Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1  
SWSC Bid 24-12

propriety information and material to which its employees, or its subcontractors may be exposed in the course of work hereunder, including, but not limited to, proprietary information of third parties.

- 10.7 The Contractor shall defend, indemnify and hold the Owner harmless from and against any loss, cost, liability or expense (including reasonable counsel fees) arising out of any breach or claimed breach of this provision.
- 10.8 Contractor agrees that all reports, studies, analysis, specifications, recommendations and all other materials of whatsoever nature, prepared by Contractor for use under this project, or furnished the Contractor by the Owner for use under this project, are to be considered confidential, and that Contractor will neither publish, circulate, nor use any of the foregoing, without first obtaining the written approval of the Owner.
- 10.9 The Contractor agrees that it will not issue any news releases to the public press or any publications wholly or partly related to its Work under this Agreement without first obtaining the prior written consent of the Owner. The Contractor further agrees that it will not make speeches, engage in public appearances, publish articles or otherwise publicize its Work under this Agreement without prior written approval of the Owner.
- 10.10 No action shall lie or be maintained against the Owner on any claim based upon this Agreement, or arising out of this Agreement, or out of anything in connection with this Agreement unless such action shall be commenced within four (4) months from completion of the Work hereunder or the earlier termination of this Agreement. Any justifiable dispute arising hereunder shall be brought in a state court located in Hampden County, in the City of Springfield, Massachusetts or federal court of competent jurisdiction located in the City of Springfield. The parties agree that this Contract shall be construed under, and enforced in accordance with the laws of the Commonwealth of Massachusetts, without regard of conflict of law principles.
- 10.11 The Contractor represents that it, its employees, and its subcontractors possess the professional and technical expertise necessary to perform the Work hereunder.
- 10.12 The Contractor shall be liable to and hereby agrees to indemnify, defend and hold harmless the Owner and each member, officer, agent, and employee of the Owner against all claims against any of them for bodily injury or wrongful death or property damage including that which may be sustained by him or caused by any error, omission, negligent act or intentional act of the Contractor or any one employed by the Contractor in the execution or performance of this

Agreement.

- 10.13 All Work to be performed under this Agreement shall be performed with the Contractor's own employees, except that the Contractor may be permitted, as provided herein, to subcontract any area of services to be performed.
- 10.13.1 None of the services performed hereunder may be subcontracted nor may this Agreement or the rights or obligations hereunder be assigned without the prior written consent of the Owner, such consent shall not be unreasonably withheld.
- 10.14 No member of the Commission or any officer or employee of the Owner shall be liable personally under or by reason of this Agreement or any of its provisions.
- 10.15 In the event that any claim is made, action is brought, proceeding is instituted, or hearing is called which is in any way related to the subject matter of this Agreement or to the Work Products produced or findings, methods or conclusions made or utilized by the Contractor as a result thereof, the Contractor shall diligently render to the Owner any and all assistance, including testimony, which the Owner may require of the Contractor. The parties understand and acknowledge that any fee paid hereunder to the Contractor does not include such assistance or testimony, and that in the event that Contractor is required to perform such services it will be reasonable compensated therefore.
- 10.16 The Contractor covenants that neither it nor any officer of the corporation nor any partner of the partnership, as the case may be, has any interest nor shall it acquire any interest, directly or indirectly, which would conflict in any manner or degree with the performance of the Work hereunder. The Contractor further covenants that, in the performance of this Agreement, no person having such interest shall be employed by it. It is expressly understood that breach of any of the covenants contained herein is a material breach of this Agreement and shall entitle the Owner to recover immediate damages.
- 10.17 The relationship of the Contractor to the Owner is that of an independent contractor. In accordance with its status as such, the Contractor covenants that it, its employees, and its subcontractors will conduct themselves consistent with such status; will neither hold themselves out as nor claim to be an officer or employee of the Owner by reason hereof; and will not, by reason hereof, make any claim, demand or application to or for any right or privilege applicable to an officer of employee of the Owner, including, but not limited to, Worker's Compensation coverage, unemployment insurance benefits, Social Security coverage, or retirement membership or credit.

10.18 The Contractor hereby represents that to the best of its knowledge neither it nor any of its personnel has been the subject of any investigation, nor have any of them been convicted or indicted for commission of any crime involving misconduct, corruption, bribery, or fraud in connection with any public contract in the Commonwealth of Massachusetts or any other jurisdiction, except as has been specifically disclosed in writing to the Owner, and that should any such conviction or indictment be obtained or any such investigation commenced prior to the expirations of the term hereof, regardless of the date of the occurrence giving rise to the subject matter of such conviction, indictment or investigation, it will be disclosed in writing to the Owner. Breach of this provision is expressly understood to constitute a material breach of this Agreement.

IN WITNESS WHEREOF, the SPRINGFIELD WATER AND SEWER COMMISSION, acting by and through the Board of Water Commissioners, with the approval of the Executive Director, and \_\_\_\_\_, **CONTRACTOR** have executed this Agreement.

All portions of the Contract Documents have been signed, initialed, or identified by COMMISSION and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on \_\_\_\_\_, \_\_\_\_\_, 2024 (which is the Effective Date of the Agreement as a sealed instrument on the day and year the same is signed by all parties hereto, on the date noted).

**THE CONTRACTOR:**

\_\_\_\_\_ :

**Sign:** \_\_\_\_\_

**Print:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Date Signed:** \_\_\_\_\_

SPRINGFIELD WATER AND SEWER COMMISSION:

Approved:

---

JOSHUA D. SCHIMMEL, EXECUTIVE DIRECTOR

---

DATE

Reviewed:

---

DIRECTOR OF LEGAL AFFAIRS/CPO

---

DATE

Approved as to Appropriation:

---

COMPTROLLER

---

DATE

Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1  
SWSC Bid 24-12

Form of Contract



SPRINGFIELD WATER AND SEWER COMMISSION:

\_\_\_\_\_  
DANIEL RODRIGUEZ, COMMISSIONER

\_\_\_\_\_  
DATE

\_\_\_\_\_  
WILLIAM E. LEONARD, COMMISSIONER

\_\_\_\_\_  
DATE

\_\_\_\_\_  
VANESSA OTERO, COMMISSIONER

\_\_\_\_\_  
DATE

APPROVED AS TO FORM:

\_\_\_\_\_  
COMMISSION COUNSEL

\_\_\_\_\_  
DATE

ADDRESS FOR GIVING NOTICES:

SPRINGFIELD WATER AND SEWER COMMISSION  
250 M STREET EXTENSION  
AGAWAM, MA 01001

Note: If CONTRACTOR is a corporation, an affidavit giving the principal the right to sign the Agreement must accompany the executed Agreement.

END OF SECTION

**SECTION 00550**  
**NOTICE OF AWARD**

NOTICE OF AWARD

TO: \_\_\_\_\_

\_\_\_\_\_

PROJECT DESCRIPTION: \_\_\_\_\_

\_\_\_\_\_

The Owner has considered the Proposal submitted by you for the above described Work on \_\_\_\_\_ 2024 in response to its Advertisement for Bids and Instructions to Bidders.

You are hereby notified that your Proposal has been accepted for Items totalling the amount of \$\_\_\_\_\_.

You are required to provide written verification of receipt of this Notice Of Award within 5 days of the date included below.

You are required by the Instructions to Bidders to execute the Contract Agreement and furnish the required Contractor's Performance Bond, Payment Bond and certificates of insurance within ten (10) days from the date of this Notice of Award.

If you fail to execute said Agreement and to furnish said Bonds and Insurance within ten (10) days from the date of this Notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your Proposal as abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_  
(Owner)

By \_\_\_\_\_

Title \_\_\_\_\_

ACCEPTANCE OF NOTICE

Receipt of the above Notice of Award is hereby acknowledged, this the \_\_\_\_\_ day  
of \_\_\_\_\_, 20\_\_\_\_\_.

By \_\_\_\_\_

Title \_\_\_\_\_



**SECTION 00560**

**NOTICE TO PROCEED**

NOTICE TO PROCEED

To: \_\_\_\_\_ Date: \_\_\_\_\_  
(Contractor) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ Project: \_\_\_\_\_  
\_\_\_\_\_

You are hereby notified to commence the Work in accordance with the Agreement dated \_\_\_\_\_, 20\_\_, on or before \_\_\_\_\_, 20\_\_, and you are to complete all work within 290 calendar days thereafter. The date of completion of all work is therefore, \_\_\_\_\_, 2024.

You are required to provide written verification of receipt of this Notice To Proceed within 5 days of the date included below.

\_\_\_\_\_  
(Owner)  
By \_\_\_\_\_  
Title \_\_\_\_\_

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged, this the \_\_\_\_\_ day of \_\_\_\_\_, 2024.

By \_\_\_\_\_  
Title \_\_\_\_\_

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**SECTION 00610**  
**PERFORMANCE BOND**



# PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):                      SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

## CONTRACT

Effective Date of Agreement:  
Amount:  
Description (*Name and Location*):

## BOND

Bond Number:  
Date (*Not earlier than Effective Date of Agreement*):  
Amount:  
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

## CONTRACTOR AS PRINCIPAL

## SURETY

\_\_\_\_\_  
Contractor's Name and Corporate Seal (Seal)

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

Last Modified: 01/24/2024 at 4:49PM EST

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.
2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
  - 2.3 Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract; or
    2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.
3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:
  - 3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefor.
4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

- 5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
- 5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
- 5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

- 11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
- 11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address and Telephone)*  
Surety Agency or Broker:  
Owner's Representative *(Engineer or other party)*:

**SECTION 00620**

**PAYMENT BOND**

# PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

## CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

## BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

## CONTRACTOR AS PRINCIPAL

## SURETY

\_\_\_\_\_  
Contractor's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2 Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
  - 6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2 Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use

the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms “labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner’s Representative *(Engineer or other)*:

**SECTION 00650**  
**CHANGE ORDER FORM**



**CHANGE ORDER**

Project Name: Provin Mountain Reservoir - Reservoir Nos. 3 and 4 Improvements Project Contract No. 1

CWSRF Number: \_\_\_\_\_

SWSC Project Number: 24-12\_\_\_\_\_

Change Order Number: \_\_\_\_\_ # \_\_\_\_\_

Contract Amount (As Bid): \$ ##,###,###.##

Change in Contract Price (previous change orders): \$ 0

Change in Contract Price (this change order): \$ ##,###.##

Adjusted Contract Price (including this change order and all other change orders): \$ ##,###,###.##

Change order extends the time to complete the work by   #   calendar days.

Completion date is   [month day, year]  .

Change order check by: \_\_\_\_\_  
Resident Engineer Date

Change order is requested by: Springfield Water and Sewer Commission

Change order is recommended by: Tighe & Bond, Inc.

\_\_\_\_\_  
Consultant Engineer Date

The undersigned agree to the terms of the change order.

\_\_\_\_\_  
Contractor Date

\_\_\_\_\_  
Owner Date

Certification of Appropriation under M.G.L. c.44, s.31C: Adequate funding in an amount sufficient to cover the total cost of this change order is available.

\_\_\_\_\_  
Certification Officer Date

**SECTION 00700**  
**GENERAL CONDITIONS**

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by

**ACEC**

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CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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American Society of Civil Engineers  
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(800) 548-2723  
[www.asce.org](http://www.asce.org)

Associated General Contractors of America  
2300 Wilson Boulevard, Suite 400, Arlington, VA 22201-3308  
(703) 548-3118  
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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer’s written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### **2.01 *Delivery of Bonds and Evidence of Insurance***

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### **2.03 *Commencement of Contract Times; Notice to Proceed***

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

## 2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

## 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### **3.01 *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

#### **3.03 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*



1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or
- 3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments*:

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to

permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.



- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

#### 5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
  - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
  - 1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners,

employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of

them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

## 5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

## 5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

## 5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

## 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

## 6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

## 2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and
  - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.



- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its

use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner

and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 6.11 *Use of Site and Other Areas*

##### A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

## 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

## 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts

any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

##### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.

- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the

Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;



3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

## 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

## 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 – OTHER WORK AT THE SITE**

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe

access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

## 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

## 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## ARTICLE 8 – OWNER’S RESPONSIBILITIES

### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. Owner’s duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

### 8.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

### 8.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws

and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

### 9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

### 9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

### 9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

### 9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations

on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of,

and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

#### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of



executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

#### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
  - 1. deny the Claim in whole or in part;
  - 2. approve the Claim; or
  - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## **ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

### **11.01 *Cost of the Work***

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
  2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

## 11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
1. Contractor agrees that:
    - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
    - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in

the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect to any other item of Work; and
3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
    - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
    - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
    - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

## 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## **ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

### *13.01 Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### *13.02 Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### *13.03 Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.



- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,

architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
1. repair such defective land or areas; or
  2. correct such defective Work; or
  3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

### 14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### 14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's

review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

### 14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

##### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and



- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

*B. Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

*C. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

**14.08** *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

## 14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

## **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other

dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

### **ARTICLE 16 – DISPUTE RESOLUTION**

#### 16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## ARTICLE 17 – MISCELLANEOUS

### 17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### 17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### 17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

### 17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### 17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

### 17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

**SECTION 00750**

**SUPPLEMENTARY CONDITIONS**

## SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

### **ARTICLE 1. DEFINITIONS**

#### SC-1.01A.12

Add the following language at the beginning of the definition entitled "Contract Documents" in the General Conditions:

The Invitation to Bid, Instructions to Bidders

#### SC-1.01A.43

Delete the definition of Substantial Completion in the General Conditions in its entirety and add the following in its place:

The Work required by the Contract has been completed except for work having a Contract Price of less than one percent of the then adjusted total contract price, or substantially all of the Work has been completed and opened to Owner's use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work required by the Contract.

### **ARTICLE 2. PRELIMINARY MATTERS**

#### SC-2.03

Delete paragraph 2.03 of the General Conditions in its entirety and insert the following in its place:

2.03.A The Contract time will commence to run on the date specified in the written Notice to Proceed.

#### SC-2.05

Add to the following paragraph as 2.05.B to the General Conditions

2.05. B Before any work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates of insurance (and other evidence of insurance requested by OWNER) which CONTRACTOR is required to purchase and maintain in accordance with the requirements of Article 5.

2.05. B.1 Contractor shall include and identify on the certificate of insurance, indemnification as required by Article 6.20 of the General Conditions (Section 00700).

2.05.B.2 Contractor acknowledges that Tighe & Bond Inc., and the Springfield Sewer and Water Commission (SWSC) have no responsibility as a generator, treater, storer, or disposer of hazardous or toxic substances, including but not limited to asbestos-cement pipe found or identified in connection with the Project. Contractor agrees to defend, indemnify, and hold harmless Tighe & Bond Inc., and the Springfield Water and Sewer Commission, from any claim or liability, arising out of Contractor's performance of work under the Agreement and made or brought against Tighe & Bond Inc., and the Springfield Water and/or Sewer Commission for any actual or threatened environmental pollution or contamination except to the extent that either Tighe & Bond Inc., and the Springfield Water and Sewer Commission has negligently caused or contributed to any such pollution or contamination. This indemnification includes reasonable attorney fees and expenses incurred by Tighe & Bond Inc., and the Springfield Water and/or Sewer Commission in defense of such claim.

**ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

SC-3.01

Add the following new paragraphs immediately after paragraph 3.01.A of the General Conditions which is to read as follows:

3.01.A.1 Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

3.01.A.2 Sections of Division 1 - General Requirements govern the execution of the work of all sections of the specifications.

Add the following new paragraphs immediately after paragraph 3.01.C of the General Conditions which is to read as follows:

3.01.D Priority/Conflict

3.01.D.1 Priority Among Contract Documents. In the event of conflict among the



Contract Documents, the Contract Documents shall be construed according to the following priorities “except as may otherwise be specifically stated”:

Highest Priority:	Modifications
Second Priority:	Agreement
Third Priority:	Addenda-later date to take precedence
Fourth Priority:	Supplementary General Conditions
Fifth Priority:	General Conditions
Sixth Priority:	Drawings and Specifications

3.01.D.2 If there is a conflict between the Drawings and Specifications, the figured dimensions shall govern over the scaled dimensions. Detailed Drawings shall govern over the general Drawings. Larger scale Drawings shall take precedence over smaller scale Drawings. Drawings shall govern over Shop Drawings. Whenever there is a conflict concerning quality or quantity between or among notes, specifications, dimensions, details, or schedules in the Specifications or in the Drawings, or between the Specifications and the Drawings, or in all other instances not specifically noted above, the Contractor shall provide, unless otherwise directed by a Modification of the Contract, the better quality or greater quantity of Work at no increase in the Contract Sum or in the Contract Time.

**ARTICLE 4. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS**

SC-4.01B

Delete Paragraph 4.01B of the General Conditions in its entirety.

SC-4.02

Delete paragraphs 4.02.A1 and 4.02.A.2 in its entirety and insert the following in its place:

4.02.A In the preparation of Drawings and Specifications, ENGINEER or ENGINEER's Consultants have relied upon:

4.02.A.1 The following reports of explorations and tests of subsurface conditions at the site of the work:

4.02.A.1.a ENGINEER has relied upon data obtained from subsurface investigations made at the site in the form of test borings. Such data is in the form of boring logs which are included to the bound Specifications and soil samples which may be examined by appointment by contacting Tighe & Bond Inc. during regular business hours. The locations of the test borings are indicated on the Drawings.

SC 4.03A

Delete paragraphs 1 and 2 in their entirety.

#### SC-4.03.D

Add the following new paragraph immediately after paragraph 4.03.C of the General Conditions which is to read as follows:

4.03.D Adjustments resulting from actual subsurface or latent physical conditions from those indicated will be in accordance with Massachusetts General Law, Chapter 30, Section 39N and the applicable provisions of the Contract Documents.

#### SC-4.04

Change “of and” to “or” on line 6 of paragraph 4.04B.2 of the General Conditions.

Delete the following words from line 5 of paragraph 4.04B.2 of the General Conditions: “or not shown or indicated with reasonable accuracy”.

#### SC-4.05.B

Add the following new paragraph at the end of paragraph 4.05.A of the General Conditions which is to read as follows:

4.05.B ENGINEER may check the lines, elevations, reference marks, batter boards, etc., set by CONTRACTOR, and CONTRACTOR shall correct any errors disclosed by such check. Such a check shall not be considered as approval of CONTRACTOR's work and shall not relieve CONTRACTOR of the responsibility for accurate and satisfactory construction and completion of the entire Work. CONTRACTOR shall furnish personnel to assist ENGINEER in checking lines and grades.

#### SC 4.06

Delete the words “Supplementary Conditions” in paragraph 4.06A of the General Conditions and replace with “Contract Documents”.

### **ARTICLE 5. BONDS AND INSURANCE**

#### SC-5.01

Amend General Conditions Paragraph 5.01B by adding the following language:

5.01B Every bid bond, every performance bond and every payment bond issued for any construction work in the commonwealth shall be the bond of a surety company organized pursuant to Section 105 of Chapter 175 or of a surety company authorized to do business in Commonwealth under the provisions of Section 106 of said Chapter 175 and be

approved by the U. S. Department of Treasury and acceptable as sureties and reinsurers on federal bonds under Title 31 of the United States Code, sections 9304 to 9308.

SC 5.03.B

Delete this paragraph in its entirety.

SC-5.04

The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

5.04.A.1 and 5.04.A.2 Worker’s Compensation, etc. under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

- (1) Worker's Compensation Coverage B (Each Accident) \$500,000
- (2) Worker’s Compensation Disease (Each Employee) \$500,000
- (3) Employer's Liability \$1,000,000 Each accident  
\$1,000,000 Disease per employee

5.04.A.3, 5.04.A.4, and 5.04.A.5 Contractor’s Liability Insurance under paragraphs 5.04.A.3 through 5.04.A.5 of the General Conditions which shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of Contractor:

- (1) General Aggregate  
(Except Products--Completed Operations) \$3,000,000
- (2) Products--Completed Operations Aggregate \$1,000,000
- (3) Personal and Advertising Injury (Per Person/Organization) \$1,000,000
- (4) Each Occurrence (Bodily Injury and Property Damage) \$1,000,000

- (5) Property Damage liability insurance including Collapse, and Underground coverages. If blasting is to be used, also include explosion coverage. \$2,000,000
  
- (6) Excess Liability:
  - General Aggregate \$5,000,000
  - Each Occurrence \$2,000,000
  
- (6) Commercial Protective Liability:
  - General Aggregate \$10,000,000
  - Each Occurrence \$5,000,000

5.04.A.6 Automobile Liability:

- (1) Bodily Injury:
  - Each Person \$1,000,000
  - Each Accident \$1,000,000
  - Property Damage:
    - Each Accident \$1,000,000
  - or
  
- (2) Combined Single Limit (Bodily Injury and Property Damage):
  - Each Accident \$5,000,000

5.04.A.7 Pollution Liability

- Combined single limit each occurrence \$1 Million
- Annual Aggregate \$3 Million

5.04.A.8 Railroad Protective Liability (if required by an abutter, permittee, or other)

Each Occurrence	\$2 Million
Aggregate	\$6 Million

SC-5.04.B.3 The Contractual Liability coverage required by paragraph 5.04.B.3 in the General Conditions shall provide coverage for not less than the following amounts:

- |   |             |
|---|-------------|
| (1) General Aggregate                                   | \$5,000,000 |
| (2) Each Occurrence (Bodily Injury and Property Damage) | \$1,000,000 |

Builder’s Risk (Fire Insurance) in an amount equal to the insurable value of the Contract.

SC-5.05

Delete paragraph 5.05 of the General Conditions in its entirety and insert the following in its place:

5.05.A CONTRACTOR shall name the following as additional insured with full coverage as described above, THE SPRINGFIELD WATER AND SEWER COMMISSION, TIGHE & BOND INC., and its affiliates, successors, and/or assigns as named insured.

SC 5.06A

Delete the first sentence of Paragraph 5.06A of the General Conditions and replace with the following: “A. Contractor shall purchase and maintain property insurance upon the work at the site , written on the completed value form, in an amount equal to the total bid price for the completed construction.”

Delete the last sentence in paragraph 5.06A and paragraphs 1 through 7, B and C.

SC-5.06.B

Delete paragraph 5.06.B of the General Conditions in its entirety.

SC 5.07B

Delete paragraph 5.07B of the General Conditions in its entirety.

SC 5.07C

Delete paragraph 5.07C of the General Conditions in its entirety.

SC 5.08B

Delete paragraph 5.08B of the General Conditions in its entirety.

SC 5.10A

Delete paragraph 5.10A of the General Conditions in its entirety.

**ARTICLE 6. CONTRACTOR'S RESPONSIBILITIES**

SC 6.02

Add new paragraphs immediately after paragraph 6.02 B of the General Conditions, as follows:

“C. Regular working hours shall be defined as 8 hours per day, Monday through Friday, excluding holidays, between the hours of 7:00 AM and 4:00 PM. Requests to work other than regular working hours shall be submitted to Engineer and Owner not less than 48 hours prior to any proposed weekend work or scheduled extended work weeks. Occasional unscheduled overtime on weekdays may be permitted provided two hours notice is given to Engineer.

D. Contractor shall reimburse Owner for additional engineering and/or inspection costs incurred as a result of unscheduled overtime work in excess of the regular working hours stipulated in paragraph SC 6.02C or otherwise allowed by the Owner. At Owner's option, such costs may either be deducted from the Contractor's monthly payment request or deducted from retention prior to release of final payment.”

SC 6.06C

Add the following language at the end of paragraph 6.06C of the General Conditions:

“Contractor shall make payments to subcontractors in accordance with M. G. L., chapter 30, section 39F.”

SC-6.06.D

Add the following new subparagraph as follows:

6.06.D.1 OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other person or organization, to the extent practicable, information about amounts paid to CONTRACTOR in accordance with CONTRACTOR's Applications for Payment on account of the particular Subcontractor's, Suppliers, other person's, or other organization's Work.

SC-6.08

Add the following language at the end of Paragraph 6.08.A of the General Conditions:

The following permits and/or licenses will be obtained by the Owner.

6.08.A.1. See SECTION 01060 – PERMITS AND REGULATORY REQUIREMENTS for more information.

SC-6.10

Add the following language at the end of paragraph 6.10.A of the General Conditions:

6.10.A.1 The materials and supplies to be used in the Work under this Contract are exempt from the Sales and Use Tax of the Commonwealth of Massachusetts. Contractor shall obtain the proper certificates, maintain the necessary records, and otherwise comply with all applicable requirements governing the exemption from sales tax.

SC-6.17

Add the following new paragraph immediately after paragraph 6.17.E of the General Conditions, which is to read as follows:

6.17.F The accuracy of all such information submitted by the Contractor is the responsibility of the Contractor. In reviewing Shop Drawings, Samples and similar submittals, the Engineer shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

SC 6.21

Contractor shall comply with all applicable provisions of M. G. L., Chapter 30, Section 39R regarding Contractor's records.

**ARTICLE 7. OTHER WORK**

SC-7.04

Add the following new paragraph at the end of Article 7.03 of the General Conditions:

SC-7.04 Claims on Other Work

7.04.A Should CONTRACTOR cause damage to the work or property of any separate contractor at the site, or should any claim arising out of CONTRACTOR'S performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, ENGINEER, ENGINEER'S Consultants, or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise

resolve the dispute by law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, defend, indemnify and hold OWNER, ENGINEER, and ENGINEER'S Consultants, harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers, architects, attorneys, and other professionals, and court costs) arising directly, indirectly, or consequentially out of any action, legal or equitable, brought by any separate contractor against OWNER, ENGINEER, or ENGINEER'S Consultants, to the extent based on a claim arising out of the

7.04.B CONTRACTOR'S performance of the Work. Should a separate contractor cause damage to the Work or property of CONTRACTOR or should the performance of Work by any separate contractor at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, or ENGINEER'S Consultants or permit any action against any of them to be maintained and continued in its name or for its benefit in any court which seeks to impose liability on or to recover damages from OWNER, ENGINEER, or ENGINEER'S Consultants, on such damage or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of times in accordance with Article 12.02. The Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Owner, the Engineer, or the Engineer's consultants on account of any delay in the performance or furnishing of the Work and/or any delay or suspension of any portion of the Work, whether such delay is caused by the Owner, the Engineer, the Engineer's consultants or otherwise. The Contractor acknowledges that the Contractor's sole remedy for any such delay and/or suspension will be an extension of time in accordance with Article 12.02.

## **ARTICLE 8. OWNER'S RESPONSIBILITIES**

SC 8.06A Delete in its entirety.

SC 8.07A Delete in its entirety.

SC 8.11A Delete in its entirety.

## **ARTICLE 9. ENGINEER'S STATUS DURING CONSTRUCTION**

SC-9.03

Add the following new paragraph immediately after paragraph 9.03.A of the General Conditions as follows:

9.03.A.1 ENGINEER will furnish a Resident Project Representative and assistants to assist ENGINEER in observing the performance of the Work. The duties and responsibilities of the Resident Project Representative will be as enumerated in a



document entitled "Duties, Responsibilities, and Limitations of the Authority of Resident Project Representative" and will be made available to CONTRACTOR at the start of his work.

SC-9.04

Add the following new paragraph immediately after paragraph 9.04.A of the General Conditions which is to read as follows:

9.04.A.1 ENGINEER'S interpretations will be made in accordance with Massachusetts General Law, Chapter 30, Section 39P.

## **ARTICLE 10. CHANGES IN THE WORK; CLAIMS**

SC-10.01A

Add the following new paragraph immediately after paragraph 10.01A of the General Conditions, which is to read as follows:

10.01.A.1 Upon request of the Owner or the Engineer, the Contractor shall without cost to the Owner submit to the Engineer, in such form as the Engineer may require, an accurate written estimate of the cost of any such proposed extra Work or change. The estimate shall indicate the quantity and unit cost of each item of materials, and the number of hours of work and hourly rate for each class of labor, as well as the description and amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation of each item of materials shall be shown if required by the Engineer. The contractor shall promptly revise and resubmit such estimate if the Engineer determines that it is not in compliance with the requirements of this Article, or that it contains errors of fact or mathematical errors. If required by the Engineer, in order to establish the exact cost of new Work added or previously required Work omitted, the Contractor shall obtain and furnish to the Engineer bona fide proposals from recognized suppliers for furnishing any material included in such Work. Such estimates shall be furnished promptly so as to occasion no delay in the Work, and shall be furnished at the Contractor's expense. The Contractor shall state in the estimate any extension of time required for the completion of the Work if the change or extra work is ordered.

## **ARTICLE 11. CHANGE OF CONTRACT PRICE**

SC-11.01

In the second sentence of paragraph 11.01.A.1 delete the word "superintendents".

SC-11.02

Delete paragraph 11.02 of the General Conditions in its entirety.

**ARTICLE 12. CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIME**

SC 12.03A

In the 4<sup>th</sup> line of this paragraph, replace the words “include, but not be limited to”, with “limited to”.

SC 12.03B

Delete this paragraph in its entirety.

**ARTICLE 13. TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK**

SC 13.05A

Add the following sentence: “If Owner stops work pursuant to this paragraph, Contractor shall be entitled to no extension of contract time or increase in contract price.

**ARTICLE 14. PAYMENTS TO CONTRACTOR AND COMPLETION**

SC-14.02

Add the following new paragraphs immediately after paragraph 14.02.A.1 of the General Conditions to read as follows:

14.02.A.1.a Only the following items of material and equipment will be accepted for delivery at the site or at a local bonded warehouse and included in progress estimates in advance of actual requirement, subject to all conditions stated below.

Pre-Cast Concrete Special Structures

14.02.A.1.b Materials and equipment listed above will not be included in progress estimates until the requirements stated herein have been fulfilled.

14.02.A.1.c The Contractor must present an invoice to the Engineer for each item of material or equipment he is requesting payment for. The invoice must be broken down to show the costs for the actual materials.

14.02.A.1.d Sufficient monies have been allocated in the payment requisition line items to cover all of the costs listed in "a" above, plus the costs of physically installing the items of work.

14.02.A.1.e The materials have been submitted and approved for use in this Project.

14.02.A.1.f The Contractor has, at the time of delivery, given the Engineer written notice of the delivery using the form provided by the Engineer.

14.02.A.1.g The material is acceptably stored and protected. Storage in a bonded warehouse will require proof of bonding, and insurance coverage specifically for the item being stored.

14.02.A.1.h The manufacturer's short and/or long term storage requirements have been received by the Engineer, prior to payment.

14.02.A.1.i The Contractor has established a program to implement the manufacturer's required storage procedures. Said program to consist of at the very least a written schedule of daily, weekly, monthly, routine maintenance requirements for each piece of equipment. A copy of this schedule to be presented to the Engineer prior to each requisition submittal, signed by the Contractor, stating that the required maintenance has been performed.

14.02.A.1.j Signed, notarized Title Transfers, format to be furnished by the Engineer, must be furnished for each item of equipment.

14.02.A.1.k When the above have been complied with to the satisfaction of the Engineer, payment will be authorized for the full invoice values of the item, less normal retainage and less all costs for O&M Manuals, installation, incidental items included for payment, spare parts, start-up certification, training, testing, final acceptance testing, and installation.

## **ARTICLE 15. SUSPENSION OF WORK AND TERMINATION**

### **SC 15.01A**

Delete in its entirety and insert in place thereof the following:

“A. Owner may order, at any time and without cause, suspension of the Work in accordance with M.G.L. c. 30, s.39O.”

## **ARTICLE 16. DISPUTE RESOLUTION**

SC-16

Add the following new paragraph immediately after paragraph 16.01.A of the General Conditions to read as follows:

SC 16.01A

Delete the last sentence in paragraph 16.01A.

Add the following paragraphs to 16.01 of the General Conditions:

- “D. It is the express intention and agreement of the parties that all disputes related to this Agreement or to any rights or any relationship between the parties arising therefrom shall be solely and exclusively initiated and maintained through legal proceedings in the courts of the Commonwealth located in Hampden County, Massachusetts. The Contractor and Owner each irrevocably consents to the jurisdiction of such courts in any such actions or proceedings, and waives its right to a trial by jury.
- E. Contractor shall carry on the Work and maintain the progress schedule during the dispute resolution proceedings, unless otherwise agreed by Contractor and Owner in writing.”

## **ARTICLE 17. MISCELLANEOUS**

SC-17.07

Add the following three new paragraphs immediately after paragraph 17.06 of the General Conditions as follows:

17.07 Legal Address of Contractor

17.07.A CONTRACTOR'S business address and his office at or near the site of the Work are both hereby designated as places to which communications shall be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the CONTRACTOR'S business address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon CONTRACTOR, and the date of such service shall be the date of receipt. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by CONTRACTOR and delivered to ENGINEER. Service of any notice, letter, or other communication upon the CONTRACTOR personally shall likewise be deemed sufficient service.

17.07.B The headings or titles of any article, paragraph, subparagraph, section, subsection, or part of the Contract Documents shall not be deemed to limit or restrict the article, paragraph, section, or part.

#### 17.08 Wage Rates

A. The requirements and provisions of all applicable laws and any amendments thereto as to the employment of labor, and the schedules of minimum wage rates established in accordance with such laws shall be a part of these Contract Documents.

B. The said schedules of wages shall continue to be the minimum rates to be paid during the life of this contract and a legible copy of said schedules shall be kept posted in a conspicuous place at the site of the Work.

### **PART II – ADDITIONAL PROVISIONS**

State Government Provisions included herein, have been selected from those to which specific references have been made elsewhere in the Contract Documents. Each and every other provision of law or clause required by law to be inserted in this Contract shall be deemed to be also inserted herein in accordance with paragraph SC-3.1.1 of the Supplementary Conditions.

1.2. Applicable provisions of Massachusetts General Laws and Regulations and/or the United States Code and Code of Federal Regulations govern this Contract and any provision violation of the foregoing shall be deemed null, void and of no effect.

#### 2.0. MASSACHUSETTS WAGE RATES

2.1. Minimum Wage Rates as determined by the Commissioner of Department of Labor and Industries under the provision of the Massachusetts General Laws, Chapter 149, Section 26 to 27D, as amended, apply to this project. It is the responsibility of the CONTRACTOR, before the bid opening, to request if necessary, any additional information on Minimum Wage Rates for those tradespeople who may be employed for the proposed work under this Contract.

2.2. The schedule of Minimum Wage Rates is included as Attachment I at the end of this section.

3.0. CHANGE ORDERS

3.2. Following the Notice of Award and prior to execution of the Contract the prospective contractor shall submit to the ENGINEER for review documentation that will assist in developing the markup percentage to be used as Direct Labor. Prior to execution of the Contract by the OWNER, the prospective contractor will work out an agreement on what percentage markup shall be used as Direct Labor Costs and this agreement shall become a part of the Contract Documents at the time the Contract is executed.

4.0. RECORD DRAWINGS

4.1. The OWNER shall be responsible for the preparation of all record drawings required by this Contract. This responsibility may be delegated to the OWNER's representative. The responsibility for preparation of record drawings shall not be delegated or transferred to the CONTRACTOR. The preparation and maintenance of as-built drawings and as-built data remains the responsibility of the Contractor and shall be maintained and provided to the ENGINEER as specified elsewhere in the Technical Specifications.

5.0. UTILITY UNDERGROUND PLANT DAMAGE PREVENTION SYSTEM

5.1. All excavation within public or private ways are subject to the requirements of Massachusetts General Law, Chapter 82, Section 40.

END OF SECTION

## **ATTACHMENTS TO SUPPLEMENTARY CONDITIONS**



MAURA HEALEY  
Governor

KIM DRISCOLL  
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT  
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the  
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES  
Secretary

MICHAEL FLANAGAN  
Director

**Awarding Authority:** Springfield Water and Sewer

**Contract Number:**

**City/Town:** AGAWAM

**Description of Work:** Access manhole extensions and improvements, overflow pipe improvements, fence demo and installation, and concrete joint tape installation.

**Job Location:** 1121 North West Street, Agawam, MA 01030

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The annual update requirement is not applicable to 27F "rental of equipment" contracts. **The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.**
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Last Modified: 01/24/2024 at 4:49PM EST



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$38.95	\$14.57	\$18.67	\$0.00	\$72.19
	01/01/2024	\$38.95	\$15.07	\$18.67	\$0.00	\$72.69
	06/01/2024	\$39.95	\$15.07	\$18.67	\$0.00	\$73.69
	12/01/2024	\$39.95	\$15.07	\$20.17	\$0.00	\$75.19
	01/01/2025	\$39.95	\$15.57	\$20.17	\$0.00	\$75.69
	06/01/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$76.69
	12/01/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$78.30
	01/01/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$78.90
	06/01/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$79.90
	12/01/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$81.64
	01/01/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.02	\$14.57	\$18.67	\$0.00	\$72.26
	01/01/2024	\$39.02	\$15.07	\$18.67	\$0.00	\$72.76
	06/01/2024	\$40.02	\$15.07	\$18.67	\$0.00	\$73.76
	12/01/2024	\$40.02	\$15.07	\$20.17	\$0.00	\$75.26
	01/01/2025	\$40.02	\$15.57	\$20.17	\$0.00	\$75.76
	06/01/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$76.76
	12/01/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$78.37
	01/01/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$78.97
	06/01/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$79.97
	12/01/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$81.71
	01/01/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.14	\$14.57	\$18.67	\$0.00	\$72.38
	01/01/2024	\$39.14	\$15.07	\$18.67	\$0.00	\$72.88
	06/01/2024	\$40.14	\$15.07	\$18.67	\$0.00	\$73.88
	12/01/2024	\$40.14	\$15.07	\$20.17	\$0.00	\$75.38
	01/01/2025	\$40.14	\$15.57	\$20.17	\$0.00	\$75.88
	06/01/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$76.88
	12/01/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$78.49
	01/01/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$79.09
	06/01/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$80.09
	12/01/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$81.83
	01/01/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$34.38	\$9.65	\$16.84	\$0.00	\$60.87
For apprentice rates see "Apprentice- LABORER"						

Last Modified: 01/24/2024 at 4:49PM EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$34.38	\$9.65	\$14.78	\$0.00	\$58.81
	06/01/2024	\$35.58	\$9.65	\$14.78	\$0.00	\$60.01
	12/01/2024	\$36.78	\$9.65	\$14.78	\$0.00	\$61.21
	06/01/2025	\$38.03	\$9.65	\$14.78	\$0.00	\$62.46
	12/01/2025	\$39.27	\$9.65	\$14.78	\$0.00	\$63.70
	06/01/2026	\$40.57	\$9.65	\$14.78	\$0.00	\$65.00
	12/01/2026	\$41.86	\$9.65	\$14.78	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	12/01/2023	\$36.72	\$14.50	\$10.55	\$0.00	\$61.77
	06/01/2024	\$37.62	\$14.50	\$10.55	\$0.00	\$62.67
	12/01/2024	\$38.52	\$14.50	\$10.55	\$0.00	\$63.57
	06/01/2025	\$39.42	\$14.50	\$10.55	\$0.00	\$64.47
	12/01/2025	\$40.32	\$14.50	\$10.55	\$0.00	\$65.37
ASPHALT RAKER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
AUTOMATIC GRADER-EXCAVATOR (RECLAIMER) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
BATCH/CEMENT PLANT - ON SITE <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$34.38	\$9.65	\$16.84	\$0.00	\$60.87
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$34.38	\$9.65	\$14.78	\$0.00	\$58.81
	06/01/2024	\$35.58	\$9.65	\$14.78	\$0.00	\$60.01
	12/01/2024	\$36.78	\$9.65	\$14.78	\$0.00	\$61.21
	06/01/2025	\$38.03	\$9.65	\$14.78	\$0.00	\$62.46
	12/01/2025	\$39.27	\$9.65	\$14.78	\$0.00	\$63.70
	06/01/2026	\$40.57	\$9.65	\$14.78	\$0.00	\$65.00
	12/01/2026	\$41.86	\$9.65	\$14.78	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2023	\$47.37	\$7.07	\$20.31	\$0.00	\$74.75
	01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Last Modified: 01/24/2024 at 4:49PM/EST

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - BOILERMAKER - Local 29**

**Effective Date - 01/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
2	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
3	70	\$33.16	\$7.07	\$14.23	\$0.00	\$54.46
4	75	\$35.53	\$7.07	\$15.24	\$0.00	\$57.84
5	80	\$37.90	\$7.07	\$16.25	\$0.00	\$61.22
6	85	\$40.26	\$7.07	\$17.28	\$0.00	\$64.61
7	90	\$42.63	\$7.07	\$18.28	\$0.00	\$67.98
8	95	\$45.00	\$7.07	\$19.32	\$0.00	\$71.39

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
2	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
3	70	\$33.68	\$7.07	\$14.23	\$0.00	\$54.98
4	75	\$36.09	\$7.07	\$15.24	\$0.00	\$58.40
5	80	\$38.50	\$7.07	\$16.25	\$0.00	\$61.82
6	85	\$40.90	\$7.07	\$17.28	\$0.00	\$65.25
7	90	\$43.31	\$7.07	\$18.28	\$0.00	\$68.66
8	95	\$45.71	\$7.07	\$19.32	\$0.00	\$72.10

**Notes:**

**Apprentice to Journeyworker Ratio:1:4**

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	08/01/2023	\$50.81	\$11.49	\$20.37	\$0.00	\$82.67
BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	02/01/2024	\$52.06	\$11.49	\$20.37	\$0.00	\$83.92
	08/01/2024	\$53.31	\$11.49	\$20.37	\$0.00	\$85.17
	02/01/2025	\$54.61	\$11.49	\$20.37	\$0.00	\$86.47
	08/01/2025	\$56.76	\$11.49	\$20.37	\$0.00	\$88.62
	02/01/2026	\$58.11	\$11.49	\$20.37	\$0.00	\$89.97
	08/01/2026	\$60.31	\$11.49	\$20.37	\$0.00	\$92.17
	02/01/2027	\$61.71	\$11.49	\$20.37	\$0.00	\$93.57

Last Modified: 01/24/2024 at 4:49PM EST

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Springfield/Pittsfield**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.41	\$11.49	\$20.37	\$0.00	\$57.27
2	60	\$30.49	\$11.49	\$20.37	\$0.00	\$62.35
3	70	\$35.57	\$11.49	\$20.37	\$0.00	\$67.43
4	80	\$40.65	\$11.49	\$20.37	\$0.00	\$72.51
5	90	\$45.73	\$11.49	\$20.37	\$0.00	\$77.59

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$11.49	\$20.37	\$0.00	\$57.89
2	60	\$31.24	\$11.49	\$20.37	\$0.00	\$63.10
3	70	\$36.44	\$11.49	\$20.37	\$0.00	\$68.30
4	80	\$41.65	\$11.49	\$20.37	\$0.00	\$73.51
5	90	\$46.85	\$11.49	\$20.37	\$0.00	\$78.71

**Notes:**

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**Apprentice to Journeyworker Ratio:1:5**

BULLDOZER/POWER SHOVEL/TREE SHREDDER /CLAM SHELL OPERATING	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
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ENGINEERS LOCAL 98

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN LABORERS - FOUNDATION AND MARINE	12/01/2023	\$45.48	\$9.65	\$18.22	\$0.00	\$73.35
	06/01/2024	\$46.96	\$9.65	\$18.22	\$0.00	\$74.83
	12/01/2024	\$48.43	\$9.65	\$18.22	\$0.00	\$76.30
	06/01/2025	\$49.93	\$9.65	\$18.22	\$0.00	\$77.80
	12/01/2025	\$51.43	\$9.65	\$18.22	\$0.00	\$79.30
	06/01/2026	\$52.98	\$9.65	\$18.22	\$0.00	\$80.85
	12/01/2026	\$54.48	\$9.65	\$18.22	\$0.00	\$82.35

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER LABORERS - FOUNDATION AND MARINE	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20

For apprentice rates see "Apprentice- LABORER"

Last Modified: 01/24/2024 at 4:49PM EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS LOCAL 336 - HAMPDEN HAMPSHIRE FRANKLIN</i>	03/01/2023	\$39.76	\$7.71	\$18.15	\$0.00	\$65.62

**Apprentice - CARPENTER - Local 336 Hampden Hampshire Franklin**

**Effective Date - 03/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.88	\$7.71	\$1.38	\$0.00	\$28.97
2	60	\$23.86	\$7.71	\$1.38	\$0.00	\$32.95
3	70	\$27.83	\$7.71	\$13.95	\$0.00	\$49.49
4	75	\$29.82	\$7.71	\$13.95	\$0.00	\$51.48
5	80	\$31.81	\$7.71	\$15.35	\$0.00	\$54.87
6	80	\$31.81	\$7.71	\$15.35	\$0.00	\$54.87
7	90	\$35.78	\$7.71	\$16.75	\$0.00	\$60.24
8	90	\$35.78	\$7.71	\$16.75	\$0.00	\$60.24

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
Step 1&2 \$26.46/ 3&4 \$31.82/ 5&6 \$50.38/ 7&8 \$55.77

**Apprentice to Journeyworker Ratio:1:5**

CARPENTER WOOD FRAME <i>CARPENTERS-ZONE 3 (Wood Frame)</i>	04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17
All Aspects of New Wood Frame Work						

Apprentice - CARPENTER (Wood Frame) - Zone 3

Effective Date - 04/01/2023

Table with 7 columns: Step, percent, Apprentice Base Wage, Health, Pension, Supplemental Unemployment, Total Rate. Rows 1-8 showing wage progression from 60% to 90%.

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$17.86/ 3&4 \$20.22/ 5&6 \$27.57/ 7&8 \$29.94

Apprentice to Journeyworker Ratio:1:5

Summary table for CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD) with two rows for effective dates 07/01/2023 and 01/01/2024.

Apprentice - CEMENT MASONRY/PLASTERING - Springfield/Pittsfield

Effective Date - 07/01/2023

Table with 7 columns: Step, percent, Apprentice Base Wage, Health, Pension, Supplemental Unemployment, Total Rate. Rows 1-7 showing wage progression from 50% to 90%.

Effective Date - 01/01/2024

Table with 7 columns: Step, percent, Apprentice Base Wage, Health, Pension, Supplemental Unemployment, Total Rate. Rows 1-7 showing wage progression from 50% to 90% for 01/01/2024.

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CRANE OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$43.06	\$13.78	\$15.15	\$0.00	\$71.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2023	\$55.51	\$9.65	\$23.70	\$0.00	\$88.86
	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

DEMO: ADZEMAN <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$44.98	\$9.40	\$17.82	\$0.00	\$72.20
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$45.48	\$9.65	\$18.07	\$0.00	\$73.20
For apprentice rates see "Apprentice- LABORER"						

Last Modified: 01/24/2024 at 4:49PM/EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BURNERS <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$45.48	\$9.65	\$18.07	\$0.00	\$73.20
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$44.98	\$9.40	\$17.82	\$0.00	\$72.20
For apprentice rates see "Apprentice- LABORER"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN (Including Core Drilling) <i>ELECTRICIANS LOCAL 7</i>	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
	12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

Last Modified: 01/24/2024 at 4:49PM EST



**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - ELECTRICIAN - Local 7**

**Effective Date - 07/02/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.20	\$6.90	\$0.58	\$0.00	\$26.68
2	45	\$21.60	\$6.90	\$0.65	\$0.00	\$29.15
3	50	\$24.01	\$12.50	\$7.27	\$0.00	\$43.78
4	55	\$26.41	\$12.50	\$7.34	\$0.00	\$46.25
5	65	\$31.21	\$12.50	\$9.41	\$0.00	\$53.12
6	70	\$33.61	\$12.50	\$10.77	\$0.00	\$56.88

**Effective Date - 12/31/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.60	\$7.65	\$0.59	\$0.00	\$27.84
2	45	\$22.05	\$7.65	\$0.66	\$0.00	\$30.36
3	50	\$24.51	\$12.75	\$7.34	\$0.00	\$44.60
4	55	\$26.96	\$12.75	\$7.41	\$0.00	\$47.12
5	65	\$31.86	\$12.75	\$9.52	\$0.00	\$54.13
6	70	\$34.31	\$12.75	\$10.90	\$0.00	\$57.96

**Notes:**

Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

**Apprentice to Journeyworker Ratio:2:3\*\*\*\***

ELEVATOR CONSTRUCTOR	01/01/2023	\$61.13	\$16.08	\$20.56	\$0.00	\$97.77
ELEVATOR CONSTRUCTORS LOCAL 41	01/01/2024	\$61.98	\$16.18	\$20.96	\$0.00	\$99.12
	01/01/2025	\$62.83	\$16.28	\$21.36	\$0.00	\$100.47
	01/01/2026	\$63.68	\$16.38	\$21.76	\$0.00	\$101.82
	01/01/2027	\$64.53	\$16.48	\$22.16	\$0.00	\$103.17

Last Modified: 01/24/2024 at 4:49PM EST

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - ELEVATOR CONSTRUCTOR - Local 41**

**Effective Date - 01/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.57	\$16.08	\$0.00	\$0.00	\$46.65
2	55	\$33.62	\$16.08	\$20.56	\$0.00	\$70.26
3	65	\$39.73	\$16.08	\$20.56	\$0.00	\$76.37
4	70	\$42.79	\$16.08	\$20.56	\$0.00	\$79.43
5	80	\$48.90	\$16.08	\$20.56	\$0.00	\$85.54

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.99	\$16.18	\$0.00	\$0.00	\$47.17
2	55	\$34.09	\$16.18	\$20.96	\$0.00	\$71.23
3	65	\$40.29	\$16.18	\$20.96	\$0.00	\$77.43
4	70	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
5	80	\$49.58	\$16.18	\$20.96	\$0.00	\$86.72

**Notes:**  
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2023	\$42.79	\$16.08	\$20.56	\$0.00	\$79.43
	01/01/2024	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
	01/01/2025	\$43.98	\$16.28	\$21.36	\$0.00	\$81.62
	01/01/2026	\$44.58	\$16.38	\$21.76	\$0.00	\$82.72
	01/01/2027	\$45.17	\$16.48	\$22.16	\$0.00	\$83.81

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FIELD ENG.INST/ROD-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$18.84	\$4.80	\$4.10	\$0.00	\$27.74
FIELD ENG.PARTY CHIEF:BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$21.33	\$4.80	\$4.10	\$0.00	\$30.23
FIELD ENG.SURVEY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$22.33	\$4.80	\$4.10	\$0.00	\$31.23

Last Modified: 01/24/2024 at 4:49PM EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 7</i>	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
	12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

For apprentice rates see "Apprentice- ELECTRICIAN"

FIRE ALARM REPAIR / MAINTENANCE <i>LOCAL 7</i> / COMMISSIONING <i>ELECTRICIANS</i>	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
	12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

FIREMAN <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
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**Apprentice - OPERATING ENGINEERS - Local 98 Class 3**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.42	\$13.38	\$15.15	\$0.00	\$51.95
2	70	\$27.32	\$13.38	\$15.15	\$0.00	\$55.85
3	80	\$31.22	\$13.38	\$15.15	\$0.00	\$59.75
4	90	\$35.13	\$13.38	\$15.15	\$0.00	\$63.66

**Notes:**

Steps 1-2 are 1000 hrs.; Steps 3-4 are 2000 hrs.

**Apprentice to Journeyworker Ratio:1:6**

FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$25.48	\$9.65	\$14.66	\$0.00	\$49.79
	06/01/2024	\$26.51	\$9.65	\$14.66	\$0.00	\$50.82
	12/01/2024	\$26.51	\$9.65	\$14.66	\$0.00	\$50.82
	06/01/2025	\$27.59	\$9.65	\$14.66	\$0.00	\$51.90
	12/01/2025	\$27.59	\$9.65	\$14.66	\$0.00	\$51.90
	06/01/2026	\$28.71	\$9.65	\$14.66	\$0.00	\$53.02
	12/01/2026	\$28.71	\$9.65	\$14.66	\$0.00	\$53.02

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE III</i>	03/01/2022	\$39.66	\$7.71	\$18.15	\$0.00	\$65.52
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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - FLOORCOVERER - Local 2168 Zone III**

**Effective Date - 03/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.83	\$7.71	\$1.40	\$0.00	\$28.94
2	55	\$21.81	\$7.71	\$1.40	\$0.00	\$30.92
3	60	\$23.80	\$7.71	\$13.95	\$0.00	\$45.46
4	65	\$25.78	\$7.71	\$13.95	\$0.00	\$47.44
5	70	\$27.76	\$7.71	\$15.35	\$0.00	\$50.82
6	75	\$29.75	\$7.71	\$15.35	\$0.00	\$52.81
7	80	\$31.73	\$7.71	\$16.75	\$0.00	\$56.19
8	85	\$33.71	\$7.71	\$16.75	\$0.00	\$58.17

**Notes:** Steps are 750 hrs.  
 % After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)  
 Step 1&2 \$26.21/ 3&4 \$31.49/ 5&6 \$49.96/ 7&8 \$55.29

**Apprentice to Journeyworker Ratio:1:1**

<b>FORK LIFT</b> <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.25	\$13.78	\$15.15	\$0.00	\$68.18
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>GENERATORS/LIGHTING PLANTS</b> <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$35.80	\$13.78	\$15.15	\$0.00	\$64.73
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)</b> <i>GLAZIERS LOCAL 1333</i>	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43
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**Apprentice - GLAZIER - Local 1333**

**Effective Date - 06/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.59	\$10.80	\$1.80	\$0.00	\$32.19
2	56	\$22.04	\$10.80	\$1.80	\$0.00	\$34.64
3	63	\$24.49	\$10.80	\$2.45	\$0.00	\$37.74
4	69	\$26.94	\$10.80	\$2.45	\$0.00	\$40.19
5	75	\$29.39	\$10.80	\$3.15	\$0.00	\$43.34
6	81	\$31.83	\$10.80	\$3.15	\$0.00	\$45.78
7	88	\$34.28	\$10.80	\$10.45	\$0.00	\$55.53
8	94	\$36.73	\$10.80	\$10.45	\$0.00	\$57.98

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

<b>GRADER/TRENCHING MACHINE/DERRICK</b> <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Last Modified: 01/24/2024 at 4:49PM/EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2023	\$42.55	\$10.64	\$17.54	\$2.05	\$72.78
	01/01/2024	\$43.80	\$10.64	\$17.54	\$2.05	\$74.03
	07/01/2024	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
	01/01/2025	\$46.30	\$10.64	\$17.54	\$2.05	\$76.53
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 7</i>	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
	12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37	
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2023	\$42.55	\$10.64	\$17.54	\$2.05	\$72.78
	01/01/2024	\$43.80	\$10.64	\$17.54	\$2.05	\$74.03
	07/01/2024	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
	01/01/2025	\$46.30	\$10.64	\$17.54	\$2.05	\$76.53
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING - WATER) <i>PLUMBERS &amp; PIPEFITTERS LOCAL 104</i>	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS &amp; PIPEFITTERS LOCAL 104</i>	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$34.38	\$9.65	\$14.78	\$0.00	\$58.81
	06/01/2024	\$35.58	\$9.65	\$14.78	\$0.00	\$60.01
	12/01/2024	\$36.78	\$9.65	\$14.78	\$0.00	\$61.21
	06/01/2025	\$38.03	\$9.65	\$14.78	\$0.00	\$62.46
	12/01/2025	\$39.27	\$9.65	\$14.78	\$0.00	\$63.70
	06/01/2026	\$40.57	\$9.65	\$14.78	\$0.00	\$65.00
12/01/2026	\$41.86	\$9.65	\$14.78	\$0.00	\$66.29	
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	09/01/2023	\$42.80	\$14.75	\$19.61	\$0.00	\$77.16
	09/01/2024	\$45.54	\$14.75	\$19.61	\$0.00	\$79.90
	09/01/2025	\$48.27	\$14.75	\$19.61	\$0.00	\$82.63
	09/01/2026	\$51.01	\$14.75	\$19.61	\$0.00	\$85.37

Last Modified: 01/24/2024 at 4:49PM/EST

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Springfield**

**Effective Date - 09/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.40	\$14.75	\$14.32	\$0.00	\$50.47
2	60	\$25.68	\$14.75	\$15.37	\$0.00	\$55.80
3	70	\$29.96	\$14.75	\$16.43	\$0.00	\$61.14
4	80	\$34.24	\$14.75	\$17.49	\$0.00	\$66.48

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.77	\$14.75	\$14.32	\$0.00	\$51.84
2	60	\$27.32	\$14.75	\$15.37	\$0.00	\$57.44
3	70	\$31.88	\$14.75	\$16.43	\$0.00	\$63.06
4	80	\$36.43	\$14.75	\$17.49	\$0.00	\$68.67

**Notes:**  
Steps are 1 year

**Apprentice to Journeyworker Ratio:1:4**

<b>IRONWORKER/WELDER</b>	09/16/2023	\$39.81	\$8.25	\$22.70	\$0.00	\$70.76
<i>IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)</i>	03/16/2024	\$40.66	\$8.25	\$22.70	\$0.00	\$71.61

**Apprentice - IRONWORKER - Local 7 Springfield**

**Effective Date - 09/16/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.89	\$8.25	\$22.70	\$0.00	\$54.84
2	70	\$27.87	\$8.25	\$22.70	\$0.00	\$58.82
3	75	\$29.86	\$8.25	\$22.70	\$0.00	\$60.81
4	80	\$31.85	\$8.25	\$22.70	\$0.00	\$62.80
5	85	\$33.84	\$8.25	\$22.70	\$0.00	\$64.79
6	90	\$35.83	\$8.25	\$22.70	\$0.00	\$66.78

**Effective Date - 03/16/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.40	\$8.25	\$22.70	\$0.00	\$55.35
2	70	\$28.46	\$8.25	\$22.70	\$0.00	\$59.41
3	75	\$30.50	\$8.25	\$22.70	\$0.00	\$61.45
4	80	\$32.53	\$8.25	\$22.70	\$0.00	\$63.48
5	85	\$34.56	\$8.25	\$22.70	\$0.00	\$65.51
6	90	\$36.59	\$8.25	\$22.70	\$0.00	\$67.54

**Notes:**

**Apprentice to Journeyworker Ratio:1:4**

Last Modified: 01/24/2024 at 4:49PM/EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
JACKHAMMER & PAVING BREAKER OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
LABORER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.63	\$9.65	\$16.84	\$0.00	\$60.12

**Apprentice - LABORER - Zone 3 Building & Site**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.18	\$9.65	\$16.84	\$0.00	\$46.67
2	70	\$23.54	\$9.65	\$16.84	\$0.00	\$50.03
3	80	\$26.90	\$9.65	\$16.84	\$0.00	\$53.39
4	90	\$30.27	\$9.65	\$16.84	\$0.00	\$56.76

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

LABORER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$33.63	\$9.65	\$14.78	\$0.00	\$58.06
	06/01/2024	\$34.83	\$9.65	\$14.78	\$0.00	\$59.26
	12/01/2024	\$36.03	\$9.65	\$14.78	\$0.00	\$60.46
	06/01/2025	\$37.28	\$9.65	\$14.78	\$0.00	\$61.71
	12/01/2025	\$38.52	\$9.65	\$14.78	\$0.00	\$62.95
	06/01/2026	\$39.82	\$9.65	\$14.78	\$0.00	\$64.25
	12/01/2026	\$41.11	\$9.65	\$14.78	\$0.00	\$65.54

**Apprentice - LABORER (Heavy & Highway) - Zone 3**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.18	\$9.65	\$14.78	\$0.00	\$44.61
2	70	\$23.54	\$9.65	\$14.78	\$0.00	\$47.97
3	80	\$26.90	\$9.65	\$14.78	\$0.00	\$51.33
4	90	\$30.27	\$9.65	\$14.78	\$0.00	\$54.70

**Effective Date - 06/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.90	\$9.65	\$14.78	\$0.00	\$45.33
2	70	\$24.38	\$9.65	\$14.78	\$0.00	\$48.81
3	80	\$27.86	\$9.65	\$14.78	\$0.00	\$52.29
4	90	\$31.35	\$9.65	\$14.78	\$0.00	\$55.78

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.63	\$9.65	\$16.84	\$0.00	\$60.12
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$34.13	\$9.40	\$16.59	\$0.00	\$60.12
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.60	\$9.65	\$16.97	\$0.00	\$60.22
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$34.63	\$9.65	\$16.84	\$0.00	\$61.12
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.63	\$9.65	\$16.84	\$0.00	\$60.12
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.63	\$9.65	\$16.84	\$0.00	\$60.12
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE &amp; TILE</i>	08/01/2023	\$41.37	\$11.49	\$19.53	\$0.00	\$72.39
	02/01/2024	\$42.37	\$11.49	\$19.53	\$0.00	\$73.39
	08/01/2024	\$44.05	\$11.49	\$19.53	\$0.00	\$75.07
	02/01/2025	\$45.90	\$11.49	\$19.53	\$0.00	\$76.92
	08/01/2025	\$46.81	\$11.49	\$19.53	\$0.00	\$77.83
	02/01/2026	\$47.89	\$11.49	\$19.53	\$0.00	\$78.91
	08/01/2026	\$49.65	\$11.49	\$19.53	\$0.00	\$80.67
	02/01/2027	\$50.77	\$11.49	\$19.53	\$0.00	\$81.79

Last Modified: 01/24/2024 at 4:49PM EST



**Apprentice - MARBLE-TILE FINISHER-Local 3 Marble/Tile (Spr/Pitt)**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.69	\$11.49	\$19.53	\$0.00	\$51.71
2	60	\$24.82	\$11.49	\$19.53	\$0.00	\$55.84
3	70	\$28.96	\$11.49	\$19.53	\$0.00	\$59.98
4	80	\$33.10	\$11.49	\$19.53	\$0.00	\$64.12
5	90	\$37.23	\$11.49	\$19.53	\$0.00	\$68.25

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

MARBLE MASON/TILE LAYER(SP/PT)SeeBrick

BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE

See "BRICK/STONE/ARTIFICIAL MASONRY(INCL.MASONRY WATERPROOFING)

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANIC/WELDER/BOOM TRUCK OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 - Zone 3	01/02/2023	\$40.16	\$8.58	\$21.57	\$0.00	\$70.31
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**Apprentice - MILLWRIGHT - Local 1121 Zone 3**

**Effective Date - 01/02/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.09	\$8.58	\$5.72	\$0.00	\$36.39
2	65	\$26.10	\$8.58	\$17.93	\$0.00	\$52.61
3	75	\$30.12	\$8.58	\$18.98	\$0.00	\$57.68
4	85	\$34.14	\$8.58	\$20.01	\$0.00	\$62.73

**Notes:** Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)  
Steps are 2,000 hours

**Apprentice to Journeyworker Ratio:1:4**

MORTAR MIXER LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
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For apprentice rates see "Apprentice- LABORER"

OILER OPERATING ENGINEERS LOCAL 98	12/01/2023	\$35.02	\$13.78	\$15.15	\$0.00	\$63.95
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS VI OPERATING ENGINEERS LOCAL 98	12/01/2023	\$32.74	\$13.78	\$15.15	\$0.00	\$61.67
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Last Modified: 01/24/2024 at 4:49PM/EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2023	\$55.51	\$9.65	\$23.70	\$0.00	\$88.86
	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2023	\$39.98	\$8.65	\$19.15	\$0.00	\$67.78
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 3</i>	01/01/2024	\$41.08	\$8.65	\$19.15	\$0.00	\$68.88
	07/01/2024	\$42.13	\$8.65	\$19.15	\$0.00	\$69.93
	01/01/2025	\$43.23	\$8.65	\$19.15	\$0.00	\$71.03

Last Modified: 01/24/2024 at 4:49PM EST

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - New**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.99	\$9.65	\$0.00	\$0.00	\$29.64
2	55	\$21.99	\$9.65	\$4.35	\$0.00	\$35.99
3	60	\$23.99	\$9.65	\$4.74	\$0.00	\$38.38
4	65	\$25.99	\$9.65	\$5.14	\$0.00	\$40.78
5	70	\$27.99	\$9.65	\$17.18	\$0.00	\$54.82
6	75	\$29.99	\$9.65	\$17.58	\$0.00	\$57.22
7	80	\$31.98	\$9.65	\$17.97	\$0.00	\$59.60
8	90	\$35.98	\$9.65	\$18.76	\$0.00	\$64.39

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.54	\$9.95	\$0.00	\$0.00	\$30.49
2	55	\$22.59	\$9.95	\$4.43	\$0.00	\$36.97
3	60	\$24.65	\$9.95	\$4.83	\$0.00	\$39.43
4	65	\$26.70	\$9.95	\$5.23	\$0.00	\$41.88
5	70	\$28.76	\$9.95	\$17.49	\$0.00	\$56.20
6	75	\$30.81	\$9.95	\$17.89	\$0.00	\$58.65
7	80	\$32.86	\$9.95	\$18.29	\$0.00	\$61.10
8	90	\$36.97	\$9.95	\$19.10	\$0.00	\$66.02

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2023	\$35.65	\$9.65	\$19.70	\$0.00	\$65.00
PAINTERS LOCAL 35 - ZONE 3	01/01/2024	\$36.15	\$9.95	\$19.90	\$0.00	\$66.00
	07/01/2024	\$37.35	\$9.95	\$19.90	\$0.00	\$67.20
	01/01/2025	\$38.55	\$9.95	\$19.90	\$0.00	\$68.40

Last Modified: 01/24/2024 at 4:49PM EST

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - Repaint**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.83	\$9.65	\$0.00	\$0.00	\$27.48
2	55	\$19.61	\$9.65	\$4.35	\$0.00	\$33.61
3	60	\$21.39	\$9.65	\$4.74	\$0.00	\$35.78
4	65	\$23.17	\$9.65	\$5.14	\$0.00	\$37.96
5	70	\$24.96	\$9.65	\$17.33	\$0.00	\$51.94
6	75	\$26.74	\$9.65	\$17.73	\$0.00	\$54.12
7	80	\$28.52	\$9.65	\$18.12	\$0.00	\$56.29
8	90	\$32.09	\$9.65	\$18.91	\$0.00	\$60.65

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.08	\$9.95	\$0.00	\$0.00	\$28.03
2	55	\$19.88	\$9.95	\$4.43	\$0.00	\$34.26
3	60	\$21.69	\$9.95	\$4.83	\$0.00	\$36.47
4	65	\$23.50	\$9.95	\$5.23	\$0.00	\$38.68
5	70	\$25.31	\$9.95	\$17.49	\$0.00	\$52.75
6	75	\$27.11	\$9.95	\$17.89	\$0.00	\$54.95
7	80	\$28.92	\$9.95	\$18.29	\$0.00	\$57.16
8	90	\$32.54	\$9.95	\$19.10	\$0.00	\$61.59

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, NEW) *	07/01/2023	\$36.93	\$9.65	\$19.70	\$0.00	\$66.28
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2024	\$37.43	\$9.95	\$19.90	\$0.00	\$67.28
	07/01/2024	\$38.63	\$9.95	\$19.90	\$0.00	\$68.48
	01/01/2025	\$39.83	\$9.95	\$19.90	\$0.00	\$69.68

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**Apprentice - PAINTER - Local 35 Zone 3 - BRUSH NEW**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.47	\$9.65	\$0.00	\$0.00	\$28.12
2	55	\$20.31	\$9.65	\$4.35	\$0.00	\$34.31
3	60	\$22.16	\$9.65	\$4.74	\$0.00	\$36.55
4	65	\$24.00	\$9.65	\$5.14	\$0.00	\$38.79
5	70	\$25.85	\$9.65	\$17.33	\$0.00	\$52.83
6	75	\$27.70	\$9.65	\$17.73	\$0.00	\$55.08
7	80	\$29.54	\$9.65	\$18.12	\$0.00	\$57.31
8	90	\$33.24	\$9.65	\$18.91	\$0.00	\$61.80

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.72	\$9.95	\$0.00	\$0.00	\$28.67
2	55	\$20.59	\$9.95	\$4.43	\$0.00	\$34.97
3	60	\$22.46	\$9.95	\$4.83	\$0.00	\$37.24
4	65	\$24.33	\$9.95	\$5.23	\$0.00	\$39.51
5	70	\$26.20	\$9.95	\$17.49	\$0.00	\$53.64
6	75	\$28.07	\$9.95	\$17.89	\$0.00	\$55.91
7	80	\$29.94	\$9.95	\$18.29	\$0.00	\$58.18
8	90	\$33.69	\$9.95	\$19.10	\$0.00	\$62.74

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2023	\$34.25	\$9.65	\$19.70	\$0.00	\$63.60
PAINTERS LOCAL 35 - ZONE 3	01/01/2024	\$34.75	\$9.95	\$19.90	\$0.00	\$64.60
	07/01/2024	\$35.95	\$9.95	\$19.90	\$0.00	\$65.80
	01/01/2025	\$37.15	\$9.95	\$19.90	\$0.00	\$67.00

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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 3 - BRUSH REPAINT**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.13	\$9.65	\$0.00	\$0.00	\$26.78
2	55	\$18.84	\$9.65	\$4.35	\$0.00	\$32.84
3	60	\$20.55	\$9.65	\$4.74	\$0.00	\$34.94
4	65	\$22.26	\$9.65	\$5.14	\$0.00	\$37.05
5	70	\$23.98	\$9.65	\$17.33	\$0.00	\$50.96
6	75	\$25.69	\$9.65	\$17.73	\$0.00	\$53.07
7	80	\$27.40	\$9.65	\$18.12	\$0.00	\$55.17
8	90	\$30.83	\$9.65	\$18.91	\$0.00	\$59.39

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.38	\$9.95	\$0.00	\$0.00	\$27.33
2	55	\$19.11	\$9.95	\$4.43	\$0.00	\$33.49
3	60	\$20.85	\$9.95	\$4.83	\$0.00	\$35.63
4	65	\$22.59	\$9.95	\$5.23	\$0.00	\$37.77
5	70	\$24.33	\$9.95	\$17.49	\$0.00	\$51.77
6	75	\$26.06	\$9.95	\$17.89	\$0.00	\$53.90
7	80	\$27.80	\$9.95	\$18.29	\$0.00	\$56.04
8	90	\$31.28	\$9.95	\$19.10	\$0.00	\$60.33

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	12/01/2023	\$33.63	\$9.65	\$14.78	\$0.00	\$58.06
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	06/01/2024	\$34.83	\$9.65	\$14.78	\$0.00	\$59.26
	12/01/2024	\$36.03	\$9.65	\$14.78	\$0.00	\$60.46
	06/01/2025	\$37.28	\$9.65	\$14.78	\$0.00	\$61.71
	12/01/2025	\$38.52	\$9.65	\$14.78	\$0.00	\$62.95
	06/01/2026	\$39.82	\$9.65	\$14.78	\$0.00	\$64.25
	12/01/2026	\$41.11	\$9.65	\$14.78	\$0.00	\$65.54

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$38.78	\$14.57	\$18.67	\$0.00	\$72.02
	01/01/2024	\$38.78	\$15.07	\$18.67	\$0.00	\$72.52
	06/01/2024	\$39.78	\$15.07	\$18.67	\$0.00	\$73.52
	12/01/2024	\$39.78	\$15.07	\$20.17	\$0.00	\$75.02
	01/01/2025	\$39.78	\$15.57	\$20.17	\$0.00	\$75.52
	06/01/2025	\$40.78	\$15.57	\$20.17	\$0.00	\$76.52
	12/01/2025	\$40.78	\$15.57	\$21.78	\$0.00	\$78.13
	01/01/2026	\$40.78	\$16.17	\$21.78	\$0.00	\$78.73
	06/01/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$79.73
	12/01/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$81.47
01/01/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$82.07	
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2020	\$43.53	\$9.40	\$23.12	\$0.00	\$76.05
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$43.53	\$9.40	\$23.12	\$0.00	\$76.05

**Apprentice - PILE DRIVER - Local 56 Zone 3**

**Effective Date - 08/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**Notes:** Apprentice wages shall be no less than the following Steps;  
(Same as set in Zone 1)

1\$57.06/2\$61.96/3\$66.87/4\$69.32/5\$71.78/6\$71.78/7\$76.68/8\$76.68

**Apprentice to Journeyworker Ratio:1:5**

PIPELAYER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i> For apprentice rates see "Apprentice- LABORER"	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>  For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79	
PLUMBER & PIPEFITTER <i>PLUMBERS &amp; PIPEFITTERS LOCAL 104</i>	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86

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**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PLUMBER/PIPEFITTER - Local 104**

**Effective Date - 09/17/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.58	\$9.55	\$10.10	\$0.00	\$41.23
2	50	\$23.98	\$9.55	\$10.10	\$0.00	\$43.63
3	55	\$26.38	\$9.55	\$10.10	\$0.00	\$46.03
4	60	\$28.78	\$9.55	\$10.10	\$0.00	\$48.43
5	65	\$31.17	\$9.55	\$10.10	\$0.00	\$50.82
6	70	\$33.57	\$9.55	\$10.10	\$0.00	\$53.22
7	75	\$35.97	\$9.55	\$10.10	\$0.00	\$55.62
8	80	\$38.37	\$9.55	\$10.10	\$0.00	\$58.02
9	80	\$38.37	\$9.55	\$17.10	\$0.00	\$65.02
10	80	\$38.37	\$9.55	\$17.10	\$0.00	\$65.02

**Effective Date - 03/17/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$22.14	\$9.55	\$10.10	\$0.00	\$41.79
2	50	\$24.61	\$9.55	\$10.10	\$0.00	\$44.26
3	55	\$27.07	\$9.55	\$10.10	\$0.00	\$46.72
4	60	\$29.53	\$9.55	\$10.10	\$0.00	\$49.18
5	65	\$31.99	\$9.55	\$10.10	\$0.00	\$51.64
6	70	\$34.45	\$9.55	\$10.10	\$0.00	\$54.10
7	75	\$36.91	\$9.55	\$10.10	\$0.00	\$56.56
8	80	\$39.37	\$9.55	\$10.10	\$0.00	\$59.02
9	80	\$39.37	\$9.55	\$17.10	\$0.00	\$66.02
10	80	\$39.37	\$9.55	\$17.10	\$0.00	\$66.02

**Notes: \*\*1:1,2:5,3:9,4:12**

**Apprentice to Journeyworker Ratio:\*\***

PNEUMATIC CONTROLS (TEMP.) PLUMBERS & PIPEFITTERS LOCAL 104	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWDERMAN & BLASTER LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$35.13	\$9.40	\$16.59	\$0.00	\$61.12
For apprentice rates see "Apprentice- LABORER"						

Last Modified: 01/24/2024 at 4:49PM EST



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$34.63	\$9.65	\$14.78	\$0.00	\$59.06
	06/01/2024	\$35.83	\$9.65	\$14.78	\$0.00	\$60.26
	12/01/2024	\$37.03	\$9.65	\$14.78	\$0.00	\$61.46
	06/01/2025	\$38.28	\$9.65	\$14.78	\$0.00	\$62.71
	12/01/2025	\$39.52	\$9.65	\$14.78	\$0.00	\$63.95
	06/01/2026	\$40.82	\$9.65	\$14.78	\$0.00	\$65.25
	12/01/2026	\$42.11	\$9.65	\$14.78	\$0.00	\$66.54
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 404 - Construction Service (Northampton)</i>	05/01/2020	\$22.44	\$11.07	\$6.50	\$0.00	\$40.01
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
ROLLER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Coal tar pitch) <i>ROOFERS LOCAL 248</i>	07/16/2023	\$38.91	\$10.35	\$18.00	\$0.00	\$67.26
For apprentice rates see "Apprentice- ROOFER"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 248</i>	07/16/2023	\$38.41	\$10.35	\$18.00	\$0.00	\$66.76

**Apprentice - ROOFER - Local 248**

**Effective Date - 07/16/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.05	\$10.35	\$0.00	\$0.00	\$33.40
2	65	\$24.97	\$10.35	\$18.00	\$0.00	\$53.32
3	70	\$26.89	\$10.35	\$18.00	\$0.00	\$55.24
4	75	\$28.81	\$10.35	\$18.00	\$0.00	\$57.16
5	80	\$30.73	\$10.35	\$18.00	\$0.00	\$59.08
6	85	\$32.65	\$10.35	\$18.00	\$0.00	\$61.00
7	90	\$34.57	\$10.35	\$18.00	\$0.00	\$62.92
8	95	\$36.49	\$10.35	\$18.00	\$0.00	\$64.84

**Notes:**

Steps are 750 hrs.Roofing(Tear Off)1:1; Same as above

**Apprentice to Journeyworker Ratio:1:3**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 248</i>	07/16/2023	\$38.91	\$10.35	\$18.00	\$0.00	\$67.26
For apprentice rates see "Apprentice- ROOFER"						

Last Modified: 01/24/2024 at 4:49PM EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SCRAPER <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-POWERED ROLLERS AND COMPACTORS (TAMPERS) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-PROPELLED POWER BROOM <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$35.80	\$13.78	\$15.15	\$0.00	\$64.73
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2023	\$42.55	\$10.64	\$17.54	\$2.05	\$72.78
	01/01/2024	\$43.80	\$10.64	\$17.54	\$2.05	\$74.03
	07/01/2024	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
	01/01/2025	\$46.30	\$10.64	\$17.54	\$2.05	\$76.53

**Apprentice - SHEET METAL WORKER - Local 63**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.15	\$4.79	\$4.76	\$0.92	\$29.62
2	50	\$21.28	\$5.32	\$5.29	\$1.03	\$32.92
3	55	\$23.40	\$5.85	\$5.82	\$1.13	\$36.20
4	60	\$25.53	\$6.38	\$6.35	\$1.23	\$39.49
5	65	\$27.66	\$6.92	\$6.88	\$1.33	\$42.79
6	70	\$29.79	\$7.45	\$7.41	\$1.44	\$46.09
7	75	\$31.91	\$7.98	\$7.94	\$1.54	\$49.37
8	80	\$34.04	\$8.51	\$15.42	\$1.64	\$59.61
9	85	\$36.17	\$9.04	\$15.95	\$1.74	\$62.90
10	90	\$38.30	\$9.58	\$16.48	\$1.85	\$66.21

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.71	\$4.79	\$4.76	\$0.92	\$30.18
2	50	\$21.90	\$5.32	\$5.29	\$1.03	\$33.54
3	55	\$24.09	\$5.85	\$5.82	\$1.13	\$36.89
4	60	\$26.28	\$6.38	\$6.35	\$1.23	\$40.24
5	65	\$28.47	\$6.92	\$6.88	\$1.33	\$43.60
6	70	\$30.66	\$7.45	\$7.41	\$1.44	\$46.96
7	75	\$32.85	\$7.98	\$7.94	\$1.54	\$50.31
8	80	\$35.04	\$8.51	\$15.42	\$1.64	\$60.61
9	85	\$37.23	\$9.04	\$15.95	\$1.74	\$63.96
10	90	\$39.42	\$9.58	\$13.92	\$1.85	\$64.77

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

Last Modified: 01/24/2024 at 4:49PM EST

Last Modified: 01/24/2024 at 4:49PM EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.24	\$14.57	\$18.67	\$0.00	\$72.48
	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53	
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.53	\$14.57	\$18.67	\$0.00	\$72.77
	01/01/2024	\$39.53	\$15.07	\$18.67	\$0.00	\$73.27
	06/01/2024	\$40.53	\$15.07	\$18.67	\$0.00	\$74.27
	12/01/2024	\$40.53	\$15.07	\$20.17	\$0.00	\$75.77
	01/01/2025	\$40.53	\$15.57	\$20.17	\$0.00	\$76.27
	06/01/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$77.27
	12/01/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$78.88
	01/01/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$79.48
	06/01/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$80.48
	12/01/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$82.22
01/01/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$82.82	
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 669</i>	04/01/2023	\$47.43	\$11.45	\$16.61	\$0.00	\$75.49

**Apprentice - *SPRINKLER FITTER - Local 669***

**Effective Date - 04/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.34	\$8.22	\$0.00	\$0.00	\$29.56
2	50	\$23.72	\$8.22	\$0.00	\$0.00	\$31.94
3	55	\$26.09	\$11.45	\$7.20	\$0.00	\$44.74
4	60	\$28.46	\$11.45	\$8.35	\$0.00	\$48.26
5	65	\$30.83	\$11.45	\$8.35	\$0.00	\$50.63
6	70	\$33.20	\$11.45	\$8.60	\$0.00	\$53.25
7	75	\$35.57	\$11.45	\$8.60	\$0.00	\$55.62
8	80	\$37.94	\$11.45	\$8.60	\$0.00	\$57.99
9	85	\$40.32	\$11.45	\$8.60	\$0.00	\$60.37
10	90	\$42.69	\$11.45	\$8.60	\$0.00	\$62.74

**Notes:**

**Apprentice to Journeyworker Ratio:1:1**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 7</i>	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
	12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

**Apprentice - TELECOMMUNICATION TECHNICIAN - Local 7**

**Effective Date - 07/02/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.20	\$6.90	\$1.44	\$0.00	\$27.54
2	45	\$21.60	\$6.90	\$1.44	\$0.00	\$29.94
3	50	\$24.01	\$11.50	\$7.99	\$0.00	\$43.50
4	55	\$26.41	\$11.50	\$7.99	\$0.00	\$45.90
5	65	\$31.21	\$11.50	\$9.92	\$0.00	\$52.63
6	70	\$33.61	\$11.50	\$11.20	\$0.00	\$56.31

**Effective Date - 12/31/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.60	\$7.05	\$1.47	\$0.00	\$28.12
2	45	\$22.05	\$7.05	\$1.47	\$0.00	\$30.57
3	50	\$24.51	\$11.75	\$8.07	\$0.00	\$44.33
4	55	\$26.96	\$11.75	\$8.07	\$0.00	\$46.78
5	65	\$31.86	\$11.75	\$10.03	\$0.00	\$53.64
6	70	\$34.31	\$11.75	\$11.34	\$0.00	\$57.40

**Notes:**

Steps are 800 hours

**Apprentice to Journeyworker Ratio:1:1**

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE &amp; TILE</i>	08/01/2023	\$61.34	\$11.49	\$22.34	\$0.00	\$95.17
	02/01/2024	\$62.59	\$11.49	\$22.34	\$0.00	\$96.42
	08/01/2024	\$64.69	\$11.49	\$22.34	\$0.00	\$98.52
	02/01/2025	\$65.99	\$11.49	\$22.34	\$0.00	\$99.82
	08/01/2025	\$68.14	\$11.49	\$22.34	\$0.00	\$101.97
	02/10/2026	\$69.49	\$11.49	\$22.34	\$0.00	\$103.32
	08/01/2026	\$71.69	\$11.49	\$22.34	\$0.00	\$105.52
	02/01/2027	\$73.09	\$11.49	\$22.34	\$0.00	\$106.92

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - TERRAZZO FINISHER-Local 3 Marble/Tile (Spr/Ptt)**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.67	\$11.49	\$22.34	\$0.00	\$64.50
2	60	\$36.80	\$11.49	\$22.34	\$0.00	\$70.63
3	70	\$42.94	\$11.49	\$22.34	\$0.00	\$76.77
4	80	\$49.07	\$11.49	\$22.34	\$0.00	\$82.90
5	90	\$55.21	\$11.49	\$22.34	\$0.00	\$89.04

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

TERRAZZO MECHANIC	08/01/2023	\$62.42	\$11.49	\$22.31	\$0.00	\$96.22
BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	02/01/2024	\$63.67	\$11.49	\$22.31	\$0.00	\$97.47
	08/01/2024	\$65.77	\$11.49	\$22.31	\$0.00	\$99.57
	02/01/2025	\$67.07	\$11.49	\$22.31	\$0.00	\$100.87
	08/01/2025	\$69.22	\$11.49	\$22.31	\$0.00	\$103.02
	02/01/2026	\$70.57	\$11.49	\$22.31	\$0.00	\$104.37
	08/01/2026	\$72.77	\$11.49	\$22.31	\$0.00	\$106.57
	02/01/2027	\$74.17	\$11.49	\$22.31	\$0.00	\$107.97

**Apprentice - TERRAZZO MECH - Local 3 Marble/Tile (Spr/Pitt)**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.21	\$11.49	\$22.31	\$0.00	\$65.01
2	60	\$37.45	\$11.49	\$22.31	\$0.00	\$71.25
3	70	\$43.69	\$11.49	\$22.31	\$0.00	\$77.49
4	80	\$49.94	\$11.49	\$22.31	\$0.00	\$83.74
5	90	\$56.18	\$11.49	\$22.31	\$0.00	\$89.98

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

TEST BORING DRILLER	12/01/2023	\$48.33	\$9.65	\$18.22	\$0.00	\$76.20
LABORERS - FOUNDATION AND MARINE	06/01/2024	\$49.81	\$9.65	\$18.22	\$0.00	\$77.68
	12/01/2024	\$51.28	\$9.65	\$18.22	\$0.00	\$79.15
	06/01/2025	\$52.78	\$9.65	\$18.22	\$0.00	\$80.65
	12/01/2025	\$54.28	\$9.65	\$18.22	\$0.00	\$82.15
	06/01/2026	\$55.83	\$9.65	\$18.22	\$0.00	\$83.70
	12/01/2026	\$57.33	\$9.65	\$18.22	\$0.00	\$85.20

For apprentice rates see "Apprentice- LABORER"

Last Modified: 01/24/2024 at 4:49PM/EST

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.45	\$9.65	\$18.22	\$0.00	\$72.32
	06/01/2024	\$45.93	\$9.65	\$18.22	\$0.00	\$73.80
	12/01/2024	\$47.40	\$9.65	\$18.22	\$0.00	\$75.27
	06/01/2025	\$48.90	\$9.65	\$18.22	\$0.00	\$76.77
	12/01/2025	\$50.40	\$9.65	\$18.22	\$0.00	\$78.27
	06/01/2026	\$51.95	\$9.65	\$18.22	\$0.00	\$79.82
	12/01/2026	\$53.45	\$9.65	\$18.22	\$0.00	\$81.32
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
TRACTORS <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.82	\$14.57	\$18.67	\$0.00	\$73.06
	01/01/2024	\$39.82	\$15.07	\$18.67	\$0.00	\$73.56
	06/01/2024	\$40.82	\$15.07	\$18.67	\$0.00	\$74.56
	12/01/2024	\$40.82	\$15.07	\$20.17	\$0.00	\$76.06
	01/01/2025	\$40.82	\$15.57	\$20.17	\$0.00	\$76.56
	06/01/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$77.56
	12/01/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$79.17
	01/01/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$79.77
	06/01/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$80.77
	12/01/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$82.51
01/01/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$83.11	
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2023	\$56.56	\$9.65	\$18.67	\$0.00	\$84.88
	06/01/2024	\$58.04	\$9.65	\$18.67	\$0.00	\$86.36
	12/01/2024	\$59.51	\$9.65	\$18.67	\$0.00	\$87.83
	06/01/2025	\$61.01	\$9.65	\$18.67	\$0.00	\$89.33
	12/01/2025	\$62.51	\$9.65	\$18.67	\$0.00	\$90.83
	06/01/2026	\$64.06	\$9.65	\$18.67	\$0.00	\$92.38
	12/01/2026	\$65.56	\$9.65	\$18.67	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2023	\$58.56	\$9.65	\$18.67	\$0.00	\$86.88
	06/01/2024	\$60.04	\$9.65	\$18.67	\$0.00	\$88.36
	12/01/2024	\$61.51	\$9.65	\$18.67	\$0.00	\$89.83
	06/01/2025	\$63.01	\$9.65	\$18.67	\$0.00	\$91.33
	12/01/2025	\$64.51	\$9.65	\$18.67	\$0.00	\$92.83
	06/01/2026	\$66.06	\$9.65	\$18.67	\$0.00	\$94.38
	12/01/2026	\$67.56	\$9.65	\$18.67	\$0.00	\$95.88
For apprentice rates see "Apprentice- LABORER"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$48.63	\$9.65	\$18.67	\$0.00	\$76.95
	06/01/2024	\$50.11	\$9.65	\$18.67	\$0.00	\$78.43
	12/01/2024	\$51.58	\$9.65	\$18.67	\$0.00	\$79.90
	06/01/2025	\$53.08	\$9.65	\$18.67	\$0.00	\$81.40
	12/01/2025	\$54.58	\$9.65	\$18.67	\$0.00	\$82.90
	06/01/2026	\$56.13	\$9.65	\$18.67	\$0.00	\$84.45
	12/01/2026	\$57.63	\$9.65	\$18.67	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$50.63	\$9.65	\$18.67	\$0.00	\$78.95
	06/01/2024	\$52.11	\$9.65	\$18.67	\$0.00	\$80.43
	12/01/2024	\$53.58	\$9.65	\$18.67	\$0.00	\$81.90
	06/01/2025	\$55.08	\$9.65	\$18.67	\$0.00	\$83.40
	12/01/2025	\$56.58	\$9.65	\$18.67	\$0.00	\$84.90
	06/01/2026	\$58.13	\$9.65	\$18.67	\$0.00	\$86.45
	12/01/2026	\$59.63	\$9.65	\$18.67	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.24	\$14.57	\$18.67	\$0.00	\$72.48
	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53	
WAGON DRILL OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$34.38	\$9.40	\$16.59	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WATER METER INSTALLER <i>PLUMBERS &amp; PIPEFITTERS LOCAL 104</i>	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

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Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentices ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

\*\* Multiple ratios are listed in the comment field.

\*\*\* APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

\*\*\*\* APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

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# **SPRINGFIELD WATER AND SEWER COMMISSION**



## **MATERIAL SPECIFICATIONS**

**Version 4 – November 1, 2020**

William E. Leonard, Commissioner  
Vanessa Otero, Commissioner  
Daniel Rodriguez, Commissioner



# Springfield Water and Sewer Commission

## Material Specifications

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## Material Specifications

### CHAPTER 1 REVISIONS

1. Version 1 of these Material Specifications was written April 1, 2008.
2. Revisions of these Material Specifications as of June 18, 2008
3. Version 2 of these Material Specifications was written as an Interim version as of October 20, 2017. A final version will be written in 2018
4. Version 3 of these Material Specifications was written after review of the Interim Version 2 and was Finalized July 1, 2020.
5. Version 4 of these Material Specifications was written after review of the Finalized Version 3 and was Finalized November 1, 2020.



# Springfield Water and Sewer Commission

## Material Specifications

### CHAPTER 2 GENERAL PROVISIONS

#### 2.1.1 Reference to Specifications

These specifications may be referred to as the Commission's Specifications.

#### 2.1.2 Severability

The provisions of these Specifications are severable. If any provision of these Specifications or any specific application to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications which can be given effect in the absence of the invalid provision or application.

#### 2.1.3 Applicable Regulations

Every user of the public water system, private water mains, public sewer system, or private sewer mains shall be subject to regulations of the Commission, as they apply, and to any charges, rates, fees and assessments which are or may be established by the Commission. Any user of the public water system, private water mains, public sewer system, or private sewer mains shall also be subject to applicable Local, State, and Federal regulations.

#### 2.1.4 Reference Standards

Where reference is made to one of the below standards, the revision in effect at the time of bid opening shall apply.

1. American Concrete Institute (ACI)
2. American Iron and Steel Institute (AISI)
3. American National Standards Institute (ANSI)
4. American Society of Testing and Materials (ASTM)
5. American Water Works Association (AWWA)
6. American Welding Society (AWS)
7. Ductile iron Pipe Research Association (DIPRA)
8. Manufacturing Standardization Society of the Valve and Fittings (MSS)
9. National Fire Protection Association (NFTA)
10. NSF International (NSF)



# Springfield Water and Sewer Commission

## Material Specifications

### CHAPTER 3 WATER MAINS AND APPURTANANCES,

#### Section 3.1 WATER PIPE – DUCTILE IRON

##### 3.1.1 General

1. Ductile Iron Pipe provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Material Specification.
2. Ductile Iron Pipe shall be designed and manufactured in accordance with the most current ANSI A21.50/AWWA C-150 and ANSI A21.51/AWWA C-151, the latest revision and all addenda thereto.
3. Ductile Iron Pipe shall be NSF 61 certified.
4. The product(s) shall have all parts cast and assembled in North America or meet the requirements with the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
5. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product.



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### 3.1.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer/vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all products to be used. All finished product(s) shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the finished product(s) showing overall dimensions,
  - (b) Material specifications for each component of the finished product(s),
  - (c) Coating applied to each component of the finished product(s), if applicable,
  - (d) Weight of each component and total weight for each finished product(s), and
  - (e) Country of origin for each component.
3. If applicable and/or in addition, the manufacturer/vendor shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying type of coating, color of coating, manufacturer of coating, part number of the coating, and a sample on a 3-inch by 5-inch chip.
4. Certification of where product(s) is made:
  - (a) If the product(s) is made in North America the manufacturer shall furnish a letter certifying the product is made in North America and signed by the Owner or President of the Company.
  - (b) If the product(s) meet the requirements of AIS the manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer/vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the product(s) and all materials in its construction exactly conform to the applicable requirements of these Material Specifications and the applicable AWWA Standard(s).
6. The manufacturer/vendor shall furnish a certified statement that all finished product(s) of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.



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7. The manufacturer/vendor shall furnish a warranty for the product(s) that states that the product(s) shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the product(s) for a minimum ten (10) year time period from time of delivery.
8. The manufacturer/vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
9. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.1.3 Ductile Iron Push-on Joint Water Pipe

1. Cement Lining
  - (a) All pipe shall be double cement lined with an approved mortar lining and sealed with an approved asphaltic material seal coat in accordance with ANSI A21.4/AWWA C-104 of the latest revision.
  - (b) Provisions of AWWA C-104, Section 4.11 relating to characteristics of asphaltic seal coat as to deleterious effect upon the quality, color, taste or odor imparted to potable water shall be strictly observed.



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### 2. Exterior Coating

- (a) All pipe shall have a base layer of arc-applied, 99.99% pure zinc coating, having a mass of 200g/m<sup>2</sup> and shall comply with all applicable parts of ISO 8179 for zinc coatings.
- (b) All pipe shall have a finish layer of shop-applied bituminous paint in accordance with AWWA C-151 latest the revision and shall comply with all applicable parts of ISO 8179 for zinc coatings.

### 3. Length

The maximum length shall be twenty (20) feet.

### 4. Joints

- (a) Pipe to have push-on type joints conforming to ANSI A21.11/AWWA C-111.
- (b) Standard Styrene Butadiene Rubber (SBR) gasket shall be provided complete with lubricant. For special conditions that require gaskets other than the standard SBR gasket see the Material Specification for Special Gaskets.
- (c) Gaskets and lubricant shall be standard for the pipe used and approved by Springfield Water and Sewer Commission. Rubber gaskets and lubricant for the joints shall be shipped in bags.
- (d) The Springfield Water and Sewer Commission may require, under certain terrain conditions that restrained joints be used. The method of restraining may either, be of an locking gasket type joint, interlocking type joint, or mechanical joint restraint, as specified in Section 3.16 of these Specifications and as required by the Springfield Water and Sewer Commission.

### 5. Roundness

- (a) Pipe to be field cut shall be gauged full length, a mechanical joint gland shall fit over the full length of a gauged pipe.
- (b) 10% of each pipe size of each delivery shall be gauged the full length and clearly marked as gauged pipe.

### 6. Wedges

Three (3) serrated bronze wedges shall be provided for each length of pipe ordered.

### 7. Markings



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- (a) The pressure rating, metal thickness class, net weight of pipe without lining, length of pipe, date of manufacture and the name of the manufacturer shall be clearly marked on each length of pipe.
- (b) Pipe to be field cut and gauged full length shall be specially marked with green ends or other marking approved by the Commission.
- (c) Pipe markings shall include the word “Zinc” in the pipe markings or label required by AWWA C-151 and/or other markings as deemed appropriate by the manufacturer.

### 8. Pipe Class

- (a) All pipe delivered shall be a minimum Thickness Class 52, unless otherwise approved by the Commission’s E&TS.
- (b) The Metal Thickness and Pressure Class of Ductile Iron Pipe Table below is being provided as a reference. The rated water working pressure based on AWWA C-151 standard laying condition: Type #2. Metal Thickness Class shall be as shown in following table:

Size	Thickness Class	Metal Thickness	Pressure Class	Metal Thickness
4	52	0.29	350	0.25
6	52	0.31	350	0.25
8	52	0.33	350	0.25
10	52	0.35	350	0.26
12	52	0.37	350	0.28
16	52	0.4	350	0.34
20	52	0.42	300	0.36
24	52	0.44	300	0.4
30	52	0.47	250	0.42
36	52	0.53	200	0.42
42	52	0.59	200	0.47
48	52	0.65	200	0.52
54	52	0.73	200	0.58

Note: all dimensions are in inches

### 9. Inspection

The Commission reserves the right to retain an outside inspection laboratory to inspect pipe at manufacturer's foundry, inspection costs to be paid by the Commission.



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### 3.1.4 Delivery(s)

1. Delivery shall be specified in terms of number of days from receipt of order.
2. Delivery shall be made by truck to locations designated in the Commission's service area in which include Ludlow, Springfield, Agawam, Westfield, Granville, and Blandford, all in Massachusetts.
3. When applicable, the low bidder shall notify the Commission of the quantity comprising a minimum truckload.
4. When applicable, the Commission reserves the right to mix product size to reach a full truckload.
5. The manufacturer/vendor and/or shipper must use care in preparing the product(s) for shipment and in handling during shipment and delivery, to insure that the product(s) are delivered without damage. Particular attention must be directed at protecting the product(s) from damage. Damaged product(s) will not be accepted and returned to manufacturer/vendor at the manufacturer/vendor's cost.
6. The manufacturer/vendor, on request, shall provide the Commission or Installer with an affidavit for each and every delivery of an order, stating that the product(s) and all materials in its construction exactly conform to the applicable requirements of these Material Specifications and the applicable AWWA Standard(s).

### 3.1.5 Flanged Ductile Iron Pipe

1. Flanged Ductile Iron-Pipe shall, as a minimum, shall meet all specifications in of Paragraphs 3.1.1, 3.1.2, 3.1.3, and 3.1.4 except the joints and gaskets shall be as follows:
2. Flanged Ductile Iron Pipe and Fittings provided to the Commission or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
3. Flanged Pipe shall be bid without accessories (gaskets and bolts).
  - Accessories shall be as specified in Section 3.16 of these Material Specifications.
4. Flanged Ductile Iron-Pipe, as a minimum, shall conform to the most current ANSI A21.15/AWWA C-115 and all addenda thereto.
5. All Flanged Pipe delivered shall be a minimum Thickness Class 53, unless otherwise approved by the Commission's E&TS.

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6. Flanged Ductile Iron-Pipe shall have the bolt circle and bolt holes conform to dimensions and drilling of ANSI B16.1, Class 125 or ANSI A21.15/AWWA C-115.
7. All flanges installed on ductile iron pipe for mechanical applications shall be constructed of ASTM A536, Grade 65-45-12 ductile iron. Gray cast iron flanges shall not be allowed.
8. Flanges shall be rated for a working pressure of not less than 250-PSI.
9. Class 125 drilled flanges shall be flat-faced and have the following properties:
  - (a) Tensile Strength 70,000-psi
  - (b) Yield Stress 50,000-psi.
  - (c) Percent Elongation 5.0
  - (d) Max. Working Pressure Pipe 3-in to 18-in dia.: 350-psi
  - (e) Max. Working Pressure Pipe 24-in to 64-in dia.: 250-ps

### 3.1.6 Pipe Manufactures Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. U. S. Pipe and Foundry Co. – Tyton Joint,
2. American Ductile Iron Pipe Co. – Fastite Joint,
3. Atlantic States Pipe (McWayne, Inc.) – Tyton up to 24-inch and Fastite greater than 24-inch (gaskets are not interchangeable with US Pipe or American Pipe),
4. or the Approved equal product of another manufacture provided the product(s) are manufactured as per these Material Specifications.



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### Section 3.2 Special Gaskets

1. Gaskets to be used when Volatile Organic Compounds (VOC), such as hydrocarbons, acids, vegetable oils, and petroleum products are present, shall be as follows:
  - (a) Gaskets shall be VITON® - VITON® is the registered trade name for the fluoroelastomer (FKM) manufactured by DuPont. However, it is commonly used as the generic term for all FKM elastomers.
  - (b) FKM gaskets shall be resistant to hydrocarbons, acids, vegetable oils, and petroleum products.
  - (c) FKM gaskets shall provide permeation resistance to low molecular weight petroleum products and/or other VOC contaminants.



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### Section 3.3 INSULATED PIPE AND INSULATION SYSTEMS

#### 3.3.1 Pre-Insulated Ductile Iron Pipe

1. All Push-on Joint Insulated ductile iron water pipe as a minimum, shall meet all specifications in of Paragraphs 3.1.1, 3.1.2, 3.1.4, 3.1.4 and the following additional requirements.
2. The insulating system shall consist of 2-inch rigid foam insulation in a waterproof protective outer jacket or protective outer jacket, both to be applied at the factory.
3. Insulation shall consist of 2-inches of rigid polyurethane foam in accordance with the following:
4. The density shall be 2.2 to 3.0 lbs/ft<sup>3</sup> (35 to 48 kg/m<sup>3</sup>) in accordance with ASTM D1622,
5. The water absorption shall be 4% by volume in accordance with ASTM D2842,
6. The closed cell content shall be 90% minimum in accordance with ASTM D2856,
7. The system compressive strength shall be 60 to 80 lbs/in<sup>2</sup> (414 to 552 kPa) in accordance with modified ASTM D1621,
8. The thermal conductivity shall have a K value of 0.14 to 0.17 Btu-in/hr-ft<sup>2</sup>-°F (0.020 to 0.026 W/m-°C), and
9. The service range shall be -49° F to 185° F (-45° C to 85° C).
10. The water proof protective outer jacket shall for below grade installations shall be UV inhibited polyethylene and in accordance with the following, unless otherwise approved by the Commission's E&TS:
11. The sealant shall be butyl rubber and resin,
12. The minimum service temperature shall be -49° F (-45° C),
13. The minimum installation temperature shall be -30° F (-34° C),
14. The minimum thickness shall be 50 mils (1.27mm), and
15. The tensile strength shall be 38 lbs/inch-wide (6.8 kg/cm-wide) in accordance with ASTM D1000).



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16. The protective outer jacket shall for above grade installations shall be galvanized steel lock seam (Spiwrap® is the registered trade name) and in accordance with the following, unless otherwise approved by the Commission's E&TS:
17. The protective outer jacket shall be factory installed, and
18. The wall thickness shall be 18-gauge, 0.051-inch (1.3mm) thick.
19. Bell and spigot joints shall be sealed using a single turn of 6-inch (150mm) wide butyl mastic tape or heat shrink wrap/closure seal.
20. Insulation kits for the mechanical joints shall be supplied and shall be pre-fabricated urethane half shells with fully bonded polymer protective coating on all exterior surfaces, including the ends and pre-rolled, form fitting, outer cover metal sheet of the same material and gauge as the pipe jacket. Kits shall be supplied silicone caulking for the seams, stainless steel attachment strips, clips, and heat shrink sleeves to seal between pipe and kits.
21. The pipe shall be insulated as shown on the drawings.

### 3.3.2 Insulated Pipe Manufactures Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Urecon Pre-Insulated Pipe,
2. Perma Pipe,
3. Tricon,
4. or the Approved equal product of another manufacture provided the product(s) are manufactured as per these Material Specifications.



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### Section 3.4 Field Applied Insulation Systems

#### 3.4.1 General

1. Field Applied Insulation Systems provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Material Specification.
2. ***Insert Product Name*** shall be designed and manufactured in accordance with the most current ANSI \_\_\_\_/AWWA C-\_\_ and ANSI A\_\_\_\_/AWWA C-\_\_, the latest revision and all addenda thereto.
3. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (d) North America shall mean the United States, Canada, and Mexico,
  - (e) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (f) Incidental parts may be purchased/obtained from other countries to provide a finished product, in accordance with these Material Specifications, and
  - (g) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (h) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
4. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of product(s) or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of these Material Specifications or applicable standard, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).
5. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall meet ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts



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installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.

6. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
7. Field Applied Insulation Systems for less than 4-feet of cover, above grade, or across bridge span(s) is typically a four part system that includes the insulation sections, an insulation jacket, the seals, and/or bands.
8. Insulation jackets for above grade installations shall be aluminum, unless otherwise specified by the Commission.
9. Insulation jackets for below grade installations shall be a self-adhesive composite rubber modified asphalt with cross laminated polyethylene, known as cold insulation wrap (CI Wrap), unless otherwise specified by the Commission.
10. The above shall be supplied as follows, unless otherwise approved by the Commission's E&TS:

### 3.4.2 Insulation Sections

1. The insulating sections for above grade and below grade installations shall consist of 2-inch rigid foam insulation in a waterproof protective outer jacket or protective outer jacket, both to be applied at the factory.
2. Insulation shall consist of 2-inches of rigid polyurethane foam in accordance with the following:
  - (a) The density shall be a minimum of 1.9 lbs/ft<sup>3</sup> in accordance with ASTM D1622,
  - (b) The water absorption shall be less than 1% by volume in accordance with ASTM C272,



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- (c) The closed cell content shall be 90% minimum in accordance with ASTM D6226,
  - (d) The system compressive strength shall be 25 to 30 lbs/in<sup>2</sup> in accordance with modified ASTM D1621,
  - (e) The thermal conductivity shall have a K value of 0.14 to 0.17 Btu-in/hr-ft<sup>2</sup>-°F in accordance with ASTM C518, and
  - (f) The service range shall be -49° F to 185° F.
3. The insulation sections shall be fabricated in half-section of 3-foot lengths. The half-sections shall fit tightly over the pipe to be insulated, except for the joint locations and the fittings where an oversized cover is made to allow for any bell joint or hardware.

### 3.4.3 Jacketing for Above Grade Installations

- 1. Insulation jackets for above grade installations shall be 0.020-inch thick aluminum with an internal moisture barrier. The aluminum shall be from alloys 3105 or 3003.
- 2. The internal moisture barrier shall be 3-mil polyethylene heat laminated to the inside of the metal jacket sections.
- 3. The aluminum jackets shall be delivered in half sections and in \_\_-inch lengths.

### 3.4.4 Straps Above Grade Installations

- 1. Straps for above grade installations shall be soft annealed, 3/4-inch wide, 0.020-thick, 304 stainless steel.

### 3.4.5 Jacketing for Below Grade Installations

- 1. Insulation jackets for below grade installations shall be a self-adhesive composite rubber modified asphalt with cross laminated polyethylene, known as cold insulation wrap (CI Wrap).
- 2. The CI Wrap shall be 50-mil thick.
- 3. The aluminum jackets shall be delivered in standard roll sizes of 4-inch by 75-foot for the seams, fittings, and repairs and 36-inch by 75-foot for the insulation sections.

### 3.4.6 Field Applied Insulation Manufactures Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the



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component(s) shall result in the product no longer being approved and removed from this list.

1. ITW Insulation Systems,
2. Foster Products,
3. Tricon Piping Systems, or
4. Equal provided the product(s) are manufactured as per these specifications.





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### Section 3.5 POLYETHYLENE ENCASUREMENT

#### 3.5.1 General

1. Polyethylene Encasement (PE) provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. PE as a minimum shall conform to the most current American Water Works Association Standard C-105 and all addenda thereto.
3. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Produced shall mean molten polyethylene(s) formed into a sheet to create a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Manufactured shall mean sheets and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
4. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).
5. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.



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6. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished products and/or protective coatings will not be accepted.

### 3.5.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the gate valve showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish three (3) sets of specification(s) of each component that has the product applied identifying component surface preparation, primer (if applicable), type of component(s), color of component(s), manufacturer of component(s), part number of the component(s), and a sample on a 3-inch by 5-inch chip, if applicable.
4. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AISAIS, an explanation, in the letter, of how the products meets the AISAIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.
7. The manufacturer and/or vendor shall furnish a certified statement that all gate valves of the same make and model bid, regardless of the year of manufactured,



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shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.

8. The manufacturer and/or vendor shall furnish a warranty for the gate valves that states that the gate valves shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole gate valve for a minimum ten (10) year time period from time of delivery.
9. The manufacturer and/or vendor shall furnish certified results of a proof of design test performed at an independent testing laboratory. Testing shall include a shell test and seat test to demonstrate the valve body and seat will hold pressure as required.
10. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
11. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (a) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (b) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.5.3 Polyethylene Encasement

1. Polyethylene Encasement shall be V-Bio Polyethylene Encasement in full compliance with this Material Specification.



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2. V-Bio Polyethylene Encasement (PE) shall consist of three layers of co-extruded linear low density polyethylene (LLDPE), fused into a single thickness of not less than eight mils in accordance with ANSI/AWWA C105/A21.5, ASTM D4976, and the following.
3. The inside surface of the V-Bio PE wrap to be in contact with the pipe exterior shall be infused with a blend of antimicrobial compound to mitigate microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion.
4. V-Bio PE shall be provided in tubes for water mains, bends, offsets, reducers, and other pipe shaped appurtenances, unless otherwise approved by the Commission.
5. V-BioPE shall be provided in sheets for valves, tees, crosses, and other odd shaped appurtenances, unless otherwise approved by the Commission.
6. Physical properties of finished PE film shall be:
  - (a) Tensile strength 3,600 psi \*
  - (b) Elongation 800 percent \*
  - (c) Dielectric strength 800 V/mil thickness minimum
  - (d) Impact Resistance 600 g minimum
  - (e) Propagation Tear Resistance 2,550 grams force minimum \*

\*Minimum in machine and transverse direction
7. V-Bio PE tubing and sheets shall be provided with a bright white exterior and a bright yellow interior and shall be clearly marked every two feet along its length with the following information in one-inch high letters:
  - (a) Manufacturer's name or trademark
  - (b) Year of Manufacture
  - (c) ANSI/AWWA C105/A21.5
  - (d) Minimum film thickness and material type
  - (e) Applicable range of nominal pipe diameter size(s)
  - (f) Warning – Corrosion Protection – Repair any damage



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8. Tubes and sheets shall be provided in the following minimum sizes for the appropriate pipe sizes, unless otherwise approved by the Commission:

Polyethylene Tube and Sheet Sizes for Ductile Iron Pipe															
Pipe Diameter in inches	4	6	8	10	12	16	20	24	30	36	42	48	54	60	64
Flat Tube in inches	14	16	20	24	27	34	41	54	67	81	81	95	108	108	121
Sheet in inches	28	32	40	48	54	68	82	108	134	162	162	190	216	216	242
Rolls of 100-foot tape per 1000-feet	3	3	3	4	4	6	7	8	10	15	15	17	20	20	21

9. V-Bio PE tubing shall be supplied in the following minimum lengths, unless otherwise approved by the Commission:
- (a) Up to 16-inch diameter pipe – 300-feet long
  - (b) 24-inch to 30-inch diameter pipe – 220-feet long
  - (c) 30-inch to 64-inch diameter pipe – 110-feet long
10. V-Bio PE tubing shall be provided with perforations every 22-feet, unless otherwise approved by the Commission.

### 3.5.4 Adhesive Tape for Polyethylene Encasement

1. Adhesive tape shall be a minimum of 2-inches wide.
2. Adhesive tape shall be an anticorrosion material made of PE or polyvinyl chloride (PVC) that is 10-mil thick. Duct tape is not allowed.
3. PE or PVC adhesive tape shall have heat a laminated adhesive layer of butyl glue.
4. PE or PVC adhesive tape shall be supplied in the approximate quantities defined in the chart above.



Last Modified: 01/24/2024 at 4:49PM/EST

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### 3.5.5 Polyethylene Encasement Manufactures Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. REPCOR Inc.,
2. T. Christy Enterprises, Inc. (Christy's),
3. Trumbull Industries, or
4. Equal provided the product(s) are manufactured as per these specifications.



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### Section 3.6 GATE VALVES

#### 3.6.1 General

1. Gate Valves provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Gate Valves as a minimum shall conform to the most current American Water Works Association Standard C-509 (full wall) or C-515 (reduced wall) and all addenda thereto.
3. Gate Valve bodies shall be of high strength ductile iron ASTM A-536 grade 65-45-12.
4. Gate Valves maximum working pressure shall be 250-PSI static pressure.
  - (a) Gate Valves shall be shell tested at 500-PSI minimum with the gate in the open position.
  - (b) Gate Valves shall be seat tested at 250-PSI minimum with the gate in the closed position on each side of the seat.
5. Gate Valves shall be bid without accessories (glands, gland gaskets and bolts).
  - Accessories shall be as specified in Section 3.16 of these Material Specifications.
6. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal(s) poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.



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7. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).
8. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
9. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished products and/or protective coatings will not be accepted.
10. Valves shall be bid without accessories (glands, gland gaskets and bolts).
11. Accessories shall be as specified in Section 3.16 of these Material Specifications.

### 3.6.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the gate valve showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.





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3. The manufacturer and/or vendor shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AISAIS, an explanation, in the letter, of how the products meets the AISAIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.
7. The manufacturer and/or vendor shall furnish a certified statement that all gate valves of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
8. The manufacturer and/or vendor shall furnish a warranty for the gate valves that states that the gate valves shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole gate valve for a minimum ten (10) year time period from time of delivery.
9. The manufacturer and/or vendor shall furnish certified results of a proof of design test performed at an independent testing laboratory. Testing shall include a shell test and seat test to demonstrate the valve body and seat will hold pressure as required.
10. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered



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- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
11. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
- (a) Approved means the contractor can supply the material as shown on the drawing(s).
- (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
- (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.6.3 Class 250B - Resilient Seated 4” - 16” Gate Valves and Tapping Valves

1. The valve body and bonnet shall be coated on all exterior and interior surfaces with fusion bonded epoxy conforming to the requirements of AWWA C-550 (most current revision) for Protective Epoxy Interior Coatings for Valves and Hydrants.
2. The valve body markings shall include the manufacturers name or mark, pressure rating, material (D.I.), and year of manufacture and be cast into the body.
3. Valves ordered under this specification will be within the following size schedules 4-inch, 6-inch, 8-inch, 10-inch, 12-inch, and 16-inch.
4. Valves to be provided with a minimum of two (2) O-ring stem seals.
5. Valves shall be of the non-rising stem (NRS) design.
6. Valves shall be wrench-nut operated with a 2-inch square-operating nut made of ductile iron and **right hand** to open.
7. Valves ordered under this Specification shall be provided with valve ends selected from the following:
  - (a) Mechanical joint both ends
    - Mechanical joint bell dimensions shall conform to ANSI A21.11/AWWA C-111.
  - (b) Flanged both ends



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- The end flanges of flanged valves shall conform to dimensions and drilling of ANSI B16.1, Class 125 or ANSI A21.10/AWWA C-110.

### (c) Mechanical joint X flanged

- Mechanical joint bell dimensions shall conform to ANSI A21.11/AWWA C-111.
- The end flanges of flanged valves shall conform to dimensions and drilling of ANSI B16.1, Class 125 or ANSI A21.10/AWWA C-110.

### (d) Mechanical joint X tapping valve flange

- Mechanical joint bell dimensions shall conform to ANSI A21.11/AWWA C-111.
- Tapping valve flanges that form the joint with the tapping sleeve shall conform to the dimensions MSS SP-60 in sizes 4" through 12". The connecting MJ bell of the tapping valve mating with the tapping machine must be parallel and concentric with the opposite flange and concentric with the waterway to provide proper alignment for the tapping operation. This flange shall conform to the dimensions of MSS SP-113. Tapping valves provided must be manufactured to be used with the Mueller CL-12 Drilling Machine with the following shell cutter diameters 3 ½", 5 ½", 7 ½", 9 ½", and 11 ½".

8. The resilient-seat wedge shall be constructed of cast iron or ductile iron and fully encapsulated in a rubber compound for water service, constructed of STYRENE BUTADIENE RUBBER (SBR) rubber, and must meet or exceed ASTM D-2000 3 BA 715. No bare metal shall be left exposed. Wedge rubber shall be molded in place and banded tightly to the cast iron or ductile iron core and shall not be mechanically attached with screws, rivets, or similar fasteners. The wedge shall be symmetrical and seat equally well with flow in either direction.
9. The resilient-seat shall be made of an elastomer compound that complies with Section 4.2.2.7 of AWWA Standard C-515, (most current revision).
10. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall meet ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.



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11. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
12. Valve stems and stem nuts shall be made of a copper alloy or stainless steel and the minimum yield strength shall be 40,000-PSI.

### 3.6.4 Class 250B - Outside-Screw-And-Yoke (OS & Y) Rising Stem

1. In addition to Paragraphs 3.6.1, 3.6.2, and 3.6.3 OS&Y valves shall meet the following requirements:
2. Valves ordered under this specification will be within the following size schedules: 3-inch, 4-inch, 6-inch, 8-inch, 10-inch and 12-inch.
3. OS&Y gate valves shall be **LEFT HAND TO OPEN**.
4. Valves shall be of the outside screw-and-yoke (OS&Y) rising stem design. Design shall be such that the stuffing box can be packed when the valve is in the fully open position and under pressure.
5. OS&Y valves shall be operated by hand wheels sized in accordance with Table 5, C-509. Hand wheel shall be of the spoke-type only. An arrow showing the direction to turn the hand wheel to open the valve, with the word “OPEN” in ½” or larger letters in a break in the arrow shaft shall be cast on the rim of the hand wheel so as to be readily readable.
6. Valves ordered under this Specification shall be provided with flange valve ends on both ends. The end flanges of flanged valves shall conform to dimension and drilling in accordance with ANSI B16.1, Class 125 or ANSI A21.10/AWWA C-110.
7. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall meet ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall



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be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.

8. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
9. Valves shall be bid without accessories (companion flanges, glands, gland gaskets and bolts).
10. Accessories shall be as specified in Section 3.16 of these Material Specifications.
11. Valve stems and stem nuts shall be made of a copper alloy or stainless steel and the minimum yield strength shall be 40,000-PSI.
12. Any conflict between this paragraph and the other specified paragraphs concerning OS&Y valves then this paragraph shall govern.

### 3.6.5 Class 250B - 4” - 16” Valves Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. American Flow Control – Series 2500 (reduced wall),
2. Clow – Model 2638 (reduced wall) or 2640 (full wall),
3. J & S – Series 6600, 6700 (OS&Y), and 6900 (all full wall),
4. Kennedy – Series 7000 (reduced wall) or full wall special order,
5. M & H – Series 7000 (reduced wall) or 7500 (full wall),
6. Mueller – Model 2361 (reduced wall) or 2362 (full wall),
7. US Pipe – Model USP0 (reduced wall) USP1 (full wall),
8. East Jordan Iron Works – Model Flowmaster, or



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9. Equal provided the products are manufactured as per these specifications.



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### Section 3.7 BUTTERFLY VALVES

#### 3.7.1 General

1. Butterfly Valves (BV) provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal(s) poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
3. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).
4. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
5. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at



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protecting the protective coating from damage. Damaged finished products and/or protective coatings will not be accepted.

### 3.7.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the gate valve showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AISAS, an explanation, in the letter, of how the products meets the AISAS requirements, and signed by the Owner or President of the Company.
5. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.
7. The manufacturer and/or vendor shall furnish a certified statement that all butterfly valves of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.





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8. The manufacturer and/or vendor shall furnish a warranty for the butterfly valves that states that the butterfly valves shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole butterfly valve for a minimum ten (10) year time period from time of delivery.
9. The manufacturer and/or vendor shall furnish certified results of a proof of design test performed at an independent testing laboratory. Testing shall include a shell test and seat test to demonstrate the valve body and seat will hold pressure as required.
10. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
11. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.7.3 Class 250B - Butterfly Valves

1. All Butterfly Valves (BV) as a minimum shall conform to the most current American Water Works Association Standard C-504 and all addenda thereto.
2. All BV bodies shall be of high strength ductile iron ASTM A-536 grade 65-45-12.
3. All BV maximum working pressure shall be 250-PSI static pressure.

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4. Required shop testing, in accordance with AWWA C504:
  - (a) Each Class 250B valve shall be shop tested and certified for leakage with the disc in the horizontal plane.
    - BV shall be shell tested at 500-PSI minimum with the disc in the open position.
    - BV shall be seat tested at 250-PSI minimum with the gate in the closed position on each side of the seat.
  - (b) After each BV is completely assembled, including the actuator, it shall be operated several times in the factory to ensure it is in working condition.
5. All BV shall be bid without accessories (glands, gland gaskets and bolts).
  - Accessories shall be as specified in Section 3.16 of these Material Specifications.
6. All BV shall be rubber-seated, tight closing against stainless steel. BV shall be designed for direct bury service.
7. All BV body ends shall be mechanical joint conforming to ANSI A21.11/AWWA C-111, unless otherwise specified.
8. All BV shall be provided with manual actuators. All manual actuators shall be provided with a 2-inch square operating nut made of ductile iron. Manual valve actuators shall be capable of holding the disc in any position without creeping or fluttering. Manual actuators shall be serviceable without removal from the valve. A shaft seal shall be incorporated between the manual actuator and the valve.
9. All BV actuators shall be equipped with adjustable mechanical stop limiting devices to prevent over travel of the valve disc in the open and closed positions. Flow stops in the valve flow stream will not be allowed.
10. All BV manual actuators shall be of the traveling nut design rated for 450 foot-pounds of input torque against the open and closed stops. Such actuators shall be totally enclosed for buried service in a gearbox. Gears must operate in a lubricant and be totally sealed to prevent entry of dirt or liquids into the actuator.
11. Unless otherwise specified, all BV shall be right hand to open (clockwise). The operating nut shall be painted red.
12. All BV shall have an epoxy coating on the interior, exterior, and the vane. The coating shall meet all requirements of AWWA C-550 of latest revision. All bodies and vanes shall be factory coated prior to assembly and testing. All ferrous surfaces of the valve body, waterway, and vane shall receive an epoxy coating with a



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minimum dry film thickness of 8-mils. All exterior surfaces shall be coated with an epoxy with a minimum of 6-mils dry film thickness. Fusion Bonded is acceptable.

13. All BV seats shall be of synthetic Nitrile (Buna-N) compound, unless otherwise specified.
14. All BV seats shall be recessed into the body and held in place with epoxy injection or attached to the disk with type 304, 316, or ASTM A564 stainless steel hardware to restrain the seats from any movement at the maximum rated flow in either direction. When the seat is attached to the disc the bolts shall pass through the seat, retainer, and disc.
15. All BV shafts shall be turned, ground, and polished and shall be constructed of Type 630/17-4 PH/ASTM A584 stainless steel and shall be sized per AWWA Standard for Rubber-seated Butterfly Valves C-504, latest revision.
16. All BV disc shall be secured to the shafts with pins. These pins shall be of the same material as the shaft and pass completely through the disc and shaft. Pins shall be tightly secured with lock-washers and nuts to ensure line vibrations cannot loosen the connection.
17. Shaft seals shall be of the chevron or O-ring type.
18. Valve bearings shall be sleeve type, corrosion resistant, and self-lubricating. Bearing load shall not exceed 20-percent of the compressible strength of the bearing or shaft materials, and shall be secured in the trunion by a machined edge. Ferrous bearings in the flow stream shall not be allowed.
19. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall meet ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
20. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford,



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Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.

### 3.7.4 Butterfly Valves Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Clow – Series 4500, Style 1450-CL250,
2. DeZurik, BAW-CL250,
3. Henry Pratt Company, Model Groundhog HP-250,
4. Kennedy – Series 4500, Style 1450-CL250,
5. M & H – Series 4500, Style 1450-CL250,
6. Mueller – Model Linesal XP,
7. Val-Matic, Series 2000-CL250, or
8. Equal provided the products are manufactured as per these specifications.



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### Section 3.8 CHECK VALVES

#### 3.8.1 General

1. Check Valves provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Check Valves as a minimum shall conform to the most current American Water Works Association Standard C-508 and all addenda thereto.
3. Working pressure 250 PSI. Test pressure 500 PSI.
4. Check Valves shall be bid without accessories (glands, gland gaskets and bolts).
  - Accessories shall be as specified in Section 3.16 of these Material Specifications.
5. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal(s) poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
6. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).



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7. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
8. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished(s) will not be accepted.
9. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 3.8.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the check valve showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.



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6. The manufacturer shall furnish a certified statement that all check valves of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the check valves that states that the check valves shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole check valve for a minimum ten (10) year time period from time of delivery.
8. The manufacturer shall furnish certified results of a proof of design test performed at an independent testing laboratory. Testing shall include a million-cycle continuous test to demonstrate the durability of the flexible connection.
9. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
10. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.8.3 Check Valves

1. Check Valves body and cover shall be of high strength ductile iron ASTM A-536 grade 65-45-12.



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2. Check Valves working pressure shall be 250-PSI static pressure. Check valves provided under this specification shall be shell tested at 500-PSI minimum with the flapper in the open position. Check valves provided under this specification shall seal drop tight at pressures greater than 5-PSI minimum.
3. Check valve flow area when fully open shall be not less than the area of the circle of the diameter of the nominal pipe size.
4. The check valve body and cover shall be coated on all exterior and interior surfaces with fusion bonded epoxy conforming to the requirements of AWWA C-550 (most current revision) for Protective Epoxy Interior Coatings for Valves and Hydrants.
5. The check valve body markings shall include the manufacturers name or mark, pressure rating, material (D.I.), and year of manufacture and be cast into the body.
6. Check valves ordered under this specification will be within the following size schedules 4-inch, 6-inch, 8-inch, 10-inch, and 12-inch.
7. Check valves ordered under this Specification shall be provided with flanged ends conform to dimensions and drilling of ANSI B16.1, Class 125 or ANSI A21.10/AWWA C-110.
8. The check valve disc shall be constructed of ductile iron or alloy steel and fully encapsulated in a rubber compound for water service, molded, not split and glued, constructed of styrene butadiene rubber (SBR) or Nitrile (Buna-N) compounds, and must meet or exceed ASTM D-2000 3 BA 715 and ANSI A21.11/AWWA C-111, latest revision. No bare metal shall be left exposed. Disc-rubber shall be molded in place and banded tightly to the ductile iron or steel core and shall not be mechanically attached with screws, rivets, or similar fasteners.
9. Check valve disc travel shall not be more than 35-degrees for full open position.
10. Bronze seat rings are not allowed. Disc shall be the only moveable part. No o-rings or other bearings are allows.
11. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall meet ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.





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12. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
13. Valves shall be bid without accessories (glands, gland gaskets and bolts).
14. Accessories shall be as specified in Section 3.16 of these Material Specifications.

### 3.8.4 Check Valves Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. American Flow Control: Series 2100 - RSCV1,
2. Val-matic: Series 500A – VMC502A,
3. Henry Pratt Company: RD-Series Flex-0205,
4. Milliken Valve Company; Series 850 – Figure 851, or
5. Equal provided the products are manufactured as per these specifications.



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### Section 3.9 AIR VALVE ASSEMBLIES AND AIR CORPORATIONS

#### 3.9.1 General

1. Air Valve Assemblies and Air Corporations provided to the Commission or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Brass components of the Air Valve Assemblies may be made from copper alloy No. 83600, in accordance with ASTM B30, ASTM B62, or ASTM B584 and AWWA C-800 latest version containing 85% copper, 5% tin, 5% lead, and 5% zinc (brass 85-5-5-5).
3. Copper tube components of the Air Valve Assemblies shall be type "L", manufactured in America.
4. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal(s) poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
5. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).



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6. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
7. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished product(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished product(s) will not be accepted.
8. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 3.9.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the corporation and curb stop showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.



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5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer shall furnish a certified statement that all products shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the product that states that the products shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole check valve for a minimum ten (10) year time period from time of delivery.
8. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
9. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.9.3 Standard Air Valve Assembly

1. One-inch or Two-inch corporations: may be brass 85-5-5-5, tapered inlet ball corporation with One-inch or Two-inch CC thread on the inlet side and One-inch or Two-inch female IP thread on the outlet side. One is required for each assembly.



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2. Corporations may rotate 360 degrees in either direction or rotate  $\frac{1}{4}$  turn only and **OPEN LEFT**, counter-clockwise.
3. One-inch or Two-inch 90-degree elbows: may be brass 85-5-5-5, female on both ends with One-inch or Two-inch IP thread. Three are required for each assembly.
4. One-inch or Two-inch Ball Valve Curb Stop and Waste: may be brass 85-5-5-5, ball valve type with One-inch or Two-inch female IP thread on both ends. A tee head A stop & waste hole shall be provided. One is required for each assembly.
5. Curb Stops shall rotate  $\frac{1}{4}$  turn only and **OPEN LEFT**, counter-clockwise.
6. One-inch and/or Two-inch Nip: may be brass 85-5-5-5, male on both ends with One-inch or Two-inch IP thread. Minimum length shall be six-inches and maximum length shall be twelve-inches, unless otherwise approved by the Commission. Three are required for each assembly.
7. One-inch or Two-inch Riser pipe: may be brass 85-5-5-5, male on both ends with One-inch or Two-inch IP thread. The length shall be from the last 90-degree elbow to four-to-six-inches below finished roadway. One is required for each assembly.
8. One-inch or Two-inch cap: may be brass 85-5-5-5, One-inch or Two-inch female IP thread. One is required for each assembly.

### 3.9.4 One-Piece Air Valve Assembly

1. The One-Piece Air Valve shall be of a type equal to Wedge Manufacturing, L.L.C., catalog numbers 10060 for 1-inch and 20060 for 2-inch, or an approved equal.
2. One-inch or two-inch corporations: may be brass 85-5-5-5, tapered inlet ball corporation with One-inch or Two-inch CC thread on the inlet side and One-inch or Two-inch male IP thread on the outlet side. One is required for each assembly.
3. Corporations may rotate 360 degrees in either direction or rotate  $\frac{1}{4}$  turn only and **OPEN LEFT**, counter-clockwise.
4. One-Piece Air Valves shall be provided with a lower operating lever made of cast or stamped brass that is secured to the brass ball valve with a marine type brass cotter pin.
5. One-Piece Air Valves shall be provided with a brass ball valve with female iron pipe threads at both ends. The ball valves shall be drilled on the riser side for drainage.



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6. One-Piece Air Valves shall be provided with an adapter at both ends made of copper. The adapters shall have male threads on one end and plain on the other for crimp fitting.
7. One-Piece Air Valves shall be provided with a copper riser pipe. The Riser pipe shall be crimp fit to the copper adapters at both ends.
8. One-Piece Air Valves shall be provided with a tee handle made of cast brass. The tee handle shall be secured to the operating rod with stainless steel roll pin.
9. One-Piece Air Valves shall be provided with an operating rod made of 3/8-inch diameter brass CDA 360, ASTM B-16.
10. One-Piece Air Valves shall be provided with a split ring connector that shall secure the operating rod to the riser. The fasteners shall be stainless steel.
11. One-Piece Air Valves shall be provided with a lower mechanism that connects the operating rod to the lower operating lever. The lower mechanism shall be secured to the operating rod with a stainless steel roll pin. The lower mechanism shall be secured to the lower operating lever with a 3/8-inch X 1/2-inch stainless steel bolt with a Nylock safety nut.

### 3.9.5 Air Corporations

1. Air corporations shall be one-inch.
2. Tapered inlet ball type corporations, may be brass 85-5-5-5, shall be with one-inch CC thread on the inlet side, and one-inch male IP thread on the outlet side.
3. Corporations may rotate 360 degrees in either direction or rotate 1/4 turn only and **OPEN LEFT**, counter-clockwise.
4. Air corporations shall be provided with a 1-inch female IP threaded brass cap, unless otherwise approved by the Commission.

### 3.9.6 Air Valve Assembly Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.



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1. Tapered inlet ball type corporations with one-inch or two-inch CC thread on the inlet side and one-inch or two-inch female IP thread on the outlet side

	<u>1-inch</u>	<u>2-inch</u>
(a) Ford:	FB1600-4	FB1600-7
(b) Red Hed:	Not Available (NA)	RHB43875
(c) Mueller:	B-20045 (state size)	B-20045 (state size)
(d) McDonald:		
(e) Cambridge:		

2. Ball Valve Curb with Stop and Waste and with One-inch or Two-inch female IP thread on both ends

	<u>1-inch</u>	<u>2-inch</u>
(a) Ford:	B11-444SW	B11-777SW
(b) Red Hed:	RHB22202	RHB22205
(c) Mueller:	B-20283 (state size)	
(d) McDonald:		
(e) Cambridge:		

### 3.9.7 Air Corporation Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Tapered inlet ball type corporations with one-inch CC thread on the inlet side and one-inch male IP thread on the outlet side

(a) Ford:	FB800-4
(b) Red Hed:	RH43842
(c) Mueller:	B-2996 (state size)
(d) McDonald:	



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(e) Cambridge:

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### Section 3.10 VALVE BOXES

#### 3.10.1 General

1. Valve Boxes provided to the Commission or installer shall be telescopic in design, Cast Iron, heavy pattern, adjustable type top section, bottom section, and cover and manufactured, tested, inspected and delivered in full compliance with this Specification.
2. The valve boxes shall be certified to meet American Association of State Highway and Transportation Officials (AASHTO) M 105 Class 35B strength of materials requirements.
3. Valve boxes shall be strong, durable, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
  - (a) An HS20 load rating is required.
  - (b) Cast iron shall conform to American Society of Testing and Materials (ASTM) A48, Class 35B.
  - (c) Valve boxes covers and seats shall be machined to a true surface so that the cover does not rock in the frame no matter the position of the cover.
4. The Commission may require valve boxes be subjected to proof load testing as follows:
  - (a) Testing shall be in accordance with the National Institute of Standards Technology (NIST) standards – Proof Load Testing (PLT).
  - (b) The PLT shall show no detrimental deformation or cracks when a proof load of 25,000-pounds is concentrated on an 9-inch by 9-inch area at the center of the cover for a 1-minute period of time.
  - (c) Permanent deformation shall not exceed 1/8-inch.
  - (d) All testing shall be at the supplier’s expense.
5. Valve boxes top sections, bottom sections, covers, and enlarged bases shall be provided with individual permanent markings that are easily discernable and show the following:
  - (a) Name of the producing foundry and country of manufacture preceded by the words “Made in”, such as “Made in USA”
  - (b) AASHTO designation or ASTM designation number



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- (c) Class by a number followed by a letter indicating the minimum tensile strength and size of test bar,
  - (d) Heat identification and cast date (MM/DD/YY),
  - (e) The above markings are required, but the Commission will allow some variation in how the above markings are provided on the finished product. The design and location of the markings must meet and be subject to the approval of the Commission's aesthetic judgment.
6. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
- (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement govern.
7. All valve boxes tops, bottoms, and covers shall be coated with an approved petroleum asphaltic seal coat.
8. The manufacturer/vendor/shipper must use care in preparing valves boxes for shipment and in handling during shipment and delivery, to insure that the product(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged product(s) will not be accepted.
9. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

### 3.10.2 Submittals

- 1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.



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2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the product(s) showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product(s) meet all the requirements of the AIS, an explanation, in the letter, of how the product(s) meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer shall furnish a certified statement that all product(s) of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the product(s) that states that the product(s) shall be free from all defects in material and workmanship under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole product(s) for a minimum one (1) year time period from time of delivery.
8. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed product(s) have been made, and the results of all tests conform to the requirements of the American Association of State Highway and Transportation Officials (AASHTO) M 105 Class 35B strength of materials requirements, American Society of Testing and Materials (ASTM) A48, Class 35B, and as the Commission may require the National Institute of Standards Technology (NIST) standards – Proof Load Testing.



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9. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
10. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.10.3 Two Piece Valve Boxes

1. In addition to the General Section above the following shall be provided:
2. The total weight of the valve box assembly (top, cover and bottom sections) shall be 105 pounds minimum.
3. Valve boxes shall be of lengths adapted to five-feet of pipe cover or more and have a minimum of six-inches of overlap in the most extended position
4. The top section shall have:
  - (a) A top flange to increase the stability of the box to remain at the present height
  - (b) A smooth cast seat to accept the lid and insure a non-rocking installation.
  - (c) The top section shall be 24-inches to 27-inches long and weigh a minimum of 40-pounds.
5. The bottom section shall have:



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- (a) A belled base and have an inside diameter of 5- $\frac{1}{4}$ "
- (b) The belled base shall enclose the valve, the valve stuffing box / seal plate, and operating nut.
- (c) A bottom flange of sufficient bearing area to prevent settling.
- (d) The bottom section shall be 36-inches to 40-inches long and weigh a minimum of 45-pounds.

### 3.10.4 Three Piece Valve Boxes

1. In addition to the General Section above the following shall be provided:
2. The total weight of the valve box assembly (top, cover, bottom, and base sections) shall be 145 pounds minimum.
3. Valve boxes shall be of lengths adapted to five-feet of pipe cover or more and have a minimum of six-inches of overlap in the most extended position
4. The top section shall have:
  - (a) A top flange to increase the stability of the box to remain at the present height.
  - (b) A smooth cast seat to accept the lid and insure a non-rocking installation.
5. The bottom section shall have:
  - (a) A belled base and have an inside diameter of 5- $\frac{1}{4}$ ".
  - (b) A bottom flange of sufficient bearing that will fit onto a number six base.
6. The number six base section shall have:
  - (a) At the top opening a minimum inside diameter of 5- $\frac{1}{4}$ ".
  - (b) The belled base shall enclose the air valve assembly and allow the lever to operate freely.
  - (c) A bottom flange of sufficient bearing area to prevent settling.

### 3.10.5 Valve Box Cover

1. In addition to the General Section above the following shall be provided:
2. The valve box cover shall have:



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- (a) A 7-5/16-inch diameter with a 2-inch thick lid and a 1-1/2-inch deep skirt. The overall height shall be 3-1/2-inches.
- (b) The valve box cover shall weigh no less than 13 pounds
- (c) The valve box cover shall have the word “Water” cast in the top.
- (d) The valve box cover shall be designed to remain seated when subjected to mobile traffic conditions.
- (e) The valve box cover shall be close fitting and substantially dirt tight and flush with the top of the box rim.

### 3.10.6 Valve Box Riser(s)

- 1. In addition to the General Section above the following shall be provided:
- 2. The valve box riser(s) shall be either fixed or slide type.
- 3. Valve box riser(s) shall be provided the following lengths:
  - (a) 1-inches – fixed
  - (b) 1-1/2- inches – fixed
  - (c) 2- inches – fixed
  - (d) 3-inches – fixed
  - (e) 4-inches – fixed
  - (f) 6-inches – slide
  - (g) 10-inches to 12inches – slide
  - (h) 13-inches to 18-inches - slide
- 4. A top flange to increase the stability of the box to remain at the present height.
- 5. A smooth cast seat to accept a standard valve box cover and insure a non-rocking installation.
- 6. The lower portion of valve box extension shall be, at most, 5-3/4-inch in diameter in order to fit inside the top section of an existing gate box.



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### 3.10.7 Valve Boxes Manufacturers and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Bibby Ste-Croix

- (a) Valve box complete: V683 (5664S)
- (b) Top section only: V747
- (c) Bottom section only: 7354
- (d) Cover: V878
- (e) 1-inch fixed riser: V829
- (f) 1-1/2-inches fixed riser: V830
- (g) 2-inch fixed riser: V831
- (h) 3-inch fixed riser: V832
- (i) 4-inch fixed riser: V833
- (j) 6-inch slide riser: V856
- (k) 10-inch to 14-inch slide riser: V858
- (l) 15-inch to 24-inch slide riser: V862
- (m)#6 enlarged base: 7341,

2. Bingham and Taylor –

- (a) Valve box complete: 5664-S (Fig. 4908)
- (b) Top section only: 56-S
- (c) Bottom section only: 64-S
- (d) Cover: 4905-L1.5
- (e) 1-inch fixed riser: 6016-B and specify raise desired



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- (f) 1-1/2-inches fixed riser: 6016-B and specify raise desired
  - (g) 2-inch fixed riser; 6016-B and specify raise desired
  - (h) 3-inch fixed riser: 6016-B and specify raise desired
  - (i) 4-inch fixed riser: 6016-B and specify raise desired
  - (j) 6-inch slide riser: NA (use item k)
  - (k) 10-inch to 14-inch slide riser: 6020 and specify raise desired (10-1/2-inches)
  - (l) 15-inch to 24-inch slide riser: 6020 and specify raise desired (15-inches)
  - (m)#6 enlarged base: 4909-A,
3. East Jordan Iron Works –
- (a) Valve box complete: 85553960 (664-A)
  - (b) Top section only: \_\_\_\_\_
  - (c) Bottom section only: \_\_\_\_\_
  - (d) Cover: 6800 (2-inch skirt)
  - (e) 1-inch fixed riser: 8500010
  - (f) 1-1/2-inches fixed riser: 850002015
  - (g) 2-inch fixed riser; 8500020
  - (h) 3-inch fixed riser: 8500030
  - (i) 4-inch fixed riser: 8500040
  - (j) 6-inch slide riser: NA (use item l)
  - (k) 10-inch to 14-inch slide riser: NA (use item l)
  - (l) 15-inch to 24-inch slide riser: 855558009 (#69) (16-1/2-inches)
  - (m)(#6) enlarged base: 85605006, or
4. Equal provided the products are manufactured as per these specifications.





# Springfield Water and Sewer Commission

## Material Specifications

### Section 3.11 HYDRANTS – DRY BARREL

#### 3.11.1 Public Hydrants

#### 3.11.2 General

1. Hydrants provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Hydrants as a minimum shall conform to the most current American Water Works Association Standard C-502 and all addenda thereto.
3. Working pressure 250 PSI. Test pressure 500 PSI.
4. Hydrant shall open RIGHT (clockwise).
5. The direction to open shall be cast with an indicating arrow and “OPEN” into the operating nut and weather shield or into the bonnet and shall be clearly visible when viewed from the top.
6. Hydrants shall be for 5-feet-0-inch, 5-feet-6-inch, 6-feet-0-inch, and 6-feet-6-inch bury. The standard depth of bury is 6-feet-0-inch, unless otherwise specified by the Commission (See delivery requirements, below). Depth of bury shall be painted on the lower barrel section of the hydrant.
7. Hydrant shall be of the full compression design, opening against and closing with the water pressure.
8. All internal parts shall be designed for rapid and simple removal employing a compact lightweight wrench that will withdraw all working parts from the base of the hydrant as a unit.
  - The design and construction of the hydrant shall be such that a Commission maintenance and repair crew can fully disassemble the hydrant from the frangible coupling in no more than one (1) hour.
9. Hydrants shall be bid without accessories (glands, gland gaskets and bolts).
  - Accessories shall be as specified in Section 3.16 of these Material Specifications.
10. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,



# Springfield Water and Sewer Commission

## Material Specifications

- (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
- (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
- (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
- (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.

### 11. Inspection:

- (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
- (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the hydrants.

12. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload. The Commission reserves the right to mix depth of buries to reach a full truckload.

13. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished(s) will not be accepted.

14. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 3.11.3 Submittals

- 1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.



# Springfield Water and Sewer Commission

## Material Specifications

2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the hydrant showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight for each bury depth, and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer shall furnish a certified statement that all hydrants of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the hydrants that states that the hydrants shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole hydrant for a minimum ten (10) year time period from time of delivery. The manufacturer shall repaint, recoat hydrants, or replace hydrant or hydrant parts that exhibit coating failure, such as rusting, chipping, flaking, under normal condition and from handling during delivery for a minimum three (3) year time period from time of delivery. Coating failures caused by Installer will not be a cause of coating failure.
8. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed hydrant have been made, and the results of all tests conform to the requirements of the American Water Works Association



# Springfield Water and Sewer Commission

## Material Specifications

Standard Specification C-502. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.

9. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
10. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.11.4 Bonnet

1. The bonnet shall be one piece and made of high strength cast iron ASTM A-126 Class B or of high strength ductile iron ASTM A-536 grade 65-45-12.
2. The bonnet shall be free draining.
3. The bonnet shall be designed to make tampering difficult and provide a convenient means for lubricating.

### 3.11.5 Barrel Sections

1. The barrel sections shall be one piece and made of high strength cast iron ASTM A-126 Class B or of high strength ductile iron ASTM A-536 grade 65-45-12.
2. The lower barrel shall be provided with a bury line painted or embossed onto it.



# Springfield Water and Sewer Commission

## Material Specifications

3. The upper and lower barrel joint shall be no less than 2-inches above the bury line.
4. The upper barrel nozzles shall be “three (3) way” and as follows:
  - (a) The upper barrel shall be equipped with (2) two each 2-1/2-inch hose nozzles, 180 degrees apart.
  - (b) The upper barrel be equipped with one (1) each 4-1/2-inch pumper nozzle on the same plane and in between the 2-1/2-inch hose nozzles.
  - (c) The location of the center line of the upper barrel nozzles shall be at least 16-inches above the bury line so that a 15-inch wrench can freely turn 360-degrees without hitting the ground.
5. Changes in shape or size of the barrel sections shall be curved. The junction of the hose and pumper outlets shall be rounded.
6. The upper and lower barrel joint shall be connected with a traffic safety flange.
  - (a) The traffic safety flange shall be designed so that in the event of accident, damage, or breaking of the hydrant above or near the ground line the main valve will remain closed.
  - (b) The traffic safety flange shall be of the split flange, split coupling type, or lock ring designed to permit 360-degree rotary movement of the upper barrel without shutting down service or removing the flange bolt
  - (c) The traffic safety flange may be high strength cast iron ASTM A-126 Class B or of high strength ductile iron ASTM A-536 grade 65-45-12 or other approved material designed so that in the event of accident, damage, or breaking of the hydrant above or near the ground line the main valve will remain closed.
  - (d) Break-away bolts, break-away barrel, lugs or individual metal keeper devices are not acceptable.
7. Hydrants shall be provided with permanent markings cast or stamped, mechanical or adhesive attachment shall not be acceptable, that are easily discernable (at least 1/2-inch to 1-inch tall) after the hydrant is installed (characters in parentheses are examples of permanent markings) that include the following:
  - (a) Identity of manufacturer by name, initials, insignia, or abbreviations commonly in use,
  - (b) Size of main valve opening (5-1/4”),
  - (c) Material the barrels are made of (DI or CI),



# Springfield Water and Sewer Commission

## Material Specifications

- (d) Year of manufacture (2010),
- (e) Pressure rating (250 PSI), and
- (f) Underwriters Laboratory Listed (UL).

### 3.11.6 Outlet Nozzles

1. Hydrant outlet nozzles shall be bronze and fastened into the nozzle section of the upper barrel by a mechanical means.
  - (a) Screwed in outlet nozzles shall be provided with a lock pin/screw to prevent the outlet nozzle from backing out, or;
  - (b) Recessed lug & groove outlet nozzles shall be provided with a threaded retainer or lock pin/screw to prevent outlet nozzle from backing out.
  - (c) Hydrant outlet nozzles shall not have any movement when locked into place.
  - (d) Caulking the outlet nozzle into the upper barrel shall not be allowed.
2. Hydrant outlet nozzles shall have National Fire Protection Association (NFPA) Number 194 National (American) Standard Fire Hose Coupling Screw Threads.

### 3.11.7 Outlet Nozzle Caps

1. Outlet nozzle caps shall be made of high strength Cast Iron ASTM 126A Class B
2. Outlet nozzle caps shall have National Fire Protection Association (NFPA) Number 194 National (American) Standard Fire Hose Coupling Screw Threads.
3. Nozzle caps shall be provided with 1-1/8" (point to flat) pentagon and shall be not less than 1" high.
4. All nozzle caps shall be provided with a metal slip ring attached to the nozzle cap and metal chains connected to the slip ring and hydrant barrel. The chain (slip) ring and chains shall allow the nozzle caps to rotate freely.
  - (a) The chain (slip) ring shall not be less than 1/4-inch diameter steel.
  - (b) The chain shall be non-kink double/twisted loop steel and shall not be less than 3/16-inch diameter. Each link shall be approximately 1-1/2-inches long. Each chain shall have at least eleven (11) links.
  - (c) The slip ring and chain shall be rust proof coated or plated or stainless steel.



# Springfield Water and Sewer Commission

## Material Specifications

### 3.11.8 Operating Mechanism

1. Operating nut shall be made of high strength ductile iron ASTM A-536 grade 65-45-12 or bronze
  - (a) 1-1/8" (point to flat) pentagon and shall be not less than 1" high.
  - (b) Operating nut may function as both an operating nut and weather-shield.
  - (c) The operating mechanism may be sealed with a rubber weather-shield or O-ring seal.
2. The design and construction of the hydrant operating mechanism of the hydrant shall be such that one (1) person shall be able to open and close the hydrant under a maximum operating pressure of 250-PSI with a 15-inch wrench.
3. The design and construction of the hydrant operating mechanism located at the top of the hydrant shall be such that no part of the operating threads will be in contact with water in the upper barrel (standpipe) when the hydrant is in service.
  - (a) The working threaded parts of the operating mechanism shall not have any steel or iron parts against steel or iron parts. The threaded portion of the operating stem or the stem nut (or sleeve) shall be made of bronze or stainless steel.
  - (b) Details and materials for the dry-top construction shall be subject to the approval of the Commission.
4. Hydrant operating mechanism assembly shall be housed in a compact housing with an integral lubrication chamber.
  - (a) Two (2) O-rings shall be provided to seal the lubrication chamber from water in the hydrant barrel from entering the lubricating chamber under pressure.
  - (b) An additional O-ring shall be used in the hold down nut to prevent dirt, condensation or atmospheric contamination entering the lubrication chamber from outside.
  - (c) The moving surface against which these two "O"-rings bear upon to create the seal must be of bronze or stainless steel.
5. A travel stop nut or similar device may, but is not required, be used to limit main valve travel and to prevent putting main stem into over compression.
6. The upper operating assembly shall be compatible with the "Custodian" vandal proof device as manufactured by Hydra-Shield Manufacturing, Inc. The



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## Material Specifications

"Custodian" device must be able to be installed without further machining or modification to the hydrant.

7. The upper and lower operating rods may be made of cold roll steel (CRS), hot rolled steel (HRS), stainless steel (SS), or other material approved by the Commission. The lower operating rod shall not protrude past the lower barrel
8. The operating rods shall be connected with frangible coupling designed so that in the event of accident, damage, or breaking of the hydrant above or near the ground line the main valve will remain closed.
  - (a) The frangible coupling shall be held in place to the operating rods with at least one (1) stainless steel pin or bolt in each rod.
  - (b) Details and materials for the frangible connections shall be subject to the approval of the Commission.

### 3.11.9 Main Valve Assembly

1. Hydrant valve opening 5-1/4" minimum as sized by seat ring internal opening.
2. The hydrant main valve may be either three (3) piece design or one (1) piece design, as follows:
3. Three (3) piece design includes a top plate, main valve, and bottom plate:
  - (a) The valve top plate may be high strength ductile iron ASTM A-536 grade 65-45-12, high strength Cast Iron ASTM 126A Class B, bronze, or other material approved by the Commission.
  - (b) The valve bottom plate may be high strength ductile iron ASTM A-536 grade 65-45-12, high strength Cast Iron ASTM 126A Class B, bronze, or other material approved by the Commission.
  - (c) The valve bottom plate shall be fully epoxy coated by a fusion or thermal bonding in accordance with AWWA C-550. Bronze or stainless steel valve bottom plates do not require epoxy coating.
  - (d) The main valve may be high strength ductile iron ASTM A-536 grade 65-45-12, high strength Cast Iron ASTM 126A Class B, bronze, or other material approved by the Commission fully encapsulated in a rubber compound for water service, molded, not split and glued, constructed of styrene butadiene rubber (SBR) or Nitrile (Buna-N) compounds, and must meet or exceed ASTM D-2000 3 BA 715 and ANSI A21.11/AWWA C-111, latest revision. No bare metal shall be left exposed.





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## Material Specifications

4. One (1) piece design is a single piece:
  - (a) The main valve may be high strength ductile iron ASTM A-536 grade 65-45-12, high strength Cast Iron ASTM 126A Class B, steel, or other material approved by the Commission.
  - (b) The main valve shall be fully encapsulated in a rubber compound for water service, molded, not split and glued, constructed of ethylene propylene diene Monomer (EPDM) rubber in accordance with [ASTM](#) standard D-1418, styrene butadiene rubber (SBR) or Nitrile (Buna-N) compounds in accordance with ASTM D-2000 3 BA 715 and ANSI A21.11/AWWA C-111, latest revision. No bare metal shall be left exposed.
5. The main valve assembly shall have a bronze sub-seat and a bronze seat ring.
6. The mechanically installed sub-seat of the hydrant shall be constructed of bronze, and be an integral part of the bottom shoe/elbow.
  - The sub-seat shall be mechanically installed with threads, lock rings, or other Commission approved method.
7. The seat ring shall also be of bronze and shall be a working component of the main valve assembly.
8. Seal between seating and sub-seat shall consist of “o” rings located in machined grooves, above and below the drainage channel.
9. There shall be a minimum of two (2) drain ports one hundred and eighty-degrees apart. The drain ports shall be provided in the bottom barrel, bottom shoe/elbow, or between the bottom barrel and bottom shoe/elbow.
10. All "O" rings shall seal against bronze.

### 3.11.10 Bottom Shoe/Elbow

1. The bottom shoe/elbow shall be made of high strength ductile iron ASTM A-536 grade 65-45-12.
2. The bottom shoe/elbow shall be provided with flat cast bottom to set the hydrant on.
3. The bottom shoe/elbow shall be provided with 6-inch mechanical joint connection in accordance with ANSI/AWWA C111/A21.11.



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### 3.11.11 Coatings

1. Coatings require proper surface preparation in order for the coating systems to adhere to the component being coated. At a minimum the components shall be mechanically blast cleaned and/or immersed in a chemical cleaner or heat cleaned in a furnace in order to insure a properly prepared surface that is clean and clear of any grease, oil, dirt, etc., in accordance with AWWA C502 and C-550, latest versions.
2. The bonnet shall be fully epoxy coated by a fusion or thermal bonding, a polyester powder coat, or an epoxy wet or electrodesposition coat primer with a polyurethane top coat paint system in accordance with AWWA C502 and C-550, latest versions, and shall be applied to the interior (excluding lubricating chamber) and exterior of the bonnet.
  - (a) The color shall be a gloss aluminum/silver in accordance with Federal Standard 595 Paint Specification FS 17178.
  - (b) All threads and/or functional openings and surfaces shall be protected prior to coating and the barrel delivered without coating on the threads and/or functional openings and surfaces.
3. The upper barrel shall be fully epoxy coated by a fusion or thermal bonding, a polyester powder coat, or an epoxy wet or an electrodesposition coat primer with a polyurethane top coat paint system in accordance with AWWA C502 and C-550, latest versions, and shall be applied to the interior and exterior of the upper barrel.
  - (a) The color shall be gloss blue angels yellow in accordance with Federal Standard 595 Paint Specification FS 13655 or RGB Hex Code FDD31D.
  - (b) All threads and/or functional openings and surfaces shall be protected prior to coating and the barrel delivered without coating on the threads and/or functional openings and surfaces.
4. The lower barrel may be covered with two (2) coats of asphaltic tar coatings, the first being allowed to dry before the second is applied or may be fully epoxy coated by a fusion or thermal bonding or coated in accordance with AWWA C-502 and C-550, latest version, and shall be applied to the interior and exterior of the lower barrel.
5. The nozzle caps shall be fully epoxy coated by a fusion or thermal bonding, a polyester powder coat, or a epoxy wet or electrodesposition coat primer with a polyurethane top coat paint system in accordance with AWWA C502 and C-550, latest versions, and shall be applied to the interior and exterior of the nozzle caps.



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## Material Specifications

- (a) The color shall be a gloss aluminum/silver in accordance with Federal Standard 595 Paint Specification FS 17178.
  - (b) All threads and/or functional openings and surfaces shall be protected prior to coating and the barrel delivered without coating on the threads and/or functional openings and surfaces.
6. The bottom shoe/elbow shall be fully epoxy coated by a fusion or thermal bonding in accordance with AWWA C-502 and C-550 and shall be applied to the interior and exterior of the bottom shoe/elbow.

### 3.11.12 Manuals, Spare Parts, Tools, Touch-up Paint, Training, Repairs

1. The requirements of this section are for Commission Price Agreements and are not for Commission Approved Contractors or Commission Capital Projects, unless specifically asked for in the project.
2. The manufacturer shall provide four (4) 24-inches by 36-inches (vertical) cut sheets showing all the hydrant components, component material, and component part numbers with the first delivery. The vertical cut sheets shall be laminated.
3. The manufacturer shall provide six (6) complete sets catalogue or manual for parts, repair and maintenance with the first delivery.
4. The manufacturer shall provide at no additional cost four (4) complete sets of assembly/disassembly tools with the first delivery of hydrants.
5. The manufacturer shall provide two (2) quarts of touch-paint or coating that is compatible with the factory applied coating with the first delivery.
6. The manufacturer shall provide training to Commission construction and maintenance staff every two (2) years. Training shall be by a factory trained representative at the Commission's Customer Service Office at 71 Colton Street, Springfield Massachusetts during normal business hours. The first training shall be provided within 30-days of the first delivery unless otherwise scheduled by the Commission.
7. The manufacturer and/or vendor shall provide the Commission with contact information for a factory trained representative who shall be responsible to respond to complaints from the Commission about defects in material, coatings, and workmanship under normal use of the product within ten (10) working days.



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## Material Specifications

### 3.11.13 Miscellaneous

1. All fasteners, excluding joint accessories, installed below the ground line shall be made of Grade 304 stainless steel. Bolts shall meet ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
2. All fasteners installed above the ground line shall be made of medium carbon steel and supplied with a rust proof coating. Bolts shall be of medium carbon steel, per ASTM A193, grade B7. Nuts shall be heavy hex nuts made of medium carbon steel, ASTM A194, grade 2H. All bolts and nuts shall be Unified National Coarse (UNC) rolled thread. Bolts installed into castings shall be provided with one (1) medium carbon steel flat washer and nuts and bolts shall be provided with two (2) medium carbon steel flat washers so that the epoxy coating is not damaged. All the medium carbon steel bolts, nuts, and washers installed above the ground line shall be rust proof coated or plated. Nuts and/or bolts shall be provided with two (2) Grade B steel flat washers so that the epoxy coating is not damaged.
3. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
4. The exterior design of the bonnet and upper barrel shall be of the “traditional design” and must meet and be subject to the approval of the Commission’s aesthetic judgment.



# Springfield Water and Sewer Commission

## Material Specifications

### 3.11.14 Hydrant Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. American Flow Control – B-84-B-5,
2. AVK – 2780,
3. Clow – Medallion – F2545,
4. Kennedy - Guardian – K81,
5. M & H – 6129,
6. Mueller – Super Centurion,
7. U.S. Pipe - Metropolitan 250 – Model M-94,
8. East Jordan Iron Works – Watermaster 5CD250, or
9. Equal provided the Hydrants are manufactured as per these specifications.



# Springfield Water and Sewer Commission

## Material Specifications

### 3.11.15 Private Hydrants installed after a Back Flow Prevention Device

1. In addition to the Material Specifications for Public Hydrants Section 3.11.1 Private Hydrants installed after a back flow prevention device shall meet the following requirements:
2. Private Hydrants installed after a Back Flow Prevention Device shall be “two (2) way” and as follows:
  - (a) The upper barrel shall be equipped with (2) two each 2-1/2-inch hose nozzles, no greater than 180 degrees apart.
  - (b) The location of the center line of the upper barrel nozzles shall be at least 16-inches above the bury line so that a 15-inch wrench can freely turn 360-degrees without hitting the ground.
3. The upper barrel shall be fully epoxy coated by a fusion or thermal bonding, a polyester powder coat, or an epoxy wet or electro-disposition coat primer with a polyurethane top coat paint system in accordance with AWWA C502 and C-550, latest versions, and shall be applied to the interior and exterior of the upper barrel.
  - (a) The color shall be gloss red in accordance with Federal Standard 595 Paint Specification FS 11105 or RGB Hex Code B51F11.
  - (b) All threads and/or functional openings and surfaces shall be protected prior to coating and the barrel delivered without coating on the threads and/or functional openings and surfaces.
4. The rest of the components shall be coated as required in Section 3.11.11 of these Material Specifications.



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## Material Specifications

### 3.11.16 Private Hydrants installed before a Back Flow Prevention Device

1. In addition to the Material Specifications for Public Hydrants Section 3.11.1 Private Hydrants installed before a back flow prevention device shall meet the following requirements:
2. The upper barrel shall be fully epoxy coated by a fusion or thermal bonding, a polyester powder coat, or an epoxy wet or electro-disposition coat primer with a polyurethane top coat paint system in accordance with AWWA C502 and C-550, latest versions, and shall be applied to the interior and exterior of the upper barrel.
  - (a) The color shall be gloss red in accordance with Federal Standard 595 Paint Specification FS 11105 or RGB Hex Code B51F11.
  - (b) All threads and/or functional openings and surfaces shall be protected prior to coating and the barrel delivered without coating on the threads and/or functional openings and surfaces.
3. The rest of the components shall be coated as required in Section 3.11.11 of these Material Specifications.



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### 3.11.17 Vandal Proof Device for Operating Fire Hydrants

1. Vandal Proof Device for Operating Fire Hydrants provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Device Description
  - (a) A vandal proof device (Trade Name “Custodian”) to prevent unauthorized use of fire hydrants. The device shall readily attach to the existing fire hydrant housing or opening mechanism. Materials shall be strong enough to withstand acts of vandalism and weather extremes and still provide smooth fire hydrant operation. The device shall be unique in that only a special magnetic wrench can open or close the fire hydrant.
  - (b) The vandal proof device shall be made to be installed on any hydrant in the Springfield Water and Sewer Commission’s Service Area..
  - (c) The vandal proof device shall be made to order, for specific makes and models of hydrants.

3. Device Construction

An inner barrel constructed of high tensile manganese bronze shall be designed to fit over the existing fire hydrant operating nuts. An outer housing constructed of stainless steel shall be installed over the inner barrel so as to swivel freely until a special key wrench is used. Attachment of the outer housing shall be a special snap ring groove designed to withstand repeated blows by a sledge hammer without shearing.

4. Device Mating Collar

A mating collar shall be installed between the outer housing fire hydrant top for a weather seal and to prevent removal of the swivel housing by pry bars or other tools available to vandals. The mating collar shall extend up the sides of the swivel housing and to a height sufficient to provide added protection of the hydrant operating nut and to withstand repeated blows by sledge without failing.

5. Device Operating Wrench

A special magnetic operating wrench shall be constructed of an aluminum-magnesium alloy with handles extending from both sides for easy operation. The wrench shall incorporate a unique permanent magnet which will engage an activator located inside the outer housing. The magnet’s inductive magnet can engage the activator. Performance must not be affected by local environment





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temperature ranges or weather conditions. The special key wrench shall be the only means of opening or closing the hydrant. As an added convenience, the opposite side of the wrench shall contain a conventional 1-1/8" pentagon recess that will work on standard hydrant nuts.

6. The manufacturer/vendor/shipper must use care in preparing the vandal proof device for shipment and in handling during shipment and delivery, to insure that the vandal proof devices are delivered without damage. Damaged vandal proof devices will not be accepted.
7. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the vandal proof device and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
8. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### 3.11.18 Diffusers for Fire Hydrants

1. Fire Hydrant Diffusers shall be provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Fire Hydrant Diffusers shall be for use with chemically treated (4 ppm or less chlorine/chloramine) potable water.
3. Fire Hydrant Diffusers shall be provided with 2-1/2-inch NPT Coupling that accepts any 2-1/2" NPT Male Iron Pipe Adapter.
4. Fire Hydrant Diffusers shall be 18-inches in length x 8-inches x 8-inches at the discharge
5. Fire Hydrant Diffusers shall weight 33-pounds.
6. Fire Hydrant Diffusers shall be used with 81% Sodium Sulfitite tablets
7. Fire Hydrant Diffusers shall have an eleven (11) Tablet Capacity and use approximately one (1) Tablet per 2,500-gallons.
8. Fire Hydrant Diffusers shall be as currently manufactured by Pollardwater – Model LPD-250, or equal provided the Fire Hydrant Diffusers are manufactured as per these specifications.
9. The manufacturer/vendor/shipper must use care in preparing the above product for shipment and in handling during shipment and delivery, to insure that the products are delivered without damage. Damaged vandal proof devices will not be accepted.
10. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above product and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

#### 11. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered



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- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product.

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### 3.11.19 Private Yard Hydrant

1. Private Yard Hydrants provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Formed shall mean metals rolled or pressed or machined to create a finished product,
  - (d) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (e) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (f) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
3. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished products.
4. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload. The Commission reserves the right to mix depth of buries to reach a full truckload.
5. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the



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finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished(s) will not be accepted.

6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.
7. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
8. The manufacturer and/or vendor shall furnish three (3) sets of 8-1/2-inch by 11-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the fittings showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Rated working pressure and hydrostatic test pressure of each finished product(s), and
  - (e) Country of origin for each component.
9. The manufacturer at the Commission's request shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
10. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
11. The manufacturer shall furnish a warranty for the finished Fittings that states that the Fittings shall be free from all defects in material and workmanship and from handling during delivery under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole coupling for a minimum one (1) year time period from time of delivery. Coating failures caused by Installer will not be a cause of coating failure



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12. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed Fittings have been made, and the results of all tests conform to the requirements of the appropriate ANSI/AWWA standard.
13. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
14. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.
15. Private Yard Hydrants shall be non-freezing type and provided so as to be self-draining and a depth of bury of 5-feet 6-inches minimum.
16. Private Yard Hydrants will be furnished with a 2" female iron pipe (FIP) inlet and a 2-1/2" national standard thread (NST) outlet.
17. Private Yard Hydrants shall have a non-turning operating rod and shall open to the left.
18. Private Yard Hydrants shall be painted red.
19. All working parts of Private Yard Hydrants shall be bronze to bronze design and be serviceable from above grade with no digging.
20. The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for



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interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

- (a) Kupferle – #80WD, or
- (b) Equal provided the products are manufactured as per these specifications.



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### Section 3.12 FITTINGS

#### 3.12.1 General

1. Fittings provided to the Springfield Water and Sewer Commission (Commission) or its Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Fittings shall be cast from of high strength ductile iron conforming to ASTM A-536 grade 70-50-05. The minimum tensile strength shall be 70,000-PSI, the minimum yield strength shall be 50,000-PSI, and the minimum elongation shall be 5%.
3. Fittings shall be NSF 61 certified.
4. Working Pressure:
  - (a) 4-inch though 24-inch shall be rated at 350-PSI. Test pressure shall be three (3) times the rated working pressure (1050-PSI).
  - (b) 30-inch though 48-inch shall be rated at 250-PSI. Test pressure shall be three (3) times the rated working pressure (750-PSI).
  - (c) 54-inch though 64-inch shall be rated at 150-PSI. Test pressure shall be three (3) times the rated working pressure (450-PSI).
5. Joints of Fittings:
  - (a) Fittings shall be restrained mechanical joint conforming to ANSI A21.11/AWWA C-111 and as specified in Section 3.16 of these Material Specifications, unless otherwise specified by the Springfield Water and Sewer Commission (Commission).
  - (b) Ductile Iron fittings with restrained mechanical joint, flange, plain end, or combination thereof may be allowed in accordance with appropriate ANSI/AWWA standard and as specified by Commission.
  - (c) The bolt holes shall be equal spaced and straddle the pipe center line.
  - (d) Push-on (Tyton), type joints are not acceptable.
6. Ductile Iron Fittings shall be interior lined and exterior coated as follows:
  - (a) All Fittings shall be lined with an double cement mortar lining and sealed (over the mortar lining) and with an approved asphaltic material seal coat in accordance with ANSI A21.4/AWWA C-104 of the latest revision.





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- (b) Provisions of ANSI A21.4/AWWA C-104, Section 4.11 relating to characteristics of asphaltic seal coat as to deleterious effect upon the quality, color, taste or odor imparted to potable water shall be strictly observed.
  - (c) The exterior coating all Fittings shall have a base layer of arc-applied, 99.99% pure zinc coating, having a mass of 200g/m<sup>2</sup> and shall comply with all applicable parts of ISO 8179 for zinc coatings.
  - (d) All Fittings shall have a finish layer of shop-applied bituminous paint in accordance with AWWA C-151 latest the revision and shall comply with all applicable parts of ISO 8179 for zinc coatings
7. Markings
- (a) Fittings shall be marked with the weight.
  - (b) Fittings shall have distinctly cast upon them the pressure rating, the manufacturer's identification, nominal diameter of the openings, and the number of degree or fraction of the circle on all bends.
8. All tests shall be made in accordance with the methods prescribed by the appropriate ANSI/AWWA standards.
9. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall meet ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
10. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
11. Fittings shall be bid without accessories (glands, gland gaskets and bolts).



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12. Accessories shall be as specified in Section 3.16 of these Material Specifications.
13. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (c) North America shall mean the United States, Canada, and Mexico,
  - (d) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (e) Formed shall mean metals rolled or pressed or machined to create a finished product,
  - (f) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (g) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (h) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
14. Inspection:
  - (i) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (j) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished products.
15. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload. The Commission reserves the right to mix depth of buries to reach a full truckload.
16. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished(s) will not be accepted.



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17. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 3.12.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 8-1/2-inch by 11-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the fittings showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Rated working pressure and hydrostatic test pressure of each finished product(s), and
  - (e) Country of origin for each component.
3. The manufacturer at the Commission's request shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish a warranty for the finished Fittings that states that the Fittings shall be free from all defects in material and workmanship and from handling during delivery under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole coupling for a minimum one (1) year time period from time of delivery. Coating failures caused by Installer will not be a cause of coating failure
6. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed Fittings have been made, and the results of all tests conform to the requirements of the appropriate ANSI/AWWA standard.



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7. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (f) Name of Municipality/Utility
  - (g) Total amount of product bid on and amount delivered
  - (h) Date the bid was accepted and date the product was delivered
  - (i) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
8. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (j) Approved means the contractor can supply the material as shown on the drawing(s).
  - (k) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (l) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.12.3 Ductile Iron Fittings - Compact (or Short) Body

1. Ductile Iron Fittings – Compact (or Short) Body provided to the Commission or its Contractors shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Ductile Iron Fittings – Compact (or Short) Body, as a minimum, meet all specifications as in Paragraphs 3.12.1, 3.12.2, and the following:
3. Ductile Iron Fittings Compact (or Short) Body shall at a minimum conform to ANSI 21.53/AWWA C-153 (most current revision).



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### 3.12.4 Ductile Iron Fittings – Standard (or Long) Body

1. Ductile Iron Fittings – Standard (or Long) Body provided to the Springfield Water and Sewer Commission (Commission) or its Contractors shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Ductile Iron Fittings – Standard (or Long ) Body, as a minimum, meet all specifications as in in Paragraphs 3.12.1, 3.12.2, and the following:
3. Ductile Iron Fittings - Standard (or Long) Body shall at a minimum conform to ANSI 21.10/AWWA C-110 (most current revision).

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### 3.12.5 Hydrant Anchoring Tees

1. Hydrant Anchoring Tees provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Hydrant Anchoring Tees, as a minimum, meet all specifications as in in Paragraphs 3.12.1, 3.12.2, and the following:
3. Hydrant Anchoring Tees shall conform to ANSI A21/AWWA C-110 (most current revision).
4. Hydrant Anchoring Tees shall be restrained mechanical joint conforming to ANSI A21.11/AWWA C-111 and as specified in Section 3.16 of these Material Specifications, unless otherwise specified and the branch shall have a plain end with an integral gland and rotating mechanical joint gland and mechanical joint restraints to provide a restrained connection.



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### 3.12.6 Solid Sleeve

1. Solid Sleeves provided to the Springfield Water and Sewer Commission (Commission) or its Contractors shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Solid Sleeves, as a minimum, meet all specifications as in in Paragraphs 3.12.1, 3.12.2, and the following:
3. Solid Sleeves shall conform to ANSI A21/AWWA C-110 (most current revision).
4. Solid Sleeves shall be restrained mechanical joint conforming to ANSI A21.11/AWWA C-111 and as specified in Section 3.16 of these Material Specifications, unless otherwise specified.
5. Solid sleeves, at a minimum, shall be provided with a ¾” NPT test port with a lead free brass lug with standard square head. Proper use of this feature assures positive seal before putting the water main back in service.

### 3.12.7 Split Repair sleeve

1. Split Repair Sleeves provided to the Springfield Water and Sewer Commission (Commission) or its Contractors shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Split Repair Sleeves, as a minimum, meet all specifications as in in Paragraphs 3.12.1, 3.12.2, and the following:
3. Split Repair Sleeves shall conform to ANSI A21/AWWA C-110 (most current revision).
4. Split Repair sleeves for ductile iron shall be restrained mechanical joint conforming to ANSI A21.11/AWWA C-111 and as specified in Section 3.16 of these Material Specifications, unless otherwise specified.
5. Split Repair sleeves for cast iron shall be mechanical joint conforming to ANSI A21.11/AWWA C-111 and as specified in Section 3.16 of these Material Specifications, unless otherwise specified. When specified for cast iron pipe restraining glands are not required.
6. Split Repair sleeves, at a minimum, shall be provided with a ¾” NPT test port with a lead free brass lug with standard square head. Proper use of this feature assures positive seal before putting the water main back in service.
7. Split Repair sleeves shall be provided with split gland and body components.



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8. Split Repair sleeve side rubber gaskets shall be rectangular to cross-section and shall fit into grooved channels in the casting. These gaskets shall extend the entire length of the sleeve. Gaskets shall be made of Nitrile (Buna-N).
9. Split Repair sleeve shall be AB-CD pattern to permit use of plain rubber and duck-tipped gaskets for various O.D. piping sizes.

### 3.12.8 Fitting Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Ductile Iron Fittings – Compact and Standard Body
  - (a) American Cast Iron Pipe Co. – all fittings,
  - (b) Atlantic States Pipe (McWayne, Inc.) – all fittings,
  - (c) Griffon Pipe Products, Inc. – all fittings,
  - (d) Tyler Union – all fittings,
  - (e) U. S. Pipe and Foundry Co. – all fittings, or the equal product of another manufacturer.
2. Ductile Iron Fittings – Hydrant Anchoring Tees
  - (a) American Cast Iron Pipe Co.,
  - (b) Atlantic States Pipe (McWayne, Inc.),
  - (c) Griffon Pipe Products, Inc.,
  - (d) Tyler Union,
  - (e) U. S. Pipe and Foundry Co., or the equal product of another manufacturer.
3. Ductile Iron Fittings – Solid Sleeves
  - (a) American Cast Iron Pipe Co.,
  - (b) Atlantic States Pipe (McWayne, Inc.),
  - (c) Griffon Pipe Products, Inc.,





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- (d) Tyler Union,
  - (e) U. S. Pipe and Foundry Co., or the equal product of another manufacturer.
4. Ductile Iron Fittings – Split Repair Sleeves
- (a) American Cast Iron Pipe Co. – model 2800,
  - (b) Atlantic States Pipe (McWayne, Inc.),
  - (c) Griffon Pipe Products, Inc.,
  - (d) Mueller Co. – models H-785 and H-786
  - (e) Tyler Union - ,
  - (f) U. S. Pipe and Foundry Co., or the equal product of another manufacturer.



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### Section 3.13 COUPLINGS

#### 3.13.1 General

1. Couplings provided to the Springfield Water and Sewer Commission or its Contractors shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Couplings as a minimum shall conform to the most current American Water Works Association Standard C-219 and all addenda thereto.
3. Working pressure shall be rated at 200-PSI. Test pressure shall be 1.5 times the rated working pressure (375-PSI).
4. Couplings shall be provided with gaskets constructed of Styrene butadiene rubber (SBR) or Nitrile (Buna-N) compounds for water service, molded, not split and glued, and must meet or exceed ASTM D-2000 3 BA 715 and ANSI A21.11/AWWA C-111, latest revision.
5. The exterior coating all couplings shall be fusion-bonded epoxy coating in accordance with ANSI A21.16 / AWWA C116 of the latest revision and shall be applied to the interior and exterior of the fitting.
6. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
7. At the Commission's discretion, track-head or tee-head bolts made of high strength, low alloy, corrosion resistant, Cor-Ten steel may be substituted. A request for the substitution must be submitted in writing to E&TS. Track head bolts made of high strength, low alloy, corrosion resistant, Cor-Ten steel shall be in accordance AWWA C-111, ASTM A242, and/or ASTM A588 latest revisions. Nuts shall be in accordance with ASTM A194 grade 2H or ASTM A563 grade A latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) medium carbon steel flat washer and nuts and bolts shall be provided with two (2) medium carbon steel flat washers so that the epoxy coating is not damaged. All the non-stainless steel bolts, nuts, and washers shall be rust proof coated or plated.



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8. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
9. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Formed shall mean metals rolled or pressed or machined to create a finished product,
  - (d) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (e) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (f) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
10. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished products.
11. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission’s service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity



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comprising a minimum truckload. The Commission reserves the right to mix depth of buries to reach a full truckload.

12. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished(s) will not be accepted.
13. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 3.13.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 8-1/2-inch by 11-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the hydrant showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Country of origin for each component.
3. The manufacturer at the Commission's request shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish a warranty for the finished couplings that states that the couplings shall be free from all defects in material and workmanship and from handling during delivery under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole coupling for a minimum one (1) year time period

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from time of delivery. Coating failures caused by Installer will not be a cause of coating failure

6. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed couplings have been made, and the results of all tests conform to the requirements of the American Water Works Association Standard Specification C-219.
7. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
8. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.13.3 Standard Range Couplings 4” – 24”

1. Standard Range Couplings 4” – 24” shall, as a minimum, meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:
2. Standard Range Couplings 4” – 24” shall have both center and end rings made of high strength ductile iron ASTM A-536 grade 65-45-12, latest revision.
3. Standard Range Couplings 4” – 24” shall have the center rings, end rings, and gaskets clearly labeled to show the diameter range it will cover.



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### 3.13.4 Wide Range Couplings 4” – 24”

1. Wide Range Couplings 4” – 24” shall, as a minimum, shall meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:
2. Wide Range Couplings 4” – 24” shall have both center and end rings made of high strength ductile iron ASTM A-536 grade 65-45-12, latest revision.
3. Wide Range Couplings 4” – 24” shall have the center rings, end rings, and gaskets clearly labeled to show the diameter range it will cover.

### 3.13.5 Wide Range Two Bolt Couplings up to 12-inch

1. Wide Range Two Bolt Couplings shall, as a minimum, shall meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:
2. Wide Range Two Bolt Couplings shall have center ring, end rings, and bolt guides made of high strength ductile iron ASTM A-536 grade 65-45-12, latest revision. Center ring shall include a handle to ease installation.
3. Wide Range Two Bolt Couplings shall be provided with preassembled wide range gaskets and one additional gasket to cover extra wide range. The gasket shall be clearly labeled to show the diameter range it will cover. A heavy gauge 304 stainless steel armor shall be installed on each gasket.

### 3.13.6 Wide Range Two Bolt Couplings 16-inch to 24-inch

1. Wide Range Two Bolt Couplings shall, as a minimum, shall meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:
2. Wide Range Two Bolt Couplings shall have end rings made of high strength ductile iron ASTM A-536 grade 60-40-18 for 16-inch or medium carbon steel ASTM A-795 for 18-inch to 24-inch, latest revisions.
3. Wide Range Two Bolt Couplings shall have center ring, made of high strength medium carbon steel ASTM A53 grade A, latest revisions.
4. Wide Range Two Bolt Couplings shall be provided with preassembled wide range gaskets. The gasket shall be clearly labeled to show the diameter range it will cover. A heavy gauge 304 stainless steel armor shall be installed on each gasket.

### 3.13.7 Large Diameter Wide Range Couplings 16-inch to 24-inch

1. Large Diameter Wide Range Couplings 16” and larger shall, as a minimum, shall meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:



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2. Large Diameter Wide Range Couplings 16" and larger coupling shall have both center and end rings made of high strength ductile iron ASTM A-536 grade 65-45-12, latest revision.
3. Large Diameter Wide Range Couplings 16" and larger coupling shall be clearly labeled to show the diameter range it will cover.

### 3.13.8 Couplings 30" – 48"

1. Couplings 30" – 48" shall, as a minimum, shall meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:
2. Couplings 30" – 48" shall have the center rings that are either beveled or flared and made of formed carbon steel per ASTM A-36 with minimum yield of 30,000 PSI.
3. Couplings 30" – 48" shall have end rings that are contoured rolled mill section carbon steel per AISI 1018-1020. End ring thickness shall be determined by pipe O.D. and pressure rating.
4. Vendor shall provide complete diameter range information on the couplings being bid.

### 3.13.9 Coupling with End Caps and Threaded Outlets up to 16-inch

1. Couplings with end caps and threaded outlets shall, as a minimum, shall meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:
2. Couplings and end caps shall have the center ring, both end rings, and the end cap made of high strength ductile iron ASTM A-536 grade 65-45-12, latest revision.
3. End caps to be furnished with a 2" threaded NPT female outlet with plug.
4. Vendor shall provide complete diameter range information on the couplings being bid.

### 3.13.10 Coupling with End Caps and Threaded Outlets greater than 16-inch

1. Couplings with end caps and threaded outlets shall, as a minimum, shall meet all specifications as in Paragraphs 3.13.1, 3.13.2, and the following:
2. Couplings and end caps shall have the center rings that are either beveled or flared and made of formed carbon steel per ASTM A-36 with minimum yield of 30,000 PSI.



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3. Couplings with end caps shall have end rings that are contoured rolled mill section carbon steel AISI 1018-1020. End ring thickness shall be determined by pipe O.D. and pressure rating.
4. End caps to be furnished with a 2" threaded NPT female outlet with plug.
5. Vendor shall provide complete diameter range information on the couplings being bid.

### 3.13.11 Coupling Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Standard Range Couplings 4" – 24" shall be
  - (a) Dresser – Style 253 (up to 16-inch only),
  - (b) Ford – Style FC1,
  - (c) Romac - Style 501 couplings,
  - (d) Smith-Blair – OMNI 441A (up to 16-inch only), or
  - (e) Equal provided the products are manufactured as per these specifications.
2. Wide Range Couplings 4" – 24" shall be
  - (a) Dresser – Style 253,
  - (b) Mueller – Maxi-Range,
  - (c) Romac - Style XR501 couplings, or
  - (d) Equal provided the products are manufactured as per these specifications.
3. Wide Range Two Bolt Couplings up to 12-inch shall be
  - (a) Romac – Macro HP, or
  - (b) or the equal product of another manufacturer.
4. Wide Range Two Bolt Couplings 16-inch to 24-inch shall be
  - (a) Krause – Hymax, or

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- (b) the equal product of another manufacturer.
- 5. Couplings 30” – 48” shall be
  - (a) Dresser – Style 38 or 138,
  - (b) Ford – Style FC4,
  - (c) Romac style 400,
  - (d) Smith Blair 411A or 413A, or
  - (e) the equal product of another manufacturer.
- 6. Coupling with End Caps and Threaded Outlets up to 16-inch
  - (a) Romac Style EC501, or
  - (b) the equal product of another manufacturer.
- 7. Coupling with End Caps and Threaded Outlets greater than 16-inch
  - (a) Dresser – Style 38 or 138
  - (b) Ford Style FC4,
  - (c) Romac Style FC400
  - (d) Smith Blair Style 481A, or
  - (e) the equal product of another manufacturer.



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### Section 3.14 CLAMPS

#### 3.14.1 General

1. All Clamps in this section provided to the Springfield Water and Sewer Commission (Commission) or installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal(s) poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
3. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).
4. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
5. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at



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protecting the protective coating from damage. Damaged finished products and/or protective coatings will not be accepted.

### 3.14.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the clamp(s) showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.
7. The manufacturer and/or vendor shall furnish a certified statement that all butterfly valves of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.



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8. The manufacturer and/or vendor shall furnish a warranty for the clamp(s) that states that the clamp(s) shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole butterfly valve for a minimum ten (10) year time period from time of delivery.
9. The manufacturer and/or vendor shall furnish certified results of a proof of design test performed at an independent testing laboratory. Testing shall include a shell test and seal test to demonstrate the clamp(s) will hold pressure as required.
10. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
11. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.14.3 Repair Clamps and Clamps with Outlets

1. Repair Clamps and Clamps with Outlets provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Repair Clamps and Clamps with Outlets shall, as a minimum, meet all specifications as in Paragraphs 3.14.1, 3.14.2, and the following:



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3. Repair clamps shall be single section up to 12-inch diameter and three sections for 16-inch through 24-inch diameter.
4. Shells shall be constructed of Grade 18-8, Type 304 stainless steel with stainless steel lugs and side bars welded to the shell.
5. Lugs and side bars shall be constructed of Grade 18-8, Type 304 stainless steel with stainless steel fasteners welded to the lugs and side bars.
6. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
7. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
8. All welds used in the construction of the repair clamps shall conform to all American Welding Society (AWS) codes. All welds shall be fully passivated in order to restore the stainless steel to its original corrosive resistant characteristics.
9. Repair clamps shall be provided with gaskets constructed of Styrene butadiene rubber (SBR) compound for water service and must meet or exceed ASTM-D-2000-AA-415.
10. Ranges must be clearly labeled on the package as well as on each clamp.
11. Clamps with outlets shall have Mueller CC thread.
12. Range diameter information must be provided from vendor on the clamps bid.



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### 3.14.4 Repair Clamp Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Single section clamps shall be:
  - (a) Cascade - Style CR1,
  - (b) Dresser – Style 364 (up to 12-inch diameter)
  - (c) Ford – Style FS1,
  - (d) Romac - SS1, or
  - (e) Equal provided the products are manufactured as per these specifications.
2. Three section clamps shall be,
  - (a) Cascade - Style CR3,
  - (b) Ford – Style FS3
  - (c) Romac – SS3, or
  - (d) Equal provided the products are manufactured as per these specifications.

### 3.14.5 Bell Joint Clamps

3. Bell Joint Clamps provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
4. Bell Joint Clamps shall, as a minimum, meet all specifications as in Paragraphs 3.14.1, 3.14.2, and the following:
5. Bell Joint Clamps shall have the bell and spigot rings made of high strength ductile iron ASTM A-536 grade 65-45-12, latest revision or formed carbon steel per ASTM A-36 with minimum yield of 30,000 PSI.
6. Bell Joint Clamps shall have a minimum pressure rating of 150-PSI.
7. The coating for bell joint clamps shall be fusion-bonded epoxy coating in accordance with ANSI A21.16 / AWWA C116 of the latest revision and shall be



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applied to the interior and exterior of the fitting, unless otherwise approved by the Commission.

8. Bell joint clamps shall fit rubber ring joint (Tyton), caulked joint (poured), or both for all classes of cast iron and ductile iron pipe.
9. Bell joint clamps shall be provided with gaskets constructed of Styrene butadiene rubber (SBR) compound for water service and must meet or exceed ASTM-D-2000-MBA 710.
10. The coating all bell joint clamps shall be fusion-bonded epoxy coating in accordance with ANSI A21.16 / AWWA C116 of the latest revision and shall be applied to the interior and exterior of the clamp.
11. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
12. At the Commission's discretion, track-head or tee-head bolts made of high strength, low alloy, corrosion resistant, Cor-Ten steel may be substituted. A request for the substitution must be submitted in writing to E&TS. Track head bolts made of high strength, low alloy, corrosion resistant, Cor-Ten steel shall be in accordance AWWA C-111, ASTM A242, and/or ASTM A588 latest revisions. Nuts shall be in accordance with ASTM A194 grade 2H or ASTM A563 grade A latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) medium carbon steel flat washer and nuts and bolts shall be provided with two (2) medium carbon steel flat washers so that the epoxy coating is not damaged. All the non-stainless steel bolts, nuts, and washers shall be rust proof coated or plated.
13. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.



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### 3.14.6 Bell Joint Clamp Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Bell joint clamps to fit rubber ring joint (Tyton) and caulked joint (poured) shall be:
  - (a) Dresser – Style 60 (up to 60-inch),
  - (b) Dresser – Style 160 (6-inch, 8-inch, 12-inch, & 16-inch)
  - (c) Romac - Style 516 (4-inch – 14-inch),
  - (d) Romac - Style 416 (12-inch – 24-inch, for pipe sizes greater than 24-inch specify Style 418 with pipe outside diameter (OD), bell OD, bell length, and maximum pressure),
  - (e) Ford - Style FBCF (14-inch – 36-inch, call for pipe sizes greater than 36-inch with pipe outside diameter (OD), bell OD, bell length, and maximum pressure),  
or
  - (f) Equal provided the products are manufactured as per these specifications.
2. Bell joint clamps to fit caulked joint (poured) with stab joint bells (long tapered bell with no shoulder for anchoring a bell ring) shall be:
  - (a) Dresser – Style 60S,
  - (b) Romac - Style 418 (12” – 24”), or
  - (c) Equal provided the products are manufactured as per these specifications.





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### 3.14.7 Socket Clamps

1. 4-bolt Socket Clamps provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. 4-bolt Socket clamps shall meet all the requirements of National Fire Protection Association (NFPA) 24 (Installation of Private Fire Service Mains and Their Appurtenances).
3. 4-bolt Socket clamps shall be constructed of carbon steel per ASTM A36 with minimum yield strength of 36000-PSI or material of equal or greater minimum yield strength.
4. 4-bolt Socket Clamps shall be two (2) half bands with four (4) bolts (two (2) on each side).
5. Socket Clamps shall have the minimum following dimensions:
  - (a) 4-inch to 6-inch pipe: ½-inch by 2-inch
  - (b) 8-inch to 10-inch pipe: 5/8-inch by 2-1/2-inch
  - (c) 12-inch pipe: 5/8-inch by 3-inch
  - (d) 16-inch pipe: ¾-inch by 4-inch
6. Socket Clamp bolt hole diameters shall be a 1/16-inch larger than the bolt diameter.
7. Socket Clamp bolts shall have the minimum following dimensions:
  - (a) 4-inch to 6-inch pipe: 5/8-inch-11 by 3-1/2-inch
  - (b) 8-inch pipe: 5/8-inch-11 by 4-inch
  - (c) 10-inch pipe: 3/4-inch-10 by 4-inch
  - (d) 12-inch pipe: 7/8-inch-9 by 4-inch
  - (e) 16-inch: 1-inch by 4-1/2-inch
8. Socket Clamps shall be provided plain without a coating.
9. All fasteners provided with the Socket Clamps shall be made of 4140 chrome moly steel per ASTM A193 grade B7, medium carbon steel per ASTM A194 grade 2H,



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or high strength low alloy steel per ASTM A588 grade B with Unified National Coarse (UNC) rolled thread, as specified in the following paragraphs and sections.

10. Delivery shall be specified in terms of number of days from receipt of order.
11. The manufacturer/vendor/shipper must use care in preparing the above product for shipment and in handling, to insure that the products are delivered without damage. Particular attention must be directed at protecting the products from damage. Damaged products will not be accepted.
12. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above product and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
13. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product

### 3.14.8 Socket Clamp Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Socket Clamps shall be:
  - (a) PHD Manufacturing, Inc. - Figure 590,
  - (b) Anvil Company - Figure 595,
  - (c) Cooper B-Line - Figure B3134,
  - (d) Carpenter and Patterson - Figure 158DB, or



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(e) Equal provided the products are manufactured as per these specifications.

Last Modified: 01/24/2024 at 4:49PM EST



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### 3.14.9 Fabricated Steel Harness Assembly

1. Fabricated Steel Harness Assembly provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Fabricated Steel Harness Assembly shall be constructed of carbon steel per ASTM A36 with minimum yield strength of 36000-PSI.
3. Fabricated Steel Harness Assembly shall be provided plain without coating.
4. Fabricated Steel Harness Assembly shall be as manufactured by Ford – Style FR1, Dresser – Style 443, or equal product of another manufacturer.
5. Delivery shall be specified in terms of number of days from receipt of order.
6. The manufacturer/vendor/shipper must use care in preparing above product for shipment and in handling during shipment and delivery, to insure that the products are delivered without damage. Particular attention must be directed at protecting the product from damage. Damaged products will not be accepted.
7. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above product and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
8. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### 3.14.10 Socket Clamp Washer

1. Socket clamp washers provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Socket clamp washers shall meet all the requirements of National Fire Protection Association (NFPA) 24 (Installation of Private Fire Service Mains and Their Appurtenances).
3. Socket Clamp Washer shall be cast iron, ductile iron, or low carbon steel and square or round.
4. Cast iron and ductile iron Socket Clamp Washers shall have the minimum following dimensions:
  - (a) 4-inch, 6-inch, 8-inch, and 10-inch pipe:
    - Square: 5/8-inch by 3-inch by 3-inch
    - Round: 5/8-inch by 3-inch diameter
  - (b) 12-inch pipe:
    - Square: 3/4-inch by 3-1/2-inch by 3-1/2-inch
    - Round: 3/4-inch by 3-1/2-inch diameter
  - (c) 16-inch pipe:
    - Square: 1-inch by 4-inch by 4-inch
    - Round: 1-inch by 4-inch diameter
5. Steel Socket Clamp Washers shall have the minimum following dimensions:
  - (a) 4-inch, 6-inch, 8-inch, and 10-inch pipe:
    - Square: 1/2-inch by 3-inch by 3-inch with 7/8-inch hole size
    - Round: 1/2-inch by 3-inch diameter with 7/8-inch hole size
  - (b) 12-inch and 16-inch pipe:
    - Square: 1/2-inch by 3-1/2-inch by 3-1/2-inch with 1-1/16-inch hole size
    - Round: 1/2-inch by 3-1/2-inch diameter with 1-1/16-inch hole size
6. Socket Clamp Washers shall be provided plain, with out a coating.



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7. Socket Clamps Washers shall be as provided by PHD Manufacturing, Inc. Figure 595, Anvil Company, Figure 594, Cooper B-Line, Figure B3134W, Carpenter and Patterson, Figure 258, or the equal product of another manufacturer.
8. Delivery shall be specified in terms of number of days from receipt of order.
9. The manufacturer/vendor/shipper must use care in preparing socket clamp washers for shipment and in handling during shipment and delivery, to insure that the socket clamp washers are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged bell joint clamps will not be accepted.
10. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the socket clamp washers and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
11. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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## Material Specifications

### 3.14.11 Bent Eye Bolts

1. Bent Eye Bolts provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Bent Eye Bolts shall meet all the requirements of National Fire Protection Association (NFPA) 24 (Installation of Private Fire Service Mains and Their Appurtenances).
3. Bent Eye Bolts diameters shall be:
  - (a) For ¾-inch threaded rod: ¾-inch diameter shank with a ¾-inch nominal inside diameter bolt hole.
  - (b) For 1-inch threaded rod: ¾-inch diameter shank with a 1-inch nominal inside diameter bolt hole.
4. Bent Eye Bolts shall be provided in the following minimum lengths:
  - (a) 4-inch thru 10-inch clamps shall be 4-inch minimum
  - (b) 12-inch and larger clamps shall be 5-inch minimum
5. Bent Eye Bolts shall be constructed of high strength low alloy steel, per ASTM A588, grade B, Unified National Coarse (UNC) rolled thread.
6. Bent Eye Bolts shall be provided with heavy hex nuts made of medium carbon steel, ASTM A194, grade 2H, and Unified National Coarse (UNC) thread.
7. Bent Eye Bolts shall have a minimum tensile strength of 50,000 PSI.
8. Bent Eye Bolts shall be as provided by PHD Manufacturing, Inc. - Figure 598B, Star National Products - Figures ¾”SST747 or ¾”SST757, Dresser Piping Specialties, Inc. – Style 442, or the equal product of another manufacturer.
9. Delivery shall be specified in terms of number of days from receipt of order.
10. The manufacturer/vendor/shipper must use care in preparing above product for shipment and in handling during shipment and delivery, to insure that the products are delivered without damage. Particular attention must be directed at protecting the products from damage. Damaged products will not be accepted.
11. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the products and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.



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### 12. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product





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### 3.14.12 Threaded Rods

1. Threaded rods provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Threaded rods shall meet all the requirements of National Fire Protection Association (NFPA) 24 (Installation of Private Fire Service Mains and Their Appurtenances).
3. Threaded Rod diameters shall be:
  - (a) For 4-inch through 10-inch pipe:  $\frac{3}{4}$ -inch diameter.
  - (b) For 12-inch through 16-inch pipe: 1-inch diameter.
4. Threaded Rods shall be provided in either 3-foot, 6-foot, or 12-foot lengths.
5. Threaded Rods shall be constructed of 4140-alloy steel, per ASTM A193, grade B7, Unified National Coarse (UNC) rolled thread.
6. Threaded Rods shall have a minimum tensile strength of 62,500 PSI.
7. Threaded Rods shall be provided with heavy hex nuts made of medium carbon steel, ASTM A194, grade 2H, and Unified National Coarse (UNC) thread.
8. Threaded Rods shall be provided with case hardened steel washers made of C1006 steel, grade 2, Rockwell hardness B55, with the following dimensions:

	Nominal Inside Diameter (In Inches)	Nominal Outside Diameter (In Inches)	Thickness (In Inches)
$\frac{3}{4}$ " Threaded Rod	13/16	2	.122 - .177
1" Threaded Rod	1	2-1/2	.136 - .192



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- Washers may be provided with cadmium plating, another plating, or unplated.
9. Delivery shall be specified in terms of number of days from receipt of order.
  10. The manufacturer/vendor/shipper must use care in preparing above product for shipment and in handling during shipment and delivery, to insure that the products are delivered without damage. Particular attention must be at protecting the products from damage. Damaged products will not be accepted.
  11. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the threaded rods and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
  12. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### Section 3.15 TAPPING SLEEVES

#### 3.15.1 General

1. All Tapping Sleeves provided to the Springfield Water and Sewer Commission (Commission) or its Contractors shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. All Tapping Sleeves in this section shall have all parts cast and assembled in North America or meet the requirements of the American Iron and Steel (AIS) as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal(s) poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
3. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the finished product(s).
4. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
5. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at



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protecting the protective coating from damage. Damaged finished products and/or protective coatings will not be accepted.

6. All tapping sleeves shall be NSF 61 certified.
7. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
8. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.

### 3.15.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the gate valve showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying

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component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.

4. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.
7. The manufacturer and/or vendor shall furnish a certified statement that all butterfly valves of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
8. The manufacturer and/or vendor shall furnish a warranty for the butterfly valves that states that the butterfly valves shall be free from all defects in material and workmanship under normal use of the product for a minimum ten (10) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole butterfly valve for a minimum ten (10) year time period from time of delivery.
9. The manufacturer and/or vendor shall furnish certified results of a proof of design test performed at an independent testing laboratory. Testing shall include a shell test and seat test to demonstrate the valve body and seat will hold pressure as required.
10. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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11. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.15.3 Stainless Steel Tapping Sleeves

1. Tapping Sleeves shall, as a minimum, meet all specifications as in Paragraphs 3.15.1, 3.15.2, and the following:
2. Tapping sleeves shall be constructed of Grade 18-8, Type 304 stainless steel with removable stainless steel fasteners.
3. Tapping sleeves shall be provided with a ¾” NPT test port with a lead free brass lug with standard square head. Proper use of this feature assures positive seal before tapping.
4. Bolt Lugs shall be 3/16” minimum thickness.
5. Tapping sleeves shall be provided with gaskets made of gridded styrene butadiene rubber (SBR) or Nitrile (Buna-N) compounded for water service and shall meet ASTM D2000-80M 4AA607.
  - (a) The sleeve gasket shall provide 360 degree full circumferential support over the full length of the sleeve.
  - (b) The sleeve gasket shall have heavy gauge stainless steel armors, a minimum of 2-1/4” wide, bonded in place to span the gap between the tapping sleeve sections.
  - (c) The outlet gasket shall be made of Nitrile (Buna-N).
6. The flange shall be made of Grade 18-8, Type 304 Stainless Steel. The flange shall conform to AWWA C207 Class D ANSI 150 lb. The flange shall be recessed to accept standard AWWA tapping valves. The bolt holes shall straddle the pipe center line. Iron flanges shall not be accepted.



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7. Tapping sleeves shall be rated 150 PSI working pressure and 225 PSI minimum test pressure.
8. All welds used in the construction of the tapping sleeve shall conform to all American Welding Society (AWS) codes. All welds shall be fully passivated in order to restore the stainless steel to its original corrosive resistant characteristics.
9. Tapping sleeves shall be provided with a Grade 18-8, Type 304 Stainless Steel outlet. The outlet shall be double welded, at two places, the flange and the sleeve to provide maximum strength.

### 3.15.4 Ductile Iron Tapping sleeves

1. Tapping Sleeves shall, as a minimum, meet all specifications as in Paragraphs 3.15.1, 3.15.2, and the following:
2. Tapping sleeves shall be constructed of high strength ductile iron conforming to ASTM A-536 grade 65-45-12. The bolt holes shall straddle the pipe center line.
3. Tapping sleeves shall be mechanical joint conforming to ANSI A21.11/AWWA C-111, unless otherwise specified.
4. Tapping sleeves shall be provided with a ¾" NPT test port with a lead free brass lug with standard square head. Proper use of this feature assures positive seal before tapping.
5. Tapping sleeves shall be provided with gland and body components made of grade 60-42-10 ductile iron conforming to ASTM A536-84.
6. Tapping sleeve outlet gasket shall be made of Nitrile (Buna-N).
7. The tapping sleeve outlet flange dimensions shall comply with ANSI B16.1 class 125 and with MSS SP-60. The flange shall be recessed to accept standard AWWA tapping valves.
8. Tapping sleeves shall be rated 150 PSI working pressure and 225 PSI minimum test pressure.
9. Exterior Coating shall be Fusion-bonded epoxy coating in accordance with ANSI A21.16 / AWWA C116 and shall be applied to the interior and exterior of the fitting.
10. Markings
  - (a) Fittings shall be marked with the weight.



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- (b) Fittings shall have distinctly cast upon them the pressure rating, the manufacturer's identification, nominal diameter of the openings, and the number of degree or fraction of the circle on all bends.

### 11. Testing

All tests shall be made in accordance with the methods prescribed by the above mentioned AWWA standards judgment.

#### **3.15.5 Stainless Steel Tapping Sleeves Makes and Models Approved for use by the Commission**

The following stainless steel tapping sleeves have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Dresser Industries, Inc. - style 630,
2. Ford Meter Box Company - style FTSS,
3. Romac Industries, Inc. - style SSTIII,
4. Smith Blair – 622,
5. or the approved equal product of another manufacturer.

#### **3.15.6 Ductile Iron Tapping Sleeves Makes and Models Approved for use by the Commission**

The following ductile iron tapping sleeves have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Clow – Model F-5205,
2. Mueller – Models H-615 & H-616,
3. U.S. Pipe – Models H-615 & H-616,
4. or the approved equal product of another manufacturer.





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### Section 3.16 JOINT ACCESSARIES

#### 3.16.1 General

1. All Joint Accessories or Kits provided to the Springfield Water and Sewer Commission (Commission) or its Contractors shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
3. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the product(s).
4. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished product(s) will not be accepted.
5. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s)



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and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 3.16.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the product(s) showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each finished product(s), and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer shall furnish a certified statement that all the product(s) of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the product(s) that states that the product(s) shall be free from all defects in material and workmanship under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the product(s) for a minimum one (1) year time period from time of delivery.



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8. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
9. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 3.16.3 Delivery

1. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission’s service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.

### 3.16.4 Mechanical Joint Restraint for Ductile Iron Fittings and Valves

1. Mechanical Joint Restraint for Ductile Iron Fittings shall, as a minimum, meet all specifications as in Paragraphs 3.15.1, 3.15.2, and the following:
2. Mechanical Joint Restraint for Ductile Iron Fittings provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
3. Mechanical Joint Restraint for Ductile Iron Fittings and Valves shall conform to the American Water Works Association Standard C-111 (latest edition) for: “Rubber Gasket Joints for Ductile Iron Pipes and Fittings”.



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4. All Mechanical Joint Restraint for Ductile Iron Fittings and Valves shall be certified, by a third party, as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
5. Mechanical Joint Restraint for Ductile Iron Fittings shall be provided with gland and body components made of grade 60-42-10 ductile iron conforming to ASTM A536-84. The casting shall be flat, with no protrusions, where the torque limiting twist-off nuts actuates the restraining wedges.
6. Mechanical Joint Restraint for Ductile Iron Fittings shall be incorporated into the design of the follower gland. The restraining mechanism shall consist of individually actuated wedges that increase their resistance to pull out as pressure or external forces increase.
7. Mechanical Joint Restraint for Ductile Iron Fittings shall be capable of full mechanical joint deflection during assembly and the flexibility of the joint shall be maintained after burial.
8. The joint restraint ring and its wedging components shall be made of grade 60-42-10 ductile iron conforming to ASTM A536-84.
  - (a) The wedge shall be ductile iron, heat-treated to a minimum hardness of 370 B H N.
  - (b) The joint restraint ring shall be provided with torque limiting twist-off nuts of high strength, low alloy, corrosion resistant, Cor-Ten steel. The twist-off nuts made of high strength, low alloy, corrosion resistant, Cor-Ten steel shall be in accordance in accordance with ASTM A194 grade 2H or ASTM A563 grade A latest revision. Twist-off nuts shall be Unified National Coarse (UNC) rolled thread.
9. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell conforming to ANSI/AWWA C-111/AZ1.11 and ANSI/AWWA C-153/A21.53 of the latest revision. Torque limiting twist-off nuts shall be used to insure proper actuation of the restraining wedge.
10. Mechanical Joint Restraint for Ductile Iron Fittings shall be available in the four through forty-eight inch sizes.
11. Mechanical Joint Restraint for Ductile Iron Fittings shall have a rated working pressure as follows:
  - (a) 4-inch – 8-inch = 350 PSI



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- (b) 10-inch – 16-inch = 300 PSI
  - (c) 20-inch – 36-inch = 200PSI
  - (d) 42-inch – 48-inch = 175 PSI
12. Mechanical Joint Restraint for Ductile Iron Fittings shall be listed by Underwriters Laboratories up through the twenty-four-inch size and approved by Factory Mutual up through the twelve-inch size.
  13. Mechanical Joint Restraint for Ductile Iron Fittings shall be provided with tee-head bolts, washers, and nuts of high strength, low alloy, and corrosion resistant Cor-Ten steel. Tee head bolts made of high strength, low alloy, corrosion resistant, Cor-Ten steel shall be in accordance AWWA C-111, ASTM A242, and/or ASTM A588 latest revisions. Nuts shall be in accordance with ASTM A194 grade 2H or ASTM A563 grade A latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Nuts and bolts shall be provided with two (2) medium carbon steel flat washers so that the epoxy coating is not damaged.
  14. Mechanical Joint Restraint for Ductile Iron Fittings shall be individually packaged and contain proper size rubber gasket and bolts.

### 3.16.5 Flange Gasket and Hardware for Ductile Iron Pipe, Fittings, & Valves

1. Flange Gaskets and Hardware provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Flange gaskets for 12-in diameter flanges or less shall be Type E or “full-face” with bolt holes cut to match ANSI B16.1 drilling.
3. Flange gaskets 14-inch through 64-inch diameter shall be Type F or “ring gaskets” with inside and outside dimensions as specified in AWWA C115, Table A.1.
4. Flange gaskets shall be cut from sheet stock by a qualified gasket distributor to the dimensions included in AWWA C115, Table A.1. No field-cut or field-modified gaskets shall be allowed.
5. Flange gaskets for distribution system (operating pressure 150-psi or less) applications shall have documented physical properties, as follows:
  - (a) Flange gaskets shall be manufactured from premium quality red rubber made from natural rubber and styrene butadiene rubber (SBR) with a smooth finish.
  - (b) Thickness: 1/8-inch



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- (c) Hardness (Durometer) (Shore A) +/-5: 75
  - (d) Minimum Tensile Strength (ASTM D142): 700-psi
  - (e) Compression Set at 158°F (ASTM Method B): 22-hrs. 40% maximum
  - (f) Pressure Rating max.: 250-psi
  - (g) P x T min. (psi x T°F): 20,000
6. Flange gaskets for severe pressure (greater than 150-psi or as required by the Commission) applications shall have documented physical properties, as follows:
- (a) Flange gaskets shall be manufactured from premium quality compressed sheet stock of non-asbestos aramid fibers with a Nitrile binder.
  - (b) Thickness: 1/8-inch
  - (c) Minimum Tensile Strength across grain (ASTM F152): 2000-psi
  - (d) Compressibility Range (ASTM F36): 8-16%
  - (e) Recovery (ASTM F36): 50%
  - (f) Creep Relaxation Range (ASTM F38): 20%
  - (g) Gasket Maintenance Factor Range – *m* (ASTM F586): 4.2
  - (h) Minimum Seating Stress Range – *y* (ASTM F586): 2931-psi
  - (i) Seal Initiation Stress Range, *G<sub>b</sub>* (ROTT): 400-psi
  - (j) Gasket Stress/Tightness Ratio Range, *a* (ROTT): 0.35
  - (k) Unloading Gasket Stress Range, *G<sub>s</sub>* (ROTT): 20-psi
  - (l) P x T min. (psi x T°F): 52,500
7. All flange bolts and nuts shall be provided with flat washers so that the epoxy coating is not damaged during installations.
8. Flange bolts for distribution system (operating pressure 150-psi or less) applications shall have documented physical properties, as follows:
- (a) All flange bolts length shall be selected so that three full threads, as a minimum, protrude from the hex nut and washer after assembly,



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- (b) Bolts shall be Unified National Coarse (UNC) Class 2B rolled thread.
  - (c) Flange bolts shall be made of Type 304 stainless steel.
  - (d) Flange bolts shall be in accordance with ASTM A193 Grade B8, Class 2 all sizes, latest revision or ASTM F593C Condition CW1 sizes up to 5/8-inch or F593D Condition CW2 for sizes 3/4-inch and greater, latest revision,
  - (e) Minimum Tensile Strength (ASTM A193): 105 through 125-ksi
  - (f) Minimum Tensile Strength (ASTM F593): 85 through 150-ksi
  - (g) Minimum Yield Strength (ASTM A193): 65 through 100-ksi
  - (h) Minimum Yield Strength (ASTM F593): 45 through 65-ksi
  - (i)
9. Flange nuts for distribution system (operating pressure 150-psi or less) applications shall have documented physical properties, as follows:
- (a) Flange nuts shall be Unified National Coarse (UNC) Series Class 2B heavy-duty hex nuts.
  - (b) Flange nuts shall be made of Type 304 stainless steel.
  - (c) Flange nuts shall be in accordance with ASTM A194 Grade 8, Class 2 all sizes, latest revision or ASTM F594C Condition CW1 sizes up to 5/8-inch or F594D Condition CW2 for sizes 3/4-inch and greater, latest revision,
  - (d) Minimum Proof Stress (ASTM A194): 80-ksi
  - (e) Minimum Proof Stress (ASTM F594): 92 through 108-ksi
  - (f) Brinnell Hardness (ASTM A194): min. 126, max. 300
  - (g) Rockwell Hardness (ASTM F594): min. B80, max. C32
  - (h) At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling
10. Flat washers to be used with flange bolts and nuts for distribution system (operating pressure 150-psi or less) applications shall have documented physical properties, as follows:
- (a) Flat washers shall be made of Type 304 stainless steel, type A SAE or ASME



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11. Flange bolts, nuts, and flat washers shall be made of Grade 304 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers Type A SAE or ASME so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
12. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
13. To assist in assembly of flanged joints, an adhesive-backed flange gaskets may be used. Adhesive backing material shall be: 467MP High Performance Adhesive Transfer Tape, manufactured by 3M Industrial Adhesives and Tapes Division, St. Paul, Minnesota, or an approved equal.

### 3.16.6 Gasket Joint Restraint for Ductile Iron Pipe

1. Gasket Joint Restraint for Ductile Iron Pipe provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. The Gasket Joint Restraint for Ductile Iron Pipe shall conform to AWWA C-111 (most current revision) for Rubber-Gaskets Joints for Ductile Iron Pressure Pipe and Fittings.
3. Gasket Joint Restraint shall be for rubber ring joint (Tyton).
4. The restraint provided shall be a boltless, integral retaining system, and shall be rated for 350 PSI.

### 3.16.7 Mechanical Joint Restraint Approved for use by the Commission

The following Mechanical Joint Restraints have been approved for use by the Commission. Any change in any component(s) of the Mechanical Joint Restraint that





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does not allow for interchangeability of the component(s) shall result in the Mechanical Joint Restraint no longer being approved and removed from this list.

1. EBAA Iron Sales, Inc. – Series 1100,
2. Ford Meter Box Company, Inc. – Series 1400,
3. Romac – Roma Grip,
4. Tyler/Union – TUF Grip, or
5. Equal provided the Mechanical Joint Restraint are manufactured as per these specifications.

### **3.16.8 Flange Gasket for Distribution System (operating pressure 150-psi or less) Applications Approved for use by the Commission**

The following Flange Gaskets suppliers have been approved for use by the Commission. Any change in any component(s) of the flange gasket that does not allow for interchangeability of the component(s) shall result in the flange gasket no longer being approved and removed from this list.

1. 22-Red SBR rubber, manufactured by Garlock Sealing Technologies, Palmyra, New York,
2. Flange-Tyte SBR rubber, Manufactured by U.S. Pipe and Foundry Co., Birmingham, AL,
3. Toruseal by American Cast Iron Pipe Company, Birmingham, AL, or
4. Equal provided the Flange Gaskets are manufactured as per these specifications.

### **3.16.9 Flange Gasket for Severe Pressure (operating pressure greater than 150-psi) Applications Approved for use by the Commission**

The following Flange Gaskets suppliers have been approved for use by the Commission. Any change in any component(s) of the flange gasket that does not allow for interchangeability of the component(s) shall result in the flange gasket no longer being approved and removed from this list.

1. Durlon 8500, manufactured by Gasket Resources, Inc., Exton, Pennsylvania,
2. Blue-Gard 3000, manufactured by Garlock Sealing Technologies, Palmyra, New York,
3. Klingersil 4430, manufactured by Thermoseal, Inc., Sidney, Ohio,



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4. SF3300 manufactured by Flexitallic, Ltd, Deer Park, Texas, or
5. Equal provided the Flange Gaskets are manufactured as per these specifications.

### 3.16.10 Gasket Joint Restraint Approved for use by the Commission

The following Mechanical Joint Restraints have been approved for use by the Commission. Any change in any component(s) of the Mechanical Joint Restraint that does not allow for interchangeability of the component(s) shall result in the Mechanical Joint Restraint no longer being approved and removed from this list. Gasket Joint Restraint for rubber ring joint (Tyton) shall be as manufactured by

1. United States Pipe and Foundry Company – Field Lok 350 Gasket (4” – 24”),
2. Specification Rubber Products, Inc. – Barracuda Gaskets (4” – 24”), or
3. Equal provided the Gasket Joint Restraint is manufactured as per these specifications.



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### Section 3.17 ADAPTERS

#### 3.17.1 Bolt-thru Mechanical Joint Restraint (Foster Adapter)

1. The bolt-thru mechanical joint restraint shall be made of ductile iron conforming to ASTM A536, 80-55-06.
2. The bolt-thru mechanical joint restraint shall connect valves and/or fittings at a linear distance not to exceed one and one-half (1-1/2) inches and without attachment to pipe.
3. The bolt-thru mechanical joint restraint shall be provided with an NSF 61 asphaltic seal coat in accordance with ANSI A21/AWWA C-110, Section 4.3 of latest the revision.
4. The bolt-thru mechanical joint restraint shall be provided with mechanical joint gaskets made of styrene butadiene rubber (SBR) compounded for water service and shall conform to the latest revision of AWWA C111/ ASTM f-477.
5. The bolt-thru mechanical joint restraint shall be provided with tee-head bolts, washers, and nuts of high strength, low alloy, and corrosion resistant Cor-Ten steel. Tee head bolts made of high strength, low alloy, corrosion resistant, Cor-Ten steel shall be in accordance AWWA C-111, ASTM A242, and/or ASTM A588 latest revisions. Nuts shall be in accordance with ASTM A194 grade 2H or ASTM A563 grade A latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Nuts and bolts shall be provided with two (2) medium carbon steel flat washers so that the epoxy coating is not damaged.
6. The bolt-thru mechanical joint restraint may be ordered with longer bolt packs to restrain full bodied fittings and certain butterfly valves, etc. with thicker flanges.
7. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or



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- (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
- 8. Delivery shall be specified in terms of number of days from receipt of order.
- 9. The manufacturer/vendor/shipper must use care in preparing above product for shipment and in handling during shipment and delivery, to insure that the couplings are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged couplings will not be accepted.
- 10. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above product and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

### 11. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### Section 3.18 ANTI-SEIZE LUBRICANTS

#### 3.18.1 Anti-Seize Lubricants

1. Anti-seize lubricants provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Anti-seize lubricants shall be a nickel anti-seize compound capable of achieving the required bolt torque and sealing stress, and future disassembly with minimal manual input.
3. Anti-seize compound shall be as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer.
4. Delivery shall be specified in terms of number of days from receipt of order.
5. The manufacturer/vendor/shipper must use care in preparing above products for shipment and in handling during shipment and delivery, to insure that the above product are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged products will not be accepted.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above product and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
7. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered



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- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### Section 3.19 PROTECTIVE COATINGS

#### 3.19.1 General

1. Protective primer, protective coating tape, and/or protective outer wrap shall be provided in accordance with ANSI/AWWA C-217 the latest the revision and these Material Specifications.
2. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
3. Delivery shall be specified in terms of number of days from receipt of order.
4. The manufacturer/vendor and/or shipper must use care in preparing the product(s) for shipment and in handling during shipment and delivery, to insure that the product(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged product(s) will not be accepted and returned to manufacturer/vendor at the manufacturer/vendor's cost.
5. The manufacturer/vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
6. References

The manufacturer/vendor shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:



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- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product

### 3.19.2 Protective Primer

1. Protective Primer shall be a petrolatum based primer that exhibits preferential wetting capabilities to readily coat wet or dry surfaces and cavities prior to the application of protective wrap.
2. Protective Primer shall be provided in accordance with of ANSI/AWWA C-217 the latest the revision.
3. The Specific Gravity of the Protective Primer shall be 0.8 - 0.9.
4. Protective Primer is required be delivered in the following containers. At time of order the specific containers will be identified;
  - (a) cartons of 2 or 4 one gallon cans
  - (b) 12 one quart cans, or
  - (c) 5 gallon pails.
5. Protective Primer for below grade installations shall be Trenton Wax-Tape primer (Brown), Tapecoat Enviroprime, Denso Paste, or the equal product of another manufacturer.
6. Protective Primer for above ground, in chambers, or other facilities shall be Trenton Temcoat 3000 primer (Brown) or the equal product of another manufacturer.

### 3.19.3 Protective Coating Tape

1. Protective Coating Tape shall be a prefabricated petrolatum coating in tape form designed to protect wet or dry irregularly shaped metal surfaces.
2. Protective Coating Tape shall be provided in accordance with of ANSI/AWWA C-217 the latest the revision.
3. Protective Coating Tape shall be impervious to continuous moisture levels.





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4. Protective Coating Tape shall be for use with: bare metal, wood and concrete.
5. Protective Coating Tape shall be compatible with asphalt, coal tar, polyethylene, polypropylene, FBE and urethanes
6. Protective Coating Tape shall have a minimum thickness of 45-mils.
7. Protective Coating Tape shall be resistant to bacteria.
8. Protective Coating Tape shall be provided with a minimum shelf life of one (1) year.
9. Protective Coating Tape shall be delivered in the following size rolls. At time of order the specific size rolls will be identified;
  - (a) Protective Tape for Underground 2" x 9' rolls
  - (b) Protective Tape for Underground 4" x 9' rolls
  - (c) Protective Tape for Underground 6" x 9' rolls
  - (d) Protective Tape for Underground 6" x 18' rolls
  - (e) Protective Tape for Underground 9" x 18' rolls
  - (f) Protective Tape for Underground 12" x 18' rolls
  - (g) Protective Tape for Above ground 2" x 9' rolls
  - (h) Protective Tape for Above ground 4" x 9' rolls
  - (i) Protective Tape for Above ground 6" x 9' rolls
  - (j) Protective Tape for Above ground 6" x 18' rolls
  - (k) Protective Tape for Above ground 9" x 18' rolls
  - (l) Protective Tape for Above ground 12" x 18' rolls.
10. Protective Coating Tape for above ground and in chambers or other facilities shall harden as opposed to remaining pliable for below grade.
11. Protective Coating Tape for below grade installations shall be Trenton - # 1 Wax-Tape, TC - Envirotape, Denso – Denso Tape, or the equal product of another manufacturer.



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12. Protective Coating Tape for above ground and in chambers or other facilities shall be Trenton - # 2 Wax-Tape or the equal product of another manufacturer.

### 3.19.4 Protective Coating Outer Wrap

1. Protective Coating Outer Wrap shall be a clear flexible plastic film designed to provide extra mechanical protection for surfaces coated with protective coating tape.
2. Protective Coating Outer Wrap shall be provided in accordance with of ANSI/AWWA C-217 the latest the revision.
3. Protective Coating Outer Wrap shall have a minimum thickness of 1-mil.
4. Protective Coating Outer Wrap shall be delivered in the following size rolls. At time of order the specific size rolls will be identified;
  - (a) Protective Tape Outer wrap for Underground 4" x 50' rolls
  - (b) Protective Tape Outer wrap for Underground 6" x 50' rolls
  - (c) Protective Tape Outer wrap for Underground 9" x 50' rolls
  - (d) Protective Tape Outer wrap for Underground 12" x 50' rolls
5. Protective Coating Outer Wrap for below grade installations shall be Trenton Poly Ply, TC Envirostretchwrap, Denso – Densopol/Densoclad Tapes, or the equal product of another manufacturer.



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## Material Specifications

### Section 3.20 FILL MATERIAL

#### 3.20.1 Bank-run Gravel Aggregate

1. Bank run gravel shall be a granular material, well graded from fine to coarse with a maximum size of 3-inch and shall meet or exceed the Massachusetts Highway Department (MHD) specifications for Gravel Aggregate.
2. Bank-run gravel shall be obtained from approved natural deposits and unprocessed except for the removal of unacceptable material and stones larger than the maximum size permitted.
3. Bank-run gravel shall not contain vegetation, masses or roots, or individual roots more than 18” long or more than 1/2” in diameter.
4. Bank-run gravel shall be substantially free from loam and other organic matter, clay, frost, frozen lumps, clay, and other fine or harmful substances.
5. The gradation shall meet the grading requirements of the following table:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
3/8 inch	70 maximum
No. 10	50 maximum
No. 200	5 maximum



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## Material Specifications

### 3.20.2 Screened Gravel Aggregate

1. Screened gravel shall be a granular material, well graded with hard, durable, particles of proper size and gradation.
2. Screened gravel shall not contain vegetation, masses or roots, or individual roots.
3. Screened gravel shall be free from sand, loam and other organic matter, clay, excess fines and deleterious materials, frost, and frozen lumps.
4. The gradation shall meet the grading requirements of the following table:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
1/2 inch	95 minimum
3/8 inch	40 - 70
No. 4	5 maximum



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### 3.20.3 Structural Gravel Aggregate

1. Structural gravel shall be gravel, sandy gravel, or gravely sand of proper size and gradation.
2. Structural gravel shall not contain vegetation, masses or roots, or individual roots.
3. Structural gravel shall be free from organic material, loam, wood, clay, trash, snow, ice, frost, frozen lumps, and other objectionable material.
4. The gradation shall meet the grading requirements of the following table:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
6-inch	100
No. 4	20 - 95
No. 40	0 - 60
No. 4	8 maximum



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### 3.20.4 Common Borrow/Fill

1. Common borrow/fill shall be inert, inorganic natural soils and/or rock, not having more than 5% by weight passing the No. 200 sieve.
2. Common borrow/fill shall have maximum stone size not greater than 6-inch and material shall be well graded throughout entire size range.
3. Common borrow/fill shall be free from clay, organic material, roots, leaves, trash, snow, ice, frozen soil, and other objectionable material that may be compressible or which cannot be compacted properly.
4. Common borrow/fill shall not contain broken concrete, masonry, rubble, asphalt pavement, ceramic tiles, or other similar materials.
5. Common borrow/fill shall be free of ice or frost and no aggregations of soil particles frozen.
6. Common borrow/fill shall have a moisture content within plus or minus 4% optimum moisture content at the borrow/fill source.
7. Common borrow/fill shall have physical properties, as approved by the Commission, such that it can be readily spread and compacted.
8. Common borrow/fill shall meet the grading requirements of the following table:

Sieve	Percent by Weight
Designation	Passing Square Mesh Sieve
½ inch	50 - 85
No. 4	40 - 55
No. 50	8 - 28
No. 200	0 - 10



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### 3.20.5 Select Common Borrow/Fill

Select common borrow/fill shall be as specified for Common Borrow/Fill except the material shall contain no stones larger than 2-inch in its largest dimension.

Last Modified: 01/24/2024 at 4:49PM EST



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### 3.20.6 Crushed Stone ¾-Inch

1. Crushed stone shall consist of sound, durable crushed rock or durable crushed gravel stone, angular in shape and free from structural defects, comparatively free of chemical decay, and free of any foreign material including, but not limited to ice, snow, sand, clay, loam, or other deleterious or organic material.
2. Crushed stone shall be maximum size passing a ¾-inch sieve and retained on a 3/8-inch sieve.





# Springfield Water and Sewer Commission

## Material Specifications

### 3.20.7 Crushed Stone 2-Inch

1. Crushed stone shall consist of sound, durable crushed rock or durable crushed gravel stone, angular in shape and free from structural defects, comparatively free of chemical decay, and free of any foreign material including, but not limited to ice, snow, sand, clay, loam, or other deleterious or organic material.
2. Crushed stone shall be maximum size passing a 2-inch sieve and retained on a 1-inch sieve.



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### 3.20.8 Dense Grade Crushed Stone

1. Dense Grade Crushed Stone shall be crusher run coarse aggregates of crushed stone combined with fine aggregates uniformly premix with a predetermined quantity of water.
2. The crusher run coarse aggregates shall consist of hard, durable particles of stone. Materials that break up when alternately frozen and thawed or wetted and dried shall not be used.
3. The crusher run coarse aggregates shall have a percentage of wear, by the Los Angeles test of not more than 45.
4. Fine aggregates shall consist of natural or crushed sand.
5. The composite material shall be free from clay, loam or other plastic material, and shall meet the grading requirements of the following table:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
2 inch	100
1-1/2 inch	70 - 100
¾ inch	50 - 85
No. 4	30 - 55
No. 50	8 - 24
No. 200	3 - 10



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### 3.20.9 Sand

1. Aggregate for sand shall consist of clean, inert, hard, durable grains of quartz or other hard durable rocks and free from vegetable matter, lumps or balls of clay and other deleterious substances.
2. Sand shall confirm to ASTM C33 for fine aggregate.
3. The gradation shall meet the grading requirements of the following table:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
1/2 inch	100
3/8 inch	85 - 100
No. 4	60 - 100
No. 16	35 - 80
No. 50	10 - 55
No. 200	2 - 10



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### 3.20.10 Excavatable Flowable Fill

1. Excavatable Flowable fill shall be 100 PSI maximum.
2. Excavatable Flowable shall consist of Portland cement conforming to ASTM C-150, Type II.
3. Excavatable Flowable may have coarse and fine aggregate consisting of well graded crushed stone.
4. Excavatable Flowable shall have **NO** fly ash.
5. Excavatable Flowable shall have clean water free from oils, acid, and organic matter.



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### 3.20.11 Non-Excavatable Flowable Fill

1. Non-Excavatable Flowable fill shall be 150 PSI minimum.
2. Non-Excavatable Flowable fill shall consist of Portland cement conforming to ASTM C-150, Type II.
3. Non-Excavatable Flowable fill may have coarse and fine aggregate consisting of well graded crushed stone.
4. Non-Excavatable Flowable fill shall have **NO** fly ash.
5. Non-Excavatable Flowable fill shall have clean water free from oils, acid, and organic matter.



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### 3.20.12 Concrete for Fill

1. Concrete shall be 2500 PSI
2. Concrete shall be of Portland cement conforming to ASTM C-150, Type II,
3. Concrete shall have coarse aggregate consisting of well graded crushed stone with a maximum size of 2-inch
4. Concrete shall have clean water free from oils, acid, and organic matter.



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### 3.20.13 Concrete for Thrust Blocks

1. Concrete shall be 4000 PSI
2. Concrete shall be of Portland cement conforming to ASTM C-150, Type II,
3. Concrete shall have coarse aggregate consisting of well graded crushed stone with a maximum size of  $\frac{3}{4}$ -inch
4. Concrete shall have clean water free from oils, acid, and organic matter.



# Springfield Water and Sewer Commission

## Material Specifications

### CHAPTER 4 WATER SERVICES, AND APPURTANANCES,

#### Section 4.1 DUCTILE IRON PUSH-ON JOINT WATER SERVICE PIPE

1. Ductile Iron water service pipe shall be at least 6-inches in diameter.
2. Ductile Iron water service pipe, ductile iron valves, and ductile iron appurtenances shall be as specified in Section 3.1 of these Specifications.





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## Material Specifications

### Section 4.2 COPPER TUBE WATER SERVICE PIPE

#### 4.2.1 General

1. Copper tube water service pipe provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Copper tube water service pipe as a minimum shall conform to the most current American Water Works Association Standard C-800, all addenda thereto and American Section of the International Association for Testing Materials (ASTM) B88, all addenda thereto.
3. Copper tube water service pipe shall be seamless, type "K", and copper alloy UNS C12200.
4. Copper tube water service pipe shall be NSF 61 compliant.
5. Copper tube water service pipe shall be 3/4-inch, 1-inch, 1-1/4-inch, 1-1/2-inch, and 2-inch diameter.
  - (a) Please note 3/4-inch and 1-1/4-inch diameters are for repair work only.
  - (b) The minimum diameter for new service pipe is 1-inch
  - (c) 1-1/2 and 2-inch are for new service pipe.
6. Copper tube shall be delivered in the following lengths as required by the Commission at time of order:
  - (a) 3/4-inch and 1-inch shall be in 40-foot and/or 60-foot rolls
  - (b) 1-1/4-inch, 1-1/2-inch, and 2-inch shall be in 20-foot straights, 40-foot and/or 60-foot rolls
    - Please note that rolls of copper tube shall be soft copper and straights of copper tube shall be hard
7. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,



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- (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
8. Inspection:
- (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer with the provisions of the specifications, shall be paid for by the manufacturer, and shall be deductible from the price paid for the hydrants.
9. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
10. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished(s) will not be accepted.
11. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 4.2.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:



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- (a) Cross sectional drawings of the hydrant showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight for each bury depth, and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
  4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
  5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
  6. The manufacturer shall furnish a warranty for the copper tube that states that the copper tube shall be free from all defects in material and workmanship under normal use of the product for a minimum thirty (30) year time period from time of delivery. The manufacturer shall replace and/or repair defective copper tube for a minimum thirty (30) year time period from time of delivery.
  7. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed hydrant have been made, and the results of all tests conform to the requirements of the American Water Works Association Standard Specification C-502. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.
  8. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
    - (a) Name of Municipality/Utility
    - (b) Total amount of product bid on and amount delivered
    - (c) Date the bid was accepted and date the product was delivered
    - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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9. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 4.2.3 Copper Tube Approved for use by the Commission

The following manufacturers and products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Cambridge-Lee – Standard Tube
2. Cerro Flow – Cerro Tube
3. Great Lakes Copper – Great Lakes Tube
4. Mueller – Certified Tube
5. Equal provided the products are manufactured as per these specifications.



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## Material Specifications

### Section 4.3 TAPPING SADDLES

#### 4.3.1 General

1. Tapping saddles provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Tapping saddles as a minimum shall conform to the most current American Water Works Association Standard C-800, all addenda thereto and American Section of the International Association for Testing Materials (ASTM) A536 and ASTM A703, all addenda thereto
3. Bodies shall be constructed of high strength ductile iron per ASTM A536.
4. Tapping saddle outlets shall have Mueller CC thread.
5. Bands shall be constructed of Grade 18-8, Type 304 stainless steel with stainless steel lugs and sidebars welded to the band(s) per ASTM A703. Single bands shall be 3-1/4-inch minimum width and double bands shall be 2-inches minimum width each.
6. Lugs and sidebars shall be constructed of Grade 18-8, Type 304 stainless steel with stainless steel fasteners welded to the lugs and sidebars. A minimum of two (2) lugs per single side bar or one (1) lug per side bar, when tapping saddles are provided with two (2) side bars, shall be provided.
7. All fasteners, excluding joint accessories, shall be made of Grade 304 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 304 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 304 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
8. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.



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9. All welds used in the construction of the tapping saddles shall conform to all American Welding Society (AWS) codes. All welds shall be fully passivated in order to restore the stainless steel to its original corrosive resistant characteristics.
10. Tapping saddles shall be provided with gaskets constructed of Virgin STYRENE BUTADIENE RUBBER (SBR) compound for water service and must meet or exceed ASTM-D-2000-AA-415.
11. Ranges must be clearly labeled on the package as well as on each tapping saddle.
12. Range diameter information must be provided from vendor on the tapping saddle bid.
13. Coatings shall be fusion bonded epoxy (10 – 12 mils), nylon 11 (10 – 12 mils)
14. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
15. Delivery shall be specified in terms of number of days from receipt of order.
16. The manufacturer/vendor/shipper must use care in preparing tapping saddle for shipment and in handling during shipment and delivery, to insure that the tapping saddle are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged tapping saddle will not be accepted.
17. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the tapping saddle and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.



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### 4.3.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the hydrant showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight for each bury depth, and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer shall furnish a warranty for the tapping saddles that states that the tapping saddles shall be free from all defects in material and workmanship under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer shall replace and/or repair defective tapping saddles for a minimum one (1) year time period from time of delivery.
7. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed hydrant have been made, and the results of all tests conform to the requirements of the American Water Works Association Standard Specification C-800. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.
8. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:



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- (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
9. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
- (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 4.3.3 Tapping Saddles Approved for use by the Commission

The following manufacturers and products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Ford - FC202,
2. Mueller - DR2S,
3. Romac - 202NS
4. Smith Blair – 317A or,
5. Equal provided the products are manufactured as per these specifications.





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### Section 4.4 WATER SERVICE APPURTENANCES

#### 4.4.1 General

1. Water service appurtenances i.e. valves and fittings provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Water service appurtenances i.e. valves and fittings, shall conform to the most current American Water Works Association Standard C-800, all addenda thereto.
3. All valves and fittings, which come in contact with water, shall be made from Lead Free brass.
  - (a) This brass alloy is commercially called “Enviro Brass II”, “Federalloy”, “Selenium Free”, or “Red-Hed Lead Free Brass”
    - Enviro Brass II is a Lead Free copper alloy, UNS Copper Alloy C89520.
    - Federalloy is a Lead Free copper alloy, UNS Copper Alloy C89833.
    - Selenium Free Brass is a Lead Free copper alloy, UNS Copper Alloy C89836.
    - Red-Hed Lead Free Brass is a Lead Free copper alloy, UNS Copper Alloy, UNS - Copper Alloy C89833.
  - (b) Brass other than the above may be approved by the Springfield Water and Sewer Commission as an acceptable equal.
  - (c) Lead Free brass is defined as having the following content:

PRIMARY ELEMENTS	COMPOSITION % BY WEIGHT
Copper (Cu)	85.0-91.0
Tin (Sn)	4.0-7.0
Lead (Max) (Pb)	0-0.25
Zinc (Zn)	2.0-6.0
Bismuth (Bi)	1.6-3.5.2
Selenium (Se)	0.0-1.1
Nickel (Ni) (Including Cobalt)	0.9-1.0



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4. All castings shall be clearly identified as being cast from Lead Free Brass.
  - (a) “EB”, “EBII”, “NL”, or “LF” are acceptable identifiers, and must be cast in high relief or deeply engraved.
  - (b) Lead Free identifiers other than “EB”, “EBII”, “NL”, or “LF” are subject to Commission review and approval.
5. Brass parts not in contact with water may be made from copper alloy No. 83600, in accordance with ASTM B30, ASTM B62, or ASTM B584 and AWWA C-800 latest version containing 85% copper, 5% tin, 5% lead, and 5%.
6. All water service valves and fittings shall be certified, by a third party, as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
7. Valves and fittings shall be designed to withstand working pressure of a minimum of 150 PSI. The manufacturer shall factory test all valves and fittings (100%) to a minimum of 150 PSI.
8. Corporation Stop Valves may rotate 360 degrees in either direction or rotate ¼ turn only and **OPEN LEFT**, counter-clockwise.
9. Curb Stop Valves shall rotate ¼ turn only and **OPEN LEFT**, counter-clockwise.
10. Valves, fittings, and other service line materials shall be as manufactured by the manufacturers of equivalent products are specified in Section 3.2.10 Table of Equivalencies and Item Number Details or the approved equal of another manufacturer.
11. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or



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(e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.

12. The manufacturer and/or vendor must use care in preparing materials for shipment and in handling during shipment and delivery, to insure receipt without damage. Damaged materials will not be accepted.

### 4.4.2 Ball Type Corporation Stops for New Installations (Items # 1, 2, 3, & 4)

1. Corporations shall include a Tee Head Adapter. Tee head adapters shall be secured to the corporation with a stainless steel set screw or rolled pin. Cotter pins are not acceptable.
2. Corporations shall have AWWA/CC (corporation cock) Taper Thread Inlet x Mueller 110 Compression Outlet.
3. The outlet thread (male) of compression joint must be capable of installation using a Mueller B-101 Drilling and Tapping Machine using an inserting tool for corporation stop, inside thread CTS Mueller 110 Conductive Compression Connection according to the following table:

INSERTING TOOL SIZE	MUELLER PART NUMBER
¾"	680600
1"	680601
1¼"	
1½"	680421
2"	680422

4. Equality of the outlet joint to the “Mueller 110 Compression” is mandatory. The “Quick Joint” (Ford), “McQuick Compression” (McDonald), and “CB Compression” (Cambridge) have been determined to be equal.
5. ALL corporations shall be subject to a sustained hydraulic pressure of 200 PSI and tested in both the open and closed positions for leakage and ease of turning.

### 4.4.3 Ball Type Curb Stops used at Property Line (Items # 5, 6, 7, & 8)

1. Curb stops shall have Mueller 110 Compression – both ends
2. Equality of the outlet joint to the “Mueller 110 Compression” is mandatory. The “Quick Joint” (Ford), “McQuick Compression” (McDonald), and “CB Compression” (Cambridge) have been determined to be equal.



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### 4.4.4 Ball Type Curb Stops for Service Replacements (Items # 9, 10, 11, & 12)

1. Curb stops shall have Female Iron Pipe Thread (FIP) Inlet x Mueller 110 Compression Outlet.
2. Equality of the outlet joint to the “Mueller 110 Compression” is mandatory. The “Quick Joint” (Ford), “McQuick Compression” (McDonald), and “CB Compression” (Cambridge) have been determined to be equal. (changed 08/11/03)

### 4.4.5 Straight Ball Meter Valves (Items # 13, 14, 15, & 16)

1. Straight ball meter valves shall have Mueller 110 Compression Inlet x Elliptical Meter Flange Outlet (Items 15 & 16) or Meter Swivel Nut (Items 13 & 14).
2. Equality of the outlet joint to the “Mueller 110 Compression” is mandatory. The “Quick Joint” (Ford), “McQuick Compression” (McDonald), and “CB Compression” (Cambridge) have been determined to be equal.
3. Straight ball meter valves shall be supplied with locking tabs.
4. Straight ball meter valves shall be provided with factory installed handles made of water works brass 85-5-5-5.

### 4.4.6 Straight Ball Meter Valves to Locate meter near wall (Items # 36, & 37)

1. Straight ball meter valves shall have Female Iron Pipe (FIP) X Elliptical Meter Flange (Items 36 & 37).
2. Straight ball meter valves shall be supplied with locking tabs.
3. Straight ball meter valves shall be provided with factory installed handles (85-5-5-5 brass).

### 4.4.7 Angled Ball Meter Valves (Items # 17, 18, 19, & 20)

1. Angled ball meter valves shall have Mueller 110 Compression Inlet x Meter Swivel Nut (Items 17 & 18) or Elliptical Meter Flange (Items 19 & 20).
2. Equality of the outlet joint to the “Mueller 110 Compression” is mandatory. The “Quick Joint” (Ford), “McQuick Compression” (McDonald), and “CB Compression” (Cambridge) have been determined to be equal.
3. Angled ball meter valves shall be supplied with locking tabs.
4. Angled ball meter valves shall be provided with factory installed handles (85-5-5-5 brass).

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### 4.4.8 Quick Joint Couplings (Items # 21, 22, 23, & 24)

1. Quick joint couplings shall have Mueller 110 Compression end – both ends
2. Equality of the outlet joint to the “Mueller 110 Compression” is mandatory. The “Quick Joint” (Ford), “McQuick Compression” (McDonald), and “CB Compression” (Cambridge) have been determined to be equal.

### 4.4.9 Handles for Meter Ball Valves (Items # 28, 29, 30 & 31)

1. Handles shall be water works brass 85-5-5-5.
2. Handle shall be provided with brass nut and bolt.
3. Meter Ball Valves the handle shall be a straight lever and a minimum of 4-1/4” long.

### 4.4.10 90-degree Elbows (Items # 32 & 33)

1. 90-degree elbow shall be 1-1/2-inch or 2-inch
2. 90-degree elbow shall have Mueller 110 Compression inlet x MIP on the outlet end
3. Equality of the outlet joint to the “Mueller 110 Compression” is mandatory. The “Quick Joint” (Ford), “McQuick Compression” (McDonald), and “CB Compression” (Cambridge) have been determined to be equal.

### 4.4.11 Elliptical Flange (Items # 34 & 35)

1. Elliptical Flange shall 1-1/2-inch or 2-inch.
2. Elliptical flange shall have FIP threads.



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### 4.4.12 Service Line Materials Table of Equivalencies

1. For lead free brass goods add the following to the listed Catalog Numbers below.
  - (a) Ford add “NL” as a suffix to the catalog number
  - (b) Red Hed supplies lead free only brass goods
  - (c) Mueller add “EB” as a suffix to the catalog number.
  - (d) McDonald add “7” as a prefix to the catalog number.
  - (e) Cambridge add “NL” as a prefix to the catalog number.



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## Material Specifications

SECTION	ITEM #	SIZE IN & OUT	CATALOG NUMBER					NOTES
			FORD	RED HED	MUELLER	MCDONALD	CAMBRIDGE	
4.2.2	1	1"	FB1000-4-Q-TA-NL	RHSB4382 1	B25008N	4104BQ 1"	311-A4H4	COMB CORP & CURB STOP CC x Q
	2		FB1000-5-Q-TA-NL	NA	NA	NA	NA	CC x Q
	3	1½"	FB1000-6-Q-TA-NL	RHSB4382 4	B25008N 1½"	4104BQ 1½"	311-A6H6	CC x Q
	4	2"	FB1000-7-Q-TA-NL	RHSB4382 5	B25008N 2"	4104BQ 2"	311-A7H7	CC x Q
4.2.3	5	1"	B44-444-Q-NL	RHSB4151 2	B25209N	6100Q 1"	202-H4H4	CURB STOP Q x Q
	6	1¼"	B44-555-Q-NL	RHSB4151 3	NA	6100Q 1¼" x 1"	202-H5H5	Q x Q
	7	1½"	B44-666-Q-NL	RHSB4151 4	B25209N 1½"	6100Q 1½"	202-H6H6	Q x Q
	8	2"	B44-777-Q-NL	RHSB4151 5	B25209N 2"	6100Q 2"	202-H7H7	Q x Q
4.2.4	9	1"	B41-444-Q-NL	RHSB4081 2	B25172N	6102Q 1"	202-H4F4	CURB STOP FIP x Q
	10	1¼"	B41-555-Q-NL	RHB40813	NA	NA	202-H5F5	FIP x Q
	11	1½"	B41-666-Q-NL	RHB40814	B25172N 1½"	6102Q 1½"	202-H6F6	FIP x Q
	12	2"	B41-777-Q-NL	RHB40815	B25172N 2"	6102Q 2"	202-H7F7	FIP x Q
4.2.5	13	1 x ¾"	B43-342W-Q-NL	NA	B24350N	6100MWQ 1"	NA	STR. METER VALVE Q x SWIVEL
	14	1¼ x 1"	B43-454W-Q-NL	NA	B24350N	NA	NA	Q x SWIVEL
	15	1½"	BF43-666W-QNL	NA	B24335N 1½"	6100MWQ 1½"	212-H6MF6H	Q x MTR FLGE
	16	2"	BF43-777W-QNL	NA	B24335N 2"	6100MWQ 2"	212-H7MF7H	Q x MTR FLGE
4.4.6	36	1½"	BF13-666W-NL	NA	B24337N 1½"	6101MW 1½"	212-F6MF6H	FIP x MTR FLGE
	37	2"	BF13-777W-NL	NA	B24337N 2"	6101MW 2"	212-F7MF7H	FIP x MTR FLGE
4.2.7	17	1 x ¾"	BA43-342W-QNL	NA	B24258N	4602BQ 1 x ¾"	210-H4T3H	ANGLE METER VALVE Q x SWIVEL
	18	1 x 1"	BA43-444W-QNL	NA	B24258N	4602BQ 1"	210-H4T4H	Q x SWIVEL
	19	1½"	BFA43-666W-QNL	NA	B24276N 1½"	4602BQ 1½"	210-H6MF6H	Q x MTR FLGE
	20	2"	BFA43-777W-QNL	NA	B24276N 2"	4602BQ 2"	210-H7MF7H	Q x MTR FLGE



Last Modified: 01/24/2024 at 4:49PM EST





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### Section 4.5 WATER SERVICE BOXES

#### 4.5.1 General

1. Water service boxes provided to the Commission or installer shall be Buffalo/slide style and manufactured, tested, inspected and delivered in full compliance with this Specification.
2. The Water service boxes shall be certified to meet American Association of State Highway and Transportation Officials (AASHTO) M 105 Class 35B strength of materials requirements.
3. Water service boxes shall be strong, durable, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
  - (a) An HS20 load rating is required.
  - (b) Cast iron shall conform to American Society of Testing and Materials (ASTM) A48, Class 35B.
  - (c) Water service boxes covers and seats shall be machined to a true surface so that the cover does not rock in the frame no matter the position of the cover.
4. The Commission may require water service boxes be subjected to proof load testing as follows:
  - (a) Testing shall be in accordance with the National Institute of Standards Technology (NIST) standards.
  - (b) Water service boxes shall show no detrimental deformation or cracks when a proof load of 25,000-pounds is concentrated on an 9-inch by 9-inch area at the center of the cover for a 1-minute period of time.
  - (c) Permanent deformation shall not exceed 1/8-inch.
  - (d) All testing shall be at the supplier's expense.
5. Water service boxes top sections, bottom sections, covers, and enlarged bases shall be provided with individual permanent markings that are easily discernable and show the following:
  - (a) Name of the producing foundry and country of manufacture preceded by the words "Made in", such as "Made in USA"
  - (b) AASHTO designation or ASTM designation number



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- (c) Class by a number followed by a letter indicating the minimum tensile strength and size of test bar,
  - (d) Heat identification and cast date (MM/DD/YY),
  - (e) The above markings are required, but the Commission will allow some variation in how the above markings are provided on the finished product. The design and location of the markings must meet and be subject to the approval of the Commission's aesthetic judgment.
6. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
- (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
7. All water service boxes tops, bottoms, and covers shall be coated with an approved petroleum asphaltic seal coat.
8. The manufacturer/vendor/shipper must use care in preparing valves boxes for shipment and in handling during shipment and delivery, to insure that the valves boxes are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged valves boxes will not be accepted.
9. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the valve and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

### 4.5.2 Submittals

- 1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.

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2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the product(s) showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer and/or vendor of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.
4. The manufacturer and/or vendor shall furnish a letter certifying the product(s) meet all the requirements of the AIS, an explanation, in the letter, of how the product(s) meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer and/or vendor shall furnish a certified statement that all product(s) of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer and/or vendor shall furnish a warranty for the product(s) that states that the product(s) shall be free from all defects in material and workmanship under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer and/or vendor shall replace and/or repair defective parts or the whole product(s) for a minimum one (1) year time period from time of delivery.
8. The manufacturer and/or vendor shall furnish a certified statement that the required tests on the various materials and on the completed product(s) have been made, and the results of all tests conform to the requirements of the American Association of State Highway and Transportation Officials (AASHTO) M 105 Class 35B strength of materials requirements, American Society of Testing and Materials (ASTM)



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A48, Class 35B, and as the Commission may require the National Institute of Standards Technology (NIST) standards – Proof Load Testing.

9. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
10. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 4.5.3 Buffalo Style Service Box (Items # 25, 26, 27, & 27a) for New and Existing Services

1. The Buffalo Style Service Box shall be heavy cast iron extension (adjustable) type, slide style, with arch pattern base and a recessed cover.
2. The Buffalo Style Service Box shall be 5-foot tall, with an approximate 24-inch top, an approximate 48-inch bottom, and weigh at least 41-pounds with top section, bottom section, and cover.
3. For  $\frac{3}{4}$ -inch to 1-inch ball type corporations and ball type curb stops the arch shall be at least 5-inches tall with a 3-inch by 3-inch arch.
4. For 1-1/2-inch to 2-inch ball type corporations and ball type curb stops an enlarged base is be required and the arch shall be at least 7-inches tall with a 4-inch by 4-inch arch.



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5. The inside diameter of the upper section shall be at least 3-inches. The inside diameter of the bottom section shall be at least 2-1/2-inches.
6. The Buffalo Style Service Box shall be provided with a heavy duty, flush fit, cast iron cover that has a brass pentagon head nut, and the word "WATER" cast into the cover.
7. The Buffalo Style Service Box shall have a heavy coat of Asphalt-base paint.

### 4.5.4 Buffalo Style Water Service Boxes Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

8. Bibby Ste-Croix:
  - (a) Water Service Box complete: V042 (95E)
  - (b) Top section only: S201,
  - (c) Bottom section only: V213,
  - (d) Enlarged base: V313,
  - (e) Heavy duty cover: V243, and
  - (f) Brass bolt: V312
9. Bingham and Taylor:
  - (a) Water Service Box complete: 94-F (Fig. 4901)
  - (b) Top section only: F (Fig. 4901),
  - (c) Bottom section only: 94 (Fig. 4901),
  - (d) Enlarged base: 14-E (Fig. 4980)
  - (e) Heavy duty cover: 4901-B, and
  - (f) Brass bolt: 4951, or
10. Equal provided the products are manufactured as per these specifications.



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### Section 4.6 Water Meters: 5/8-inch – 1-inch

#### 4.6.1 General

1. Water Meters shall conform to the American Water Works Association Standard C-700 (latest edition) for: “Cold Water Meter—Positive Displacement Type, Bronze Main Case”.
  - (a) The register shall be supplied mounted to the meter body.
  - (b) Registers may be mechanical or solid state
2. The Water Meter shall be supplied and warranted as a complete assemble unit that include the meter body, encoder register, and 8-foot cord.
3. All water meters shall be certified, by a third party, as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
4. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
5. Inspection:
  - (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer and/or vendor with the provisions of



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the specifications, shall be paid for by the manufacturer and/or vendor, and shall be deductible from the price paid for the water meters.

6. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
7. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished product(s) will not be accepted.
8. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 4.6.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the Water Meters showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each finished product(s), and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation, primer (if applicable), type of coating(s), color of coating(s), manufacturer and/or vendor of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.



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4. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer and/or vendor shall furnish a certified statement that all Water Meters of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer and/or vendor shall furnish a certified statement, by an accredited third party certification organization, that the water meter is suitable for contact with drinking water in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
8. The manufacturer and/or vendor shall furnish a warranty for the water meters that states that the water meters shall be free from all defects in material and workmanship under normal use in accordance with the following requirements:
  - (a) Lead free bronze housing for a minimum twenty (20) year time period from time of delivery,
  - (b) Encoder registers which are supplied with the water meters for a minimum ten (10) year time period from time of delivery,
  - (c) The supplier of the Water Meter unit shall be fully responsible for all components and warranties of the Water Meter unit and shall replace and/or repair defective parts or the whole water meter.
9. The manufacturer and/or vendor shall furnish a warranty for the water meters accuracy that states that the water meters shall meet or exceed AWWA Standard C-700, latest edition, under normal use in accordance with the following requirements:
  - (a) 5/8-inch by 3/4-inch for a minimum five (5) year time period from time of delivery or 100,000-cubic feet (750,000-gallons), whichever occurs first,
  - (b) 1-inch for a minimum five (5) year time period from time of delivery or 133,333-cubic feet (1,000,000-gallons), whichever occurs first,
  - (c) The manufacturer and/or vendor shall replace and/or repair defective parts or the whole water meter.





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10. The manufacturer and/or vendor shall furnish a certified statement that the required tests on the various materials and on the completed water meter have been made, and the results of all tests conform to the requirements of the American Water Works Association Standard Specification C-700. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.
11. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
12. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the material as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 4.6.3 Meter Body

1. The main meter body shall be rated for a minimum 150 psi continuous working pressure.
2. Measuring chamber shall be a nutating disc.
3. Coupling connections shall be standard National Pipe Thread (NPT) with the following connection types required:
  - (a) 5/8-inch by 3/4-inch: Male Thread Ends (MTE),
  - (b) 1-inch: MTE,



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4. A frost-protection type cast iron base plate is required for 5/8-inch and 1-inch meters and shall be attached with stainless screws.
  - (a) The base plate shall be coated with epoxy paint.
  - (b) A minimum of two (2) base screws will contain an eyelet suitable for inserting a wire tamper-evident seal.
5. All brass components which come in contact with water shall be made from Lead Free brass.
  - (a) This brass alloy is commercially referred to as “Enviro Brass II”, “Federalloy”, “Selenium Free”, or “Red-Hed Lead Free Brass”
    - Enviro Brass II is a Lead Free copper alloy, UNS Copper Alloy C89520.
    - Federalloy is a Lead Free copper alloy, UNS Copper Alloy C89833.
    - Selenium Free Brass is a Lead Free copper alloy, UNS Copper Alloy C89836.
    - Red-Hed Lead Free Brass is a Lead Free copper alloy, UNS Copper Alloy, UNS - Copper Alloy C89833.
  - (b) Brass other than the above may be approved by the Springfield Water and Sewer Commission as an acceptable equal.
  - (c) Lead Free brass is defined as having the following content:

PRIMARY ELEMENTS	COMPOSITION % BY WEIGHT
Copper (Cu)	85.0-91.0
Tin (Sn)	4.0-7.0
Lead (Max) (Pb)	0-0.25
Zinc (Zn)	2.0-6.0
Bismuth (Bi)	1.6-3.5.2
Selenium (Se)	0.0-1.1
Nickel (Ni) (Including Cobalt)	0.9-1.0

6. The meter body casting shall be clearly and deeply engraved with a unique 8 digit serial number which can be readily translated to determine the date of manufacture and shall be clearly identified as being cast from Lead Free Brass.



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- (a) “EB”, “EBII”, “NL”, or “LF” are acceptable identifiers, and must be cast in high relief or deeply engraved.
  - (b) Lead Free identifiers other than “EB”, “EBII”, “NL”, or “LF” are subject to Commission review and approval.
7. Brass parts not in contact with water may be made from copper alloy No. 83600, in accordance with ASTM B30, ASTM B62, or ASTM B584 and AWWA C-800 latest version containing 85% copper, 5% tin, 5% lead, and 5%.

### 4.6.4 Mechanical Register

- 1. The register shall be an encoder type with an encoded output, tamper-resistant (tamper-evident seal pin or seal wire screw), magnetically driven, and permanently sealed against moisture (1-100% operating humidity) and dirt.
- 2. Registers shall be a direct-read mechanical odometer wheel that registers in cubic feet.
  - (a) 5/8-inch through 1-inch shall be six (6) digits to the cubic foot decimal point with up to four (4) digits allowed after the decimal point.
- 3. Compatibility is required with any UI-1203 (such as provided by Sensus) protocol three (3) wire input devices.
- 4. The register shall have a minimum 8-foot encoded potted lead wire for attachment to external electronics.

### 4.6.5 Solid State Register

- 1. The register shall be a solid state LCD display tamper-resistant (tamper-evident seal pin or seal wire screw), magnetically driven, and permanently sealed against moisture and dirt.
- 2. The register shall have no internal battery.
- 3. Registers shall be direct-read LCD numeric; registering in cubic feet.
  - (a) 5/8-inch through 1-inch shall be six (6) digits to the cubic foot decimal point with up to four (4) digits allowed after the decimal point.
- 4. Compatibility is required with any UI-1203 (such as provided by Sensus) protocol three (3) wire input devices.
- 5. The register shall have a minimum 8-foot encoded potted lead wire for attachment to external electronics



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### 4.6.6 Manuals, Spare Parts, Tools, Training, Repairs

1. The requirements of this section are for Commission Price Agreements and are not for Commission Approved Contractors or Commission Capital Projects, unless specifically asked for in the project.
2. The manufacturer and/or vendor shall provide four (4) 24-inches by 36-inches (vertical) cut sheets showing all the water meter components, component material, and component part numbers with the first delivery. The vertical cut sheets shall be laminated.
3. The manufacturer and/or vendor shall provide six (6) complete sets catalogue or manual for parts, repair and maintenance with the first delivery.
4. The manufacturer and/or vendor shall provide at no additional cost four (4) complete sets of assembly/disassembly tools with the first delivery of meters.
5. The manufacturer and/or vendor shall provide training to Commission construction and maintenance staff every two (2) years. Training shall be by a factory trained representative at the Commission's Customer Service Office at 71 Colton Street, Springfield Massachusetts during normal business hours. The first training shall be provided within 30-days of the first delivery unless otherwise scheduled by the Commission.
6. The manufacturer and/or vendor shall provide the Commission with contact information for a factory trained representative who shall be responsible to respond to complaints from the Commission about defects in material, coatings, and workmanship under normal use of the product within ten (10) working days.

### 4.6.7 Water Meter Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Badger Meter, Inc.:
  - (a) 5/8-inch by 3/4-inch w/ MTE: Model 25 w/ HR-E Encoder Register,
  - (b) 1-inch w/ MTE: Model 55 w/ HR-E Encoder Register,
2. Neptune:
  - (a) 5/8-inch by 3/4-inch w/ MTE: T-10 Pro Read Register,



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- (b) 1-inch w/ MTE: T-10 Pro Read Register,
  - (c) 5/8-inch by 3/4-inch w/ MTE: w/ E-CODER Solid State Register
  - (d) 1-inch w/ MTE: w/ E-CODER Solid State Register
3. Equal provided the products are manufactured as per these specifications.

### Section 4.7 Single Jet Water Meters – 5/8-inch X 3/4-inch, 1-inch, 1-1/2-inch, 2-inch, 3-inch, and 4-inch and Replacement Registers

#### 4.7.1 General

1. Water Meters shall conform to the American Water Works Association Standard C-712 (latest edition) for: “Cold-Water Meters-Single-jet Type” and the following.
2. The Water Meter shall be supplied and warranted as a complete assembled unit that includes the meter body, liquid crystal display (LCD) register and 3-foot cord or longer with an Itron connector compatible with Encoder-Receiver-Transmitters (ERT).
3. Water meters shall operate accurately with no requirements for straight runs of pipe before or after the meter.
4. Water meters shall operate without any leakage or damage to any part at a minimum continuous working pressure of 230-PSI (16-Bar).
5. Water meters shall be bid without strainers. The water meter operations shall be unaffected by sand or other particulate in the flow path. The manufacturer must warrant the meter operation and accuracy with no strainer installed.
6. All water meters shall be certified, by a third party, as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
7. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal poured into a mold to create Casting(s) for a finished product,



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- (c) Incidental parts may be purchased/obtained from other counties to provide a finished product, in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
8. Inspection:
- (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer and/or vendor with the provisions of the specifications, shall be paid for by the manufacturer and/or vendor, and shall be deductible from the price paid for the water meters.
9. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
10. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished product(s) will not be accepted.
11. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 4.7.2 Submittals

- 1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
- 2. The manufacturer and/or vendor and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All



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components shall be provided in accordance to these drawings. The drawings shall show the following:

- (a) Cross sectional drawings of the Water Meters showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Rated working pressure and hydrostatic test pressure of each finished product(s), and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
  4. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
  5. The manufacturer and/or vendor shall furnish a certified statement that all Water Meters of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
  6. The manufacturer and/or vendor shall furnish a certified statement, by an accredited third party certification organization, that the water meter is suitable for contact with drinking water in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
  7. The manufacturer and/or vendor shall furnish a warranty for the water meters that states that the water meters shall be free from all defects in material and workmanship under normal use in accordance with the following requirements:
    - (a) Lead free bronze main case for a minimum twenty (20) year time period from time of delivery,
    - (b) Registers which are supplied with the water meters for a minimum five (5) year time period from time of delivery,
    - (c) All other components which are supplied with the water meter for a minimum of five (5) year time period from time of delivery,



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- (d) The supplier of the Water Meter unit shall be fully responsible for all components and warranties of the Water Meter unit and shall replace and/or repair defective parts or the whole water meter.
8. The manufacturer and/or vendor shall furnish technical documentation for the water meters performance and accuracy that states that the water meters shall meet or exceed AWWA Standard C-712, latest edition, under normal use in accordance with Table 1, below.
- (a) The manufacturer and/or vendor shall furnish a warranty for the 5/8-inch X 3/4-inch, 1-inch, 1-1/2-inch, 2-inch, 3-inch, and 4-inch water meters accuracy that states that the water meters shall meet or exceed AWWA Standard C-712, latest edition, and in accordance with Table 1 below for a minimum five (5) year time period from time of delivery,
- (b) The manufacturer and/or vendor shall replace and/or repair defective parts or the whole water meter.
9. The manufacturer and/or vendor shall furnish a certified statement that the required tests on the various materials and on the completed water meter have been made, and the results of all tests conform to the requirements of the American Water Works Association Standard Specification C-712. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.
10. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
11. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification, if applicable, “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
- (a) Approved means the contractor can supply the material as shown on the drawing(s).
- (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.





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- (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 4.7.3 Meter Body – Main Case

1. The meter body shall be lead free brass as defined elsewhere in these specifications.
  - (a) 5/8-inch X 3/4-inch meters shall have composite meter chamber.
  - (b) 1-inch and larger shall have all brass meter chambers.
2. The meter body case shall have the meter serial number, size, an arrow indicating direction of flow, and identification of the main case as being lead free permanently cast, etched, or stamped on the main case.
  - (a) The unique multi digit serial number shall be readily translated to determine the date of manufacture.
  - (b) The size and an arrow indicating direction of flow shall be cast in raised characters on the main case.
3. The main case shall be of top loading design to facilitate meter access.
  - (a) 5/8-inch X 3/4-inch meters shall have the cover fastened to the main case by standard torx head bolts such that standard tools can be used to remove the cover.
  - (b) 1-inch and larger meters shall have the cover fastened to the main case by standard hex-head bolts such that standard tools can be used to remove the cover.
4. Meters shall utilize only one (1) measuring element, which shall be an impeller style, to achieve the performance required in the table below.
  - (a) No meters using two (2) or more measuring elements, such as combination meters or compound meters shall be accepted.
  - (b) 100% of water flow must be directly measured by the single-jet element to achieve performance in above table.
  - (c) Propeller type or proportional meters shall not be accepted.
5. Meters must meet the performance specifications summarized below as well as all defined by the AWWA 712, latest edition. These requirements are summarized in Table 1;



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Table 1

ITEM	Meter Size	Register Type/ telemetry type	Low Flow GPM at least at 95% accuracy	Accuracy Range 98.5-101.5%	Maximum Pressure Loss Over Accuracy Range	Max Lay Length in Inches (including spool or extension if needed)
1	5/8 X 3/4 inch	LCD/900 MHZ RF	1/8 gpm	0.25-22 gpm	15 PSI	7.5 INCH
2	5/8 X 3/4 inch	LCD/INTEGRAL CELLULAR	1/8 gpm	0.25-22 gpm	15 PSI	7.5 INCH
3	5/8 X 3/4 inch (extended flow range)	LCD/ REMOTE CELLULAR***	1/16 gpm	0.125 - 30 gpm	15 PSI	7.5 INCH
4	5/8 X 3/4 inch (extended flow range)	LCD/900 MHZ RF plus REMOTE Register with onboard CELLULAR	1/16 gpm	0.125 - 30 gpm	15 PSI	7.5 INCH
5	1 inch	LCD/900 MHZ RF	1/8 gpm	0.5-70 gpm	15 PSI	10.75 INCH
6	1 inch	LCD/INTEGRAL CELLULAR	1/8 gpm	0.5-70 gpm	15 PSI	10.75 INCH
7	1 inch	LCD/ REMOTE CELLULAR***	1/8 gpm	0.5-70 gpm	15 PSI	10.75 INCH
8	1-1/2 inch	LCD/900 MHZ RF	1/4 gpm	0.5-105 gpm	15 PSI	8 INCH
9	1-1/2 inch	LCD/INTEGRAL CELLULAR	1/4 gpm	0.5-105 gpm	15 PSI	8 INCH
10	1-1/2 inch	LCD/ REMOTE CELLULAR***	1/4 gpm	0.5-105 gpm	15 PSI	8 INCH
11	1-1/2 inch	LCD/900 MHZ RF	1/4 gpm	0.5-105 gpm	15 PSI	13 INCH*
12	1-1/2 inch	LCD/INTEGRAL CELLULAR	1/4 gpm	0.5-105 gpm	15 PSI	13 INCH*
13	1-1/2 inch	LCD/ REMOTE CELLULAR***	1/4 gpm	0.5-105 gpm	15 PSI	13 INCH*
14	2 inch	LCD/900 MHZ RF	1/4 gpm	0.75-165 gpm	15 PSI	10 INCH
15	2 inch	LCD/INTEGRAL CELLULAR	1/4 gpm	0.75-165 gpm	15 PSI	10 INCH
16	2 inch	LCD/ REMOTE CELLULAR***	1/4 gpm	0.75-165 gpm	15 PSI	10 INCH
17	2 inch	LCD/900 MHZ RF	1/4 gpm	0.75-165 gpm	15 PSI	17 INCH*
18	2 inch	LCD/INTEGRAL CELLULAR	1/4 gpm	0.75-165 gpm	15 PSI	17 INCH*
19	2 inch	LCD/ REMOTE CELLULAR***	1/4 gpm	0.75-165 gpm	15 PSI	17 INCH*
20	3 inch	LCD/900 MHZ RF	1/2 gpm	0.75-350 gpm	15 PSI	12 INCH
21	3 inch	LCD/INTEGRAL CELLULAR	1/2 gpm	0.75-350 gpm	15 PSI	12 INCH
22	3 inch	LCD/ REMOTE CELLULAR***	1/2 gpm	0.75-350 gpm	15 PSI	12 INCH
23	3 inch	LCD/900 MHZ RF	1/2 gpm	0.75-350 gpm	15 PSI	17 INCH**
24	3 inch	LCD/INTEGRAL CELLULAR	1/2 gpm	0.75-350 gpm	15 PSI	17 INCH**
25	3 inch	LCD/ REMOTE CELLULAR***	1/2 gpm	0.75-350 gpm	15 PSI	17 INCH**
26	4 inch	LCD/900 MHZ RF	3/4 gpm	1.5-500 gpm	15 PSI	14 INCH
27	4 inch	LCD/INTEGRAL CELLULAR	3/4 gpm	1.5-500 gpm	15 PSI	14 INCH
28	4 inch	LCD/ REMOTE CELLULAR***	3/4 gpm	1.5-500 gpm	15 PSI	14 INCH
29	4 inch	LCD/900 MHZ RF	3/4 gpm	1.5-500 gpm	15 PSI	20 INCH**
30	4 inch	LCD/INTEGRAL CELLULAR	3/4 gpm	1.5-500 gpm	15 PSI	20 INCH**
31	4 inch	LCD/ REMOTE CELLULAR***	3/4 gpm	1.5-500 gpm	15 PSI	20 INCH**
32	universal ****	LCD Cellular Network equipped register with mounting bracket and housing only				
33	universal ****	LCD Cellular Network equipped register with mounting bracket and housing only with 3' Itron ERT Connector				
34	universal ****	LCD Cellular Network equipped register with mounting bracket and housing only with wired remote antenna (15 to 25 ft); length at customer's request				

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35	universal ****	LCD Cellular Network equipped register with mounting bracket and housing only with wired remote antenna (15 to 25ft); length at customer's request and also with a two wire configurable (SCADA compatible) pulse output
36	universal ****	universal IV REMOTE Register for attachment to 3 wire industry standard AMR encoded meter output
37	universal ****	15ft to 50ft (length at customer's request) LCD Cellular Network equipped register only
38	universal ****	universal mounting bracket and housing for register
39	various	mounting plate and housing for register specific for Badger M series meters

\* Spool pieces for 1 1/2 and 2 inch meters will have a 1" NPT test port (with plug) built in

\*\* Spool pieces for 3 and 4 inch meters will have a 2" NPT test port (with plug) built in

\*\*\*Remote is a wired Transmission Endpoint with at least a 15 foot cord and up to 25 foot as requested

\*\*\*\* will work at least on any size Metron model d or newer top loading spectrum and enduro meter and on badger M25 or M70 Series Bases

6. Coupling connections shall be standard National Pipe thread (NPT) with the following connection types required:

(a) 5/8-inch X 3/4-inch: Male Thread Ends (MTE)

(b) 1-inch: MTE

7. Coupling connections shall be casing flanges with the following connection types required:

(a) 1-1/2-inch: Two (2) bolt oval flange ends,

(b) 2-inch: Two (2) bolt oval flange ends,

(c) 3-inch: Four (4) bolt round flanged ends, and conform to ANSI B16.24 for copper alloy

(d) 4-inch: Eight (8) bolt round flanged ends, and conform to ANSI B16.24 for copper alloy

8. Water meters shall be supplied with flange gaskets and all fasteners necessary for installation.



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9. All fasteners shall be made of Grade 316 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 316 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 316+ stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
10. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
11. All brass components which come in contact with water shall be made from Lead Free brass.
  - (a) This brass alloy is commercially referred to as “Enviro Brass II”, “Federalloy”, “Selenium Free”, “Red-Hed Lead Free Brass”, or “Silicon Red Brass”
    - Enviro Brass II is a Lead Free copper alloy, UNS Copper Alloy C89520.
    - Federalloy is a Lead Free copper alloy, UNS Copper Alloy C89833.
    - Selenium Free Brass is a Lead Free copper alloy, UNS Copper Alloy C89836.
    - Red-Hed Lead Free Brass is a Lead Free copper alloy, UNS Copper Alloy, UNS - Copper Alloy C89833.
    - Silicon Red Brass is a Lead Free copper alloy, UNS Copper Alloy C69430.
  - (b) Brass other than the above may be approved by the Springfield Water and Sewer Commission as an acceptable equal.
  - (c) Lead Free brass is defined in Table 2 as having the following elemental content(s):



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## Material Specifications

Table 2

PRIMARY ELEMENTS	COMPOSITION % BY WEIGHT
Copper (Cu)	81.75-91.0
Tin (Sn)	0.0-7.0
Lead (Max) (Pb)	0-0.25
Zinc (Zn)	2.0-14.0
Bismuth (Bi)	0.0-3.5
Selenium (Se)	0.0-1.1
Nickel (Ni) (Including Cobalt)	0.9-1.0
Silicon (Si)	0.0-4.0

12. The meter body casting shall clearly identify the casting as being Lead Free Brass.
  - (a) “EB”, “EBII”, “NL”, or “LF” are acceptable identifiers, and must be cast in high relief or deeply engraved.
  - (b) Lead Free identifiers other than “EB”, “EBII”, “NL”, or “LF” are subject to Commission review and approval.
13. Brass parts not in contact with water may be made from copper alloy No. 83600, in accordance with ASTM B30, ASTM B62, or ASTM B584 and AWWA C-800 latest version containing 85% copper, 5% tin, 5% lead, and 5%.

### 4.7.4 Registers

1. The registers shall be a solid state liquid filled crystal display (LCD) or solid state LCD with built-in cellular technology for reading data upload to a web based cloud environment and in accordance with these Material Specifications.
2. The registers housing and lid, if applicable, shall be made of bronze or polymer.
3. The registers shall be sealed permanently against moisture and dirt with an IP68 rating.
4. The registers shall be a solid state electronic LCD type.
5. The registers shall be magnetically driven. No intermediate gearing shall be allowed.



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## Material Specifications

6. The registers shall be tamper proof and secured to the main case in such a manner that tampering can be easily determined.
7. The registers shall be configurable for either cubic feet or gallons upon request before or after being installed by the manufacturer or the Commission.
8. The registers lens window shall be polycarbonate plastic and in accordance with the following:
  - (a) The lens window shall be break resistant and scratch resistant,
  - (b) No liquid filled registers shall be accepted,
  - (c) UV rated cure adhesive for sealing,
  - (d) Self-healing dielectric gel is required for all wire connections (potting),
  - (e) The registers shall be able to withstand 100% humidity (submersible), and
  - (f) The display shall have a minimum range of -4-degrees Fahrenheit (F) to +176-degrees F with an Extended Range Option available.
9. The registers shall have on-board data logging with programmable intervals from 1-minute to 1-hour and on-board memory of at least 32,000-data points.
10. The registers shall be field serviceable without interruption of the meter's operation
11. The register box must be securely attached to the main case and be securely held in place.
12. The name of the manufacturer and the units of measure shall be clearly visible and identifiable and located on the exterior of the register, register box or lid.
13. The register shall be supplied mounted to the meter body.
14. All internal components shall be of non-corrosive materials as described in AWWA C712 standard.
15. The Registers output for radio frequency (RF) shall be compatible with ITRON-60W Encoder Receive Transmitter (ERT) and unless requested or otherwise approved come with a 15-foot or longer cord terminating with an Itron connector, as indicated in Table 1 above.
16. Registers with two-way cellular based communications shall allow for data log retrieval by a device connecting by either IrDA, Bluetooth, or equal in the event that the cellular data is not available, as indicated in Table 1 above.



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(g) Such device to be available from and supported by the meter manufacturer for a period of at least 10-years.

(h) Upon request a second output for either pulse or 4-20ma shall be available, as indicated in Table 1 above.

17. The maximum indications of the digits on the first display number and the minimum capacity of the register shall be as indicated in Table 3

Table 3

Meter Size	Maximum Allowable Indication of Initial Dial		Minimum allowable Capacity of Register (In million cubic-feet and million gallons)	
	Cubic Feet	Gallons	Cubic Feet	Gallons
5/8-inch X 3/4-inch	0.1	1.0	1.0	10
1-inch	0.1	1.0	1.0	10
1-1/2-inch	10	100	10	100
1-1/2-inch	10	100	10	100
2-inch	10	100	10	100
2-inch	10	100	10	100
3-inch	10	100	10	100
3-inch	10	100	10	100
4-inch	100	1000	10	100
4-inch	100	1000	10	100

### 4.7.5 Manuals, Spare Parts, Tools, Training, Repairs

1. The requirements of this section are for Commission Price Agreements and are not for Commission Approved Contractors or Commission Capital Projects, unless specifically asked for in the project.



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2. The manufacturer and/or vendor shall provide four (4) 24-inches by 36-inches (vertical) cut sheets showing all the water meter components, component material, and component part numbers with the first delivery. The vertical cut sheets shall be laminated.
3. The manufacturer and/or vendor shall provide six (6) complete sets catalogue or manual for parts, repair and maintenance with the first delivery.
4. The manufacturer and/or vendor shall provide at no additional cost four (4) complete sets of assembly/disassembly tools with the first delivery of meters.
5. The manufacturer and/or vendor shall provide training to Commission construction and maintenance staff every two (2) years. Training shall be by a factory trained representative at the Commission's Customer Service Office at 71 Colton Street, Springfield Massachusetts during normal business hours. The first training shall be provided within 30-days of the first delivery unless otherwise scheduled by the Commission.
6. The manufacturer and/or vendor shall provide the Commission with contact information for a factory trained representative who shall be responsible to respond to complaints from the Commission about defects in material, coatings, and workmanship under normal use of the product within ten (10) working days.





# Springfield Water and Sewer Commission

## Material Specifications

### 4.7.6 Water Meter Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Metron-Farnier.:
  - (a) 5/8-inch X 3/4-inch w/ NPT MTE: Model - S-30-D (Brass)
  - (b) 1-inch w/ NPT MTE; Model – Spectrum S-50-DL
  - (c) 1-1/2-inch w/ Two bolt oval flange ends: Model - Spectrum S-88-D,
  - (d) 2-inch w/ Two bolt oval flange ends: Model Spectrum S-130-D,
  - (e) 3-inch w/ Four bolt round flange ends: Model Spectrum S-175-D,
  - (f) 4-inch w/ Eight bolt round flange ends: Model Spectrum S-500-D, or
2. Equal provided the products are manufactured as per these specifications.



# Springfield Water and Sewer Commission

## Material Specifications

### Section 4.8 Single Jet Water Meters – 6-inch and 8-inch

#### 4.8.1 General

1. Water Meters shall conform to the American Water Works Association Standard C-712 (latest edition) for: “Cold-Water Meters-Single-jet Type” and the following.
2. The Water Meter shall be supplied and warranted as a complete assembled unit that includes the meter body, liquid crystal display (LCD) register and 3-foot cord or longer with an Itron connector compatible with Encoder-Receiver-Transmitters (ERT).
3. Water meters shall operate accurately with no requirements for straight runs of pipe before or after the meter.
4. Water meters shall operate without any leakage or damage to any part at a minimum continuous working pressure of 230-PSI (16-Bar).
5. Water meters shall be bid without strainers. The water meter operations shall be unaffected by sand or other particulate in the flow path. The manufacturer must warranty the meter operation and accuracy with no strainer installed.
6. Water meters for dual fire and domestic applications shall be Factory Mutual (FM) approved.
7. All water meters shall be certified, by a third party, as suitable for contact with drinking water by an accredited certification organization in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
8. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or



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## Material Specifications

- (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
9. Inspection:
- (a) All finished product(s) furnished shall be subject to inspection by the Commission at the place of manufacture and shall be subject to inspection after delivery to the Commission.
  - (b) Cost of re-inspection of materials or fabricated finished product(s) caused by the non-compliance of the manufacturer and/or vendor with the provisions of the specifications, shall be paid for by the manufacturer and/or vendor, and shall be deductible from the price paid for the water meters.
10. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission's service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload.
11. The manufacturer/vendor/shipper must use care in preparing finished product(s) for shipment and in handling during shipment and delivery, to insure that the finished(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged finished product(s) will not be accepted.
12. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the finished product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications and the applicable AWWA Standards.

### 4.8.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the Water Meters showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,

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- (d) Rated working pressure and hydrostatic test pressure of each finished product(s), and
  - (e) Country of origin for each component.
3. The manufacturer and/or vendor shall furnish a letter certifying the product meets all the requirements of the AIS, an explanation, in the letter, of how the products meets the AIS requirements, and signed by the Owner or President of the Company.
  4. The manufacturer and/or vendor shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
  5. The manufacturer and/or vendor shall furnish a certified statement that all Water Meters of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
  6. The manufacturer and/or vendor shall furnish a certified statement, by an accredited third party certification organization, that the water meter is suitable for contact with drinking water in accordance with ANSI/NSF 61-8, Drinking Water System Components – Health Effects.
  7. The manufacturer and/or vendor shall furnish a warranty for the water meters that states that the water meters shall be free from all defects in material and workmanship under normal use in accordance with the following requirements:
    - (a) Lead free bronze main case for a minimum twenty (20) year time period from time of delivery,
    - (b) Registers which are supplied with the water meters for a minimum five (5) year time period from time of delivery,
    - (c) All other components which are supplied with the water meter for a minimum of five (5) year time period from time of delivery,
    - (d) The supplier of the Water Meter unit shall be fully responsible for all components and warranties of the Water Meter unit and shall replace and/or repair defective parts or the whole water meter.
  8. The manufacturer and/or vendor shall furnish technical documentation for the water meters performance and accuracy that states that the water meters shall meet or exceed AWWA Standard C-712, latest edition, under normal use in accordance with Table 1, below.
    - (a) The manufacturer and/or vendor shall furnish a warranty for the 6-inch and 8-inch water meters accuracy that states that the water meters shall meet or exceed

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## Material Specifications

AWWA Standard C-712, latest edition, and in accordance with Table 1 below for a minimum five (5) year time period from time of delivery,

- (b) The manufacturer and/or vendor shall replace and/or repair defective parts or the whole water meter.
9. The manufacturer and/or vendor shall furnish a certified statement that the required tests on the various materials and on the completed water meter have been made, and the results of all tests conform to the requirements of the American Water Works Association Standard Specification C-712. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.
10. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
- (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
11. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification, if applicable, “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
- (e) Approved means the contractor can supply the material as shown on the drawing(s).
  - (f) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
  - (g) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 4.8.3 Meter Body – Main Case

- 1. The meter body shall be lead free brass as defined elsewhere in these specifications and shall have all brass meter chambers.
- 2. The meter body case shall have the meter serial number, size, an arrow indicating direction of flow, and identification of the main case as being lead free permanently cast, etched, or stamped on the main case.



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- (a) The unique multi digit serial number shall be readily translated to determine the date of manufacture.
  - (b) The size and an arrow indicating direction of flow shall be cast in raised characters on the main case.
3. The main case shall be of top loading design to facilitate meter access and shall have the cover fastened to the main case by standard hex-head bolts such that standard tools can be used to remove the cover.
  4. Meters shall utilize only one (1) measuring element, which shall be an impeller style, to achieve the performance required in the table below.
    - (a) No meters using two (2) or more measuring elements, such as combination meters or compound meters shall be accepted.
    - (b) 100% of water flow must be directly measured by the single-jet element to achieve performance in above table.
    - (c) Propeller type or proportional meters shall not be accepted.
  5. Meters must meet the performance specifications summarized below as well as all defined by the AWWA 712, latest edition. These requirements are summarized in Table 1;



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## Material Specifications

Table 1

ITEM	Meter Size	Register Type/ telemetry type	Low Flow GPM at least at 95% accuracy	Accuracy Range 98.5-101.5%	Maximum Pressure Loss Over Accuracy Range	Max Lay Length in Inches (including spool or extension if needed)
1	6 inch	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector	5 gpm	6 - 2800 gpm	7 PSI	24 INCH
2	6 inch (SCADA)	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector and a two wire pulse output for SCADA and similar systems	5 gpm	6 - 2800 gpm	7 PSI	24 INCH
3	6 inch (extended flow range)	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector	15 gpm	15 - 3500 gpm	7 PSI	24 INCH
4	6 inch (extended flow range) (SCADA)	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector and a two wire pulse output for SCADA and similar systems	15 gpm	15 - 3500 gpm	7 PSI	24 INCH
5	8 inch	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector	5 gpm	6 - 2800 gpm	7 PSI	24 INCH
6	8 inch (SCADA)	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector and a two wire pulse output for SCADA and similar systems	5 gpm	6 - 2800 gpm	7 PSI	24 INCH
7	8 inch (extended flow range)	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector	15 gpm	15 - 3500 gpm	7 PSI	24 INCH
8	8 inch (extended flow range) (SCADA)	LCD/ REMOTE CELLULAR ANTENNA*** as well as with an AMR three wire output to a 3 foot cord terminating with an Itron ERT Connector and a two wire pulse output for SCADA and similar systems	15 gpm	15 - 3500 gpm	7 PSI	24 INCH

\*\*\*Remote is a wired Cellular Transmission Antenna Endpoint with at least a 15-foot cord and up to 25-foot as requested

- 6-inch and 8-inch meters shall have a 2-inch NPT test port (with plug) tapped in to the main body.



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7. Cellular devices shall include ten (10) years of pre-paid cellular service.
8. Coupling connections shall be casing flanges with the following connection types required:
  - (a) 6-inch: Eight (8) bolt round flanged ends, and conform to ANSI B16.24 for copper alloy
  - (b) 8-inch: Eight (8) bolt round flanged ends, and conform to ANSI B16.24 for copper alloy
9. Water meters shall be supplied with flange gaskets and all fasteners necessary for installation.
10. All fasteners shall be made of Grade 316 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 316 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 316+ stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
11. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
12. All brass components which come in contact with water shall be made from Lead Free brass.
  - (a) This brass alloy is commercially referred to as “Enviro Brass II”, “Federalloy”, “Selenium Free”, “Red-Hed Lead Free Brass”, or “Silicon Red Brass”
    - Enviro Brass II is a Lead Free copper alloy, UNS Copper Alloy C89520.
    - Federalloy is a Lead Free copper alloy, UNS Copper Alloy C89833.
    - Selenium Free Brass is a Lead Free copper alloy, UNS Copper Alloy C89836.
    - Red-Hed Lead Free Brass is a Lead Free copper alloy, UNS Copper Alloy, UNS - Copper Alloy C89833.





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- Silicon Red Brass is a Lead Free copper alloy, UNS Copper Alloy C69430.
- (b) Brass other than the above may be approved by the Springfield Water and Sewer Commission as an acceptable equal.
- (c) Lead Free brass is defined in Table 2 as having the following elemental content(s):



# Springfield Water and Sewer Commission

## Material Specifications

Table 2

PRIMARY ELEMENTS	COMPOSITION % BY WEIGHT
Copper (Cu)	81.75-91.0
Tin (Sn)	0.0-7.0
Lead (Max) (Pb)	0-0.25
Zinc (Zn)	2.0-14.0
Bismuth (Bi)	0.0-3.5
Selenium (Se)	0.0-1.1
Nickel (Ni) (Including Cobalt)	0.9-1.0
Silicon (Si)	0.0-4.0

13. The meter body casting shall clearly identify the casting as being Lead Free Brass.
- (a) “EB”, “EBII”, “NL”, or “LF” are acceptable identifiers, and must be cast in high relief or deeply engraved.
  - (b) Lead Free identifiers other than “EB”, “EBII”, “NL”, or “LF” are subject to Commission review and approval.
14. Brass parts not in contact with water may be made from copper alloy No. 83600, in accordance with ASTM B30, ASTM B62, or ASTM B584 and AWWA C-800 latest version containing 85% copper, 5% tin, 5% lead, and 5%.

### 4.8.4 Registers

1. The registers shall be a solid state liquid filled crystal display (LCD) or solid state LCD with both a built in RF output to a three (3) wire AMR standard setup and built-in cellular technology with either an onboard or wired remote antenna for reading data upload to a web based cloud environment and in accordance with these Material Specifications.
2. The registers housing and lid, if applicable, shall be made of bronze or polymer.
3. The registers shall be sealed permanently against moisture and dirt with an IP68 rating.
4. The registers shall be a solid state electronic LCD type.



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5. The registers shall be magnetically driven. No intermediate gearing shall be allowed.
6. The registers shall be tamper proof and secured to the main case in such a manner that tampering can be easily determined.
7. The registers shall be configurable for either cubic feet or gallons upon request before or after being installed by the manufacturer or the Commission.
8. The registers lens window shall be polycarbonate plastic and in accordance with the following:
  - (a) The lens window shall be break resistant and scratch resistant,
  - (b) No liquid filled registers shall be accepted,
  - (c) UV rated cure adhesive for sealing,
  - (d) Self-healing dielectric gel is required for all wire connections (potting),
  - (e) The registers shall be able to withstand 100% humidity (submersible), and
  - (f) The display shall have a minimum range of -4-degrees Fahrenheit (F) to +176-degrees F with an Extended Range Option available.
9. The registers shall have on-board data logging with programmable intervals from 1-minute to 1-hour and on-board memory of at least 32,000-data points.
10. The registers shall be field serviceable without interruption of the meter's operation
11. The register box must be securely attached to the main case and be securely held in place.
12. The name of the manufacturer and the units of measure shall be clearly visible and identifiable and located on the exterior of the register, register box or lid.
13. The register shall be supplied mounted to the meter body.
14. All internal components shall be of non-corrosive materials as described in AWWA C712 standard.
15. The Registers output for radio frequency (RF) shall be compatible with ITRON-60W Encoder Receive Transmitter (ERT) and unless requested or otherwise approved come with a 15-foot or longer cord terminating with an Itron connector, as indicated in Table 1 above.



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16. Registers with two-way cellular based communications shall allow for data log retrieval by a device connecting by either IrDA, Bluetooth, or equal in the event that the cellular data is not available, as indicated in Table 1 above.
- (g) Such device to be available from and supported by the meter manufacturer for a period of at least 10-years.
  - (h) Upon request a second output for either pulse or 4-20ma shall be available, as indicated in Table 1 above.
17. The maximum indications of the digits on the first display number and the minimum capacity of the register shall be as indicated in Table 3

Table 3

Meter Size	Maximum Allowable Indication of Initial Dial		Minimum allowable Capacity of Register (In million cubic-feet and million gallons)	
	Cubic Feet	Gallons	Cubic Feet	Gallons
6-inch	100	1000	99	999
8-inch	100	1000	99	999



# Springfield Water and Sewer Commission

## Material Specifications

### 4.8.5 Manuals, Spare Parts, Tools, Training, Repairs

1. The requirements of this section are for Commission Price Agreements and are not for Commission Approved Contractors or Commission Capital Projects, unless specifically asked for in the project.
2. The manufacturer and/or vendor shall provide four (4) 24-inches by 36-inches (vertical) cut sheets showing all the water meter components, component material, and component part numbers with the first delivery. The vertical cut sheets shall be laminated.
3. The manufacturer and/or vendor shall provide six (6) complete sets catalogue or manual for parts, repair and maintenance with the first delivery.
4. The manufacturer and/or vendor shall provide at no additional cost four (4) complete sets of assembly/disassembly tools with the first delivery of meters.
5. The manufacturer and/or vendor shall provide training to Commission construction and maintenance staff every two (2) years. Training shall be by a factory trained representative at the Commission's Customer Service Office at 71 Colton Street, Springfield Massachusetts during normal business hours. The first training shall be provided within 30-days of the first delivery unless otherwise scheduled by the Commission.
6. The manufacturer and/or vendor shall provide the Commission with contact information for a factory trained representative who shall be responsible to respond to complaints from the Commission about defects in material, coatings, and workmanship under normal use of the product within ten (10) working days.



# Springfield Water and Sewer Commission

## Material Specifications

### 4.8.6 Water Meter Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Metron-Farnier.:
  - (a) 6-inch w/ Eight bolt round flange ends: Model Enduro E-2800-D,
  - (b) 8-inch w/ Eight bolt round flange ends: Model Enduro E-2800-D, or
2. Equal provided the products are manufactured as per these specifications.



# Springfield Water and Sewer Commission

## Material Specifications

### Section 4.9 Encoder-Receiver-Transmitters

#### 4.9.1 General

1. Encoder Receiver Transmitters (ERT) shall conform to the American Water Works Association Standard C-712 (latest edition) for: “Cold-Water Meters-Single-jet Type” and the following.
2. All devices must be readable by drive by systems we have including the following Itron Mobile Collection (MC) devices:
3. MC3 with MV-RS v8.0 or higher and FCS with v2.2 or higher MC Lite with MV-RS v8.1 or higher and FCS with v2.3 or higher
4. All devices must have data logging capability to store at least 30 days of hourly consumption information that can be read either by mobile or fixed network.
5. The read data information must be presented in a manner it can be handled by Itron's MV-RS and/or FCS applications.
6. Transmission Parameters:
7. Data message:
8. Transmissions of meter register value cut cable and or communication error tamper(s), reverse flow, and leak status messages, as well as low battery indicator must be transmitted in an interval not greater than ten seconds in mobile mode.
9. All the information above and at least the last 6 time synchronized consumption intervals must transmit at least every five minutes.
10. A 12 bit message that contains a single, cumulative meter reading value along with the meter serial number, commodity type and checksum and tamper flags must be transmitted every 60 seconds in fixed network mode
11. Transmitter frequencies:
  - (a) 908 - 924 MHz in Mobile drive by mode
  - (b) 903 - 926.8 MHz in fixed network mode
12. Must operate in bubble-up mode and not require a license from the Federal Communications Commission FCC Part 15.247



# Springfield Water and Sewer Commission

## Material Specifications

13. Operating temperature for basement applications must be  $-40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$   
Humidity limits: 0 to 100% (submersible)
14. Compatibility: Badger Meters with ADE Registers, Siemens Mag Meters, Master Meter Octave and other "Sensus Protocol" Meters
15. Warranty: 100% for minimum of 10 years





# Springfield Water and Sewer Commission

## Material Specifications

### Section 4.10 CONCRETE METER VAULTS

#### 4.10.1 General

1. Concrete Meter Vaults provided to the Commission or Installer shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. All vaults interior dimensions must allow a clear working space around the meters of at least 18-inches.
3. All vaults must be adequately reinforced to bear traffic and have an H-20 load rating per AASHTO HS-20-44.
4. All vaults shall be constructed with shiplap joints.
5. All vaults shall be watertight and sealed with butyl rubber gaskets as follows:
  - (a) Seal bell and spigot joints of vault sections with butyl rubber flexible rope-like gasket material.
  - (b) Butyl rubber flexible rope-like gasket material shall conform to ASTM C990.
  - (c) Butyl rubber flexible rope-like gasket material shall be produced from blends of butyl rubber, refined hydro carbons, resins, and plasticized compounds reinforced with inert mineral filler and be solvent free.
  - (d) Each gasket shall have a self-adhesive nature.
  - (e) Each gasket shall be 1-inch diameter.
  - (f) Each gasket shall be furnished in coils.
6. All vaults shall have two (2) removable tops with lift rings made with ¾-inch galvanized rebar and have a 3-inch loop. The lift rings shall be located at the four (4) corners of each top piece.
7. All vaults shall have manhole rungs installed under each manhole opening.
8. Manhole rungs shall be made of reinforced steel, copolymer polypropylene, and 14-inch wide. Copolymer polypropylene shall conform to ASTM D4101 Classification PP0344 B33534 Z02. Steel reinforcing shall be 1/2-in diameter, conforming to ASTM A615, Grade 60 and shall be continuous throughout rung. Manhole rungs shall meet all OSHA requirements.



# Springfield Water and Sewer Commission

## Material Specifications

9. All vaults shall have manhole rungs installed 12-inches apart, so that the top foothold is within 12-inches of the manhole cover, the bottom foothold is within 12-inches of the vault floor, and the footholds are 7-inches from the vault wall.
10. All vaults shall have an adequate floor sump beneath one of the manhole openings. The sump shall be 12 through 14-inches diameter by 3-inches deep.
11. The sump/drain shall not be connected to a sewer.
12. All vault floors shall be pitched to the drain.
13. Delivery shall be specified in terms of number of days from receipt of order.
14. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
15. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

### 16. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



# Springfield Water and Sewer Commission

## Material Specifications

### 4.10.2 Standard Concrete Meter Vault for Ductile Iron Water Service Pipe

1. Standard Concrete Meter Vaults for ductile iron water service pipes shall, as a minimum, meet all specifications as in Paragraphs 4.10.1 and the following:
2. Standard Concrete Meter Vaults for ductile iron water service pipes shall be provided in accordance with Standard **Meter Vault for Ductile Iron Water Service Pipe Detail (W-13.3)**, of these Material Specifications.
3. Concrete Meter Vaults for 8-inch service pipe shall be provided with inside dimensions of 10-feet long, 6-feet wide, and 6.5-feet tall.
4. Knockouts for the pipe shall be provided on each end shall be tapered with the center at least 2-feet above the floor and 2-feet from the same wall.
5. The knockout diameter shall be at least 12-inches.
6. Two (2) 30-inch manhole openings shall be provided and each shall be located on the same side of the top at each end across from the knockouts.
7. The walls, top, and bottom shall be 6-inches thick.
8. The Standard Concrete Meter Vaults shall be delivered in four (4) sections, as follows:
  - (a) Bottom riser with monolithic floor; 3-feet-9-inches high.
  - (b) Upper riser (without a top); 3-feet-3-inches high.
  - (c) Two-piece top; 6-inches high.



# Springfield Water and Sewer Commission

## Material Specifications

### 4.10.4 Oversize Concrete Meter Vault for Ductile Iron Water Service Pipe

1. Oversize Concrete Meter Vaults for ductile iron water service pipes shall, as a minimum, meet all specifications as in Paragraphs 4.9.1 and the following:
2. Oversize Concrete Meter Vaults for ductile iron water service pipes shall be provided in accordance with **Oversize Meter Vault for Ductile Iron Water Service Pipe Detail (W-13.3)**, of these Material Specifications.
3. Oversize Concrete Meter Vaults for ductile iron water service pipe shall be provided with inside dimensions of 11-feet, 2-inches long, 8-feet wide, and 6.5-feet tall.
4. Two (2) tapered knockouts for the pipes shall be provided on each end with the centers at least 2-feet above the floor and 2-feet from the outer walls of the pit.
5. The knockout diameter shall be at least 12-inches.
6. Two (2) 30-inch manhole openings shall be provided and each shall be located on the same side of the top at each end across from the knockouts.
7. The walls and bottom shall be 6-inches thick. The top shall be 8-inches thick.
8. The Oversize Concrete Meter Vaults shall be delivered in four (4) sections, as follows:
  - (a) Bottom riser with monolithic floor; 3-feet-9-inches high.
  - (b) Upper riser (without a top); 3-feet-3-inches high.
  - (c) Two-piece top; 8-inches high.



# Springfield Water and Sewer Commission

## Material Specifications

### 4.10.6 Concrete Meter Vaults Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Standard Concrete Meter Vault:

- (a) Arrow Concrete Products. – Standard 6-feet x 10-feet x 6.5-feet, or
- (b) Equal provided the products are manufactured as per these specifications.

2. Oversize Concrete Meter Vault:

- (a) Arrow Concrete Products. – Oversize 8-feet x 11.17-feet x 6.5-feet, or
- (b) Equal provided the products are manufactured as per these specifications.



# Springfield Water and Sewer Commission

## Material Specifications

### Section 4.11 MANHOLE FRAMES AND COVERS FOR WATER VAULTS

#### 4.11.1 General

1. Manhole frame and covers provided to the Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. The manhole frame and cover shall be certified to meet American Association of State Highway and Transportation Officials (AASHTO) M 306 Drainage, Sewer, Utility, and Related Casting Specification and M 105 Class 35B strength of materials requirements.
3. Manhole frames and covers shall be strong, durable, even grained cast iron, ductile iron, or Fiber Reinforced Polymer smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
  - (a) An HS20 load rating is required.
  - (b) Cast iron shall conform to American Society of Testing and Materials (ASTM) A48, Class 35B.
  - (c) Ductile iron shall conform to ASTM A 536 Grade 80-55-06.
  - (d) Fiberglass Reinforced Polymer shall conform to ASTM C 1028.
  - (e) Manhole covers and frame seats shall be machined to a true surface so that the cover does not rock in the frame no matter the position of the cover.
4. The Commission requires that the Manhole Frame and Covers be subjected to proof load testing as follows:
  - (a) Testing shall be in accordance with the National Institute of Standards Technology (NIST) standards.
  - (b) The Manhole Frame and Covers shall show no detrimental deformation or cracks when a proof load of 40,000-pounds is concentrated on an 9-inch by 9-inch area at the center of the cover for a 1-minute period of time.
  - (c) Permanent deformation shall not exceed 1/8-inch.
  - (d) All testing shall be at the supplier's expense.
5. Manhole covers shall have a diamond pattern cast on the top.

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6. Manhole Frame and Cover shall be provided with individual permanent markings that are easily discernable and show the following:
  - (a) Name of the producing foundry and country of manufacture preceded by the words “Made in”, such as “Made in USA”
  - (b) AASHTO designation or ASTM designation number
  - (c) Class by a number followed by a letter indicating the minimum tensile strength and size of test bar,
  - (d) Heat identification and cast date (MM/DD/YY),
  - (e) The above markings are required, but the Commission will allow some variation in how the above markings are provided on the finished product. The design and location of the markings must meet and be subject to the approval of the Commission’s aesthetic judgment.
7. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create casting(s) for a finished product,
  - (c) Manufactured shall mean raw material formed into a finished product,
  - (d) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (e) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (f) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement govern.
8. Delivery shall be specified in terms of number of days from receipt of order.
9. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission’s service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload. The Commission reserves the right to mix depth of buries to reach a full truckload.



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10. The manufacturer/vendor/shipper must use care in preparing products for shipment and in handling during shipment and delivery, to insure that the water meters are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged manhole frame and covers will not be accepted.
11. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the manhole frame and cover and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AASHTO and ASTM Standards.

### 4.11.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All finished product(s) shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the finished product(s) showing overall dimensions,
  - (b) Material specifications for each component of the finished product(s),
  - (c) Coating applied to each component of the finished product(s), if applicable,
  - (d) Weight of each component and total weight for each finished product(s), and
  - (e) Country of origin for each component.
3. If applicable, the manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying type of coating, color of coating, manufacturer of coating, part number of the coating, and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the finished product(s) meets all the requirements of the AIS, an explanation, in the letter, of how the finished product(s) meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.

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## Material Specifications

6. The manufacturer shall furnish a certified statement that all finished product(s) of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the finished product(s) that states that the finished product(s) shall be free from all defects in material, coatings, and workmanship under normal use of the product from time of delivery for a minimum ten (10) year time period.
8. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed product(s) have been made, and the results of all tests conform to the requirements of the AASHTO M105 35B, ASTM A48 35B, and NIST. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.
9. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product(s), in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
10. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the finished product(s) as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the finished product(s) as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct finished product(s) to be used.

### 4.11.3 Standard Manhole Frame 32-inch by 8-inch

1. Standard Manhole Frame 32-inch by 8-inch provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department

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## Material Specifications

of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.

2. Standard Manhole Frame 32-inch by 8-inch shall, as a minimum, meet all specifications as in Paragraphs 4.11.1 and 4.11.2, and the following:
3. Standard Manhole Frame 32-inch by 8-inch shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. Standard Manhole Frame 32-inch by 8-inch shall have a minimum dimensions shall be in accordance with **32" X 8" Water Frame Only Detail (W-13.6)**.
5. Standard Manhole Frame 32-inch by 8-inch shall have a minimum 30-inch diameter access opening.
6. Standard Manhole Frame 32-inch by 8-inch shall have a maximum height of 8-inches.

### 4.11.4 32-inch Standard Water Manhole Cover

1. 32-inch Standard Water Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. 32-inch Standard Water Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 4.11.1 and 4.11.2, and the following:
3. 32-inch Standard Water Manhole Cover shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. 32-inch Standard Water Manhole Cover shall have a minimum dimensions shall be in accordance with **32" Standard Water Manhole Cover Detail (W-13.7)**.
5. The words "SPRINGFIELD WATER & SEWER COMMISSION" and the Commission Logo shall be raised relief.
6. The word "WATER" shall be raised relief.
7. 32-inch Standard Water Manhole Cover shall have two (2) penetrating pick-holes on each opposite side and one (1) 1-1/4-inch diameter penetrating pick-hole shall offset a minimum of 4-inches from the center, a 31-3/4-inch (plus or minus 1/16-inch) diameter cover, the rim shall be 1-3/4-inch thick (plus or minus 1/16-inch).

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8. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 4.11.5 24-inch Replacement Water Manhole Cover

1. 24-inch Replacement Water Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. 24-inch Replacement Water Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 4.11.1 and 4.11.2, and the following:
3. 24-inch Replacement Water Manhole Cover shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. 24-inch Replacement Water Manhole Cover shall have a minimum dimensions shall be in accordance with **24” Replacement Water Cover Detail (W-13.8)**.
5. The words “SPRINGFIELD WATER & SEWER COMMISSION” and the Commission Logo shall be raised relief.
6. The word “WATER” shall be raised relief.
7. 24-inch Replacement Water Manhole Cover shall have two (2) penetrating pick-holes on each opposite side and one (1) 1-1/4-inch diameter penetrating pick-hole shall offset a minimum of 4-inches from the center, a 23-3/4-inch (plus or minus 1/16-inch) diameter cover, the rim shall be 1-1/4-inch thick (plus or minus 1/16-inch).
8. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 4.11.6 Replacement 26-inch Water Manhole Cover

1. 26-inch Replacement Water Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. 26-inch Replacement Water Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 4.11.1 and 4.11.2, and the following:



# Springfield Water and Sewer Commission

## Material Specifications

3. 26-inch Replacement Water Manhole Cover shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. 26-inch Replacement Water Manhole Cover shall have a minimum dimensions shall be in accordance with **26" Replacement Water Cover Detail (W-13.9)**.
5. The word "WATER" shall be raised relief.
6. 26-inch Replacement Water Manhole Cover shall have two (2) non-penetrating pick bars on each side that are approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2inch long, a 26-inch (plus or minus 1/16-inch) diameter cover, the rim shall be 1-1/8-inch thick (plus or minus 1/16-inch).
7. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 4.11.7 Composite Locking 24-inch or 32-inch Water Cover

1. Composite Locking Manhole Covers provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Composite Locking Manhole Covers shall, as a minimum, meet all specifications as in Paragraphs 4.11.1 and 4.11.2, and the following exceptions and additions:
3. Composite Locking Manhole Covers provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
4. Composite Locking Manhole Covers shall be certified to meet American Association of State Highway and Transportation Officials (AASHTO) M 306 Drainage, Sewer, Utility, and Related Casting Specification and M 105 and have a HS20 load rating.
5. Composite Locking Manhole Covers shall be strong, durable, even from fiber reinforced polymer (FRP). It shall consist of a FRP matrix consisting of between 45% to 70% fiber reinforcement by weight. Fiber reinforcement shall consist of fiberglass, carbon, aramid, basalt and/or natural fibers. The polymer matrix shall be thermoset consisting of a polyester, vinylester, epoxy, polyurethane, and/or hybrid chemical composition. The resin matrix must be thermoset. Composite Locking 24-inch Manhole Covers shall be smooth, free from scale, lumps, blisters, sand holes and defects of any kind.



# Springfield Water and Sewer Commission

## Material Specifications

6. Composite Locking Manhole Covers shall be of uniform quality, with a dimensional tolerance of 1/16 of an inch. The finished product will feature a strength to weight ratio of 750:1. There shall be no possibility of corrosion welding between the cover and the frame, preventing damage to the infrastructure when opening. Gasket system shall be integrated to reduce traffic shock and abatement of noise and malodors. Static Coefficient of Friction shall be 0.6 or greater, as described in ASTM C1028 Standard, in both wet and dry applications.
7. Composite Locking Manhole Covers shall be shall be machined to a true surface so that the cover does not rock in the frame no matter the position of the cover.
8. The Commission requires that the Composite Locking 24-inch Manhole Covers shall be subjected to proof load testing as follows:
  - (d) Testing shall be in accordance with the National Institute of Standards Technology (NIST) standards.
  - (e) Composite Locking Manhole Covers shall be shall show no detrimental deformation or cracks when a proof load of 50,000-pounds is concentrated on an 9-inch by 9-inch area at the center of the cover for a 1-minute period of time.
  - (f) Permanent deformation shall not exceed 1/8-inch.
  - (g) All testing shall be at the supplier's expense.
9. Composite Locking 24-inch Manhole Covers shall have a non-slip pattern cast on the top.
10. Composite Locking Manhole Covers shall be provided with individual permanent markings that are easily discernable and show the following:
  - (h) Name of the producing manufacturer and country of manufacture preceded by the words "Made in", such as "Made in USA"
  - (i) AASHTO designation or ASTM designation number
  - (j) Class by a number followed by a letter indicating the minimum tensile strength and size of test bar,
  - (k) Manufacturing date (MM/DD/YY),
11. The above markings are required, but the Commission will allow some variation in how the above markings are provided on the finished product. The design and location of the markings must meet and be subject to the approval of the Commission's aesthetic judgment.



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12. The word “WATER” shall be raised relief.
13. Composite Locking 24-inch Manhole Cover shall fit any of the Standard 24-inch Manhole Frames and the dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.
14. Composite Locking 24-inch Manhole Cover dimensions shall be in accordance with **24” Composite Locking Water Cover Detail (W-13.10)**.
15. The Composite Locking 24-inch Manhole Cover shall have one (1) non-penetrating pick bar on one side that is approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2-inch long, one (1) 1-1/4-inch diameter penetrating pick-hole, two ¼-turn penta head laches on each side of the cover, a 23-3/4-inch (plus or minus 1/16-inch) diameter cover, and the rim shall be 1-inches thick (plus or minus 1/16-inch).
16. Composite Locking 32-inch Manhole Cover shall fit any of the Standard 32-inch Manhole Frames and the dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.
17. Composite Locking 32-inch Manhole Cover dimensions shall be in accordance with **32” Composite Locking Water Cover Detail (W-13.11)**.
18. The Composite Locking 32-inch Manhole Cover shall have one (1) non-penetrating pick bar on one side that is approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2-inch long, one (1) 1-1/4-inch diameter penetrating pick-hole, two ¼-turn penta head laches on each side of the cover, a 1-1/2-inch (plus or minus 1/16-inch) diameter cover, and the rim shall be 1-inches thick (plus or minus 1/16-inch).
19. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 4.11.8 Coatings

No coatings are required for manhole frame and covers or covers.

### 4.11.9 Water Manhole Frame and Covers Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the



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component(s) shall result in the product no longer being approved and removed from this list.

1. East Jordan Iron Works
  - (a) Standard MHF 32-inch by 8-inch, Part #: 2008 11
  - (b) Standard MHC 32-inch, Part #: 2006 81
  - (c) Replacement MHC 24-inch, Part #: 1246 75
  - (d) Replacement MHC 26-inch, Part #: 2110 24
  - (e) Composite Locking MHC 24-inch, Part #: COM 2401 \_\_
  - (f) Composite Locking MHC 32-inch, Part #: COM 2401 \_\_
2. Approved equal of another manufacturer provided the product(s) are manufactured as per these specifications.

Last Modified: 01/24/2024 at 4:49PM EST



# Springfield Water and Sewer Commission

## Material Specifications

### Section 4.12 PLASTIC PIT METER SETTER FOR COLD CLIMATES

1. Plastic Pit Meter Setters provided to the Commission or Installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Plastic Pit Meter Setters shall be constructed of 20-inch or 36-inch diameter high quality, high-density polyethylene pipe. Unless otherwise approved by the Commission, pit dimensions for the following meter sizes shall be:
  - (a) 5/8-inch meter; shall be 20-inch diameter by 48-inches deep.
  - (b) 5/8-inch by 3/4-inch meter; shall be 20-inch diameter by 48-inches deep.
  - (c) 3/4-inch meter; shall be 20-inch diameter by 48-inches deep.
  - (d) 3/4-inch by 1-inch meter; shall be 20-inch diameter by 48-inches deep.
  - (e) 1-1/2-inch meter; shall be 36-inch diameter by 48-inches deep.
  - (f) 2-inch meter; shall be 36-inch diameter by 48-inches deep.
3. Plastic Pit Meter Setters inlet valve shall be a lead free meter angle valve.
  - (a) 5/8-inch to 1-inch meters require a quick connection on the outlet side of the meter valve.
  - (b) 1-1/4-inch to 2-inch require a flange connection on the outlet side of the meter valve.
4. Plastic Pit Meter Setters outlet valve shall be a lead free angle cartridge dual check valve.
  - (a) 5/8-inch to 1-inch meters require a quick connection on the inlet side of the check valve.
  - (b) 1-1/4-inch to 2-inch require a flange connection on the inlet side of the check valve.
5. Plastic Pit Meter Setters shall include copper tube, K type risers.
6. Plastic Pit Meter Setters shall include a male iron pipe connection on both the inlet and outlet connection of the risers.
7. Delivery shall be specified in terms of number of days from receipt of order.





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8. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
9. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
10. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### Section 4.13 FRAME AND LIDS FOR PLASTIC METER PIT SETTER

1. Frame
  - (a) Frames shall be made of cast iron or ductile iron and have a 25,000 PSI tensile strength.
  - (b) Frames for plastic meter setters for 5/8-inch through 1-inch shall have tile size of 20-inches and a lid size of 12-inches.
  - (c) Frames for plastic meter setters for 1-1/2-inch through 2-inch shall have tile diameter of 36-inches and a lid diameter of approximately 12-1/2-inches.
  - (d) Frames shall be provided with double lids.
  - (e) Frames shall provide a recessed lip to allow the top lid to remain flush with the top of the frame.
2. Lids
  - (a) Inner lids shall be plastic.
  - (b) Inner lids shall be approximately 11-1/2-inches in diameter.
  - (c) Top lids shall be plastic.
  - (d) Top lids shall be approximately 12-1/2-inches in diameter.
  - (e) Top lids shall be provided with a worm type locking device.
  - (f) Top lids shall be provided with a standard 27/32-inch brass pentagon nut.
  - (g) Top lids shall be provided with a 2-inch hole and plug for an automatic meter reading device.
  - (h) Top lids shall have "WATER METER" printed clearly on them. The printings shall be permanently made on to the lids.
3. Delivery shall be specified in terms of number of days from receipt of order.
4. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
5. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and

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all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

### 6. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### CHAPTER 5 CROSS CONNECTION DEVICES,

#### Section 5.1 BACKFLOW PREVENTERS

##### 5.1.1 General

1. Cross Connection Devices provided to the Springfield Water and Sewer Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with the Commission's Specifications.
2. The Cross Connection Devices shall conform to AWWA C-110 (most current revision) Standard for Double Check Valve Backflow Prevention Assembly and/or AWWA C-511 (most current revision) Standard for Reduced Pressure Principle Backflow Preventer.
  - (a) Devices are the back flow preventer only.
  - (b) Assemblies are from the manufacturer and include two shut off valves and the back flow preventer.
3. Devices may have either bronze, stainless steel, cast iron or ductile iron bodies.
  - Ductile and Cast Iron bodies shall be epoxy coated
4. All devices and assemblies shall be lead free.
5. All shut off valves shall be slow closing, have tamper switches, and open close indicators in accordance with National Fire Protection Association (NFPA) 13.
6. All devices and assemblies shall be rated for a minimum of 175-PSI.
7. Devices installed on hot water lines with elevated temperatures shall be approved for hot water use.
8. Cross Connection Devices shall be delivered with proof of testing by the University of California (USC) and/or the American Society of Sanitary Engineering (ASSE), as set forth in Massachusetts Drinking Water Regulations 310 CMR 22.22.
9. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), or meet the requirements of the Buy American Act (BAA),as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metal poured into a mold to create Casting(s) for a finished product,

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- (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the BAA language, and all guidance issued by the Government Accountability Office (GAO), or
  - (f) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
10. Delivery shall be specified in terms of number of days from receipt of order.
11. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
12. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
13. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### 5.1.2 Fire Systems

#### 1. Fire Systems without Chemicals Added

- (a) At a minimum, based on the degree of health hazard, a double check valve device or assembly is required on all new systems and shall be provided in accordance with Section 5.1.1 and with the following:
- Devices and assemblies 2-inches and larger require a double check valve detector assembly (DCDA).
  - Devices and assemblies less than 2-inches do not require a detector meter.
- (b) The DCDA or device shall be provided with a water meter that reads in cubic feet and a double check in the bypass line.
- (c) Up to 2-inch assemblies may be provided with bronze or stainless steel ball valves or butterfly valves.
- The valves and device may have all flange or grooved (Victaulic) connections, or some combination of both.
  - Threaded outlets on the shut off valves for testing the back flow assemblies are allowed and shall be provided with bronze ball type test cocks or plugs.
- (d) 3-inch and larger assemblies may be provided with Ductile Iron Outside Spindle and Yoke (OS&Y) Gate Valves in accordance with Section 3.6.4 of these Specifications or ductile iron butterfly valves.
- The valves and device may have all flange or grooved (Victaulic) connections, or some combination of both.
  - Threaded outlets on the shut off valves for testing the back flow assemblies are allowed and shall be provided with bronze ball type test cocks or plugs.

#### 2. Fire Systems with Chemicals Added

- (a) A reduced pressure zone (RPZ) backflow preventer device or assembly is required on all new systems with chemicals added and shall be provided in accordance with Section 5.1.1 and with the following:
- Devices and assemblies 2-inches and larger require a RPZ detector assembly (RPDA).
  - Devices and assemblies less than 2-inches do not require a detector meter.
- (b) The RPDA or device shall be provided with a water meter that reads in cubic feet and a RPZ in the bypass line.



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- (c) Up to 2-inch assemblies may be provided with bronze or stainless steel ball valves or butterfly valves.
  - The valves and device may have all flange or grooved (Victaulic) connections, or some combination of both.
  - Threaded outlets on the shut off valves for testing the back flow assemblies are allowed and shall be provided with bronze ball type test cocks or plugs.
- (d) 3-inch and larger assemblies may be provided with Ductile Iron Outside Spindle and Yoke (OS&Y) Gate Valves in accordance with Section 3.6.4 of these Specifications or butterfly valves.
  - The valves and device may have all flange or grooved (Victaulic) connections, or some combination of both.
  - Threaded outlets on the shut off valves for testing the back flow assemblies are allowed and shall be provided with ball type test cocks or plugs.
- (e) The RPZ backflow preventer shall be provided with two independent check valves with an intermediate relief valve.
- (f) The RPZ backflow preventer shall be provided with a drain sized to the manufacturer's discharge rate list.



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### 5.1.3 Irrigation Systems

1. At a minimum, a testable pressure vacuum breaker device or assembly is required on all new systems and shall be provided in accordance with Section 5.1.1 and with the following:
  - (a) Pressure Vacuum breakers may be rated for 150-PSI or greater.
  - (b) Up to 2-inch assemblies may be provided with bronze or stainless steel ball valves or butterfly valves.
    - The valves shall have FIP threads.
    - Threaded outlets on the shut off valves for testing the back flow assemblies shall be provided with ball type test cocks.
  - (c) The pressure vacuum breaker shall be provided with a bronze body with MIP threads.
  - (d) The pressure vacuum breaker shall be provided with a stainless steel spring loaded single float and disc with an independent first check.
  - (e) The pressure vacuum breaker shall be provided with shut-off valves and ball type test cocks. The shut-off handles may be brass or stainless steel.
2. A double check valve assembly is also acceptable and shall be provided in accordance with Section 5.1.2 above. If the service is metered no detector meter is required.
3. A reduced pressure zone (RPZ) backflow preventer is also acceptable and shall be provided in accordance with Section 5.1.2 above. If the service is metered no detector meter is required.





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### 5.1.4 Metered Process, Commercial, or Industrial Systems

1. At a minimum, reduced pressure zone (RPZ) backflow preventer device or assembly is required on all new systems and shall be provided in accordance with the General Section above and with the following:
  - (a) Detector meters are not required on metered connections.
  - (b) Up to 2-inch assemblies may be provided with bronze or stainless steel ball valves or butterfly valves.
    - The valves and device shall have all threaded connections.
    - Threaded outlets on the shut off valves for testing the back flow assemblies are allowed and shall be provided with bronze ball type test cocks or plugs.
  - (c) 3-inch and larger assemblies shall be provided with Ductile Iron Outside Spindle and Yoke (OS&Y) Gate Valves in accordance with Section 3.6.4 of these Material Specifications.
    - The valves and device shall have all flange connections.
    - Threaded outlets on the shut off valves for testing the back flow assemblies are allowed and shall be provided with ball type test cocks or plugs.
  - (d) The RPZ backflow preventer shall be provided with two independent check valves with an intermediate relief valve.
  - (e) The RPZ backflow preventer shall be provided with a drain.

### 5.1.5 Threaded Connections

1. All threaded connections shall be provided with a hose connection vacuum breaker.
  - (a) The hose connection vacuum breaker shall be provided with a single check valve with an atmospheric vacuum breaker vent.



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### 5.1.6 Backflow Preventers Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

Assembly Description	Watts	Ames	FEBCO
<b>Assemblies without Detector</b>			
Up to 2" Double Check Assembly (Bronze Body)	007	2000B	850
Up to 2" Double Check Assembly	719	200B	
Up to 2" Reduced Pressure Zone Assembly	009	4000B	825Y
Up to 2" Reduced Pressure Zone Assembly	919	400B	860
1" or 2" Testable Vacuum Breaker	800M4QT	A200	765
<b>Double Check Assemblies with Detector</b>			
2" Double Check Detector Assembly (Bronze Body)	007DCDA	3000B	
2-1/2" - 3" Double Check Detector Assembly (Iron Body)	007DCDA		858
3" - 10" Double Check Detector Assembly (Iron Body)	709DCDA		806YD & 856
2-1/2" - 8" Double Check Detector Assembly w/ B-fly	757 BF	M300 BF Maxim & C300 BF Colt	
2-1/2" - 8" Double Check Detector Assembly w/ B-fly	757N BF	M300N BF Maxim & C300N BF Colt	
2-1/2" - 10" Double Check Detector Assembly	757	M300 Maxim & C300 Colt	
2-1/2" - 10" Double Check Detector Assembly	757N	M300N Maxim & C300N Colt	
2-1/2" - 12" Double Check Detector Assembly	774DCDA	3000SS Silver Bullet	
<b>Reduced Pressure Zone Assemblies with Detector</b>			
2-1/2" - 10" Reduced Pressure Zone Detector Assembly	909RPDA	4000CIV	826YD
2-1/2" - 6" Reduced Pressure Zone Detect. Ass. w/ B-fly	957RPDA BF	M400 BF Maxim & C400 BF Colt	
2-1/2" - 6" Reduced Pressure Zone Detect. Ass. w/ B-fly	957NRPDA BF	M400N BF Maxim & C400N BF Colt	
2-1/2" - 6" Reduced Pressure Zone Detect. Ass. w/ B-fly	957ZRPDA BF	M400Z BF Maxim & C400Z BF Colt	
2-1/2" - 10" Reduced Pressure Zone Detector Assembly	957RPDA	M400 Maxim & C400 Colt	
2-1/2" - 10" Reduced Pressure Zone Detector Assembly	957NRPDA	M400N Maxim & C400N Colt	
2-1/2" - 10" Reduced Pressure Zone Detector Assembly	957ZRPDA	M400Z Maxim & C400Z Colt	
2-1/2" - 10" Reduced Pressure Zone Detector Assembly	994RPDA	4000SS	

2. Or the approved equal of another manufacturer provided the product(s) are manufactured as per these specifications.



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### 5.1.7 Enclosures – Permanent

1. Enclosures shall meet all American Society of Sanitary Engineers (A.S.S.E.) 1060 requirements.
2. Enclosures shall be kept in dry shipping containers until installation.
3. Acceptable materials for enclosures shall be aluminum or fiberglass for small enclosures.
4. Insulation thickness for enclosures shall be sufficient to withstand freezing.
5. Adhesive applied stock or material secured by mechanical fasteners may be cause for rejection.
6. Structural members for enclosures shall be aluminum, or fiberglass. Wood or particleboard shall not be allowed.
7. The roof, walls, and access panels for enclosures shall be constructed of specified materials in specified thickness.
8. Heaters shall be provided with heaters and sized to prevent freezing of backflow preventers, meters, valves, and/or piping.
9. Enclosures shall allow the device(s) to be installed at least three (3) to four (4) feet above the floor, eighteen (18) inches from any wall, ceiling, or other device and with clear access to the BFP and/or meter if installed in same enclosure.
10. Delivery shall be specified in terms of number of days from receipt of order.
11. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
12. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.
13. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility



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- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product

### 5.1.8 Enclosures – Seasonal

1. Enclosures shall be kept in dry shipping containers until installation.
2. Acceptable materials for enclosures including structural members for enclosures may be epoxy coated steel, aluminum, polyethylene, or fiberglass. Wood or particleboard shall not be allowed.
3. Insulation is not required as these are seasonal water services.
4. The enclosures shall be forest green.
5. The enclosures may be attached to the pad with minimum 1-inch angle iron frame and at least four (4) 3/8-inch by 5-inch L anchors or two lockable steel latches on each end of the enclosure flange.
6. A drain with animal proof screen shall be provided.
7. The enclosures shall be a minimum size of 48-inches long, 24-inches wide, and 32-inches high, a maximum of 54-inches long, 44-inches wide, and 38-inches high, or as otherwise approved by SWSC during the submittal process. Please note the enclosures submitted must fit on the pads and must enclose the complete meter and backflow preventer assembly described herein.
8. Enclosure shall be lockable and may be hinged.
9. The roof, walls, and access panels for enclosures shall be constructed of specified materials in specified thickness.
10. Delivery shall be specified in terms of number of days from receipt of order.
11. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
12. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

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### 13. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### CHAPTER 6 TEMPORARY BYPASS PIPE AND APPURTENANCES

#### Section 6.1 TEMPORARY WATER MAINS, VALVES, FITTINGS, AND SERVICES

##### 6.1.1 General

1. Temporary water mains, valves, fittings, water service hose, and hose fittings provided to the Commission or installer shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Temporary water mains, valves, water service hose, and hose fittings shall be suitable for potable water, and certified to NSF 61 standards.
3. Temporary water mains, fittings, and valves shall be galvanized steel, polyvinylchloride (PVC) plastic, or polyethylene (PE) of the highest quality, and suitable for all conditions of use, unless otherwise approved by the Engineer or SWSC.
4. PVC used to make temporary PVC water mains, couplings, and fittings shall meet or exceed the minimum requirements of ASTM D 1784, and the following:
  - (a) PVC shall be 1120 defined as type 1, grade 1, class 12454-B
  - (b) Tensile strength: 7,000-PSI minimum
  - (c) Modulus of Elasticity: 400,000-PSI minimum
  - (d) Impact Strength (Izod): 0.65-ft-lbs per 1-inch of notch
  - (e) Deflection Temperature: 158-degrees F minimum
  - (f) Flammability: self-extinguishing
5. Temporary water service hose, and hose fittings shall be rated for 200 PSI.
6. All joints shall be non-permanent restrained either groove and spine or Victaulic, unless otherwise approved by the E&TS. Glued joints are not allowed unless approved by the E&TS. All joints shall be water tight.
7. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,



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- (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
8. The manufacturer/vendor/shipper must use care in preparing temporary water mains, valves, hydrants, water service hose, and hose fittings for shipment and in handling during shipment and delivery, to insure that the product(s) are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged product(s) will not be accepted.
9. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the product(s) and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AWWA Standards.

### 6.1.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All components shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the product(s) showing overall dimensions,
  - (b) Material specifications for each component,
  - (c) Coating applied to each component, if applicable,
  - (d) Weight of each component and total weight, and
  - (e) Country of origin for each component.
3. The manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying component surface preparation,



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primer (if applicable), type of coating(s), color of coating(s), manufacturer of coating(s), part number of the coating(s), and a sample on a 3-inch by 5-inch chip.

4. The manufacturer shall furnish a letter certifying the product(s) meet all the requirements of the AIS, an explanation, in the letter, of how the product(s) meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.
6. The manufacturer shall furnish a certified statement that all product(s) of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the product(s) that states that the product(s) shall be free from all defects in material and workmanship under normal use of the product for a minimum one (1) year time period from time of delivery. The manufacturer shall replace and/or repair defective parts or the whole product(s) for a minimum one (1) year time period from time of delivery.
8. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed product(s) have been made, and the results of all tests conform to the requirements of the American Association of State Highway and Transportation Officials (AASHTO) M 105 Class 35B strength of materials requirements, American Society of Testing and Materials (ASTM) A48, Class 35B, and as the Commission may require the National Institute of Standards Technology (NIST) standards – Proof Load Testing.
9. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
10. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.





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- (a) Approved means the contractor can supply the material as shown on the drawing(s).
- (b) Approved as Noted means the contractor can supply the material as shown on the drawing(s), but with the changes as noted.
- (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct materials to be used.

### 6.1.3 Temporary PVC Water Mains

1. Temporary PVC water mains shall be a restrained joint type/spline connected, high impact polyvinyl chloride (PVC) with grooved ends to be connected with specially designed couplings, splines, and O-ring seals. Couplings, splines, and O-ring seals shall be supplied with the pipe.
2. Temporary PVC water mains shall be designed to meet or exceed the minimum requirements of ASTM D 2241.
3. Temporary PVC water mains shall be a minimum Standard Dimension Ratio (SDR) 17 and rated for 250 PSI.
4. Temporary PVC water mains shall be provided in 20-foot length, minimum.
5. Temporary PVC water mains shall be provided with the following dimensions::

Nominal Diameter in inches	Actual Outside Diameter in inches	Minimum Wall Thickness in inches	Weight in lbs/foot
2-inch	2.375	0.140	0.69
4-inch	4.5	0.265	2.5
6-inch	6.625	0.390	5.18

### 6.1.4 Temporary PVC Couplings

1. Temporary PVC water mains shall be provided with PVC couplings that are designed to meet or exceed the minimum requirements of ASTM D 3139, and the following:



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- (a) PVC couplings shall provide joint restraint by means of a nylon spline inserted into a space created when a groove on the pipe and a groove in the coupling are aligned.
  - (b) PVC couplings shall be a minimum Standard Dimension Ratio (SDR) 17 and rated for 250 PSI.
  - (c) PVC couplings shall contain a non-permanent pre-lubricated O-ring seal on each end.
  - (d) PVC couplings shall be NSF-61 listed.
2. O-ring seals shall meet or exceed ASTM F-477 and made from either Nitrile Butadiene Rubber (NBR) or Polyisoprene Rubber (IR).
  3. Splines shall be nylon, round, and for 2-inch temporary pipe, couplings, fittings, and valves the diameter of the spline shall be 0.188-inches. For 4-inch and 6-inch temporary pipe, couplings, fittings, and valves the diameter of the nylon splines shall be 0.25-inches.

### 6.1.5 Temporary Couplings for Plain End PVC Mains

1. Temporary couplings for used to join plain end PVC water mains shall be a bolted mechanical assembly rated for a minimum of 250-PSI.
2. The body of the coupling shall be ductile iron in accordance with ASTM A-536, grade 65-45-12.
3. The body shall have integral gripping teeth that provide connection to the pipe.
4. The body shall be painted with enamel paint.
5. The rubber gasket shall be pre lubricated and be a grade T nitrile compound conforming to ASTM D-2000, designation 5BG615A14B24.
6. Bolts and nuts shall be provided with flat washers. The hardware shall be Zinc plated carbon steel. Minimum tensile strength of bolts shall 110,000- PSI.

### 6.1.6 Temporary PVC Fittings

1. Temporary PVC fittings shall be designed to meet or exceed the minimum requirements of ASTM D 3139, and the following:
2. PVC fittings shall be provided with spline grooved ends for use with temporary PVC water mains and PVC couplings.



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3. PVC fittings shall be a minimum Standard Dimension Ratio (SDR) 17 and rated for 250 PSI.
4. PVC fittings shall be NSF-61 listed.
5. Other ends may be allowed and must be approved by E&TS before purchase.

### 6.1.7 Temporary Valves

1. Temporary valves for PVC water mains shall be butterfly valves rated for 250-PSI.
2. The body of the valve shall be PVC 1120 defined as type 1, grade 1, class 12454-B meet or exceed the minimum requirements of ASTM D 1784.
3. The vane/disc shall be enclosed in a ductile iron housing in accordance with ASTM A-536, grade 65-45-12.
4. The vane/disc shall be ductile iron in accordance with ASTM A-536, grade 65-45-12.
5. The vane/disc shall be rubber encapsulated with grade T nitrile compound conforming to ASTM D-2000, designation 5BG615A14B24.
6. The valves shall have removable handles.

### 6.1.8 Temporary Water mains, Couplings, Fittings, and Valves, and Model Numbers Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. Aquamine, LLC (A Victaulic Company)
  - (a) 2-inch water main: 290021725
  - (b) 4-inch water main: 290041725
  - (c) 6-inch water main: 290061725
  - (d) 2-inch coupling: 290400002
  - (e) 4-inch coupling: 290400004
  - (f) 6-inch coupling: 290400006



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- (g) 2-inch butterfly valve: 295000002
- (h) 4-inch butterfly valve: 295000004
- (i) 6-inch butterfly valve: 295000006
- (j) 2-inch X 2-inch X 2-inch tee: 291700002
- (k) 4-inch X 4-inch X 4-inch tee: 291700004
- (l) 6-inch X 6-inch X 6-inch tee: 291700006
- (m) 4-inch X 4-inch X 2-inch reducing tee: 291800442
- (n) 6-inch X 6-inch X 2-inch reducing tee: 291800662
- (o) 6-inch X 6-inch X 4-inch reducing tee: 291800664
- (p) 4-inch X 2-inch reducer: 291900042
- (q) 6-inch X 2-inch reducer: 291900062
- (r) 6-inch X 4-inch reducer: 291900064
- (s) 2-inch end caps: 291500002
- (t) 4-inch end caps: 291500004
- (u) 6-inch end caps: 291500006
- (v) 2-inch 90-degree bend: 291000002
- (w) 4-inch 90-degree bend: 291000004
- (x) 6-inch 90-degree bend: 291000006
- (y) 2-inch 45-degree bend: 291200002
- (z) 4-inch 45-degree bend: 291200004
- (aa) 6-inch 45-degree bend: 291200006

### 2. Certa-lok, Yelomine Pipe

- (a) 2-inch water main: 216213
- (b) 4-inch water main: 218217



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- (c) 6-inch water main: 219214
- (d) 2-inch coupling: 715020
- (e) 4-inch coupling: 715044
- (f) 6-inch coupling: 715068
- (g) 2-inch butterfly valve: NOT AVAILABLE (NA)
- (h) 4-inch butterfly valve: NA
- (i) 6-inch butterfly valve: NA
- (j) 2-inch X 2-inch X 2-inch tee: \_\_\_\_\_
- (k) 4-inch X 4-inch X 4-inch tee: \_\_\_\_\_
- (l) 6-inch X 6-inch X 6-inch tee: \_\_\_\_\_
- (m) 4-inch X 4-inch X 2-inch reducing tee: \_\_\_\_\_
- (n) 6-inch X 6-inch X 2-inch reducing tee: \_\_\_\_\_
- (o) 6-inch X 6-inch X 4-inch reducing tee: \_\_\_\_\_
- (p) 4-inch X 2-inch reducer: \_\_\_\_\_
- (q) 6-inch X 2-inch reducer: \_\_\_\_\_
- (r) 6-inch X 4-inch reducer: \_\_\_\_\_
- (s) 2-inch end caps: \_\_\_\_\_
- (t) 4-inch end caps: \_\_\_\_\_
- (u) 6-inch end caps: \_\_\_\_\_
- (v) 2-inch 90-degree bend: \_\_\_\_\_
- (w) 4-inch 90-degree bend: \_\_\_\_\_
- (x) 6-inch 90-degree bend: \_\_\_\_\_
- (y) 2-inch 45-degree bend: \_\_\_\_\_
- (z) 4-inch 45-degree bend: \_\_\_\_\_



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- (aa) 6-inch 45-degree bend: \_\_\_\_\_
- 3. Equal provided the products are manufactured as per these specifications.



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### CHAPTER 7 SEWER MAINS AND APPURTENANCES

#### Section 7.1 SEWER PIPE

##### 7.1.1 Polyvinyl Chloride (PVC) Sewer Pipe

1. Pipe provided to the Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. All pipe furnished shall be either in 13-foot, 18-foot or 20-foot lengths. Straight pipe shall be furnished in lengths according to ASTM D3034.
3. All pipe and fittings furnished shall be clearly marked on the outside indicating name, manufacturer, nominal diameter, ASTM, schedule, and/or pipe or pressure class designation.
4. PVC pipe provided for depths between 4-feet and 15-feet shall be:
  - (a) sizes 4-inch to 15-inch shall conform with ASTM D3034 for solid wall PVC. The PVC pipe shall have an SDR ratio of 35 and a pipe stiffness of 46 psi.
  - (b) 18-inch and above shall conform with ASTM F679 for large diameter pipes. The PVC pipe shall have an SDR ratio of 35 and a pipe stiffness of 46 psi.
5. PVC pipe provided for depths between 16-feet and 30-feet shall be:
  - (a) sizes 4-inch to 15-inch shall conform with ASTM D3034 for solid wall PVC. The PVC pipe shall have an SDR ratio of 26 and a pipe stiffness of 115 psi.
  - (b) 18-inch and above shall conform with ASTM F679 for large diameter pipes. The PVC pipe shall have an SDR ratio of 26 and a pipe stiffness of 115 psi.
6. The pipe manufacturer shall be required to meet all the requirements for PVC Solid Wall Pipe as stated in ASTM D3034 or ASTM F679 whichever is applicable. Specifically, the manufacturer shall perform stiffness, deflection, acid resistances and joint and fitting tightness tests on PVC sanitary sewer pipe and will be required to show certification for such test(s) and at the option of Commission. The pipe manufacturer will be required to perform such test(s) in the presence of the Commission's representative.
7. PVC pipe shall have bell and spigot push-on joints. The bell shall consist of an integral wall section with a solid cross-section elastomeric gasket securely locked in place to prevent displacement during assembly. Installation of elastomeric gasketed joints and performance of the joint shall conform to ASTM F477, ASTM D3139 or ASTM D3212.



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8. Sewer lines shall be green in color or as approved by the Commission.
9. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
10. Delivery shall be specified in terms of number of days from receipt of order.
11. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
12. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
13. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product





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### 7.1.2 Polyvinyl Chloride (PVC) Sewer Fittings

1. Polyvinyl Chloride (PVC) fittings provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. In addition to Section 7.1.1 of these Material Specifications, PVC fittings shall be provided as follows:
3. PVC wyes shall be furnished in lengths of not more than 3-ft. Saddle wyes are not allowed.
4. PVC fittings and accessories for sewers shall have bell and/or spigot configurations compatible with the pipe. The bell shall consist of an integral wall section with a solid cross-section elastomeric gasket securely locked in place to prevent displacement during assembly. Installation of elastomeric gasketed joints and performance of the joint shall conform to ASTM F477, ASTM D3139 or ASTM D3212.
5. Delivery shall be specified in terms of number of days from receipt of order.
6. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
7. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
8. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### 7.1.3 Sewer Service Connections

1. Sewer Service Connections, when not connected to a sewer manhole or wye, may be provided to the Commission or Installer, and shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. In addition to Section 7.1.1 of these Material Specifications, Sewer Service Connections shall be provided as follows:
3. Sewer Service Connections shall consist of a PVC hub, rubber sleeve and stainless steel band.
4. Sewer Service Connection shall be a compression fit into the cored wall of a mainline pipe. Hub shall be made from heavy-duty PVC material.
5. Sewer Service Connection shall be provided with a stainless steel clamping assembly and shall be made from minimum 301 grade stainless steel.
6. Sewer Service Connections gaskets shall be installed by the manufacturer. The manufacturer shall use a water-based solution during assembly. Pipe lube is not allowed.
7. The Sewer Service Connection's rubber sleeve and gasket, when applicable, shall meet the requirements of ASTM F477, ASTM D3139 or ASTM D3212.
8. Sewer Service Connections shall be manufactured by Inserta Tee or acceptable equivalent product.
9. Delivery shall be specified in terms of number of days from receipt of order.
10. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
11. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
12. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

(e) Name of Municipality/Utility

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- (f) Total amount of product bid on and amount delivered
- (g) Date the bid was accepted and date the product was delivered
- (h) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### 7.1.4 Ductile Iron Push-on Joint for Sewer Pipe

1. Ductile Iron (DI) Pipe provided to the Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. In addition to Section 3.1.1 of these Material Specifications, DI Pipe shall be provided as follows:
3. Ductile iron pipe shall conform to AWWA C151 standards and shall be supplied in industry 18-foot and 20-foot lengths.
4. Delivery shall be specified in terms of number of days from receipt of order.
5. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
7. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product.

### 7.1.5 Ductile Iron Fittings for Sewer Pipe

1. Ductile Iron (DI) fittings provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. In addition to Section 3.12.1 of these Material Specifications, DI fittings shall be provided as follows:

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3. Pipe fittings shall be ductile iron with pressure rating of 350 PSI for 24-in and smaller piping and 250 PSI for 30-in and larger piping.
4. Fittings shall meet the requirements of AWWA C110 or AWWA C153 as applicable.
5. PVC fittings and accessories for sewers shall have bell and/or spigot configurations compatible with the pipe. The bell shall consist of an integral wall section with a solid cross-section elastomeric gasket securely locked in place to prevent displacement during assembly. Installation of elastomeric gasketed joints and performance of the joint shall conform to ASTM F477, ASTM D3139 or ASTM D3212.
6. Delivery shall be specified in terms of number of days from receipt of order.
7. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
8. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
9. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### Section 4.1 SANITARY SEWER MANHOLES

#### 4.1.1 General

1. Pre-cast Concrete Manholes provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Materials' quality, manufacturing process and finished sections are subject to inspection and approval by the Commission at either place of manufacture or at work site.
3. Materials will be examined for compliance with ASTM standards, these Materials Specifications, and approved manufacturer's drawings. The Commission will also take note regarding appearance, dimensions, blisters, cracks and other anomalies, if any.
4. The Commission reserves the right to reject any manhole or structure that fails to meet any requirements specified herein. Rejection may occur at place of manufacture, at work site, or following installation and will not cause the Commission to incur any additional costs.
5. Minor repairs to pre-cast concrete sections, if required, are not accepted unless authorized by the Commission.
6. Materials and equipment shall be the end products of one manufacturer in order to provide standardization for appearance, operation, maintenance, spare parts and manufacturer's service.
7. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create Casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or



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- (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement governs.
8. Delivery shall be specified in terms of number of days from receipt of order.
9. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
10. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
11. References
12. The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product

### 4.1.4 Pre-cast Concrete Manholes

1. Pre-cast concrete shall be manufactured with concrete that meets the following requirements:
  - (a) Minimum compressive strength shall be 5,000 PSI at 28 days.
    - Pre-cast concrete sections shall not be shipped until after concrete has attained a minimum 5,000 PSI compressive strength.
  - (b) Maximum water-to-cement ratio shall be 0.40 by weight.
  - (c) Minimum cement content shall be 600 lbs of cement per cubic yard of concrete.
  - (d) Shall conform to American Concrete Institute (ACI) 318 and ACI 350R.



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- (e) When "fy" exceeds 40,000 psi, "z" (ACI 318) shall not exceed 95 kips/in, "fs" shall be completed and shall not exceed 50 percent of "fy".
- (f) Products shall be designed to support their own weight, weight of soil at 130-PCF, and a live load equal to AASHTO HS-20 applied to top slab.
- 2. Lifting lugs or holes in each pre-cast section shall be provided for proper handling. Lifting lugs shall be provided for the top and bottom slab.
- 3. Pre-cast concrete manholes base sections, riser sections, transition top sections, flat slab tops and grade rings shall conform to ASTM C478.
- 4. Pre-cast concrete manholes bottom slab thickness, riser wall thickness, shall be as follows:

<b>Diameter (feet)</b>	<b>Wall Thickness (inches)</b>	<b>Base Thickness (inches)</b>	<b>Max Pipe* (RCP) Diameter Allowed (inches)</b>	<b>Max Pipe* (DI/PVC) Diameter Allowed (inches)</b>
<b>4</b>	<b>5</b>	<b>6</b>	<b>18</b>	<b>24</b>
<b>5</b>	<b>6</b>	<b>8</b>	<b>30</b>	<b>36</b>
<b>6</b>	<b>7</b>	<b>8</b>	<b>36</b>	<b>48</b>

\* Pipe diameter may vary depending on number of penetrations.

- 5. Pre-cast concrete manholes top section shall be eccentric cone where cover over pipe exceeds 4-ft. Top section shall be a flat slab where cover over top of pipe is 4-ft or less.
- 6. Pre-cast concrete manholes base, riser and transition top sections shall have bell and spigot or joints tongue and groove joints.
- 7. Pre-cast concrete manhole base, riser, transition top, flat slab top and grade ring shall be designed for a minimum H-20 loading plus earth load. Earth load is 130 Pounds per Cubic Foot (PCF).
- 8. Pre-cast concrete manhole shall be marked on the inside of each pre-cast section with the date of manufacture, name and trademark of manufacturer.
- 9. Pre-cast concrete manhole sections shall have a formed, tapered circular opening larger than the intended pipe size (outside diameter).
- 10. Base slab and walls shall be cast together to form a monolithic base section.





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11. Structure walls shall be designed for a lateral pressure based on an equivalent fluid unit weight of 90-Pounds per Cubic Foot (PCF). Pressure diagram shall originate at finished ground surface. Lateral pressure from vehicles shall be included in accordance with AASHTO.
12. Discontinuities in structures produced by openings and joints shall be considered in the design. Additional reinforcing around openings shall be provided. Frame openings shall carry full design loads to support walls.
13. Manhole shall be designed against flotation with ground water level at finished ground surface. Flotation prevention shall be achieved by dead weight of manhole and soil load above it. Skin friction, soil friction, or weight of equipment in manhole, if any, cannot be considered in the design against flotation.
14. Manhole shall be designed with a minimum number of joints. Maximum number of structure sections, including top slab, shall be four.
15. Pre-cast concrete manholes shall be constructed with a bell and spigot or tongue and groove joint.
16. Access openings, wall sleeves, and knockouts shall be provided at locations where indicated by the Commission or shown on Design Drawings and as follows:
  - (a) Integrally cast knockout panels shall be sized for intended pipe sizes. Knockout panels shall have no steel reinforcing.
  - (b) Pre-cast manhole sections shall have a formed, tapered circular opening larger than the intended pipe size (outside diameter).
  - (c) Horizontal wall joints shall be located 18-inches minimum from horizontal centerline of wall openings.
17. Manhole rungs shall be reinforced steel, copolymer polypropylene, 14-in wide, M.A. Industries Inc, PF Series or equal. Copolymer polypropylene shall conform to ASTM D4101 Classification PP0344 B33534 Z02. Steel reinforcing shall be 1/2-in diameter, conforming to ASTM A615, Grade 60 and shall be continuous throughout rung. Manhole rungs shall meet all OSHA requirements.
18. Wall sleeves shall be provided by the pre-cast concrete manufacturer.



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### Section 7.2 DAMP PROOF COATING

1. Damp proofing provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Damp proofing shall be of bituminous material and shall conform to ASTM D449
3. Damp proofing shall be Hydrocide 648 by Sonneborn Building Products; Dehydratine 4 by W.R. Grace and Company; Meadows Trowel Mastic (Type 3), or equal products of another manufacturer.
4. Delivery shall be specified in terms of number of days from receipt of order.
5. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
7. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### Section 7.3 BRICK MASONRY

#### 7.3.1 General

1. Bricks for masonry provided to the Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Bricks for masonry shall be sound, hard, uniformly burned, regular and uniform in shape and size. Under burned or salmon brick are not acceptable. Only whole brick shall be used.
3. Bricks for masonry shall be clay, shale, or similarly naturally occurring earthy substance and subjected to a heat treatment process at elevated temperatures.
4. Delivery shall be specified in terms of number of days from receipt of order.
5. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
7. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product

#### 7.3.2 Bricks for Channels and Shelves

1. Bricks for channels and shelves shall conform to ASTM C32, Grade SS.



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2. Bricks for channels and shelves tested so that the mean of five tests for absorption shall not exceed 8 percent and no individual brick exceed 11 percent.

### 7.3.3 Bricks for Frame and Cover Adjustment

Bricks intended for use in raising manhole frames to finished grade shall conform to ASTM C62.



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### Section 7.4 MORTAR

1. Mortar provided to the Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. Mortar shall be composed of 1 part Portland cement, 2 parts sand, and hydrated lime not to exceed 10-lbs to each bag of cement.
3. Portland cement shall be ASTM C150, Type II; hydrated lime shall conform to ASTM C207.
4. Sand shall be washed, cleaned, screened, well graded with all particles passing a No. 4 sieve and conform to ASTM C33.
5. Delivery shall be specified in terms of number of days from receipt of order.
6. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
7. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
8. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



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### Section 7.5 MANHOLE FRAMES AND COVERS FOR SANITARY SEWERS

#### 7.5.1 General

1. Manhole frame and covers provided to the Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. The manhole frame and cover shall be certified to meet American Association of State Highway and Transportation Officials (AASHTO) M 306 Drainage, Sewer, Utility, and Related Casting Specification and M 105 Class 35B strength of materials requirements.
3. Manhole frames and covers shall be strong, durable, even grained Cast iron, Ductile iron, or Fiber Reinforced Polymer smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
  - (a) An HS20 load rating is required.
  - (b) Cast iron shall conform to American Society of Testing and Materials (ASTM) A48, Class 35B.
  - (c) Ductile iron shall conform to ASTM A 536 Grade 80-55-06.
  - (d) Fiber Reinforced Polymer shall conform to ASTM C 1028
  - (e) Manhole covers and frame seats shall be machined to a true surface so that the cover does not rock in the frame no matter the position of the cover.
4. The Commission requires that the Manhole Frame and Covers be subjected to proof load testing as follows:
  - (a) Testing shall be in accordance with the National Institute of Standards Technology (NIST) standards.
  - (b) The Manhole Frame and Covers shall show no detrimental deformation or cracks when a proof load of 40,000-pounds is concentrated on an 9-inch by 9-inch area at the center of the cover for a 1-minute period of time.
  - (c) Permanent deformation shall not exceed 1/8-inch.
  - (d) All testing shall be at the supplier's expense.
5. Manhole covers shall have a diamond pattern cast on the top.



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6. Manhole Frame and Cover shall be provided with individual permanent markings that are easily discernable and show the following:
  - (a) Name of the producing foundry and country of manufacture preceded by the words “Made in”, such as “Made in USA”
  - (b) AASHTO designation or ASTM designation number
  - (c) Class by a number followed by a letter indicating the minimum tensile strength and size of test bar,
  - (d) Heat identification and cast date (MM/DD/YY),
  - (e) The above markings are required, but the Commission will allow some variation in how the above markings are provided on the finished product. The design and location of the markings must meet and be subject to the approval of the Commission’s aesthetic judgment.
7. The product(s) shall have all parts cast or manufactured and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create casting(s) for a finished product,
  - (c) Manufactured shall mean raw material formed into a finished product,
  - (d) Incidental parts may be purchased/obtained from other counties to provide a finished product , in accordance with these Material Specifications, and
  - (e) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (f) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement govern.
8. Delivery shall be specified in terms of number of days from receipt of order.
9. Delivery shall be made by truck in minimum truckload quantity to locations designated in the Commission’s service area in and near Springfield, Massachusetts. The low bidder shall notify the Commission of the quantity comprising a minimum truckload. The Commission reserves the right to mix depth of buries to reach a full truckload.



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10. The manufacturer/vendor/shipper must use care in preparing products for shipment and in handling during shipment and delivery, to insure that the water meters are delivered without damage. Particular attention must be directed at protecting the protective coating from damage. Damaged manhole frame and covers will not be accepted.
11. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the manhole frame and cover and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable AASHTO and ASTM Standards.

### 7.5.2 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. The manufacturer and/or vendor shall furnish three (3) sets of 24-inch by 36-inch certified shop drawings for all materials to be used. All finished product(s) shall be provided in accordance to these drawings. The drawings shall show the following:
  - (a) Cross sectional drawings of the finished product(s) showing overall dimensions,
  - (b) Material specifications for each component of the finished product(s),
  - (c) Coating applied to each component of the finished product(s), if applicable,
  - (d) Weight of each component and total weight for each finished product(s), and
  - (e) Country of origin for each component.
3. If applicable, the manufacturer shall furnish three (3) sets of coating specification(s) of each component that has a coating applied identifying type of coating, color of coating, manufacturer of coating, part number of the coating, and a sample on a 3-inch by 5-inch chip.
4. The manufacturer shall furnish a letter certifying the finished product(s) meets all the requirements of the AIS, an explanation, in the letter, of how the finished product(s) meets the AIS requirements, and signed by the Owner or President of the Company.
5. The manufacturer shall furnish one (1) complete catalogue or manual for parts, repair, and maintenance.





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6. The manufacturer shall furnish a certified statement that all finished product(s) of the same make and model bid, regardless of the year of manufactured, shall have interchangeable component parts and that the parts availability and delivery shall remain firm for ten (10) years.
7. The manufacturer shall furnish a warranty for the finished product(s) that states that the finished product(s) shall be free from all defects in material, coatings, and workmanship under normal use of the product from time of delivery for a minimum ten (10) year time period.
8. The manufacturer shall furnish a certified statement that the required tests on the various materials and on the completed product(s) have been made, and the results of all tests conform to the requirements of the AASHTO M105 35B, ASTM A48 35B, and NIST. The records of the tests shall be furnished for the individual parts with respect to physical and chemical properties.
9. The manufacturer and/or vendor shall furnish references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product(s), in the last two (2) years. The listing is to include:
  - (a) Name of Municipality/Utility
  - (b) Total amount of product bid on and amount delivered
  - (c) Date the bid was accepted and date the product was delivered
  - (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
10. The Springfield Water and Sewer Commission will mark one (1) set of plans and coating specification “Approved”, “Approved as Noted”, or “Rejected-Resubmit” and return to the manufacturer and/or vendor.
  - (a) Approved means the contractor can supply the finished product(s) as shown on the drawing(s).
  - (b) Approved as Noted means the contractor can supply the finished product(s) as shown on the drawing(s), but with the changes as noted.
  - (c) Rejected – Resubmit means the contractor must resubmit three (3) sets of new shop drawings for correct finished product(s) to be used.

### 7.5.3 Standard Manhole Frame 24-inch by 4-inch

1. Standard Manhole Frame 24-inch by 4-inch provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department

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of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.

2. Standard Manhole Frame 24-inch by 4-inch shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. Standard Manhole Frame 24-inch by 4-inch shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. Standard Manhole Frame 24-inch by 4-inch shall have a minimum dimensions shall be in accordance with **24" X 4" Sewer Frame Only Detail (S-02.51)**.
5. Standard Manhole Frame 24-inch by 4-inch shall have a minimum 21-3/4-inch diameter access opening.
6. Standard Manhole Frame 24-inch by 4-inch shall have a maximum height of 4-inches.

### 7.5.4 Standard Manhole Frame 24-inch by 6-inch

1. Standard Manhole Frame 24-inch by 6-inch provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Standard Manhole Frame 24-inch by 6-inch shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. Standard Manhole Frame 24-inch by 6-inch shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. Standard Manhole Frame 24-inch by 6-inch shall have a minimum dimensions shall be in accordance with **24" X 6" Sewer Frame Only Detail (S-02.52)**.
5. Standard Manhole Frame 24-inch by 6-inch shall have a minimum 21-3/4-inch diameter access opening.
6. Standard Manhole Frame 24-inch by 6-inch shall have a maximum height of 6-inches.

### 7.5.5 Standard Manhole Frame 24-inch by 8-inch

1. Standard Manhole Frame 24-inch by 8-inch provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department

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of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.

2. Standard Manhole Frame 24-inch by 8-inch shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. Standard Manhole Frame 24-inch by 8-inch shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. Standard Manhole Frame 24-inch by 8-inch shall have a minimum dimensions shall be in accordance with **24" X 8" Sewer Frame Only Detail (S-02.53)**.
5. Standard Manhole Frame 24-inch by 8-inch shall have a minimum 21-3/4-inch diameter access opening.
6. Standard Manhole Frame 24-inch by 8-inch shall have a maximum height of 8-inches.

### 7.5.6 Replacement Manhole Frame 26-inch by 6-inch

1. Replacement Manhole Frame 26-inch by 6-inch provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Replacement Manhole Frame 26-inch by 6-inch shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. Replacement Manhole Frame 26-inch by 6-inch shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. Replacement Manhole Frame 26-inch by 6-inch shall have a minimum dimensions shall be in accordance with **26" X 6" Sewer Frame Only Detail (S-02.54)**.
5. Replacement Manhole Frame 26-inch by 6-inch shall have a minimum 24-inch diameter access opening.
6. Replacement Manhole Frame 26-inch by 6-inch shall have a maximum height of 6-inches.

### 7.5.7 Standard Manhole Frame 32-inch by 6-inch

1. Standard Manhole Frame 32-inch by 6-inch provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department

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of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.

2. Standard Manhole Frame 32-inch by 6-inch shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. Standard Manhole Frame 32-inch by 6-inch shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. Standard Manhole Frame 32-inch by 6-inch shall have a minimum dimensions shall be in accordance with **32" X 6" Sewer Frame Only Detail (S-02.55)**.
5. Standard Manhole Frame 32-inch by 6-inch shall have a minimum 30-1/4-inch diameter access opening.
6. Standard Manhole Frame 32-inch by 6-inch shall have a maximum height of 6-1/2-inches.

### 7.5.8 Standard Manhole Frame 32-inch by 8-inch

1. Standard Manhole Frame 32-inch by 8-inch provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Standard Manhole Frame 32-inch by 8-inch shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. Standard Manhole Frame 32-inch by 8-inch shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. Standard Manhole Frame 32-inch by 8-inch shall have a minimum dimensions shall be in accordance with **32" X 8" Sewer Frame Only Detail (S-02.56)**.
5. Standard Manhole Frame 32-inch by 8-inch shall have a minimum 30-inch diameter access opening.
6. Standard Manhole Frame 32-inch by 8-inch shall have a maximum height of 8-inches.

### 7.5.9 24-inch Standard Sewer Manhole Cover

1. 24-inch Standard Sewer Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department

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of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.

2. 24-inch Standard Sewer Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. 24-inch Standard Sewer Manhole Cover shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. 24-inch Standard Sewer Manhole Cover shall have a minimum dimensions shall be in accordance with **24” Standard Sewer Cover Detail (S-02.61)**.
5. The words “SPRINGFIELD WATER & SEWER COMMISSION” and the Commission Logo shall be raised relief.
6. The word “SEWER” shall be raised relief.
7. 24-inch Standard Sewer Manhole Covers shall have two (2) penetrating pick-holes on each opposite side and one (1) 1-1/4-inch diameter penetrating pick-hole shall offset a minimum of 4-inches from the center, a 23-3/4-inch (plus or minus 1/16-inch) diameter cover, the rim shall be 1-1/4-inch thick (plus or minus 1/16-inch).
8. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 7.5.10 32-inch Standard Sewer Manhole Cover

1. 32-inch Standard Sewer Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. 32-inch Standard Sewer Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. 32-inch Standard Sewer Manhole Cover shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. 32-inch Standard Sewer Manhole Cover shall have a minimum dimensions shall be in accordance with **32” Standard Sewer Cover Detail (S-02.62)**.
5. The words “SPRINGFIELD WATER & SEWER COMMISSION” and the Commission Logo shall be raised relief.



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6. The word “SEWER” shall be raised relief.
7. 32-inch Standard Sewer Manhole Cover shall have two (2) penetrating pick-holes on each opposite side and one (1) 1-1/4-inch diameter penetrating pick-hole shall offset a minimum of 4-inches from the center, a 31-3/4-inch (plus or minus 1/16-inch) diameter cover, the rim shall be 1-3/4-inch thick (plus or minus 1/16-inch).
8. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 7.5.11 26-inch Replacement Sewer Manhole Cover

1. 26-inch Replacement Sewer Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
2. 26-inch Replacement Sewer Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. 26-inch Replacement Sewer Manhole Cover shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. 26-inch Replacement Sewer Manhole Cover shall have a minimum dimensions shall be in accordance with **26” Replacement Sewer Cover Detail (S-02.63)**.
5. The word “SEWER” shall be raised relief.
6. 26-inch Replacement Sewer Manhole Cover shall have two (2) non-penetrating pick bars on each side that are approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2inch long, a 26-inch (plus or minus 1/16-inch) diameter cover, the rim shall be 1-1/8-inch thick (plus or minus 1/16-inch).
7. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 7.5.12 30-inch Replacement Sewer Manhole Cover

1. 30-inch Replacement Sewer Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.



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2. 30-inch Replacement Sewer Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. 30-inch Replacement Sewer Manhole Cover shall be strong, durable, even grained Cast iron or Ductile iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind.
4. 30-inch Replacement Sewer Manhole Cover shall have a minimum dimensions shall be in accordance with **30” Replacement Sewer Cover Detail (S-02.64)**.
5. The word “SEWER” shall be raised relief.
6. 30-inch Replacement Sewer Manhole Cover shall have two (2) penetrating pick-holes on each opposite side and one (1) 1-1/4-inch diameter penetrating pick-hole at the center, a 29-3/4-inch (plus or minus 1/16-inch) diameter cover, the rim shall be 2-inch thick (plus or minus 1/16-inch).
7. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.

### 7.5.13 Composite Locking 24-inch or 32-inch Sewer Cover

1. Composite Locking Manhole Covers provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Composite Locking Manhole Covers shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following exceptions and additions:
3. Composite Locking Manhole Covers provided to the Commission or Installers shall be manufactured, tested, inspected, and delivered in full compliance with this Specification.
4. Composite Locking Manhole Covers shall be certified to meet American Association of State Highway and Transportation Officials (AASHTO) M 306 Drainage, Sewer, Utility, and Related Casting Specification and M 105 and have a HS20 load rating.
5. Composite Locking Manhole Covers shall be strong, durable, even from fiber reinforced polymer (FRP). It shall consist of a FRP matrix consisting of between 45% to 70% fiber reinforcement by weight. Fiber reinforcement shall consist of fiberglass, carbon, aramid, basalt and/or natural fibers. The polymer matrix shall be thermoset consisting of a polyester, vinylester, epoxy, polyurethane, and/or hybrid chemical composition. The resin matrix must be thermoset. Composite





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Locking 24-inch Manhole Covers shall be smooth, free from scale, lumps, blisters, sand holes and defects of any kind.

6. Composite Locking Manhole Covers shall be of uniform quality, with a dimensional tolerance of 1/16 of an inch. The finished product will feature a strength to weight ratio of 750:1. There shall be no possibility of corrosion welding between the cover and the frame, preventing damage to the infrastructure when opening. Gasket system shall be integrated to reduce traffic shock and abatement of noise and malodors. Static Coefficient of Friction shall be 0.6 or greater, as described in ASTM C1028 Standard, in both wet and dry applications.
7. Composite Locking Manhole Covers shall be shall be machined to a true surface so that the cover does not rock in the frame no matter the position of the cover.
8. The Commission requires that the Composite Locking Manhole Covers shall be subjected to proof load testing as follows:
  - (a) Testing shall be in accordance with the National Institute of Standards Technology (NIST) standards.
  - (b) Composite Locking Manhole Covers shall be shall show no detrimental deformation or cracks when a proof load of 50,000-pounds is concentrated on an 9-inch by 9-inch area at the center of the cover for a 1-minute period of time.
  - (c) Permanent deformation shall not exceed 1/8-inch.
  - (d) All testing shall be at the supplier's expense.
9. Composite Locking Manhole Covers shall have a non-slip pattern cast on the top.
10. Composite Locking Manhole Covers shall be provided with individual permanent markings that are easily discernable and show the following:
  - (a) Name of the producing manufacturer and country of manufacture preceded by the words "Made in", such as "Made in USA"
  - (b) AASHTO designation or ASTM designation number
  - (c) Class by a number followed by a letter indicating the minimum tensile strength and size of test bar,
  - (d) Manufacturing date (MM/DD/YY),
11. The above markings are required, but the Commission will allow some variation in how the above markings are provided on the finished product. The design and





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location of the markings must meet and be subject to the approval of the Commission's aesthetic judgment.

12. The word "SEWER" shall be raised relief.
13. Composite Locking Manhole Cover shall fit any of the Standard 24-inch Manhole Frames and the dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.
14. Composite Locking 24-inch Manhole Cover dimensions shall be in accordance with **24" Composite Locking Sewer Cover Detail (S-02.65)**.
15. The Composite Locking 24-inch Manhole Cover shall have one (1) non-penetrating pick bar on one side that is approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2-inch long, one (1) 1-1/4-inch diameter penetrating pick-hole, two 1/4-turn penta head latches on each side of the cover, a 23-3/4-inch (plus or minus 1/16-inch) diameter cover, and the rim shall be 1-inches thick (plus or minus 1/16-inch).
16. Composite Locking 32-inch Manhole Cover shall fit any of the Standard 32-inch Manhole Frames and the dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.
17. Composite Locking 32-inch Manhole Cover dimensions shall be in accordance with **32" Composite Locking Sewer Cover Detail (S-02.66)**.
18. The Composite Locking 32-inch Manhole Cover shall have one (1) non-penetrating pick bar on one side that is approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2-inch long, one (1) 1-1/4-inch diameter penetrating pick-hole, two 1/4-turn penta head latches on each side of the cover, a 1-1/2-inch (plus or minus 1/16-inch) diameter cover, and the rim shall be 1-inches thick (plus or minus 1/16-inch).
19. The dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.



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### 7.5.14 Gasketed 24-inch Sewer Cover

1. Gasketed 24-inch Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Gasketed 24-inch Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:
3. Gasketed 24-inch Manhole Cover shall fit any of the Standard 24-inch Manhole Frames and the dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.
4. The words “SPRINGFIELD WATER & SEWER COMMISSION” and the Commission Logo shall be raised relief.
5. The word “SEWER” shall be raised relief.
6. The Gasketed 24-inch Manhole Cover shall have two (2) non-penetrating pick bars on each side that are approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2-inch long, a 23-3/4-inch (plus or minus 1/16-inch) diameter cover, and the rim shall be 1-1/4-inch thick (plus or minus 1/16-inch).
7. The Gasketed 24-inch Manhole Cover shall also include a continuous, self-sealing gasket cemented in a machine groove on the underside of the cover or as otherwise approved by the Commission.
8. The Gasketed 24-inch Manhole Frame shall have a minimum 21-3/4-inch diameter access opening.

### 7.5.15 Gasketed 32-inch Sewer Cover

1. Gasketed 32-inch Manhole Cover provided to the Springfield Water and Sewer Commission (Commission) or its Contractors or the Springfield Department of Public Works shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Gasketed 32-inch Manhole Cover shall, as a minimum, meet all specifications as in Paragraphs 7.5.1 and 7.5.2, and the following:



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3. Gasketed 32-inch Manhole Cover shall fit any of the Standard 24-inch Manhole Frames and the dimensions of the cover must match existing frames and covers such that parts are interchangeable with both the new and existing manhole frame and covers.
4. The words “SPRINGFIELD WATER & SEWER COMMISSION” and the Commission Logo shall be raised relief.
5. The word “SEWER” shall be raised relief.
6. The Gasketed 32-inch Manhole Cover shall have two (2) non-penetrating pick bars on each side that are approximately 1-inch by 1-1/2-inch with the slot/channel approximately 1-1/2-inch wide by 4-1/2-inch long, a 23-3/4-inch (plus or minus 1/16-inch) diameter cover, and the rim shall be 1-1/4-inch thick (plus or minus 1/16-inch).
7. The Gasketed 32-inch Manhole Cover shall also include a continuous, self-sealing gasket cemented in a machine groove on the underside of the cover or as otherwise approved by the Commission.
8. The Gasketed 32-inch Manhole Frame shall have a minimum 21-3/4-inch diameter access opening.

### 7.5.16 Pressure (locking) Manhole Frame and Cover 26-inch by 7-inch

1. Pressure (locking) Manhole Frame and Covers 24-inch by 8-inch shall meet all the requirements of the Gasketed Manhole Frame and Covers 24-inch by 8-inch with the following exceptions:
2. The 26-inch Pressure (locking) Manhole Frame shall have a seat cast in the frame to support the cover.
3. The 26-inch Pressure (locking) Manhole Frame shall have a self-sealing gasket cemented in a machine groove on the topside of the frame or as otherwise approved by the Commission.
4. Cam locks or J-bar locks shall be provided to secure the cover to the frame.
5. If cam locks are provided the 26-inch Pressure (locking) Manhole Frame shall have a minimum of three (3) cam lock supports cast into the frame. Each cam lock shall be provided with stainless steel cams, nuts, and bolts to secure cover to the frame.
6. If cam locks are provided the 26-inch Pressure (locking) Manhole Cover shall have a rabbit cast or machined around the outer diameter of the cover to allow the cam locks to secure the cover to the frame.



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7. If J-bar locks are provided the 26-inch Pressure (locking) Manhole Cover shall have a minimum of three (3) J-bar locks cast into the frame. Each J-bar lock shall be provided with stainless steel J-bars, nuts, and bolts to secure cover to the frame.
8. The 26-inch Pressure (Locking) Manhole Frame shall have a minimum 24-inch diameter access opening.

### 7.5.17 Pressure (locking) Manhole Frame and Cover 32-inch by 7-inch

1. Pressure (locking) Manhole Frame and Covers 32-inch by 7-inch shall meet all the requirements of the Gasketed Manhole Frame and Covers 32-inch by 7-inch with the following exceptions:
2. The 32-inch Pressure (locking) Manhole Frame shall have a seat cast in the frame to support the cover.
3. The 32-inch Pressure (locking) Manhole Frame shall have a self-sealing gasket cemented in a machine groove on the topside of the frame or as otherwise approved by the Commission.
4. Cam locks or J-bar locks shall be provided to secure the cover to the frame.
5. If cam locks are provided the 32-inch Pressure (locking) Manhole Frame shall have a minimum of three (3) cam lock supports cast into the frame. Each cam lock shall be provided with stainless steel cams, nuts, and bolts to secure cover to the frame.
6. If cam locks are provided the 32-inch Pressure (locking) Manhole Cover shall have a rabbit cast or machined around the outer diameter of the cover to allow the cam locks to secure the cover to the frame.
7. If J-bar locks are provided the 32-inch Pressure (locking) Manhole Cover shall have a minimum of three (3) J-bar locks cast into the frame. Each J-bar lock shall be provided with stainless steel J-bars, nuts, and bolts to secure cover to the frame.
8. The 32-inch Pressure (Locking) Manhole Frame shall have a minimum 30-inch diameter access opening.



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### 7.5.18 Coatings

No coatings are required for manhole frame and covers or covers.

### 7.5.19 Sewer Manhole Frame and Covers Makes and Models Approved for use by the Commission

The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.

1. East Jordan Iron Works
  - (a) MHF 24-inch by 4-inch, Part #: 1244 11
  - (b) MHF 24-inch by 6-inch, Part #: 1246 11
  - (c) MHF 24-inch by 8-inch, Part #: 1248 11
  - (d) MHF 26-inch by 6-inch, Part #: 2266 11
  - (e) MHF 32-inch by 6-inch, Part #: 1322 13
  - (f) MHF 32-inch by 8-inch, Part #: 2008 11
  - (g) Standard MHC 24-inch, Part #: 1246 74
  - (h) Standard MHC 32-inch, Part #: 2006 62
  - (i) Replacement MHC 26-inch, Part #: 2111 23
  - (j) Replacement MHC 30-inch, Part #: 2308 22
  - (k) Replacement MHC Composite Locking 24-inch, Part # COM 2401 29
  - (l) Replacement MHC Composite Locking 32-inch, Part # COM 3200 \_\_
2. Approved equal of another manufacturer provided the product(s) are manufactured as per these specifications.



# Springfield Water and Sewer Commission

## Material Specifications

- (m) Gasketed MHF&C 24-inch by 8-inch, Part #: 00124674C03GS
- (n) Gasketed MHF&C 32-inch by 8-inch, Part #: 00200662C03GS
- (o) Gasketed MHF&C 24-inch by 8-inch, Part #: 00124674C03GS
- (p) Gasketed MHF&C 32-inch by 8-inch, Part #: 00200662C03GS
- (q) Gasketed MHC 24-inch, Part #: 00124811GS
- (r) Gasketed MHC 32-inch, Part #: 00200662GS
- (s) Pressure (locking) MHF&C 26-inch by 7-inch, Part #: 42339048W01
- (t) Pressure (locking) MHF&C 32-inch by 7-inch, Part #: 41420041W01



# Springfield Water and Sewer Commission

## Material Specifications

### Section 7.6 FLEXIBLE MANHOLE SLEEVES/SEALS

#### 7.6.1 General

1. Manhole sleeves, gaskets, and sealants for Pre-cast Manholes provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Manhole sleeves, gaskets, and sealants for Pre-cast Manholes shall be furnished complete with lubricants, stainless steel stops, inserts, clamps, etc.
3. Manhole sleeves, gaskets, and sealants for Pre-cast Manholes shall assure water tightness and permanent seal.
4. Delivery shall be specified in terms of number of days from receipt of order.
5. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
7. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product

#### 7.6.2 Flexible Sleeve/Seals from Pre-cast Concrete Manhole Manufacturer

Flexible sleeves/seals from Pre-cast Concrete Manhole Manufacturer shall be New Lok Joint Flexible Sleeve by Interpace, A-Lok Manhole sleeve by L & L Concrete Products, Press Wedge II by Pre-Seal Basket Corporation, or equal products of another manufacturer.

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## Material Specifications

### 7.6.3 Flexible Sleeve/Seals Field Applied

Flexible sleeves/seals Field Applied shall be K or N Seal boot, or equal products of another manufacturer.





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## Material Specifications

### Section 7.7 NON-SHRINK GROUT

1. Non-Shrink Grout provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
2. Grout shall be non-shrink and waterproof.
3. Grout shall be Hallemite, Waterplug, Embeco or approved equal. Plastic pipes shall have a water-stop gasket secured to pipe with a stainless steel clamp.
4. Delivery shall be specified in terms of number of days from receipt of order.
5. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
6. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
7. References

The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:

- (a) Name of Municipality/Utility
- (b) Total amount of product bid on and amount delivered
- (c) Date the bid was accepted and date the product was delivered
- (d) Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product



# Springfield Water and Sewer Commission

## Material Specifications

### CHAPTER 8 SEWER PUMP STATIONS

#### Section 8.1 SUBMERSIBLE SEWAGE PUMP STATIONS

##### 8.1.1 General

1. The submersible pumping station shall include all materials, equipment and incidentals required to install wastewater pumping stations with all related interior piping and electrical works as specified herein and in accordance with the **Pre-cast Wet Well and Valve Vault Detail (S-06.0)**, unless otherwise approved by the Commission.
2. Pumps shall be designed for use in wastewater non-clog submersible pumping stations.
3. Reference to specific manufacturers is for the purpose of establishing a quality or parameter for specification writing and not to be considered proprietary.
4. One complete spare pump with motor, power and signal cable, attachments to the guide rails, and pipe connection adaptor for the wastewater pumping station is required.
5. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
  - (e) The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement govern.
- 6.



# Springfield Water and Sewer Commission

## Material Specifications

### 8.1.2 Submersible Sewage Pumps – Quality Criteria

1. The system shall be furnished by a single supplier who shall be responsible for the coordination of the system design and who shall assume complete responsibility for the proper installation and operation of the system. All parts shall be properly stamped for identification and location. Nameplates giving the name of the manufacturer, the rated capacity, head, speed and all other pertinent data shall be attached to each pump and motor.
2. All equipment furnished shall be new and unused, shall be the standard product of manufacturers having a successful record of manufacturing and servicing the equipment and systems specified herein for a minimum of 5 years.
3. All the equipment specified herein is intended to be standard equipment for pumping all material found in domestic wastewater.

### 8.1.3 Submersible Sewage Pumps and Pumping System

1. The design characteristics of the pump station shall be and in accordance with the **Pre-cast Wet Well and Valve Vault Detail (S-06.0)**, and as specified herein, unless otherwise approved by the Commission.
2. Two non-clog submersible pumps shall be installed in the pumping station wet well. The two pumps shall be programmed to operate in an alternating lead/lag mode.
3. Pumps shall be automatically started from high level switch and automatically stopped from a low level switch. An alternating switch shall be provided in the control panel such that the operation of one pump shall switch the next automatic start to the other pump. The pumps shall also be capable of manual operation from the control panel.
4. Each of the two pumps shall be sized to handle the maximum flows, thus the pumping system shall provide 100% redundancy.
5. At least one pump shall be equipped with a backwash valve or flush valve. The flush valve shall be designed to allow a minimum of 30 seconds circulation of wastewater in the wet well to re-suspend and de-sludge settled solids.
6. The non-clog pumps and motors shall be designed and manufactured so they can operate completely submerged in the sewage and wastewater. Pump motors shall run indefinitely without overheating with motors un-submerged.



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## Material Specifications

7. The centrifugal pump impeller unit shall be attached to a common motor and pump shaft of stainless steel. Pump and motor housings shall be high quality gray iron castings. Impeller shall be single vane cast iron.
8. All fasteners, excluding joint accessories, shall be made of Grade 316 stainless steel. Bolts shall be in accordance with ASTM A193 grade B8, latest revision. Nuts shall be in accordance with ASTM A194 grade 8, latest revision. Bolts and nuts shall be Unified National Coarse (UNC) rolled thread and heavy-duty hex nuts. Bolts installed into castings shall be provided with one (1) Grade 316 stainless steel flat washer and nuts and bolts shall be provided with two (2) Grade 316 stainless steel flat washers so that the epoxy coating is not damaged. At a minimum, nuts shall be coated with fluorocarbon, epoxy, zinc, or other anti-corrosion coating to help prevent galling.
9. To prevent galling; all stainless steel bolts shall be coated on the outside of all threads and the stainless steel nuts or castings on the inside of all threads at the factory, with an anti-seizing material such as provided by Henkel Technologies, Rocky Hill, Connecticut - product name: Loctite Nickel Anti-Seize Lubricant; Chesterton Technical Products, Stoneham, Massachusetts – product name: Chesterton 772 Premium Nickel Anti-Seize Compound; Permatex Inc. Hartford, Connecticut – product name: Permatex Nickel Anti-Seize Lubricant or equal product of another manufacturer and as specified in Section 3.18 of these Specifications.
10. The pump-motor shaft shall be sealed by two mechanical tungsten carbide faced seals within an oil filled chamber to provide clean, constant lubrication. The shaft shall be supported by an upper ball radial and thrust bearing and a two row angular contact lower bearings both grease lubricated. The upper bearing shall be supported by an O-ring sealed, movable cap so that impeller clearance may be adjusted externally for most efficient operation.
11. The motor winding and rotor shall be mounted in a sealed, submersible type housing which is able to transmit heat from motor winding to outer housing. Motor winding shall be Class F insulated and securely held in the housing with machine screws so that it may be removed in the field without the use of heat or a press.
12. Pump motors shall be air filled and shall have cooling characteristics suitable to permit continuous operation in a totally, partially or non-submerged condition. Jacket water-cooling shall not be required. The pump and motor shall be capable of running without damage for extended periods. Pump and motor shall be explosion-proof, suitable for Class 1, Division 1, Group C or D applications. Motor shall be provided with pilot thermal sensors embedded in the stator windings. Pumps shall have factory installed moisture detectors (seal failure probes) in the seal chamber.



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## Material Specifications

13. The impellers shall be of the semi-open, single vane, non-clog type with the forward ends of the blades generously rounded to avoid catching trash. The blades shall be tapered toward the periphery of the impeller to generate the maximum possible shutoff head, and the outer tips of the blades shall occupy only a negligible portion of the area of the impeller throat or periphery. The impellers shall be accurately balanced before assembling.

### 8.1.4 Pumps Station Chambers – Wet Well and Valve Vault

1. The Wet Well and Valve Vault of the pump station shall be and in accordance with the **Pre-cast Wet Well and Valve Vault Detail (S-06.0)**, and as specified herein, unless otherwise approved by the Commission.
2. The underground pump station chambers shall of reinforced concrete construction.
3. Pre-cast concrete barrel sections and pre-cast bases shall conform to ASTM C478, and shall meet the following requirements.
4. No pump station chamber shall be less than 72-inches in diameter.
5. The wall thickness shall not be less than:

Diameter (inches)	72	84	96
Wall Thickness (inches)	7	8	9

6. Structure walls shall be designed for an equivalent water pressure of 90 Pounds per Square Foot (PSF). Pressure diagram shall originate at finished ground surface. Lateral pressure from vehicles shall be included in accordance with AASHTO.
7. Barrel sections shall have tongue and groove gasketed joints.
8. All sections shall be cured and shall not be shipped nor subjected to loading until after 5 days after fabrication and/or repair, or when the concrete compressive strength has attained 5,000 PSI, whichever is longer.
9. Pre-cast concrete barrel sections with pre-cast top slabs shall be designed for a minimum of H-20 loading plus the weight of the soil above. Cracked and/or chipped slabs will not be accepted unless manufacturer's proposed repair methods and manufacturer's guarantees are reviewed and approved by the Commission.
10. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on the inside of each pre-cast section.



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## Material Specifications

11. Pre-cast concrete base shall be constructed and installed as recommended by the manufacturer and/or detailed by the design engineer. However, the thickness of the bottom slab of the pre-cast base shall not be less than the manhole barrel sections or the top slab, whichever is greater. Bolting of the structure to the base slab shall be with Type 304 stainless steel bolts.
12. The pre-cast base shall be firmly anchored to a reinforced concrete slab designed such that the pumping station is able to fully resist flotation when the groundwater elevation is at the finished ground surface level.
13. The design shall resist flotation and shall account for the dead weight of the structure and base in addition to soil load above the structure. Accounting for skin friction, soil friction, or weight of equipment in the structure is not allowed. Flotation safety factor shall be not less than 1.15.
14. Entrance hatches for the concrete chambers (both wet well and valve vault) shall be aluminum single leaf 30-in by 48-in, complete with upper guide holder, chain holder, and cable holder for pumps. Hatches shall be designed with lift assisting springs for easy opening and closing, and with hold-open arm with red vinyl grip handle that automatically locks cover in the open position against weight and wind. Hatches shall be equipped with a locking mechanism that can be unlocked only by the operator.
15. Hatches shall be designed for H-20 loading.
16. Manhole rungs shall be reinforced steel, copolymer polypropylene, 14-in wide, M.A. Industries Inc, PF Series or equal. Copolymer polypropylene shall conform to ASTM D4101 Classification PP0344 B33534 Z02. Steel reinforcing shall be 1/2-in diameter, conforming to ASTM A615, Grade 60 and shall be continuous throughout rung. Manhole rungs shall meet all OSHA requirements.No rungs shall be allowed in the wet well chamber.
17. The wet well chamber shall be supplied with pump mounting plates with upper and lower rail supports attached to the concrete with stainless steel expansion bolts. Two (2) 2-inch stainless steel pipe or fiberglass I-beam rails shall be installed between the mounting plates. The rails shall be used to raise and lower the pumps into the stations. A stainless steel lifting cable shall be attached to the top of each station chamber and to the top of each pump assembly.
18. The valve vault shall be designed with a minimum internal vertical clearance of 7-feet.



# Springfield Water and Sewer Commission

## Material Specifications

### 8.1.5 Pumps Station Controls and Ancillary Equipment

1. Sealed tilt type switches shall be supplied to control wet well level and alarm signal. The mercury switches shall be sealed in a solid polyurethane float for corrosion and shock resistance. The support wire shall have a heavy Neoprene jacket. A weight shall be attached to each cord above the float to hold each switch in place in the wet well. The weight shall be placed above or inside the float to effectively prevent sharp bends in the cord when the float operates. The float switches shall hang in the wet well supported only by the cord. Four float switches shall be used to control and signal level; one for high level alarm, one for pump turn-on, one for pump turn-off and one for low-level alarm.
2. The Commission may approve an alternate wet well level control set up utilizing an ultrasonic level transducer and one tilt type switch for high level alarm. The Commission may consider this method if the Commission is satisfied that physical and hydraulic conditions in the wet well do not impede the accuracy of the ultrasonic transducer readings. The Commission reserves the right to reject this method at its own discretion.
3. Level settings shall be as designed to ensure a minimum pumping cycle of 15 minutes under maximum flows.
4. Power cables shall be suitable for submersible pump and Class 1, Division 1, Group C or D applications. Cable sizing shall conform to National Electrical Code specifications for pump motors. Cable entry to each pump motor shall be designed for submersible pump applications. The cable entry junction box and motor shall be separated by a stator load sealing gland which shall isolate the motor interior from foreign materials gaining access through the pump top. The electrical power cords shall be sealed by use of a cord grip, with individual conductors additionally sealed into the cord cap assemblies with epoxy sealing compound.
5. The cord grip shall have a male tapered pipe thread, threaded into a female tapered pipe thread in a cord cap. The cord cap shall be sealed into the motor housing with an O-ring. The pumps shall be supplied with a sufficient length of cord to connect to junction boxes inside the station.
6. Level settings shall be as follows:
  - (a) On wet well level rise, the "pump OFF" level mercury switch shall be energized. When the level reaches the "pump ON" level switch, it shall be energized and send a signal to the control panel and automatically turn on a pump. One pump shall operate until the wet well level drops down to the "pump off" and the switch automatically turns the pump off. Under normal operation, the duty and standby pumps shall alternate service after each pump cycle is complete and the in-service pump called to stop.





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## Material Specifications

- (b) If wet well level rises to the high water level or falls to the low water level, the alarm level switches shall be energized with an alarm signal that there is a malfunction at the Pumping Station. Upon high water level alarm, the duty pump shall be called to stop and the standby pump shall be started in its place. The high water alarm shall also disable the alternation circuit to prevent re-starting of the faulty pump. A momentary contact pushbutton shall be provided and mounted within the control panel to reset the alternator circuit once both pumps have become operational.
  - (c) Should the duty pump fail to start, the standby pump shall be automatically started after a one minute time delay, the failed duty pump shall be locked out, an alarm transmitted and the standby pump shall continue to operate through every cycle. Both pumps shall not be capable of running at the same time when operating in the automatic mode. Each pump shall be capable of being operated manually from the control panel. All level switches shall be adjusted for level setting from the surface.
7. Each float switch shall have a sufficient length of cord, be intended for submersible service and Class 1, Division 1, Group C or D applications, such that the switches can be connected to junction boxes inside the station.

### 8.1.6 Pumps Station Control Panels

1. The control panels shall be housed in the emergency generator building.
2. Unless approved by the Commission, power supply to the control panels shall be 480 Volts, 3-Phase, 60 Hz. A combination motor circuit protector / disconnect switch and magnetic starter with Class 10 overload protection, and two NO, two NC contacts shall be provided for each pump.
3. The motor circuit protector disconnect switch shall have short circuit rating of 22,000 AIC and shall be interlocked with the door handle of the control panel. An interlock relay shall be provided to automatically re-connect the control circuit in case of circuit breaker trip on one pump. Each pump control circuit shall be supplied with an H-O-A switch, on-off lights LED Type Cluster and running time meter.
4. An automatic alternator shall be provided to alternate the sequence of operation of the pumps on the completion of each pumping cycle. Terminal strips shall be provided for connecting pump and control wires. Additional terminals shall be provided to connect alarms. A transformer shall be supplied to provide 24-volt power to the control circuit. An essentially safe barrier relay shall be provided between each float level switch and the terminal strip in the pump control panel. Relays shall be GEM Safe-Pac Division of Delaval or equal.





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## Material Specifications

5. Lockout-Tag out provision shall be provided. At a minimum, provisions shall be provided to padlock unit disconnect handles in the OFF position with up to three padlocks.
6. The following control panel mounted indicating lights and nameplates shall be included:
  - (a) High Level
  - (b) Low Level
  - (c) Moisture in Motor No. 1
  - (d) Moisture in Motor No. 2
  - (e) Over-heating - Motor No. 1
  - (f) Over-heating - Motor No. 2
7. All alarms shall be common to an output contact rated 5 amperes at 120 VAC. See SCADA requirements in Section---

### 8.1.7 Pumps Station Communication System

1. The pump station shall be equipped with radio contact and SCADA system for relay of alarms and monitoring signals to pump station operator.
2. Radio/SCADA systems must be compatible with the Springfield Water and Sewer Commission Operator's system, namely United Water (UW). Contact UW at (413) 732-0293 for coordination of design/procurement of communications equipment.

### 8.1.8 Pumps Station Piping and Valves

1. Ductile iron (DI) pipe shall be used for sewer pump station piping and shall be in accordance with the **Pre-cast Wet Well and Valve Vault Detail (S-06.0)** and as specified herein, unless otherwise approved by the Commission.
2. DI pipe shall conform to AWWA C151, and shall in accordance with the Commission's Material Specifications for Water Pipe – Flanged Ductile Iron Pipe, unless otherwise approved by the Commission.
3. Gaskets shall be full-face rubber ethylene propylene diene Monomer (EPDM) rubber in accordance with [ASTM](#) standard D-1418 with cloth insertion, 1/8-in thick and shall conform to the dimensions shown in Table A.1 of AWWA C115, unless otherwise approved by the Commission.



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4. Flanged joints shall be supplied with bolts, bolt studs with a nut on each end, or studs with nuts where the flange is tapped. The number and size of bolts shall conform to the same standard as the flange. Low carbon steel bolts and nuts shall conform to ASTM A307, Grade B.
5. Fittings shall be ductile iron, shall have the same pressure rating as the DI pipe, shall be in accordance with the Commission's Material Specifications for Ductile Iron Pipe Fittings and provided in accordance with the **Pre-cast Wet Well and Valve Vault Detail (S-06.0)** and as specified herein, unless otherwise approved by the Commission Fittings.
6. All pipe and fittings shall have a double thick cement mortar lining and bituminous seal coat on the inside, in accordance with AWWA C104.
7. All pipe and fittings shall have a bituminous seal coat on the outside, in accordance with AWWA C104.
8. The valves for isolation shall be flanged gate valves, and shall be in accordance with the Commission's Material Specifications for Gates Valves for pressure class 250, and provided in accordance with the **Pre-cast Wet Well and Valve Vault Detail (S-06.0)** and as specified herein, unless otherwise approved by the Commission
9. The check valves required for prevention of backflow shall be flanged, 250 psi working pressure, bronze-mounted, with bronze seat ring and bronze gate ring. Check valves shall comply with the applicable portions of AWWA Standard for Gate Valves. Valves shall be fitted with an extended hinge arm with outside lever and spring.
10. Sleeve type couplings for exposed ductile iron pipe shall be of steel construction and shall be in accordance with the Commission's Material Specifications for Couplings, and provided in accordance with the **Pre-cast Wet Well and Valve Vault Detail (S-06.0)** and as specified herein, unless otherwise approved by the Commission. Gaskets shall be of a composition resistant to wastewater components.

### 8.1.9 Pressure Gauges

1. Pump Station Pressure Gauges shall have a 4-1/2-in nominal diameter black case with phosphor bronze Bourdon tubes (beryllium copper bellows), 1/4-in NPT male connections, stainless steel rack and pinion movement micro-adjustment for calibration, white dials and black figures and threaded ring case. All gauges shall be furnished with factory mounted protective diaphragm attachment suitable for wastewater service. Gauges shall read 0 to 50 PSI unless otherwise required by design conditions and as approved by the Commission.



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## Material Specifications

2. Pump Station Pressure Gauges shall be provided with copper nipples complete with "T"-handle cocks. Nipples shall be at least 2-in long and provided with elbows for easy installation and reading of the gauges.
3. Gauges shall be manufactured by U.S. Gauge, Feasterville, PA; Crosby-Ashton, Wrentham, MA; or approved equal.

### 8.1.10 Vent

1. Vent shall be Steel Schedule 40, ASTM A53, hot-dipped galvanized with threaded, 150 lb, hot-dipped galvanized malleable iron fittings.
2. Vent shall be provided with a stainless steel bug screen.
3. The Commission may consider an alternate, such as Schedule 80 PVC for material depending on Pump Station location, site accessibility and proximity to traffic. Approval of this alternative is at the sole discretion of the Commission.

### 8.1.11 Emergency Power Generation

1. Pump station shall be equipped with a stand-by emergency power generation source.
2. Power generators shall be provided to supply adequate power required to energize the pumps at full flow capacity, and the pump station electrical and incidental systems.
3. Type of fuel, storage capacity, and storage location shall be approved by the City of Springfield Fire Department.
4. Power generators shall be Cummins, Caterpillar, or approved equal.

### 8.1.12 Housing for the Emergency Power Generation

1. The housing shall be pre-cast concrete building and sized and configured to adequately house all equipment and incidentals specified herein including, but not limited to, the emergency power generator, pump station control panels, transfer switch, generator controls, heaters, SCADA and communication equipment, and anything else incidental to the pump station design and as required by the design engineer.
2. The building shall meet American Concrete Institute (ACI) 318-02, the Building Code Requirements for Structural Concrete IBC 2003, and City of Springfield Code Enforcement requirements, all the latest versions,
3. Minimum design criteria:



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- (a) Floor live load: as required by weight of generator. Minimum 150 psf
  - (b) Roof live load: 60 psf unless otherwise directed by the design engineer
  - (c) Wind Load: 130 mph
  - (d) Load factors: Live = 1.7; Dead = 1.4
  - (e) Concrete minimum compressive strength: 5,000 psi @ 28 days, reinforcing steel shall meet ASTM A615, Grade 60
4. The housing shall be suitable for securing the power generator unit; shall provide weather and sound attenuation; and shall be designed to meet the cooling air flow, heat exchange, exhaust air, sound muffling, space heating and all else required by the emergency generator unit manufacturer.
  5. The housing façade shall be brick, wood, vinyl, or other type of siding as approved by the Commission. The Commission shall select the building façade type that is most similar to the pump station area houses/buildings.
  6. Roof shall consist of weather proof shingles and UV blockers, shall be resistive to cracking and splitting and shall be non-combustible providing a UL Class A fire rating.
  7. Prefabricated housing units may be proposed for the Commission's consideration. The Commission reserves the right to approve or reject this alternative at its sole discretion.

### 8.1.13 Pump Station Site

Pump station site shall be in accordance with the Commission's Guidelines and Policies.

### 8.1.14 Submittals

1. Submittals are required at time of bid award, at time of purchase, or as required by the Commission's Purchasing Agent.
2. Shop drawings detailing all materials, equipment performance information, and design drawings including structural, architectural, mechanical, civil and general. All design drawings shall be stamped by a professional engineer registered in the Commonwealth of Massachusetts.
3. Pumps manufacturer shall include rating curves and details of pump construction. The curves shall indicate head, discharge rate, pump efficiency, and horsepower characteristics throughout the full operating range.

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4. Stand-by power generator manufacturer shall include generator unit dimensions, weight, fuel consumption rates, radiator cooling air requirement, combustion air volume, heat radiated to room, noise level, and all else required for completing the pump station design.
5. A pump station testing, startup, and operation plan listing name of qualified pump station operator(s) who is responsible of testing, operating, maintaining, and monitoring the pump station.



# Springfield Water and Sewer Commission

## Material Specifications

### CHAPTER 9 LOW PRESSURE SANITARY SEWER SYSTEMS

#### Section 9.1 Low Pressure Sanitary Sewer (LPSS) Systems

##### 9.1.1 Low Pressure Sanitary Sewer – General

1. The Low Pressure Sanitary Sewer System shall include all materials, equipment and incidentals required to install the low pressure system, the low pressure lateral, and the grinder pump station with all related piping, structures, boxes, pump stations, and electrical works as specified herein and in accordance with the **Low Pressure Sanitary Service / Main 2-1/2-inch Valve Box in Non-Paved Areas Detail (S-09.1)**, **Low Pressure Sanitary Sewer Pipe Trench Detail (S-09.2)**, **Low Pressure Sanitary Sewer Service Lateral Detail (S-09.3)**, **Low Pressure Sanitary Sewer Main Inline Flushing Structure Detail (S-09.4)**, and **Low Pressure Sanitary Sewer Terminal flushing Structure Detail (S-09.5)**, unless otherwise approved by the Commission.
2. Pumps shall be designed for use in wastewater non-clog submersible pumping stations.
3. Reference to specific manufacturers is for the purpose of establishing a quality or parameter for specification writing and not to be considered proprietary.
4. One complete spare pump with motor, power and signal cable, attachments to the guide rails, and pipe connection adaptor for the wastewater pumping station is required.
5. The product(s) shall have all parts cast and assembled in North America or meet the requirements of the American Iron & Steel (AIS), as follows;
  - (a) North America shall mean the United States, Canada, and Mexico,
  - (b) Cast shall mean molten metals poured into a mold to create casting(s) for a finished product,
  - (c) Incidental parts may be purchased/obtained from other countries to provide a finished product , in accordance with these Material Specifications, and
  - (d) Assembled shall mean castings and sourced parts are put together to build a finished product, or
6. The finished product shall meet all the requirements of the AIS language, and all guidance issued by the EPA. For any Massachusetts State Revolving Fund (SRF) project this requirement govern.

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7. Delivery shall be specified in terms of number of days from receipt of order.
8. The manufacturer/vendor/shipper must use care in preparing the above items for shipment and in handling during shipment and delivery, to insure that the above items are delivered without damage. Damaged items will not be accepted.
9. The manufacturer and/or vendor, on request, shall provide the purchaser with an affidavit for each and every delivery of an order, stating that the above items and all materials in its construction exactly conform to the applicable requirements of these specifications to include the applicable ASTM Standards.
10. References
  - (a) The Supplier shall provide references, on request, which shall list a minimum of three (3) Municipalities/Utilities that were, supplied this product, in the last two (2) years. The listing is to include:
    - Name of Municipality/Utility
    - Total amount of product bid on and amount delivered
    - Date the bid was accepted and date the product was delivered
    - Reference person with address and desk top phone number whom the Commission has authorization to contact regarding the product
11. This specification section is intended to establish the minimum criteria and requirements for private grinder pump stations to be installed on private property for sewer service for a location which cannot be served by gravity sewer.
12. The Commission is not responsible for the design, procurement, delivery, installation, and maintenance of grinder pump station units.
13. Each grinder pump station shall conform to all state, federal, and local regulations, and meet accepted standards for plumbing equipment for use near residences. It shall be free from noise, odor, or health hazards, and shall have been tested by an independent laboratory to certify its capability to perform as specified in either individual or low pressure sewer system applications. As evidence of compliance with this requirement, the grinder pump shall bear the National Sanitation Foundation seal.
14. Sewage grinder pump stations and appurtenances are private structures that are to be owned, operated, and maintained by the property Owner.
15. The grinder pump station supplier, or manufacturer, and project Engineer of Record shall participate in the installation and start-up testing of the grinder pump station.



# Springfield Water and Sewer Commission

## Material Specifications

### 9.1.2 Low Pressure Sanitary Sewer – Mains < 3 inch Diameter

1. Pipe provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification and Section 9.1.1 of these Material Specifications.
2. Pipe provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification.
3. All pipe and fittings furnished shall be clearly marked on the outside indicating name, manufacturer, nominal diameter, ASTM, schedule, and/or pipe or pressure class designation.
4. All materials used for the pressure portion of these systems must be pressure rated at a minimum of 160 psi operating pressure and suitable for the wastewater environment and resistant to corrosion.
5. All pipe and fittings shall be 100 percent hydrostatically tested to 150 psi in the factory.
6. All metal components and hardware shall be 304 stainless steel unless otherwise specified herein or approved by the SWSC.
7. Pipe and fitting material shall be one of the following SDR-21 PVC, Sch 40 PVC, or SDR-11 HDPE per ASTM D 3035. Final determination of the type and size is the responsibility of the project owner's consulting engineer (MA P.E.) and must be approved by the SWSC.

### 9.1.3 Low Pressure Sanitary Sewer – Mains < 3 inch Diameter – Pre-Insulated

1. Pre-Insulated Pipe provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification and Section 9.1.1 and Section 9.1.2 of these Material Specifications.
2. The insulation shall be a foamed in place closed cell polyurethane which completely fills the annular space between the carrier pipe and the exterior casing. The insulation shall have the following physical properties:
  - (a) Minimum Density (lb./cu. ft.) 2.0 ASTM D-1621
  - (b) Closed Cell ASTM D-2856
  - (c) "K" Factor BTU/Hr. sq. ft. °F/in. 147 ASTM C-177
3. The exterior casing shall be High Density Polyethylene (H.D.P.E.) ASTM D-1248 with the following physical properties:





# Springfield Water and Sewer Commission

## Material Specifications

- (a) ASTM D-3350...Resin Type III, Grade P34
  - (b) ASTM D-638...Ultimate Elongation 850%
  - (c) ASTM D-638...Tensile Yield Strength 3300 psi
  - (d) ASTM D-790...Tangent Flexural Modules 175,000 psi
4. The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.
- (a) Urecon Pre-Insulated Pipe,
  - (b) Perma Pipe,
  - (c) Tricon, or
  - (d) Approved equal product of another manufacture provided the product(s) are manufactured as per these Material Specifications.

### 9.1.4 Low Pressure Sewer System – Engineered Thermoplastic Fittings

1. Plastic fitting components provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with all applicable ASTM standars, this Specification, and Section 9.1.1 of these Material Specifications.
2. All pipe connections shall be made using compression fitting connections including a Buna-N O-ring for sealing to the outside diameter of the pipe. A split-collet locking device shall be integrated into all pipe connection fittings to securely restrain the pipe from hydraulic pressure and external loading caused by shifting and settling.

### 9.1.5 Low Pressure Sewer System – Service Lateral Kit

1. The Service Lateral Kit provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification and Section 9.1.1 of these Material Specifications.
2. The Service Lateral Kit shall prevent backflow from the sewer main and into the grinder pump station.
3. The Service Lateral Kit shall be sized to match LPSS main pipe diameter.



# Springfield Water and Sewer Commission

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4. The Service Lateral Kit (exclusive of piping) shall consist of three (3) compression fittings, one (1) combination curb stop/check valve assembly and one (1) curb box.
5. The Curb Stop and Check Valve Assembly shall be 316 stainless steel and have a two-piece cast 316 stainless steel housing, creating a unilateral body. All plastic compression fittings are to be molded from polypropylene and shall be tested for resistance to aging, pressure rating, tensile strength, and flexural strength. All components shall incorporate compression fitting connections for easy, reliable installation of piping. The lateral kit shall be rated for 150 psi service.
6. Curb Stop and Check Valve Assembly shall be designed for use with HDPE and PVC pressure sewer piping.
7. Curb Stop and Check Valve Assembly shall be an integrated stainless steel ball valve curb stop and check valve and be fully field serviceable with a top service port that allows access to check valve and hinge pin.
8. Curb Stop and Check Valve Assembly shall be designed and tested to 235 psi service pressure.
9. Curb Stop and Check Valve Assembly shall be pressure-tight in both directions. The ball valve actuator shall include position stop features at the fully opened and closed positions.
10. Curb Stop and Check Valve Assembly check valve shall be integral with the curb stop valve. The check valve will provide a full-ported 1-1/4" passageway and shall introduce minimal friction loss at maximum rated flow. The flapper hinge design shall provide a maximum degree of freedom and ensure seating at low back pressure.
11. The following products have been approved for use by the Commission. Any change in any component(s) of the product that does not allow for interchangeability of the component(s) shall result in the product no longer being approved and removed from this list.
  - (a) Uni-Lateral E/One assembly — NB0184PXX or NC0193GXX, or
  - (b) Approved equal product of another manufacture provided the product(s) are manufactured as per these Material Specifications.

### 9.1.6 Terminal Flushing Structure

1. The Terminal Flushing Structure provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification and Section 9.1.1 of these Material Specifications.



# Springfield Water and Sewer Commission

## Material Specifications

2. The Terminal Flushing Structure shall be standard pre-cast barrel section combinations of 1', 2', 3' or 4' lengths as needed.
3. Pre-cast reinforced concrete manhole sections conforming to ASTM c478.
4. Pre-cast reinforced manhole sections shall have design loading per AASHTO HS20-44, ACI 318-83; ASTM c478-82, c890-82, c913-71.
5. Pre-cast reinforced manhole sections shall be either tongue and groove joints or bell and spigot joints with the following gaskets:
  - (a) Tongue & groove gasket shall be o-ring rubber gasket conforming to ASTM c443
  - (b) Bell & spigot gasket shall be butyl rubber gasket joints conforming to ASTM c990
6. The Terminal Flushing Structure shall be provided with (2) coats of bituminous damp proofing.
7. Pre-cast reinforced concrete manhole concrete and reinforcing shall conform to the following:
  - (a) Pre-cast concrete shall be 5,000 psi @ 28 days.
  - (b) Admixtures, air & plasticizers per ASTM c233-82.
  - (c) Reinforcing per ASTM a615 for wire fabric.
8. The Terminal Flushing Structure shall be provided with one (1) 316 stainless steel fully ported quarter turn ball valve, with a corrosion resistant handle and installed inside the manhole and the following:
  - (a) A 1-inch MPT 316 stainless steel flushing connection and cap.
  - (b) The LPSS pipe, fittings, and valves shall be restrained every 18-inches with  $\frac{3}{4}$ -inch threaded rod 1-1/2-inch wide X 1/8-inch thick anchor straps.

### 9.1.7 Inline Flushing Structure

1. The Inline Flushing Structure provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification and Sections 9.1.1 and 9.1.6 of these Material Specifications.



# Springfield Water and Sewer Commission

## Material Specifications

2. The Inline Flushing Structure shall be provided with two (2) 316 stainless steel fully ported quarter turn ball valve, with a corrosion resistant handle and installed inside the manholes.

### 9.1.8 Sanitary Sewer Manhole

1. The Sanitary Sewer Manhole provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification and Section 7.5 of these Material Specifications.
2. Frame shall be a standard 32-inch by 8-inch in accordance with **Sewer Frame and Cover Detail (S-02.56 and 02.62)**

### 9.1.9 Detectable Warning Tape

1. Detectable Warning Tape provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification and Section 9.1.1 of these Material Specifications.
2. Detectable warning tape shall meet the following requirements:
  - (a) "Caution Buried Force Main Below", green color for sewer
  - (b) Minimum thickness of 5-mil, with a solid aluminum foil core.
  - (c) Construction is 2-mil clear film, reverse print laminated to aluminum foil to 2-mil clear fill making the film permanently printed.
  - (d) Minimum width of 3 inches
  - (e) Color coded green for sewer
  - (f) Tensile strength of 35 lfs/in (15,000psi)
  - (g) Elongation of 80%
  - (h) Adhesives with a value of Morton 548 or higher
  - (i) Bottom layer of virgin PE
  - (j) Top layer of virgin PET printability value of 45 dynes
  - (k) Rated for direct burial
  - (l) Proline part #103123083 or approved equal



# Springfield Water and Sewer Commission

## Material Specifications

### 9.1.10 LPSS Service Lateral Valve Box

1. LPSS Service Lateral Valve Box provided to the Commission or Installers shall be manufactured, tested, inspected and delivered in full compliance with this Specification, Section 4.5, and Section 9.1.1 of these Material Specifications.
2. LPSS Service Lateral Valve Box shall have the word “SEWER” cast into cover.







Access manholes on reservoirs with electrical conduit and junction boxes



Access manhole on reservoir and existing reservoir expansion joint





Chain link fence on reservoir 2



Overflowheadwalls to reservoir 4 and 3





Overflowheadwall to reservoir 3



Overflowheadwall to reservoir 4





Overflowheadwall to reservoir 4



Overflowheadwall to reservoir 3

**MASSACHUSETTS WEEKLY CERTIFIED PAYROLL REPORT FORM**



Company's Name:	Address:	Phone No.:	Payroll No.:
Employer's Signature:	Title:	Contract No:	Tax Payer ID Number
Awarding Authority's Name:	Public Works Project Name:	Public Works Project Location:	Min. Wage Rate Sheet Number

General / Prime Contractor's Name:		Subcontractor's Name:		"Employer" Hourly Fringe Benefit Contributions														
												(B+C+D+E)		(A x F)				
Employee Name & Complete Address	Work Classification:	Employee is OSHA 10 certified (?)	Appr. Rate (%)	Hours Worked							Project Hours (A) All Other Hours	Hourly Base Wage (B)	Health & Welfare Insurance (C)	ERISA Pension Plan (D)	Supp. Unemp. (E)	Total Hourly Prev. Wage	Project Gross Wages	Check No. (H)
				Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.								

Are all apprentice employees identified above currently registered with the MA DLS's Division of Apprentice Standards? YES  NO

For all apprentices performing work during the reporting period, attach a copy of the apprentice identification card issued by the Massachusetts Department of Labor Standards / Division of Apprentice Standards. No apprentices are identified above

**NOTE:** Pursuant to MGL c. 149, s. 27B, every contractor and subcontractor is required to submit a **true and accurate** copy of their certified weekly payroll records to the awarding authority by first-class mail or e-mail. In addition, each weekly payroll must be accompanied by a statement of compliance signed by the employer. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

Date Received by Awarding Authority / /
--

**NOTICE: - This is NOT the official version of the Massachusetts General Laws (MGL). While reasonable efforts have been made to assure the accuracy of the data provided, do not rely on this information without first checking an official edition of the MGL.**

**If you are in need of legal advice or counsel, consult an attorney.**

**MASSACHUSETTS GENERAL LAWS**

**(Updated to July 12, 2013)**

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**CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES Chapter 30: Section 38A Price adjustment clause**

Contracts for road, bridge, water, and sewer projects awarded as a result of a proposal or invitation for bids under chapter 7C, section 11C of Chapter 25A, section 39M of this chapter and sections 44A to 44H, inclusive, of chapter 149 shall include a price adjustment clause for each of the following materials: fuel, both diesel and gasoline; asphalt; concrete; and steel. A base price for each material shall be set by the awarding authority or agency and shall be included in the bid documents at the time the project is advertised. The awarding authority or agency shall also identify in the bid documents the price index to be used for each material. The price adjustment clause shall provided for a contract adjustment to be made on a monthly basis when the monthly cost change exceeds plus or minus 5 per cent.

**Chapter 30: Section 39F Construction contracts; assignment and subrogation; subcontractor defined; enforcement of claim for direct payment; deposit, reduction of disputed amounts**

Section 39F. (1) Every contract awarded pursuant to sections forty-four A to L, inclusive, of chapter one hundred and forty-nine shall contain the following subparagraphs (a) through (i) and every contract awarded pursuant to section thirty-nine M of chapter thirty shall contain the following subparagraphs (a) through (h) and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of



that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account

in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

(i) If the subcontractor does not receive payment as provided in subparagraph (a) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (a), the subcontractor may demand direct payment by following the procedure in subparagraph (d) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).

(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (f) of paragraph (1) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) "Subcontractor" as used in this section (i) for contracts awarded as provided in sections forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-

bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (a) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in forty-four A to forty-four H, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (f) of paragraph 1 by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (e) and in subparagraph (f) of paragraph (1) any amount held under a trustee writ or pursuant to a restraining order or injunction.

## **CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES**

### **Chapter 30: Section 39I Deviations from plans and specifications**

Section 39I. Every contractor having a contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the commonwealth, or of any political subdivision thereof, shall perform all the work required by such contract in conformity with the plans and specifications contained therein. No wilful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the engineer or architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract such deviation from the plans or specifications may be authorized by a written order of the awarding authority or such engineer or architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the awarding authority stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the contracting agency and the contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the contracting authority.

Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

Whoever violates any provision of this section wilfully and with intent to defraud shall be punished by a fine of not more than five thousand dollars or by imprisonment for not more than six months, or both.



## **CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES**

### **Chapter 30: Section 39J Public construction contracts; effect of decisions of contracting body or administrative board**

Section 39L. The commonwealth and every county, city, town, district, board, commission or other public body which, as the awarding authority, requests proposals, bids or sub-bids for any work in the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or other public works (1) shall not enter into a contract for the work with, and shall not approve as a subcontractor furnishing labor and materials for a part of the work, a foreign corporation which has not filed with the awarding authority a certificate of the state secretary stating that the corporation has complied with requirements of section 15.03 of subdivision A of Part 15 of chapter 156D and the date of compliance, and further has filed all annual reports required by section 16.22 of subdivision B of Part 16 of said chapter 156D, and (2) shall report to the state secretary and to the department of corporations and taxation any foreign corporation performing work under such contract or subcontract, and any person, other than a corporation, performing work under such contract or subcontract, and residing or having a principal place of business outside the commonwealth.

## **CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES**

### **Chapter 30: Section 39L Public construction work by foreign corporations; restrictions and reports**

Section 39L. The commonwealth and every county, city, town, district, board, commission or other public body which, as the awarding authority, requests proposals, bids or sub-bids for any work in the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or other public works (1) shall not enter into a contract for the work with, and shall not approve as a subcontractor furnishing labor and materials for a part of the work, a foreign corporation which has not filed with the awarding authority a certificate of the state secretary stating that the corporation has complied with requirements of section 15.03 of subdivision A of Part 15 of chapter 156D and the date of compliance, and further has filed all annual reports required by section 16.22 of subdivision B of Part 16 of said chapter 156D, and (2) shall report to the state secretary and to the department of corporations and taxation any foreign corporation performing work under such contract or subcontract, and any person, other than a corporation, performing work under such contract or subcontract, and residing or having a principal place of business outside the commonwealth.

**CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES**

**Chapter 30: Section 39M Contracts for construction and materials; manner of awarding**

Section 38A. Contracts for road and bridge projects awarded as a result of a proposal or invitation for bids under section 39M shall include a price adjustment clause for each of the following materials: fuel, both diesel and gasoline; asphalt; concrete; and steel. Contracts for water and sewer projects awarded as a result of a proposal or invitation for bids under said section 39M shall include a price adjustment clause for fuel, both diesel and gasoline; liquid asphalt; and portland cement contained in cast-in-place concrete. A base price for each material shall be set by the awarding authority or agency and shall be included in the bid documents at the time the project is advertised. The awarding authority or agency shall also identify in the bid documents the price index to be used for each material. The price adjustment clause shall provide for a contract adjustment to be made on a monthly basis when the monthly cost change exceeds plus or minus 5 per cent.

Section 39M. (a) Every contract for the construction, reconstruction, alteration, remodeling or repair of any public work, or for the purchase of any material, as hereinafter defined, by the commonwealth, or political subdivision thereof, or by any county, city, town, district, or housing authority, and estimated by the awarding authority to cost more than ten thousand dollars, and every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a public agency, as defined by subsection one of section forty-four A of chapter one hundred and forty-nine, estimated to cost more than \$25,000 but not more than \$100,000, shall be awarded to the lowest responsible and eligible bidder on the basis of competitive bids publicly opened and read by such awarding authority forthwith upon expiration of the time for the filing thereof; provided, however, that such awarding authority may reject any and all bids, if it is in the public interest to do so. Every bid for such contract shall be accompanied by a bid deposit in the form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the awarding authority. The amount of such bid deposit shall be five per cent of the value of the bid. Any person submitting a bid under this section shall, on such bid, certify as follows:

The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

\_\_\_\_\_  
(Name of person signing bid)

\_\_\_\_\_  
(Company)

This paragraph shall not apply to the award of any contract subject to the provisions of sections forty-four A to forty-four J, inclusive, of chapter one hundred and forty-nine and every such contract shall continue to be awarded as provided therein. In cases of extreme emergency caused by enemy attack, sabotage or other such hostile actions or resulting from an imminent security threat explosion, fire, flood, earthquake, hurricane, tornado or other such catastrophe, an awarding authority may, without competitive bids and notwithstanding any general or specific law, award contracts otherwise subject to this paragraph to perform work and to purchase or rent materials and equipment, all as may be necessary for temporary repair and restoration to service of any and all public work in order to preserve the health and safety of persons or property; provided, that this exception shall not apply to any permanent reconstruction, alteration, remodeling or repair of any public work.

(b) Specifications for such contracts, and specifications for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the awarding authority or promptly given in writing by the awarding authority to anyone making a written request therefor, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if, in the opinion of the awarding authority: (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said name or described materials.

(c) The term "lowest responsible and eligible bidder" shall mean the bidder: (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; (4) who, where the provisions of section 8B of chapter 29 apply, shall have been determined to be qualified thereunder; and (5) who obtains within 10 days of the notification of contract award the security by bond required under section 29 of chapter 149; provided that for the purposes of this section the term "security by bond" shall mean the bond of a surety company qualified to do business under the laws of the

commonwealth and satisfactory to the awarding authority; provided further, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

(d) The provisions of this section shall not apply (1) to the extent that they prevent the approval of such specifications by any contributing federal agency, (2) to materials purchased under specifications of the state department of highways at prices established by the said department pursuant to advertisement and bidding in connection with work to be performed under the provisions of chapter eighty-one or chapter ninety, (3) to any transaction between the commonwealth and any of its political subdivisions or between the commonwealth and any public service corporation, and (4) to any contract of not more than twenty-five thousand dollars awarded by a governmental body, as defined by section two of chapter thirty B, in accordance with the provisions of section five of said chapter thirty B; and (5) to any contract solely for the purchase of material awarded by a governmental body, as defined by section 2 of chapter 30B, in accordance with section 5 of said chapter 30B.

(e) The word "material" as used in this section shall mean and include any article, assembly, system, or any component part thereof.

## **CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES**

### **Chapter 30: Section 39N Construction contracts; equitable adjustment in contract price for differing subsurface or latent physical conditions**

Section 39N. Every contract subject to section forty-four A of chapter one hundred and forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:

If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.

## **CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES**

### **Chapter 30: Section 39O Contracts for construction and materials; suspension, delay or interruption due to order of awarding authority; adjustment in contract price; written claim**

Section 39O. Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim.

**CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES**

**Chapter 30: Section 39P Contracts for construction and materials; awarding authority's decisions on interpretation of specifications, etc.; time limit; notice**

Section 39P. Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.



## CHAPTER 30. GENERAL PROVISIONS RELATIVE TO STATE DEPARTMENTS, COMMISSIONS, OFFICERS AND EMPLOYEES

### Chapter 30: Section 39R Definitions; contract provisions; management and financial statements; enforcement

Section 39R. (a) The words defined herein shall have the meaning stated below whenever they appear in this section:

(1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.

(3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

(4) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

(5) "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a *certified* opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

(6) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

(7) "Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:

(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

(2) until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and

(3) if the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and

(4) if the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

(5) if the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

(c) Every contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:

(1) transactions are executed in accordance with management's general and specific authorization;

(2) transactions are recorded as necessary

i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. to maintain accountability for assets;

(3) access to assets is permitted only in accordance with management's general or specific authorization; and

(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to

(1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

(2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the awarding authority upon request.

(e) The office of inspector general, the commissioner of capital asset management and maintenance and any other awarding authority shall enforce the provisions of this section. The commissioner of capital asset management and maintenance may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).

## **CHAPTER 82. THE LAYING OUT, ALTERATION, RELOCATION AND DISCONTINUANCE OF PUBLIC WAYS, AND SPECIFIC REPAIRS THEREON**

### **EXCAVATIONS; NOTICES; PENALTIES**

#### **Chapter 82: Section 40 Definitions**

Section 40. The following words, as used in this section and sections 40A to 40E, inclusive, shall have the following meanings:—

“Company”, natural gas pipeline company, petroleum or petroleum products pipeline company, public utility company, cable television company, and municipal utility company or department that supply gas, electricity, telephone, communication or cable television services or private water companies within the city or town where such excavation is to be made.

“Description of excavation location”, such description shall include the name of the city or town, street, way, or route number where appropriate, the name of the streets at the nearest intersection to the excavation, the number of the buildings closest to the excavation or any other description, including landmarks, utility pole numbers or other information which will accurately define the location of the excavation.

“Emergency”, a condition in which the safety of the public is in imminent danger, such as a threat to life or health or where immediate correction is required to maintain or restore essential public utility service.

“Excavation”, an operation for the purpose of movement or removal of earth, rock or the materials in the ground including, but not limited to, digging, blasting, augering, backfilling, test boring, drilling, pile driving, grading, plowing in, hammering, pulling in, jacking in, trenching, tunneling and demolition of structures, excluding excavation by tools manipulated only by human power for gardening purposes and use of blasting for quarrying purposes.

“Excavator”, any entity including, but not limited to, a person, partnership, joint venture, trust, corporation, association, public utility, company or state or local government body which performs excavation operations.

“Premark”, to delineate the general scope of the excavation or boring on the paved surface of the ground using white paint, or stakes or other suitable white markings on nonpaved surfaces. No premarking shall be acceptable if such marks can reasonably interfere with traffic or pedestrian control or are misleading to the general public. Premarking shall not be required of any continuous excavation that is over 500 feet in length.

“Safety zone”, a zone designated on the surface by the use of standard color-coded markings which contains the width of the facilities plus not more than 18 inches on each side.

“Standard color-coded markings”, red - electric power lines, cables, conduit or light cables; yellow - gas, oil, street petroleum, or other gaseous materials; orange - communications cables or conduit, alarm or signal lines; blue - water, irrigation and slurry lines; green - sewer and drain lines; white - premark of proposed excavation.

“System”, the underground plant damage prevention system as defined in section 76D of chapter 164.

### **Chapter 82: Section 40A Excavations; notice**

Section 40A. No excavator installing a new facility or an addition to an existing facility or the relay or repair of an existing facility shall, except in an emergency, make an excavation, in any public or private way, any company right-of-way or easement or any public or privately owned land or way, unless at least 72 hours, exclusive of Saturdays, Sundays and legal holidays but not more than 30 days before the proposed excavation is to be made, such excavator has premarked not more than 500 feet of the proposed excavation and given an initial notice to the system. Such initial notice shall set forth a description of the excavation location in the manner as herein defined. In addition, such initial notice shall indicate whether any such excavation will involve blasting and, if so, the date and the location at which such blasting is to occur.

The notice requirements shall be waived in an emergency as defined herein; provided, however, that before such excavation begins or during a life-threatening emergency, notification shall be given to the system and the initial point of boring or excavation shall be premarked. The excavator shall ensure that the underground facilities of the utilities in the area of such excavation shall not be damaged or jeopardized.

In no event shall any excavation by blasting take place unless notice thereof, either in the initial notice or a subsequent notice accurately specifying the date and location of such blasting shall have been given and received at least 72 hours in advance, except in the case of an unanticipated obstruction requiring blasting when such notice shall be not less than four hours prior to such blasting. If any such notice cannot be given as aforesaid because of an emergency requiring blasting, it shall be given as soon as may be practicable but before any explosives are discharged.

### **Chapter 82: Section 40B Designation of location of underground facilities**

Section 40B. Within 72 hours, exclusive of Saturdays, Sundays and legal holidays, from the time the initial notice is received by the system or at such time as the company and the excavator agree, such company shall respond to the initial notice or subsequent notice by designating the location of the underground facilities within 15 feet in any direction of the premarking so that the existing facilities are to be found within a safety zone. Such

safety zone shall be so designated by the use of standard color-coded markings. The providing of such designation by the company shall constitute prima facie evidence of an exercise of reasonable precaution by the company as required by this section; provided, however, that in the event that the excavator has given notice as aforesaid at a location at which because of the length of excavation the company cannot reasonably designate the entire location of its facilities within such 72 hour period, then such excavator shall identify for the company that portion of the excavation which is to be first made and the company shall designate the location of its facilities in such portion within 72 hours and shall designate the location of its facilities in the remaining portion of the location within a reasonable time thereafter. When an emergency notification has been given to the system, the company shall make every attempt to designate its facilities as promptly as possible.

### **Chapter 82: Section 40C Excavator's responsibility to maintain designation markings; damage caused by excavator**

Section 40C. After a company has designated the location of its facilities at the location in accordance with section 40B, the excavator shall be responsible for maintaining the designation markings at such locations, unless such excavator requests remarking at the location due to the obliteration, destruction or other removal of such markings. The company shall then remark such location within 24 hours following receipt of such request.

When excavating in close proximity to the underground facilities of any company when such facilities are to be exposed, non-mechanical means shall be employed, as necessary, to avoid damage in locating such facility and any further excavation shall be performed employing reasonable precautions to avoid damage to any underground facilities including, but not limited to, any substantial weakening of structural or lateral support of such facilities, penetration or destruction of any pipe, main, wire or conduit or the protective coating thereof, or damage to any pipe, main, wire or conduit.

If any damage to such pipe, main, wire or conduit or its protective coating occurs, the company shall be notified immediately by the excavator responsible for causing such damage.

The making of an excavation without providing the notice required by section 40A with respect to any proposed excavation which results in any damage to a pipe, main, wire or conduit, or its protective coating, shall be prima facie evidence in any legal or administrative proceeding that such damage was caused by the negligence of such person.

### **Chapter 82: Section 40D Local laws requiring excavation permits; public ways**

Section 40D. Nothing in this section shall affect or impair local ordinances or by-laws requiring a permit to be obtained before excavation in a public way or on private property; but notwithstanding any general or special law, ordinance or by-law to the

contrary, to the extent that any permit issued under the provisions of the state building code or state fire code requires excavation by an excavator on a public way or on private property, the permit shall not be valid unless the excavator notifies the system as required pursuant to sections 40 and 40A, before the commencement of the excavation, and has complied with the permitting requirements of chapter 82A.

**Chapter 82: Section 40D Section 40E Violations of Secs. 40A to 40E; punishment**

Section 40E. Any person or company found by the department of telecommunications and energy, after a hearing, to have violated any provision of sections 40A to 40E, inclusive, shall be fined \$1,000 for the first offense and not less than \$5,000 nor more than \$10,000 for any subsequent offense within 12 consecutive months as set forth by the rules of said department; provided, however, that nothing herein shall be construed to require forfeiture of any penal sum by a state or local government body for violation of section 40A or 40C; and provided, further, that nothing herein shall be construed to require the forfeiture of any penal sum by a residential property owner for the failure to premark for an excavation on such person's residential property.



## **DIVISION 1 – GENERAL REQUIREMENTS**

SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Work of the Contract is shown and described in Drawings and Project Manual entitled:

Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Springfield Water and Sewer Commission  
Agawam, Massachusetts  
January 2024

Tighe & Bond, Inc.  
Consulting Engineers  
Westfield, Massachusetts

2. The Work includes the following major items:
  - a. Extension of 34 access manholes with watertight locking hatches.
  - b. Installation of approximately 2,470 linear feet of polyolefin waterproofing tape and epoxy adhesive.
  - c. Installation of approximately 1,550 linear feet of chain link fence and demolition of approximately 850 linear feet of existing chain link fence.
  - d. Installation of flanged ductile iron piping and bends with concrete bulkheads, concrete cradles, concrete splash pads, bituminous pavement, and stainless-steel mesh screens on 2 existing overflow pipe headwalls.
  - e. Loam and seed of disturbed areas.

B. Related Requirements

1. Supplementary Conditions

1.2 SUBMITTALS

A. Informational Submittals

1. Submit copies of permits or approvals required for the Work, prior to initiating the Work.

1.3 EXISTING SYSTEM DESCRIPTION

- A. The existing Reservoir Nos. 3 and 4 are 15.5 million-gallon, 320-foot diameter, circular tanks with prestressed concrete exterior walls and reinforced concrete slabs and columns. Both tanks were constructed between 1958 and 1960. The roof slab is 8 to 9 inches in thickness overlaid with approximately 2-feet of vegetative soil. The existing access manholes are 2-feet and 6-inch tall reinforced concrete columns with a 3-foot inner diameter and 8-inch thick walls. Access manholes have a cast in place cast iron frame with a cast iron cover. The existing overflow pipes are 30-inch cast iron pipes

that day light at a 12-inch thick reinforced concrete headwall with 12-inch thick wing walls.

#### 1.4 PROJECT/SITE CONDITIONS

##### A. Permits

1. Obtain the permits and approvals listed below:
  - a. Permits and licenses of a temporary nature necessary to perform the Work.
  - b. Permits for disposal of construction wastes including disposal of cleared and grubbed materials.
  - c. Other permits or licenses required for the Contractor's operations or required elsewhere in the Contract Documents and not included herein.
2. Obtain required time extensions to permits obtained by the Contractor, if construction authorized by permits has not been completed by the expiration date noted on these permits.
3. Permits require that a representative of the permitting authority or the Owner be present on site during construction or given the opportunity to observe conditions prior to backfilling or otherwise proceeding with construction. Notify the Owner, Engineer, and the permitting authority prior to performing Work that is governed by the permit.
4. Obtain permits and approvals from appropriate jurisdictional agencies and property owners for use of premises not furnished by the Owner, and for all off-site areas.
5. Submit copies of permits prior to performance of Work authorized by permits.

##### B. Existing Conditions

1. Use of Premises and Off-site Work
  - a. The Work shall occur on the Owner's property within the limits of Work shown on the Drawings.
  - b. Land owned by the Owner is available for staging and is shown on the Drawings.
  - c. Obtain permits and approvals for use of any land and access thereto that is deemed necessary for the Work, where such land is not available for use by the Owner, including land for temporary construction facilities, access and egress, or for storage of materials. Confine apparatus and storage to such additional areas.
  - d. Obtain permits and written approvals from appropriate jurisdictional agencies for the use of premises not available for use by the Owner, including all offsite staging areas, borrow pits and waste areas. Submit copies of all permits and approvals to the Owner prior to using areas.
  - e. Provide for the disposal of waste materials off-site in accordance with all applicable laws.
  - f. Adhere to the limits of Work as indicated, to minimize obstruction to traffic and inconvenience to the Owner in the vicinity of the Work, and to

protect people and property. Keep fire hydrants on or adjacent to the Work accessible to fire fighting equipment at all times.

g. Maintain functioning stormwater systems, drainage ditches, and culverts.

C. Other Requirements

1. Comply with the Springfield Water and Sewer Commission Provisions

PART 2 PRODUCTS

2.1 MATERIALS FURNISHED BY OWNER

A. The Owner will not furnish any materials, labor or equipment under this Contract.

PART 3 EXECUTION – NOT USED

END OF SECTION

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## SECTION 01140

## WORK RESTRICTIONS

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Work Schedule
  - 2. Construction Constraints
  - 3. Vehicle Access
  - 4. Available Work Area
  - 5. Site Usage Plan
- B. Related Requirements
  - 1. Section 01310 - Coordination
  - 2. Section 01325 - Scheduling of Construction

## 1.2 SUBMITTALS

- A. Incorporate the requirements of this Section in the project schedule submitted under Section 01325.
- B. Action Submittals
  - 1. Submit site usage plan within 30 days of the Notice to Proceed.
- C. Informational Submittals
  - 1. Submit work plans, equipment information, product data, and calculations for the proposed means and methods to perform the proposed work on the reservoir roof.

## 1.3 WORK SCHEDULE

- A. Conduct the Work during daylight hours on Monday through Friday, and within the time between 7:00 a.m. and 3:30 p.m. No work is to be done on Owner's holidays, Saturdays, Sundays or outside of the work hours described above.
- B. Work shall occur on one reservoir at a time and not concurrently.

## PART 2 PRODUCTS – NOT USED

## PART 3 EXECUTION

## 3.1 CONSTRUCTION CONSTRAINTS

- A. The following are constraints for the Work. Incorporate these constraints into the schedule required to be submitted under Section 01325.
  - 1. All components of the existing facility must remain in operation throughout construction of the new improvements unless otherwise specified herein or in Section 01310.

2. There shall be no allowable shutdown time for the facility.
3. At no time will the Contractor obstruct any day-to-day activities of the Owner's operations or the Owner's staff.

### 3.2 VEHICLE AND MACHINERY ACCESS

- A. No vehicles or machinery will be permitted to travel over reservoirs Nos. 3 and 4 without the approval of the Engineer and submitted calculations that demonstrate that the proposed equipment does not exceed the roof loading. No vehicles or machinery will be permitted to travel over reservoirs Nos. 1 and 2. Keep vehicular and machinery traffic to access roads to the best extent as possible. No vehicles or machinery shall be parked over reservoirs Nos. 3 and 4, all vehicles and machinery shall be removed from reservoirs Nos. 3 and 4 at the end of the working day.
  1. Refer to the construction drawings for the roof slab superimposed loads.
  2. The use of excavation equipment on the reservoir roof slab will only be approved if the Contractor provides calculations stamped by a Professional Engineer registered in the Commonwealth of Massachusetts that demonstrates that the proposed equipment does not exceed the superimposed loads listed.
- B. Any vehicles or machinery with fluid reservoirs (i.e. gasoline, diesel, hydraulic fluid) over reservoirs Nos. 3 and 4 shall be underlaid with protective absorbent tarps to catch and contain any potential fluid leaks. Coordinate refueling locations with Owner.
- C. All concrete placed on this project will be required to be pumped or placed using a crane and hopper bucket. Concrete trucks will not be allowed on the reservoir roof slab. Coordinate concrete washout locations with Owner.

### 3.3 AVAILABLE WORK AREA

- A. Limits of construction are defined on the Drawings. No work will be permitted to be performed outside these boundaries.

### 3.4 SITE USAGE PLAN

- A. Locations of available staging areas are shown on the Drawings.
- B. Submit a site usage plan showing locations of all office and storage trailers, and material laydown areas. The site usage plan should be a drawing showing the proposed locations and shall include on-site traffic modifications and temporary utilities as may be applicable.
- C. Storage of inert materials shall be at the discretion of the Contractor anywhere within the project limits and staging area.
- D. Storage of hazardous materials, overnight equipment, and sanitary facilities shall be coordinated with Owner. Use of areas coordinated with Owner does not relieve the Contractor of their responsibility on providing spill containment kits as well as secondary containment.
- E. Areas altered for storing and staging materials and equipment shall be restored to their original conditions at no additional cost to the owner.

END OF SECTION

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## SECTION 01270

## MEASUREMENT AND PAYMENT

## PART 1 GENERAL

## 1.1 DIVISION 0 AND DIVISION 1 WORK INCIDENTAL TO THE CONTRACT PRICE

- A. No separate measurement or payment will be made for Work called for in Division 0 or Division 1 of the Specifications, unless specifically covered under the Bid items listed below. All costs associated with this Work will be considered incidental to the Contract Bid price.
- B. Division 2 through Division 13 Work will be measured and paid for at the Contractor's unit Bid price or lump sum item cost as indicated on the Bid form. Those payable Work items, and related prices as Bid, will be the basis for all compensation to the Contractor for Work performed under this Contract. Work not specifically included as a Bid item, but which is required to properly and satisfactorily complete the Work is considered ancillary and incidental to the Bid item Work, and payment for such Work is considered to be included in the values as Bid for payable items. Compensation for all unit Bid price Work will be made based on the measured quantity of Work under the appropriate Bid items.

## 1.2 MOBILIZATION AND DEMOBILIZATION (ITEM 1)

- A. Measurement
  - 1. There will be no measurement for the mobilization and demobilization to the Site as this Work will be on a lump sum basis.
- B. Payment
  - 1. Payment of the lump sum Bid price will be paid in two equal installments. The first installment will occur at the time the first payment requisition is submitted after the Contractor has initiated full-time construction activity. Payment for the second installment will be included in the first payment request after Substantial Completion has been reached and all equipment has been removed from the Site. In no case will the total of both installments exceed 5 percent of the base Bid price.

## 1.3 ACCESS MANHOLE EXTENSION (ITEM 2)

- A. Measurement
  - 1. Measurement for access manhole extensions will be a count of the number of access manhole extensions provided in accordance with the standard detail shown on the Drawings.
- B. Payment
  - 1. Payment of the Bid price for each access manhole extension will be full compensation for removal and proper disposal of existing access manholes, modified watertight lockable manhole frames and hatches, concrete, reinforcement, gaskets, caulking, epoxy, concrete bonding agent, and all other ancillary items as shown on the standard detail; all excavation, backfill, and compaction; all loam and seed restoration; and all labor, equipment, and other materials required for or incidental to the Work.

2. Payment of the Bid price for each access manhole extension will also be full compensation for all struts, bolts, junction boxes, conduit, wiring, and all other ancillary items to reinstall existing electrical conduit and junction boxes on select access manholes; and all labor, equipment, and other materials required for or incidental to the Work.

#### 1.4 ACCESS MANHOLE SAFETY SYSTEM (ITEM 3)

##### A. Measurement

1. Measurement for access manhole safety system will be a count of the number of safety gates provided in accordance with the standard detail shown on the Drawings.

##### B. Payment

1. Payment of the Bid price for each access manhole safety system will be full compensation for safety gates and all ancillary hardware; and all labor, equipment, and other materials required for or incidental to the Work.

#### 1.5 POLYOLEFIN WATERPROOFING TAPE AND EPOXY ADHESIVE (ITEM 4)

##### A. Measurement

1. Measurement for polyolefin waterproofing tape and epoxy adhesive will be on a linear foot basis and will be along the ground surface above and parallel to the polyolefin waterproofing tape and epoxy adhesive.

##### B. Payment

1. Payment of the Bid price for polyolefin waterproofing tape and epoxy adhesive will be full compensation for polyolefin waterproofing tape and epoxy adhesive; all excavation, backfill, and compaction; removal and proper disposal of any existing expansion joint materials; cleaning and prepping of the existing concrete surface; all loam and seed restoration; gravel access roadway repair; and all labor, equipment and materials required for or incidental to the Work.
2. Payment of the Bid price for polyolefin waterproofing tape and epoxy adhesive will also be full compensation for disposal of asbestos containing material (ACM) asphalt strips where encountered; and all labor, equipment, and other materials required for or incidental to the Work.

#### 1.6 OVERFLOW HEADWALL IMPROVEMENTS (ITEM 5)

##### A. Measurement

1. Measurement for outfall headwall improvements will be on a count of the number of outfall headwall improvements provided in accordance with the standard detail shown on the drawings.

##### B. Payment

1. Payment of the Bid price for outfall headwall improvements will be full compensation for removal and proper disposal of the existing flap gates, repairs to the existing headwall concrete faces, ductile iron piping and bends, gaskets, mesh screens, rebar, concrete, concrete bonding agent, joint filler, borrow, bituminous pavement, tack coat, and all other ancillary materials as shown on the standard detail; all excavation, backfill, and compaction; any required restoration



work; and all labor, equipment and materials required for or incidental to the Work.

#### 1.7 STRAW WATTLE (ITEM 6)

##### A. Measurement

1. Measurement for straw wattle will be on a linear foot basis. The length of straw wattle will be the actual approved length of straw wattle measured in place by the Engineer.

##### B. Payment

1. Payment of the Bid price for straw wattle will be full compensation for installation and removal of the straw wattles, and the restoration of the area disturbed by their placement including all labor, equipment and materials required for or incidental to the Work.

#### 1.8 MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL (ITEM 7)

##### A. Measurement

1. This Contract contains a price adjustment for diesel fuel. The value provided in the Bid Form is an allowance for budgeting purposes only. The value is neither a limit nor a guarantee of payment. Payment to the Contractor for increases in the price of diesel fuel, or credits due to the Owner for decreases in the price of diesel fuel, will be determined in accordance with the following procedure.
  - a. The Base Price for diesel fuel for this Project will be \$3.410 per gallon.
  - b. The price adjustment shall be based on the variance in price for diesel fuel from the Base Price to the Period Price and shall occur on a monthly basis.
  - c. The Period Price shall be as published by the Massachusetts Department of Transportation for the calendar month in which the Work was completed.
  - d. The price adjustment will be determined by multiplying the number of cubic yards of excavation and borrow (as defined in the next paragraph) paid during each one-month period by 0.29 gallons per cubic yard. The total number of gallons calculated shall then be multiplied by the variance in price between Base Price and Period Price of diesel fuel.
  - e. Excavation and borrow paid under the following Item shall be used to calculate the amount of diesel fuel as described in the above paragraph: cubic yards of excavation for polyolefin waterproofing tape and epoxy adhesive, limited to a 5-foot maximum trench width. When the actual trench width is less than the maximum trench width, the actual width shall be used.
  - f. The price adjustment will be paid only if the variance of the Period Price from the Base Price is 5 percent or more for a given month. The adjustment will be paid with no deduction of the 5 percent from either upward or downward adjustments.
2. No price adjustments will be made for Work completed beyond the date of Final Completion.

## 1.9 MONTHLY PRICE ADJUSTMENT FOR GASOLINE (ITEM 8)

## A. Measurement

1. This Contract contains a price adjustment for gasoline. The value provided in the Bid Form is an allowance for budgeting purposes only. The value is neither a limit nor a guarantee of payment. Payment to the Contractor for increases in the price of gasoline, or credits due to the Owner for decreases in the price of gasoline, will be determined in accordance with the following procedure.
  - a. The Base Price for gasoline for this Project will be \$2.597 per gallon.
  - b. The price adjustment shall be based on the variance in price for gasoline from the Base Price to the Period Price and shall occur on a monthly basis.
  - c. The Period Price shall be as published by the Massachusetts Department of Transportation for the calendar month in which the Work was completed.
  - d. The price adjustment will be determined by multiplying the number of cubic yards of excavation and borrow (as defined in the next paragraph) paid during each one-month period by 0.15 gallons per cubic yard, multiplied by the variance in price between Base Price and Period Price of gasoline.
  - e. Excavation and borrow paid under the following Item shall be used to calculate the amount of gasoline as described in the above paragraph: cubic yards of excavation for polyolefin waterproofing tape and epoxy adhesive, limited to a 5-foot maximum trench width. When the actual trench width is less than the maximum trench width, the actual width shall be used.
  - f. The price adjustment will be paid only if the variance of the Period Price from the Base Price is 5 percent or more for a given month. The adjustment will be paid with no deduction of the 5 percent from either upward or downward adjustments.
2. No price adjustments will be made for Work completed beyond the date of Final Completion.

## 1.10 MONTHLY PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL (ITEM 9)

## A. Measurement

1. This Contract contains a price adjustment for structural steel and reinforcing steel. The value provided in the Bid Form is an allowance for budgeting purposes only. The value is neither a limit nor a guarantee of payment. Payment to the Contractor for increases in the price of structural steel and reinforcing steel, or credits due to the Owner for decreases in the price of structural steel and reinforcing steel, will be determined in accordance with the following procedure.
  - a. The Base Price for structural steel and reinforcing steel for this Project shall be \$1.58 per pound. Price adjustments will be handled as described below and shall only apply to unfabricated structural steel material, consisting of rolled shapes, plate steel, sheet piling, pipe piles, steel castings and steel forgings, and unfabricated reinforcing steel bars.

- b. The Base Price Date is the month and year in which bids are opened for the project. This date is used to select the Base Price Index.
- c. Period Prices of unfabricated structural steel and unfabricated reinforcing steel on a project are variable prices calculated based on the purchase date of the steel (Period Price Date) using an index of steel prices to adjust the Base Price.
- d. 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.
- e. The index used for the calculation of Period Prices is the U.S. Bureau of Labor Statistics (BLS) 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 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)”.
- f. Period Prices are determined as follows:  

$$\text{Period Price} = \text{Base Price} \times \text{Index Factor}$$

$$\text{Index Factor} = \text{Period Price Index} / \text{Base Price Index}$$
- g. The price adjustment will be paid only if the variance of the Period Price from the Base Price is 5 percent or more for a given month. The adjustment will be paid with no deduction of the 5 percent from either upward or downward adjustments.
- h. Price adjustments will be calculated by multiplying the number of pounds of unfabricated structural steel material or unfabricated reinforcing steel bars subject to a price adjustment by the index factor calculated as shown above.
- i. Price adjustments will not include 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.
- j. The weight of steel subject to a price adjustment shall not exceed the final shipping weight of the fabricated part by more than 10%.

B. No price adjustments will be made for Work completed beyond the date of Final Completion.

1.11 MONTHLY PRICE ADJUSTMENT FOR PORTLAND CEMENT IN CONCRETE (ITEM 10)

A. Measurement

- 1. This Contract contains a price adjustment for Portland cement contained in cast-in-place concrete. The value provided in the Bid Form is an allowance for

budgeting purposes only. The value is neither a limit nor a guarantee of payment. Payment to the Contractor for increases in the price of Portland cement, or credits due to the Owner for decreases in the price of Portland cement, will be determined in accordance with the following procedure.

- a. The Base Price for Portland cement for this Project will be \$181.15 per ton.
- b. The price adjustment shall be based on the variance in price for the Portland cement component only of cast-in-place concrete from the Base Price to the Period Price. It shall not include transportation or other charges. The price adjustment shall occur on a monthly basis.
- c. The Period Price shall be as published by the Massachusetts Department of Transportation for the calendar month in which the Work was completed.
- d. The Contract price adjustment will be paid only for the Portland cement component of cast-in-place concrete paid under the following Items: access manhole extensions and outfall headwall improvements.
- e. For the aforementioned items subject to the Contract price adjustment, the Portland cement content of cast-in-place concrete mixtures shall be calculated based on 0.305 tons of Portland cement per cubic yard of cast-in-place concrete, regardless of actual Portland cement content of individual concrete mix designs.
- f. The price adjustment will be determined by multiplying the number of cubic yards of cast-in-place concrete paid during each one-month period by the Portland cement content, times the variance in price between Base Price and Period Price of Portland cement.
- g. The price adjustment will be paid only if the variance of the Period Price from the Base Price is 5 percent or more for a given month. The adjustment will be paid with no deduction of the 5 percent from either upward or downward adjustments.

- B. No price adjustments will be made for Work completed beyond the date of Final Completion.

#### 1.12 MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES (ITEM 11)

##### A. Measurement

1. This Contract contains a price adjustment for bituminous concrete (hot mix asphalt) mixtures. The value provided in the Bid Form is an allowance for budgeting purposes only. The value is neither a limit nor a guarantee of payment. Payment to the Contractor for increases in the price of liquid asphalt, or credits due to the Owner for decreases in the price of liquid asphalt, will be determined in accordance with the following procedure.
  - a. The Base Price for liquid asphalt for this Project will be \$637.50 per ton.
  - b. The price adjustment shall be based on the variance in price for the liquid asphalt component only of hot mix asphalt from the Base Price to the

Period Price. It shall not include transportation or other charges. The price adjustment shall occur on a monthly basis.

- c. The Period Price shall be as published by the Massachusetts Department of Transportation for the calendar month in which the Work was completed.
- d. The Contract price adjustment will be paid only for the liquid asphalt contained in the hot mix asphalt paid under the following Items: outfall headwall improvements.
- e. For the aforementioned items subject to the Contract price adjustment, the liquid asphalt content of hot mix asphalt mixtures shall be calculated based on 5.5% (0.055) by weight regardless of percentages established in individual job mix formulas.
- f. The price adjustment will be determined by multiplying the number of tons of hot mix asphalt paid during each one-month period by the liquid asphalt content times the variance in price between Base Price and Period Price of liquid asphalt.
- g. The price adjustment will be paid only if the variance of the Period Price from the Base Price is 5 percent or more for a given month. The adjustment will be paid with no deduction of the 5 percent from either upward or downward adjustments.

- 2. No price adjustments will be made for Work completed beyond the date of Final Completion.

1.13 DEMOLITION OF EXISTING CHAIN LINK FENCE (ITEM 12) – BID ALTERNATE 1

A. Measurement

- 1. Measurement for demolition of existing chain link fence will be on a linear foot basis and will be along the length of the existing fence without deducting lengths for gates.

B. Payment

- 1. Payment of the Bid price for demolition of existing chain link fence will be full compensation for removal and proper disposal of existing chain link fencing; all excavation, backfill, and compaction; all loam and seed restoration; grout; and all labor, equipment, and other materials required for or incidental to the Work.

1.14 CHAIN LINK FENCE (ITEM 13) - BID ALTERNATE 1

A. Measurement

- 1. Measurement for chain link fence will be on a linear foot basis and will be along the length of the fence without deducting lengths for gates.

B. Payment

- 1. Payment of the Bid price for chain link fence will be full compensation for precast concrete blocks, concrete, rebar, posts, rails, gates, fabric, barb wire, and all ancillary hardware; and all labor, equipment and materials required for or incidental to the Work.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

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(Reservoir Improvements)\DIV 1\01270 Measurement and Payment.docx

## SECTION 01310

## COORDINATION

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Project Management
  - 2. Coordination
  - 3. Project Meetings
- B. Related Requirements
  - 1. Section 01140 - Work Restrictions
  - 2. Section 01325 - Scheduling of Construction
- C. Related Work Not Included
  - 1. Operation of existing facilities will be performed by the Owner unless otherwise specified. The Owner will assist in arranging operation of any existing facilities or equipment required by the Contractor to connect to existing facilities, and the Contractor shall not operate existing valves or equipment. Only the Owner will operate Owner valves.

## 1.2 SUBMITTALS

- A. Incorporate the requirements of this Section, as well as Work which may impact the existing system operation, or the operations of any adjacent utility, in the project schedule submitted under Section 01325.
- B. Informational Submittals
  - 1. At the pre-construction conference, supply to the Owner the cell phone number of a responsible person who may be contacted during off-hours for emergencies 24 hours a day, seven days a week.
  - 2. Prepare a contact list of phone numbers, including cell phone numbers, and emails for all Project personnel and submit to the Engineer at the pre-construction conference. Include Contractor, Owner, Engineer, police, fire, and ambulance.

## 1.3 PROJECT MANAGEMENT

- A. Complete the Work in a continuous uninterrupted operation. Use sufficient personnel and adequate equipment to complete the Work within the Contract Time.

## 1.4 COORDINATION

- A. Do not interfere with the operation of the existing facilities.
- B. Coordinate with appropriate utility companies, as well as with the Owner, where the Work crosses or is adjacent to existing utilities.

## 1.5 PROJECT MEETINGS

**A. Pre-Construction Conference**

1. The Contractor shall be prepared to discuss the following subjects at the Pre-Construction Conference. Documentation for these items is required to be submitted within the time frames included in individual specification sections.
  - a. Project scheduling
  - b. Sequencing of critical path Work items
  - c. Shop Drawing procedures
  - d. Project changes and clarification procedures
  - e. Use of sites, access to Work areas, office and storage areas, security and temporary facilities
  - f. Contractor safety plan and representative
  - g. Progress payments and procedures
  - h. Required documentation
  - i. Project personnel contact list

**B. Progress Meetings**

1. Progress meetings will be held monthly and at other times as requested by the Owner or as required by the Progress of the Work.
2. The Contractor's Superintendent shall attend all progress meetings.
3. At a minimum, progress meetings will review Work progress, schedule, Shop Drawing submission schedule, Applications for Payment, and other matters needing discussion and resolution.
4. Review the schedule with all parties to be affected by upcoming work.
5. Review the monthly construction report required under Section 01325.

**PART 2 PRODUCTS - NOT USED****PART 3 EXECUTION****3.1 GENERAL**

- A. Notify DIGSAFE at 1-888-344-7233 at least 72 hours prior to any digging, trenching, rock removal, demolition, borings, backfill, grading, landscaping, or any other earth moving operations.

**3.2 COORDINATION WITH THE OWNER'S OPERATIONS**

- A. Notify the Owner and Engineer, in writing, a minimum of 1 week before commencing any work which may affect the Owner's operations.
- B. Perform all construction activities so as to avoid interference with operations of the facility and the work of others.
- C. Coordinate the following operations with the Owner and the Engineer:
  1. Operation of existing valves. The opening and closing of existing valves will be performed by the Owner.



2. Operation of the existing facility. The Owner will operate all existing facilities. Do not operate any existing equipment without the Owner's approval. The Owner will operate existing facilities or equipment that may be required in order for the Contractor to make connections to existing facilities.
- D. The Owner has the authority to order the Work stopped which could unreasonably result in stopping the necessary functions of the existing facility. Any costs and/or delays associated with these work stoppages due to the Contractor's operation shall be borne by the Contractor.

### 3.3 SEQUENCE OF CONSTRUCTION

- A. Constructing the proposed improvements while maintaining existing operations will require a specific sequence of construction. The Contractor will be allowed reasonable flexibility in scheduling the construction activities. Provide a detailed construction schedule as required in Section 01325.

END OF SECTION

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## SECTION 01320

## CONSTRUCTION PHOTOGRAPHS

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Photographs taken at specified intervals before, during, and after construction.

## 1.2 SUBMITTALS

## A. Informational Submittals

1. Submit electronic files of each photograph on a CD, USB flash drive, or upload to Procore.

## PART 2 PRODUCTS

## 2.1 CONSTRUCTION PHOTOGRAPHS

- A. Electronic files shall be in .jpg format.

## PART 3 EXECUTION

## 3.1 PRE-CONSTRUCTION PHOTOGRAPHY

- A. Prior to the commencement of any Work under this Contract, take photographs at each manhole access way, each overflow pipe headwall, and across both reservoir tops capturing all the areas where the work will be occurring. Additionally, take photographs of any existing site features that were damaged prior to the commencement of any Work. The photographs will serve as a record of the original conditions where construction activities will occur.
- B. The area to be photographed shall include, but not be limited to, the area within and adjacent to the proposed construction, including roadways, utilities, driveways, landscaping, trees, structures and buildings.
- C. Provide a minimum of 100 preconstruction photographs, or more as required to document the preconstruction condition of the Site and adjacent properties.

## 3.2 PROGRESS PHOTOGRAPHY

- A. Take construction photographs of active work areas at least every week throughout the life of the Contract. The photographs shall be indicative of the work that is currently in progress. A minimum of 50 photographs shall be taken weekly at each location where Work is in progress.
- B. Take photographs of each hypalon tape strip prior to backfilling and each access manhole prior to pouring concrete.
- C. Take photographs of any items that will be buried or covered upon completion of the Work.

## 3.3 POST-CONSTRUCTION PHOTOGRAPHY

- A. Provide post construction photography after all Work has been completed at each location. The locations to be photographed and the number of photographs required shall be as specified in Paragraph 3.1 for the preconstruction photography.

END OF SECTION

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## SECTION 01325

## SCHEDULING OF CONSTRUCTION

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Progress Schedule
- B. Related Requirements
  - 1. Section 01140 - Work Restrictions
  - 2. Section 01310 - Coordination

## 1.2 REFERENCES

- A. The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry, an Associated General Contractors (AGC) of America publication.

## 1.3 PROGRESS SCHEDULE

- A. Graphically show the order and interdependence of activities, sequence of Work, how the start of a given activity depends on completion of preceding activities, and how completion of an activity may restrain the start of subsequent activities.
- B. The Work shall be planned by the Contractor and his Project field superintendent in coordination with all Subcontractors and Suppliers whose Work is shown on the Progress Schedule.
- C. Include, at a minimum, the following activities on the Progress Schedule:
  - 1. Project mobilization
  - 2. Submittal and approval of Shop Drawings
  - 3. Procurement of equipment and critical materials
  - 4. Installation of equipment and critical materials
  - 5. Fabrication of special equipment and material, and its installation and testing
  - 6. Final inspecting and testing
  - 7. Punchlist
  - 8. Final cleanup
  - 9. Other activities that may be critical to the Progress Schedule
  - 10. All activities of the Owner and the Engineer which affect progress and/or affect required dates for completion of the Work
- D. Take into consideration Shop Drawing submittal and approval time, the delivery times of equipment and materials, Subcontractors' Work, availability and abilities of workmen, weather conditions, any restrictions in operations at the Work site, and all other items that may affect completion of the Work within the Contract Time.

- E. The Progress Schedule shall reflect the requirements and constraints outlined in Section 01310, Coordination.
- F. The Progress Schedule shall reflect Work restrictions outlined in Section 01140.
- G. Show information in such detail that duration times of activities will range from one to 15 days. The selection and number of activities shall be subject to the approval of the Owner and Engineer.
- H. The Progress Schedule should show description of each activity, and activity duration in calendar days.
- I. Submit the Progress Schedule on maximum sheet size 30-inches high by the width required.

#### 1.4 SUBMITTALS

##### A. Informational Submittals

1. Submit four prints of the preliminary Progress Schedule prepared in accordance with Article 2.05 of Section 00700 and the requirements of this section. Progress schedule must be submitted within 10 days after the Effective Date of the Agreement. Progress Schedule must be approved by the Owner and Engineer before the first progress payment will be made.
2. Revised analyses - Within 10 days after receipt of the review comments, submit four prints of the Progress Schedule revised in accordance with those comments.
3. Periodic reports - On the first progress meeting of each month, submit four prints of the updated Progress Schedule, as well as a report of construction activities in the prior month.
4. Before initiating the Work, submit an estimated monthly rate of Contractor payments for the project. If the payment schedule deviates from the original projection, submit a revised rate of expenditure schedule.

#### 1.5 PERIODIC REPORTS

- A. At the first scheduled progress meeting of each month, present four copies of a construction report which details the Work performed during the preceding period. The report shall include the following at a minimum:
  1. Actual progress of Work. Update the Progress Schedule accordingly.
  2. The Progress Schedule, or revised Progress Schedule, should show the portions of the Progress Schedule impacted by the Work progress.
  3. Activities or portions of activities completed during the reporting period, and their total value as basis for Contractor's periodic request for payment. Payment made will be based on the total value of such activities completed or partially completed after verification by the Engineer.
  4. State the percentage of the Work actually completed and scheduled as of the report date, and the progress along the critical path in terms of days ahead of or behind the dates defined in the Progress Schedule.
  5. If the Work is behind the dates set forth in the Progress Schedule, also report progress along other paths with negative slack.
  6. Include a narrative which includes:

- a. A description of problem areas, anticipated and current
- b. Delaying factors and their impact
- c. An explanation of corrective actions taken or proposed

7. Show the date of latest revision.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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## SECTION 01330

## SUBMITTAL PROCEDURES

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Action Submittals
  - 2. Informational Submittals

## 1.2 DEFINITIONS

- A. Action Submittals – includes written and graphic information submitted by Contractor that requires Engineer’s approval.
- B. Informational Submittals – includes information submitted by Contractor that does not require Engineer’s approval. The Engineer will acknowledge receipt of such documents and provide comments when the submittals lack the detail required by the Contract Documents.

## 1.3 ACTION SUBMITTALS

- A. Shop Drawings
  - 1. Shop Drawings as defined in the General Conditions, and as specified in individual work sections include, but are not necessarily limited to, custom-prepared data such as fabrication and erection/installation drawings, schedule information, piece part drawings, actual shop work manufacturing instructions, special wiring diagrams, coordination drawings, individual system or equipment inspection and test reports including performance curves and certification, as applicable to the Work.
  - 2. Shop Drawings shall be of standardized sizes to enable the Owner to maintain a permanent record of the submissions. Approved standard size drawings shall be
    - a. 24 inches by 36 inches
    - b. 22 inches by 34 inches
    - c. 11 inches by 17 inches
    - d. 8.5 inches by 11 inches
  - 3. Submit Shop Drawings at the proper time to prevent delays in delivery of materials. Coordinate submittals for related or interdependent equipment.
  - 4. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents.
  - 5. Check all Shop Drawings regarding measurements, size of members, materials, and details to determine if they conform to the Contract Documents. Shop Drawings found to be inaccurate, not in compliance, or otherwise in error shall be returned to the Subcontractors or Suppliers for correction before submission to the Engineer. Drawings that are current shall be marked with the date, name, and approval stamp of the Contractor.

6. All details on Shop Drawings submitted for approval shall show clearly the relation of the various parts to the main members and lines of the structure, and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the Shop Drawings before being submitted for approval.
  7. Detailed installation drawings (sewers, equipment, piping, electrical conduits and controls, HVAC work, and plumbing, etc.) shall be drawn to scale and fully dimensioned.
  8. No material or equipment shall be purchased or fabricated until the required Shop Drawings have been submitted and approved. Materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by the Shop Drawings.
  9. Until the necessary approval has been given, do not proceed with any portion of the work, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which approval is required.
  10. If submitted equipment requires modifications to the structures, piping, layout, or other details shown on the Drawings, details of the proposed modifications must also be submitted for approval. If such equipment and modifications are approved, perform all Work necessary to make such modifications at no additional cost to the Owner.
- B. Product Data: Product data as specified in individual Sections, include, but are not necessarily limited to, standard prepared data for manufactured products (catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing-in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational-range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare-parts listing, and printed product warranties, as applicable to the Work.
- C. Samples and color selection charts: Provide sample, when requested by individual Specification to establish conformance with the Specifications, and as necessary to define color, texture and pattern selections available.
- D. Product Substitutions: In accordance with Section 01630.
- E. Operation and Maintenance Manuals: In accordance with Section 01770.
- F. Schedule of Values: In accordance with Section 01295.
- G. Site Usage Plan: In accordance with Section 01140.
- 1.4 INFORMATIONAL SUBMITTALS
- A. Schedule of Submittals
    1. Submit a preliminary Schedule of Submittals within 10 days of the Effective Date of the Agreement in accordance with Article 2.05 of Section 00700.
  - B. Schedule of Manufacturers and Suppliers



1. Submit a schedule of manufacturers and Suppliers within 7 days after Notice to Proceed including the names and addresses of the manufacturers and Suppliers of materials and equipment to be incorporated into the Work.
- C. Schedule of Major Products
1. Submit a schedule of major products within 30 days after Notice to Proceed including a complete list of major products proposed for use, with specification section number, name of manufacturer, trade name, and model number of each product.
- D. Product Listing and Manufacturers Qualifications
1. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation and reference standards. Specifically identify the products, the anticipated schedule for delivery and storage, and the estimated value thereof for materials which the Contractor intends to request approval for off-site storage.
- E. Certificates of Compliance
1. General:
    - a. Submit sworn certificates from the manufacturer or material supplier that the materials and fabrications provided under the Specification section conform with the Contract Documents.
    - b. Certificates shall be signed by an officer of the manufacturer's corporation and witnessed by a Notary Public.
  2. Welding: Submit in accordance with individual Specification sections.
  3. Installer: Prepare written statements on manufacturer's letterhead certifying that installer complies with requirements as specified in individual Specification sections.
  4. Material Test: Prepared by qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
  5. Certificates of Successful Testing or Inspection: Submit when testing or inspection is required by Laws and Regulations or governing agency, or when specified in individual Specification sections.
  6. Manufacturer's Certificate of Compliance: In accordance with individual Specification sections.
- F. Application for Payment
1. Submit applications for payment in accordance with Section 01270, Measurement and Payment.
  2. Submit schedule of stored materials when requesting payment for materials not yet installed.
- G. Construction Photography: Provide preconstruction, progress, and post-construction photography in accordance with Sections 01320.
- H. Contract Closeout Submittals: In accordance with Section 01770.

- I. Contractor Design Data
  - 1. Written and graphic information
  - 2. List of assumptions
  - 3. List of performance and design criteria
  - 4. Summary of loads or load diagram
  - 5. Calculations
  - 6. List of applicable codes and regulations
  - 7. Name and version of software
  - 8. Information requested in individual Specification section
- J. Manufacturer's Instructions: Written or published information that documents manufacturer's recommendations, guidelines, and procedures in accordance with individual Specification sections.
- K. Schedules - Submit construction progress schedules and schedule updates in accordance with Section 01325.
- L. Statement of Qualifications: Submit evidence of qualification, certification, or registration as required in Contract Documents to verify qualifications of professional land surveyor, engineer, materials testing laboratory, specialty subcontractor, trade, specialist, consultant, installer, and other professionals.
- M. Submittals Required by Laws, Regulations, and Governing Agencies
  - 1. Submit promptly notifications, reports, certifications, payrolls, and other required information as may be required, directly to the applicable federal, state, or local governing agency or their representative.
  - 2. Transmit to Engineer for Owner's records, one copy of correspondence and transmittals (including enclosures and attachments) between Contractor and governing agency.
- N. Test and Inspection Reports
  - 1. Submit test and inspection reports as required by individual Specification sections.
  - 2. Test and inspection reports shall contain signature of person responsible for test or report.
  - 3. Reports shall include identification of product and Specification, project name, date and time of test, type of test, location, test results, corrective action required if report indicates test is not in compliance with Contract Documents, interpretation of test results, and other information as required in individual Specification sections.
- O. Health & Safety Plans: When specified in individual Specification sections, prepare and submit a Health and Safety Plan modified or supplemented to include job-specific considerations.

- P. Submittals stamped by another Professional Engineer: When specified in individual Specification sections, prepare and submit calculations and/or drawings stamped by a Professional Engineer licensed in the State where the work is being performed.
- Q. Coordination Drawings: When specified in individual Specification sections, prepare and submit drawings to show how multiple system and interdisciplinary work will be coordinated. Examples are conduit routing diagrams, duct layouts, utility coordination drawings, sprinkler plans etc.
- R. Work Plans: When specified in individual Specification sections, prepare and submit copies of all work plans needed to demonstrate to the Owner that Contractor has adequately thought-out the means and methods of construction and their interface with existing facilities.
- S. Erosion Control Plan: When specified in Contract Documents or required by local ordinances or regulations, prepare and submit copies of erosion control plans.
- T. Shutdown Requests: Submit notification of any outages required (electrical, flow processes, etc.) as may be required to tie-in new work into existing facilities. Unless otherwise specified, provide outage requests a minimum of 7 days' notice shall be provided.
- U. Equipment Data: When specified in other Specification sections, information on equipment used by the Contractor to complete the Work, such as compaction equipment and closed-circuit television inspection equipment.

## 1.5 PROCEDURES

- A. Coordination
  - 1. Prepare and submit documentation in advance of fabrication and product manufacturer, so that the installation will not be delayed, other related work can be properly coordinated, and there is adequate time for review and resubmission, if required.
  - 2. Provide no less than 30 days for review of submittals from the time received by the Engineer. For submittals of major equipment, that require more than 30 days to review, due to complexity and detail or those requiring review by multiple engineering disciplines, Engineer will notify Contractor of the circumstances and identify the anticipated date when the submittal will be returned.
  - 3. Re-submittals will be subject to same review time.
  - 4. No extension of time will be authorized due to failure to provide approvable submittals sufficiently in advance of the Work.
- B. Review Shop Drawings, product data, and samples prior to submission and verify and determine:
  - 1. Field measurements
  - 2. Conformance with the Contract Documents. Advise the Engineer in writing of any deviations from the requirements of the Contract Documents.
  - 3. Delete or strike out information that is not applicable to the Work.

- C. Upload the electronic submittal files via Procore. Access to Procore will be provided by the Engineer. Files must be in .pdf format. The submittals will be returned in electronic .pdf format via Procore.
- D. In addition to the electronic submission requirement, submit hard copies of each submittal upon request.
1. Samples – Provide one unless otherwise noted in the individual Specification section. Sample will be retained by Engineer in the field.
- E. Numbering: Submissions shall be accompanied by a transmittal form referencing the project name and applicable Specification section. Submittals shall be numbered sequentially, with the applicable Specification section and a hyphen preceding the number. (e.g. Submittal number 11330-01). Resubmittals shall bear the same transmittal number with a revision number commencing with "1" (e.g. Submittal number 11330-01-1).
- F. Provide a copy of the Submittal Certification Form (copy attached at the end of this section) which shall be attached to every copy of each submittal as required under Article 7.16 A.2 of Section 00700. Apply the Contractor's stamp and initials or signature certifying that the submission has been thoroughly reviewed for completeness, compliance with the Contract Documents, coordination with adjacent construction and dimensional compatibility. Items submitted without the stamp or that are incomplete will be returned by the Engineer for rework and resubmission.
- G. Provide a copy of the PE Certification Form (copy attached at the end of this section) which shall be attached to every copy of each submittal stamped by another Professional Engineer. Items submitted without the completed certification form will be returned by the Engineer for resubmission.
- H. Distribute copies of reviewed submittals along with the Engineer's transmittal to concerned parties with instructions to promptly report any inability to comply with the provisions or integrate the requirements with interfacing work.
- I. Partial and Incomplete Submittals
1. Shop Drawings shall be submitted as a complete package by Specification section, unless otherwise reviewed and approved by the Engineer. It is the intent that all information, materials, and samples associated with each Specification section be included as a single submittal for the Engineer's review.
  2. Engineer will return entire submittals if preliminary review deems it incomplete including:
    - a. Missing or incomplete Submittal Certification Form
    - b. Insufficient number of copies
    - c. Missing content
  3. Partial submittals may be considered, at Engineer's option, only when necessary to expedite the Project.
  4. Partial submittals shall be clearly identified as such on the transmittal to identify missing components.

- J. Submittals not required by the Specification will be returned without review or action code.
- K. Resubmission
  - 1. Make corrections and modifications required by the Engineer and resubmit until approved.
  - 2. Clearly identify changes made to submittals and indicate other changes that have been made other than those requested by the Engineer.
  - 3. A maximum of two re-submissions of each shop drawing will be reviewed, checked and commented upon without charge to the Contractor (total of 3 submittals). Any additional submissions which are required by the Engineer to fulfill the stipulations of the Contract Documents will be charged to the Contractor as described in paragraph 7.16.E.2 of Section 00700.
- L. Distribution
  - 1. Distribute approved Shop Drawings and approved product data to the Project Site and elsewhere as required to communicate the information to Suppliers, Subcontractors, and field personnel.

#### 1.6 ENGINEER'S REVIEW

- A. The Engineer will review submittals for design, general methods of construction and detailing. The Engineer's review and approval of submittals shall not be construed as a complete check nor does it relieve the Contractor from responsibility for any departures or deviations from the requirements of the Contract Documents unless he has, in writing, called the Engineer's attention to such deviations at the time of submission. It will not extend to means, methods, technique, sequences, or procedures of construction (except where specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto.
- B. The Engineer's review of the submittals shall not relieve the Contractor from the responsibility for proper fitting of the Work, or the responsibility of furnishing any work required by the Contract Documents which may not be indicated on the submittals. The Contractor shall be solely responsible for any quantities shown on the submittals.
- C. If the Contractor considers any correction indicated on the submittals to constitute a change to the Contract Documents, the Contractor shall provide written notice to the Engineer at least 7 working days prior to release for manufacture.
- D. When the submittals have been completed to the satisfaction of the Engineer, the Contractor shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the Engineer.
- E. Action submittals as defined in paragraph 1.2 will be reviewed and returned under one of the following codes:
  - 1. Approved (Action Code 1) is assigned when there are no notations or comments on the submittal. Equipment or materials may be released for manufacture, provided that it complies with requirements of the Contract Documents.
  - 2. Approved as Noted (Action Code 2) is assigned when there are notations or comments on the submittal, but the equipment or materials may still be released

for manufacture. All notations and comments must be incorporated in the final product. Resubmission is not necessary.

3. Revise and Resubmit (Action Code 3) is assigned when there are notations and comments requiring a resubmittal of the package. Work cannot proceed until the submittal is revised and resubmitted for review.
  4. Not Approved (Action Code 4) is assigned when the submittal contains non-specified items or does not meet the requirements of the Contract Documents. It may also be assigned when there is a significant amount of missing material required for the Engineer to perform a complete review. The entire package must be resubmitted, revised to bring the submittal into conformance. It may be necessary to resubmit using a different manufacturer/vendor to meet the requirements of the Contract Documents.
- F. Informational submittals as defined in paragraph 1.2 do not require approval by the Engineer. Such submittals will be returned under one of the following codes:
1. Receipt Acknowledged (Action Code 5) is assigned when the submittal is provided for documentation purposes and is acknowledged as received. Comments may be noted using this action code.
  2. Revise and Resubmit (Action Code 6) is assigned when there are notations and comments requiring a resubmittal of the package.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

\\tighebond.com\data\Data\Projects\S\S2057 SWSC\067 - Provin Reservoirs Facility  
Improvements\Design\Specifications\Contract 1 (Reservoir Improvements)\DIV 1\01330 Submittal  
Procedures.docx

**SUBMITTAL CERTIFICATION FORM**

PROJECT: \_\_\_\_\_  
ENGINEER: \_\_\_\_\_ ENGINEER'S PROJECT NO.: \_\_\_\_\_  
CONTRACTOR: \_\_\_\_\_ CONTRACTOR'S PROJECT  
NO.: \_\_\_\_\_

TRANSMITTAL NO.: \_\_\_\_\_ SUBMITTAL NO.: \_\_\_\_\_  
SPECIFICATION NO.: \_\_\_\_\_ DRAWING NO: \_\_\_\_\_  
DESCRIPTION: \_\_\_\_\_  
MANUFACTURER: \_\_\_\_\_

The above referenced submittal has been reviewed by the undersigned and I/we certify that the materials and/or equipment meets or exceeds the project specification requirements; that field measurements, dimensions, quantities, specified performance criteria, installation requirements, materials, catalog numbers and related materials have been verified; that all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the work has been determined and verified; that review includes all information related to the contractor's sole responsibility for means, methods, techniques, sequences, and procedures of construction and safety; and item has been coordinated with the overall project with:

NO DEVIATIONS

A COMPLETE LIST OF DEVIATIONS AS FOLLOWS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SUBMITTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

GENERAL CONTRACTOR'S STAMP
----------------------------

**PE CERTIFICATION FORM**

The undersigned hereby certifies that he/she is a Professional Engineer registered in the Commonwealth of Massachusetts and that he/she has been employed by

\_\_\_\_\_ to design  
(Name of Contractor)

\_\_\_\_\_  
(Insert PE Responsibilities)

In accordance with Specification section \_\_\_\_\_ for the

\_\_\_\_\_  
(Name of Project)

The undersigned further certifies that he/she has performed the said design in conformance with all applicable local, state and federal codes, rules and regulations; and, that his/her signature and PE stamp have been affixed to all calculations and drawings used in, and resulting from, the design.

The undersigned hereby agrees to make all original design drawings and calculations available to the

\_\_\_\_\_  
(Insert Name of Owner)

or Owner's representative within seven days following written request therefor by the Owner.

\_\_\_\_\_  
PE Name

\_\_\_\_\_  
Contractor's Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address



## SECTION 01350

## HEALTH &amp; SAFETY PLAN

## PART 1 GENERAL

## 1.1 SUMMARY

## A. The Contractor shall:

1. develop a site-specific Health and Safety Plan (HASP) specifically addressing the potential hazards that may be encountered at the work site. The HASP shall include the information described in this specification (as applicable) and meet all applicable OSHA requirements.
2. furnish all labor, equipment, materials, and employee training for effective implementation of the HASP and worker health and safety protection of all Contractor personnel.
3. furnish all labor, equipment, materials, and employee training to effectively complete any required air monitoring and/or decontamination.
4. review the requirements and data provided for the project and supplement the HASP with any additional measures deemed necessary to fully comply with applicable regulatory requirements and to adequately protect personnel on the site.
5. maintain a copy of the HASP at the worksite, accessible to employees working at the site.
6. post the emergency response plan section of the HASP, inclusive of emergency alerting and response procedures and directions to the nearest hospital, in a visible location for all workers to see.

## B. Related Sections

1. 13281 – Asbestos Abatement

## 1.2 SITE-SPECIFIC PROJECT CONDITIONS

- A. The Contractor shall review and understand all existing information as it relates to potential exposure to subsurface site contaminants, environmental data and reports.
- B. The Contractor shall review and understand all existing information as it relates to potential exposure to hazardous structure/building materials (i.e., asbestos, polychlorinated biphenyls (PCBs), lead paint, and oil/hazardous materials containers). Site-specific information with respect to potential exposures to hazardous structure/building materials are included in applicable technical specifications contained herein. See applicable Sections 13281 for applicable environmental data.
- C. The nature of the materials present at the site may require use of special protective clothing and the possible use of respiratory protective equipment, which is intended to help minimize worker exposure to known or suspected site hazards.
  1. Levels of personal protection are established in reference standards and generally described for Levels C and D herein. It is anticipated that a majority of the Work

to be performed on this project may be performed at Personnel Protection Level D.

2. The Contractor shall be responsible for determining if a higher level of personnel protection is required based on the criteria outlined in the Contractor's HASP. In the event that the Contractor determines that a level of protection higher than Level D is required, the Contractor's personnel shall take the necessary steps outlined in the Contractor's HASP.
3. The Contractor shall notify the Engineer and Owner in writing prior to implementing any upgrades in personal protection. The Engineer will review the Contractor's notification and determine the need to notify other applicable agencies.

### 1.3 REFERENCES

- A. OSHA 29 CFR Part 1910 (General Industry standards)
- B. OSHA 29 CFR Part 1926 (Construction Standards)
- C. OSHA Regulation 29 CFR §1926.62 (Lead)

### 1.4 DEFINITIONS

- A. CHMM: Certified Hazardous Materials Manager, as certified by the Institute of Hazardous Materials Management.
- B. CIH: Certified Industrial Hygienist, as certified by the American Board of Industrial Hygiene®.
- C. CSP: Certified Safety Professional, as certified by the Board of Certified Safety Professionals.
- D. Site Safety and Health Official (SSHO): The individual located at a job site who is responsible to the Contractor and has the authority and knowledge necessary to implement the HASP and verify compliance with applicable safety and health requirements.

### 1.5 SUBMITTALS

- A. On-site Work shall not begin until the HASP has been submitted by the Contractor and accepted by the Owner/Engineer.
- B. Informational Submittals
  1. Submit the following within thirty (30) days after the Effective Date of the Agreement.
    - a. A site-specific HASP, including the information described in this Specification as applicable.
      - 1) The HASP must be reviewed, approved, and signed by Contractor representative, with specific responsibility for safety for the Contracting company.
      - 2) The Engineer's review is only to determine if the HASP is consistent with the minimum requirements of this specification. Engineer has no control over contractor's health & safety and the

means and methods of health & safety implementation. Engineer also does not perform health & safety monitoring of Contractor's Work.

- 3) The review will not determine the adequacy of the HASP to address all potential hazards, as that remains the sole responsibility of the Contractor.
  - b. Documentation of qualifications and experience of the SSHO.
  - c. Applicable health and safety training records.

## 1.6 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor is solely responsible for the health and safety of workers employed by the Contractor, any subcontractor, vendors/manufacturers, site visitors and anyone directly or indirectly employed by any of them.
- B. Provide a designated SSHO for the project.
- C. Pre-arrange emergency medical care services at a nearby hospital or medical clinic, including establishment of an emergency notification process and emergency routes of travel.
- D. Conduct pre-entry and weekly safety meetings with all site personnel, documenting attendance and topics covered.
- E. Develop and implement the site-specific HASP, inclusive of the elements in contained in this specification.
- F. For projects where contaminated media are known, likely, or suspected to be encountered:
  1. monitor air quality in and around the work area using appropriate air monitoring equipment.
  2. develop and implement a respiratory protection program per 29 CFR §1910.134 and 29 CFR §1926.103 for all workers authorized to wear respirators.
  3. record all air quality readings and maintain records on site.
  4. stop work and/or upgrade respiratory protection or personal protective equipment levels if action levels established in the HASP are exceeded.
  5. ensure that the degree and type of respiratory protection provided is protective for the monitored concentrations and individual chemical parameters.
  6. lawfully dispose of all personal protective equipment that cannot be decontaminated.

## 1.7 HEALTH & SAFETY PLAN (HASP) REQUIREMENTS

- A. The following items shall be included/addressed in the HASP:
  1. a safety and health risk or hazard analysis for each site task and operation in the workplan;
    - a. a physical hazard evaluation and hazard control plan shall be included covering, but not limited to the following, as applicable:

- 1) equipment operation;
  - 2) confined space entry;
  - 3) slips, trips, and falls;
  - 4) building collapse;
  - 5) falling debris;
  - 6) encountering unmarked utilities;
  - 7) cold and heat stress;
  - 8) hot work (cutting and welding);
  - 9) drum and container handling;
  - 10) trench and/or excavation entry.
2. the employee safety and health training program covering each site task and operation in the workplan.
  3. personal protective equipment to be used for each site task and operation in the workplan.
  4. site control measures to address visitors, delivery personnel, and to protect the worksite from unauthorized access.
  5. an emergency response plan for the safe and effective response to foreseeable emergencies;
    - a. including, but not limited to the following:
      - 1) a map indicating the route to a nearby hospital or medical clinic for emergency medical care;
      - 2) procedures for emergency medical treatment and first aid;
      - 3) site evacuation routes and procedures;
      - 4) emergency alerting and response procedures.

## PART 2 PRODUCTS

### 2.1 AIR MONITORING EQUIPMENT

- A. If organic vapors or total hydrocarbons are known, likely, or suspected to be encountered during the work:
  1. provide and maintain a portable photo-ionization detector (PID) or flame-ionization detector (FID) capable of detecting organic vapors or total hydrocarbons. Equipment shall be sensitive to the 0.5 parts per million (PPM) level.
- B. If hazardous atmospheres (oxygen, hydrogen sulfide, carbon monoxide, methane, etc.) are known, likely, or suspected to be encountered during the work:

1. provide and maintain an applicable multi-gas analyzer to measure concentrations in applicable work environments (i.e. confined spaces, trenches, tunnels, buildings, etc.).
- C. If there is a potential for the accumulation of explosive gas:
  1. provide and maintain an explosimeter (LEL meter).
- D. If there is a potential for visible dust emissions on the site, dust monitoring must be considered.
  1. The Contractor is responsible for monitoring fugitive dust emissions in accordance with applicable local, state, and federal regulations.
  2. Equipment shall be sensitive to particulate matter less than 10 micrometer in size (PM<sub>10</sub>) at a level of 100 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).
  3. Contractor shall outline the dust monitoring program in their HASP, including applicable action levels.
- E. All air monitoring equipment shall remain the property of the Contractor.
- F. All air monitoring equipment readings must be recorded and be available for federal, state, and/or local regulatory personnel to review.

## 2.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- A. All PPE must conform to the OSHA requirements, as indicated in the previous Reference Standards Section. Various PPE to be furnished by the Contractor under different levels of protection for their own personnel and subcontractor's personnel include, but are not limited to, the following:
  1. Level D Protection:
    - a. Coveralls or Tyvek
    - b. Gloves
    - c. Safety boots/shoes
    - d. Safety glasses
    - e. Hearing protection (for high noise operations)
    - f. Hard hat with optional face shield
  2. Level C Protection:
    - a. Air-purifying respirator
    - b. Chemical protective overalls or Coveralls (e.g., Saran coated Tyvek)
    - c. Gloves, inner (disposable, surgical type)
    - d. Gloves, outer (Neoprene, Nitrile, Viton or Butyl)
    - e. Boots, chemical protective, steel toe and shank (Neoprene or Nitrile)
    - f. Booties, chemical protective (disposable PVC)
    - g. Hard hat

- h. Face shield (if necessary)
- 3. Levels B and A represent increased levels of personal protection and are described in the Reference Standards.
- 4. Contractor is fully responsible for all PPE selection (including the various stages of protection), proper use, maintenance, and continuous monitoring.

### PART 3 EXECUTION

#### 3.1 HEALTH AND SAFETY PLANNING AND IMPLEMENTATION

- A. Implement the HASP throughout the execution of all applicable work.
- B. The Contractor shall perform all monitoring as detailed in the HASP.
- C. Contractor(s) shall implement routine health and safety meetings and any follow-up supplemental briefings.
- D. Provide applicable health and safety training for all personnel who may come in contact with or be exposed to various dangerous, hazardous, or changing site conditions.
- E. Personnel who have not received applicable training and who are not equipped with the required PPE, shall not be permitted access to the site by the Contractor during the course of the work that may result in potential exposures to unsafe or hazardous site conditions.
- F. Contractor shall periodically monitor dust conditions. The dust monitoring results shall be compared to a permissible concentration for PM<sub>10</sub> of 150 µg/m<sup>3</sup>. If a time-weighted average exceeds this dust action level, the Contractor shall implement dust control measures. Dust monitoring records must be provided to Engineer.

#### 3.2 PERSONNEL AND EQUIPMENT DECONTAMINATION

- A. All equipment shall be provided to the work site free of contamination. Engineer may prohibit from the site any equipment which in his opinion has not been thoroughly decontaminated prior to arrival. Any decontamination of Contractor's equipment prior to arrival at the site shall be at the expense of Contractor. Contractor is prohibited from decontaminating equipment on the project site which is not thoroughly decontaminated prior to arrival.
- B. Contractor shall furnish labor, materials, tools, and equipment for decontamination of all personnel, equipment and supplies which are used to handle contaminated materials.
- C. Properly store and dispose of contaminated PPE and all other generated decontamination waste.

#### 3.3 INCIDENT REPORTING

- A. The Contractor shall comply with all accident and/or incident reporting requirements, including the following:
  - 1. Should any unforeseen safety-related factor, hazard, or condition become evident during the course of the work, the Contractor must immediately take action to establish, maintain, and secure the site and working conditions. This shall be followed by immediate notice to the Owner and Engineer.

2. If injury to any person on-site occurs, the Contractor shall immediately report the incident to the Owner and Engineer. Corrective actions shall be implemented.

END OF SECTION

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## SECTION 01420

## REFERENCES

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Standards referenced in the Contract Documents.

## 1.2 GENERAL

- A. Comply with the requirements of standards referenced in the Contract Documents.

## 1.3 ABBREVIATIONS

## A. Abbreviations used in the Specifications are defined as follows:

1. AA – Aluminum Association
2. AASHTO – American Association of State Highway and Transportation Officials
3. ACI - American Concrete Institute
4. ACOE - U.S. Army Corps of Engineers
5. AFBMA – Antifriction Bearing Manufacturers Association
6. AGC – Associated General Contractors of America
7. AGMA - American Gear Manufacturer Association
8. AI – Asphalt Institute
9. AISC – American Institute of Steel Construction
10. AISI - American Iron and Steel Institute
11. ANSI – American National Standards Institute
12. ASCE – American Society of Civil Engineers
13. ASTM – American Society for Testing and Materials
14. AWG – American Wire Gauge
15. AWS – American Welding Society
16. AWWA – American Water Works Association
17. CDA – Copper Development Association
18. CLFMI – Chain Link Fence Manufacturer’s Institute
19. CPM - Critical Path Method
20. CPVC – Chlorinated Polyvinyl Chloride
21. CRSI – Concrete Reinforcing Steel Institute



22. CI – Cast Iron
23. DEP - Department of Environmental Protection
24. DHI – Door and Hardware Institute
25. DI – Ductile Iron
26. EJCDC – Engineers’ Joint Contract Documents Committee
27. EJMA – Expansion Joint Manufacturers Association
28. EPDM – Ethylene Propylene Diene Monomer
29. EPT – Electrical Plastic Tubing
30. EVT – Equiviscous Temperature
31. FM – Factory Mutual
32. FS – Federal Specifications
33. GFCI – Ground Fault Circuit Interrupter
34. GPR - Ground Penetrating Radar
35. GPS – Global Positioning System
36. IBC – International Building Code
37. ICBO – International Conference of Building Officials
38. ISA – Instrument Society of America
39. JIC – Joint Industrial Council
40. MADEP – Massachusetts Department of Environmental Protection
41. MBMA – Metal Building Manufacturer’s Association
42. MGL – Massachusetts General Law
43. MSDS – Material Safety Data Sheets
44. MSS – Manufacturer’s Standardization Society
45. NAVD – North American Vertical Datum
46. NEBB – National Environmental Balancing Bureau
47. NFPA – National Fire Protection Association
48. NRS – Non-rising Stem
49. NSF – National Sanitation Foundation
50. NSWMA – National Solid Waste Management Association
51. O&M – Operation and Maintenance
52. OSHA – Occupational Safety and Health Administration
53. PCA – Portland Cement Association

54. PCI – Precast/Prestressed Concrete Institute
55. PDOP – Positional Dilution of Precision
56. PS – Product Standard
57. PVC – Polyvinyl Chloride
58. QA/QC – Quality Assurance/Quality Control
59. RCP – Reinforced Concrete Pipe
60. SDI – Steel Deck Institute
61. SSPC – The Society for Protective Coatings
62. TCA – Tile Council of America
63. UL – Underwriter’s Laboratories
64. USCS – Unified Soil Classification System
65. USDA – United States Department of Agriculture

END OF SECTION

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Improvements\Design\Specifications\Contract 1 (Reservoir Improvements)\DIV 1\01420 References.docx

## SECTION 01450

## QUALITY CONTROL

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Quality assurance and control of the Work
2. Testing and inspection services
3. Cooperation with Owner's independent testing agency
4. Product test reports
5. Manufacturer's field service

## B. Related Requirements

1. Testing requirements are described in various Sections of the Project Manual.

## 1.2 SUBMITTALS

## A. Informational Submittals

1. Product test reports

## 1.3 QUALITY ASSURANCE

- A. Monitor quality control over Suppliers, products, services, site conditions, and workmanship to produce Work of specified quality.
- B. Comply fully with manufacturer's instructions. Should these instructions conflict with the Specifications, request clarification from the Owner before proceeding.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or requirements indicate higher standards or more precise workmanship.

## 1.4 TESTING SERVICES FURNISHED BY THE OWNER

- A. The Owner will hire its own independent testing laboratory for quality control tests made in the field or laboratory on materials and equipment during and after their incorporation in the Work, including soils and concrete testing.
- B. Cooperate with the Owner and independent testing laboratory and furnish samples of materials, design, mix, equipment, tools, storage, and assistance as requested.
- C. Secure and deliver the required number of soil samples to the laboratory as required by the Contract Documents.
- D. Coordinate with the Owner to schedule necessary testing laboratory services.
- E. Notify the Engineer 48 hours prior to operations requiring inspections and laboratory testing services so the Owner can schedule the testing and the Engineer witness such.

- F. Re-work all failed test areas until passing results are obtained. All re-tests required as a result of the Contractor's failure to perform the work in accordance with the Contract Documents shall be at the Contractor's expense.
- G. Approximately 6 concrete pours are expected. Concrete testing will be required for each pour.

#### 1.5 CODE COMPLIANCE TESTING

- A. Provide inspections and tests required by codes or ordinances, or by a legally constituted authority having jurisdiction over the Work.

#### 1.6 PRODUCT TEST REPORTS

- A. Submit 2 copies of product test reports where required by the Contract Documents.

#### 1.7 MANUFACTURES' FIELD SERVICE

- A. Provide qualified field service and installation personnel from material and equipment Suppliers to observe site conditions, installation techniques, quality of workmanship, equipment start-up, adjustment, and performance test where required by the Contract Documents. Observations are to be reported and incorporated in the Work procedures.

#### PART 2 PRODUCTS - NOT USED

#### PART 3 EXECUTION - NOT USED

#### END OF SECTION

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SECTION 01520

CONSTRUCTION FACILITIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes
  - 1. Temporary sanitary and first-aid facilities

1.2 QUALITY ASSURANCE

- A. Maintain temporary construction facilities in proper and safe condition throughout the progress of the Work.

1.3 TEMPORARY SANITARY AND FIRST AID FACILITIES

- A. Provide suitably enclosed chemical or self-contained toilets for the use of the labor force employed on the Work. Toilet locations shall be coordinated with SWSC for approval. Toilets shall be serviced weekly, kept clean and supplied throughout the course of the Work.
- B. Contractor shall enforce proper use of sanitary facilities.
- C. Use of the Owner's sanitary facilities by the Contractor is prohibited.
- D. Provide a first aid station at the site.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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## SECTION 01570

## TEMPORARY CONTROLS

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Straw wattles
- B. Related Requirements
  - 1. Section 02920 – Lawns and Grasses

## 1.2 SUBMITTALS

- A. Informational Submittals
  - 1. Straw wattles

## PART 2 PRODUCTS

## 2.1 STRAW WATTLES

- A. Straw wattles required for siltation control shall be at a minimum 9-inches in diameter with a natural jute netting filled with wheat straw. Density shall be at a minimum 2lbs/foot.

## PART 3 EXECUTION

## 3.1 STRAW WATTLES

- A. Place and maintain straw wattles along the entire length of the proposed construction where shown on the Drawings or required by permit.
- B. Install straw wattles with 2-inch by 2-inch by 3-foot untreated hardwood stakes spaced up to 5-foot apart or as required to secure tubes in place. Provide a 3-foot minimum overlap at the ends of joining straw wattles, secure ends of straw wattles snugly with stakes spaced 18-inches apart to ensure unfiltered flow between them. Replace deteriorated straw wattles. Remove and dispose of the straw wattles following the successful growth of vegetation in the areas disturbed by the construction. Straw wattles shall not be removed until their removal is approved by the Engineer.
- C. Where staking is not possible heavy concrete or cinder blocks can be used to secure the straw wattle in place.

## 3.2 RESTORATION

- A. Provide temporary stabilization of disturbed areas that remain inactive greater than 14 consecutive days to minimize erosion. Methods to minimize erosion may include but are not limited to:
  - 1. Spreading straw and/or providing temporary planting stabilization.
  - 2. Installing jute netting.
  - 3. Preparing surfaces to increase the runoff flow path, reduce the runoff flow velocity, or create small storage pockets to retain surface flows. Methods of

accomplishing this include using mechanical devices such as track equipment or sheep's foot rollers.

- B. Salvage existing loam and topsoil and stockpile this material for re-spreading where originally removed. On backfilling, grading shall be returned to preconstruction contours and the stockpile of loam shall be spread over areas disturbed during construction activities.
- C. Place mulch on seeded areas. If seeding is not possible because of the time of the year, apply mulch and netting to stabilize the area until such time as seed can be sown.
- D. Provide grading, refertilizing, reseeding, and/or remulching to maintain the restored areas until the Work is accepted by the Owner.
- E. Seed shall be as specified under Section 02920.

### 3.3 CLEANING

- A. Remove any sediment that builds up around the straw wattles.

END OF SECTION

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## SECTION 01600

## PRODUCT REQUIREMENTS

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Products and Materials
  - 2. Product Delivery Requirements
  - 3. Packaging, Handling and Storage Requirements
  - 4. Inspection of Offsite Work

## 1.2 QUALITY ASSURANCE

- A. Review all contract Drawings and Specifications with respect to specific system characteristics, applicability of materials and equipment for the intended purposes, sizes, orientation, and interface with other systems, both existing and proposed, and certify that the materials and equipment proposed will perform as specified prior to submitting shop drawings.
- B. Provide sworn certificates as to quality and quantity of materials where specified or requested by the Engineer.
- C. Obtain concurrence of the Engineer prior to processing, fabricating, or delivering material or equipment.

## 1.3 PRODUCTS AND MATERIALS

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by a single manufacturer unless specified otherwise.
- B. Use only new and first quality material in the Work. Material shall conform to the requirements of these Specifications and be approved by the Engineer. If, after trial, it is found that sources of supply that have been approved do not furnish a uniform product, or if the product from any source proves unacceptable at any time, the Contractor shall furnish approved materials from other approved sources.
- C. Immediately remove defective materials and equipment from the site, at no additional cost to the Owner. The Contractor may be required to furnish sworn certificates as to the quality and quantity of materials before materials are incorporated in the Work.
- D. Engineer has the right to approve the source of supply of all material prior to delivery.

## 1.4 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.



- D. Progressively deliver materials and equipment to the Site so there will be neither delay in progress of the Work nor an accumulation of material that is not to be used within a reasonable time.
- E. Deliver products to the Site in their manufacturer's original container, with labels intact and legible.
  - 1. Maintain packaged materials with seals unbroken and labels intact until time of use.
  - 2. The Engineer may reject as non-complying such material and products that do not bear identification satisfactory to the Engineer as to the manufacturer, grade, quality, source, and other pertinent information.

#### 1.5 PACKAGING, HANDLING AND STORAGE REQUIREMENTS

- A. Provide storage and handling of all materials and equipment required for the Work.
- B. Except as otherwise indicated in the Contract Documents, determine and comply with the manufacturer's recommendations on product storage, handling, and protection. Provide manufacturer's documentation on recommended storage procedures when requested by the Engineer.
- C. Properly store and protect all equipment immediately upon its arrival. All equipment shall be stored in a clean, dry, heated, secured, and insured indoor facility satisfactory to the Engineer. Equip drive motors with thermostatically controlled strip heaters. Outdoor storage with plastic, canvas, plywood or other cover will not be allowed except where specific approval for designated items not containing electrical components or bearings is obtained from the Engineer. This approval does not relieve the Contractor of responsibility for proper protection of materials.
- D. Familiarize workmen and subcontractors with hazards associated with materials, equipment, and chemicals specified herein and take all necessary safety precautions.
- E. Areas available on the construction site for storage of material and equipment shall be as shown on the Drawings or approved by the Owner.
- F. Materials and equipment to be incorporated in the Work shall be handled and stored by the manufacturer, fabricator, supplier, and Contractor before, during and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft, or damage of any kind to the material or equipment.
- G. Protect finished surfaces including floor surfaces, stairs, joints, and soffits of passageways from damage until accepted by the Engineer.
- H. Promptly remove materials from the site of the Work which have become damaged or are unfit for the use intended or specified. The Contractor will not be compensated for the damaged materials or their removal costs.
- I. Handle, haul, and distribute all materials and all surplus materials on the different portions of the Work, as necessary or required. Provide suitable and adequate storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished, until the final completion and acceptance of the Work.
- J. Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

- K. All materials and equipment to be incorporated in the Work shall be placed so as to not damage any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Keep materials and equipment neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to the Owner.
- L. No material or equipment will be permitted to be stored in any of the Owner's facilities, unless otherwise approved by the Engineer.
- M. Do not store material or equipment in any wetland or environmentally sensitive area. Stockpile sites shall be level, devoid of mature stands of natural vegetation, and removed from drainage facilities and features, wetlands, and stream corridors.
- N. Contractor shall be fully responsible for loss or damage to stored materials and equipment.
- O. No item judged rusty, corroded or otherwise damaged during storage will be accepted. Any electrical or instrumentation item determined by the Engineer to be damaged shall be removed from the Site and replaced by a completely new item in first class condition. Items not properly stored will not be considered for any partial payment.
- P. Provide protective and preventive maintenance during storage consisting of manually exercising equipment where required, inspecting mechanical surfaces for signs of corrosion or other damage, lubricating, applying any coatings as recommended by the equipment manufacturer as necessary for its protection and other precautions as necessary to assure proper protection of equipment stored.
- Q. Treat ferrous surfaces not receiving finish coats of paint with rust preventive coating, and protect non-ferrous metal work and devices with suitable wrappings.

#### 1.6 INSPECTION OF OFFSITE WORK

- A. The Owner and Engineer will inspect Work performed away from the construction site during fabrication, manufacture, or testing, or before shipment. Give 2 weeks written notice regarding the place and time where such fabrication, manufacture, testing, or shipping will be done.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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## SECTION 01630

## PRODUCT SUBSTITUTION DURING CONSTRUCTION

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Product substitution procedures

## 1.2 CONTRACTOR'S OPTIONS

- A. For materials or equipment (hereinafter products) specified only by performance or reference standard, select product meeting that standard, by any Supplier. To the maximum extent possible, provide products of the same generic kind from a single source.
- B. For products specified by naming several products or manufacturers, select any one of the products or Suppliers named, which fully complies with the Drawings and Specifications. Another "or-equal" product can also be considered by the Engineer if it complies with the provisions of Article 7.04, Section 00700. If a product proposed by the Contractor does not qualify as an "or-equal" item, then it can be considered as a proposed substitute item, and the Contractor must comply with the requirements of Article 7.05, Section 00700.
- C. For products specified by naming products or manufacturers and followed by words indicating that no "or-equal" item or substitution is permitted, there is no option and no substitution will be allowed.
- D. Where more than one choice is available as a Contractor's option, select product that is compatible with other products already selected or specified.

## 1.3 SUBSTITUTIONS

- A. If in the Engineer's sole discretion a product proposed by the Contractor does not qualify as an "or-equal" item under the provisions of Article 7.04 of Section 00700, it can be considered a proposed substitute item. Submit information required under Article 7.05, Section 00700 for proposed substitutes.
- B. The Engineer will consider written requests from the Contractor for substitutions within 30 days after the Notice to Proceed. After this period, requests will be considered only in case of unavailability of product or other conditions beyond control of the Contractor.
- C. Submit 5 copies of request for substitutions. Submit a separate request for each proposed substitution. In addition to the submittal requirements outlined in Article 7.05 of Section 00700, include the following in each substitution request:
  - 1. For products or Suppliers:
    - a. Product identification, including Supplier & manufacturer's name and address.
    - b. Manufacturer's literature with product description, performance and test data, and reference standards.
    - c. Samples, if appropriate.

- d. Name and address of similar projects on which product was used, and date of installation.
- 2. For construction methods (if specified):
  - a. Detailed description of proposed method.
  - b. Drawings illustrating method.
- 3. Such other data as the Engineer may require to establish that the proposed substitution is equal to the product, Supplier or method specified.
- D. The substitution request shall include written certification and statements that are outlined in Article 7.05 of Section 00700.
- E. A request constitutes a representation that Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
  - 2. Will provide same or better guarantees, warranties or bonds for proposed substitution as for specified product.
  - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives all claims for additional costs or time extension which may subsequently become apparent.
  - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities having jurisdiction.
- F. A proposed substitution will not be accepted if:
  - 1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.
  - 2. It will delay completion of the Work.
  - 3. It is intended or implied on a Shop Drawing and is not accompanied by a formal request for substitution from the Contractor.
- G. The Contractor is responsible for all costs relating to substitution requests.
- H. Approval of a substitution does not relieve the Contractor from the requirement for submission of Shop Drawings as set forth in the Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

\\tighebond.com\data\Data\Projects\S\S2057 SWSC\067 - Provin Reservoirs Facility Improvements\Design\Specifications\Contract 1 (Reservoir Improvements)\DIV 1\01630 Product Substitution During Construction.docx

## SECTION 01725

## PRESERVATION AND RESTORATION OF PROJECT FEATURES

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Protection and replacement of trees, shrubs, signs, property markers, fences, and related project features.
2. Taking precautions and taking actions necessary to protect public and private property and facilities from damage.

## 1.2 DEFINITIONS

## A. Underground Structures

1. Underground structures are defined to include, but not be limited to, sewer, water, gas, and other piping, and manholes, chambers, electrical and signal conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.
2. Underground structures known to the Engineer are shown on the Drawings to the extent that locations are available. This information is shown for the assistance of the Contractor in accordance with the best information available, but is not guaranteed to be correct or complete. The Contractor shall be responsible for checking on the actual locations of water, sewer, gas electric and telephone service connection lines to avoid potential interferences.

## B. Surface Structures

1. Surface structures are defined as existing buildings, structures and other facilities above the ground surface. Included with such structures are their foundations or any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

## PART 2 PRODUCTS – NOT USED

## PART 3 EXECUTION

## 3.1 REPAIR/RESTORATION

- A. Trees, shrubs, and similar items shall not be removed except where approved by the Engineer. Items to be removed shall be clearly marked as directed by the Engineer. If objects not to be removed are damaged or removed, they shall be repaired or replaced to their original condition.
- B. Trees and shrubs on private property, which are removed or damaged by the Contractor shall be replaced in kind.

- C. Signs, fences, property markers, walls, guard rails and other public or private property shall be replaced in kind if damaged. Supports and protective devices required shall be provided.
- D. Underground and Surface Structures
1. In the event of damage, injury or loss to existing utilities and structures that were not indicated to be removed or abandoned, whether shown on the Drawings or not, make all reasonable efforts to facilitate repairs and to mitigate the impact of such events upon the utility or structure owner's normal operations. Restore the existing utility or structure to the condition required by the owner of the utility or structure or at least to the condition found immediately prior to the Work. In the event that the utility owner elects to make the repairs, provide all reasonable access and assistance, and reimburse the utility owner for the cost of repairs. If utility service is interrupted due to damage to facilities, alternate facilities shall be provided.
  2. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers and curbs which are temporarily removed to facilitate the Work shall be replaced and restored to their original condition at the Contractor's expense unless otherwise indicated in other sections of these specifications.
  3. Wherever water, sewer, gas or petroleum mains, electric or telephone lines, cables or other utilities and structures are encountered and may be in any way interfered with, inform the Engineer and the appropriate utility company. Cooperate with the Engineer and utility company in the protection, removal, relocation, and replacement of structures and facilities.
  4. Prior to proceeding with any construction, notify in writing owners of utilities and structures within the vicinity of the proposed Work.
  5. Materials used for relocation or replacement of utilities and structures shall be of an equivalent material, type, class, grade and construction as the existing or as approved by the respective owners thereof, unless otherwise shown or specified.
  6. When any survey monument or property marker, whether of stone, concrete, wood or metal, is in the line of any trench or other construction work and may have to be removed, notify the Engineer in advance of removal. Under no circumstances shall any monument or marker be removed or disturbed by the Contractor or by any of his Subcontractors, employees or agents, without the permission of the Engineer. Monuments or markers removed or disturbed shall be reset by a land surveyor licensed in the State where the Work is located at the Contractor's expense. Should any monuments or markers be destroyed through accident, neglect or as a result of the Work under this Contract, the Contractor shall, at his own expense, employ a land surveyor licensed in the State where the Work is located to re-establish the monument or marker.

### 3.2 PROTECTION

#### A. Underground and Surface Structures

1. Sustain in their places and protect from direct or indirect injury underground and surface structures designated to remain within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully and as required by

the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, satisfy the Engineer that the methods and procedures to be used have been approved by the party owning same.

2. Pay utility service company charges related to the temporary support of utility poles if required to complete the Work.
3. Assume risks associated with the presence of underground and surface structures within or adjacent to the limits of the Work. The Contractor shall be responsible for damage and expense for direct or indirect injury caused by his Work to any structure. Immediately repair damage caused by the Work to the satisfaction of the owner of the damaged structure.

END OF SECTION

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## SECTION 01770

## CLOSEOUT PROCEDURES

## 1.1 SUMMARY

## A. Section Includes

1. Documentation required for the transfer of the completed Work to the Owner
2. Final Cleaning

## 1.2 SUBMITTALS

## A. Closeout Submittals

1. As-built drawings
2. Evidence of payment and release of liens
3. List of Subcontractors, service organizations, and principal vendors

## 1.3 SUBSTANTIAL COMPLETION

- A. Refer to Article 15.03 in 00700, General Conditions, for procedures relating to obtaining Substantial Completion. Refer to 00520, Agreement, for Contract times.

## 1.4 PROJECT CLOSEOUT DOCUMENTS

- A. As-built Drawings - Submit as-built drawings review, approval, or comment. The as-built drawings shall show the completed work, including all deviations from the Drawings. The as-built drawings shall depict the location and elevation of all installed work and all field changes.

1. Take swing ties to all underground work from a minimum of two horizontal locations. Vertical dimensions to all below grade work shall also be obtained. At a minimum, the following information should be shown on the as-built drawings for exterior construction:

- a. Ties to all buried work from two horizontal measurements to permanent surface reference points, and depth below permanent grade. Permanent surface reference points are manholes, catch basins, power poles, and above-grade structures.
- b. Ties to all surface structures (including manholes, hatches, etc.) from two horizontal measurements to permanent surface reference points.
- c. Ties to other utility crossings and abandoned pipelines from two horizontal measurements to permanent surface reference points. Include depth below permanent grade and spacing between crossing utilities.

- B. Provide warranties and bonds for items so listed in pertinent other sections of the Project Manual. Provide all warranties and bonds in a three-ring binder.

- C. Provide keys and keying schedule, where applicable.

- D. As specified in Article 15.06.A of Section 00700, provide evidence that all Work, materials and equipment will pass to Owner free and clear of any Liens or other title defects upon final payment. Such evidence may take the form of receipts or releases



from all Subcontractors and Suppliers and an affidavit from Contractor as to the completeness of the receipts and releases as described in Section 00700 Article 15.06.A.3.

- E. List of Subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.

#### 1.5 FINAL CLEANING & REPAIRS

- A. Complete cleaning prior to final inspection. Cleaning shall include remove temporary labels, stains and foreign substances. Thoroughly wipe clean all exposed surfaces. Clean debris from lawns. Sweep paved surfaces and rake lawns and landscaped areas.
- B. Use only cleaning materials that will not create hazards to health or property.
- C. Restore or replace any public or private property damaged or removed during the course of the Work. Property shall be returned to a condition at least equal to that existing immediately prior to the beginning of operations. Complete all highway or driveway, walk, and landscaping work using suitable materials, equipment and methods. Perform restoration of existing property, signs or structures promptly as work progresses; do not leave restoration work until the end of the Contract Time.

#### 1.6 COMPLETION AND FINAL PAYMENT

- A. Refer to Article 15.05 and 15.06 in 00700, General Conditions, for procedures relating to final inspection and payment.
- B. The Contract shall be considered complete and final payment made, only when:
  - 1. All provisions of the Contract Documents have been strictly adhered to.
  - 2. All damage to adjoining areas caused by the Work has been repaired.
  - 3. The project and premises have been left in good order, including removal of all temporary construction, Contractor-owned and extraneous materials as required.
  - 4. All warranties, releases, and permits called for in the Contract have been submitted to the Owner and Engineer as applicable.
  - 5. All as-built drawings as required by the Contract Documents have been submitted to the Owner.
  - 6. All monies owed the Owner for services performed for the Contractor by Owner's forces in connection with the Contract have been paid.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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**DIVISION 2 – SITE CONSTRUCTION**

## SECTION 02210

## SUBSURFACE INVESTIGATIONS

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Soils subsurface investigation at the site, the use of data resulting from the investigation, and conditions warranting additional soils investigation.
2. Subsurface investigations that are required to properly locate, plan for to the various existing pipelines and utilities

## B. Related Sections

1. Section 02920 - Lawns and Grasses
2. Section 02315 - Excavation, Backfill, Compaction, and Dewatering

## 1.2 REFERENCES

- A. 29 CFR Part 1926 Subpart P - OSHA Excavation Regulations 1926.560 through 1926.562 including Appendices A through F
- B. MGL Chapter 82 Section 40

## 1.3 QUALITY ASSURANCE

- A. The entire test pit excavation and collection of utility information must be observed by the Engineer.

## 1.4 SITE CONDITIONS

## A. Pipeline and Utility Investigations

1. The Drawings show available data relative to existing underground pipe and utilities.

## PART 2 PRODUCTS - NOT USED

## PART 3 EXECUTION

## 3.1 PREPARATION

- A. Obtain all available information on buried structures and utilities in the vicinity of the investigation.
- B. Coordinate Work such that all affected property, structure, and utility owners are aware of the Work prior to its commencement.
- C. Schedule subsurface investigations such that they do not interfere with other Work and in advance of other Work in that location.
- D. Provide the Engineer with 24-hour notice prior to commencement of subsurface investigations.

## 3.2 SUBSURFACE INVESTIGATIONS

- A. Prior to test pitting operations, delineate the general scope of the excavation on the surface of the ground using white paint, or stakes or other suitable white markings and coordinate with the appropriate agencies in accordance MGL Chapter 82 Section 40. Pre-marking will not be required of any continuous excavation that is over 500 feet in length
- B. Excavate test pits as indicated, or as requested by the Owner. Expose the top of the pipeline, and adjacent utilities, at each test pit location.
- C. Contractor may, at its expense and with permission by the Owner, perform additional explorations not ordered by the Engineer.
- D. Perform test pits in accordance with the requirements of Section 02315. Excavate the test pit by hand. The Test pit work shall be performed to safely excavate and examine the structure or utility to be exposed without damaging existing utilities.
- E. Measure the depth to the top of the pipeline, as well as to adjacent utilities, from the ground surface, at each test pit location. Record location, depth and size of pipelines and utilities uncovered during the test pits. Record any other pertinent information which is learned as a result of excavating the test pit.
- F. All subsurface investigations shall be conducted in accordance 29 CFR Part 1926 Subpart P - OSHA Excavation Regulations 1926.650 through 1926.652 including Appendices A through F.
- G. After observation by the Engineer, backfill and compact the test pits in accordance with Section 02315.
- H. Repair damage to any structure, utility, or site feature on private or public property damaged during the Work to the satisfaction of the Engineer.
- I. Repair lawn areas or grass surfaces in accordance with 02920.

END OF SECTION

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## SECTION 02315

## EXCAVATION, BACKFILL, COMPACTION AND DEWATERING

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - a. Excavation, backfill, and compaction for the installation of polyolefin waterproofing tape and epoxy adhesive, installation of access manholes, demolition of existing fences, and all other site Work.
- B. Related Sections
  - 1. Section 01140 – Work Restrictions
  - 2. Section 01570 - Temporary Controls
  - 3. Section 02210 - Subsurface Investigations

## 1.2 REFERENCES

- A. ASTM D1557-07 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft<sup>3</sup> (2,700 kN-m/m<sup>3</sup>))
- B. ASTM D1556-07 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
- C. ASTM D2487-06e1 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
- D. ASTM D6938-08a - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- E. 29 CFR Part 1926 Subpart P - OSHA Excavation Regulations 1926.650 through 1926.652 including Appendices A through F
- F. 520 CMR 14.00 Excavation and Trench Safety
- G. 780 CMR 1705.0 Requirements for Structural Tests and Inspections
- H. Commonwealth of Massachusetts Highway Department “Standard Specifications for Highways and Bridges,” 1988 Edition as amended

## 1.3 DEFINITIONS

- A. Benching - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.
- B. Excavation - Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
- C. Protective System - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include earth retention systems, sloping and benching systems, and other systems that provide the necessary protection.

- D. Sloping - A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
- E. Trench - A narrow excavation (in relation to its length) made below the surface of the ground, of at least three feet in depth. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).

#### 1.4 SUBMITTALS

- A. Performance data for the compaction equipment to be utilized

#### 1.5 QUALITY ASSURANCE

- A. All Excavation, Trenching, and related Protective Systems shall comply with the requirements of OSHA excavation safety standards (29 CFR Part 1926 Subpart P), 520 CMR 14.00, and other State and local requirements. Where conflict between OSHA and State regulations exists, the more stringent requirements shall apply.

#### 1.6 PROJECT CONDITIONS

- A. Notify Dig Safe and obtain Dig Safe identification numbers.
- B. Notify utility owners in reasonable advance of the work and request the utility owner to stake out on the ground surface the underground facilities and structures. Notify the Engineer in writing of any refusal or failure to stake out such underground utilities after reasonable notice.
- C. Make explorations and Excavations to determine the location of existing underground structures, pipes, house connection services, and other underground facilities in accordance with Paragraph 3.2.D of this Section.

### PART 2 PRODUCTS

#### 2.1 SOIL MATERIALS

- A. Fill material is subject to the approval of the Engineer and may be either material removed from excavations or borrow from off site. Fill material, whether from the excavations or from borrow, shall be of such nature that after it has been placed and properly compacted, it will make a dense, stable fill.
- B. Satisfactory fill materials shall not contain trash, refuse, vegetation, masses of roots, individual roots more than 18 inches long or more than 1/2 inch in diameter, or stones over 3 inches in diameter. Unless otherwise stated in the Contract Documents, organic matter shall not exceed minor quantities and shall be well distributed.
- C. Satisfactory fill materials shall not contain frozen materials nor shall backfill be placed on frozen material.

### PART 3 EXECUTION

#### 3.1 PREPARATION

- A. Public Safety and Convenience

1. Adhere to the requirements of 520 CMR 14.00 for all excavation work.

2. Take precautions for preventing injuries to persons or damage to property in or about the Work.
3. Provide safe access for the Owner and Engineer at site during construction.
4. Do not obstruct site drainage, natural watercourses or other provisions made for drainage.

### 3.2 CONSTRUCTION

#### A. Excavation

1. Perform excavation to the lines and grades indicated on the Drawings.
2. Excavate with equipment selected to prevent damage to existing utilities or other facilities. Hand excavate as necessary to locate utilities or avoid damage.
3. Perform excavation in such a manner as to prevent disturbance or damage to the tank roof slabs. The Engineer or Owner may require the final six inches of excavation be performed by hand, with the use of a smooth-faced bucket, or other means acceptable to the Engineer or Owner, at no additional cost.
4. During excavation, material satisfactory for backfill shall be stockpiled in an orderly manner at a distance from the sides of the excavation equal to at least one half the depth of the excavation, but in no case closer than 2 feet.
  - a. Excavated material not required or not suitable for backfill shall be removed from the site.
  - b. Perform grading to prevent surface water from flowing into the excavation.
  - c. Pile excavated material in a manner that will endanger neither the safety of personnel in the excavation nor the Work itself. Avoid obstructing sidewalks and driveways.
5. Grade or create berms or swales to direct water to areas that minimize impacts to adjacent structures and properties.
6. Make trenches as narrow as practicable and keep the sides of the trenches undisturbed until backfilling has been completed.

#### B. Backfill and Compaction

1. Unless otherwise specified or indicated on the Drawings, use satisfactory material removed during excavation for backfilling trenches. The Engineer may require stockpiling, drying, blending and reuse of materials from sources on the Project.
2. Spread and compact the material promptly after it has been deposited. When, in the Engineer's judgment, equipment is inadequate to spread and compact the material properly, reduce the rate of placing of the fill or employ additional equipment.
3. When excavated material is specified for backfill and there is an insufficient amount of this material at a particular location on the Project due to rejection of a portion thereof, consideration will be given to the use of excess material from

one portion of the Project to make up the deficiency existing on other portions of the Project.

a. Use borrow material if there is no excess of excavated material available at other portions of the Project.

4. Backfilling and compaction methods shall attain 95% of maximum dry density at optimum moisture content as determined in accordance with ASTM D1557.

5. Maximum loose lift height for backfilling existing or borrow material shall be 12 inches, unless satisfactory compaction is demonstrated otherwise to the Engineer through field-testing. In no case shall loose lift height for backfilling exceed 3 feet.

C. Test Pit Excavation

1. General requirements of test pits are specified in Section 02210.

### 3.3 PROTECTION

A. Protection of Existing Reservoirs

1. Any equipment, vehicles, or machinery used for excavation, backfill, and compaction over the existing reservoirs shall not exceed the weight limits or impose such loads as included in Section 01140.

B. Protection of Existing Site Features

1. All existing foundations, conduits, wall, pipes, wires, poles, fences, property line markers and other items which the Engineer decides must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from damage by the Contractor. Should such items be damaged, they shall be restored by the Contractor to at least as good condition as that in which they were found immediately before the Work began.

C. Erosion and Sedimentation Control

1. Take all necessary steps to prevent soil erosion.

2. Plan the sequence of construction so that only the smallest practical area of land is exposed at any one time during construction.

3. Temporary vegetation and/or mulching shall be used to protect critical areas exposed during construction as judged by the Engineer.

#### END OF SECTION

\\tighebond.com\data\Data\Projects\S\S2057 SWSC\067 - Provin Reservoirs Facility Improvements\Design\Specifications\Contract 1 (Reservoir Improvements)\DIV 2\02315 Excavation, Backfill, Compaction and Dewatering.docx



## SECTION 02740

## HOT MIX ASPHALT (HMA) PAVEMENT

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Hot mix Asphalt (HMA) paving for swales
  - 2. Processed Gravel Borrow for Pavement Sub-base
- B. For the purposes of this Section, Hot Mix Asphalt (HMA) and bituminous concrete have the same meaning.
- C. Related Requirements
  - 1. Section 02315 - Excavation, Backfill, Compaction and Dewatering

## 1.2 REFERENCES

- A. Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges," 1988 Edition as amended
- B. ASTM D2041 - Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
- C. AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, 1990 Edition, as amended
- D. AASHTO M 320
- E. TAI - (The Asphalt Institute) - MS-3 Asphalt Plant Manual
- F. TAI - (The Asphalt Institute) - MS-8 Asphalt Paving Manual
- G. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- H. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head)
- I. ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb./ft<sup>3</sup>)

## 1.3 SUBMITTALS

- A. Job mix formula for each mix specified under this Section.
- B. Certificate indicating the mixes specified meet or exceed the requirements specified herein.
- C. Provide sieve analysis (ASTM C136), permeability analysis (ASTM D2434), and modified proctor analysis (ASTM D1557) from certified soils testing laboratory for processed gravel borrow.

## 1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with TAI Manual MS-8., Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges," 1988 Edition as amended
- B. Mixing Plant: Conform to TAI Manual MS-8., Commonwealth of Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges," 1988 Edition as amended
- C. Obtain materials from same source throughout.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- A. General
  - 1. Bituminous materials shall conform to the requirements of these Specifications.
  - 2. Bitumen delivered to a project or to a mix plant must be accompanied by a proper certificate signed by the producer’s authorized representative. Shipments of material not accompanied by a certificate will not be accepted for use in the Work.
- B. Hot Mix Asphalt Paving shall be Class I, Type I-1, as specified in Sections 460 and M3.11.0 of the above referenced Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges," 1988 edition, as amended.
- C. Hot Mix Asphalt
  - 1. Hot Mix Asphalt materials shall meet the requirements of M3.11.0 of the above referenced Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges," 1988 edition, as amended.
  - 2. Only Performance Graded Asphalt Binder grades PG 64-28 or PG 52-34 will be used as modifiers and shall meet the requirements of AASHTO M 320.

**2.2 PROCESSED GRAVEL BORROW FOR PAVEMENT SUBBASE**

- A. The compacted Processed Gravel Borrow to be used for gravel access roads and pavement subbase, or other area where a firm, free-draining subgrade is needed shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. The coarse aggregate shall have a percentage of wear, by the Los Angeles Abrasion Test, of not more than 50.
- B. Gradation requirements shall conform to the following:

Sieve	Percent Passing
3"	100
1 ½"	70 – 100
¾"	50 – 85
No. 4	30 – 60
No. 200	0 - 10

- C. Stockpile the processed materials in such a manner to minimize segregation of particle sizes. All processed gravel shall come from approved stockpiles.

**PART 3 EXECUTION**

**3.1 PROCESS GRAVEL BORROW**

- A. Prior to the placement of process gravel borrow, site preparation shall be completed as required by the Contract Documents, and approved by the Engineer.
- B. Place process gravel borrow over the entire area in uniform lifts and compact in accordance with Section 02315.

### 3.2 PAVING – GENERAL

- A. Maintain pavement under this Contract during the guarantee period of one year.
- B. All pavement thicknesses referred to herein are compacted thicknesses. Place sufficient mix to ensure that the specified thickness of pavement results.
- C. When the air temperature falls below 50°F, extra precautions shall be taken in drying the aggregates, controlling the temperatures of the materials and placing and compacting the mixtures.
- D. In no case will pavement be placed until the gravel base is dry and compacted to at least 92.0% maximum density at optimum moisture content.
- E. All pavement edges that have been damaged shall be sawcut again if necessary to re-establish a straight clean line between the existing pavement and paved swale.
- F. Tack Coats
  - 1. The tack coat shall be RS-1 emulsion.
  - 1. The edges of the existing pavement where the joints are to be formed shall be thoroughly coated with tack coat to ensure adhesion between the two pavements.
- G. Thermal segregation of the HMA shall be limited to a maximum of 20 degrees Fahrenheit.
- H. Paving mixture shall be thoroughly compacted with tampers. Such tampers shall not weigh less than 25 pounds and shall have a tamping face no more than 50 square inches in size. The surface of the mixture after compaction shall be smooth and true to the established line and grade.
- I. Following all paving, the area along the edge of all pavement shall be backed up with gravel, or loam and seed as required, so that it is flush with the adjacent paving. Whenever possible, the final surface of the backup material shall slope away from the surface edge for drainage runoff.

### 3.3 PAVING – SWALE

- A. The edges of the existing swale that will abut the repair shall be trued up and cut to smooth and even lines. Cutting shall be done with a saw. The existing paved surface shall be cut to firm ground that has not sloughed or sagged into or toward the excavation.
- B. The exposed subbase shall be regraded and prepared. Processed gravel shall be added or removed as necessary to properly grade the subbase to accept the thickness of new pavement to match the existing pavement.
- C. After the subbase has been approved, install an initial HMA top course followed by an HMA dense mix surface course with thicknesses matching the existing pavement.
- D. Top mix shall be placed and compacted to a point below the surrounded area to allow the second course to be placed flush with the existing swale. A second course of dense

mix shall then be placed at the thickness matching the existing to bring the repaired swale surface to grade.

- E. Repair shall be neat in appearance and shall blend in with the existing adjoining pavement.

END OF SECTION

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## SECTION 02820

## CHAIN LINK FENCES AND GATES

(BID ALTERNATE 1)

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Installation of fence framework, fabric, and accessories; precast concrete post bases; and manual gates and related hardware as shown on the plans and specified herein.
- B. Related Sections
  - 1. 03100 - Concrete Forms and Accessories
  - 2. 03200 - Concrete Reinforcement
  - 3. 03300 - Cast in Place Concrete

## 1.2 REFERENCES

- A. ASTM A53 - Specification for Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless
- B. ASTM A121 - Specification for Zinc-Coated (Galvanized) Steel Barbed Wire
- C. ASTM A123 – Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
- D. ASTM A153 - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- E. ASTM A307 - Specification for Carbon Steel Externally Threaded Standard Fasteners
- F. ASTM A392 – Zinc-Coated Steel Chain-Link Fence Fabric
- G. ASTM A653 – Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-dip Process
- H. ASTM A824 – Metallic Coated Steel Marcellled Tension Wire for Use with Chain Link Fence
- I. ASTM C94 – Ready Mixed Concrete
- J. ASTM F567 – Practice for Installation of Chain Link Fence
- K. ASTM F668 – Poly (Vinyl Chloride) (PVC) Coated Steel Chain Link Fence Fabric
- L. ASTM F900 – Industrial and Commercial Swing Gates
- M. ASTM F1043 – Strength and Protective Coatings on Metal Industrial Chain Link Fence Framework
- N. ASTM F1083 – Pipe, Steel, Hot-dipped Zinc-Coated (Galvanized) Welded, for fence Structures
- O. CLFMI (Chain Link Fence Manufacturers institute) – Product Manual

### 1.3 SUBMITTALS

- A. Shop drawings showing the plan layout, spacing of components, post foundation dimensions, anchorage hardware, security fence extension, barbed wire, gates and a schedule of components.
- B. Data indicating compliance with these specifications for the fabric, posts, accessories, fittings and hardware.

### 1.4 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Supply material in accordance with CLFMI – Product Manual.
- C. Perform installation in accordance with ASTM F567.
- D. Furnish a 10-year factory warranty against corrosion and rust for the entire fencing system.

### 1.5 PRODUCT HANDLING

- A. Deliver fence fabric and accessories in packed cartons or firmly tied rolls.
- B. Packages shall be labeled with the manufacturer's name.
- C. Store fence fabric and accessories in a secure and dry place.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. General - Material furnished shall be new and first quality and shall not have been painted. Steel shall be copper bearing, containing not less than 0.2% pure copper. Materials are to be galvanized.
- B. Framing (Steel): ASTM F1083 Schedule 40 galvanized steel pipe, welded construction, minimum yield strength of 25 ksi; coating conforming to ASTM F1043 Type A on pipe exterior and interior.
- C. Fabric Wire (Steel): ASTM A392 zinc coated wire fabric
- D. Barbed Wire: ASTM A121 galvanized steel strands with galvanized steel barbs; 12 gauge thick wire, 2 strands, 4 points at 3 inches on center.
- E. Concrete: requirements specified in Sections 03100, 03200, and 03300

### 2.2 COMPONENTS

- A. Line Posts: 2.5-inch diameter.
- B. Corner and Terminal Posts: 3-inch.
- C. Gate Posts: 4-inch diameter.
- D. Top and Brace Rail: 1.625-inch diameter, plain end, sleeve coupled.
- E. Gate Frame: 2-inch diameter for welded fabrication.

- F. Fabric: 2-inch diamond mesh interwoven wire, 9 gage thick, top selvage twisted tight, bottom selvage knuckle end closed.
- G. Tension Wire: 6 gage thick steel, single strand, ASTM A824.
- H. Tension Band: 9 gauge steel
- I. Tension bar: 7 gauge steel.
- J. Tie Wire: Aluminum alloy steel wire.
- K. Fastener Hardware: ASTM A307
- L. Precast Concrete Post Blocks: 2-feet by 3-feet by 2-feet

### 2.3 ACCESSORIES

- A. Caps: Cast galvanized steel, vinyl coated, sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners, fittings, and brackets; galvanized vinyl coated steel
- C. Gate Hardware: Fork latch with gravity drop, center gate stop and drop rod, mechanical keepers; three 180 degree gate hinges for each leaf, and hardware for padlock. Hinges shall be non lift-off design

### 2.4 GATES

- A. Gate Types, Opening Widths and Directions of Operation: As indicated on Drawings.
- B. Fabricate gate frames from 2-inch outside diameter pipe
- C. Factory assemble gates.
- D. Gates are to be the same height as the main fence unless noted otherwise.
- E. Design gates for operation by one person.

### 2.5 SWING GATES

- A. Fabricate gates to permit 180 degree swing.
- B. Gates Construction: ASTM F900 with welded corners. Use of corner fittings is not permitted.

### 2.6 FINISHES

- A. Components and Fabric: Vinyl coating black color in accordance with ASTM F934 over galvanized coating to ASTM A53; ASTM A123; ASTM A153, ASTM A653 for components; ASTM A392 for fabric of 2.0 oz/sq ft galvanizing.
- B. Hardware: Same finish as components and fabric.
- C. Accessories: Same finish as components and fabric.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Install fence with posts vertical and components to line and grade shown on Drawings.

- B. Attach post to precast concrete post blocks with brackets and ancillary hardware. Posts shall be center and plumb to the post blocks. Verify vertical and top alignment of posts and make necessary corrections.
- C. Fill gate posts with 4,000 PSI air entrained concrete prior to the installation of gates.
- D. Line post spacing shall be a maximum of 10'-0" center to center.
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.
- F. Corner and terminal posts are to be braced horizontally and diagonally. The braces are to extend over one adjacent panel. Changes in line of 30 degrees or more shall be considered as corners.
- G. Install top rail through line post tops and splice with 6- inch rail sleeves.
- H. Install center, and bottom brace rail on corner gate leaves.
- I. Install framework, fabric, gates, and accessories in accordance with ASTM F567.
- J. Place fabric on outside of posts and rails.
- K. Install nuts for tension bands and hardware bolts on the side of the fence opposite the fabric.
- L. Stretch fabric between terminal posts or at intervals of 100-feet maximum, whichever is less.
- M. Position bottom of fabric 2-inches above finished grade.
- N. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15-inches on centers.
- O. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.
- P. Install bottom tension wire stretched taut between terminal posts.
- Q. Support gates from gate posts.
- R. Install gate with fabric to match fence. Install three hinges on each gate leaf, latch, catches, drop bolt, foot bolts and sockets, torsion spring retainer, retainer and locking clamp.
- S. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.
- T. Miscellaneous - Install nuts for tension bands and hardware bolts on the side of the fence opposite the fabric. Repair galvanized coating where damaged using hot-applied repair compound applied in accordance with the manufacturer's recommendations.
- U. Repair damage to galvanized coating using hot-applied repair compound in accordance with the manufacturer's recommendations.

### 3.2 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: ¼ inch in 8 feet.
- B. Maximum Offset From Indicated Position: 1-inch.



END OF SECTION

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## SECTION 02920

## LAWNS AND GRASSES

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Restoration of all vegetated areas disturbed during construction including:
    - a. Grass surfaces
  - 2. Loam, starter fertilizer, lime, and lawn seed

## 1.2 SUBMITTALS

- A. Lawn seed mixture including percent by weight of each seed type, and manufacturer/Supplier name.
- B. Suitable laboratory analysis of the topsoil to determine the quantity of fertilizer and lime to be applied.
- C. Lime and starter fertilizer application rates based on laboratory soil tests.
- D. A sworn certificate indicating each variety of seed, weed content, germination of seed, net weight, date of shipment and manufacturer's name shall accompany each seed shipment.

## 1.3 QUALITY ASSURANCE

- A. Place seed only between the periods from April 15<sup>th</sup> to June 1<sup>st</sup>, and from August 15<sup>th</sup> to October 1<sup>st</sup>, unless otherwise approved by the Engineer.

## PART 2 PRODUCTS

## 2.1 MATERIALS

- A. Loam
  - 1. Loam from offsite, as required for Work, shall be taken from a well-drained, arable site, and shall be free of subsoil, large stones, earth clods, sticks, stumps, clay lumps, roots or other objectionable, extraneous matter or debris. Loam shall also be free of quack-grass rhizomes, Agropyron Repens, and the nut-like tubers of nutgrass, Cyperus Esculentus, and all other primary noxious weeds. Loam shall not be delivered or used for planting while in a frozen or muddy condition. Topsoil as delivered to the Site or stockpiled shall have pH between 6.0 and 7.0 and shall contain not less than 5 percent or more than 8 percent organic matter as determined by loss of ignition of moisture-free Samples dried at 100 degrees Celsius.
  - 2. Onsite loam may be available from stripping of onsite topsoil for reuse.
  - 3. Soil Analysis: The Contractor shall submit representative Samples of loam, which they intends to bring onto the Site, and Samples of loam from onsite sources, to a Soil and Plant Testing Laboratory acceptable to the Engineer. All reports shall be sent to the Engineer for approval. Samples of loam to be brought

to the Site must be approved prior to delivery of soil. Deficiencies in the loam shall be corrected by the Contractor, as directed by the Engineer after review of the testing agency report by a soils consultant. Testing reports shall include the following tests and recommendations.

- a. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System.
  - b. The silt clay content shall be determined by a Hydrometer Test.
  - c. Percent of organics shall be determined by an Ash Burn Test or Walkley/Black Test.
  - d. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum, Soluble Salts, and acidity (pH).
  - e. Soil analysis tests shall show recommendations for soil additives to correct soils deficiencies as necessary, and for additives necessary to accomplish particular lawn and planting objectives noted.
  - f. All tests shall be performed in accordance with the current standards of the Association of Official Agriculture Chemists.
4. Loam for General Lawn and Site Restoration Areas: Loam shall conform to the following grain size distribution for material passing the #10 sieve:

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	100	----
18	84	100
35	63	72
140	26	40
270	22	34
0.002 mm	2	5

<sup>1</sup>The ratio of the particle size for 80% passing (D<sub>80</sub>) to the particle size for 30% passing (D<sub>30</sub>) shall be 6 or less (D<sub>80</sub>/D<sub>30</sub> < 6).

<sup>2</sup>Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 20% by weight of the total sample.

<sup>3</sup>Tests shall be by combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.

<sup>4</sup>The organic content shall be between 4.0 and 6.0 percent.

- 5. Place a minimum of 4 inches of loam.

**B. Typical Sand Amendment**

- 1. Sand to be mixed with topsoil shall meet the following requirements. The material shall be uniformly graded coarse sand consisting of clean, inert, rounded

grains of quartz or other durable rock and free from loam or clay, surface coatings, mica, other deleterious materials with the following gradation.

U.S. Sieve Size Number	Percent Passing	
	Minimum	Maximum
10	100	----
18	60	80
35	35	55
60	8	20
140	0	8
270	0	3
0.002 mm	0	0.3

<sup>1</sup>Maximum size shall be one-inch largest dimension. The maximum retained on the #10 sieve shall be 10% by weight of the total sample.

<sup>2</sup>The ratio of the particle size for 70% passing ( $D_{70}$ ) to the particle size for 20% passing ( $D_{30}$ ) shall be 3.0 or less ( $D_{70}/D_{20} < 3.0$ ).

<sup>3</sup>Tests shall be combined hydrometer and wet sieving in compliance with ASTM D422 after destruction of organic matter by ignition.

C. Starter Fertilizer

1. Starter fertilizer shall bear the manufacturer’s name and guaranteed statement of analysis, and shall be applied in accordance with the manufacturer’s directions.
2. Starter fertilizer shall be Scott’s Starter Fertilizer, or equal, with timed nitrogen release to prevent burning.

D. Lime

1. Lime shall be an agricultural type ground limestone.
2. Lime shall be pelletized type for prolonged time release to soil.
3. Lime shall be applied at the rates recommended in the soil analysis.

E. Seed

1. Seed shall be of the previous year's crop.
2. Required properties:
  - a. Purity > 90%
  - b. Germination > 80%
  - c. Crop < 0.5%
  - d. Weed < 0.3%
  - e. Noxious Weed – 0%
  - f. Inert < 8%

3. Grass seed shall conform to the following mixture in proportion by weight and weed content and shall pass the minimum percentages of purity and germination as indicated for same.

<b>Lawn Area Seed Mix</b>	<b>% Weight</b>
“Rebel II” Tall Fescue	70%
“Baron” Kentucky Bluegrass	10%
“Palmer” Perennial Ryegrass	20%

4. All seed shall comply with State and Federal seed Laws and Regulations.

**PART 3 EXECUTION**

**3.1 PREPARATION**

- A. The subgrade surface shall be scarified to a depth of four (4) inches then furnish and install a layer of loam providing a rolled four (4) inch thickness. Any depressions which may occur during rolling shall be filled with additional loam, regraded and rerolled until the surface is true to the finished lines and grades. All loam necessary to complete the Work under this section shall be supplied by the Contractor.
- B. The ground surface shall be fine graded and raked to prepare the surface of the loam for lime, fertilizer and seed.
- C. The loam shall be prepared to receive seed by removing stones and grading to eliminate water pockets and irregularities prior to placing seed. Finish grading shall result in straight uniform grades and smooth, even surfaces without irregularities to low points.
- D. All stones over one-half (1/2) inch in diameter remaining on the surface after raking shall be removed.
- E. Shape the areas to the lines and grades required. The Contractor's attention is directed to the scheduling of Loaming and Seeding of graded areas to permit sufficient time for the stabilization of these areas.
- F. All areas disturbed by construction within the property lines and not covered by structures, pavement, or bark mulch shall be loamed and seeded.
- G. Limestone shall be thoroughly incorporated into the loam layer at a minimum rate of 3 ton per acre or more as recommended by the loam analysis in order to provide a pH value of 5.5 to 6.5.
- H. Fertilizer shall be spread on the top layer of loam at the minimum rate of 500 pounds per acre or more as recommended by the loam analysis and worked into the surface

**3.2 LOAM AND SEED AREAS**

- A. The seed mixtures shall be applied at a minimum rate of 200 pounds per acre, or 4.5 pounds per 1,000 square feet.
- B. Seed shall be sown at the rates indicated above by rotary or drop spreader. Sowing shall be done on a calm, dry day. Immediately before seeding, the soil shall be lightly raked. One half the seed shall be sown in one direction and the other half at right angles to the

original direction. It shall be lightly raked into the soil to a depth not over 1/4 inch and rolled with a hand roller weighing not over 100 pounds per linear foot of width.

1. Straw mulch shall be applied immediately after seeding at a rate of 1.5 to 2 tons per acre. Mulch that blows or washes away shall be replaced immediately and anchored using appropriate techniques.
  2. The surface shall be watered and kept moist with a fine spray as required, without eroding the soil, until the grass is well established. Any areas, which are not satisfactorily covered with grass, shall be reseeded, and all noxious weeds shall be removed.
- C. Unless otherwise approved, seeding shall be done between the periods from April 15<sup>th</sup> to June 1<sup>st</sup>, and August 15<sup>th</sup> to October 1<sup>st</sup>, when soil conditions and weather are suitable for such Work.

### 3.3 MAINTENANCE

- A. Maintenance shall include watering, weeding, removal of stones and other foreign objects over one half (½) inch in diameter, cutting the grass until final acceptance. Mow at least weekly, removing no more than 30-40 percent of the leaf tissue using well sharpened blades. Mow grass between one (1) and two (2) inches high in the spring and fall. Mowing heights shall be an additional one-half to an inch in the summer to reduce temperature stress. Leave the clippings in place to help recycle essential plant nutrients needed for growth. All bare or dead spots which become apparent shall be properly prepared, re-loamed, limed, aerated, fertilized, and reseeded as many times as necessary to secure a good growth. The entire area shall be maintained, watered and cut until final acceptance of the lawn installation.
- B. The dressed and seeded areas shall be sprinkled with water as necessary from time to time. Signs and barricades should be placed to protect the seeded areas.
- C. To be acceptable, seeded areas shall consist of a uniform stand without bare or dead spots of at least 90 percent established permanent grass species, with uniform count of at least 200 plants per square foot.
- D. The Engineer shall determine whether maintenance shall continue in any part.
- E. After all necessary corrective Work and clean-up has been completed, and maintenance instructions have been received by the Owner, the Engineer will certify in writing the acceptance of the lawns.
- F. Substantial Completion will not be achieved until the seeded areas have demonstrated a satisfactory stand of growth as determined by the Engineer. Seeded areas not demonstrating satisfactory stands as outlined above, as determined by the Engineer, shall be renovated, reseeded and maintained meeting all requirements as specified herein.

END OF SECTION

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**DIVISION 3 – CONCRETE**

## SECTION 03100

## CONCRETE FORMS AND ACCESSORIES

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Wood Form Material
  - 2. Prefabricated Forms
  - 3. Formwork Accessories
- B. Related Sections
  - 1. Section 03300 - Cast-in-Place Concrete

## 1.2 REFERENCES

- A. National Institute of Standards and Technology (NIST)
  - 1. Voluntary Product Standard PS 1-95 - Construction and Industrial Plywood

## 1.3 SUBMITTALS

- A. Drawings showing sizes and materials for forms, inserts, bracing, spreaders, and other materials used.
  - 1. Drawing shall include provisions outlining how access manhole openings will be covered and protected from any debris entering the reservoirs during construction activities.
- B. Product Data on form release agent, forms, insets, bracing, spreaders, and other materials requested by the Engineer.

## PART 2 PRODUCTS

## 2.1 WOOD FORM MATERIALS

- A. Plywood: Class I High Density Overlay plyform, exterior grade, not less than 5 ply nor less than 5/8 inches thick conforming to Voluntary Product Standard PS 1-95
- B. Lumber: Douglas Fir species, No. 1 grade S4S with grade stamp clearly visible

## 2.2 PREFABRICATED FORMS

- A. Manufacturers:
  - 1. Symons Corporation, DesPlains, Illinois
  - 2. HICO Corporation, Bronx, NY
  - 3. Or equal
- B. Preformed Steel Forms: Minimum 16 gage (1.5 mm), tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearances of finished concrete surfaces; with clean, warp free, undented, unougged, undamaged surfaces



- C. Glass Fiber Fabric Reinforced Plastic Forms: Matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearances of finished concrete surfaces

## 2.3 FORMWORK ACCESSORIES

- A. Form Release Agent:
  - 1. Non-staining and non-emulsifiable type which will not stain concrete or absorb moisture nor interfere with adherence of any material to be applied to concrete surfaces.
  - 2. Form release agent for potable water tanks and structures shall be vegetable oil based and shall be NSF approved for use with potable water.
- B. Corners:
  - 1. Chamfered No. 1 Poplar wood strips;  $\frac{3}{4}$  inch by  $\frac{3}{4}$  inch; maximum possible lengths

## PART 3 EXECUTION

### 3.1 GENERAL

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with Drawings.
- B. Review all work prepared by others to receive work of this Section and correct any defects affecting installation. Commencement of work by the Contractor will be construed as complete acceptance of preparatory work by others.
- C. Handle and store materials separately in such manner as to prevent intrusion of foreign matter, segregation, or deterioration. Do not use foreign materials or those containing frozen material. Remove improper and rejected materials immediately from point of use. Cover materials and accessories during construction period.

### 3.2 FORM PREPARATION

- A. Coat contact surfaces of forms with a form release agent prior to form installation.
- B. Thoroughly clean steel forms between uses using high pressure water or jet or sand blasting to remove all mill scale, concrete laitance or other ferrous deposits from the contact surfaces of the forms.
- C. Before re-use of wood forms, thoroughly clean form contact surfaces, repair damaged areas and remove projecting nails. A partial or complete steel lining on wood sheathing or plywood will not be allowed.

### 3.3 FORM REMOVAL

- A. The Contractor shall be responsible for damage resulting from form removal. Form removal shall conform to the requirements specified in Section 03300.

### 3.4 INSPECTION

- A. The Engineer shall be notified when the forms are complete and ready for inspection at least thirty-six hours prior to the proposed concrete placement.
- B. Failure of the forms to comply with the requirements specified herein, or to produce concrete complying with requirements of these Specifications, shall be grounds for

rejection of that portion of the concrete work. Rejected work shall be repaired or replaced at no additional cost to the Owner. Such repair or replacement shall be subject to the requirements of these Specifications and approval of the Engineer.

END OF SECTION

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## SECTION 03200

## CONCRETE REINFORCEMENT

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Reinforcing Steel Bars
  - 2. Reinforcing Accessories
- B. Related Sections
  - 1. Section 03100 - Concrete Forms and Accessories
  - 2. Section 03300 - Cast-in-Place Concrete

## 1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
  - 1. A615 - Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement
- B. Concrete Reinforcing Steel Institute (CRSI)
  - 1. CRSI 63 - Recommended Practice for Placing Reinforcing Bars
  - 2. CRSI 65 - Recommended Practice for Placing Bar Supports, specifications and nomenclature

## 1.3 SUBMITTALS

- A. Prior to delivery of reinforcing steel or concrete to job site, submit certified mill test reports of reinforcing steel and cement (including names and locations of mills and shops, and analyses of chemical and physical properties), properly correlated to concrete to be used in this project.

## 1.4 DELIVERY, HANDLING AND STORAGE

- A. Reinforcing steel shall be substantially free from mill scale, rust, dirt, grease, or other foreign matter.
- B. Reinforcing steel shall be covered and stored off the ground, protected from moisture, and kept free from dirt, oil, or other foreign matter.

## PART 2 PRODUCTS

## 2.1 REINFORCING STEEL BARS

- A. Reinforcing steel bars shall be newly rolled billet steel conforming to ASTM A615, Grade 60.
- B. Minimum yield strength shall be 60,000 psi.

- C. Where reinforcing steel bars are called for to be grouted into existing concrete, the anchorage shall develop an allowable bond strength equal to 24,000 psi times the cross section area of the bar, or an ultimate strength equal to the tensile strength of the bar.
  - 1. For installations in non-submerged concrete with an ambient temperature greater than or equal to 40 degrees Fahrenheit, the epoxy adhesive shall be, Hilti HIT\_HY 200, Simpson SET-XP, Powers PE 1000+ or approved equal.

## 2.2 REINFORCEMENT ACCESSORIES

- A. Reinforcement accessories shall conform to Product Standard PS7-766, National Bureau of Standards, Department of commerce, Class C, as produced by Dayton Superior Corporation; R.K.L. Building Specialties Co., Inc. or equal approved by the Engineer.
- B. Reinforcement accessories shall include spacers, chair ties, slab bolsters, clips, chair bars, and other devices for properly assembling, placing, spacing, supporting, and fastening reinforcement.
- C. Tie wire shall be of sufficient strength for all intended purpose, but not less than No. 18 gauge. Metal supports shall be of such type as not to penetrate surface of formwork and show through surface of concrete.
- D. Accessories touching interior formed surfaces exposed to view shall have not less than 1/8 inch of plastic between metal and concrete surface. Plastic tips shall extend not less than 1/2 inch up on metal legs.
- E. Individual and continuous slab bolsters and chairs shall be of type to suit various conditions encountered and must be capable of supporting 300 pound load without damage or permanent distortion.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Review all work prepared by others to receive work of this Section. Commencement of work will be construed as complete acceptance of preparatory work by others.

### 3.2 PREPARATION

- A. Notify the Engineer prior to the start of any phase of the reinforcing work so as to provide the opportunity to inspect the work. Such notification shall be made at least 24 hours in advance of reinforcement placements and at least 36 hours in advance of other inspections (forms, etc.).

### 3.3 REINFORCING BAR FABRICATION

- A. Fabrication of reinforcement shall be in accordance with the recommendations of CRSI.
- B. Reinforcing bars shall be cold bent and shall not be straightened or re-bent. Bars shall not be field bent unless approved by the Engineer.
- C. Reinforcing bars shall be bent around a revolving collar having a diameter of not less than that recommended by the CRSI.
- D. Reinforcing bar ends that are to be butt spliced or threaded, shall have the applicable end saw-cut. Such ends shall terminate in flat surfaces at a right angle to the axis of the bar.

### 3.4 INSTALLATION

- A. Reinforcement shall be placed in accordance with requirements of CRSI -63 - "Recommended Practice for Placing Reinforcing Bars" and CRSI 65, "Recommended Practice for Placing Bar Supports" and with further requirements below.
- B. Reinforcement shall be accurately placed in accordance with Contract Documents and shall be firmly secured in position by wire ties, chairs, spacers, and hangers, each of type approved by the Engineer. For slabs, grade beams, etc. where concrete is poured on grade, use additional setup bars and concrete brick to provide required cover over reinforcement.
- C. Bending, welding, or cutting reinforcement in field in any manner other than as shown on Drawings, is prohibited, unless specific approval for each case is given by the Engineer.
- D. Reinforcement shall be spliced only in accordance with requirements of Contract Documents or as otherwise specifically approved. Splices of reinforcement at points of maximum stress shall generally be avoided.

### 3.5 FIELD QUALITY CONTROL

- A. The Engineer shall have the right to postpone or stop concrete operations when in his judgment, reinforcement and embedded item installation has not been properly completed or the quality of construction will impair strength and durability or desired finished product. Costs arising from delays due to noncompliance will not be considered.
- B. Any material or workmanship that is rejected, either at the batch plant or at the site, shall be replaced promptly at no additional cost to the Owner.
- C. Before concrete is placed, reinforcement shall be free of excessive rust, dirt, oil, scale or other foreign matter that will destroy or reduce bond requirements. Reinforcement expected to be exposed to weather for a considerable length of time shall be painted with a heavy coat of cement grout. Protect stored materials so as not to bend or distort bars in any way. Bars that become damaged will be rejected.
- D. Before concrete is placed, check all installed reinforcement to ensure that it conforms to Contract Documents and approved Shop Drawings. Such checking shall be done only by qualified experienced personnel. In addition, the Engineer shall be notified at least 36 hours prior to concrete placement and given opportunity to inspect completed reinforcement. Prior approval of Shop Drawings shall in no way limit the Engineer's right to require modifications or additions to reinforcement or accessories.

### 3.6 ADJUSTING

- A. Carry out corrections without delay as directed by the Engineer when construction operations indicate that requirements of Contract Documents or prudent construction practices are being or are about to be violated.

END OF SECTION

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## SECTION 03300

## CAST-IN-PLACE CONCRETE

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Concrete Materials
  - 2. Admixtures
  - 3. Concrete Mix
  - 4. Miscellaneous Concrete Materials
- B. RELATED SECTIONS
  - 1. Section 03100 - Concrete Forms and Accessories

## 1.2 REFERENCES

- A. American Concrete Institute (ACI)
  - 1. ACI 305 - Hot Weather Concreting
  - 2. ACI 306.1-90 - Standard Specifications for Cold Weather Concreting
- B. American Society for Testing and Materials (ASTM)
  - 1. C33 – Standard Specification for Concrete Aggregates
  - 2. C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
  - 3. C40 - Standard Test Method for Organic Impurities in Fine Aggregates for Concrete
  - 4. C42 – Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
  - 5. C87 - Standard Test Method for Effect of Organic Impurities in Fine Aggregate on Strength of Mortar
  - 6. C94 - Standard Specification for Ready-Mixed Concrete
  - 7. C131 - Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
  - 8. C150 – Standard Specification for Portland Cement
  - 9. C260 - Standard Specification for Air-Entraining Admixtures for Concrete
  - 10. C494 - Standard Specification for Chemical Admixtures for Concrete
  - 11. C535 - Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

12. C618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
13. C685 – Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
14. C881 – Standard Specification for Epoxy-Resin Base Bonding Systems for Concrete
15. C989 – Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars
16. C1059 – Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete

### 1.3 SUBMITTALS

- A. Submit concrete mix proposed for use, indicating design strength, supplier, batch quantities, and constituents. Provide test report copies indicating prior satisfactory performance in accordance with ACI 301.
- B. Submit data and descriptive literature for concrete constituents including admixtures, aggregate tests, bond breaker, bonding agent, and repair grout.
- C. Submit detailed methods proposed for curing and protection of concrete. This submittal shall be made not less than 10 days prior to the placement of any concrete.
- D. Submit a truck load ticket for every concrete delivery. Ticket information shall include batch time and date, weights of all constituents, quantity of admixtures, water added at the batch plant and moisture content of coarse and fine aggregates.
- E. Maintain an accurate daily record of the locations and quantity of concrete placed.

### 1.4 QUALITY ASSURANCE

- A. Provide inspection of cast-in-place concrete work, and testing, including slump tests, air content, and standard compression testing. Materials and workmanship shall be subjected to inspection and testing in mill, shop and/or field by the Engineer. Such inspection and testing shall not relieve Contractor of his responsibility to provide his own inspection, testing, and quality control as necessary to furnish materials and workmanship in accordance with requirements of this Section.
- B. Provide notification prior to the start of any phase of concrete placement work so as to provide the opportunity to inspect the work. Such notification shall be made at least 24 hours in advance of concrete placements and at least 36 hours in advance of other inspections (forms, rebar, etc.).
- C. Facilitate observation by the Engineer as well as inspection and testing by the concrete testing agency, and furnish the following:
  1. Safe access to the work at all times to allow proper inspection of the work
  2. Full and ample means and assistance for sampling and testing materials and proper facilities for inspection of work in plant and at project site
  3. Covered box large enough to contain twenty-four standard concrete cylinders. At temperatures below 60°F, box shall be electrically heated and thermostatically controlled to maintain inside temperature of 60° to 80°F. Cylinders shall be

placed in box immediately after molding and shall be covered with moist burlap until delivery to laboratory, 24 to 72 hours after molding.

4. Access by the Engineer or his representative to the batch plant supplying the concrete at any time.
- D. Compression tests shall consist of one set of 4 cylinders for each test made, cured, and tested by testing laboratories during progress of job. 6 cylinders shall be required for each test made with concrete mix containing fly ash or ground granulated blast furnace slag. One set of cylinders shall be taken for every 100 cubic yards of concrete or fraction thereof placed in any one day.
1. 1 cylinder of each set shall be tested for 7-day compressive strength; 2 cylinders shall be tested for 28-day compressive strength. The remaining cylinder shall be tested for 56-day compressive strength if either one of the 28-day tests are below the specified strength, otherwise the 56-day test will be eliminated.
  2. For modified mix with fly ash or ground granulated blast furnace slag, 1 cylinder of each set shall be tested for 7-day compressive strength, 2 cylinders shall be tested for 28-day compressive strength and 2 cylinders shall be tested for 56-days compressive strength. The remaining cylinder shall be tested for 84-day compressive strength if either one of the 56-day tests are below the specified strength, otherwise the 84-day test will be eliminated.
  3. Compression strength test of cylinders shall conform to ASTM C39, latest revision. The testing laboratory will submit certified copies of the test results directly to the Engineer and the Owner within 24 hours after tests are made.
  4. Sampling, molding, curing and testing of cylinders shall conform to ASTM requirements. Specimens shall be cured under laboratory conditions. The Engineer may require additional cylinders to be cured under field conditions when unusual conditions may tend to reduce concrete strength.
  5. Report of tests shall include: name of project, date and location of concrete placement, design strength of concrete, mix data, slump, air content (if tested), compressive strength, age and condition of test cylinder, type of fracture, and type of curing.
- E. Slump test, to check consistency, shall be made from the sample used to mold cylinders. Additional slump tests may be taken of every batch delivered to job site.
- F. Tests for determination of air content shall be made as required to verify conformance with the specifications.
- G. The strength level of the concrete mix shall be considered satisfactory if both of the following criteria are satisfied:
1. Every arithmetic average of any three consecutive strength tests equals or exceeds the specified design strength.
  2. No individual strength test (average of two cylinders from the same test group) falls below the specified design strength by more than 500 psi when the specified design strength is 5000 psi or less or by more that 10 percent of the specified design strength when the design strength is more than 5000 psi.
- H. When tests of control specimens fall below these requirements, the Engineer will require 56 day or 84 day cylinder tests or core specimens taken from concrete in



question and tested in accordance with ASTM C42. If these specimens do not meet strength requirements, the Engineer has the right to require additional curing, load tests, strengthening or removal and replacement of those parts of the structure which are unacceptable, and in addition, removal of such sound portions of structure as necessary to ensure safety, appearance, and durability of structure. Additional testing, load tests, strengthening or removal and replacement of parts or structure and any costs associated with delay of project shall be at no additional cost to the Owner.

- I. Any material or workmanship which is rejected, either at the batch plant or at the site, shall be replaced promptly at no additional cost to the Owner.
- J. If arrangements for corrections and/or replacements are not made within seven days after notice of rejection, the Owner has the right to have corrections and/or replacement made and charge cost thereof and any costs associated with delay of project against balance of monies withheld.
- K. Acceptance of work and admixtures at the batch plant shall not prevent final rejection at job site upon arrival or after it has been installed, if work is found to be defective.
- L. Portions of a structure which do not meet the requirements of the Contract Documents based on appearance or for any other aesthetic reason, shall be corrected or removed and replaced at no additional cost to the Owner.
- M. Work on new concrete structures shall conform to the requirements of ACI 306.1, Standard Specifications for Cold Weather Concreting, except as modified herein.

## PART 2 PRODUCTS

### 2.1 CONCRETE MATERIALS

- A. Cement: shall be American-made Portland Cement, free from water soluble salts or alkalis which will cause efflorescence on exposed surfaces. Portland Cement shall be Type II, ASTM C150. Air entraining cements are prohibited.
- B. Pozzolans and Blast Furnace Slag
  - 1. Fly Ash: Class F conforming to the requirements of ASTM C618.
  - 2. Ground Granulated Iron Blast-Furnace Slag: Conforming to ASTM C989.
- C. Normal weight Fine Aggregate
  - 1. Washed, inert, natural sand conforming to ASTM C33 and the following additional requirements.
    - a. Fineness Modulus 2.75 (plus/minus 0.25)
    - b. Clay lumps and friable particles – 3.0 percent maximum
    - c. Coal and lignite – 0.5 percent maximum
    - d. Organic Impurities (ASTM C40) – Organic Plate No. 2
    - e. Strength of Mortar (ASTM C87) – not less than 95 percent at 7 days
    - f. Soundness (AASHTO T-104) - 10 percent maximum loss (magnesium sulfate solution, five cycles)
- D. Normal weight Coarse Aggregate

1. Well graded crushed stone or washed gravel conforming to ASTM C33 and the following additional requirements:
    - a. Material finer than No. 200 sieve – 1.0 percent maximum
    - b. Clay lumps and friable particles – 2.0 percent maximum
    - c. Chert (less than 2.40 specific gravity, saturated surface dry) – 3.0 percent maximum by weight.
    - d. Sum of clay lumps, friable particles, and chert (less than 2.40 specific gravity, saturated surface dry) – 3.0 percent maximum by weight. This limitation only applies to aggregates in which chert appears as an impurity.
    - e. Coal and lignite – 0.5 percent maximum
    - f. Soundness - 18 percent maximum loss (magnesium sulfate solution, five cycles)
    - g. Soundness - 10 percent maximum loss (sodium sulfate solution, five cycles)
  2. Coarse aggregates shall not exceed 35% by weight "percentage of wear" as determined by the Los Angeles Abrasion and Impact Tests in ASTM C131 and C535.
- E. Water shall be from approved source, potable, clean and free from oils, acids, alkali, organic matter and other deleterious material.

## 2.2 ADMIXTURES

- A. Water-reducing agent:
1. Water-reducing agent shall be by same manufacturer as air-entraining agent.
  2. Daracem - 55 W.R. Grace & Co.
  3. Pozzolith 220N – BASF Admixtures, Inc.
  4. Eucon MR - Euclid Chemical Co.
  5. Or equal conforming to ASTM C494 Type A.
- B. Air-entraining agent:
1. DAREX AEA - W.R. Grace & Co.
  2. MB-VR or MB-AE90 - BASF Admixtures, Inc.
  3. Air-Mix - Euclid Chemical Co.
  4. Or equal conforming to ASTM C260.
- C. Admixtures which retard setting of cement in concrete shall not be used without written approval of the Engineer. Admixtures causing accelerated setting of cement in concrete shall not be used.

## 2.3 CONCRETE MIX

- A. Select proportions of ingredients to meet the design strength and materials limits specified and to produce concrete having proper placability, durability, strength,

appearance and other required properties. Proportioning shall also conform to the requirements in ACI 301 and ACI 318.

- B. The concrete mix design shall be a 4000 psi compressive strength concrete using ¾ inch aggregate. The design mix shall be selected based on previous test records for a mix with essentially the same proportions, and shall meet the following limiting values in Table A:

**TABLE A**  
Maximum Allowable Water/Cement Ratios

Minimum Allowable 28 day Compressive Strength (psi)	Maximum Allowable Water/Cement Ratio	Total Cementitious Material (Pounds)	
		Min	Max
4000	0.45	611	635

- C. If sufficient test records are not available, (at least 30 consecutive strength tests or two groups of tests totaling at least 30 within the past 12 months), the design mix shall be developed using laboratory trial mixtures in accordance with ACI 301.
- D. All concrete is normal weight with air-dry weight not to exceed 150 lbs. per cubic foot.
- E. Fly ash may be substituted for up to 20 percent by weight of the total cementitious material. Ground granulated iron blast-furnace slag may be substituted for up to 40 percent by weight of the total cementitious material.
- F. For concrete flatwork with a steel trowel finish, fly ash may be substituted for up to 10 percent by weight and ground granulated iron blast-furnace slag may be substituted for up to 25 percent by weight of the total cementitious material.
- G. All concrete shall contain the approved air-entraining admixture as per manufacturer's written instructions to provide entrained air by volume in the cured concrete between 4.5 and 7.5%.
- H. The design mix shall meet the following slump limiting values in Table B:

**TABLE B**  
Concrete Slump<sup>1</sup>

Portion of Structure	Recommended (inches)	Maximum Range (inches)
Walls, Column, Beams	4	3-5

<sup>1</sup>After addition of high range water reducer

- I. The approved water-reducing admixture shall be used in all concrete, in accordance with manufacturer's written instructions.

**2.4 MISCELLANEOUS MATERIALS**

- A. Grout shall be a ready-to-use, non-metallic, non-shrink aggregate product requiring only the addition of water at the job site. Grout shall be as manufactured by Five Star Products, Inc.; Euclid Chemical Company; Master Builders; or equal. Grout shall be easily workable and shall have no drying shrinkage at any age. Compressive strength

of grout (2 inch by 2 inch cubes) shall not be less than 5000 psi at 7 days, and 7500 psi at 28 days.

- B. Bonding Agent:
  1. Provide a two-component, 100% solids, moisture –tolerant structural epoxy adhesive conforming to ASTM C881, Type II. The bonding agent shall be Sikadur 32 Hi-Mod by Sika Corporation of Lyndhurst, NJ, Concessive Liquid (LPL) by Degussa Admixtures, Inc. of Cleveland, OH or equal.
  2. Latex bonding agent shall be a non-remulsifiable acrylic-polymer latex conforming to ASTM C1059 Type II.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify cover requirements over all reinforcement.
- B. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.
- C. Verify site conditions to ensure that full access is available for placement of concrete.

**3.2 MIXING, CONSISTENCY, AND DELIVERY OF CONCRETE**

- A. Concrete shall be ready-mixed, produced by a central batch plant. Hand or site mixing shall not be allowed. Constituents, including admixtures, shall be batched at the central batch plant. Admixtures shall be premixed in solution form and dispensed as recommended by the manufacturer.
- B. Central plant and rolling stock equipment and methods shall conform to Truck Mixer and Agitator Standard of Truck Mixer Manufacturer's National Ready-Mixed Concrete Association, ASTM C94, ASTM C685, and Contract Documents. Consistency of concrete at time of placement shall be at a 3 inch slump, +/- 1 inch.
- C. Ready mixed concrete shall be transported to the site in watertight agitator or mixer trucks loaded not in excess of rated capacities. Discharge at site shall be within one and one-half hours after cement is first introduced into the aggregates. Concrete with a temperature greater than 90°F. shall be rejected and removed from the site.
- D. During any of the following conditions: high ambient temperature, high concrete temperature, low relative humidity, increased wind velocity, high solar radiation, when the temperature of the concrete is 85°F or above, the time between the introduction of cement to the aggregates and discharge shall not exceed one hour. In addition, when the rate of evaporation on the surface of the concrete is expected to approach 0.2 lb/ft<sup>2</sup>/hr. (see chart in ACI 305R) special precautions shall be taken against the formation of plastic shrinkage cracking on the surface of the concrete after placement.
- E. During any period when for more than three successive days the average daily outdoor temperature drops below 40°F, the concrete temperature at the time of placement shall be as specified in Table C below.

**TABLE C**  
Concrete Temperature During Cold Weather

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Least dimension of section, inches.	Minimum temperature of concrete as placed and maintained during the protection period, °F	Maximum gradual decrease in surface temperature during any 24 hours after end of protection, °F
Less than 12	55	50
12 to less than 36	50	40
36 to 72	45	30
Greater than 72	40	20

- F. Central mixed concrete shall be plant mixed a minimum of five minutes. Agitation shall begin immediately after premixed concrete is placed in truck and shall continue without interruption until discharged. Transit mixed concrete shall be mixed at mixing speed for at least ten minutes immediately after charging truck followed by agitation without interruption until discharged.
- G. Retempering of concrete which has partially hardened by mixing with or without additional cement, aggregates, or water shall not be permitted.

3.3 PLACING CONCRETE

- A. Remove excess water and foreign matter from forms. Provide adequate protection against frost action during freezing weather.
- B. Transport concrete from mixer to place of final deposit as rapidly as practical by methods which prevent separation of ingredients and displacement of reinforcements, and which avoid re-handling. Do not deposit partially hardened concrete.
- C. When concrete is conveyed by chutes, equipment shall be of such size and shape to ensure continuous flow in chute. Flat (coal) chutes shall not be used. Chutes shall be of metal or metal lined and uniformly sloped. Slope shall not be less than 25° nor more than 45° from horizontal. Concrete shall be lowered and maintained as near to the surface of deposit as practicable. The chute shall be thoroughly cleaned before and after each use and debris and any water shall be discharged in an agreed upon location established by the Owner and Engineer. Concrete shall not be allowed to flow horizontally over distances exceeding 10 feet or dropped vertically over 6 feet.
- D. When concrete is conveyed by concrete pumps, equipment shall be of such size and capacity to ensure continuous flow in the line. Lines shall be metal or rubber piping. Minimize pumping lengths to the best extent possible, Line segments and fittings shall be cleaned before and after each used and any water shall be discharged in an agreed upon location established by the Owner and Engineer.
- E. Place concrete in such a manner as to prevent segregation and accumulations of hardened concrete on forms or reinforcement above the grade of concrete being placed.
- F. Thoroughly consolidate each layer of concrete by rodding and vibrating using internal type mechanical vibrator. Vibration shall be done by experienced operators under close supervision and shall be carried on only enough to produce homogeneity and optimum consolidation without permitting segregation of constituents or "pumping" of air. Vibrators used for normal weight concrete shall operate at speeds of not less than 7,000 vpm and be of suitable capacity. Do not use vibrators to move concrete. Vibration shall be supplemented by spading to remove bubbles and honeycombs adjacent to visible

surfaces. At least one vibrator shall be on hand for every 10 cubic yards of concrete placed per hour, plus one spare. Vibrators shall be operable and on site prior to starting concrete placement.

- G. Deposit concrete continuously, and in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause formation of seams and planes of weakness within the section. If a section cannot be placed continuously between planned construction joints, as specified, field joints and additional reinforcement shall be introduced at the Contractor's expense to preserve structural continuity.
- H. Cold joints, particularly in exposed concrete, including "honeycombs", are unacceptable. If they occur in concrete surfaces exposed to view, the Engineer will require that entire section in which blemish occurs be removed and replaced with new materials at the Contractor's expense.

### 3.4 CURING AND PROTECTION

- A. When concrete is placed at or below an ambient air temperature of 40°F. or whenever this temperature or lower values are likely to occur within 48 hours after placement of concrete, cold weather concreting procedures, according to ACI 306.1 and as specified herein, shall be followed. The entire area affected shall be protected by adequate housing or covering, and heating. No salt, chemicals or other foreign materials shall be used in the mix to lower the freezing point of concrete. No oil or kerosene heaters shall be utilized. Vent flue gases from combustion heating units to the outside of the enclosure.
- B. No frozen materials shall be used in batching concrete and any ice shall be removed from coming into contact with the concrete.
- C. Protect concrete work against injury from heat, cold, and defacement of any nature during construction operations.
- D. Concrete shall be treated and protected immediately after concreting or cement finishing is completed, to provide continuous moist curing above 50°F. for at least 7 days, regardless of ambient air temperatures.
- E. All concrete shall be cured immediately after finishing in accordance with the following requirements:
  - 1. Curing shall be accomplished by a continuous soaking process such as the use of soaker hose or sprinklers, or by use of plastic roll materials to cover the concrete, which shall be thoroughly wetted at least once a day or more often as required in very hot weather. Such plastic shall be placed as soon as possible after finishing of concrete so that scarring of the surface will not occur. Plastic shall be held in place on the surface of the concrete in such a manner and means as will not allow it to be blown off or otherwise dislodged from the concrete surface. Curing procedures shall be maintained continuously for a period of at least 7 days.
  - 2. All methods of curing shall be subject to approval of the Engineer, and each method employed shall be practical and adequate for the curing required. Curing compounds in lieu of wet curing will not be allowed.
- F. Keep permanent temperature records showing date and outside temperature during concreting operations. Thermometer readings shall be taken at start of work in morning, at noon, and again late in afternoon. Locations of concrete placed during such periods

shall likewise be recorded in such manner as to show any effect temperatures may have had on construction.

**3.5 REMOVAL OF FORMWORK**

- A. Forms shall not be removed until concrete has attained sufficient strength to support its own weight, construction loads to be placed thereon and lateral loads, without damage to structure or excessive deflection.
- B. With the exception of construction joint bulkheads and keyways, forms and supports shall remain in place for not less than the minimum time periods noted below.
  - 1. Unless specifically authorized by the Engineer, forms for vertical surfaces shall not be removed before the concrete has attained a strength of not less than 30 percent of the minimum allowable prescribed compressive strength nor not less than the minimum time period specified in Table D.
  - 2. Unless specifically authorized by the Engineer, forms for horizontal surfaces shall not be removed before the concrete has attained a strength of not less than 60 percent of the minimum allowable prescribed compressive strength nor not less than the minimum time period specified in Table D.

**TABLE D**  
Minimum Degree Day Requirement for Form Removal

Form Use	Degree-Days
Walls and Vertical Surfaces	200

- 3. Definition of degree-days - Total number of days times mean daily air temperature at the surface of the concrete. For example, 5 days at temperature of 60°F. equals 300 degree-days. Days or fractions of days in which temperature is below 50°F. shall not be included in calculation of degree-days except where modified by Table C above.

- C. Any test cylinders required to verify the specified minimum strengths for form removal shall be field cured under the same conditions as the concrete they represent. Such cylinders and testing shall be at the Contractor's expense.

**3.6 FINISHING OF CAST-IN-PLACE CONCRETE**

- A. Formed Surfaces
  - 1. Immediately after the end of the wet cure period, remove form ties and patch all tie-holes, rat holes, and other surface voids with a non-metallic, non-shrink grout, which most nearly matches the color and texture of the concrete surface. All protrusions shall be ground smooth with an approved mechanical grinder.
- B. Surfaces Requiring Rub Finish
  - 1. Rubbed finish of surfaces shall be provided on all poured interior and exterior vertical concrete surfaces and the underside of horizontal surfaces exposed to view, including all building and structure surfaces. Rubbing shall include but not be limited to:
    - a. The exterior face of all concrete risers and the like.

2. Surfaces requiring a rubbed finish shall, when completed, shall present a smooth, even textured surface and proper appearance. The Engineer shall be the sole judge of the acceptability of a rubbed finish. Cement utilized in rubbing shall be of the same type manufacturer and source as that used in batching the concrete. The following procedure shall be required for all surfaces requiring a rubbed finish.
  - a. Immediately upon removal of the forms, snap all form ties and fill tie holes with non-shrink grout to a point slightly indented from the finished surface. Hand chip all air pockets and laitance covered holes greater than 1/4 inch. A mechanical grinder of a type approved by the Engineer shall then be used to remove any form marks, ribs, or bulges, or other protruding surface defects.
  - b. The surface shall then be wetted with clean water and a cement (4 parts), presifted fine sand (5 parts), and water grout shall be evenly applied utilizing a sponge float filling all exposed voids. The surface shall be rubbed with a burlap bag and allowed to thoroughly dry.
  - c. The surface shall again be wetted and the grout reapplied with the sponge float and again rubbed with burlap, removing all excess material.
  - d. After the final rubbing is completed, the surface shall be thoroughly drenched and kept wet for a period of 7 days unless otherwise directed by the Engineer. No other cement powder, grout or other surface coating will be allowed. Plastering of surfaces requiring a rubbed surface will NOT be tolerated.

### 3.7 REPAIRING OF HARDENED CONCRETE SURFACES

- A. Defective concrete and honeycombed areas shall not be patched unless examined and approval is given by the Engineer. After approval, areas involved shall be cut back to a minimum depth of 1 inch from the finished surface, or as otherwise directed, whichever is greater. Edges of areas to be repaired shall be cut square to a minimum depth of 3/4 inch. Feathered edges will not be allowed. Any voids or honeycomb around reinforcing steel shall be chipped away to provide at least 3/4 inch clearance all around to permit proper placement of repair concrete around the steel to the parent, sound concrete.
- B. Exposed surfaces shall be thoroughly cleaned of all mud, paint, grime, scum, laitance, organic matter, detritus, calcareous growth and other foreign matter by sand and water blasting or other acceptable means. Immediately after cleaning, the surface shall be checked by the Engineer for proper surface preparation, including fractured concrete or loose aggregate. Any such material shall be removed using pneumatic or hand tools. The final surfaces shall be thoroughly rinsed with clean water to remove remaining dirt and dust.
- C. Premoisten the prepared surface for at least 2 hours to reduce the absorption of water by the parent concrete and to provide a reservoir for moist curing at the interface of the repair. The substrate should be saturated surface dry with no standing water. While the concrete surface is still damp, apply a thin 1/16 inch coat of neat cement slurry (mixed to the consistency of a heavy paste) with a bristle brush to provide a bond coat throughout the entire cavity of the repair. Before the slurry has dried or changed color, promptly install the repair concrete or dry-pack, as may be required or selected.



- D. For relatively small areas, ram repair concrete into this portion of the formed void. This concrete shall comprise a crumbly-dry 1-1-1.5 mixture of cement, concrete sand and pea gravel (or 3/4 inch gravel) mixed slightly damp to the touch (just short of "balling"). The "dry-pack" consistency of the concrete shall be zero slumps, but moist enough so that when it is rodded and tamped until dense, an excess of paste will appear on the surface in the form of a spider web. In cases of unformed voids of thinner section, do not build-up repair in excess of a depth which will sag with the weight of the fresh mortar or concrete. Trowel smooth with heavy pressure.
- E. The concrete shall be of the driest possible consistency and mix composition so that it can be worked into the corners and angles of forms and around the reinforcement, without permitting the materials to segregate or free water to collect on the surface, due consideration being given to the methods of placing and compacting. Source and mixture of concrete shall be submitted for approval.
- F. Concrete shall be deposited continuously, or in layers of such thickness that no concrete will be deposited which has hardened sufficiently to cause the formation of seams and planes of weakness within the section. Concrete shall be thoroughly consolidated and trowelled dense, smooth and plane. Avoid premature and excessive trowelling which could cause sagging.
- G. Repair areas and adjacent parent concrete surfaces shall be continuously moist cured immediately after finishing for at least 7 days. Surfaces shall be covered with damp burlap and sealed with taped polyethylene. Membrane curing compounds shall not be used.
- H. Leave finished work and adjacent concrete surfaces in a neat, clean condition with no evidence of spillovers or staining.

### 3.8 CLEANING

- A. Concrete surfaces shall be cleaned of objectionable stains as determined by the Engineer. Materials containing acid in any form or methods which will damage the "skin" of concrete surfaces shall not be employed, except where otherwise specified.

END OF SECTION

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**DIVISION 9 – FINISHES**

## SECTION 09900

## PAINTING

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Section Includes
  - 1. Surface preparation and application of coatings.
- B. Related Sections
  - 1. Section 13202 – Water Storage Tank Repairs

## 1.2 REFERENCES

- A. The Society for Protective Coatings (SSPC):
  - 1. Surface Preparation Specifications
    - a. SP-1 - Solvent Cleaning
    - b. SP-2 - Hand Tool Cleaning
    - c. SP-3 - Power Tool Cleaning
    - d. SP-5 - White Metal Blast Cleaning
    - e. SP-6 - Commercial Blast Cleaning
    - f. SP-7 - Brush-Off Blast Cleaning
    - g. SP-10 - Near-White Blast Cleaning
    - h. SP-13 – Surface Preparation of Concrete
  - 2. SP-16 – Brush Off Blast of Galvanized and Non-Ferrous Metals
  - 3. National Association of Pipe Fabricators (NAPF):
    - a. NAPF 500-03-01 - Solvent Cleaning
    - b. NAPF 500-03-02 – Hand Tool Cleaning
    - c. NAPF 500-03-03 – Power Tool Cleaning
    - d. NAPF 500-03-04 – Abrasive Blast Cleaning for Ductile Iron Pipe
  - 4. SSPC-PA 1 – Shop, Field and Maintenance Painting
  - 5. SSPC-PA 2 - Measurement of Dry Coating Thickness with Magnetic Gages
  - 6. SSPC Visual Standards SSPC VIS 1-89
  - 7. SSPC Guide 6 – Guide for Containing Debris Generated During Paint Removal Operations
- B. Occupational Safety and Health Administration (OSHA) Standards

- C. American Society for Testing and Materials (ASTM)
  - 1. ASTM D4263 – Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
  - 2. ASTM F1869 – Standard Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
- D. National Association of Pipe Fabricators (NAPF)
  - 1. NAPF 500-03 - Surface Preparation Standard for Ductile Iron Pipe and Fittings In Exposed Locations Receiving Special External Coatings and/or Special Internal Linings
- E. International Concrete Repair Institute (ICRI)
  - 1. ICRI 310 - Selecting And Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

### 1.3 SCOPE OF WORK

- A. Items of work include but are not limited to the surface preparation and coating of the following:
  - 1. Exterior ductile iron piping and fittings
  - 2. Touch-up painting of shop primers
- B. Ventilation, dehumidification, and temperature control equipment required to provide and maintain the proper environment for worker protection and for coating application and curing.

### 1.4 SUBMITTALS

- A. Applicator qualifications for general coatings.
- B. List of coating products and systems proposed, giving brand, type and manufacturer.
- C. Product for product listing of the manufacturer's coating system showing a comparison with the specified coating systems in Schedules 09900-A and 09900-B.
- D. Manufacturer's current printed recommendations and product data sheets for each system, and ASTM performance criteria.
- E. Paint manufacturer's compatibility guide, to be a complete listing of all compatible paint systems/combinations produced by the paint manufacturer.
- F. Copies of manufacturer's complete color charts for each coating system.
- G. When requested by the Engineer, provide product container labels and labeled mixing instructions for products utilized in the Work.

### 1.5 QUALITY ASSURANCE

- A. Use adequate number of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section.

- B. Applicator Qualifications – Minimum 5 years experience in application of specified products.
- C. Regulatory Requirements – Meet federal, state and local requirements limiting the emission of volatile organic compounds.
- D. A qualified and experienced representative of the paint manufacturer shall meet with Contractor and Engineer to coordinate items requiring painting and to schedule the Work. Monthly field visits shall occur to ensure proper application of the painting system. The Contractor shall coordinate with the paint manufacturer to schedule site visits.
- E. Use equipment of adequate size, capacity, and quantity to accomplish the work of this Section in a timely manner.

#### 1.6 DELIVERY, HANDLING, STORAGE AND PROTECTION

- A. Deliver materials to painter's area in original, unbroken, containers with name and analysis of product, manufacturer's name, and shelf life date. Do not use or retain contaminated, outdated, prematurely opened, or diluted materials.
- B. Storage of materials shall be in accordance with the paint manufacturer's recommendations.
- C. Store coated items carefully. Store paints and painter's materials only in areas designated solely for this purpose. Avoid damaging or dirtying coatings by contact with soil, pavement or other harmful materials that might necessitate special cleaning. Use suitable blocking during storage.
- D. Confine mixing, thinning, clean-up and associated operations, and storage of painting debris before authorized disposal, to these areas.
- E. Do not expose primed surfaces to weather for more than six months before top coating. Allow less time if recommended by coating manufacturer.
- F. Do not use plumbing fixtures, piping or mechanical equipment for mixing or disposal of paint materials.
- G. Store waste temporarily in closed, nonflammable containers until final disposal. Keep no rubbish in painter's area longer than 24 hours. Finally, dispose of waste in an approved disposal system.
- H. During surface preparation, cleaning and painting operations, protect all surfaces not to be painted.
- I. Protect coated items, whether prime or finish, from damage due to shipping and handling. Use padding, blocking, fabric slings and extra care as required.
- J. Upon completion of field painting, ensure coatings are undamaged and in good condition. Repair damaged or deteriorated coating, resulting from failure to observe foregoing requirements.

#### 1.7 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:
  - 1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.

2. Do not apply coatings when dust is being generated.
- B. Cover or otherwise protect surfaces not being painted during all painting operations.
- C. All shop primed ferrous metals shall be primed using the same coatings specified in the paint schedule.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Coating systems are designated by reference to Tnemec Company, Inc. and Sherman Williams products to establish the type and quality required. Equal products as manufactured by International Protective Coatings, PPG Industries, Carboline Company or equal will be considered if provided with a "Product for Product" listing with the submittal. The Engineer reserves the right to request and receive detailed technical literature of each proposed coating system before approval.
- B. No coating systems will be considered that decrease the film thickness, decrease the number of coats, decrease the effectiveness of the surface preparation or change the type of coating specified in the schedule of this section.

### 2.2 MATERIALS, GENERAL

- A. Paint Coatings - Suitable for intended use, recommended by their manufacturer for intended service. All coatings, unless otherwise specified, shall be suitable for severe service.
- B. Products Used - Minimum of five years satisfactory use under similar service conditions.
- C. Use products of one manufacturer in any one paint coating system; all coating materials compatible. Coatings for touch-up - same as original.
- D. Equipment prime or finish painted by the equipment manufacturer shall be painted in strict accordance with this Section and the equipment's individual specification section.
- E. Bear entire responsibility in providing complete compatibility of all shop and field painting systems.
- F. It is recognized that the specific application of the coating products varies for each specific manufacturer (number of coats, mil thickness per coat, etc.). Therefore, these Specifications represent the minimum to be provided under this contract and shall be increased in accordance with each manufacturer's recommendations.

### 2.3 COLORS AND FINISHES

- A. All finish colors will be selected from manufacturer's color chips. The Owner will select the colors. Match final colors to selected color chips, as scheduled.
- B. To provide contrast between successive coats, lightly tint each coat to distinguish it from preceding coats.
- C. Unless otherwise indicated, use gloss or semi-gloss for finish paint.

### 2.4 COATING TYPES

- A. Coating types and minimum acceptable percent (by volume) of component solids are described in Schedule 09900-A Coating Types. Description of coating systems including surface preparation and dry film thicknesses are included in Schedule 09900-B Coating Systems.

## PART 3 EXECUTION

### 3.1 GENERAL

- A. Examine surfaces scheduled to receive paint and finishes for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work.
- B. Do not proceed with surface preparation or coating application until conditions are suitable.
- C. The following shop and field instruments shall be used to inspect surface preparation and dry film thickness.
  - 1. SSPC visual standards SSPC-VIS 1-89
  - 2. Testex Press-O-Film replica type x-coarse
  - 3. Surface temperature thermometer
  - 4. Sling psychrometer and psychrometric tables
  - 5. Type I or Type II dry film thickness gauges
  - 6. SSPC-PA2 methods

### 3.2 PREPARATION

- A. Basic Steps
  - 1. Arrange to do all preparation and paint work in heated enclosure unless ambient weather conditions ensure still, dry air and a minimum of 50 degree F temperature. Do not apply paints to surfaces in direct sunlight.
  - 2. Coordinate cleaning and painting operations to eliminate contamination of one by the other.
  - 3. Maintain all coating materials at manufacturer's recommended mixing and application temperatures for not less than 24 hours before use. Have clean, proper containers, spray equipment, applicators and accessory items ready for use before decanting or mixing paint materials.
  - 4. Ensure proper coordination of materials to be applied hereunder with previous coatings on affected surfaces. Have all manufacturer's written directions on hand, and follow them strictly, except where otherwise specified.
  - 5. Carefully coordinate preparation and material compatibility requirements of paint systems used by manufacturers to shop prime equipment.
- B. Before any paint application, carefully clean all surfaces to be coated of dust, dirt, grease, rust, mill scale, paint unsuitable for top coatings, efflorescence, oil, moisture, foreign matter or conditions detrimental to coating bond and durability.

1. Following cleaning, apply preparatory treatment in strict accordance with manufacturer's written instructions.
2. Fill imperfections and holes in surfaces to be painted.

C. Metals

1. Prepare all field and shop primed ferrous metals, in accordance with Schedule 09900-B Coating System Schedule included under this Section.
2. A needle gun may be used for field welds and shop welds which occur in narrow, unprimed areas in an otherwise shop primed surface.
3. Bituminous coated metals for paint finish - clean of all dirt, grease, oil and foreign matter, and prime with a barrier coat to seal the bitumen and prevent bleeding and discoloration of finish.
4. Prepare non-ferrous metal surfaces for finishing in accordance with SSPC-SP16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steels, Stainless Steels and Non-Ferrous Metals. Provide minimum uniform anchor profile of 1 mil. Apply coatings as outlined on the Paint Schedule.

D. Provide higher degree of cleaning for acceptable equivalent paint products when paint manufacturer recommends in his printed surface preparation recommendations.

E. Before applying field coat, touch-up abraded areas of shop coats with paint of the same type. Apply an entire coat if necessary. Touch-up coats are in addition to, and not a substitute for first field coat. Clean deteriorated surfaces to bare metal before applying touch-up coat.

F. After installation and before applying field coats, touch-up all scratches and blemishes with shop coats, paint filler, enamel or other treatment customary with manufacturer.

G. After installation, touch up all scratches and blemishes on all steel.

3.3 VENTILATION

A. Particular care shall be exercised during the cleaning and painting of each area. Means of adequately removing air from each area shall be provided, in order to remove dust and solvent vapors.

B. During the cleaning and painting operations, the painters shall be provided with proper respiratory protection in accordance with OSHA regulations.

C. In addition to meeting the minimum requirements listed above, the Contractor shall be responsible for complying with all applicable regulations of the various local, state, and federal agencies.

3.4 DEHUMIDIFICATION

A. Continuous dehumidification of areas where paint coatings will be applied may be required twenty-four hours per day during all surface preparation, painting, and curing. The equipment used must be capable of maintaining the interior air quality at or below 20 percent relative humidity during surface preparation and between 40% and 80% during the coating application and curing process of interior finish coat(s). The surfaces must be dry and 5 degrees above the dew point.



- B. In the event of dehumidification equipment failure, prepared surfaces that have been approved for priming will not be allowed to stand uncoated and must be painted before the end of the shift.

### 3.5 TEMPERATURE CONTROL

- A. Auxiliary heat and/or cooling may be necessary to maintain the room temperature at an acceptable level for the coating manufacturer's application parameters. The equipment must be compatible with the required dehumidification equipment and meet the following requirements.
  1. The air from heaters and refrigerant type systems shall be connected to the process air supply duct from the dehumidifier.
  2. Only electric, indirect fired combustion, or steam coil auxiliary heaters may be used. Direct-fired space heaters are not permitted during the blasting, coating or curing phases.
  3. Heaters shall be equipped with controls that automatically turn the heaters off if the airflow is interrupted or the internal temperature exceeds its design temperature or that of the supply duct.
  4. The area where dehumidification is introduced shall be sealed to allow the air to escape away from the entry point while maintaining a slight positive pressure unless dust from the operation is hazardous. The design of the filter system, if necessary, shall be such that it does not interfere with the dehumidification equipment's ability to control the dew point and temperature parameters in that space. Do not recirculate the air from the space or from the filtration equipment back through the dehumidifier during the coating application or when solvent vapors are present.
  5. Maintain a minimum temperature of 50 degrees F for a minimum of seven (7) days after a coating application.

### 3.6 APPLICATION

- A. Conditions
  1. Do not apply paints or other finish to wet or damp surfaces, except in accordance with instructions of manufacturer. Do not apply exterior paint during cold, rainy, or frosty weather, or when temperature is likely to drop to freezing within the paint coatings curing time as specified by the paint manufacturer. Avoid painting of surfaces while they are exposed to direct sunlight.
  2. Paint surfaces which have been cleaned, pretreated, or otherwise prepared for painting with first finish coat as soon as practicable after such preparation has been completed, but in any event prior to deterioration of prepared surface.
  3. Coat blast cleaned metal surfaces immediately after cleaning, before any rusting or other deterioration or contamination of the surface occurs. Do not coat blast cleaned surfaces later than 8 hours after cleaning under ideal conditions or sooner if conditions are not ideal.
  4. Work shall conform to SSPC-PA 1.

## B. Methods

1. Prepare surfaces, mix and apply paint materials in strict accordance with manufacturer's printed instructions and recommendations, except where specifically directed otherwise. Control temperature of materials upon mixing and application, surface temperature and condition, thinning and modifying.
2. Protect surfaces to be coated, before, during and after application unless ambient weather conditions are favorable.

## C. Workmanship

1. Apply coating materials to meet manufacturer's spreading rate and dry film thickness recommendations. Dry film thicknesses specified are constant for brush, spray, roller or other form of application.
  - a. Control thinning for spray use and to manufacturer's printed instructions, and produce specified dry film thickness on level surfaces, interior and exterior angles.
  - b. Record quantities of materials of each type, for each coat used.
2. Apply paints and coatings using skilled painters, brushed or rolled or sprayed out carefully to a smooth, even coating without runs or sags. Allow each coat of paint to dry thoroughly, on the surface and throughout the film thickness, before the next coat is applied. High polymer coatings may be exempted from the drying requirement if recoat time is specified by manufacturer.
3. Finish surfaces - Uniform in finish and color, and free from flash spots and brush marks.

### 3.7 PROTECTION, CLEAN-UP

- A. Protect all materials and surfaces painted or coated under this Section, from the time of surface preparation until the final coat has fully dried. Also protect all adjacent work and materials from touch-up painting by the use of sufficient drop cloths during the progress of this work. Upon completion of the work, clean up all paint spots, oil, and stains from floors, glass, hardware, and similar finished items.

### 3.8 PAINT SCHEDULE

- A. Coordinate, schedule and confirm the various cleaning, touch-up and finishing operations. Ensure the transmission of materials data, color selections and coating system methods between the coating applicators. Take responsibility for not exceeding exposure and recoat time limits.

### 3.9 FACTORY ASSEMBLED EQUIPMENT AND SKID PACKAGES

- A. Painting fabricated ferrous assemblies shall strictly conform to the requirements of this Section including SSPC-SP6 surface preparation, epoxy primer, and intermediate coats, and a polyurethane topcoat.
- B. Painting of piping shall be in accordance with this section.
- C. The Engineer shall be given a minimum 7 day notice to witness blasting and painting operations.

- D. Painting of electrical components, motors and enclosures shall be manufacturer's standard coating system with a minimum of an industrial grade painting system.
- E. Submit detailed schedule of painting system(s) to be used for all equipment to the Engineer. All schedules shall be provided prior to commencement of all painting operations.
- F. Stainless steel and aluminum are not required to be painted unless it is the manufacturer's standard practice.

### 3.10 FIELD QUALITY CONTROL

- A. Leave staging and lighting in place until the Engineer has inspected surface or coating. Replace staging removed prior to approval by the Engineer. Provide additional staging and lighting as requested by the Engineer.
- B. Unsatisfactory Application
  - 1. If surface has an improper finish color or insufficient film thickness, clean surface and topcoat with specified paint material to obtain specified color and coverage. Obtain specific surface preparation information from coating manufacturer.
  - 2. Evidence of runs, bridges, shiners, laps or other imperfections is cause for rejection.
  - 3. Repair defects in accordance with written recommendations of coating manufacturer.
- C. Damaged coatings, Pinholes and Holidays
  - 1. Feather edges and repair in accordance with recommendations of paint manufacturer.
  - 2. Hand or power sand visible areas of chipped, peeled or abraded paint, and feather the edges. Follow with primer and finish coat. Depending on the extent of repair and appearance, a finish sanding and topcoat may be required.
  - 3. Apply finish coats, including touchup and damage repair coats in a manner that will present a uniform texture and color-matched appearance.

### 3.11 FINAL TOUCH-UP

- A. Prior to final completion and acceptance, examine painted and finished surfaces and retouch or refinish as necessary to leave surfaces in perfect condition.

<b>Schedule 09900-A - Coating Types</b>		
<b>Tnemec Company Inc.</b>	<b>Sherwin-Williams</b>	<b>Type of Coating System (Solids Content by Volume)</b>
Series 66HS Hi-Build Epoxoline	Macropoxy 646 FC Epoxy	Polyamide Epoxy (78.0 ± 2.0%)
Series 73 Endura Shield	Acrolon 218 HS Acrylic Polyurethane-Semi-Gloss	Aliphatic Acrylic Polyurethane (58.0 ± 2.0%)

<b>Schedule 09900-B - Coating Systems</b>				
<b>Surface</b>	<b>System Surface Preparation (Shop/Field)</b>	<b>System Finishes</b>		
		<b>Primer</b>	<b>2nd</b>	<b>Final</b>
		<b>DFT = Dry Film Thickness, Mils</b>		
Ductile and Cast Iron Pipe, Interior and Exterior, Non-submerged	NAPF 500-03-04 / SSPC-SP-6	Series 66HS (3.0-5.0 DFT)	Series 66HS (3.0-5.0 DFT)	Series 73 (2.5-5.0 DFT)
		<i>Macropoxy 646 FC Epoxy</i>	<i>Macropoxy 646 FC Epoxy</i>	<i>Acrolon 218 HS Polyurethane</i>
<i>Notes</i>				
(1) Tnemec Products are listed in the first row for each surface and Sherwin-Williams products are listed in italics on the second row for each surface without a dry film thickness. Refer to Paragraph 2.1 for “or equal” products.				

END OF SECTION

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**DIVISION 13 – SPECIAL CONSTRUCTION**

## SECTION 13202

## WATER STORAGE TANK REPAIRS

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Supply all labor, materials and equipment necessary for the installation of new tank accessories and repair or modification of existing tank accessories as specified herein. All work shall conform to the requirements of AWWA Standard D-100 and D-101, latest editions, and this Section.
  - a. Provide a ductile iron pipe extension with bend and mesh screen on the existing overflow pipe.
  - b. Repair concrete expansion joints on existing roof slabs.

## B. Related Sections

1. Supplementary Conditions - Appendix C, Provin Mountain Reservoir Site Photographs
2. Section 01140 – Work Restrictions
3. Section 01310 – Coordination
4. Section 09900 – Painting

## 1.2 REFERENCES

- A. OSHA Regulations 29 CFR 1910.
- B. ASTM
  1. ASTM-D-638 – Standard Test Method for Tensile Properties of Plastics
  2. A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
- C. ANSI/AWWA C150/A21.50, Thickness Design of Ductile Iron Pipe.
- D. ANSI/AWWA C151/A21.51, Ductile Iron Pipe, Centrifugally Cast, for Water.
- E. ANSI/AWWA C104/A21.4, Cement Mortar Lining for Ductile Iron Pipe and Fittings for Water.
- F. ANSI/AWWA C110/A21.10, Ductile Iron and Grey Iron Fittings 3" through 48" for Water and Other Liquids.
- G. ANSI/AWWA-C153/A21.53, Ductile Iron Compact Fittings Water Service.
- H. ANSI/AWWA C115/A21.15, Standard Specification for Flanged Ductile Iron Pipe with Threaded Flanges.

## 1.3 SUBMITTALS

- A. Manufacturer's data, shop drawings, safety sheets, and installation instructions for polyolefin waterproofing tape and epoxy adhesive.
- B. Detailed description of proposed pipe handling and installation methods along with the manufacturer's approval of those methods.
- C. Manufacturer's drawings and catalog cuts, including descriptive literature indicating product characteristics and conformance with specifications and code requirements. Submit shop drawings for ductile iron pipe; fittings; linings and coatings; and all accessories.
- D. Manufacturer's data, shop drawings, and installation instructions for overflow pipe mesh screen.

#### 1.4 QUALITY ASSURANCE

- A. Use adequate number of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section.
- B. Manufacturer shall have at least 5 years experience in the manufacturing of the type of materials and equipment specified herein.
- C. The Engineer will inspect all items after delivery. All items are subject to rejection at any time on account of failure to meet any of the Specification requirements. Items rejected after delivery, or at any point during the progress of the Work, shall be marked for identification and shall immediately be removed from the job site and replaced at no additional cost to the Owner.

### PART 2 PRODUCTS

#### 2.1 OVERFLOW PIPE MESH SCREEN

- A. Provide a mesh screen to the overflow pipe
  - 1. 316 stainless steel
  - 2. 0.014-inch wire diameter
  - 3. Number 24-mesh
  - 4. 36-inch by 36-inch minimum screen sheet size, no splicing of sheets will be allowed

#### 2.2 POLYOLEFIN WATERPROOFING TAPE AND TWO COMPONENT ADHESIVE

- A. Provide polyolefin waterproofing tape, Sikadur Combi SG by Sika, Flex Joint Sealing Tape-2000-S by Aquafin, or approved equal, over the roof slab expansion joints.
  - a. 15 mil thickness minimum
  - b. 50-foot tape roll lengths minimum
  - c. 8-inch wide tape minimum
  - d. NSF 61 approved
- B. Provide two component adhesive, Sikadur-31 Hi-Mod Gel by Sika, Aquafin-2K/M by Aquafin, or approved equal, over the roof slab expansion joints.

- a. Arcylic-based component mixed with a cementitious-based component
- b. NSF 61 approved
- c. Same manufacture as the polyolefin waterproofing tape

## 2.3 DUTILE IRON PIPE AND FITTINGS

### A. Manufacturers

1. American Cast Iron Pipe Company
2. U.S. Pipe
3. or equal

### B. General

1. Ductile iron pipe shall be from a single manufacturer. Fittings shall be from a single manufacturer, not necessarily the pipe manufacturer.
2. Ductile iron pipe shall be designed in accordance with AWWA C150 and shall be manufactured in accordance with AWWA C151. Fittings and other materials referenced in this section shall conform to the latest edition of the references listed in Paragraph 1.2 of this section.
3. Ductile iron pipe shall be Class 53 with flanged joints
4. Flanges shall be faced and drilled after being screwed on the pipe, with flanges true to 90 degrees with the pipe axis and shall be installed flush with the end of the pipe. Uni-flange type couplings are not acceptable. Flanged ductile iron pipe shall be classified by Underwriter's Lab, Inc. in accordance with ANSI A21.15 (AWWA C115).
5. Exposed piping shall be shop primed and painted in the field in accordance with Section 09900.
6. Pipe and fittings shall be cement mortar lined and seal coated on the interior in accordance with AWWA C104. Cement mortar lining shall be twice the standard thickness; tolerance shall be minus 0 inches, plus 1/8 inch.

### C. Joints

1. Flanged joints shall be assembled with bolts and nuts, bolt studs with nut on each end, or studs with nuts in tapped flanges. Bolts and nuts shall be manufactured in accordance with ASTM A325, Type 1, Grade 5, hot-dipped galvanized finish, heavy hex head, 120,000 psi minimum tensile strength with X-Heavy nuts. Nuts and bolts shall be provided with an anti-seize, thread lubricating compound.
2. Gaskets for flanged joints shall be full face, 1/8 inch red rubber. Ring gaskets shall be provided for piping 14 inches in diameter and larger.

### D. Fittings

1. Fittings shall be ductile iron or gray iron
2. Fittings greater than 12 inches in size shall conform to ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53 and shall have the following pressure ratings: 250 psi



## PART 3 EXECUTION

### 3.1 GENERAL

- A. Adhere to the manufacturer's installation requirements and those listed herein. The manufacturer's installation requirements shall prevail in instance of where installation requirement conflict.
- B. Coordinate work with the Engineer and Springfield Water and Sewer Commission as outlines in Section 01310 – Coordination and Section 01140 – Work Restrictions.

### 3.2 FABRICATION AND INSTALLATION OF THE OVERFLOW PIPE MESH SCREEN

- A. Prep surfaces that gaskets and screens will rest on by mechanical means removing any debris, grease, or other foreign matter on the surface that will prevent the full contact with the gasket and screen.
- B. Cut the screen mesh to size, as needed, to the extents of the flange edge. To accommodate the bolts, leave space around the bolts, no larger than 1.25 times the size of the bolts and in such a manner that the mesh is not bound by the bolts and can pull out with the bolts in place. Insert the screen mesh between the gasket and the flange.
- C. Tighten bolts by progressively tightening them in a rotating crisscross pattern, such that no neighboring bolt is tightened one after another. Start with the top bolt then bottom bolt, then right bolt, and then left bolt. Then start one bolt over from the top bolt then one over from the bottom bolt, then one over from the right bolt, and then one over from the left bolt. Repeat this rotating crisscross pattern until all bolts are tightened.
- D. IF NEEDED trim excess screen mesh after all bolts have been tighten so that the screen is flush with the flange edge. Any damaged gaskets and or screen mesh shall be removed and corrected by the Contractor at the Contractor's expense.

### 3.3 INSTALLATION OF POLYOLEFIN WATERPROOFING TAPE AND TWO COMPONENT ADHESIVE

- A. Prep the existing concrete surfaces for the adhesive
  - 1. Remove and properly dispose of existing asphalt expansion joint material.
  - 2. Remove any debris, dirt, grease, or other foreign matter on the existing surface by mechanical means.
  - 3. Vacuum along the existing surfaces to ensure all remaining foreign matter is removed after mechanical methods.
  - 4. Dry the existing surface, the existing concrete surfaces shall be dry and free from any moisture.
- B. Mix the adhesive in accordance with the manufacturer's installation.
- C. Apply the adhesive onto the existing concrete face in accordance with the manufacturer's installation.
- D. Embed the polyolefin waterproofing tape in the adhesive, and overlap tape as needed, in accordance with the manufacturer's installation, to cover the entire length of the existing concrete expansion joint.

- E. Allow for the recommended cure time between adhesives and then apply the second layer of adhesive in accordance with the manufacturer's installation.
- F. Allow for the recommended cure time prior to backfill, compaction, and grading.

3.4 INSTALLATION OF FLANGED DUCTILE IRON PIPE AND FITTINGS

- A. Take care that stresses are not imposed on the pipe during installation.
- B. Work shall be installed in accordance with the manufacturer's printed instructions and shall be plumb and true to line.
- C. Flanged joints shall be made with opposite bolts tightened alternately and evenly. Bolt threads shall extend no more than 2-3 threads beyond the nut after tightening.

END OF SECTION

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## SECTION 13281

## ASBESTOS ABATEMENT

## PART 1 GENERAL

## 1.1 SUMMARY

- A. Abatement of asbestos-containing materials
- B. Related Sections
  - 1. Section 1350, Health and Safety
  - 2. Section 02225, Selective Demolition

## 1.2 GENERAL

- A. This section addresses the abatement of asbestos-containing materials only. Furnish all labor, materials and equipment and perform all work required to safely remove and legally dispose of all asbestos-containing materials. Provide all insurance, certifications and licenses necessary for the work.
- B. Under the work of this Section, “Engineer” is defined as a third-party consultant or other abatement project monitoring entity working on behalf of the Owner.
- C. File all necessary notices, obtain all permits and licenses, and pay all governmental taxes, fees, and other costs in connection with the work. Obtain all necessary approvals of all governmental departments having jurisdiction.
- D. Work closely with the Owner and all other trades to perform a successful abatement project. Attend progress and scheduling meetings on a weekly basis.
- E. Should the Contractor choose to submit a non-traditional (NT) Work Plan, the Contractor is responsible for NT Work Plan approval applications and costs for work practices that are different from the specific work practices prescribed in the MassDEP Asbestos Regulation. NT Work Plans must be created by a Massachusetts licensed Project Designer.
- F. Obtain, prepare, and submit applicable forms and permits required for asbestos abatement.

## 1.3 ABBREVIATIONS

- A. AAT: Asbestos Analyst Training
- B. ACM: Asbestos Containing Material
- C. AIHA: American Industrial Hygiene Association
- D. HEPA: High Efficiency Particulate Air
- E. MassDEP: Massachusetts Department of Environmental Protection
- F. MADLS: Massachusetts Department of Labor Standards
- G. MSDS: Material Safety Data Sheet
- H. MSHA: Mine Safety and Health Administration

- I. NESHAPS: National Emissions Standards for Hazardous Air Pollutants
- J. NIOSH: National Institute for Occupational Safety and Health
- K. OSHA: Occupational Safety and Health Administration
- L. PEL: Permissible Exposure Limit
- M. USEPA: United States Environmental Protection Agency

#### 1.4 REFERENCES

- A. Comply with the most recent asbestos removal and disposal requirements established by applicable federal, state, and applicable local government laws, statutes, regulations, ordinances, standards, and guidelines including the following:
  - 1. USEPA Regulations for Asbestos, 40 CFR 61, Subpart M, NESHAPS
  - 2. USEPA Regulations for Asbestos, Asbestos Abatement Projects, 40 CFR 763, Subpart G
  - 3. US Department of Labor, OSHA Asbestos Regulations, 29 CFR 1926.1101
  - 4. NIOSH air sampling and evaluation standards
  - 5. AIHA Standards
  - 6. MSHA, United States Department of Labor regulations
  - 7. MassDEP Regulations 310 CMR 7.00, 310 CMR 18.0, and 310 CMR 19.00
  - 8. MassDLS Regulations 454 CMR 28.00.
  - 9. All applicable local ordinances, regulations, or rules pertaining to asbestos. Including its storage, transportation, and disposal.

#### 1.5 SUBMITTALS

- A. Prior to the start of the abatement work. Prepare and submit the following items. Do not commence work activities until submittals are reviewed and accepted by the Engineer.
  - 1. Detailed work plan which identifies:
    - a. Methods and materials for isolating the work area(s) from non-work area(s)
    - b. Methods and materials for protecting floors, walls, and other fixed equipment
    - c. Locations and details of construction of the Decontamination Facility
    - d. Number and capacity for the portable HEPA-filtered exhaust units
    - e. Locations of water and electrical sources for intended usage
    - f. Details for the proper removal, handling, packaging, and disposal of ACM in compliance with this specification and applicable regulations
    - g. Procedures which differ from those specified in this section. Any deviations from these specifications require approval from the Engineer.

Any deviations from current asbestos regulations require written approval from regulatory agencies having jurisdiction.

2. If applicable, submit copies of NT Asbestos Work Practice Approval applications for use at this time. Provide approval letters.
3. Submit copies of all notifications, permits, applications, and like documents required by federal, state, or local regulations obtained or submitted in proper fashion.
4. Submit a project specific chain-of-command for this project. Include cell phone numbers and email addresses of those listed on the chain-of-command.
5. Submit the current valid MassDLS Asbestos Abatement Contractor license and certificate of insurance.
6. Submit a detailed project work schedule for each area listing the proposed number, dates, and hours of each work shift. Schedule shall encompass the entire project, including notifications, pre-abatement inspections, post-abatement inspections, clearance air sampling, and final clean up. Coordinate schedule with the OR and Owner.
7. Submit documentation of asbestos training including 8-hour OSHA Class II Asbestos Training with hands-on training, OSHA-specified medical examinations (with examiner approval) and successful respirator fit test records of each employee who may be on the Site.
8. Submit a site-specific Emergency Action Plan for the project. The Emergency Action Plan may include emergency procedures to be followed by Contractor personnel to evacuate the buildings; nearby hospital name, address, and phone number; most direct transportation route to the hospital from the Site; emergency telephone numbers, etc. If this information is contained within an Emergency Action Plan or Health and Safety Plan prepared by the Site's General Contractor, a copy shall be submitted for review.
9. Submit the name and address of the waste hauling contractor and proposed landfill to be used. Also submit applicable licenses, current valid operating permits, and approvals.
10. Submit copies of all Waste Shipment Records (WSR) and generator labels to be used for this project. Copies shall include generator's information.
11. Submit a copy of the Contractor's OSHA-required written Respiratory Protection Program, including a fit testing methodology for respirators, maintenance, and decontamination details, and make, model and NIOSH approval numbers of respirators to be used at the Site,
12. Submit detailed Safety Data Sheets and product information on all materials and equipment proposed for asbestos abatement work on this project.
13. Submit documentation of Contractor's air sampling laboratory certification for analysis of Contractor's OSHA personal air samples.

B. The Contractor shall submit the following to the Engineer during the course of the work:

1. Daily results of all personal air sampling.

2. Certificate, training, medical, and fit-test records for new employees to start work (24 hours in advance of work).
  3. Contractor site logs.
  4. Revised Notification, if any.
  5. Copies of WSRs for waste that has left the site.
- C. The Contractor shall submit the following to the Engineer at the completion of work:
1. Completed copies of WSR (within forty-five days).
  2. Remaining personal air sampling results and site logs.

#### 1.6 LOCATION OF WORK AND SITE CONSTRAINTS

- A. Location of work areas and descriptions, estimated types and quantities of ACM are described in the attached Abatement Schedule. Some of the ACMs are also defined on the Drawings. If additional ACMs are encountered, notify the Engineer immediately and have an asbestos abatement team be prepared to abate the material if it to be impacted as part of the work.
- B. The Abatement Schedule located at the end of this section identifies ACM encountered and bulk sampled during the survey. Bolded items indicate a positive result. Abate all ACM in areas identified in the Abatement Schedule.

#### 1.7 NOTIFICATION

- A. Notify appropriate regulatory agencies of abatement activities.
1. Submit the required written notification and appropriate fee at least 10-working days before the start of the asbestos abatement activity to all required state agencies, including MassDEP.
  2. Notify local Building Departments, Board of Health or Health Departments and any other applicable local departments as required.
- B. If a potential hazard relating to the asbestos abatement work is observed, immediately notify the Engineer by telephone, followed by written notice, of any risks of adverse health and safety impacts on the environment, exposure of workers or the general public, or possible failure to comply with the specifications. Promptly notify the Engineer of the reason and required resolution of all observed deficiencies and record them in ink in a hardbound notebook.

#### 1.8 MONITORING AND FINAL CLEARANCE

- A. Contractor Responsibilities
1. Conduct appropriate personal exposure monitoring to determine compliance with OSHA requirements. All air samples shall be analyzed by a laboratory accredited by the AIHA. Sampling equipment shall be calibrated before and after each use.
  2. Contractor shall be responsible for the payment of all costs associated with any air sample collection and analysis performed by their third-party project monitor in accordance with OSHA requirements.
- B. Owner's Responsibilities

1. The Engineer, a third-party representative working on behalf of the Owner, will conduct periodic monitoring and air sampling (if required), during the course of abatement operations to determine the effectiveness of regulated work areas/containment systems and work procedures; perform final visual inspections and collect final air clearance samples (if required), for certifying work areas as clean following removal and cleanup tasks.
  2. The Owner will be responsible for the payment of costs associated with the sampling and analysis of air sampling by the Engineer, including the initial final air clearance samples. The Contractor shall be responsible for the payment of all costs associated with the collection and analysis of additional final clearance air samples if the first set of samples fail to satisfy the clearance criteria.
- C. Air Quality Standard: If required, all air tests made in proximity to any removal area, and to document “clean air”, shall be compared to an air quality standard of 0.010 fibers per cubic centimeter (f/cc) as required by applicable regulations. If any air sample exceeds the air quality standard, immediately stop all work until the cause is identified and corrected.
- D. Air Monitoring Methods: If air sampling is performed, use NIOSH Method 7400 to measure levels of airborne asbestos fibers for all air sampling events. All monitoring methods shall comply with the requirements of 29 CFR 1926.1101 and applicable state regulations. Results – Provide copies of all personal exposure monitoring results, and post results at work site after obtaining the results, but not later than 48 hours.
- E. Following the completion of the encapsulation phase of the work, the Engineer shall perform post abatement inspections prior to removal of any regulated or containment areas.
- F. Upon completion of work in any defined work area, the Contractor and Engineer shall conduct a final inspection for the purpose of certifying compliance with these specifications, State/Federal regulations, and work completion. Immediately correct unsatisfactory conditions. The work will be considered complete only after a certificate of completion and all properly completed WSRs Forms are submitted, as required by law.

#### 1.9 WORKER PROTECTION AND SAFETY

- A. Prior to commencing work, instruct all workers in all aspects of personnel protection, work procedures, emergency procedures and use of equipment including procedures unique to this project.
- B. Monitor airborne asbestos concentrations in the workers' breathing zone to establish conditions and work procedures for maintaining compliance with OSHA Regulations Title 29 CFR Parts, 1910.1001 and Part 1926.1101.
- C. The Contractor's air sampling professional shall document all air sampling results and provide all air sampling reports as soon as feasible. OSHA air monitoring results shall be posted at a conspicuous location at the job site.
- D. The Contractor is responsible for complying with all additional OSHA regulations while performing work on this project.

#### 1.10 WORKER QUALIFICATIONS, TRAINING, AND EDUCATION

- A. Contractor is required to have a Competent Person supervise each work area at all times work is in progress and shall employ the use of trained asbestos workers with 8-hour OSHA Class II Asbestos Training with hands-on training,
- B. The Competent Person shall be thoroughly familiar and experienced with asbestos abatement and related work and shall enforce the use of all safety procedures and equipment. He/she shall be knowledgeable of EPA, OSHA, and NIOSH requirements and guidelines. The Competent Person shall be trained in accordance with applicable state regulations.
- C. Enforce strict discipline and good working order at all times among employees, and do not employ any person not skilled in the work assigned, nor anyone who has not received documented notice of the hazards of asbestos abatement, formal training in the use of respirators, safety procedures, equipment, clothing, and work procedures.

## PART 2 PRODUCTS

### 2.1 GENERAL

- A. All materials or equipment delivered to the site shall be unloaded, temporarily stored, and transferred to the work area in a manner that shall not interfere with operation of others at the facility, or employee's access and safety.
- B. Damaged or deteriorated materials shall not be used and shall be promptly removed from the premises. Materials that become contaminated with asbestos-containing material shall be thoroughly cleaned, or sealed in plastic bags or sheeting, labeled and legally disposed of in an approved, secure landfill.
- C. All materials and equipment shall comply, at a minimum, with all sections of this specification, relevant federal, state, and applicable local codes, and industry standards.

### 2.2 ABATEMENT EQUIPMENT & SUPPLIES

- A. HEPA-Filtered Exhausts (if required): Air inside each work area shall be exhausted through a High Efficiency Particulate Air (HEPA) filter. Commercially manufactured HEPA-filtered exhaust units, with specification plates intact, must be provided for each work area to attain, at a minimum, four air volume changes per hour and an inward flow of clean air into each work area at the Decontamination Facility of at least 100 feet per minute. The HEPA filter shall be preceded by replaceable prefilters and the unit must be designed so that it cannot be operated unless all filters are in place. The units must also be designed with a gauge to indicate the pressure drop across filters, and lights or audible alarms to indicate that the filters are properly installed, functional, and when they must be changed. Flexible ducting shall be required to allow exhausting to the exterior of the building.
- B. Plastic Sheeting ("Poly") and Bags shall be polyethylene or equivalent with a thickness of at least 6 mil for all applications, unless regulations dictate otherwise. Contractor is responsible for determining if fire rated polyethylene sheeting is required by State or local Fire Marshal.
- C. Wetting Agent or Surfactant shall be 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether, or equivalent, mixed in proportion of one ounce of surfactant per five gallons of water. The material shall be odorless, nontoxic, nonirritating, and noncarcinogenic. It shall be applied as a mist using a low pressure sprayer recommended by the surfactant manufacturer.



- D. Tape and Glue shall be capable of sealing plastic joints and attaching plastic to finished surfaces. The bonding strength and resulting seal integrity shall not be affected by mist or water, wetting or encapsulating agent, or any other materials to be used in the work area.
- E. Warning Signs, Asbestos Caution Tape and Labels shall comply with all federal, state, or local codes and regulations.
- F. Waste Containers and Transportation shall be suitable for loading, temporary storage, transport, and unloading of contaminated waste without risk of ripping, rupture, or exposure to persons, or emissions to the atmosphere. Transportation methods shall comply with the provisions of 40 CFR 61, Subpart M, and with any state or local hazardous or special waste regulations for temporary storage, transport, and disposal if such codes are enforced in states in which the waste will be stored, transported, or disposed of.

### 2.3 SAFETY SUPPLIES AND EQUIPMENT

- A. Respirator Types: Provide all workers with a full or half facepiece respirator that is approved by NIOSH/MSHA for protection against airborne asbestos and meets the requirements of the OSHA Asbestos Standard. Provide respirators for each worker and at least two extra respirators for use by approved visitors.
- B. Protective Clothing: Provide all workers and approved visitors with disposable coveralls, head and foot coverings, gloves and eye protection (i.e., safety glasses) and half-face respiratory protection including HEPA cartridges.

## PART 3 EXECUTION

### 3.1 PRE-CONSTRUCTION MEETING

- A. Upon receipt of a Notice to Proceed, meet with the Engineer at the site to reach agreement on:
  - 1. Scope and manner of work performance and all schedules.
  - 2. Contractor, subcontractor, and vendor vehicle access and parking.
  - 3. Contractor access to the work areas, including approved doors, stairways, and corridors.
  - 4. Location of electrical, water supply, and wastewater drain connection points, if available.
  - 5. Determination of all equipment and other items to be removed from the work areas, and the location of temporary storage space if applicable.
  - 6. Any other logistical factors to minimize interference with the Owner, public safety and health, and other Contractor activities.
- B. Prepare the work areas according to the following general sequence of procedures to ensure that proper fiber containment and protection systems are installed before any work which could generate airborne asbestos fibers.
  - 1. Where exterior non-friable ACM is to be removed from outside the building, post asbestos abatement warning signs and erect temporary barricades to create regulated areas. Regulated areas should be kept clear of any persons not fully trained and protected against exposure.

2. Maintain an operable remote worker decontamination system in accordance with Section 3.2 of this Specification.
3. Maintain a work area access control log for each exterior work area.
4. Where friable ACM or non-friable ACM that has or will become friable, is to be removed from outside the building, removal shall be conducted from within a negative pressure containment in accordance with applicable federal, state, and local regulations.

### 3.2 REMOTE PERSONNEL DECONTAMINATION SYSTEM

- A. For exterior abatement, or where contiguous decontamination systems are not feasible, the Contractor shall establish a remote personnel decontamination system. The use of a remote decontamination unit must be indicated on the state notification forms. Access between the contaminated and uncontaminated areas shall be through this decontamination enclosure only. The decontamination system shall be constructed of two layers of six-mil polyethylene sheeting. Prefabricated "pop-up" decontamination chambers will not be permitted on this project.
- B. Access between rooms in decontamination system shall be through double flap-curtained openings. Clean room, and equipment room within decontamination system shall be completely sealed ensuring that the sole source of air flow through this area originates from uncontaminated areas outside the work area.
- C. The equipment room shall be equipped with a cleaning hose used to decontaminate workers and equipment. A shower filtration pump containing two 5-micron sock filters, or the best available technology shall be installed to filter shower water. Filtered shower water shall be discharged into sanitation drains and shall not be discharged into storm drains or onto floor or ground surfaces.
- D. The shower room shall have soap and an adequate supply of drying towels. Provide an adequate number of shower units in accordance with OSHA Title 29 CFR, Part 1926.1101.

### 3.3 APPROVAL OF CONTAINMENT AREAS

- A. After the work area has been prepared as specified, request an inspection by the Engineer. No removal or disturbance of asbestos-contaminated materials or systems is to occur until the Engineer has inspected and approved each separate prepared work area.
- B. Any deficiencies in the preparation work shall be promptly corrected in a manner satisfactory to the Engineer.

### 3.4 ASBESTOS REMOVAL PROCEDURES

- A. Non-friable Asbestos
  1. Abatement of non-friable ACM must be performed in accordance with Environmental Protection Agency federal regulations which include the NESHAPS regulations and MassDEP 310 CMR 7.15.
  2. All non-friable removal areas shall be properly segregated by posting caution signs meeting the specifications of OSHA 29 CFR 1926.1101 at all locations and approaches to a location where airborne concentrations of asbestos have the potential to exceed ambient background levels. Workers shall use all protective

equipment. The material shall be removed very carefully to minimize any breakage that may release airborne fibers.

3. All ACM must be continuously wetted during impact operations. Ensure that a level of no visible emissions is always achieved; otherwise contain the materials within a negative pressure containment.

**B. Encapsulation**

1. After all asbestos-containing material is removed, seal the surface with a penetrating encapsulation material. Inform the Engineer whenever any asbestos-containing materials cannot be removed, whether in total or in part. Corrective actions will be determined by the Engineer.
2. The encapsulant shall be prepared according to the manufacturer's specifications, then applied to the surfaces. Provide all workers with an MSDS on the encapsulant. Ensure that workers wear appropriate personal protective equipment as designated on the MSDS during encapsulant application.

**C. Abrasive Cutting/Sawing/Drilling (if applicable)**

1. An asbestos designated HEPA vacuum cleaner shall be used with the hose attachment positioned with the abrasive tool in such a manner to ensure that the vacuum will capture all dust.
2. Depending on the air velocity in the area, a shield may be required to ensure that the vacuum is able to capture all dust created. Air velocity may be affected by, but not limited to, wind, building ventilation, and temperature differentials.
3. Constantly wet the ACM during impact operations via tool attachment or by hand.

**D. Asphalt-Based Waterproofing Roof Strips/Sealants**

1. Asphalt based waterproofing strips/sealants on the reservoir roofs along the roof seams. Refer to the Abatement schedule for details and specific locations. Perform work in accordance with MassDEP regulations involving exterior non-friable roofing materials. Operations involving the cutting or abrading of asphalt-based asbestos roofing material is considered to release sufficient friable material thus constituting an asbestos abatement activity. Any work using such equipment must be performed by licensed asbestos workers in a negative pressure enclosure. These restrictions shall be lifted if slicing equipment or manual means to remove the asbestos materials and EPA and/or state guidance on abatement of roofing materials is followed.
2. Work Procedure
  - a. Expose portions of the waterproofing roofing strips/sealants scheduled to be removed. For excavations, use proper sloping and shoring as necessary and conduct in accordance with applicable OSHA regulations.
  - b. Perform procedures as necessary including the application of wet methods and covering materials to ensure that release of asbestos materials is reduced to no visible emissions. Work using any cutting or abrading equipment is prohibited.

- c. Remove asbestos waterproofing roofing strips/sealants using tools and equipment specified in regulatory guidance documents.
- d. Continuously mist the work area as asbestos roofing materials are being removed from the structure.
- e. All asbestos roofing materials must be removed intact where feasible.
- f. All loose debris shall be immediately collected via HEPA vacuum or wet wipe. The vacuum debris and wipe materials shall be segregated and disposed of as asbestos contaminated waste.
- g. Wet methods shall be used whenever operations call for the scraping of resilient roofing materials or mastic.

### 3.5 FINAL WORK AREA CLEANUP, DECONTAMINATION, AND WASTE DISPOSAL

#### A. General Requirements

- 1. After all asbestos-containing or contaminated materials have been removed, remove all waste and perform a final cleanup and decontamination of each work area. Final cleaning shall be performed only after all waste is packaged and removed, but before reinstalling, demolishing any equipment, or dismantling any barrier, Decontamination Facility, or protective covering. Cleaning shall be subject to the approval of the Engineer based on a visual inspection and air testing.

#### B. Cleaning Methods and Approval

- 1. Thoroughly clean all waste containers and removal equipment with a HEPA-filtered vacuum, decontaminated with the use of the amended water, and then remove from the work area.
- 2. All surfaces in the work area shall be thoroughly wiped clean, and after drying, thoroughly decontaminated with a HEPA-filtered vacuuming device and encapsulated.
- 3. After cleaning, the Engineer shall inspect the site. To facilitate, notify the Engineer of the anticipated completion of the site cleaning at least 48 hours in advance.
- 4. If any waste or fibers are observed within the work area during the inspection, perform additional cleanup and decontamination.
- 5. If final air clearance sampling is required, any air sample results above the Air Quality Standard, require additional cleaning and decontamination. Repeat the inspection and air tests, at no additional cost to the Owner. If the air sample results are below the Air Quality Standard, the Engineer will give approval for the Contractor to remove all protective coverings which do not comprise part of the work area seal, containment barrier, or decontamination facility.
- 6. Once these items have been properly packaged and removed from the work area as contaminated waste, package and properly dispose of all remaining plastic sheeting, disassemble and remove the Decontamination Facility and HEPA exhausts, and perform a final HEPA vacuuming of all surfaces.

7. Upon completion of the cleaning, repair all temporary access openings and correct all unsafe conditions.

C. Waste Disposal

1. **Definition:** Asbestos wastes are defined as all building materials and debris, insulation, disposal clothing and protective equipment, plastic sheeting and tape, exhaust systems or vacuum filters, or any abatement equipment that has been contaminated with asbestos and cannot be completely cleaned by vacuuming and by washing in the Decontamination Facility.
2. **General Requirements:** All asbestos wastes (e.g., waterproofing strips, poly sheeting, PPE, etc.) must be handled, packaged, stored, transported, and disposed of as specified in this subsection, and in compliance with all federal, state, and local regulations and codes.
3. **Waste Labeling:** If waste containers are not already so pre-printed, warning labels having waterproof print and permanent adhesive shall be affixed to the lid and/or sides of the containers, whether or not these containers are further packaged. Warning labels shall be conspicuous and legible, and conform to the latest OSHA, EPA and DOT labeling requirements.
4. **Waste Packaging:** Thoroughly wet all waste when packaged and inspect each bag to observe that water condensation is visible. Open, rewet, and reseal insufficiently wetted bags. When a waste bag is full, securely seal it with tape, and place in the designated temporary storage area inside of the work area.

D. Waste Container Removal and Disposal Documentation

1. To comply with the requirement that waste disposal to an approved landfill be documented, remove waste containers from work areas only under the direction of the Engineer, and complete appropriate documentation for each load of waste removed from the site.
2. Accurately measure the volume of each container or load of waste removed from the site.
3. Provide legal transportation of the waste to the disposal landfill, and complete or obtain all required licenses, manifests, dump slips, or other forms. Copies of all forms or licenses, and the signed original of the Waste Shipment Record (WSR) for each waste load shall be given to the Engineer.
4. Waste may be transported to and temporarily stored at a pre-approved off-site storage area owned by the Contractor, but it must ultimately be disposed of at the specified landfill before final payments are approved.

END OF SECTION


APPENDIX A - ASBESTOS ABATEMENT SCHEDULE

**SECTION 13281  
 ASBESTOS CONTAINING MATERIALS ABATEMENT SCHEDULE  
 PROVIN MOUNTAIN RESEVOIR  
 1121 N. WEST STREET  
 AGAWAM, MASSACHUSETTS**

Sample ID #	Material Description	Material Location	Approximate Quantity	Condition	Asbestos Result	Comment
<b>A-01, A-02, A-03</b>	<b>Waterproofing Sealant</b>	<b>Exterior - Seams of tank roof</b>	<b>2,400 LF</b>	<b>Fair</b>	<b>&lt;1% Chrysotile</b>	<b>12" wide black asphaltic waterproofing strips/sealant applied to reservoir roofs along seams. Tanks are located below surface grade. EPA does not regulate materials containing &lt;1% asbestos, however MassDEP classifies &lt;1% asbestos materials as an ACWM and must be disposed of as such.</b>

**LEGEND**

SURVEY PERFORMED BY: Ryan Basting  
 ACWM = ASBESTOS CONTAINING WASTE MATERIAL  
 LF = LINEAR FEET  
**BOLDED AREAS INDICATE ACWM**

Signature: 

State License #: AI900688      14-Oct-22

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MAURA HEALEY  
Governor

KIM DRISCOLL  
Lt. Governor

As determined by the Director under the provisions of the  
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES  
Secretary

MICHAEL FLANAGAN  
Director

### Prevailing Wage Rates

**Awarding Authority:** Springfield Water and Sewer  
**Contract Number:** **City/Town:** AGAWAM  
**Description of Work:** Access manhole extensions and improvements, overflow pipe improvements, fence demo and installation, and concrete joint tape installation.  
**Job Location:** 1121 North West Street, Agawam, MA 01030

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#### Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- **The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor.** For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The annual update requirement is not applicable to 27F "rental of equipment" contracts. **The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.**
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission  
 Provin Mountain Reservoir 3 and 4 Improvements REBID  
 Project #24-47

01/24/2024

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b> (2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$38.95	\$14.57	\$18.67	\$0.00	\$72.19
	01/01/2024	\$38.95	\$15.07	\$18.67	\$0.00	\$72.69
	06/01/2024	\$39.95	\$15.07	\$18.67	\$0.00	\$73.69
	12/01/2024	\$39.95	\$15.07	\$20.17	\$0.00	\$75.19
	01/01/2025	\$39.95	\$15.57	\$20.17	\$0.00	\$75.69
	06/01/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$76.69
	12/01/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$78.30
	01/01/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$78.90
	06/01/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$79.90
	12/01/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$81.64
01/01/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$82.24	
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.02	\$14.57	\$18.67	\$0.00	\$72.26
	01/01/2024	\$39.02	\$15.07	\$18.67	\$0.00	\$72.76
	06/01/2024	\$40.02	\$15.07	\$18.67	\$0.00	\$73.76
	12/01/2024	\$40.02	\$15.07	\$20.17	\$0.00	\$75.26
	01/01/2025	\$40.02	\$15.57	\$20.17	\$0.00	\$75.76
	06/01/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$76.76
	12/01/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$78.37
	01/01/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$78.97
	06/01/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$79.97
	12/01/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$81.71
01/01/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$82.31	
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.14	\$14.57	\$18.67	\$0.00	\$72.38
	01/01/2024	\$39.14	\$15.07	\$18.67	\$0.00	\$72.88
	06/01/2024	\$40.14	\$15.07	\$18.67	\$0.00	\$73.88
	12/01/2024	\$40.14	\$15.07	\$20.17	\$0.00	\$75.38
	01/01/2025	\$40.14	\$15.57	\$20.17	\$0.00	\$75.88
	06/01/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$76.88
	12/01/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$78.49
	01/01/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$79.09
	06/01/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$80.09
	12/01/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$81.83
01/01/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$82.43	
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$34.38	\$9.65	\$16.84	\$0.00	\$60.87
For apprentice rates see "Apprentice- LABORER"						

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

01/24/2024

Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Provin Mountain Reservoir 3 and 4 Improvements REBID							
Project #24-47							
AIR TRACK OPERATOR (HEAVY & HIGHWAY)		12/01/2023	\$34.38	\$9.65	\$14.78	\$0.00	\$58.81
LABORERS - ZONE 3 (HEAVY & HIGHWAY)		06/01/2024	\$35.58	\$9.65	\$14.78	\$0.00	\$60.01
		12/01/2024	\$36.78	\$9.65	\$14.78	\$0.00	\$61.21
		06/01/2025	\$38.03	\$9.65	\$14.78	\$0.00	\$62.46
		12/01/2025	\$39.27	\$9.65	\$14.78	\$0.00	\$63.70
		06/01/2026	\$40.57	\$9.65	\$14.78	\$0.00	\$65.00
		12/01/2026	\$41.86	\$9.65	\$14.78	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
ASBESTOS WORKER (PIPES & TANKS)		12/01/2023	\$36.72	\$14.50	\$10.55	\$0.00	\$61.77
HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)		06/01/2024	\$37.62	\$14.50	\$10.55	\$0.00	\$62.67
		12/01/2024	\$38.52	\$14.50	\$10.55	\$0.00	\$63.57
		06/01/2025	\$39.42	\$14.50	\$10.55	\$0.00	\$64.47
		12/01/2025	\$40.32	\$14.50	\$10.55	\$0.00	\$65.37
ASPHALT RAKER		12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
LABORERS - ZONE 3 (BUILDING & SITE)							
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY)		12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
LABORERS - ZONE 3 (HEAVY & HIGHWAY)		06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
		12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
		06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
		12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
		06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
		12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
AUTOMATIC GRADER-EXCAVATOR (RECLAIMER)		12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
OPERATING ENGINEERS LOCAL 98							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BACKHOE/FRONT-END LOADER OPERATOR		12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
OPERATING ENGINEERS LOCAL 98							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER		12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
LABORERS - ZONE 3 (BUILDING & SITE)							
For apprentice rates see "Apprentice- LABORER"							
BATCH/CEMENT PLANT - ON SITE		12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
OPERATING ENGINEERS LOCAL 98							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BLOCK PAVER, RAMMER / CURB SETTER		12/01/2023	\$34.38	\$9.65	\$16.84	\$0.00	\$60.87
LABORERS - ZONE 3 (BUILDING & SITE)							
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)		12/01/2023	\$34.38	\$9.65	\$14.78	\$0.00	\$58.81
LABORERS - ZONE 3 (HEAVY & HIGHWAY)		06/01/2024	\$35.58	\$9.65	\$14.78	\$0.00	\$60.01
		12/01/2024	\$36.78	\$9.65	\$14.78	\$0.00	\$61.21
		06/01/2025	\$38.03	\$9.65	\$14.78	\$0.00	\$62.46
		12/01/2025	\$39.27	\$9.65	\$14.78	\$0.00	\$63.70
		06/01/2026	\$40.57	\$9.65	\$14.78	\$0.00	\$65.00
		12/01/2026	\$41.86	\$9.65	\$14.78	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
BOILER MAKER		01/01/2023	\$47.37	\$7.07	\$20.31	\$0.00	\$74.75
BOILERMAKERS LOCAL 29		01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Last Modified: 01/24/2024 at 4:49PM/EST

**Apprentice - BOILERMAKER - Local 29**

**Effective Date - 01/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
2	65	\$30.79	\$7.07	\$13.22	\$0.00	\$51.08
3	70	\$33.16	\$7.07	\$14.23	\$0.00	\$54.46
4	75	\$35.53	\$7.07	\$15.24	\$0.00	\$57.84
5	80	\$37.90	\$7.07	\$16.25	\$0.00	\$61.22
6	85	\$40.26	\$7.07	\$17.28	\$0.00	\$64.61
7	90	\$42.63	\$7.07	\$18.28	\$0.00	\$67.98
8	95	\$45.00	\$7.07	\$19.32	\$0.00	\$71.39

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
2	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
3	70	\$33.68	\$7.07	\$14.23	\$0.00	\$54.98
4	75	\$36.09	\$7.07	\$15.24	\$0.00	\$58.40
5	80	\$38.50	\$7.07	\$16.25	\$0.00	\$61.82
6	85	\$40.90	\$7.07	\$17.28	\$0.00	\$65.25
7	90	\$43.31	\$7.07	\$18.28	\$0.00	\$68.66
8	95	\$45.71	\$7.07	\$19.32	\$0.00	\$72.10

**Notes:**

**Apprentice to Journeyworker Ratio:1:4**

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	08/01/2023	\$50.81	\$11.49	\$20.37	\$0.00	\$82.67
BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	02/01/2024	\$52.06	\$11.49	\$20.37	\$0.00	\$83.92
	08/01/2024	\$53.31	\$11.49	\$20.37	\$0.00	\$85.17
	02/01/2025	\$54.61	\$11.49	\$20.37	\$0.00	\$86.47
	08/01/2025	\$56.76	\$11.49	\$20.37	\$0.00	\$88.62
	02/01/2026	\$58.11	\$11.49	\$20.37	\$0.00	\$89.97
	08/01/2026	\$60.31	\$11.49	\$20.37	\$0.00	\$92.17
	02/01/2027	\$61.71	\$11.49	\$20.37	\$0.00	\$93.57

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Springfield/Pittsfield**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.41	\$11.49	\$20.37	\$0.00	\$57.27
2	60	\$30.49	\$11.49	\$20.37	\$0.00	\$62.35
3	70	\$35.57	\$11.49	\$20.37	\$0.00	\$67.43
4	80	\$40.65	\$11.49	\$20.37	\$0.00	\$72.51
5	90	\$45.73	\$11.49	\$20.37	\$0.00	\$77.59

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$11.49	\$20.37	\$0.00	\$57.89
2	60	\$31.24	\$11.49	\$20.37	\$0.00	\$63.10
3	70	\$36.44	\$11.49	\$20.37	\$0.00	\$68.30
4	80	\$41.65	\$11.49	\$20.37	\$0.00	\$73.51
5	90	\$46.85	\$11.49	\$20.37	\$0.00	\$78.71

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

BULLDOZER/POWER SHOVEL/TREE SHREDDER /CLAM SHELL OPERATING	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
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ENGINEERS LOCAL 98  
 For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN LABORERS - FOUNDATION AND MARINE	12/01/2023	\$45.48	\$9.65	\$18.22	\$0.00	\$73.35
	06/01/2024	\$46.96	\$9.65	\$18.22	\$0.00	\$74.83
	12/01/2024	\$48.43	\$9.65	\$18.22	\$0.00	\$76.30
	06/01/2025	\$49.93	\$9.65	\$18.22	\$0.00	\$77.80
	12/01/2025	\$51.43	\$9.65	\$18.22	\$0.00	\$79.30
	06/01/2026	\$52.98	\$9.65	\$18.22	\$0.00	\$80.85
	12/01/2026	\$54.48	\$9.65	\$18.22	\$0.00	\$82.35

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER LABORERS - FOUNDATION AND MARINE	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20

For apprentice rates see "Apprentice- LABORER"

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

01/24/2024

Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN LABORERS - FOUNDATION AND MARINE	Provin Mountain Reservoir 3 and 4 Improvements REBID Project #24-47	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
		06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
		12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
		06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
		12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
		06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
		12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)		12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"							
CARPENTER CARPENTERS LOCAL 336 - HAMPDEN HAMPSHIRE FRANKLIN		03/01/2023	\$39.76	\$7.71	\$18.15	\$0.00	\$65.62

**Apprentice - CARPENTER - Local 336 Hampden Hampshire Franklin**

Effective Date - 03/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.88	\$7.71	\$1.38	\$0.00	\$28.97
2	60	\$23.86	\$7.71	\$1.38	\$0.00	\$32.95
3	70	\$27.83	\$7.71	\$13.95	\$0.00	\$49.49
4	75	\$29.82	\$7.71	\$13.95	\$0.00	\$51.48
5	80	\$31.81	\$7.71	\$15.35	\$0.00	\$54.87
6	80	\$31.81	\$7.71	\$15.35	\$0.00	\$54.87
7	90	\$35.78	\$7.71	\$16.75	\$0.00	\$60.24
8	90	\$35.78	\$7.71	\$16.75	\$0.00	\$60.24

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
Step 1&2 \$26.46/ 3&4 \$31.82/ 5&6 \$50.38/ 7&8 \$55.77

**Apprentice to Journeyworker Ratio:1:5**

CARPENTER WOOD FRAME CARPENTERS-ZONE 3 (Wood Frame)		04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17
All Aspects of New Wood Frame Work							

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - CARPENTER (Wood Frame) - Zone 3**

**Effective Date - 04/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71
2	60	\$14.50	\$7.21	\$0.00	\$0.00	\$21.71
3	65	\$15.70	\$7.21	\$0.00	\$0.00	\$22.91
4	70	\$16.91	\$7.21	\$0.00	\$0.00	\$24.12
5	75	\$18.12	\$7.21	\$3.80	\$0.00	\$29.13
6	80	\$19.33	\$7.21	\$3.80	\$0.00	\$30.34
7	85	\$20.54	\$7.21	\$3.80	\$0.00	\$31.55
8	90	\$21.74	\$7.21	\$3.80	\$0.00	\$32.75

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
 Step 1&2 \$17.86/ 3&4 \$20.22/ 5&6 \$27.57/ 7&8 \$29.94

**Apprentice to Journeyworker Ratio:1:5**

CEMENT MASONRY/PLASTERING	07/01/2023	\$43.67	\$12.90	\$18.66	\$1.25	\$76.48
BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	01/01/2024	\$44.68	\$12.90	\$18.66	\$1.25	\$77.49

**Apprentice - CEMENT MASONRY/PLASTERING - Springfield/Pittsfield**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.84	\$12.90	\$15.86	\$0.00	\$50.60
2	60	\$26.20	\$12.90	\$18.66	\$1.25	\$59.01
3	65	\$28.39	\$12.90	\$18.66	\$1.25	\$61.20
4	70	\$30.57	\$12.90	\$18.66	\$1.25	\$63.38
5	75	\$32.75	\$12.90	\$18.66	\$1.25	\$65.56
6	80	\$34.94	\$12.90	\$18.66	\$1.25	\$67.75
7	90	\$39.30	\$12.90	\$18.66	\$1.25	\$72.11

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.34	\$12.90	\$15.86	\$0.00	\$51.10
2	60	\$26.81	\$12.90	\$18.66	\$1.25	\$59.62
3	65	\$29.04	\$12.90	\$18.66	\$1.25	\$61.85
4	70	\$31.28	\$12.90	\$18.66	\$1.25	\$64.09
5	75	\$33.51	\$12.90	\$18.66	\$1.25	\$66.32
6	80	\$35.74	\$12.90	\$18.66	\$1.25	\$68.55
7	90	\$40.21	\$12.90	\$18.66	\$1.25	\$73.02

**Notes:**

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

**Apprentice to Journeyworker Ratio:1:3**

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

01/24/2024

Classification: Chain Mountain Reservoir 3 and 4 Improvements REBID  
 Project #24-47

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CRANE OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$43.06	\$13.78	\$15.15	\$0.00	\$71.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2023	\$55.51	\$9.65	\$23.70	\$0.00	\$88.86
	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

**Notes:**  
 Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

DEMO: ADZEMAN <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$44.98	\$9.40	\$17.82	\$0.00	\$72.20
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$45.48	\$9.65	\$18.07	\$0.00	\$73.20
For apprentice rates see "Apprentice- LABORER"						

Last Modified: 01/24/2024 at 4:49PM/EST



Springfield Water and Sewer Commission

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Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BURNERS <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	24-47	12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$45.48	\$9.65	\$18.07	\$0.00	\$73.20
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$45.73	\$9.40	\$17.82	\$0.00	\$72.95
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$44.98	\$9.40	\$17.82	\$0.00	\$72.20
For apprentice rates see "Apprentice- LABORER"							
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>		08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>		08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>		08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>		08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>		07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN (Including Core Drilling) <i>ELECTRICIANS LOCAL 7</i>		07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
		12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
		06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
		12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
		06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
		12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
		06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
		01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - ELECTRICIAN - Local 7**

**Effective Date - 07/02/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.20	\$6.90	\$0.58	\$0.00	\$26.68
2	45	\$21.60	\$6.90	\$0.65	\$0.00	\$29.15
3	50	\$24.01	\$12.50	\$7.27	\$0.00	\$43.78
4	55	\$26.41	\$12.50	\$7.34	\$0.00	\$46.25
5	65	\$31.21	\$12.50	\$9.41	\$0.00	\$53.12
6	70	\$33.61	\$12.50	\$10.77	\$0.00	\$56.88

**Effective Date - 12/31/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.60	\$7.65	\$0.59	\$0.00	\$27.84
2	45	\$22.05	\$7.65	\$0.66	\$0.00	\$30.36
3	50	\$24.51	\$12.75	\$7.34	\$0.00	\$44.60
4	55	\$26.96	\$12.75	\$7.41	\$0.00	\$47.12
5	65	\$31.86	\$12.75	\$9.52	\$0.00	\$54.13
6	70	\$34.31	\$12.75	\$10.90	\$0.00	\$57.96

**Notes:**

Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

**Apprentice to Journeyworker Ratio:2:3\*\*\*\***

ELEVATOR CONSTRUCTOR	01/01/2023	\$61.13	\$16.08	\$20.56	\$0.00	\$97.77
ELEVATOR CONSTRUCTORS LOCAL 41	01/01/2024	\$61.98	\$16.18	\$20.96	\$0.00	\$99.12
	01/01/2025	\$62.83	\$16.28	\$21.36	\$0.00	\$100.47
	01/01/2026	\$63.68	\$16.38	\$21.76	\$0.00	\$101.82
	01/01/2027	\$64.53	\$16.48	\$22.16	\$0.00	\$103.17

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - ELEVATOR CONSTRUCTOR - Local 41**

**Effective Date - 01/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.57	\$16.08	\$0.00	\$0.00	\$46.65
2	55	\$33.62	\$16.08	\$20.56	\$0.00	\$70.26
3	65	\$39.73	\$16.08	\$20.56	\$0.00	\$76.37
4	70	\$42.79	\$16.08	\$20.56	\$0.00	\$79.43
5	80	\$48.90	\$16.08	\$20.56	\$0.00	\$85.54

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.99	\$16.18	\$0.00	\$0.00	\$47.17
2	55	\$34.09	\$16.18	\$20.96	\$0.00	\$71.23
3	65	\$40.29	\$16.18	\$20.96	\$0.00	\$77.43
4	70	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
5	80	\$49.58	\$16.18	\$20.96	\$0.00	\$86.72

**Notes:**

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 41	01/01/2023	\$42.79	\$16.08	\$20.56	\$0.00	\$79.43
	01/01/2024	\$43.39	\$16.18	\$20.96	\$0.00	\$80.53
	01/01/2025	\$43.98	\$16.28	\$21.36	\$0.00	\$81.62
	01/01/2026	\$44.58	\$16.38	\$21.76	\$0.00	\$82.72
	01/01/2027	\$45.17	\$16.48	\$22.16	\$0.00	\$83.81

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FIELD ENG.INST/ROD-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 98	06/01/1999	\$18.84	\$4.80	\$4.10	\$0.00	\$27.74
FIELD ENG.PARTY CHIEF:BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 98	06/01/1999	\$21.33	\$4.80	\$4.10	\$0.00	\$30.23
FIELD ENG.SURVEY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 98	06/01/1999	\$22.33	\$4.80	\$4.10	\$0.00	\$31.23

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

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Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM INSTALLER ELECTRICIANS LOCAL 7	Provin Mountain Reservoir 3 and 4 Improvements REBID	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
		12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
		06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
		12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
		06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
		12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
		06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
		01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING ELECTRICIANS LOCAL 7	Provin Mountain Reservoir 3 and 4 Improvements REBID	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
		12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
		06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
		12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
		06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
		12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
		06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
		01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

FIREMAN OPERATING ENGINEERS LOCAL 98		12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
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**Apprentice - OPERATING ENGINEERS - Local 98 Class 3**

Effective Date - 12/01/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.42	\$13.38	\$15.15	\$0.00	\$51.95
2	70	\$27.32	\$13.38	\$15.15	\$0.00	\$55.85
3	80	\$31.22	\$13.38	\$15.15	\$0.00	\$59.75
4	90	\$35.13	\$13.38	\$15.15	\$0.00	\$63.66

**Notes:**

Steps 1-2 are 1000 hrs.; Steps 3-4 are 2000 hrs.

**Apprentice to Journeyworker Ratio:1:6**

FLAGGER & SIGNALER (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)		12/01/2023	\$25.48	\$9.65	\$14.66	\$0.00	\$49.79
		06/01/2024	\$26.51	\$9.65	\$14.66	\$0.00	\$50.82
		12/01/2024	\$26.51	\$9.65	\$14.66	\$0.00	\$50.82
		06/01/2025	\$27.59	\$9.65	\$14.66	\$0.00	\$51.90
		12/01/2025	\$27.59	\$9.65	\$14.66	\$0.00	\$51.90
		06/01/2026	\$28.71	\$9.65	\$14.66	\$0.00	\$53.02
		12/01/2026	\$28.71	\$9.65	\$14.66	\$0.00	\$53.02

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FLOORCOVERER FLOORCOVERERS LOCAL 2168 ZONE III		03/01/2022	\$39.66	\$7.71	\$18.15	\$0.00	\$65.52
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Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - FLOORCOVERER - Local 2168 Zone III**

**Effective Date - 03/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.83	\$7.71	\$1.40	\$0.00	\$28.94
2	55	\$21.81	\$7.71	\$1.40	\$0.00	\$30.92
3	60	\$23.80	\$7.71	\$13.95	\$0.00	\$45.46
4	65	\$25.78	\$7.71	\$13.95	\$0.00	\$47.44
5	70	\$27.76	\$7.71	\$15.35	\$0.00	\$50.82
6	75	\$29.75	\$7.71	\$15.35	\$0.00	\$52.81
7	80	\$31.73	\$7.71	\$16.75	\$0.00	\$56.19
8	85	\$33.71	\$7.71	\$16.75	\$0.00	\$58.17

**Notes:** Steps are 750 hrs.  
 % After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)  
 Step 1&2 \$26.21/ 3&4 \$31.49/ 5&6 \$49.96/ 7&8 \$55.29

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.25	\$13.78	\$15.15	\$0.00	\$68.18
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATORS/LIGHTING PLANTS OPERATING ENGINEERS LOCAL 98	12/01/2023	\$35.80	\$13.78	\$15.15	\$0.00	\$64.73
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 1333	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43
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**Apprentice - GLAZIER - Local 1333**

**Effective Date - 06/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.59	\$10.80	\$1.80	\$0.00	\$32.19
2	56	\$22.04	\$10.80	\$1.80	\$0.00	\$34.64
3	63	\$24.49	\$10.80	\$2.45	\$0.00	\$37.74
4	69	\$26.94	\$10.80	\$2.45	\$0.00	\$40.19
5	75	\$29.39	\$10.80	\$3.15	\$0.00	\$43.34
6	81	\$31.83	\$10.80	\$3.15	\$0.00	\$45.78
7	88	\$34.28	\$10.80	\$10.45	\$0.00	\$55.53
8	94	\$36.73	\$10.80	\$10.45	\$0.00	\$57.98

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

GRADER/TRENCHING MACHINE/DERRICK OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

01/24/2024

Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 63</i>	Provin Mountain Reservoir 3 and 4 Improvements	07/01/2023	\$42.55	\$10.64	\$17.54	\$2.05	\$72.78
		01/01/2024	\$43.80	\$10.64	\$17.54	\$2.05	\$74.03
		07/01/2024	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
		01/01/2025	\$46.30	\$10.64	\$17.54	\$2.05	\$76.53
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 7</i>	Provin Mountain Reservoir 3 and 4 Improvements	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
		12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
		06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
		12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
		06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
		12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
		06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37		
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 63</i>	Provin Mountain Reservoir 3 and 4 Improvements	07/01/2023	\$42.55	\$10.64	\$17.54	\$2.05	\$72.78
		01/01/2024	\$43.80	\$10.64	\$17.54	\$2.05	\$74.03
		07/01/2024	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
		01/01/2025	\$46.30	\$10.64	\$17.54	\$2.05	\$76.53
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING - WATER) <i>PLUMBERS &amp; PIPEFITTERS LOCAL 104</i>	Provin Mountain Reservoir 3 and 4 Improvements	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
		03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC <i>PLUMBERS &amp; PIPEFITTERS LOCAL 104</i>	Provin Mountain Reservoir 3 and 4 Improvements	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
		03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	Provin Mountain Reservoir 3 and 4 Improvements	12/01/2023	\$34.38	\$9.65	\$14.78	\$0.00	\$58.81
		06/01/2024	\$35.58	\$9.65	\$14.78	\$0.00	\$60.01
		12/01/2024	\$36.78	\$9.65	\$14.78	\$0.00	\$61.21
		06/01/2025	\$38.03	\$9.65	\$14.78	\$0.00	\$62.46
		12/01/2025	\$39.27	\$9.65	\$14.78	\$0.00	\$63.70
		06/01/2026	\$40.57	\$9.65	\$14.78	\$0.00	\$65.00
		12/01/2026	\$41.86	\$9.65	\$14.78	\$0.00	\$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	Provin Mountain Reservoir 3 and 4 Improvements	09/01/2023	\$42.80	\$14.75	\$19.61	\$0.00	\$77.16
		09/01/2024	\$45.54	\$14.75	\$19.61	\$0.00	\$79.90
		09/01/2025	\$48.27	\$14.75	\$19.61	\$0.00	\$82.63
		09/01/2026	\$51.01	\$14.75	\$19.61	\$0.00	\$85.37

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Springfield**

**Effective Date - 09/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.40	\$14.75	\$14.32	\$0.00	\$50.47
2	60	\$25.68	\$14.75	\$15.37	\$0.00	\$55.80
3	70	\$29.96	\$14.75	\$16.43	\$0.00	\$61.14
4	80	\$34.24	\$14.75	\$17.49	\$0.00	\$66.48

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.77	\$14.75	\$14.32	\$0.00	\$51.84
2	60	\$27.32	\$14.75	\$15.37	\$0.00	\$57.44
3	70	\$31.88	\$14.75	\$16.43	\$0.00	\$63.06
4	80	\$36.43	\$14.75	\$17.49	\$0.00	\$68.67

**Notes:**  
 Steps are 1 year

**Apprentice to Journeyworker Ratio:1:4**

IRONWORKER/WELDER	09/16/2023	\$39.81	\$8.25	\$22.70	\$0.00	\$70.76
IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)	03/16/2024	\$40.66	\$8.25	\$22.70	\$0.00	\$71.61

**Apprentice - IRONWORKER - Local 7 Springfield**

**Effective Date - 09/16/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.89	\$8.25	\$22.70	\$0.00	\$54.84
2	70	\$27.87	\$8.25	\$22.70	\$0.00	\$58.82
3	75	\$29.86	\$8.25	\$22.70	\$0.00	\$60.81
4	80	\$31.85	\$8.25	\$22.70	\$0.00	\$62.80
5	85	\$33.84	\$8.25	\$22.70	\$0.00	\$64.79
6	90	\$35.83	\$8.25	\$22.70	\$0.00	\$66.78

**Effective Date - 03/16/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$24.40	\$8.25	\$22.70	\$0.00	\$55.35
2	70	\$28.46	\$8.25	\$22.70	\$0.00	\$59.41
3	75	\$30.50	\$8.25	\$22.70	\$0.00	\$61.45
4	80	\$32.53	\$8.25	\$22.70	\$0.00	\$63.48
5	85	\$34.56	\$8.25	\$22.70	\$0.00	\$65.51
6	90	\$36.59	\$8.25	\$22.70	\$0.00	\$67.54

**Notes:**

**Apprentice to Journeyworker Ratio:1:4**

Last Modified: 01/24/2024 at 4:49PM/EST

Springfield Water and Sewer Commission

01/24/2024

Classification: **Provin Mountain Reservoir 3 and 4 Improvements REBID** Base Wage Health Pension Supplemental Unemployment Total Rate

**Project #24-47**  
 JACKHAMMER & PAVING BREAKER OPERATOR 12/01/2023 \$33.88 \$9.65 \$16.84 \$0.00 \$60.37  
 LABORERS - ZONE 3 (BUILDING & SITE)

For apprentice rates see "Apprentice- LABORER"

LABORER 12/01/2023 \$33.63 \$9.65 \$16.84 \$0.00 \$60.12  
 LABORERS - ZONE 3 (BUILDING & SITE)

**Apprentice - LABORER - Zone 3 Building & Site**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.18	\$9.65	\$16.84	\$0.00	\$46.67
2	70	\$23.54	\$9.65	\$16.84	\$0.00	\$50.03
3	80	\$26.90	\$9.65	\$16.84	\$0.00	\$53.39
4	90	\$30.27	\$9.65	\$16.84	\$0.00	\$56.76

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

LABORER (HEAVY & HIGHWAY)	12/01/2023	\$33.63	\$9.65	\$14.78	\$0.00	\$58.06
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	06/01/2024	\$34.83	\$9.65	\$14.78	\$0.00	\$59.26
	12/01/2024	\$36.03	\$9.65	\$14.78	\$0.00	\$60.46
	06/01/2025	\$37.28	\$9.65	\$14.78	\$0.00	\$61.71
	12/01/2025	\$38.52	\$9.65	\$14.78	\$0.00	\$62.95
	06/01/2026	\$39.82	\$9.65	\$14.78	\$0.00	\$64.25
	12/01/2026	\$41.11	\$9.65	\$14.78	\$0.00	\$65.54

**Apprentice - LABORER (Heavy & Highway) - Zone 3**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.18	\$9.65	\$14.78	\$0.00	\$44.61
2	70	\$23.54	\$9.65	\$14.78	\$0.00	\$47.97
3	80	\$26.90	\$9.65	\$14.78	\$0.00	\$51.33
4	90	\$30.27	\$9.65	\$14.78	\$0.00	\$54.70

**Effective Date - 06/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.90	\$9.65	\$14.78	\$0.00	\$45.33
2	70	\$24.38	\$9.65	\$14.78	\$0.00	\$48.81
3	80	\$27.86	\$9.65	\$14.78	\$0.00	\$52.29
4	90	\$31.35	\$9.65	\$14.78	\$0.00	\$55.78

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Last Modified: 01/24/2024 at 4:49PM EST



Springfield Water and Sewer Commission

01/24/2024

Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$33.63	\$9.65	\$16.84	\$0.00	\$60.12
For apprentice rates see "Apprentice- LABORER"							
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$34.13	\$9.40	\$16.59	\$0.00	\$60.12
For apprentice rates see "Apprentice- LABORER"							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$33.60	\$9.65	\$16.97	\$0.00	\$60.22
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$34.63	\$9.65	\$16.84	\$0.00	\$61.12
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>		12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
		06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
		12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
		06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
		12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
		06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
		12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$33.63	\$9.65	\$16.84	\$0.00	\$60.12
For apprentice rates see "Apprentice- LABORER"							
LABORER: TREE REMOVER <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$33.63	\$9.65	\$16.84	\$0.00	\$60.12
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>		12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>		12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
		06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
		12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
		06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
		12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
		06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
		12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE &amp; TILE</i>		08/01/2023	\$41.37	\$11.49	\$19.53	\$0.00	\$72.39
		02/01/2024	\$42.37	\$11.49	\$19.53	\$0.00	\$73.39
		08/01/2024	\$44.05	\$11.49	\$19.53	\$0.00	\$75.07
		02/01/2025	\$45.90	\$11.49	\$19.53	\$0.00	\$76.92
		08/01/2025	\$46.81	\$11.49	\$19.53	\$0.00	\$77.83
		02/01/2026	\$47.89	\$11.49	\$19.53	\$0.00	\$78.91
		08/01/2026	\$49.65	\$11.49	\$19.53	\$0.00	\$80.67
		02/01/2027	\$50.77	\$11.49	\$19.53	\$0.00	\$81.79

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**Apprentice - MARBLE-TILE FINISHER-Local 3 Marble/Tile (Spr/Pitt)**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.69	\$11.49	\$19.53	\$0.00	\$51.71
2	60	\$24.82	\$11.49	\$19.53	\$0.00	\$55.84
3	70	\$28.96	\$11.49	\$19.53	\$0.00	\$59.98
4	80	\$33.10	\$11.49	\$19.53	\$0.00	\$64.12
5	90	\$37.23	\$11.49	\$19.53	\$0.00	\$68.25

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

MARBLE MASON/TILE LAYER(SP/PT)SeeBrick  
 BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE

See "BRICK/STONE/ARTIFICIAL MASONRY(INCL.MASONRY WATERPROOFING)

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANIC/WELDER/BOOM TRUCK OPERATING ENGINEERS LOCAL 98	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 - Zone 3	01/02/2023	\$40.16	\$8.58	\$21.57	\$0.00	\$70.31
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**Apprentice - MILLWRIGHT - Local 1121 Zone 3**

**Effective Date - 01/02/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.09	\$8.58	\$5.72	\$0.00	\$36.39
2	65	\$26.10	\$8.58	\$17.93	\$0.00	\$52.61
3	75	\$30.12	\$8.58	\$18.98	\$0.00	\$57.68
4	85	\$34.14	\$8.58	\$20.01	\$0.00	\$62.73

**Notes:** Step 1&2 Appr. indentured after 1/6/2020 receive no pension,  
 but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)  
 Steps are 2,000 hours

**Apprentice to Journeyworker Ratio:1:4**

MORTAR MIXER LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
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For apprentice rates see "Apprentice- LABORER"

OILER OPERATING ENGINEERS LOCAL 98	12/01/2023	\$35.02	\$13.78	\$15.15	\$0.00	\$63.95
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS VI OPERATING ENGINEERS LOCAL 98	12/01/2023	\$32.74	\$13.78	\$15.15	\$0.00	\$61.67
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For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

01/24/2024

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2023	\$55.51	\$9.65	\$23.70	\$0.00	\$88.86
	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.76	\$9.65	\$0.00	\$0.00	\$37.41
2	55	\$30.53	\$9.65	\$6.55	\$0.00	\$46.73
3	60	\$33.31	\$9.65	\$7.14	\$0.00	\$50.10
4	65	\$36.08	\$9.65	\$7.74	\$0.00	\$53.47
5	70	\$38.86	\$9.65	\$20.13	\$0.00	\$68.64
6	75	\$41.63	\$9.65	\$20.73	\$0.00	\$72.01
7	80	\$44.41	\$9.65	\$21.32	\$0.00	\$75.38
8	90	\$49.96	\$9.65	\$22.51	\$0.00	\$82.12

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2023	\$39.98	\$8.65	\$19.15	\$0.00	\$67.78
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.	01/01/2024	\$41.08	\$8.65	\$19.15	\$0.00	\$68.88
<i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2024	\$42.13	\$8.65	\$19.15	\$0.00	\$69.93
	01/01/2025	\$43.23	\$8.65	\$19.15	\$0.00	\$71.03

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - New**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.99	\$9.65	\$0.00	\$0.00	\$29.64
2	55	\$21.99	\$9.65	\$4.35	\$0.00	\$35.99
3	60	\$23.99	\$9.65	\$4.74	\$0.00	\$38.38
4	65	\$25.99	\$9.65	\$5.14	\$0.00	\$40.78
5	70	\$27.99	\$9.65	\$17.18	\$0.00	\$54.82
6	75	\$29.99	\$9.65	\$17.58	\$0.00	\$57.22
7	80	\$31.98	\$9.65	\$17.97	\$0.00	\$59.60
8	90	\$35.98	\$9.65	\$18.76	\$0.00	\$64.39

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.54	\$9.95	\$0.00	\$0.00	\$30.49
2	55	\$22.59	\$9.95	\$4.43	\$0.00	\$36.97
3	60	\$24.65	\$9.95	\$4.83	\$0.00	\$39.43
4	65	\$26.70	\$9.95	\$5.23	\$0.00	\$41.88
5	70	\$28.76	\$9.95	\$17.49	\$0.00	\$56.20
6	75	\$30.81	\$9.95	\$17.89	\$0.00	\$58.65
7	80	\$32.86	\$9.95	\$18.29	\$0.00	\$61.10
8	90	\$36.97	\$9.95	\$19.10	\$0.00	\$66.02

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2023	\$35.65	\$9.65	\$19.70	\$0.00	\$65.00
PAINTERS LOCAL 35 - ZONE 3	01/01/2024	\$36.15	\$9.95	\$19.90	\$0.00	\$66.00
	07/01/2024	\$37.35	\$9.95	\$19.90	\$0.00	\$67.20
	01/01/2025	\$38.55	\$9.95	\$19.90	\$0.00	\$68.40

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - Repaint**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.83	\$9.65	\$0.00	\$0.00	\$27.48
2	55	\$19.61	\$9.65	\$4.35	\$0.00	\$33.61
3	60	\$21.39	\$9.65	\$4.74	\$0.00	\$35.78
4	65	\$23.17	\$9.65	\$5.14	\$0.00	\$37.96
5	70	\$24.96	\$9.65	\$17.33	\$0.00	\$51.94
6	75	\$26.74	\$9.65	\$17.73	\$0.00	\$54.12
7	80	\$28.52	\$9.65	\$18.12	\$0.00	\$56.29
8	90	\$32.09	\$9.65	\$18.91	\$0.00	\$60.65

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.08	\$9.95	\$0.00	\$0.00	\$28.03
2	55	\$19.88	\$9.95	\$4.43	\$0.00	\$34.26
3	60	\$21.69	\$9.95	\$4.83	\$0.00	\$36.47
4	65	\$23.50	\$9.95	\$5.23	\$0.00	\$38.68
5	70	\$25.31	\$9.95	\$17.49	\$0.00	\$52.75
6	75	\$27.11	\$9.95	\$17.89	\$0.00	\$54.95
7	80	\$28.92	\$9.95	\$18.29	\$0.00	\$57.16
8	90	\$32.54	\$9.95	\$19.10	\$0.00	\$61.59

**Notes:**  
 Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, NEW) *	07/01/2023	\$36.93	\$9.65	\$19.70	\$0.00	\$66.28
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2024	\$37.43	\$9.95	\$19.90	\$0.00	\$67.28
	07/01/2024	\$38.63	\$9.95	\$19.90	\$0.00	\$68.48
	01/01/2025	\$39.83	\$9.95	\$19.90	\$0.00	\$69.68

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - PAINTER - Local 35 Zone 3 - BRUSH NEW**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.47	\$9.65	\$0.00	\$0.00	\$28.12
2	55	\$20.31	\$9.65	\$4.35	\$0.00	\$34.31
3	60	\$22.16	\$9.65	\$4.74	\$0.00	\$36.55
4	65	\$24.00	\$9.65	\$5.14	\$0.00	\$38.79
5	70	\$25.85	\$9.65	\$17.33	\$0.00	\$52.83
6	75	\$27.70	\$9.65	\$17.73	\$0.00	\$55.08
7	80	\$29.54	\$9.65	\$18.12	\$0.00	\$57.31
8	90	\$33.24	\$9.65	\$18.91	\$0.00	\$61.80

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.72	\$9.95	\$0.00	\$0.00	\$28.67
2	55	\$20.59	\$9.95	\$4.43	\$0.00	\$34.97
3	60	\$22.46	\$9.95	\$4.83	\$0.00	\$37.24
4	65	\$24.33	\$9.95	\$5.23	\$0.00	\$39.51
5	70	\$26.20	\$9.95	\$17.49	\$0.00	\$53.64
6	75	\$28.07	\$9.95	\$17.89	\$0.00	\$55.91
7	80	\$29.94	\$9.95	\$18.29	\$0.00	\$58.18
8	90	\$33.69	\$9.95	\$19.10	\$0.00	\$62.74

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2023	\$34.25	\$9.65	\$19.70	\$0.00	\$63.60
PAINTERS LOCAL 35 - ZONE 3	01/01/2024	\$34.75	\$9.95	\$19.90	\$0.00	\$64.60
	07/01/2024	\$35.95	\$9.95	\$19.90	\$0.00	\$65.80
	01/01/2025	\$37.15	\$9.95	\$19.90	\$0.00	\$67.00

Last Modified: 01/24/2024 at 4:49PM EST

**Apprentice - PAINTER Local 35 Zone 3 - BRUSH REPAINT**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.13	\$9.65	\$0.00	\$0.00	\$26.78
2	55	\$18.84	\$9.65	\$4.35	\$0.00	\$32.84
3	60	\$20.55	\$9.65	\$4.74	\$0.00	\$34.94
4	65	\$22.26	\$9.65	\$5.14	\$0.00	\$37.05
5	70	\$23.98	\$9.65	\$17.33	\$0.00	\$50.96
6	75	\$25.69	\$9.65	\$17.73	\$0.00	\$53.07
7	80	\$27.40	\$9.65	\$18.12	\$0.00	\$55.17
8	90	\$30.83	\$9.65	\$18.91	\$0.00	\$59.39

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.38	\$9.95	\$0.00	\$0.00	\$27.33
2	55	\$19.11	\$9.95	\$4.43	\$0.00	\$33.49
3	60	\$20.85	\$9.95	\$4.83	\$0.00	\$35.63
4	65	\$22.59	\$9.95	\$5.23	\$0.00	\$37.77
5	70	\$24.33	\$9.95	\$17.49	\$0.00	\$51.77
6	75	\$26.06	\$9.95	\$17.89	\$0.00	\$53.90
7	80	\$27.80	\$9.95	\$18.29	\$0.00	\$56.04
8	90	\$31.28	\$9.95	\$19.10	\$0.00	\$60.33

**Notes:**  
 Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	12/01/2023	\$33.63	\$9.65	\$14.78	\$0.00	\$58.06
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	06/01/2024	\$34.83	\$9.65	\$14.78	\$0.00	\$59.26
	12/01/2024	\$36.03	\$9.65	\$14.78	\$0.00	\$60.46
	06/01/2025	\$37.28	\$9.65	\$14.78	\$0.00	\$61.71
	12/01/2025	\$38.52	\$9.65	\$14.78	\$0.00	\$62.95
	06/01/2026	\$39.82	\$9.65	\$14.78	\$0.00	\$64.25
	12/01/2026	\$41.11	\$9.65	\$14.78	\$0.00	\$65.54

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

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Springfield Water and Sewer Commission

01/24/2024

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>PANEL &amp; PICKUP TRUCKS DRIVER</b> TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2023	\$38.78	\$14.57	\$18.67	\$0.00	\$72.02
	01/01/2024	\$38.78	\$15.07	\$18.67	\$0.00	\$72.52
	06/01/2024	\$39.78	\$15.07	\$18.67	\$0.00	\$73.52
	12/01/2024	\$39.78	\$15.07	\$20.17	\$0.00	\$75.02
	01/01/2025	\$39.78	\$15.57	\$20.17	\$0.00	\$75.52
	06/01/2025	\$40.78	\$15.57	\$20.17	\$0.00	\$76.52
	12/01/2025	\$40.78	\$15.57	\$21.78	\$0.00	\$78.13
	01/01/2026	\$40.78	\$16.17	\$21.78	\$0.00	\$78.73
	06/01/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$79.73
	12/01/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$81.47
01/01/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$82.07	
<b>PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)</b> PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2020	\$43.53	\$9.40	\$23.12	\$0.00	\$76.05
<b>PILE DRIVER</b> PILE DRIVER LOCAL 56 (ZONE 3)	08/01/2020	\$43.53	\$9.40	\$23.12	\$0.00	\$76.05

**Apprentice - PILE DRIVER - Local 56 Zone 3**

**Effective Date -** 08/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**Notes:** Apprentice wages shall be no less than the following Steps;  
 (Same as set in Zone 1)  
 1\$57.06/2\$61.96/3\$66.87/4\$69.32/5\$71.78/6\$71.78/7\$76.68/8\$76.68

**Apprentice to Journeyworker Ratio:1:5**

<b>PIPELAYER</b> LABORERS - ZONE 3 (BUILDING & SITE) For apprentice rates see "Apprentice- LABORER"	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
<b>PIPELAYER (HEAVY &amp; HIGHWAY)</b> LABORERS - ZONE 3 (HEAVY & HIGHWAY) For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79	
<b>PLUMBER &amp; PIPEFITTER</b> PLUMBERS & PIPEFITTERS LOCAL 104	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86

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**Apprentice - PLUMBER/PIPEFITTER - Local 104**

**Effective Date - 09/17/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.58	\$9.55	\$10.10	\$0.00	\$41.23
2	50	\$23.98	\$9.55	\$10.10	\$0.00	\$43.63
3	55	\$26.38	\$9.55	\$10.10	\$0.00	\$46.03
4	60	\$28.78	\$9.55	\$10.10	\$0.00	\$48.43
5	65	\$31.17	\$9.55	\$10.10	\$0.00	\$50.82
6	70	\$33.57	\$9.55	\$10.10	\$0.00	\$53.22
7	75	\$35.97	\$9.55	\$10.10	\$0.00	\$55.62
8	80	\$38.37	\$9.55	\$10.10	\$0.00	\$58.02
9	80	\$38.37	\$9.55	\$17.10	\$0.00	\$65.02
10	80	\$38.37	\$9.55	\$17.10	\$0.00	\$65.02

**Effective Date - 03/17/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$22.14	\$9.55	\$10.10	\$0.00	\$41.79
2	50	\$24.61	\$9.55	\$10.10	\$0.00	\$44.26
3	55	\$27.07	\$9.55	\$10.10	\$0.00	\$46.72
4	60	\$29.53	\$9.55	\$10.10	\$0.00	\$49.18
5	65	\$31.99	\$9.55	\$10.10	\$0.00	\$51.64
6	70	\$34.45	\$9.55	\$10.10	\$0.00	\$54.10
7	75	\$36.91	\$9.55	\$10.10	\$0.00	\$56.56
8	80	\$39.37	\$9.55	\$10.10	\$0.00	\$59.02
9	80	\$39.37	\$9.55	\$17.10	\$0.00	\$66.02
10	80	\$39.37	\$9.55	\$17.10	\$0.00	\$66.02

**Notes: \*\*1:1,2:5,3:9,4:12**

**Apprentice to Journeyworker Ratio:\*\***

PNEUMATIC CONTROLS (TEMP.) PLUMBERS & PIPEFITTERS LOCAL 104	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

POWDERMAN & BLASTER LABORERS - ZONE 3 (BUILDING & SITE)	12/01/2023	\$35.13	\$9.40	\$16.59	\$0.00	\$61.12
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For apprentice rates see "Apprentice- LABORER"

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Springfield Water and Sewer Commission

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Project #24-47</b> POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS - ZONE 3 (HEAVY & HIGHWAY)						
	12/01/2023	\$34.63	\$9.65	\$14.78	\$0.00	\$59.06
	06/01/2024	\$35.83	\$9.65	\$14.78	\$0.00	\$60.26
	12/01/2024	\$37.03	\$9.65	\$14.78	\$0.00	\$61.46
	06/01/2025	\$38.28	\$9.65	\$14.78	\$0.00	\$62.71
	12/01/2025	\$39.52	\$9.65	\$14.78	\$0.00	\$63.95
	06/01/2026	\$40.82	\$9.65	\$14.78	\$0.00	\$65.25
	12/01/2026	\$42.11	\$9.65	\$14.78	\$0.00	\$66.54
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
<b>PUMP OPERATOR (CONCRETE)</b>						
	12/01/2023	\$39.56	\$13.78	\$15.15	\$0.00	\$68.49
OPERATING ENGINEERS LOCAL 98						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
<b>PUMP OPERATOR (DEWATERING, OTHER)</b>						
	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
OPERATING ENGINEERS LOCAL 98						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
<b>READY-MIX CONCRETE DRIVER</b>						
	05/01/2020	\$22.44	\$11.07	\$6.50	\$0.00	\$40.01
TEAMSTERS 404 - Construction Service (Northampton)						
<b>RIDE-ON MOTORIZED BUGGY OPERATOR</b>						
	12/01/2023	\$33.88	\$9.65	\$16.84	\$0.00	\$60.37
LABORERS - ZONE 3 (BUILDING & SITE)						
For apprentice rates see "Apprentice- LABORER"						
<b>ROLLER OPERATOR</b>						
	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
OPERATING ENGINEERS LOCAL 98						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
<b>ROOFER (Coal tar pitch)</b>						
	07/16/2023	\$38.91	\$10.35	\$18.00	\$0.00	\$67.26
ROOFERS LOCAL 248						
For apprentice rates see "Apprentice- ROOFER"						
<b>ROOFER (Inc.Roofing Waterproofing &amp;Roofing Damproofg)</b>						
	07/16/2023	\$38.41	\$10.35	\$18.00	\$0.00	\$66.76
ROOFERS LOCAL 248						

**Apprentice - ROOFER - Local 248**

Effective Date - 07/16/2023

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.05	\$10.35	\$0.00	\$0.00	\$33.40
2	65	\$24.97	\$10.35	\$18.00	\$0.00	\$53.32
3	70	\$26.89	\$10.35	\$18.00	\$0.00	\$55.24
4	75	\$28.81	\$10.35	\$18.00	\$0.00	\$57.16
5	80	\$30.73	\$10.35	\$18.00	\$0.00	\$59.08
6	85	\$32.65	\$10.35	\$18.00	\$0.00	\$61.00
7	90	\$34.57	\$10.35	\$18.00	\$0.00	\$62.92
8	95	\$36.49	\$10.35	\$18.00	\$0.00	\$64.84

**Notes:**

Steps are 750 hrs.Roofing(Tear Off)1:1; Same as above

**Apprentice to Journeyworker Ratio:1:3**

<b>ROOFER SLATE / TILE / PRECAST CONCRETE</b>	07/16/2023	\$38.91	\$10.35	\$18.00	\$0.00	\$67.26
ROOFERS LOCAL 248						

For apprentice rates see "Apprentice- ROOFER"

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Springfield Water and Sewer Commission

01/24/2024

Classification: **Provin Mountain Reservoir 3 and 4 Improvements REBID** Base Wage Health Pension Supplemental Total Rate  
 Project #24-47 Unemployment

SCRAPER <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$39.03	\$13.38	\$15.15	\$0.00	\$67.56
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-POWERED ROLLERS AND COMPACTORS (TAMPERS) <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-PROPELLED POWER BROOM <i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2023	\$35.80	\$13.78	\$15.15	\$0.00	\$64.73
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2023	\$42.55	\$10.64	\$17.54	\$2.05	\$72.78
	01/01/2024	\$43.80	\$10.64	\$17.54	\$2.05	\$74.03
	07/01/2024	\$45.05	\$10.64	\$17.54	\$2.05	\$75.28
	01/01/2025	\$46.30	\$10.64	\$17.54	\$2.05	\$76.53

**Apprentice - SHEET METAL WORKER - Local 63**

**Effective Date - 07/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.15	\$4.79	\$4.76	\$0.92	\$29.62
2	50	\$21.28	\$5.32	\$5.29	\$1.03	\$32.92
3	55	\$23.40	\$5.85	\$5.82	\$1.13	\$36.20
4	60	\$25.53	\$6.38	\$6.35	\$1.23	\$39.49
5	65	\$27.66	\$6.92	\$6.88	\$1.33	\$42.79
6	70	\$29.79	\$7.45	\$7.41	\$1.44	\$46.09
7	75	\$31.91	\$7.98	\$7.94	\$1.54	\$49.37
8	80	\$34.04	\$8.51	\$15.42	\$1.64	\$59.61
9	85	\$36.17	\$9.04	\$15.95	\$1.74	\$62.90
10	90	\$38.30	\$9.58	\$16.48	\$1.85	\$66.21

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$19.71	\$4.79	\$4.76	\$0.92	\$30.18
2	50	\$21.90	\$5.32	\$5.29	\$1.03	\$33.54
3	55	\$24.09	\$5.85	\$5.82	\$1.13	\$36.89
4	60	\$26.28	\$6.38	\$6.35	\$1.23	\$40.24
5	65	\$28.47	\$6.92	\$6.88	\$1.33	\$43.60
6	70	\$30.66	\$7.45	\$7.41	\$1.44	\$46.96
7	75	\$32.85	\$7.98	\$7.94	\$1.54	\$50.31
8	80	\$35.04	\$8.51	\$15.42	\$1.64	\$60.61
9	85	\$37.23	\$9.04	\$15.95	\$1.74	\$63.96
10	90	\$39.42	\$9.58	\$13.92	\$1.85	\$64.77

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

01/24/2024

Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Provin Mountain Reservoir 3 and 4 Improvements REBID</b>							
<b>Project #24-47</b>							
SPECIALIZED EARTH MOVING EQUIP < 35 TONS		12/01/2023	\$39.24	\$14.57	\$18.67	\$0.00	\$72.48
<i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>							
		01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
		06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
		12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
		01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
		06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
		12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
		01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
		06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
		12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
		01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53
<b>SPECIALIZED EARTH MOVING EQUIP &gt; 35 TONS</b>							
<i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>							
		12/01/2023	\$39.53	\$14.57	\$18.67	\$0.00	\$72.77
		01/01/2024	\$39.53	\$15.07	\$18.67	\$0.00	\$73.27
		06/01/2024	\$40.53	\$15.07	\$18.67	\$0.00	\$74.27
		12/01/2024	\$40.53	\$15.07	\$20.17	\$0.00	\$75.77
		01/01/2025	\$40.53	\$15.57	\$20.17	\$0.00	\$76.27
		06/01/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$77.27
		12/01/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$78.88
		01/01/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$79.48
		06/01/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$80.48
		12/01/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$82.22
		01/01/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$82.82
<b>SPRINKLER FITTER</b>							
<i>SPRINKLER FITTERS LOCAL 669</i>							
		04/01/2023	\$47.43	\$11.45	\$16.61	\$0.00	\$75.49

**Apprentice - SPRINKLER FITTER - Local 669**

**Effective Date - 04/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.34	\$8.22	\$0.00	\$0.00	\$29.56
2	50	\$23.72	\$8.22	\$0.00	\$0.00	\$31.94
3	55	\$26.09	\$11.45	\$7.20	\$0.00	\$44.74
4	60	\$28.46	\$11.45	\$8.35	\$0.00	\$48.26
5	65	\$30.83	\$11.45	\$8.35	\$0.00	\$50.63
6	70	\$33.20	\$11.45	\$8.60	\$0.00	\$53.25
7	75	\$35.57	\$11.45	\$8.60	\$0.00	\$55.62
8	80	\$37.94	\$11.45	\$8.60	\$0.00	\$57.99
9	85	\$40.32	\$11.45	\$8.60	\$0.00	\$60.37
10	90	\$42.69	\$11.45	\$8.60	\$0.00	\$62.74

Notes:

**Apprentice to Journeyworker Ratio:1:1**

Last Modified: 01/24/2024 at 4:49PM EST

Springfield Water and Sewer Commission

01/24/2024

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 7	07/02/2023	\$48.01	\$12.50	\$14.41	\$0.00	\$74.92
	12/31/2023	\$49.01	\$12.75	\$14.61	\$0.00	\$76.37
	06/30/2024	\$50.01	\$13.00	\$14.86	\$0.00	\$77.87
	12/29/2024	\$51.06	\$13.25	\$15.06	\$0.00	\$79.37
	06/29/2025	\$52.16	\$13.50	\$15.21	\$0.00	\$80.87
	12/28/2025	\$53.26	\$13.75	\$15.36	\$0.00	\$82.37
	06/28/2026	\$54.41	\$14.00	\$15.46	\$0.00	\$83.87
	01/03/2027	\$55.56	\$14.25	\$15.56	\$0.00	\$85.37

**Apprentice - TELECOMMUNICATION TECHNICIAN - Local 7**

**Effective Date - 07/02/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.20	\$6.90	\$1.44	\$0.00	\$27.54
2	45	\$21.60	\$6.90	\$1.44	\$0.00	\$29.94
3	50	\$24.01	\$11.50	\$7.99	\$0.00	\$43.50
4	55	\$26.41	\$11.50	\$7.99	\$0.00	\$45.90
5	65	\$31.21	\$11.50	\$9.92	\$0.00	\$52.63
6	70	\$33.61	\$11.50	\$11.20	\$0.00	\$56.31

**Effective Date - 12/31/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.60	\$7.05	\$1.47	\$0.00	\$28.12
2	45	\$22.05	\$7.05	\$1.47	\$0.00	\$30.57
3	50	\$24.51	\$11.75	\$8.07	\$0.00	\$44.33
4	55	\$26.96	\$11.75	\$8.07	\$0.00	\$46.78
5	65	\$31.86	\$11.75	\$10.03	\$0.00	\$53.64
6	70	\$34.31	\$11.75	\$11.34	\$0.00	\$57.40

**Notes:**  
Steps are 800 hours

**Apprentice to Journeyworker Ratio:1:1**

TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	08/01/2023	\$61.34	\$11.49	\$22.34	\$0.00	\$95.17
	02/01/2024	\$62.59	\$11.49	\$22.34	\$0.00	\$96.42
	08/01/2024	\$64.69	\$11.49	\$22.34	\$0.00	\$98.52
	02/01/2025	\$65.99	\$11.49	\$22.34	\$0.00	\$99.82
	08/01/2025	\$68.14	\$11.49	\$22.34	\$0.00	\$101.97
	02/10/2026	\$69.49	\$11.49	\$22.34	\$0.00	\$103.32
	08/01/2026	\$71.69	\$11.49	\$22.34	\$0.00	\$105.52
	02/01/2027	\$73.09	\$11.49	\$22.34	\$0.00	\$106.92

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**Apprentice - TERRAZZO FINISHER-Local 3 Marble/Tile (Spr/Ptt)**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.67	\$11.49	\$22.34	\$0.00	\$64.50
2	60	\$36.80	\$11.49	\$22.34	\$0.00	\$70.63
3	70	\$42.94	\$11.49	\$22.34	\$0.00	\$76.77
4	80	\$49.07	\$11.49	\$22.34	\$0.00	\$82.90
5	90	\$55.21	\$11.49	\$22.34	\$0.00	\$89.04

Notes:

**Apprentice to Journeyworker Ratio:1:5**

TERRAZZO MECHANIC	08/01/2023	\$62.42	\$11.49	\$22.31	\$0.00	\$96.22
BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	02/01/2024	\$63.67	\$11.49	\$22.31	\$0.00	\$97.47
	08/01/2024	\$65.77	\$11.49	\$22.31	\$0.00	\$99.57
	02/01/2025	\$67.07	\$11.49	\$22.31	\$0.00	\$100.87
	08/01/2025	\$69.22	\$11.49	\$22.31	\$0.00	\$103.02
	02/01/2026	\$70.57	\$11.49	\$22.31	\$0.00	\$104.37
	08/01/2026	\$72.77	\$11.49	\$22.31	\$0.00	\$106.57
	02/01/2027	\$74.17	\$11.49	\$22.31	\$0.00	\$107.97

**Apprentice - TERRAZZO MECH - Local 3 Marble/Tile (Spr/Pitt)**

**Effective Date - 08/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.21	\$11.49	\$22.31	\$0.00	\$65.01
2	60	\$37.45	\$11.49	\$22.31	\$0.00	\$71.25
3	70	\$43.69	\$11.49	\$22.31	\$0.00	\$77.49
4	80	\$49.94	\$11.49	\$22.31	\$0.00	\$83.74
5	90	\$56.18	\$11.49	\$22.31	\$0.00	\$89.98

Notes:

**Apprentice to Journeyworker Ratio:1:5**

TEST BORING DRILLER	12/01/2023	\$48.33	\$9.65	\$18.22	\$0.00	\$76.20
LABORERS - FOUNDATION AND MARINE	06/01/2024	\$49.81	\$9.65	\$18.22	\$0.00	\$77.68
	12/01/2024	\$51.28	\$9.65	\$18.22	\$0.00	\$79.15
	06/01/2025	\$52.78	\$9.65	\$18.22	\$0.00	\$80.65
	12/01/2025	\$54.28	\$9.65	\$18.22	\$0.00	\$82.15
	06/01/2026	\$55.83	\$9.65	\$18.22	\$0.00	\$83.70
	12/01/2026	\$57.33	\$9.65	\$18.22	\$0.00	\$85.20

For apprentice rates see "Apprentice- LABORER"

Last Modified: 01/24/2024 at 4:49PM/EST

Springfield Water and Sewer Commission

01/24/2024

Classification	Project #	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	24-47	12/01/2023	\$44.45	\$9.65	\$18.22	\$0.00	\$72.32
		06/01/2024	\$45.93	\$9.65	\$18.22	\$0.00	\$73.80
		12/01/2024	\$47.40	\$9.65	\$18.22	\$0.00	\$75.27
		06/01/2025	\$48.90	\$9.65	\$18.22	\$0.00	\$76.77
		12/01/2025	\$50.40	\$9.65	\$18.22	\$0.00	\$78.27
		06/01/2026	\$51.95	\$9.65	\$18.22	\$0.00	\$79.82
		12/01/2026	\$53.45	\$9.65	\$18.22	\$0.00	\$81.32
For apprentice rates see "Apprentice- LABORER"							
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	24-47	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
		06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
		12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
		06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
		12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
		06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
		12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"							
TRACTORS <i>OPERATING ENGINEERS LOCAL 98</i>	24-47	12/01/2023	\$38.42	\$13.78	\$15.15	\$0.00	\$67.35
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	24-47	12/01/2023	\$39.82	\$14.57	\$18.67	\$0.00	\$73.06
		01/01/2024	\$39.82	\$15.07	\$18.67	\$0.00	\$73.56
		06/01/2024	\$40.82	\$15.07	\$18.67	\$0.00	\$74.56
		12/01/2024	\$40.82	\$15.07	\$20.17	\$0.00	\$76.06
		01/01/2025	\$40.82	\$15.57	\$20.17	\$0.00	\$76.56
		06/01/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$77.56
		12/01/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$79.17
		01/01/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$79.77
		06/01/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$80.77
		12/01/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$82.51
01/01/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$83.11		
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	24-47	12/01/2023	\$56.56	\$9.65	\$18.67	\$0.00	\$84.88
		06/01/2024	\$58.04	\$9.65	\$18.67	\$0.00	\$86.36
		12/01/2024	\$59.51	\$9.65	\$18.67	\$0.00	\$87.83
		06/01/2025	\$61.01	\$9.65	\$18.67	\$0.00	\$89.33
		12/01/2025	\$62.51	\$9.65	\$18.67	\$0.00	\$90.83
		06/01/2026	\$64.06	\$9.65	\$18.67	\$0.00	\$92.38
		12/01/2026	\$65.56	\$9.65	\$18.67	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	24-47	12/01/2023	\$58.56	\$9.65	\$18.67	\$0.00	\$86.88
		06/01/2024	\$60.04	\$9.65	\$18.67	\$0.00	\$88.36
		12/01/2024	\$61.51	\$9.65	\$18.67	\$0.00	\$89.83
		06/01/2025	\$63.01	\$9.65	\$18.67	\$0.00	\$91.33
		12/01/2025	\$64.51	\$9.65	\$18.67	\$0.00	\$92.83
		06/01/2026	\$66.06	\$9.65	\$18.67	\$0.00	\$94.38
		12/01/2026	\$67.56	\$9.65	\$18.67	\$0.00	\$95.88
For apprentice rates see "Apprentice- LABORER"							

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Springfield Water and Sewer Commission

01/24/2024

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Provin Mountain Reservoir 3 and 4 Improvements REBID Project #24-47</b>						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$48.63	\$9.65	\$18.67	\$0.00	\$76.95
	06/01/2024	\$50.11	\$9.65	\$18.67	\$0.00	\$78.43
	12/01/2024	\$51.58	\$9.65	\$18.67	\$0.00	\$79.90
	06/01/2025	\$53.08	\$9.65	\$18.67	\$0.00	\$81.40
	12/01/2025	\$54.58	\$9.65	\$18.67	\$0.00	\$82.90
	06/01/2026	\$56.13	\$9.65	\$18.67	\$0.00	\$84.45
	12/01/2026	\$57.63	\$9.65	\$18.67	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$50.63	\$9.65	\$18.67	\$0.00	\$78.95
	06/01/2024	\$52.11	\$9.65	\$18.67	\$0.00	\$80.43
	12/01/2024	\$53.58	\$9.65	\$18.67	\$0.00	\$81.90
	06/01/2025	\$55.08	\$9.65	\$18.67	\$0.00	\$83.40
	12/01/2025	\$56.58	\$9.65	\$18.67	\$0.00	\$84.90
	06/01/2026	\$58.13	\$9.65	\$18.67	\$0.00	\$86.45
	12/01/2026	\$59.63	\$9.65	\$18.67	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2023	\$39.24	\$14.57	\$18.67	\$0.00	\$72.48
	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
	01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53
WAGON DRILL OPERATOR <i>LABORERS - ZONE 3 (BUILDING &amp; SITE)</i>	12/01/2023	\$34.38	\$9.40	\$16.59	\$0.00	\$60.37
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$33.88	\$9.65	\$14.78	\$0.00	\$58.31
	06/01/2024	\$35.08	\$9.65	\$14.78	\$0.00	\$59.51
	12/01/2024	\$36.28	\$9.65	\$14.78	\$0.00	\$60.71
	06/01/2025	\$37.53	\$9.65	\$14.78	\$0.00	\$61.96
	12/01/2025	\$38.77	\$9.65	\$14.78	\$0.00	\$63.20
	06/01/2026	\$40.07	\$9.65	\$14.78	\$0.00	\$64.50
	12/01/2026	\$41.36	\$9.65	\$14.78	\$0.00	\$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WATER METER INSTALLER <i>PLUMBERS &amp; PIPEFITTERS LOCAL 104</i>	09/17/2023	\$47.96	\$9.55	\$17.10	\$0.00	\$74.61
	03/17/2024	\$49.21	\$9.55	\$17.10	\$0.00	\$75.86
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

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Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

\*\* Multiple ratios are listed in the comment field.

\*\*\* APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

\*\*\*\* APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

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**LEGAL ADVERTISEMENT  
SPRINGFIELD WATER AND SEWER COMMISSION  
INVITATION FOR BIDS**

**SWSC Bid No. 24-12; PROVIN MOUNTAIN RESERVOIR –  
RESERVOIR NOS. 3 AND 4 IMPROVEMENTS CONTRACT NO. 1**

Sealed bids for a Prime Contractor contract are requested through the Springfield Water and Sewer Commission Chief Procurement Officer. Bidding procedures are per Massachusetts General Laws (M.G.L.) Chapter 30§39M as amended and other applicable statutes (a 5% bid bond is required of all bidders).

Bids for Prime/General Contractor will be accepted at Springfield Water and Sewer Commission, John J. Lyons Administration Building, Attn: Theo G. Theocles Esq., Director of Legal Affairs/Chief Procurement Officer, 250 M Street Extension, Agawam, MA 01001 until **2:00PM EST on March 7, 2024**, at which time they will be publicly opened and read.

**Provin Mountain Reservoir – Reservoir Nos. 3 and 4 Improvements Contract No. 1.** The Work includes, but is not necessarily limited to, the following major items: Extension of 34 access manholes with watertight locking hatches, installation of polyolefin waterproofing tape and epoxy adhesive on approximately 2,500 linear feet of buried storage tank roof slab joint, including excavation and restoration, Installation of approximately 1,550 linear feet of chain link fence and demolition of approximately 850 linear feet of existing chain link fence, installation of flanged ductile iron piping and bends with concrete bulkheads, concrete cradles, concrete splash pads, bituminous pavement, and stainless-steel mesh screens on 2 existing overflow pipe headwalls, and loam and seed of disturbed areas. Successful Contractor will be required to furnish the Commission with both a 100% Performance Bond and 100% Payment Bonds at the time of contract execution.

PRE-BID CONFERENCE. Optional Pre-Bid Conference will be held February 6, 2024, at 10:00A.M., at the Provin Mountain Reservoir, 1121 N West Street, Feeding Hills, MA 01030. Contact: [mark.johnson@waterandsewer.org](mailto:mark.johnson@waterandsewer.org).

Contractor must agree to pay MA Prevailing Wage rates whenever applicable. The Commission reserves the right to waive any informality in, or to revoke, any or all bids, if in the public interest to do so. All questions regarding bid or its specifications must be made in writing and received by the CPO by **February 29, 2024, 4:30 P.M.** in order to be considered (contact; [theo.theocles@waterandsewer.org](mailto:theo.theocles@waterandsewer.org)).

Springfield Water and Sewer Commission  
Theo G. Theocles Esq., Director of Legal Affairs/CPO

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**Provin Mountain Reservoir  
 Reservoir Nos. 3 and 4 Improvements  
 Contract No. 1  
 Springfield Water and Sewer Commission  
 Agawam, Massachusetts  
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**Provin Mountain Reservoir  
Reservoir Nos. 3 and 4 Improvements  
Contract No. 1  
Springfield Water and Sewer Commission  
Agawam, Massachusetts  
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