



**CITY OF PORTLAND, MAINE**  
**DEPARTMENT OF PUBLIC WORKS**  
**CONTRACT AND SPECIFICATIONS**

**for**

**Diamond Tide Gate Project**

**Bid Number: 19001**



**Dated: July 9, 2018**

**This seal covers all pages  
of this document.**

## DIAMOND TIDE GATE PROJECT

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Contract Drawings Sheets 1 through 7

**ADVERTISEMENT: NOTICE TO CONTRACTORS**

**Bid No. 19001  
CITY OF PORTLAND, MAINE  
DEPARTMENT OF PUBLIC WORKS**

**Project Name: Diamond Tide Gate Project**

Sealed proposals, addressed to Purchasing, Room 103, City Hall, 389 Congress Street, Portland, Maine 04101, and endorsed on the outside of the envelope with the name of the Bidder, Contract Name and Bid number will be received until 3:00 PM (prevailing time) on Thursday, August 9, 2018, at which time they will be publicly opened and read. No bid may be withdrawn for at least 60 days after receipt of bids unless released by the OWNER.

**Location:** The Diamond Tide Gate Project includes work at the northwestern end of Diamond Street and on Marginal Way between Cove Street and Plowman Street.

**Outline of Work:** The work includes installation of (1) 72-inch inline check valve, check valve vault, and the installation of a casing and carrier sewer pipe through an existing conflict structure.

**Bid Note:** Due to the significant lead time in the manufacture of the inline check valve (14-16 weeks), this project is being bid for a spring 2019 construction. Work must be substantially completed by July 1, 2019 and ready for OWNER acceptance.

This project will require excavation at elevations within the tidal zone of Casco Bay. As a result, the CONTRACTOR shall be responsible for any and all specialized work requirements necessary for project construction which shall be considered incidental to the construction cost.

## GENERAL INFORMATION

Plans, specifications and proposal forms for the above named project may be seen at the City of Portland Engineering Office, Department of Public Works, 55 Portland Street, Portland, Maine or at the Purchasing Office, City Hall, Room 103, 389 Congress Street, Portland, Maine (phone 207-874-8654, fax 207-874-8652 or e-mail [jrl@portlandmaine.gov](mailto:jrl@portlandmaine.gov)). Plans and proposal books are available in electronic format only (PDF) on a CD for purchase at the Purchasing Office, Room 103, City Hall, upon payment in advance of \$50.00 for each CD, or \$75.00 for each CD to be mailed. Such payment will not be refunded. Each prospective bidder will be required to obtain from the City each copy of the proposal form and plan set. Partial sets will not be issued.

Bids from vendors not registered with the Purchasing Office may be rejected; receipt of this document directly from the City of Portland indicates registration. Should a vendor receive this Invitation from a source other than the City, please contact 207-874-8654 to ensure that your firm is listed as a vendor for this bid.

It is the custom of the City of Portland, Maine, to pay its bills 30 days after completion and acceptance of the work, and the receipt of properly documented invoices for that work covered under the contract. In submitting applications under these specifications, applicants should take into account all discounts, both trade and time, allowed in accordance with this payment policy and quote a net price.

CITY OF PORTLAND, MAINE by: Office of Budget & Purchasing

**NOTICE TO BIDDERS**

**Bid No. 19001**

**CITY OF PORTLAND, MAINE DEPARTMENT OF PUBLIC WORKS**

**PROJECT: DIAMOND TIDE GATE PROJECT**

Sealed bids for the above project, addressed to Purchasing office, City Hall, Room 103, 389 Congress Street, Portland, Maine 04101, and clearly marked on the outside of the envelope with the name of the bidder, project title and bid number, will be received until 3:00 PM on Thursday, August 9, 2018, at which time they will be publicly opened. Late, unsigned bids or bids submitted electronically shall not be accepted. Bids shall remain open to acceptance for thirty days from their opening. Each bid shall be submitted on the forms provided and in an envelope plainly marked on the outside with the bid's title and number. No bid may be withdrawn for at least 60 days after receipt of bids unless released by the OWNER.

**PERFORMANCE AND PAYMENT BOND**

The successful bidder must submit Performance and Payment Bonds to the City prior to contract award. Detailed information can be found in the General Conditions.

**INSURANCE**

Prior to the execution of this Agreement, the CONTRACTOR will procure and maintain occurrence-based Automobile Liability Insurance coverage in the amount of One Million Dollars per occurrence(\$1,000,000.00) and Commercial General Liability Insurance coverage (including completed operations coverage for at least 24 months after completion of the Work) in the amount of Three Million dollars per occurrence (\$3,000,000.00) for bodily injury, death and property damage, naming the CITY as an additional insured thereon, and also Workers' Compensation Insurance coverage to the extent required by law. CONTRACTOR shall also procure and maintain Builders Risk insurance coverage in the amount of Two Million Dollars (\$2,000,000.00) adding the City as a named insured thereon. With respect to the Automobile and Commercial General Liability Insurance, the CONTRACTOR shall name the CITY as an additional insured for coverage only in those areas where government immunity has been expressly waived by 14 M.R.S. A. § 8104-A, as limited by § 8104-B, and § 8111. This provision shall not be deemed a waiver of any defenses, immunities or limitations of liability or damages available to the CITY under the Maine Tort Claims Act, other Maine statutory law, judicial precedent, common law, or any other defenses, immunities or limitations of liability available to the CITY. Prior to execution of this Agreement, the CONTRACTOR shall furnish the CITY and thereafter maintain certificates evidencing all such coverages, which certificates shall guarantee thirty (30) days' notice to the CITY of termination of insurance from the insurance provider or agent. CONTRACTOR shall also provide a copy of any endorsement naming the CITY as additional insured. A certificate that merely has a box checked under "Addl Insr," or the like, or that merely states the City of Portland is named as an Additional Insured, will not be acceptable. The Workers' Compensation policy shall include an endorsement waiving all rights of subrogation against the City of Portland, its officers or employees. Upon CITY'S request, CONTRACTOR shall provide CITY with a complete copy of any of the above-referenced policies. CONTRACTOR shall be responsible for any and all deductibles and/or self-insured retentions. CITY's acceptance or lack of acceptance of

CONTRACTOR's Certificate of Insurance or other evidence of insurance shall not be construed as a waiver of the CONTRACTOR's obligation to obtain and maintain such insurance as required by this agreement

## **TAXES**

The City is exempt from Maine state sales and use taxes on all materials to be incorporated in the work. Said taxes shall not be included in the bid. Detailed information can be found in the General Conditions and the CWSRF Supplementary Conditions.

## **CONTRACT TIME**

Work must be completed by July 1, 2019 in its entirety and ready for OWNER acceptance.

## **BASIS OF AWARD**

Contract shall be awarded to the responsible bidder whose bid, complying with conditions and requirements provided in this Notice and bid form, is the lowest total base bid as identified on the bid form.

## **MODIFYING OR WITHDRAWING OF BID**

Bids may be modified or withdrawn as follows:

1. Before the time for bid opening:
  - a. A bidder may modify a bid at any time by delivering an original, written notice of the modification signed by the bidder. The modification must be set forth clearly.
  - b. Upon providing proof of identity, a bidder may withdraw a bid at any time by physically retrieving the bid, or by delivering an original, signed notice that the bid is withdrawn. Any bid security shall be returned to the bidder.
  - c. It is solely the bidder's responsibility to properly deliver any written modification or withdrawal. Delivery must be made to the Procurement Official with responsibility for the bid.
2. After the time for bid opening:
  - a. Bids may only be modified as determined by the City.
  - b. Bids may only be withdrawn with the consent of a Procurement Official. The official has sole discretion to determine whether to permit the withdrawal of a bid or the release of any bid security.

## **BID PROTESTS**

All protests arising from the City's procurement practices must be submitted to the City as soon as practical. The City will investigate the basis for the protest, seek the advice of legal counsel, document all meetings and actions, and attempt to resolve the protest promptly and equitably.

## **SUBMISSION OF BIDS**

All Bids shall be submitted on the attached form and are to remain open for sixty (60) days after

their opening. Late bids, bids without the required amount or form of surety, unsigned bids and bids submitted electronically will not be accepted.

### **EQUAL EMPLOYMENT OPPORTUNITY**

Vendor shall comply fully with the Nondiscrimination and Equal Opportunity Provisions of the Workforce Investment Act of 1998, as amended (WIA, 29 CFR part 37); the Nontraditional Employment for Women Act of 1991; title VI of the Civil Rights Act of 1964, as amended; section 504 of the Rehabilitation Act of 1973, as amended; the Age Discrimination Act of 1975, as amended; title IX of the Education Amendments of 1972, as amended; and with all applicable requirements imposed by or pursuant to regulations implementing those laws, including but not limited to 29 CFR part 37.

### **FINANCIAL OBLIGATIONS TO CITY**

Pursuant to City procurement policy and ordinance, the City is unable to contract with businesses or individuals who are delinquent in their financial obligations to the City. These obligations may include but are not limited to real estate and personal property taxes and sewer user fees. Bidders who are delinquent in their financial obligations to the City must do one of the following: bring the obligation current, negotiate a payment plan with the City's Treasury office, or agree to an offset which shall be established by the contract which shall be issued to the successful bidder.

### **LIEN WAIVERS**

Prior to any payment by the City, the CONTRACTOR may be required to supply the City with a Waiver of Lien – Material and Labor for the total awarded contract cost, guaranteeing payment in full for all labor and materials used or required in connection with the work described in this bid. The City may also require waivers of lien, signed by individual subcontractors and materials suppliers, with requests for progress payments.

Any mechanic's lien or any other lien which may be filed against the premises which are the subject of the contract by reason of the work described herein shall be defended (by counsel reasonably acceptable to the City) and promptly discharged by the CONTRACTOR at its own expense. If the CONTRACTOR should fail either to defend the City against the lien or to discharge it, then the City may do so at the CONTRACTOR's expense. In the event of such an undertaking by the City, the CONTRACTOR will promptly reimburse the City for all its costs and expenses in so doing including, but not limited to, reimbursement of the City's reasonable counsel fees and costs which may be incurred by it in substituting a bond in place of the lien.

### **CONTRACTOR RESPONSIBILITIES**

The CONTRACTOR shall furnish all labor, materials, fixtures, supplies, equipment and transportation necessary to do the work as specified. Work shall be conducted in an orderly manner and all work shall be performed in accordance with best trade policy and in conformance with pertinent OSHA, Local, State and Federal Government regulations. CONTRACTORS will be responsible for acquiring all necessary permits, licenses and pay all associated fees (including dump disposal fees and disposal taxes, if applicable), unless otherwise specified herein.

The CONTRACTOR shall erect, and maintain at all times, any and all safeguards necessary for the protection of life and property of all maritime, pedestrian and vehicular traffic, where applicable.

**GENERAL INFORMATION**

All questions shall be directed in writing ONLY to the Purchasing Office at the above address and be received at least five business days prior to the bid opening date (FAX 207-874-8652, or E-mail jrl@portlandmaine.gov). Questions received after this time will not be addressed. Responses from the City that substantially alter this bid will be issued in the form of a written addendum to all bid holders registered in the Purchasing Office. Oral explanations or interpretations given before the award of the contract will not be binding.

**DISCLAIMER**

The City disclaims any and all responsibility for injury to CONTRACTORS, their agents or others while examining the job or at any other time.

July 9, 2018

Matthew Fitzgerald  
Purchasing Manager

**PROPOSAL**

**Bid No. 19001**

**CITY OF PORTLAND, MAINE DEPARTMENT OF PUBLIC WORKS**

**PROJECT: DIAMOND TIDE GATE PROJECT**

The UNDERSIGNED hereby declares that he/she or they are the only person(s), firm or corporation interested in this application as principal, that it is made without any connection with any other person(s), firm or corporation submitting an application for the same.

The UNDERSIGNED hereby declares that they have read and understand all conditions as outlined in the invitation, and that the application is made in accordance with same.

The UNDERSIGNED hereby declares that any person(s) employed by the City of Portland, Maine, who has direct or indirect personal or financial interest in this application or in any portion of the profits which may be derived therefrom has been identified and the interest disclosed by separate attachment. (Please include in your disclosure any interest which you know of. An example of a direct interest would be a City employee who would be paid to perform Works under this application. An example of an indirect interest would be a City employee who is related to any officers, employees, principal or shareholders of your firm or to you. If in doubt as to status or interest, please disclose to the extent known).

The proposer acknowledges the receipt of Addenda numbered \_\_\_\_\_ (if applicable)

COMPANY NAME: \_\_\_\_\_  
(Individual, Partnership, Corporation, Joint Venture)

AUTHORIZED SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_  
(Officer, Authorized Individual or Owner)

PRINT NAME & TITLE: \_\_\_\_\_

ADDRESS:  
\_\_\_\_\_

\_\_\_\_\_ Zip Code

TELEPHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

24 HOUR #: \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_

FEDERAL TAX I.D. NUMBER: \_\_\_\_\_

NOTE: All applications must bear the handwritten signature of a duly authorized member or employee of the organization making the application. This sheet must be signed and returned with proposal page.

**BID SCHEDULE**

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
203.20	100	Common Excavation*		
		The Sum of \$ _____	\$ _____	\$ _____
		CY		
203.21	10	Rock Excavation*		
		The Sum of \$ _____	\$ _____	\$ _____
		CY		
203.2332	1	Offsite Disposal of Group 1 and Group 3 Soils		
		The Sum of \$ _____	\$ _____	\$ _____
		LS		
203.2333	5	Offsite Disposal of Group 2 Soils*		
		The Sum of \$ _____	\$ _____	\$ _____
		TON		
203.24	50	Common Borrow*		
		The Sum of \$ _____	\$ _____	\$ _____
		CY		
203.25	50	Granular Borrow*		
		The Sum of \$ _____	\$ _____	\$ _____
		CY		
203.28	25	Test Pit Excavation*		
		The Sum of \$ _____	\$ _____	\$ _____
		VF		

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
203.31	50	Crushed Stone 703.31 (Overdepth)*  The Sum of \$ _____ _____	\$ _____	\$ _____
		CY		
206.061	150	Structural Earth Excavation, Drainage and Minor Structures (Overdepth)*  The Sum of \$ _____ _____	\$ _____	\$ _____
		CY		
206.07	5	Structural Rock Excavation*  The Sum of \$ _____ _____	\$ _____	\$ _____
		CY		
304.09	25	Aggregate Base Course - Crushed, Type "B"*  The Sum of \$ _____ _____	\$ _____	\$ _____
		CY		
304.10	50	Aggregate Subbase Course - Gravel, Type "D"* The Sum of \$ _____ _____	\$ _____	\$ _____
		CY		
403.207	10	Hot Bituminous Pavement – Grading "B" (19.0 mm) The Sum of \$ _____ _____	\$ _____	\$ _____
		TON		
403.208	15	Hot Bituminous Pavement – Grading "C" (12.5 mm)  The Sum of \$ _____ _____	\$ _____	\$ _____
		TON		

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
534.73	1	Precast Diamond Check Valve Vault Structure		
		The Sum of \$ _____	\$ _____	\$ _____
		EA		
603.87	5	12 Inch Diameter Storm Drain Pipe (All Depths)		
		The Sum of \$ _____	\$ _____	\$ _____
		LF		
603.88	5	12 Inch Diameter Sewer Pipe (All Depths)		
		The Sum of \$ _____	\$ _____	\$ _____
		LF		
603.91	15	18 Inch Diameter Sewer Pipe (All Depths) with 24-Inch Casing Pipe		
		The Sum of \$ _____	\$ _____	\$ _____
		LF		
603.92	5	24 Inch Diameter Storm Drain Pipe (All Depths)		
		The Sum of \$ _____	\$ _____	\$ _____
		LF		
603.93	24	30 Inch Diameter Storm Drain Pipe (All Depths)		
		The Sum of \$ _____	\$ _____	\$ _____
		LF		

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
603.100	10	66 Inch Diameter Storm Drain Pipe (All Depths)		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		LF		
603.101	15	72 Inch Diameter Storm Drain Pipe (All Depths)		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		LF		
604.132	1	5 Foot Diameter Catch Basin, Type "E"		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		EA		
604.150	1	4 Foot Diameter Sewer Manhole		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		EA		
604.155	1	6 Foot Diameter Drain Manhole		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		EA		
604.159	1	9x9 Foot Square Drain Manhole		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		EA		
604.181	1	Replace Existing Manhole Frame and Cover		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		EA		

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
609.34	50	Granite Curb, Type 5 – Remove and Reset  The Sum of \$ _____ _____	\$ _____	\$ _____
LF				
613.319	1	Erosion Control Blanket*  The Sum of \$ _____ _____	\$ _____	\$ _____
LF				
615.071	1	Loam, Seed and Mulch  The Sum of \$ _____ _____	\$ _____	\$ _____
LS				
629.05	1	Hand Labor, Straight Time*  The Sum of \$ _____ _____	\$ _____	\$ _____
HR				
629.06	1	Mason, Straight Time*  The Sum of \$ _____ _____	\$ _____	\$ _____
HR				
631.105	1	Air Tool and Compressor, Including Operator*  The Sum of \$ _____ _____	\$ _____	\$ _____
HR				
631.12	1	All-Purpose Large Capacity Excavator, Including Operator*  The Sum of \$ _____ _____	\$ _____	\$ _____
HR				

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
631.171	1	Truck, Small, Including Operator*  The Sum of \$ _____ _____	\$ _____	\$ _____
HR				
631.22	1	Front End Loader, Including Operator*  The Sum of \$ _____ _____	\$ _____	\$ _____
HR				
631.36	1	Foreman, Straight Time*  The Sum of \$ _____ _____	\$ _____	\$ _____
HR				
637.071	1	Dust Control  The Sum of \$ _____ _____	\$ _____	\$ _____
LS				
646.10	1	72" Inline Check Valve - Diamond  The Sum of \$ _____ _____	\$ _____	\$ _____
EA				
652.39	1	Work Zone Traffic Control  The Sum of \$ _____ _____	\$ _____	\$ _____
LS				
654.08	10	Trench Density Tests*  The Sum of \$ _____ _____	\$ _____	\$ _____
EA				

Item No.	Quantity	Brief Description of Item with Unit Bid Price in Words	Unit Bid In Figures	Amount In Figures
654.09	10	Roadway Density Tests*		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		EA		
656.75	1	Temporary Soil Erosion and Water Pollution Control		
		The Sum of \$ _____ _____	\$ _____	\$ _____
		LS		

\* Indeterminate quantities assumed for comparison of bids. Quantities are not guaranteed. Payment will be based on actual quantities constructed.

SUBTOTAL (BASE BID): Total of Items 203.20 through 656.75 above.

\_\_\_\_\_ (\$ \_\_\_\_\_)  
 \_\_\_\_\_ (use figures)  
 \_\_\_\_\_ (use words)

The pay items with quantities marked with an asterisk (\*) on the bid sheets are for quantities that are indeterminate. Some pay items with an asterisk (\*) maybe for work that is not anticipated at time of bid. These items are part of the Contract Proposal and will also be used should any extra work be necessary. Actual quantities will be measured in the field or calculated from the contract drawings. The unit price will be used regardless of final quantity.

The undersigned also agrees as follows:

**FIRST:** To do any extra work, not covered by the above schedule of items, which may be ordered, and to accept as full compensation therefore such prices as may be agreed upon in writing by the ENGINEER and the CONTRACTOR; or in case no agreement is made, to accept as full compensation the amount determined upon a "force account" basis as provided in the M.D.O.T. Standard Specifications, Revision of November 2014 Edition.

**SECOND:** To begin work on the date specified in the ENGINEER's "Notice to Commence Work" and to prosecute said work in such a manner as to complete it within the time limits given in the Special Provisions. Further, that monies will be deducted as liquidated damages at the rate specified in Subsection 107.7.2 "Schedule of Liquidated Damages" for each day that the work shall remain uncompleted after the time herein specified for completion of the work.

**THIRD:** That this offer is to continue open to acceptance until the formal contract is executed by the successful bidder of this work, and the City may at any time without notice accept this proposal whether any other proposal has previously been accepted or not. Provided, however, that the City will accept, in writing, one of the proposals made, or reject all proposals made, within sixty (60) calendar days after the date of opening of the proposals.

The undersigned as Bidder, declares that the only persons or parties interested in this Proposal are those named herein; that the bidder is not financially interested in, or otherwise affiliated in a business way with any other bidder on this contract; and that this Proposal is made without collusion with any other person, firm or corporation.

“The undersigned declares that any person(s) employed by the City of Portland, Maine, who has direct or indirect personal or financial interest in this proposal or in any portion of the profits which may be derived therefrom, has been identified and the interest disclosed by separate attachment. (Please include in your disclosure any interest which you know of. An example of a direct interest would be a City employee who would be paid to perform Works under this proposal. An example of an indirect interest would be a City employee who is related to any officers, employees, principal or shareholders of your firm or you.) If in doubt as to status or interest, please disclose to the extent known.”

Respectfully submitted this \_\_ day of \_\_\_\_\_, 20\_\_

IF AN INDIVIDUAL, SIGN HERE

Signature of Bidder \_\_\_\_\_

Address \_\_\_\_\_

---

(Signatures for a Firm, Partnership or Corporation on next page.)

PROPOSAL (continued)

IF A FIRM OR PARTNERSHIP, SIGN HERE

Signature of Bidder \_\_\_\_\_

Name of Firm or Partnership \_\_\_\_\_

Business Address \_\_\_\_\_

Telephone Number \_\_\_\_\_ Fax Number \_\_\_\_\_

Soc. Sec. No. or Tax I.D. Number \_\_\_\_\_

Names and Addresses of Members of Firm or Partnership:

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

IF A CORPORATION, SIGN HERE

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

Authorized Signature \_\_\_\_\_  
(name) (title)

Business Address \_\_\_\_\_

Telephone Number \_\_\_\_\_ Fax Number \_\_\_\_\_

Soc. Sec. No. or Tax I.D. Number \_\_\_\_\_

Incorporated under the Laws of the State of \_\_\_\_\_

Names and Addresses of Officers of the Corporation:

President \_\_\_\_\_

Secretary \_\_\_\_\_

Treasurer \_\_\_\_\_ SS

Before me, personally appeared \_\_\_\_\_ and acknowledged that the signature to the preceding bid is his/her signature in his/her official capacity.

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

\_\_\_\_\_  
Notary Public - Signature and Seal

ALL CORPORATIONS MUST SIGN THIS FORM  
AND SUBMIT WITH THE BID PROPOSAL

(Insert copy of that part of the records of the corporation wherein authority is given to the officer of that corporation to sign this bid on behalf of the corporation.)

---

---

---

---

\_\_\_\_\_  
(date)

The above is a true copy of the records of the

---

Corporation, which records are in my legal custody.

\_\_\_\_\_  
Officer having custody of the records

\_\_\_\_\_  
ss

Before me appeared, \_\_\_\_\_

\_\_\_\_\_ of the \_\_\_\_\_ Corporation, and  
made oath that the above statement is true.

\_\_\_\_\_  
Notary Public - Signature and Seal

NOTICE

(This Must Be Filled Out)

The full names and residences of all persons interested in this bid as principals are as follows: (In case of Corporation, include and identify President, Treasurer, Manager)

_____	_____
_____	_____
_____	_____

ALL CONTRACTORS SHALL FILL IN THE FOLLOWING INFORMATION  
BEFORE SUBMITTING BID

Name and Address of CONTRACTOR	Products to be Supplied
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____

Name and Address of CONTRACTOR	Service or Trades to be Supplied	Anticipated \$ Amount
_____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____

This is a Sample Contract or Agreement ONLY; the final terms and conditions in the actual Agreement will be determined by the City's Corporation Counsel Office, and may contain additional provisions.

Bid #19001

**SAMPLE AGREEMENT**  
**BETWEEN THE CITY OF PORTLAND**  
**AND**

**AGREEMENT** entered into this \_\_\_\_\_ day of \_\_\_\_\_, 2016, by and between the **CITY OF PORTLAND**, a body politic and corporate, (hereinafter the "**CITY**"), and \_\_\_\_\_, a corporation with a mailing address of \_\_\_\_\_ (hereinafter the "**CONTRACTOR**").

**W I T N E S S E T H**

**WHEREAS**, the **CITY** did advertise for Requests for Bids by Bid #19001 titled Diamond Tide Gate Project ; and

**WHEREAS**, the **CONTRACTOR** did under date of \_\_\_\_\_, 2018, submit a bid for such work; and

**WHEREAS**, after due consideration of all of the bids the **CITY** did award the bid to the **CONTRACTOR**; and

**NOW, THEREFORE**, in consideration of the mutual promises made by each party to the other, the parties covenant and agree as follows:

1. The **CONTRACTOR** will furnish the materials, supplies, equipment and labor and will perform all work required to construct separated storm and sewer infrastructure (hereinafter the "Work"), in accordance with the specifications contained in the Notice and Specifications issued to the **CONTRACTORs** under date of \_\_\_\_\_ by the Purchasing Manager for the City of Portland, and also in accordance with **CONTRACTOR's** Proposal dated \_\_\_\_\_.

A copy of said Notice and Specifications, including all items in TABLE OF CONTENTS, ADDENDUMS, and **CONTRACTOR's** Proposal are attached to this Agreement and made a part herein to include, but not limited to:

Appendix A - Geotechnical and Environmental Data Report, Back Cove South CSO Storage Conduit, Marginal Way, Portland, Maine – Haley & Aldrich, Inc. revised August 7, 2015

Appendix B - Supplemental Environmental Testing Results/Urban Fill Management, Back Cove South Storage Conduit, Marginal Way, Portland, Maine – Haley & Aldrich, Inc., dated February 19, 2016

Appendix C – Groundwater Level Monitoring Data, Back Cove South Storage Conduit, Marginal Way, Portland, Maine – Haley & Aldrich, Inc. dated June 23, 2016.

Contract Drawings Sheets 1 through 7

The restatement of any of the terms contained in the Notice and Specifications or Proposal shall not be deemed to waive any terms not so restated. If a disagreement is found between the said attachments and this document, then this document shall govern; provided, however, that this document and its attachments shall be construed to be supplemental to one another to the extent possible.

2. **CONTRACTOR** covenants and agrees that all work performed and materials used shall be free from all defects, and that all work shall be performed in a good workmanlike manner. Unless a longer warranty period is specified in the attachments hereto, all Work provided hereunder shall be warranted by **CONTRACTOR** for one (1) full year from the date of completion of all Work hereunder and acceptance thereof by the **CITY**. Notwithstanding the foregoing, any longer period specified in the attachments shall stay in effect. **CONTRACTOR** shall perform in compliance with all applicable federal, state and local laws and rules and shall obtain at its own cost all necessary permits.
3. Prior to the execution of this Agreement, **CONTRACTOR** will procure and maintain Public Liability Insurance coverage and Automobile Insurance coverage for the Work agreed to under this Agreement and as outlined within the contract documents, whether such operations be by themselves or by any subcontractor under them, with a limit of liability of not less than \$1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$500,000 for all property damage sustained by any one person in any one accident-, and a limit of liability of not less than \$500,000 aggregate for any such damage sustained by two or more persons in any one accident. Name **CITY** as an additional insured on the policy, and provide the **CITY** a certificate of insurance evidencing such coverage, in this way: certificate must say either: A) “the policy actually been endorsed to name the City of Portland as an Additional Insured” and copy of the endorsement must come to the City of Portland with the certificate, or B) “the policy already includes an endorsement, such as the General Liability Expansion Endorsement, by which the City of Portland is, in fact, automatically made an additional insured.” A Certificate which merely has a box checked under ‘Addl Insr,’ or the like, or which merely states The City of Portland is named an Additional Insured, will not be acceptable. **CONTRACTOR** shall furnish and thereafter maintain certificates evidencing such coverage, which certificates shall guarantee thirty (30) days' notice to **CITY** of termination of insurance from insurance company or agent.
4. The **CONTRACTOR** shall furnish to the **CITY**, upon execution of this Agreement, a

Contract Performance Bond and a Contract Labor and Material Payment Bond each in the amount of \_\_\_\_\_ Dollars (\$\_\_\_\_\_.00), guaranteeing one hundred percent (100%) performance of this Agreement, including the guarantee period, and free and clear of any and all liens, attachments and encumbrances.

The Bonds shall remain in effect for one (1) year after final acceptance of the Work, and protect the **CITY**'s interest in the one (1) year guaranty of workmanship and materials, and also shall insure settlement of claims, for the payment of all bills for labor, materials and equipment by the **CONTRACTOR**.

5. To the fullest extent permitted by law, the **CONTRACTOR** shall defend, indemnify and hold harmless the **CITY**, its officers and employees, from and against all claims, damages, losses, and expenses, just or unjust, including but not limited to the costs of defense and attorney's fees arising out of or resulting from the performance of this Agreement, provided that any such claims, damage, loss or expense (1) is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the loss of use therefrom, and (2) is caused in whole or in part by any negligent act or omission of the **CONTRACTOR**, anyone directly or indirectly employed by it, or anyone for whose act it may be liable.

**CONTRACTOR** shall further defend, indemnify and hold the **CITY** harmless from any claim or lien of any nature filed against the **CITY** or its property as a result of services performed or materials provided under this Agreement by a subcontractor, supplier or anyone employed by **CONTRACTOR**. In the event such claim or lien is filed against **CITY**, **CONTRACTOR** shall defend such claim on behalf of **CITY** by counsel acceptable to **CITY** or shall otherwise discharge such claim or lien by a means acceptable to **CITY**. **CITY**'s acceptance hereunder shall not be unreasonably withheld.

6. **CONTRACTOR** shall begin Work upon issuance of a notice to proceed issued by the **CITY**'s Director of Public Works (hereinafter "Director") and shall complete the Work no later than \_\_\_\_\_. Placement of final surface course pavement shall be completed after \_\_\_\_\_. The time for performance may be extended by the written consent of the Director or her designee.
7. The **CONTRACTOR** shall perform the work to the satisfaction of the responsible **CITY** official who will have the right of inspection at all times, and whose approval and acceptance of the work will be a condition precedent to payments by the **CITY** under this Contract. **Engineers** will have the authority to stop work in progress if such work is being done contrary to the plans, specifications, or engineering practice. In the event that any dispute arises as to the amount, nature or scope of the Work required under this Contract, the decision and judgment of the responsible **CITY** official will be final and binding.
8. Upon performance of all the terms and conditions of this Agreement, **CITY** will pay **CONTRACTOR** \_\_\_\_\_ Dollars (\$\_\_\_\_\_.00), in full payment for the **CONTRACTOR**'s performance.
9. **CONTRACTOR** shall keep accurate records of all Work performed and furnished under

this Agreement and shall submit such information on monthly invoices. Payment for such Work shall be made to **CONTRACTOR** not more than thirty (30) days after receipt of an invoice and acceptance of the Work by the **CITY**.

10. **CITY** reserves the right to require **CONTRACTOR** to provide waivers of lien for labor and materials prior to the issuance of final payment by the **CITY**.
11. Payment shall be in accordance with Section 108 – Prior to substantial completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as the **CITY** may determine or may withhold, including but not limited to liquidated damages in accordance with general conditions:
  - a. 95 percent of work completed (with balance being retainage); and
  - b. 95 percent of cost of materials and equipment not incorporated in the work (with balance being retainage)

Upon substantial completion, the **CITY** shall pay an amount sufficient to increase total payments to the **CONTRACTOR** to 98 percent of the work completed, less such amounts as the **CITY** shall determine in accordance with general conditions. The final two percent of the value of the Work shall be retained for a period of one year from the date of substantial completion.

12. The **CITY** may terminate this Agreement for cause by written Notice to the **CONTRACTOR**. In the event of such termination, **CONTRACTOR** shall receive compensation for any satisfactory work completed prior to termination.
13. The **CITY** shall have the right to terminate this Agreement at any time for its convenience on prior written Notice to **CONTRACTOR**. If Agreement is terminated by the **CITY** for convenience, the **CITY** shall pay the **CONTRACTOR** for any unpaid, unrecovered, or unrecoverable out-of-pocket costs for supplies, materials and/or services provided or amounts expended or incurred in reliance on this Agreement prior to the effective date of such notice.
14. Any disputes arising out of or in the course of this Agreement, which are not settled by mutual agreement of the parties, shall be resolved in the courts of the State of Maine.
15. Out of concern for the public, **CITY** employees and **CONTRACTOR**'s employees, all work performed by **CONTRACTOR** shall be in conformance with pertinent OSHA, local, state and federal government regulations.

**IN WITNESS WHEREOF**, the said **CITY OF PORTLAND** has caused this Agreement to be signed and sealed by Jon Jennings, its City Manager, thereunto duly authorized, and \_\_\_\_\_  
\_\_\_\_\_ has caused this Agreement to be signed and sealed by \_\_\_\_\_, its \_\_\_\_\_ thereunto duly authorized, the day and year first above written.

**WITNESS:**

**CITY OF PORTLAND**

\_\_\_\_\_

By: \_\_\_\_\_  
Jon Jennings  
Its City Manager

**WITNESS:**

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_  
\_\_\_\_\_  
(Print or type name)

Its \_\_\_\_\_

Approved as to form:

Approved as to funds:

\_\_\_\_\_

\_\_\_\_\_

**SAMPLE CONTRACT ADDENDUM**

**ADDENDUM #X**

**To Contract Documents for:**

**PROJECT NAME**

**City of Portland Bid**

**Number: Project Dated:**

**Current Date: XXXX**

The attention of firms submitting proposals for the work named in the above Invitation is called to the following modifications to the documents as were issued.

The items set forth herein, whether of clarification, omission, addition and/or substitution, shall be included and form a part of the CONTRACTOR's submitted material and the corresponding Contract when executed. No claim for additional compensation, due to lack of knowledge of the contents of this Addendum will be considered.

\*\*\*\*\*

**ALL BIDDERS ARE ADVISED THAT RECEIPT OF THIS NOTICE MUST BE DULY ACKNOWLEDGED ON THE BID PROPOSAL FORM OR BY THE INSERTION OF THIS SHEET, SIGNED, AND SUBMITTED WITH YOUR PROPOSAL.**

\*\*\*\*\*

**MATTHEW F. FITZGERALD  
PURCHASING MANAGER**

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**NOTE: Questions and Answers are listed on the following pages.**

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Receipt of **Addendum No. X** to the City of Portland's **BID # \_\_\_ : PROJECT NAME** is hereby acknowledged.

COMPANY: \_\_\_\_\_

NAME: \_\_\_\_\_

SIGNED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

PRINT NAME & TITLE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

---

Zip Code \_\_\_\_\_

**SAMPLE NOTICE OF AWARD**

Date

Addressee

RE: NOTICE OF AWARD –DIAMOND TIDE GATE PROJECT

Dear

Your firm has been awarded the contract for the subject project for your total low bid of \$ \_\_\_\_\_. This letter will serve as notice of award and that the contract documents are ready for signature.

A pre-construction conference will be scheduled for a later date, in the Engineering Office, 55 Portland Street. Please be prepared to execute the contract within twelve (12) calendar days of this letter, as per the contract documents. You must have your firm's corporate seal on your person at the time of execution.

Separate performance and payment bonds in the full amount of the bid and the following insurance certificates shall be executed and presented for approval: insurance coverages for CONTRACTOR's Public Liability Insurance shall have \$1,000,000 limits. The standard Certificate of Insurance forms shall have the cancellation statement edited. The words "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company" shall be crossed out. Evidence of proper Workers' Compensation Insurance and Blast Damage Insurance, if applicable, must also be presented for approval.

Should you have any questions pertaining to the above, please contact me at 874-8846.

Very truly yours,

CITY OF PORTLAND

Project Engineer

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged and a copy returned to the City of Portland.

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

This, the \_\_\_\_\_ day of \_\_\_\_\_, 2018.

**SAMPLE NOTICE TO COMMENCE WORK**

Date

Addressee

RE: NOTICE TO COMMENCE WORK –DIAMOND TIDE GATE PROJECT

Dear

You are hereby notified to commence work in accordance with the Agreement dated \_\_\_\_\_, 20\_\_\_, on or before \_\_\_\_\_, 20\_\_\_, and you are to complete the work by \_\_\_\_\_, 20\_\_\_ with finish paving compete by \_\_\_\_\_, 20\_\_\_. The date of completion of all work is therefore \_\_\_\_\_.

Very truly yours,

CITY OF PORTLAND

Project Engineer

ACCEPTANCE OF NOTICE

Receipt of the Above NOTICE TO COMMENCE WORK is hereby acknowledged by:

\_\_\_\_\_ this, the \_\_\_\_\_ day of \_\_\_\_\_, 2018.

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

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

**SAMPLE NOTICE OF FINAL COMPLETION**

Date

Addressee

RE: NOTICE OF FINAL COMPLETION –DIAMOND TIDE GATE PROJECT

Dear

The subject project was inspected on \_\_\_\_\_, by \_\_\_\_\_  
\_\_\_\_\_ and was found to be fully completed in accordance with the  
contract plans and specifications.

The work is hereby approved and accepted by the City of Portland as of \_\_\_\_\_,  
which begins the one-year guarantee period. At this point it is essential that the city is provided  
with the attached statement and lien waiver \*(as well as subcontractor/supplier lien waivers)  
certifying that all the obligations for equipment rentals, materials and supplies purchased, and labor  
employed on this project have been discharged. If you have any questions, please feel free to call  
me at 874-8846.

Yours truly,

CITY OF PORTLAND

Project Engineer

**WAIVER OF LIEN - MATERIAL OR LABOR**

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

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

To all whom it may concern:

The undersigned \_\_\_\_\_ has been employed to furnish  
\_\_\_\_\_ for the project known as

\_\_\_\_\_,  
City of Portland, County of Cumberland, State of Maine.

The undersigned for and in consideration of the sum of \$ \_\_\_\_\_ and other good and valuable consideration the receipt whereof is hereby acknowledged, do hereby waive and release any and all rights and liens, or claim of right to lien on said above described project under the statutes of the State of Maine relating to Mechanic's Lien on account of Labor or Material or both furnished or which may be furnished by the undersigned to or on account of said \_\_\_\_\_ for said building and premises.

This Waiver of Lien shall become effective upon the issuance of a check by the City of Portland payable to \_\_\_\_\_ and \_\_\_\_\_ in the amount of \_\_\_\_\_.

Given under oath, my hand and seal this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

By: \_\_\_\_\_  
(Print or type name)

Its  
\_\_\_\_\_

Notarized: \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.  
My commission expires

**WAIVER OF LIEN - (Subcontractor/Supplier/Employee)**

The undersigned \_\_\_\_\_ has  
(Sub-Contractor)  
performed labor and furnished materials and/or performed services for \_\_\_\_\_  
\_\_\_\_\_ on behalf of the City of Portland, in  
(Contractor)  
performance of the Contractor's agreement of \_\_\_\_\_ with the City of  
(Date)  
Portland for the \_\_\_\_\_  
(Project name)  
at \_\_\_\_\_  
(Address)

In consideration of the sum of \$ \_\_\_\_\_, the undersigned hereby waives all rights and  
liens, including, but not limited to, liens pursuant to 10 M.R.S.A. Sec. 3251, et. seq., which the  
undersigned may now or hereafter claim or assert against the above described building,  
appurtenance, wharf, pier and/or land; the above-described project; and the City of Portland.

This Waiver of Lien shall become effective upon the issuance of a check by the City of Portland  
payable to \_\_\_\_\_ in the amount of \$ \_\_\_\_\_.

IN WITNESS WHEREOF the undersigned has hereto set its hand this \_\_\_\_\_ day of  
\_\_\_\_\_, 20\_\_.

By: \_\_\_\_\_  
(print of type name)  
Its \_\_\_\_\_

State of Maine  
\_\_\_\_\_,ss

Before me appeared \_\_\_\_\_ and acknowledged that the  
signature to the preceding waiver is his/her signature in his/her official capacity.

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

\_\_\_\_\_

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

**SAMPLE CONTRACTOR'S FINAL AFFIDAVIT**

STATE OF MAINE

COUNTY OF CUMBERLAND

Before me, the undersigned, a \_\_\_\_\_  
(Notary Public/Justice of the Peace/Alderman)

in and for said County and State personally appeared:

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

\_\_\_\_\_  
(Individual, Partner or duly authorized representative of corporate Contractor)

Who being duly sworn according to law deposes and says that the cost of all the Work, and outstanding claims and indebtedness of whatever nature arising out of the performance of the contract between

Owner: CITY OF PORTLAND

And Contractor: \_\_\_\_\_

Of (Address): \_\_\_\_\_

Dated (Agreement Date): \_\_\_\_\_

For the construction of (Project): \_\_\_\_\_

and necessary appurtenant installations have been paid in full.

Signature: \_\_\_\_\_  
(Individual, Partner, or duly authorized representative of corporate Contractor)

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

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

## CONTRACT DOCUMENTS AND SPECIFICATIONS

The City of Portland, Maine has adopted for this project the "State of Maine, Department of Transportation, Standard Specifications, November 2014 Edition", including all current additions or modifications thereof, herein referenced to as "Standard Specifications". A copy of the Standard Specifications can be found online at [http://www.state.me.us/mdot/contractor-consultant-information/contractor\\_cons.php](http://www.state.me.us/mdot/contractor-consultant-information/contractor_cons.php).

The City of Portland has also made specific changes to the MDOT Standard Specifications to incorporate the City of Portland's Technical and Design Standards and Guidelines, Revision March 2000. As such, the Contract Agreement, Special Provisions and Supplemental Specifications contained hereinafter shall take precedence and shall govern in any case of conflict with the MDOT Standard Specification. Supplemental Specifications are modifications, additions and deletions to the Standard Specifications. Special Provisions are specifications in the contract that are for additional items not covered in the Standard Specifications.

### PRIORITY OF CONFLICTING CONTRACT DOCUMENTS

If the CONTRACTOR discovers any ambiguity, error, omission, conflict, or discrepancy ("ambiguity", etc.) related to the Contract Documents that may significantly affect the cost, quality, conformity, or timeliness of the Work, the CONTRACTOR must comply with Section 104.3.3 – Duty to Notify Department If Ambiguities Discovered of the MDOT Standard Specifications.

In the case of ambiguity, etc., the following components of the Contract Documents shall control in the following descending order of priority:

- City of Portland Bid Addendum (most recent to least recent)
- Project Specific Permit Requirements
- City of Portland Special Provisions
- City of Portland Notes on Plans
- City of Portland Plans
- City of Portland Supplemental Specifications
- City of Portland Supplemental Standard Details
- MDOT Repair Specifications
- MDOT Standard Specifications (November 2014 Edition)
- City of Portland Standard Details

## SPECIAL PROVISIONS

The following Supplemental Specifications and Special Provisions shall amend the "State of Maine, Department of Transportation, Standard Specifications, November 2014 Edition".

In case of conflicts, these Supplemental Specifications (1) and Special Provisions (2) shall take precedence and shall govern.

- (1) Supplemental Specifications - modifications, additions and deletions to the existing Standard Specifications.
- (2) Special Provisions - specifications in the contract which are for additional items not covered in the Standard Specifications.

### 1. Working Hours

No work shall be performed during the following hours, without prior written approval from the Director of Public Works.

- A. From September 1 of any year through May 31 of the following year, no construction work shall be performed between 7:00 p.m. of any day and 7:00 a.m. of the following day.
- B. From June 1 of any year through August 31 of the same year, no construction work shall be performed between 8:00 p.m. of any day and 7:00 a.m. of the following day.
- C. On Saturdays, Sundays, and legal holidays, construction work shall not be performed before 8:00 a.m.

Construction shall not interfere with the normal flow of traffic on arterial streets. The full inbound roadway lane width shall be maintained between 7:00 a.m. and 9:00 a.m. and the full outbound roadway lane width shall be maintained between the hours of 3:30 p.m. and 6:00 p.m.

The definition of work for this specification shall include the starting or moving of equipment, machinery, or materials. Any day worked for four hours or more shall be considered a full working day.

### 2. Utility Coordination

The conduit project includes construction in proximity to electrical, water and gas utility service and transmission lines. The CONTRACTOR will be responsible for notifying utility representatives of the anticipated construction schedule. The CONTRACTOR will be responsible for all utility coordination, protection of existing infrastructure and any damages to existing utilities as a result of the work at no additional cost to the City.

### 3. Notification of Residents

Residents shall be notified by the CONTRACTOR sufficiently in advance of any construction affecting the resident's driveway and sidewalk to allow adequate time

for his removal of personal vehicles. Locations of curb cuts for drive access affecting individual residents shall be brought to their attention.

**4. Traffic Signs**

All existing traffic signs which are to be removed during construction shall be carefully dismantled and the posts removed and shall be stacked in an area approved by the ENGINEER. The CONTRACTOR shall protect the signs from damage while in his possession and shall repair, at no additional cost to the City, any damages caused by his operations.

Stop signs are to be maintained at their original locations at all times during the progress of the work.

Prior to the start of any construction work, the CONTRACTOR and ENGINEER shall prepare a mutually acceptable inventory of all signs within the project limits which shall be used as a guide for replacement should signs be removed for construction purposes. The signs shall be inventoried by station location and approximate offset, legend of sign and post.

This work shall be considered as subsidiary obligation of the contract for which no specific payment will be made.

**5. Protection of Trees**

The CONTRACTOR shall be responsible for the preservation of all trees on the project which are not called to be removed. Any trees damaged by the CONTRACTOR's operations shall be repaired using approved tree dressing or paint in accordance with the appropriate provisions of Section 201 of the Standard Specifications. Any tree damaged by the CONTRACTOR shall result in a financial penalty of \$1,500 for each incidence. Damage shall include any and all impacts to trees to include but not limited to limb/tree breakage, damage to tree trunks, roots structure and any incidental impacts.

- a) Tree protection standards** - This shall include construction fencing / protection of the tree root zone, no storage of construction equipment or materials within the drip line area of existing trees. Pro-active tree pruning prior to construction activities is required and shall be coordinated with the City Arborist. This cost shall be incidental to the costs of construction.

The web sites below outline information on preventing tree damage:  
[http://treesaregood.com/treecare/resources/Avoiding\\_Tree%20damage.pdf](http://treesaregood.com/treecare/resources/Avoiding_Tree%20damage.pdf)

<http://www.extension.umn.edu/distribution/housingandclothing/DK6135.html>

6. **Maintenance and Protection of Traffic**

The CONTRACTOR shall be responsible for the maintenance and protection of all vehicular and pedestrian traffic at all times during construction and shall erect suitable warning signs, flashers, barriers and temporary lighting devices of sufficient size and number to afford protection to the traveling public. The CONTRACTOR shall be held responsible for all damage to the work due to any failure of the warning devices to properly protect the work from the traffic, pedestrians or other causes.

A traffic control plan shall be the responsibility of the CONTRACTOR. The CONTRACTOR must submit their traffic plan to the City of Portland Transportation Engineer for review and approval, 10 working days prior to the pre-construction meeting. The traffic plan must include and meet the requirements of the contract documents together with any additional traffic control provisions to ensure the efficient and safe passage of the public.

Guidelines for the construction and erection of barricades, lighting devices, warning signs, etc. may be found in the most recent edition of “Manual on Uniform Traffic Control Devices for Streets and Highways” published by the Department of Transportation of the Federal Highway Administration. This work shall be considered a subsidiary obligation of the contract for which no specific payment will be made.

This project will include unique traffic maintenance requirements which shall be the CONTRACTOR’s sole responsibility to provide and maintain at the CONTRACTOR’s expense. The CONTRACTOR shall be responsible for cooperating with the City and shall make modifications/changes to the traffic control as directed by the City. Signage and barricades may need to be relocated, modified or supplemented throughout construction as directed by the City and responsive to neighborhood and traffic flow. The CONTRACTOR shall promptly provide additional signage including custom signage as necessary and directed by the City. No extra payment will be made.

7. **Materials**

Materials shall meet the requirements specified in the specifications. Equals may be considered so long as the CONTRACTOR can supply sufficient product material and testing data to show that the equal meets or exceeds the performance data of the product identified on the contract documents.

8. **Survey**

The City of Portland, Department of Public Works has established control points tied into the project work including TBM#4 and TBM#5 on the project drawings. The CONTRACTOR shall be responsible for maintaining these controls during construction and providing all additional survey required, which shall be done by a competent ENGINEER or Surveyor.

**9. Sheeting and Bracing**

Any sheeting and/or bracing required for the satisfactory installation of drainage and/or sanitary sewerage structures will not be paid for separately but shall be considered as incidental to the appropriate bid item. CONTRACTOR is advised that project conditions are expected to require special attention to sheeting and bracing to accommodate the site and work characteristics. Design, maintenance and all work associated with Sheeting and Bracing is the CONTRACTORs responsibility and shall be considered incidental to the cost of work. CONTRACTOR shall have a Maine Licensed Professional ENGINEER design all sheeting and bracing. CONTRACTOR shall ensure sheeting and bracing due not undermine or impact the bearing capacity/strength of the underlying soils.

**10. Waste Areas**

The disposal of waste and surplus material and slash from tree cutting shall be as outlined in Section 203.06 – Waste Areas of the Supplemental Specifications.

**11. Occupational Safety and Health**

The CONTRACTOR is hereby advised that all work to be furnished to the City shall be performed with equipment, methods, and use of personnel in conformance with the pertinent Occupational Safety and Health Act requirements of the State of Maine and with the regulations for construction as specified by the Department of Labor and Occupational Safety and Health Administration (OSHA) as currently amended.

**12. Preconstruction Conference**

A conference will be held at 55 Portland Street, Portland, Maine within ten (10) days after the awarding of the contract. At this time, the CONTRACTOR will be required to submit a graphically illustrated schedule and a plan showing project activities. City officials and representatives of the various utility companies involved in the project will be present at this meeting.

It is the purpose of this meeting to inform the various agencies of the proposed work schedule, and to give them the opportunity of discussing any difficulties and of offering suggestions to the CONTRACTOR concerning his proposed schedule in order that full cooperation may be reached.

**13. Schedule of Operations**

The CONTRACTOR shall submit 10 days prior to the pre-construction meeting a detailed schedule showing the sequencing, critical path items, milestones and scheduling of the work. This schedule must show sufficient detail to insure compliance with the established complete dates above. Updates will be required as work progresses.

Specific scheduling parameters are as follows (in no particular order):

- A. Establishment of traffic control measures.
- B. Installation of tide gates on all impacted outfalls.
- C. Base and finish paving.

**14. Setting of Pipes to Line and Grade**

If laser beam equipment is used for laying storm drain and/or sanitary sewer pipe, frequent checks shall be made to assure close adherence to line and grade. If lasers are not used, batter boards are to be set at maximum twenty-five foot (25') intervals and grades transferred to the boards with a transit, level, or line level. Setting pipes to grade by use of "pop" levels or carpenter levels will not be permitted. CONTRACTOR is advised the project includes setting pipes with minimal slopes. CONTRACTOR shall insure pipe and conduit are set adhering to the line and grade requirements and shall utilize means and methods to ensure line and grade are accurate and consistent.

**15. Extent of Open Excavation**

The extent of excavation open at any one time shall be controlled by OSHA regulations and by existing conditions and location of work area including work limits specified on contract drawings and required for construction.

**16. Traffic Officers**

The presence of Portland Police will be a determination made by the Traffic ENGINEER based on the CONTRACTORs submitted traffic control plan. If Police are required (as determined by the City), the City will hire and reimburse them. The Police Department requires 48-hour notice for any Police detail onsite.

**17. Limitation of Operations**

The CONTRACTOR shall conduct the work at all times in such a manner and in such sequence as will assure the least interference with traffic. The CONTRACTOR shall not open up work to the prejudice or detriment of work already started. The ENGINEER may require the CONTRACTOR to finish a section on which work is in progress before work is started on any additional sections, if finishing such section is essential to public convenience.

The CONTRACTOR shall be required to construct his roadway subbase concurrent to his trench backfilling operation if the street is not being reconstructed.

Waste and surplus material shall not be stockpiled, but shall be disposed of in areas as designated in Section 203.06, Waste Areas, of the Supplemental Specifications.

**18. Dust Control For Street**

Calcium chloride shall be spread only on disturbed unpaved areas. Calcium chloride shall not be spread on paved areas that are covered by granular material. These areas shall be swept clean of all granular material. Dust on paved areas shall be controlled with water before sweeping.

**19. Trench Pavement Replacement**

The CONTRACTOR shall be responsible for repairing any trench pavement that has experienced excess settlement, cracking or opening of pavement joints. Repair may include overlay, removal of unacceptable material and complete replacement, joint sealing or recutting pavement as required. This work may be necessary after

final acceptance of the work and prior to expiration of the maintenance bond. This work shall be done at no additional cost to the City.

**20. City of Portland's Street Excavation Ordinance**

The CONTRACTOR is hereby advised that all work shall conform to the regulations of Chapter 25 of the Municipal Code, "Excavations in Public Places", as currently amended. The CONTRACTOR shall be responsible for obtaining and completing the Street Opening Application but will not be charged for the Street Opening Permit for the Excavation.

**21. Questions Regarding Plan and Documents**

All questions shall be directed in writing ONLY to the Purchasing Office at the above address and be received at least five business days prior to the bid opening date (FAX 207-874-8652, or E-mail [jrl@portlandmaine.gov](mailto:jrl@portlandmaine.gov)). Questions received after this time will not be addressed. Responses from the City that substantially alter this bid will be issued in the form of a written addendum to all bid holders registered in the Purchasing Office. Oral explanations or interpretations given before the award of the contract will not be binding.

Receipt of any addenda must be acknowledged in writing as part of a proposal. Each bidder shall be responsible for ensuring that they have received any and all addenda. The City shall not assume responsibility for the receipt by the CONTRACTOR for any addenda.

**22. Record Drawings**

The CONTRACTOR shall keep daily records of all changes in the work, ties to all new service connections, and elevations of all inverts. Upon completion of the project, the CONTRACTOR shall deliver to the ENGINEER a marked-up set of plans with all changes and required information indicated in red. The CONTRACTOR shall maintain a record of all service lead locations and locations of buried fittings, etc., throughout the project. The locations shall be recorded by 3 ties from fixed permanent points. Prior to requesting final payment, the CONTRACTOR shall submit the records in triplicate bound form. The records shall be clearly legible and include the street, tax map, lot number and reference contract drawing number. A blank form is provided at the end of this section and is to be used by the CONTRACTOR for preparation of record ties. Prior to requesting final payment, the CONTRACTOR shall submit these records to the city and the ENGINEER in a clearly legible form in order to produce Record Drawings. Once all information has been received and verified then the City will produce the record drawings from the information received.

**23. Waste Material**

All waste material shall be removed from the site and the area left clean upon completion of work. Any equipment or structures damaged by the CONTRACTOR shall be repaired or replaced at no additional cost to the City. The CONTRACTOR shall notify the City of the final waste disposal location and if so located in the City shall be responsible to provide evidence of all necessary local fill permits and State permits at no extra cost to the City.

**24. Quality Assurance**

The CONTRACTOR shall be responsible at all times for maintaining top quality assurance during performance of his work. Particular attention to compaction shall be paid during backfilling operation. Strict adherence to Section 203.11 and 304.04 of the Maine Department of Transportation Standard Specifications will be required for all subgrade and subbase/base operations.

If required, in-place density tests of the backfill material will be conducted by an independent testing laboratory. The amount and frequency of testing will be determined at the time of construction. A minimum of one density test per 100 feet of trench may be required. The CONTRACTOR shall be responsible for procuring and paying for the testing services. Satisfactory compaction shall be a minimum of 90% of the maximum density for the embankment and a minimum of 95% of the maximum density for gravel base course and subbase gravel course.

The use of an independent testing laboratory, by the CONTRACTOR, shall receive prior approval from the ENGINEER. Payment will be made under Items 654.08 - Trench Density Test or 654.09 - Roadway Density Test.

**25. Sanitary Facilities**

The CONTRACTOR shall provide self-contained toilet units in sufficient numbers for use of all persons involved in the work.

**26. Bids**

No bids shall be withdrawn within a period of sixty (60) days after the opening of the bids.

**27. Subsurface Soils Information**

All subsurface soils information, including but not limited to ledge, boring, refusal, or groundwater elevations, is approximate only and is shown on the Drawings for design purposes only and the convenience of the CONTRACTOR. The CONTRACTOR shall make his own investigations regarding the actual location and/or nature of such information and shall not rely on nor make claims for any extra payments based on the information shown on the drawings.

**28. Unauthorized Use of Fire Hydrants**

In conformance with the Maine State Department of Human Services, the Portland Water District requires the use of an approved air gap or reduced pressure zone back flow-device to assure the protection of the public water supply when filling tank trucks, street sweepers, jet machines or any other related equipment, or any other needs that require a connection to a public or private hydrant. Private CONTRACTORS providing services to the City for, street sweepers, jet machines, and lining services, are required to apply to the Portland Water District for a hydrant meter and back flow device installations. The approved applicants will pay for the installation and removal of the hydrant meter and back flow device and all water recorded by the meter. The District considers any other connection or usage from a public or private hydrant as an unauthorized use of a hydrant and a theft of

services. All CONTRACTORS must apply to The District for the installation of a back flow device and meter for each usage. The District will operate the hydrant and install and remove and relocate the back flow device and meter as needed. A valve is provided at the connection so the applicant can control the water without operating the hydrant. Please note size of meter requested (2" or 1"). The District can be contacted at 774-5961. All cost associated with these requirements is incidental to the contract.

**29. Project Funding**

The proposed project is part of the City of Portland Combined Sewer Overflow (CSO) Abatement plan and is subject to Portland City Council review and funding approval.

**30. Combined Sewer Flows**

The project work will involve combined sewers. As such the Contactor shall take all necessary health and safety precautions when working in and around this line.

**31. Anti-Idling Policy**

Please note following the Special Provisions of the Bid Document is a copy of the City's Administrative Regulation #25 regarding the City's Anti-Idling Policy. Although this Policy is directed to City Employees regarding the use of City Vehicles, we as a City, along with its citizenry, request your compliance as well. It is our goal to protect and preserve the natural environment and improve air quality in the City of Portland. As a business partner of our City and responsible organization we will expect and greatly appreciate your assistance in this effort.

**32. Working Drawings**

Submittals and shop drawings, defined as Working Drawings in the Standard Specifications Section 101.2 Definitions, shall be provided to the ENGINEER for review and approval. Requirements and timelines for working drawing review shall be in accordance with Section 105.7 of the Standard Specifications.

**32. CAD Release Form**

The AutoCAD files will be made available to the prospective bidders as well as the selected contract CONTRACTOR. An Electronic Release Form will need to be filled out, by the CONTRACTOR, and signed before the files will be delivered. The Electronic Release Form is attached to the project specifications. The price for the files will be \$105.00. Once the form and payment is received by the purchasing office, the files will be delivered by the project manager of the Public Works Department.

**33. Utility Floatation**

Box conduit, storm drains and associated structures will be subject to floatation until all utilities are installed and backfilled to subbase gravel. CONTRACTOR is responsible for implementing anti-floatation provisions during installation of utilities. This work shall be considered incidental to the related pay items.

**34. Excavation and Site Dewatering**

Excavation and installation of storm drains, waterlines, sewers, services and associated structures will require continuous dewatering through-out construction. CONTRACTOR is responsible for preparing and implementing a dewatering plan meeting environmental regulations and requirements stipulated within the contract documents and plans. Prior to construction, the CONTRACTOR shall submit a written dewatering plan and shall meet with City representatives to review the dewatering plan. The CONTRACTOR shall make adjustments to the dewatering plan as required by the City or other agencies. Any required changes shall be considered incidental and no extra payment will be made. All dewatering shall be run through a pumped sediment removal system equal to “dirt bag” or alternative methods as approved by the ENGINEER. It is anticipated that high volumes of pumping will be required for the project. Discharge locations shall be approved by the ENGINEER prior to construction.

The CONTRACTOR shall be responsible for all work and costs associated with dewatering the jobsite including any changes, modifications or special dewatering systems/requirements to ensure the site is dewatered. This work shall be considered incidental to the related pay items. Refer to Supplemental Specification Section 656 – Construction Dewatering.

**35. Bypass Pumping**

Bypass pumping maybe required for some pipe installations to maintain existing sewer, combined sewer, and storm drainage flows. CONTRACTOR shall submit a bypass pumping plan for City and PWD review and approval. Bypass pumping and other required work to maintain flows shall be considered incidental to the related pipe pay item.

**36. Removal of Existing Structures**

Removal of existing structures encountered during excavation, storm drains, sewer pipes or other pipe structures, backfilling, base and subbase gravels and all associated work shall be considered incidental to the costs of construction. No extra payment will be made.

**37. Costs of Construction**

Any materials, work or associated costs required to complete the project and not specifically associated with or identified in pay items shall be considered incidental to the costs of construction. No extra payment will be made.

**AN AGREEMENT BETWEEN THE CITY OF PORTLAND (HEREINAFTER  
 "City") AND CONTRACTOR FOR TRANSFER OF COMPUTER AIDED  
 DRAFTING (CAD) FILES ON ELECTRONIC MEDIA**

**City of Portland  
 Public Works Department  
 55 Portland Street  
 Portland, ME 04101**

Recipient:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Project No. \_\_\_\_\_ Date: \_\_\_\_\_

Project Name: \_\_\_\_\_

Location: \_\_\_\_\_

The City will provide the following CAD files, dated \_\_\_\_\_ related to the Civil drawing series of the above referenced project, for the project use by the Recipient:

- |          |          |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

Drawings were prepared on the following:

Software: AutoCAD/Civil 3D Version: 2018

Recipient shall pay City a handling fee of \$105\* (\*this fee includes 5% Maine State Tax). Files will be in the standard format of AutoCAD 2009. An additional translation fee of \$105\* (will apply to translating the files to another CAD format or an earlier version of AutoCAD). This signed agreement and payment of fees are required prior to transferring the files.

Handling fee:	\$100.00 + \$5 Maine State Tax (5%)	= \$ 105.00
Translation fee (if requested)	+ \$5 Maine State Tax (5%)	= _____
	<b>Total Cost:</b>	<b>= _____</b>

Transfer method (check one): \_\_\_\_\_ E-mail, Email address: \_\_\_\_\_  
 \_\_\_\_\_ CD-ROM  
 \_\_\_\_\_ Zip Disk

Payment type (check one): \_\_\_\_\_ Check  
 \_\_\_\_\_ Credit Card (Visa or Master Card only)  
 \_\_\_\_\_ Visa or \_\_\_\_\_ Master Card  
 Name of Cardholder: \_\_\_\_\_  
 Credit card no: \_\_\_\_\_ Exp. Date \_\_\_\_\_

**TERMS AND CONDITIONS:**

1. It is understood and agreed that all drawings, specifications, or other documents of any kind prepared by City, whether in hard copy or in electronic or machine readable format including Electronic Documents (collectively the "City's Documents"), are instruments of their services prepared solely for use in connection with the single project for which they were prepared and that City retains all common law, statutory and other reserved rights, including the copyright. This agreement is not intended in any way to alter the respective interests of the parties in the Instruments of Service as set forth in the City/CONTRACTOR Agreement, notwithstanding City's agreement to release the Electronic Documents to Recipient.
2. The Electronic Documents are provided as a convenience to the Recipient for informational purposes only in connection with the Recipient's performance of its responsibilities and obligations relating to the Project. The Electronic Documents do not replace or supplement the paper copies of the Drawings and Specifications which are, and remain, the Contract Documents for the Project. In all instances, it is the responsibility of the Recipient to ensure that the Electronic Documents are consistent with the Contract Documents.
3. The parties agree that the Electronic Documents are not, nor shall they be construed to be, a product. It is expressly agreed by the Recipient that there are no warranties of any kind in such Electronic Documents or in the media in which they are contained, either express or implied.
4. City makes no representation as to the compatibility of the CAD files with any hardware or software.
5. Since the information set forth on the CAD files can be modified unintentionally or otherwise, the City reserves the right to remove all indicia of its ownership and/or involvement from each electronic display.
6. If any differences exist between printed Instruments of Service and Electronic Documents, the information contained in the printed documents shall be presumed to be correct and take precedence over the Electronic Documents.
7. Recipient agrees not to add to, modify or alter in any way, or to allow others to add to, modify or alter in any way, the Electronic Documents or any printed copies thereof.
8. The Electronic Documents are supplied in a translatable format. Any conversion of the format is solely the responsibility of the Recipient. Recipient understands and agrees that the conversion of hard copies of Instruments of Service into electronic or machine readable format or the conversion of Electronic Documents from the machine readable formats used by City to some other format may introduce errors or other inaccuracies. Recipient agrees to accept all responsibility for any errors or inaccuracies and to release City from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.

9. Where the Recipient has received specific permission to use the Electronic Documents in connection with the Recipient's obligation to prepare certain documents for Project, Recipient shall, in addition to the other obligations set forth therein, be obligated to remove City's title block from the copy of the Electronic Documents used by Recipient. It is understood and agreed that, without the separate express written permission of the City to do so, the Electronic Documents are not to be used by any CONTRACTOR or any of its subcontractors of any tier of material supplier or vendor as a shop drawing or any other type of submittal or as the basis for preparing such shop drawing or submittal. The sole exception to this prohibition shall be that the Recipient may use the Electronic Documents as a clearly distinguishable separate background upon which to prepare its shop drawings or other submittal.
10. Recipient further agrees that the City's Documents were prepared for use in connection with this project only and that the Electronic Documents are supplied to Recipient for the limited use stated above only. Recipient agrees not to use, or to allow others to use, the Electronic Documents, in whole or in part, for any purpose other than as stated above.
11. The City believes that no licensing or copyright fees are due to others on account of the transfer of the CAD files, but to the extent any are, the CONTRACTOR will pay the appropriate fees and hold the City harmless from such claims.
12. Any purchase order number provided by the CONTRACTOR is for CONTRACTOR's accounting purposes only. Purchase order terms and conditions are void and are not a part of this agreement.
13. The City has prepared these CAD files for the sole purpose of plotting and printing a hard copy of the design documents. The City believes only the hard copy print to be the accurate representation of all drawing information. Hard copy written dimensions override electronic measured dimensions. User must verify computer data against hard copy prints.
14. Electronic CAD files are an inherently unstable medium and subject to bugs, deterioration, modifications, and viruses. CAD files are subject to inadvertent changes in the process of moving from one computer to another; or by compressing and decompressing the data; or by moving from one software revision to another; or any kind of manipulation of the data will lead to defects.
15. This agreement shall be governed by the laws of the State of Maine. Only printed copies of the Instrument of Service shall be signed and sealed.
16. Recipient agrees to waive any and all claims and liability against City and its subconsultants resulting in any way from any failure by Recipient to comply with the requirements of this Agreement for the Delivery of Documents in Electronic Format.
17. The Recipient agrees that no third party beneficiary status or any other right of action is created in favor of any CONTRACTOR, subcontractor, material men or other third party against the City by virtue of this Agreement or in connection with its delivery of Electronic Documents, and no third party beneficiary status is intended.

18. Recipient further agrees to indemnify and save harmless the City and its consultants, its officers and employees from any and all claims, judgments, suits, liabilities, damages, costs or expenses (including reasonable defense and attorney's fees including claims asserted in breach of contract, breach of warranty, negligence, or any other tort) arising as a result of either: 1) Recipient's failure to comply with any of the requirements of Agreement for the Delivery of Documents in Electric Format; or 2) a defect, error or omission in the Electronic Documents or the information contained therein, which defect, error or omission was not contained in the Contract Documents as defined in Paragraph 2 or where the use of such Contract Documents would have prevented the claim, judgment, suit, liability, damage, cost, or expense.

19. City reserves the right to deny a request to translate files.

**AUTHORIZED ACCEPTANCE**

by City

by Recipient

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature (by officer)

\_\_\_\_\_  
Print Name and Title

\_\_\_\_\_  
Print Name and Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Witness: \_\_\_\_\_

STORM AND SANITARY SEWER SERVICE LATERAL LOCATION RECORD

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

City of: \_\_\_\_\_

Type/Size of Service Pipe: \_\_\_\_\_

Street: \_\_\_\_\_

Connection at Sewer Main: \_\_\_\_\_

Dwelling No: \_\_\_\_\_

Depth, end of Service Pipe: \_\_\_\_\_

Occupant: \_\_\_\_\_

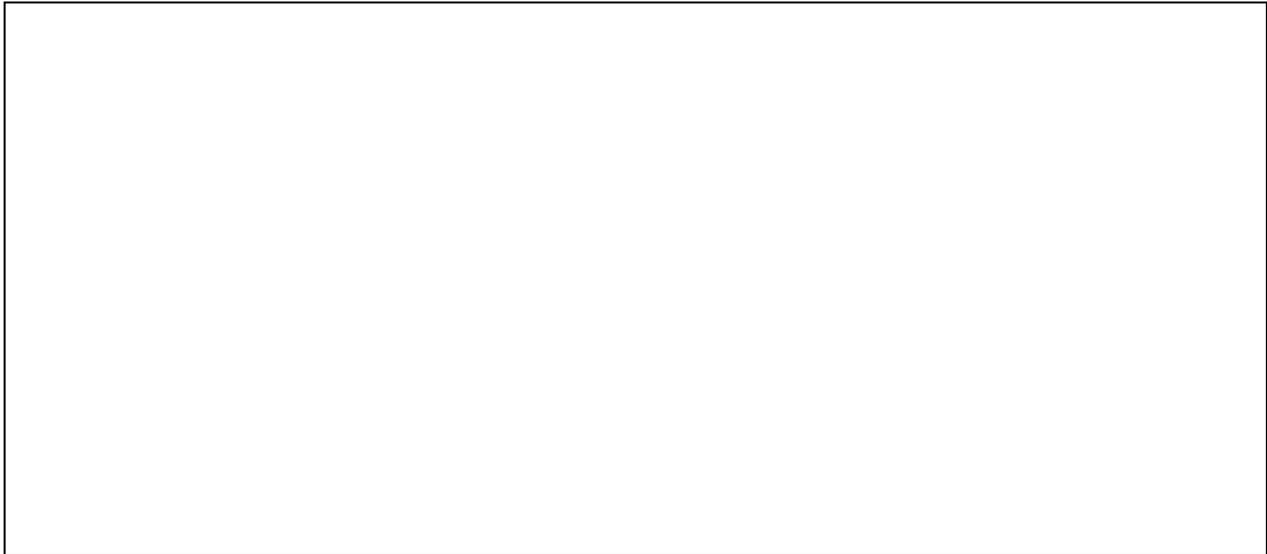
Length of Service Pipe Laid: \_\_\_\_\_

Owner: \_\_\_\_\_

Measured, Located by: \_\_\_\_\_

Project CONTRACTOR: \_\_\_\_\_

Location Diagram  
(Provide 3 Ties to Permanent Objects)



Remarks \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **City of Portland**

### **Anti-Idle Policy**

#### **Purpose:**

To inform all City employees of the need to eliminate unnecessary idling of vehicles in order to reduce the cost of City operations and to reduce emissions created by City vehicles. Our goal is to protect and preserve the natural environment and improve air quality in the City of Portland.

#### **Policy:**

It is the policy of the City of Portland to continually improve the efficient use of vehicle fuels in an effort to reduce operating costs and emissions. City vehicles will not be permitted to idle unnecessarily. Operators of City equipment will adhere to the following standards:

- 1) Idling is prohibited (with the limited exceptions listed below) when the ambient temperature is above 32 degrees F.
- 2) 10 minute maximum idle time limit when ambient temperature is 32 F and below
- 3) Vehicles will not be left idling when the operator is out of the vehicle (with the limited exceptions listed below)

For the health and safety of operators, there will be occurrences when vehicles will be left running. Examples include protection from the elements or for the use of the vehicle safety features (including the use of air conditioning in street sweepers to keep dust out of the cab).

#### **Exceptions**

Due to the emergency nature of some City operations, the following exceptions will apply to this policy:

- Emergency response vehicles when responding to an emergency
- Fire vehicles which must maintain onboard medication at a specific temperature
- Vehicles whose batteries may be discharged because of onboard electrical equipment (i.e. emergency lights, radar, computers, etc.)

#### **Non-Compliance**

After a reasonable period of education about this new policy, employees will be subject to progressive discipline under AR 25 if they do not comply with this policy.

## SUPPLEMENTAL SPECIFICATIONS

### SECTION 101 - CONTRACT INTERPRETATION

#### **Scope of Section**

This Section contains abbreviations, definitions, and general rules of interpretation and shall apply with the following additions or modifications.

#### **101.2 Definitions**

##### Chief Engineer

The definition in the Standard Specifications shall be deleted and replaced with the following. Chief ENGINEER shall mean the City ENGINEER, City of Portland, Maine, Public Works Department, acting directly or through his or her duly authorized representatives, who are responsible for the design of the project.

##### Commissioner

The definition in the Standard Specifications shall be deleted and replaced with the following: Commissioner shall mean the Director of Public Works, City of Portland, Maine.

##### Department

The definition in the Standard Specifications shall be deleted and replaced with the following: Department shall mean the Department of Public Works, City of Portland, Maine acting through its Director or through his duly authorized representative.

## SECTION 102 - BIDDING

### **Scope of Section**

This Section includes requirements related to eligibility to Bid and the Bidding process from advertisement to Bids, through Bid Opening, to the analysis of Bids.

### **102.1.4 Qualifications of Bidder**

The following paragraph will be added as Section 102.1.4: The City reserves the right to reject any bid if the evidence submitted by, or the investigation of such bidder, fails to satisfy the City that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. The City reserves the right to reject any or all bids if it would be in the public interest to do so. "The City reserves the right to substantiate bidder's qualifications, capability to perform, availability, past performance record and verify that the bidder is current in its financial obligations to the City."

### **102.3 Examination of Documents, Site and Other Information**

This subsection shall be amended by the addition of the following paragraph: Plans, Specifications and Proposal Forms may be seen at the Engineering Office, Department of Public Works, 55 Portland Street, Portland, Maine; or may be obtained at the Purchasing Office (electronic format only), Room 103, City Hall, upon payment as specified in the published "Notice to CONTRACTORS".

### **102.5.1 Questions from Bidders**

This subsection shall be amended to read as follows: Bidders shall direct all technical or Engineering questions including requests for explanations or interpretation or for the use of products or methods other than those described in the specifications in writing to the Purchasing Office not later than five (5) working days prior to the date designated for the opening of the bids. All answers to such requests will be made as addenda to the contract and will be issued in writing to all Bidders.

No oral interpretation will be given to the contract documents.

### **102.7.1 Location and Time**

This subsection shall be amended to read as follows: Each proposal shall be submitted, document intact, in a sealed envelope. The envelope shall be clearly marked to indicate the name of the Bidder, contract name, bid number and be addressed to Purchasing, Room 103, City Hall, 389 Congress Street, Portland, Maine 04101. Proposals may be mailed or delivered in person, but they shall be filed prior to the time and at the place specified in the Notice to CONTRACTORS. Proposals received after the time for opening of bids will be returned to the bidder unopened.

### **102.7.2 Effects of Signing and Delivery of Bids**

This subsection shall be amended by the addition of the following: Corporations will be required to affix their corporate seal on their proposals.

## **SECTION 103 - AWARD AND CONTRACTING**

### **103.3.2 Notice of Determination**

This subsection shall be amended by the addition of the following paragraph: The City reserves the right to reject any bid if the evidence submitted by, or the investigation of such bidder, fails to satisfy the City that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. The City reserves the right to reject any or all bids if it would be in the public interest to do so. A proposal which includes a combination of abnormally low and abnormally high unit prices, which results in an unbalanced bid, may be rejected. "The City reserves the right to substantiate bidder's qualifications, capability to perform, availability, past performance record and then verify that the bidder is current in its financial obligations to the City."

### **103.4 Notice of Intent to Award**

This subsection shall be amended to read as follows: The award of contract, if it be awarded, shall be made within sixty (60) days after the opening of proposals to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified by mail at the address shown on his proposal, that his bid has been accepted and that he has been awarded the contract.

## **SECTION 104 - GENERAL RIGHTS AND RESPONSIBILITIES**

### **104.2.3 Authority of the Resident**

This subsection shall be amended by the addition of the following paragraph: The Resident ENGINEER or Resident Inspector will not be responsible for nor issue directions regarding the CONTRACTOR's safety precautions or programs; nor will they issue directions relative to, or assume control over any aspect of the methods, techniques or procedures of construction.

### **104.4.6 Utility Coordination**

This subsection shall be amended by the addition of the following paragraphs: At points where the CONTRACTOR's operations are adjacent to properties of railways, telephone, gas, water and/or power companies, or are adjacent to other property, damage to which might result in considerable expense, loss or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

It is anticipated that utility poles will not be relocated prior to commencement of contract work. The CONTRACTOR is advised to schedule their work to accommodate the possibility of utility pole and overhead wire obstructions.

The CONTRACTOR shall cooperate with the OWNERS of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable, and the duplication or rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

No person, firm, or corporation, including City forces, shall make or cause to be made any opening or excavation in a City Street, way, or public place until contact has been made with all utilities to locate any existing underground gas, water, telephone, power or other installations within said street, way or public place. When gas or other flammable service to buildings is discontinued, the existing service line for such service shall be terminated at a point outside the building.

In the event of interruption to water or utility services as a result of accidental breakage, or as a result of being exposed or supported, the CONTRACTOR shall promptly notify the proper authority. He shall cooperate with the same authority in the restoration of such service as promptly as possible.

Gas lines, service connections, gas meter boxes, gas valve boxes, light standards, cableways, signals and all other utility appurtenances within the limits of the proposed construction are to be moved by the OWNERS with or without expense to the CONTRACTOR, unless otherwise provided for, or as noted in the plans.

The CONTRACTOR shall notify Dig Safe prior to the start of excavation.

The CONTRACTOR shall ascertain the location of existing utilities and any other necessary information by direct inquiry at the office of the following utility OWNERS:

Electric:  
Central Maine Power Company  
162 Canco Road  
Portland ME 04103  
Attention: Skip McKay  
Eric Linquist

Gas:  
Unitil Corporation  
1075 Forest Avenue  
Portland ME 04103  
Attention: Joe Renda

Water:  
Portland Water District  
225 Douglass Street  
Portland ME 04101  
Attention:  
Frank Meader  
Jay Arnold  
William 'Ned' Pierce

Cable TV:  
Spectrum  
118 Johnson Road  
Portland ME 04102  
Attention:  
Mark Pelletier

Telephone:  
Consolidated Communications  
13 Davis Farm Road  
Portland ME 04103  
Attention: Mike Samiya

Railroad:  
Pan Am Railways  
20 Rigby Yard  
South Portland ME 04106  
Attention:  
Robert Hough

Fire Alarm:  
Portland Fire Department - Electric  
109 Middle Street  
Portland ME 04101  
Attention: Richard Andrews

Sewer:  
Dept. of Public Works  
55 Portland Street  
Portland ME 04101  
Attention:  
John Emerson

The completeness of the above listing is not guaranteed by the City of Portland

**104.5.10 Warranty and Maintenance Bonds**

This subsection shall be amended to read as follows: Warranty and Maintenance Bonds may be required of the CONTRACTOR or the subcontractor for specified items that the Department deems appropriate. The Bond must name the "City of Portland" as an obligee. The CONTRACTOR shall provide a copy of said bond to the Department as part of the projects closeout documentation prior to final acceptance. Should the subcontractor be required to provide a Warranty or Maintenance Bond, the CONTRACTOR hereby authorizes the Department to directly contact Landscape Subcontractor and/or its Surety in the event of a failure of the bonded item to perform as specified. The amount and duration of the Warranty and Maintenance bond for each project will be stated in the contract agreement.

**SECTION 107 - TIME**

The provisions of Section 107 of the Standard Specifications shall apply with the following additions.

**107.1 Contract Time and Contract Completion Date**

Work on this project shall be completed as specified in the Notice to Bidders and Agreement between the City of Portland and the CONTRACTOR.

**107.7 Liquidated Damages**

**107.7.1 General**

Except as expressly provided otherwise in this Contract, the CONTRACTOR shall owe the City the per diem amount specified in Section 107.7.2 – Schedule of Liquidated Damages for each day that any portion of the Work remains incomplete after the Contract Time has expired.

Liquidated Damages will be deducted from amounts otherwise due the CONTRACTOR. For related provisions, see Sections 107.1 – Contract Time, 107.5.1(D) – Winter Suspensions – Impact on Liquidated Damages, and Section 109.5 – Adjustments for Delay.

Permission for the CONTRACTOR or the Surety to continue and finish Work after the Contract Time has expired shall not waive the City’s rights to assess Liquidated Damages.

**107.7.2 Schedule of Liquidated Damages**

The specific per diem rates for Liquidated Damages are set forth below. By executing the Contract, the CONTRACTOR acknowledges that such an amount is not a penalty and that the daily amount set forth in the Contract is reasonable per diem forecast of damages incurred by the City due to the CONTRACTOR’s failure to Complete the Work within the Contract Time.

Original Contract Amount		Per Diem Amount of Liquidated Damages Calendar Day
From More Than	To and Including	
\$0	\$100,000	\$100
\$100,000	\$300,000	\$175
\$300,000	\$500,000	\$250
\$500,000	\$1,000,000	\$325
\$1,000,000	\$2,000,000	\$500
\$2,000,000	\$4,000,000	\$750
\$4,000,000	and more	\$1,000

**SECTION 108 - PAYMENT**

**108.3 Retainage**

Prior to substantial completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER may determine or OWNER may withhold, including but not limited to liquidated damages in accordance with general conditions:

- A. 95 percent of work completed (with balance being retainage); and
- B. 95 percent of cost of materials and equipment not incorporated in the work (with balance being retainage)

Upon substantial completion, OWNER shall pay an amount sufficient to increase total payments to the CONTRACTOR to 98 percent of the work completed, less such amounts as ENGINEER shall determine in accordance with general conditions. The final two percent of the value of the Work shall be retained for a period of one year from the date of substantial completion.

**108.4.1 Price Adjustment for Hot Mix Asphalt**

This Subsection is revised by applying the following additions and modifications for all contracts with hot mix asphalt, a price adjustment for performance graded binder will be made for the following pay items:

- Item 403.207 Hot Mix Asphalt - 19 mm
- Item 403.208 Hot Mix Asphalt - 12.5 mm

Price adjustments will be based on the variance in costs for the performance graded binder component of hot mix asphalt. They will be determined as follows:

The quantity of hot mix asphalt for each pay item will be multiplied by the performance graded binder percentages given in the table below times the difference in price between the base price and the period price of asphalt cement. Adjustments will be made upward or downward, as prices increase or decrease.

Item 403.207: 5.2%	Item 403.211: 6.2%
Item 403.208: 5.6%	Item 403.212: 6.8%

**Hot Mix Asphalt:** The quantity of hot mix asphalt will be determined from the quantity shown on the progress estimate for each pay period.

**Base Price:** The base price of performance graded binder to be used is the price per standard ton current with the bid opening date. This price is determined by using the average New England Selling Price, as listed in the Asphalt Weekly Monitor.

**Period Price:** The period price of performance graded binder will be determined by the Department by using the average New England Selling Price, listed in the Asphalt Weekly Monitor current with the date of asphalt placement. The maximum Period Price for paving after the adjusted Contract Completion Date will be the Period Price on the adjusted Contract Completion Date.

**108.8 Final Quantity Voucher**

This subsection is revised by adding the following paragraphs: Prior to final payment the following shall be accomplished:

- A. CONTRACTOR and the ENGINEER shall jointly inspect the project to assure completion of all items including Punch List.
- B. CONTRACTOR shall submit Record Drawings indicating all changes and additions made during construction.
- C. Waivers of Lien shall be provided to the City for the project.
- D. CONTRACTOR shall submit the Warranty and Maintenance Bonds in the amount specified in the contract.
- E. CONTRACTOR shall submit all Service Lateral Records.
- F. Final Clean-up shall be completed. No payment will be made for the final clean-up and the cost thereof shall be considered incidental to the appropriate item.
- G. Final Acceptance Notification will be prepared by the City and forwarded to the CONTRACTOR for the project along with Final Payment.
- H. Final CONTRACTOR Lien Waiver needs to be signed and forwarded to the City.

CONTRACTOR'S FINAL AFFIDAVIT

STATE OF MAINE

COUNTY OF CUMBERLAND

Before me, the undersigned, a \_\_\_\_\_  
(Notary Public/Justice of Peace/Alderman)

in and for said County and State personally appeared:

(Printed Name) \_\_\_\_\_  
(Individual, Partner or duly authorized representative of corporate contractor)

Who being duly sworn according to law deposes and says that the cost of all the Work, and outstanding claims and indebtedness of whatever nature arising out of the performance of the contract between

Owner: CITY OF PORTLAND

And Contractor: \_\_\_\_\_

Of (Address): \_\_\_\_\_

Dated (Agreement Date): \_\_\_\_\_

For the construction of (Project): Diamond Tide Gate Project and necessary appurtenant installations have been paid in full.

Signature: \_\_\_\_\_  
(Individual, Partner, or duly authorized representative of corporate contractor)

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 2012.  
Signature: \_\_\_\_\_

**SECTION 110 - INDEMNIFICATION, BONDING, AND INSURANCE****110.2 Bonding**

This subsection is amended by the addition of the following: whenever the word "Treasurer of the State of Maine" appears in the Standard Specifications, it shall mean the City of Portland, Maine.

**110.3 Insurance**

This subsection shall be amended to read as follows: Before work is started under the contract, the contractor will be required to file with the City of Portland, a Certificate of Insurance, executed by an insurance company or companies satisfactory to the City and licensed by the State of Maine Insurance Department to do business in the State of Maine, stating that the contractor carries insurance in accordance with the following requirements and stipulations:

- A. Workers' Compensation Insurance: With respect to all the operations the contractor performs and all those performed for him by subcontractors, the CONTRACTOR or the subcontractor shall carry Workers' Compensation Insurance or shall qualify as a self-insurer with the State of Maine Industrial Accident Commission, all in accordance with the requirements of the laws of the State of Maine.
- B. Commercial General Liability: Operations under the CONTRACT DOCUMENTS, whether such operations be by themselves or by any SUBCONTRACTOR under them, requires insurance to be written with a limit of liability of not less than \$1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$500,000 for all property damage sustained by any one person in any one accident, and a limit of liability of not less than \$500,000 aggregate for any such damage sustained by two or more persons in any one accident. The insurance certificate shall also name the City as additional insured on Liability portions (not W/C). The standard Certificate of Insurance forms shall have the cancellation statement edited. The words "endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind upon the company" shall be crossed out.
- C. Public Liability and Automobile Liability Insurance: CONTRACTOR will procure and maintain Public Liability Insurance coverage and Automobile Insurance coverage for the Work agreed to under this Agreement and as outlined within the contract documents, whether such operations be by themselves or by any subcontractor under them, with a limit of liability of not less than \$1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident; and a limit of liability of not less than \$1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$500,000 for all property damage sustained by any one person in any one accident-, and a limit of liability of not less than \$500,000 aggregate for any such damage sustained by two or more persons in any one accident. Name CITY as an additional insured on the policy, and provide the CITY a certificate of insurance

- evidencing such coverage, in this way: certificate must say either: A) “the policy actually been endorsed to name the City of Portland as an Additional Insured” and copy of the endorsement must come to the City of Portland with the certificate, or B) “the policy already includes an endorsement, such as the General Liability Expansion Endorsement, by which the City of Portland is, in fact, automatically made an additional insured.” A Certificate which merely has a box checked under ‘Addl Insr.’ or the like, or which merely states The City of Portland is named an Additional Insured, will not be acceptable. CONTRACTOR shall furnish and thereafter maintain certificates evidencing such coverage, which certificates shall guarantee thirty (30) days' notice to CITY of termination of insurance from insurance company or agent.
- D. **Blasting:** When explosives are to be used in the prosecution of the work, the insurance required under paragraphs (a), (b), and (c) above shall also contain provisions for protection, in the amounts stated, against damage claims due to such use of explosives.
- E. **Execution and Limitation:** Each policy shall be signed by the President and Secretary of the insurance company and shall be countersigned by a licensed resident agent in the State of Maine as an authorized representative of the company.
- F. **Claims:** Each insurance policy shall state that the insurance company shall agree to investigate and defend the insured against all claims for damages, even if groundless.
- G. **Compliance:** with the requirements of this subsection may be met by procurement of insurance covering all work under contract with the City or may be met by procurement of separate insurance for each individual contract. In either case a Certificate of Insurance shall be filed for each contract to show evidence that all required insurance has been obtained.
- H. **Termination or Change of Insurance:** Each insurance policy shall be endorsed to provide that the insurance company shall notify the City by certified mail at least 30 days in advance of cancellations or of any change in the policy. No change shall be made without prior written approval of the City. The CONTRACTOR shall keep all the required insurances in continuous effect until 31 days after the date of final acceptance of the project or until such time as may be established by the City.
- I. **Contractual Liability Insurance:** The CONTRACTOR shall carry Contractual Liability Insurance covering the liability CONTRACTOR has assumed under the contract to indemnify and save harmless the City of Portland, its officers and employees with respect to bodily injuries in or death of any person or persons or injury to or destruction of property. The limits for such insurance shall be not less than those specified for Commercial General Liability Insurance in paragraph (b) above.

## **SECTION 202 - REMOVING STRUCTURES AND OBSTRUCTIONS**

The provisions of Section 202 of the Standard Specifications shall apply with the following additions and modifications:

### **202.03 Removing Existing Superstructure, Structural Concrete, Railings, Curbs, Sidewalks and Bridges**

This section is modified by adding the following sentence to the first paragraph: All granite curbing, tipdowns, curb inlets, sidewalk brick, and cobblestones removed and not reused in construction of the proposed project shall be delivered to the City stockyard as directed.

Removal of existing structural concrete, reinforced concrete, plain concrete, excavated structures, manholes, catch basins, mortared stone masonry, concrete masonry, wooden timbers/piles and any other structural elements encountered during construction are incidental to the contract and cost of construction.

Removal of or abandonment using flowable fill of existing storm drains, sewer pipes or other pipe structures, backfilling and all associated work shall be considered incidental to the cost of construction. No extra payment will be made.

### **202.05 Removing Manholes or Catch Basins**

The first sentence of this subsection shall be modified by deleting “of at least 600 mm [2 feet] below subgrade” and substituting the following: “of at least 900 mm [3 feet] below subgrade.”

Removal of existing catch basins and manholes, backfilling and all associated work shall be considered incidental to the cost of construction. No extra payment will be made.

### **202.061 Removing Pavement Surface (Milling)**

The milled surface shall have a uniform texture and provide acceptable rideability for vehicles. Should resurfacing be delayed or the resulting milled surface be unsatisfactory for any reason, a bituminous leveling course or temporary pavement may be required. The CONTRACTOR shall clean the milled surface and surrounding area of all loose material prior to use by traffic. Pavement milling shall be considered incidental to the costs of paving.

### **202.07 Method of Measurement**

Driveway butt joints are incidental to the contract and shall not require measurement.

Pavement Butt Joints are incidental to the contract and include the 1-foot hand grind associated with trench patches as well as the hand grinds at the intersection of new street pavement with existing.

Saw cutting pavement is incidental to the contract and shall not require measurement.

## **SECTION 203 - EXCAVATION AND EMBANKMENT**

The provisions of Section 203 of the Standard Specifications shall apply with the following additions and modifications:

### **203.01 Description**

The second sentence of the first paragraph shall read: "All excavation shall be classified as common excavation, contaminated soils or rock excavation, as hereby defined."

The second sentence of Paragraph (a) shall be modified by deleting "when each is less than 2 m<sup>3</sup> (2 yd<sup>3</sup>) in volume."

Paragraph (b) shall be modified to read by deleting "each having a volume of 2 m<sup>3</sup> (2 yd<sup>3</sup>) or more and substituting the following: "each having a volume of ½ m<sup>3</sup> (½ yd<sup>3</sup>) or more".

Paragraph (d) shall be added to read: Soils encountered during construction containing petroleum or chemical odors, soil staining, ash, lead, arsenic, municipal solid waste asbestos containing material and/or other hazardous waste, and/or discolored groundwater, form or sheen on groundwater maybe considered a contaminated soil as determined by the ENGINEER. If the CONTRACTOR encounters suspected contaminated soils, the ENGINEER shall be notified and soils will be sampled or field screened to evaluate the level of potential impact and to establish handling/remedial requirements. If contaminated soils are encountered, the CONTRACTOR shall stockpile the material (if approved by the ENGINEER) or stop excavation activities until the environmental impact and disposal requirements are determined. The CONTRACTOR shall not be entitled to any extra compensation for delays caused by the excavation of suspected and/or contaminated soils. Any delays shall be considered incidental to the costs of construction. If soils are determined to be contaminated, the CONTRACTOR shall handle the material in accordance with environmental regulations and dispose of the material at secure licensed landfill. This work will be paid for under pay item 203.2333.

### **203.04 General**

The CONTRACTOR shall excavate rock if encountered to the lines and grades indicated on the drawings, shall dispose of the excavated material, and shall furnish acceptable material for backfill in place of the excavated rock, if required.

In general, rock in pipe trenches shall be excavated so as to be not less than six inches (6") from the pipe after it has been laid. If needed, before the pipe is laid, the trench shall be backfilled to the established trench profile with thoroughly compacted, suitable material or, when so specified or indicated on the drawings, with the same material as that required for bedding the pipe, furnished and placed at no additional cost to the City.

### **203.041 Explosives**

The CONTRACTOR shall keep explosives on the site only in such quantity as may be needed for the work under way and only during such time as they are to be used. He shall notify the ENGINEER, in advance, of his intention to store and use explosives. Explosives shall be stored in a secure manner and separate from all tools. Caps or detonators shall be safely stored at a point over 100 feet distant from the explosives. When the need for explosives has ended, all such

materials remaining on the work shall be promptly removed from the premises.

The CONTRACTOR shall observe all municipal ordinances and State and Federal laws relating to the transportation, storage, handling, and use of explosives. In the event that any of the above mentioned laws, ordinances, or regulations require a licensed blaster to perform or supervise the work of blasting, said licensed blaster shall, at all times, have his license on the work and shall permit examination thereof by the ENGINEER or other officials having jurisdiction.

**203.042 Blasting Precautions**

All operations involving explosives shall be conducted with all possible care to avoid injury to persons and property. Blasting shall be done only with such quantities and strengths of explosives and in such manner as will break the rock approximately to the intended lines and grades and yet will leave the rock not excavated in an unshattered condition. Care shall be taken to avoid excessive cracking of the rock upon or against which any structure will be built, and to prevent injury to existing pipes or other structures and property above or below ground. Rock shall be well covered with logs or mats, or both, when required. Sufficient warning shall be given to all persons in the vicinity of the work before a charge is exploded.

All blasting shall be completed within a distance of 50 feet before any portion of a masonry structure is placed or any pipe is laid.

Any site where electric blasting caps are located or where explosive charges are being placed or have been placed shall be designated as a "Blasting Area". A "Blasting Area" within three hundred (300) feet of any traveled way shall be marked by approved signs with information similar to the following:

"BLASTING AREA - TURN OFF RADIO TRANSMITTERS"

And on the reverse side:

"END OF BLASTING AREA"

The CONTRACTOR shall notify each public utility company having structures in proximity to the site of the work of his intention to use explosives and such notice shall be given sufficiently in advance to enable the companies to take such steps as they may deem necessary to protect their property from injury. Such notice shall not relieve the CONTRACTOR of responsibility for any damage resulting from his blasting operations.

All persons within the danger zone of blasting operations shall be warned by the CONTRACTOR, and no blasting shall be done until the zone is cleared. Flagmen, furnished by the CONTRACTOR, shall be so stationed as to stop all approaching traffic during blasting operations.

The CONTRACTOR shall be liable for all damages to persons or property caused by blasting or explosions, or arising from neglect to properly guard and protect the excavations and all portions of the work, and he shall wholly indemnify the OWNER against all claims on such account. No compensation will be allowed the CONTRACTOR in any event, or under any circumstances, for loss incurred by him or arising from his neglect to fully comply with these requirements.

**203.043 Excess Rock Excavation**

If rock is excavated beyond the limits of payment indicated in the drawings, specified, or authorized in writing by the ENGINEER, the excess excavation, whether resulting from over-breakage or other causes, shall be backfilled, by the CONTRACTOR at no additional cost to the City, as specified below in this section.

In pipe trenches, excess excavation below the elevation of the top of the bedding, cradle, or envelope shall be filled with material of the same type, placed and compacted in the same manner, as specified for bedding, cradle, or envelope. Excess excavation above said elevation shall be filled with earth as specified in the specifications at no additional cost to the City.

**203.044 Blasting Records**

The CONTRACTOR shall keep and submit to the ENGINEER an accurate record of each blast. The record shall show the general location of the blast, the depth and number of drill holes, the kind and quantity of explosives used, and other data required for a complete record.

**203.045 Shattered Rock**

If the rock below normal depth is shattered due to drilling or blasting operations of the CONTRACTOR, and the ENGINEER considers such shattered rock to be unfit for foundations, the shattered rock shall be removed and the excavation shall be backfilled with concrete as required, except that in pipe trenches crushed stone may be used for backfill, if approved. All such removal and backfilling shall be done by the CONTRACTOR, at no additional cost to the City.

**203.046 Preparation of Rock Surfaces**

The CONTRACTOR shall remove all dirt and loose rock from the designated areas and shall clean the surface of the rock thoroughly, using steam to melt snow and ice, if necessary. Water in depressions shall then be removed as required so that the whole surface of the designated area can be inspected to determine whether seams or other defects exist.

The surface of rock foundations shall be left sufficiently rough to bond well with the masonry and embankments to be built thereon; and, if required, shall be cut to rough benches or steps.

Before any masonry or embankment is built on or against the rock, the rock shall be scrupulously freed from all vegetation, dirt, sand, clay, boulders, scale, excessively cracked rock, loose fragments, ice, snow, and other objectionable substances. Picking, barring, wedging, streams of water under sufficient pressure, stiff brushes, hammers, steam jets, and other effective means shall be used to accomplish this cleaning. All free water left on the surface of the rock shall be removed.

**203.047 Removal Of Boulders**

Piles of boulders or loose rock encountered within the limits of earth embankments shall be removed to a suitable place of disposal.

**203.048 Disposal Of Excavated Rock**

Excavated rock may be used in backfilling trenches subject to the following limitations:

1. Rock backfill shall not be placed within 18 inches of the surface of the finish grade.
2. Surplus excavated rock shall be disposed of as specified in Section 203.06, "Waste Areas".

**203.049 Backfilling Rock Excavations**

When rock has been excavated and the excavation is to be backfilled, the backfilling above normal depth shall be done as specified under the "Excavation and Embankment, Section 203". If material suitable for backfilling is not available in sufficient quantity from other excavations, the CONTRACTOR shall furnish suitable material from outside sources, under pay item 203.25 "Granular Borrow".

**203.06 Waste Area**

This subsection is revised to read as follows:

1. **Surplus Earth and Rock Excavation:**  
 The disposal of surplus earth and rock unacceptable as trench backfill materials and excavated rock shall be the responsibility of the CONTRACTOR.  
 The CONTRACTOR shall be responsible to provide evidence of a fill permit if the disposal location is in the City of Portland.
  
2. **Trees, Stumps and other Material, Excepting Granular Material:**  
 The disposal of trees, stumps, shrubs and brush shall be the responsibility of the CONTRACTOR. If the disposal site is within private property, the CONTRACTOR shall be required to obtain written permission from the landowner for use of the disposal site for the above mentioned materials. A copy of the permission and evidence of a fill permit if required shall be provided to the ENGINEER.

Cobble stones, bricks and curbing removed shall remain the property of the City and shall be disposed of, after removing all excess granular materials there from, at a site to be determined at the time of construction and as directed by the project ENGINEER. Bricks shall be palletized and curbing shall be stockpiled in an organized manner at the approved location.

**203.18 Method of Measurement**

Test pits will be measured by the vertical foot.

In the fourth paragraph of this section, the sentence stating, "when measured in vehicles, the quantity for payment shall be 90 per cent of the quantity determined for earth", the 90 shall be amended to 80.

**203.19 Basis of Payment**

This subsection shall be amended by the addition of the following paragraph:

The accepted quantity of test pit excavation will be paid for at the contract unit price per vertical foot. Payment shall be full compensation for furnishing all labor, materials and equipment necessary for excavation, test excavation, backfilling, pavement replacement, disposal of materials and the protection of the utilities.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
203.20	Common Excavation*	Cubic Yard
203.21	Rock Excavation*	Cubic Yard

203.24	Common Borrow*	Cubic Yard
203.25	Granular Borrow*	Cubic Yard
203.28	Test Pit Excavation*	Vertical Foot
203.31	Crushed Stone 703.31 (Overdepth)*	Cubic Yard

**SPECIAL PROVISION**  
**SECTION 203 - EXCAVATION AND EMBANKMENT**  
**CONTAMINATED SOIL AND GROUNDWATER MANAGEMENT**

General. The Work under this Section shall be performed in conformance with all the procedures and requirements described herein for the following activities: contaminated soil handling, reuse, temporary stockpiling, transportation, storage and disposal and, associated groundwater handling, storage, treatment and disposal. This Section also addresses contaminated soil location, identification, and classification. The intent of this Section is to ensure that any contaminated soil and/or water encountered during construction will be managed in a manner that protects worker health and safety, public welfare and the environment.

Environmental Site Conditions. The Owner and Engineer (defined for this Section to indicate Haley & Aldrich) have conducted a series of investigations and assessments, which included the completion of an initial geotechnical and environmental data review (Phase I) and preliminary and supplemental subsurface investigation and laboratory testing programs (Phase II). A portion of the Phase II program included the collection of soil and groundwater samples for analytical testing. Information obtained from the Phase II investigations and testing was used to evaluate environmental impacts of the soil and groundwater at the site. The primary focus of the assessments was to evaluate the type and extent of subsurface contamination.

The Engineer completed a Phase I assessment which included a review of relevant Maine Department of Environmental Protection's (MEDEP's) and Environmental Protection Agency's (EPA's) databases and field reconnaissance of the project area. The Engineer also completed a Phase II subsurface investigation which included the completion of borings advanced along the project alignment to assess subsurface conditions, including both soils and groundwater, in the project area. As part of the Phase II work scope, the Engineer also conducted chemical analyses of encountered soils and groundwater. Based on the results of the testing, two sections of the alignment were identified where impacted fill material, identified as "urban fill" is present (see below). The extent of the "urban fill" material, both laterally and vertically, was estimated based on visual observations of soil samples collected during the subsurface exploration programs. The subsurface investigation data and chemical testing results of soil and groundwater samples are provided for the Contractor's information in the following documents (see Appendix A and B):

1. Report entitled "Geotechnical and Environmental Data Report, Back Cove South CSO Storage Conduit, Marginal Way, Portland, Maine," dated 7 August 2015, prepared by Haley & Aldrich, Inc.
2. Memorandum entitled "Supplemental Environmental Testing Results/Urban Fill Management, Back Cove South Storage Conduit, Marginal Way, Portland, Maine," dated 19 February 2016, prepared by Haley & Aldrich, Inc.

Identified Areas of Contamination. The majority of Marginal Way is underlain by man-placed fill, which can be separated into two distinct fill units: 1.) “granular fill”, which is primarily roadway base and/or subbase material for existing roadways overlying 2.) “urban fill”, which is primarily granular soil containing ash, coal, cinders and miscellaneous debris. Naturally deposited soils are present beneath the “granular fill” and “urban fill” along the entire length of the proposed alignment.

The subsurface investigation and laboratory testing programs identified that the area in the vicinity of the Diamond Street Tide Gate, near boring HA15-103 may contain between 3.5 feet to 12.5 feet thickness of “urban fill”.

Chemical analyses of discrete soil samples of the “urban fill” indicated the presence of volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAHs) that were generally below applicable MDEP Remedial Action Guidelines (RAGs) and Screening Standard for Beneficial Use (SSBU) criteria. Some of the discrete samples of “urban fill” contained concentrations of lead, chromium and cadmium that exceed their respective SSBU levels.

As a result of the concentrations of metals in some of the discrete samples of “urban fill”, supplemental chemical analyses were performed on composite samples of the “urban fill” that included both Total and TCLP (leachable) RCRA 8 metals. The composite sample test results indicated that both arsenic and mercury were present at concentrations that exceeded the SSBU but were below the Construction Worker RAG. Total lead was detected in each of the composite samples at concentrations ranging from 59 mg/kg to 3,070 mg/kg (average of approximately 290 mg/kg). The detected lead concentration in only one of the samples (3,070 mg/kg) exceeded the Construction Worker RAG (950 mg/kg) and two samples had lead detections that exceeded the SSBU (375 mg/kg). For the TCLP results, barium was detected in each of the samples at concentrations ranging from 0.178 mg/L to 0.690 mg/L, which is less than the barium TCLP Limit (100.0 mg/L); lead was detected in seven of the eight samples at concentrations ranging from 0.070 mg/L to 3.2 mg/L, which is below the lead TCLP Limit (5.0 mg/L). Based on the results of the supplemental chemical analyses conducted on composite samples of “urban fill”, specifically the TCLP test results, the “urban fill” material that is present at the site was not identified as hazardous waste. Due to the elevated levels of total metals (primarily lead), the “urban fill” is classified as a Special Waste requiring Beneficial Reuse restrictions, off-site disposal restrictions and Construction Worker handling requirements. Additionally, based on the results of field screening and laboratory testing of selected soil samples from the test borings, the “granular fill” material does not appear to have been impacted and therefore has no Beneficial Reuse restrictions, off-site disposal restrictions or Construction Worker handling requirements.

The Engineer collected groundwater samples from monitoring wells installed in boreholes at the site and analyzed them for VOCs, PAHs and RCRA 8 metals. Visual observations made during sampling activities showed no evidence of sheens or free-phase product in groundwater collected from any of the monitoring wells. The groundwater testing results indicate that all analyzed parameters of the sampled groundwater are below EPA

Maximum Contaminant Levels (MCLs) for drinking water. Because of this, treatment of construction dewatering effluent by the Contractor shall not be required.

Identifying and Screening Contaminated Soil and Groundwater. The Project Representative or Inspector will classify the excavated soils within the project as Group 1, Group 2 or Group 3 using visual and olfactory observations along with field screening measurements using a photo-ionization detector (PID). Each soil type is defined below.

Group 1: “granular fill” present beneath the existing roadway that shows no visual signs of being intermixed with “urban fill” and has PID field screening measurements indicating relative concentrations of volatile organic compounds (VOCs) less than or equal to 20 parts per million (ppm) as measured in the soil headspace.

Group 2: “urban fill” that is typically characterized as black to dark gray gravel, sand and silt with varying amounts of ash, cinders, brick and concrete pieces. Group 2 soils will be considered a Special Waste that shall be handled by the Contractor in accordance with a project-specific SMP.

Group 3: naturally-deposited soils consisting of harbor bottom sediments (sand, silt and clay), marine clay, marine sand and/or glacial till that shows no visual signs of being intermixed with the overlying “urban fill”.

Excavation. The Contractor shall conduct excavation activities with extreme care such that the Group 1 (granular fill), Group 2 (urban fill) and Group 3 (naturally-deposited soils) soils are segregated and not intermixed. Careless intermixing of the Group 2 soils with other soils by the Contractor as determined by the Inspector will not be allowed. The off-site disposal of additional Group 2 soils that result from such activities shall be completed by the Contractor at no additional cost to the Owner. The Contractor shall conduct excavation activities related to Group 1, Group 2 and Group 3 soils in-the-dry per the requirements of Special Provision 656 – Construction Dewatering.

Handling and Disposition of Soil Materials. Within the project area soil material excavated during construction shall be handled as follows:

Group 1 and Group 3 soils are not considered contaminated. Thus, special handling and disposal is not required for Group 1 and Group 3 soils.

Group 2 soils shall be considered a Special Waste that shall be handled in accordance with the final project-specific SMP submitted by the Contractor and reviewed by the Inspector (with all comments resolved). Group 2 soils shall be managed by the Contractor for either Beneficially Reused within the excavation, disposed of off-site as landfill daily cover at a licensed waste disposal facility and/or at an alternative location approved by the Maine DEP, or a combination thereof.

If the Contractor decides to reuse excavated Group 2 soils as backfill within the excavation, the soils shall be placed and compacted in engineered lifts and shall meet the maximum thickness and minimum compaction requirements shown on the Drawings. Group 2 soils can be reused within the limits of the excavation from the top of the proposed structures to the bottom of the pavement section subgrade level (bottom of subbase).

The feasibility of reusing the excavated Group 2 soils to partially backfill the excavation shall be solely determined by the Contractor. If the Contractor decides to reuse the excavated Group 2 soils to backfill the excavation, they shall do so at their own risk, at no additional cost to the Owner.

The Contractor may choose to temporarily stockpile the excavated Group 2 soils prior to reuse or off-site disposal to allow time/space to moisture condition the soil, to mix/process the soil or to collect samples for analytical testing to meet the requirements of the selected disposal facility. Temporary stockpiles shall be located within locations agreed upon by the Owner and shall meet the requirements outlined herein. If necessary, the Contractor shall, identify and secure additional locations to site temporary stockpiles as needed to complete the work, at no additional cost to the Owner.

Group 2 soils shall be managed to segregate/condition the material unsuitable for Beneficial Reuse that includes organic materials, miscellaneous debris or other unsuitable materials that cannot be practically removed by the Contractor as determined by the Inspector. Segregated materials shall be removed by the Contractor to a licensed disposal facility. Group 2 soils that are not Beneficially Reused in the excavation and require off-site disposal at a licensed disposal facility shall require the collection of waste disposal characteristic samples and the completion of analytical samples from the “urban fill” by the Contractor in accordance with the criteria of the selected permitted waste disposal facility. The Contractor is solely responsible for obtaining any and all required permits, testing results and approvals for off-site disposal or treatment of the Group 2 soils from all relevant Local, State, and Federal agencies at no additional cost to the Owner. The Contractor shall notify the Owner and Inspector once approval is granted for the acceptance of this material at the off-site facility. No Group 2 soils generated during construction shall be removed from the site without written approval by the Inspector.

The Contractor shall dewater and moisture condition Group 2 soils so they can be disposed of as landfill daily cover at a licensed waste disposal facility. Premium costs associated with disposing Group 2 soils in the landfill will be borne by the Contractor.

Discharge requirements of dewatering effluent will be performed in accordance with the requirements of Special Provision 656 – Construction Dewatering.

The Contractor shall make sure that the Inspector signs all manifests or bills of lading required to transport and dispose of Group 2 soils at an off-site facility. The Contractor shall not remove Group 2 soils from the site without bill of lading sign-off by the Inspector.

Secured Stockpile Area. Group 2 soils shall be placed into a properly constructed Temporary Secured Stockpile Area. The Temporary Secured Stockpile Area shall be constructed as defined herein and shall be approved by the Inspector prior to use.

The Contractor shall construct Temporary Secured Stockpile Area(s) to include a continuous 0.3-meter high compacted soil berm around the perimeter of the Secured Stockpile. The Secured Stockpile shall be placed on a liner of 20-mil polyethylene and securely covered with 20-mil polyethylene. The polyethylene liner and cover shall be placed over the soil berm and be installed to ensure that surface water drains directly to the outside of the berm perimeter while leachate from the contaminated soil is drained/collected (dewatered), if necessary within the stockpile. The Secured Stockpile and soil berm shall be enclosed within a perimeter of concrete Jersey barriers or wooden barricades. The area within the Jersey barriers (or wooden barricades) shall be identified as a "restricted area" to prevent unauthorized access to the contaminated soils.

Secured Stockpile Area - Materials.

- A. Polyethylene. Polyethylene used for liner in the Secured Stockpile Area shall have a minimum of 20-mil thickness and shall meet the requirements of ASTM D3020.
- B. Common Borrow. Material to be used in the construction of the Temporary Secured Stockpile Area soil berm and shall meet the requirements of Section 703.18
- C. Concrete Barriers or Wooden Barricades. Concrete barriers or wooden barricades to form the sides of the Temporary Secured Stockpile Area shall meet the requirements of Section 526 or 652.05.

Health and Safety/Right-to-Know. Contractors and Subcontractors shall notify their workers of the history of the site and contamination that may be present and to be alert for evidence of contaminated soil and groundwater.

The Contractor shall prepare a site-specific Health and Safety Plan (HASP) for its workers and subcontractors who may work in the contaminated areas of the site. The HASP shall be submitted to the Owner and Inspector for review prior to the start of work. A Qualified Health and Safety Professional shall complete the HASP on behalf of the Contractor. The Qualified Health and Safety Professional shall be an expert in field implementation of the following federal regulations:

29 CFR 1910.120 or 29 CFR 1926.65 - Hazardous Waste Operations and  
Emergency Response

29 CFR 1910.134 - Respiratory Protection

29 CFR 1926.650 - Subpart D - Excavations

29 CFR 1926.651 - General Requirements

29 CFR 1926.652 - Requirements for Protective Systems

The remedial efforts defined herein have been reviewed and approved by MaineDEP. Given that this is a voluntary clean up effort approved by a regulatory agency, the OSHA requirements as defined in 29 CFR 1910.120 apply. These requirements mandate that workers and any subcontractors working in the contaminated areas shall comply with all OSHA regulations for Hazardous Waste Operations and Emergency Response including a participating in and completing a 40-hour initial hazardous waste operations certification [OSHA 1910.120(e)] and an annual 8-hour refresher course within the last 12 months and participation in medical surveillance [OSHA 1910.120(f)] within the last 12 months.

The Contractor shall designate a person to provide direct on-site supervision of the work in the contaminated areas. This person shall have the training under OSHA 1910.120 (e) and be qualified as a construction Competent Person. It is the responsibility of the Competent Person to make any and all inspections necessary to identify situations that could result in hazardous conditions (e.g., possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions), and to ensure that appropriate corrective measures are taken.

Soil Management Plan. The Contractor shall prepare a detailed, site specific soil management plan (SMP) that documents the details of how the Contractor plans to excavate, test, handle, stockpile, reuse, transport and dispose of excavated Group 2 soils. The SMP shall also include details of how Group 1 and 3 soils will be segregated from Group 2 soils. The plan shall include location of secured stockpile areas and information on proposed off-site disposal facilities.

Submittals. The Contractor shall submit a site-specific SMP and a site-specific HASP to the Owner and Inspector a minimum of two weeks in advance of any excavation work on the project. The Contractor shall not proceed with work until the Owner and Inspector have reviewed the plan and notified the Contractor of its acceptance.

The Contractor shall collect weight slips from the disposal facilities for each shipment of Group 2 soils sent collect to an off-site waste disposal facility and submit to the Owner and Inspector. These slips shall be used to determine quantities for payment and shall include the following information at a minimum: date soils delivered to facility, name/address of facility, pre-disposal truck weight, empty truck weight, copy of analytical test results for the soils, name of trucking company.

Health and Safety Monitoring. Within the contaminated areas of the project, the Contractor's designated on-site person shall monitor the worker breathing zone for those constituents specified in the Contractor's approved HASP. The Contractor shall provide all required health and safety monitoring equipment at no additional cost to the Owner.

Dust Control. The Contractor shall employ dust control measures to minimize the creation of airborne dust during the construction process in potentially contaminated areas. As a minimum, standard dust control techniques shall be employed where heavy equipment and the public will be traveling. These may include techniques such as watering-down the site or spreading hygroscopic salts. Details of the proposed dust control measures to be employed by the Contractor shall be included in the submitted SMP.

Unanticipated Contamination. If the Contractor encounters previously undiscovered contamination or potentially hazardous conditions related to contamination, the Contractor shall immediately suspend work and secure the area. The Contractor shall notify the Inspector immediately. These potentially hazardous conditions include, but are not limited to, buried containers, drums, tanks, "oil saturated soils", strong odors, or the presence of petroleum sufficient to cause a sheen on the groundwater. The area of potential hazard shall be secured to minimize health risks to workers and the public and to prevent a release of contaminants into the environment. The source of any suspected contamination will be evaluated by the Inspector. As appropriate, the Inspector will notify the MDEP's Response Services Unit in Portland. The Portland Fire Department shall be notified by the Contractor prior to removal of buried storage tanks and associated piping in accordance with MDEP requirements. The Contractor shall evaluate the impact of the hazard on construction, amend the HASP if necessary, and with the Inspector's approval, recommence work in accordance with the procedures of this Section.

Method of Measurement. There will be no measurement for environmental screening and identification of contaminated soil material.

There will be no measurement for completion of submittals as outlined herein.

There will be no measurement for off-site disposal of excavated Group 1 and Group 3 soils as outlined herein.

Measurement of the off-site disposal of excavated Group 2 soils as landfill daily cover at a MDEP licensed waste disposal facility will be measured by the ton.

There will be no measurement for construction of Temporary Secured Stockpile Areas. Construction of Temporary Secured Stockpile Areas, if necessary, is considered incidental to project construction. There will be no measurement for hauling material to the Temporary Secure Stockpile area or placement and removal of soils in or out of the Temporary Secure Stockpile area. All hauling and any subsequent management/placement of contaminated soils are considered incidental to project construction. There will be no measurement for moisture conditioning, mixing or processing of stockpiled soils if needed for off-site disposal or on-site reuse.

There will be no measurement for additional laboratory testing of contaminated soil that is required by the licensed disposal facility. Testing shall be considered incidental to the disposal of Special Excavation.

Basis of Payment. There will be no payment for the identification and environmental screening of contaminated soil material.

Payment for the off-site disposal of excavated Group 1 and Group 3 soils will be paid for on a lump sum basis.

Payment for off-site disposal of excavated Group 2 soils at a MDEP licensed waste facility shall be by the ton. Quantities for payment shall be determined by the Owner/ Inspector based on weight slips prepared by the disposal facility and provided by the Contractor.

There will be no payment for the construction of the Temporary Secured Stockpile Area or hauling/management/placement of contaminated soils to the Temporary Secured Stockpile Area. The Temporary Secured Stockpile Area shall be considered incidental to project construction.

<u>Pay Item</u>		<u>Pay Unit</u>
203.2332	Off-Site Disposal of Group 1 and Group 3 Soils	LS
203.2333	Off-Site Disposal of Group 2 Soils*	Ton

## SECTION 206 - STRUCTURAL EXCAVATION

The provisions of Section 206 of the Standard Specifications shall apply with the following additions and modifications:

### **206.01 Description:**

For Structural Earth Excavation, only that trench excavation for pipe below the established trench profile as indicated on the Typical Trench Detail shall be included under this section. Trench excavation to the established profile shall be considered as incidental to the appropriate pipe and concrete box structure conduit item. For Structural Rock Excavation, pay limits for rock excavation in trenches shall be limited to the actual pipe/conduit width plus 24" on each side and 24" below the bottom of the pipe or conduit. For structures, the pay limits shall be limited to the actual structure width plus 24" each side of the structure and 24" below the bottom of structure.

Paragraphs (a) and (c) shall read:

- (a) Drainage and Minor Structures shall include sewer and storm drainage pipes, culverts, catch basins, manholes, box conduit, diversion structures, vault structures and other drainage structures. Removal of existing storm drains, sewer pipes or other pipe structures, reinforced concrete, plain concrete, concrete structures, backfilling, base and subbase gravels and all associated work shall be considered incidental to the costs of construction. No extra payment will be made.
- (c) Special Backfill. The CONTRACTOR shall furnish, place and compact special backfill material as indicated on the plans or as directed and herein specified.
  - A. The special backfill shall be a sandy, granular material and shall meet the requirements of Section 703.06 (b) Aggregate Subbase - Sand (Type E) of the Supplemental and Standard Specifications.

The special backfill shall be spread in layers of uniform thickness not exceeding eight inches (8") before compaction and moistened and allowed to dry. Then it shall be thoroughly compacted by means of suitable power driven tampers or other power driven equipment to a uniform density of 95% of maximum density.

### **206.02 Construction Methods**

The fourth (4th) paragraph of the Standard Specifications shall be modified to read as follows:

When the foundation is to be placed on solid rock, the rock shall be excavated to a firm surface, either level, stepped or serrated. When solid or disintegrated rock or boulders are encountered, the rock shall be excavated to a minimum depth of twenty-four inches (24") below the bottom of the proposed pipe or structure, unless otherwise indicated on the plans or ordered. The twenty-four inches (24") level below the bottom of the proposed pipe shall be defined as "Established Trench Profile".

**206.04 Method of Measurement**

Paragraph (a) of the Standard Specifications shall be deleted and the following paragraphs added;

When Structural Rock is encountered for sewer and storm drainage pipes, the quantity to be measured for payment will be the amount actually excavated to the "Established Trench Profile" as defined in the fourth (4) paragraph of Section 206.02 of the Supplemental Specifications provided the maximum allowable horizontal dimensions do not exceed the payment limit.

When Structural Rock is encountered for catch basins, manholes, box conduits, diversion structures, vault structures and other drainage structures, other than sewer and storm drainage pipes and culverts, the quantity to be measured for payment will be the amount actually excavated to the "Established Trench Profile", provided the maximum allowable horizontal dimensions do not exceed those bounded by vertical surfaces twenty-four inches (24") outside the lines of the base as shown on the plans.

**206.05 Basis of Payment**

When material is needed for trench backfill below the established trench profile as indicated on the plans or as ordered, this material shall be crushed stone and paid for under Pay Item 203.31.

Material used for Special Backfill and Crushed Stone for Pipe Bedding shall be backfilled as indicated on the plans or as ordered, and shall be incidental to the cost of the pipe.

"Drag Boxes" if utilized by the CONTRACTOR will be allowed; however, no payment will be made for any excess excavation or backfill material used beyond the payment limit.

Add the following paragraph:

Excavated materials suitable for backfill shall be used to backfill normal excavations incidental to this section. Disposal of surplus excavated materials shall be in accordance with Section 203.06, Waste Areas.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
206.061	Structural Earth Excavation, Drainage and Minor Structures (Overdepth)*	Cubic Yard
206.07	Structural Rock Excavation*	Cubic Yard

## SECTION 304 - AGGREGATE BASE AND SUBBASE COURSE

The provisions of Section 304 of the Standard Specifications shall apply with the following additions and modifications:

### **304.01 Description**

This work shall consist of furnishing and placing one or more courses of aggregates on a prepared surface in accordance with the specifications in reasonably close conformity with the lines, grades, thickness and typical cross sections, as shown on the plans or established not included in other project pay items. All gravel and associated materials for roadway, pipe and trail improvements are incidental to the related pay item.

### **304.02 Aggregate**

Sources of Aggregate and preliminary test results shall be submitted ten working days prior to any placement of material on the job. Failure of these preliminary tests will be grounds for rejection of material from that source. Aggregates will be tested on the job and shall meet these specifications as the material is incorporated into the work.

The CONTRACTOR shall rake out any stones greater than 3” in size from the surface of the Type B aggregate base course prior to placing the base course of pavement. The maximum size stone for Aggregate Subbase Type D shall be 3”.

The CONTRACTOR option to substitute Type E Aggregate Subbase for Type D below 9” is not allowed on this project.

### **304.07 Basis of Payment**

All aggregate base and subbase course, associated with the installation of proposed storm drain, sanitary sewer, ancillary structures, and roadway improvements on all streets, shall be considered incidental and paid for under those related pay items. Item 304.09 - Aggregate Base Course - Crushed, Type “B” and Item 304.10 - Aggregate Subbase Course - Gravel, Type “D” are included on the Bid Form to establish a unit price for additional aggregate base and subbase course that may be needed.

The costs for laboratory testing and source documentation shall be incidental to providing Type “B” and Type “D” gravel. The cost for all failing tests shall be the responsibility of the CONTRACTOR.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
304.09	Aggregate Base Course - Crushed, Type "B"*	Cubic Yard
304.10	Aggregate Subbase Course - Gravel, Type "D"*	Cubic Yard

## SECTION 401 - HOT MIX ASPHALT PAVEMENT

The provisions of Section 401 of the "State of Maine, Department of Transportation, Standard Specifications (for) Highways and Bridges, Revisions of November 2014" shall apply with the following additions and modifications:

### **401.11 Preparation of Existing Surfaces**

All streets to be paved shall be swept of all debris (sand, grass, etc.) prior to paving. Any grass or other vegetation growing in the street shall be removed prior to paving. Tack coat shall be applied per Section 409.

Where pavement placed under this Contract joins an existing pavement, the existing pavement, when directed by the ENGINEER, shall be removed a minimum of 1' wide and 1 ½-inches deep in residential streets and 2-inches deep in arterial streets in order to provide a vertical butt joint. The butt joint shall also be tack coated.

All streets to be shimmed shall be reviewed with Paving Inspector prior to placement to determine depth or grade to be achieved.

All vertical cuts in existing pavements shall be treated with an approved asphaltic tack coat material. The surface of the joint once completed shall be flush with the existing pavement.

All work under this section shall be considered incidental to the related contract pay items.

### **401.17 Joints:**

All vertical cuts in existing pavements shall be treated with an approved asphaltic tack coat material. The surface of the joint once completed shall be flush with the existing pavement. Vertical joints in Grading 12.5 mm shall be offset from vertical joints in 19 mm horizontally by at least one foot.

## SECTION 403 - HOT MIX ASPHALT PAVEMENT

The provisions of Section 403 of the "State of Maine, Department of Transportation, Standard Specifications (for) Highways and Bridges, Revisions of November 2014" shall apply with the following additions and modifications:

### **403.02 General**

This section shall include Hot Bituminous Pavement – Grading “B” (19.0 mm) and Grading “C” (12.5 mm).

CONTRACTOR is required to install trench patch asphalt and base paving by June 1, 2019. Temporary trench patch asphalt (Hot Bituminous Pavement – Grading “B” (19.0 mm) shall be placed in all Street trenches if the CONTRACTOR is not going to be actively working that area at the site for more than 16 hours (for example – over a weekend) with the exception of Marginal Way. Temporary trench patch asphalt may also be required in the areas specified if the weather conditions do not meet MaineDOT specifications for placing pavement and it is near the end of the regular paving season. All temporary pavement shall be removed and replaced with final pavement that is placed in accordance with the specifications.

Surface coarse pavement shall be completed by October 30, 2019.

### **403.04 Method of Measurement**

The method of measurement for Hot Bituminous Pavement – Grading “B” (19.0 mm) and Grading “C” (12.5 mm) shall be measured by the ton.

### **403.05 Basis of Payment**

The accepted quantity of bituminous pavement will be paid for at the contract unit price complete in place. This price shall include base and subbase aggregates, fine grading, hot bituminous pavement and all labor, materials and equipment necessary to complete the work.

Temporary trench patch bituminous asphalt will be incidental to the cost of the pipe.

The accepted quantity for Hot Bituminous Pavement – Grading “B” (19.0 mm) and Grading “C” (12.5 mm) shall be measured by the ton. This price shall include saw-cutting and removing existing pavement, base and subbase aggregates, fine grading, tack coat, and all labor, materials and equipment necessary to complete the work.

<u>Pay Item</u>	Payment will be made under:	<u>Pay Unit</u>
403.207	Hot Bituminous Pavement – Grading “B” (19.0 mm)	Ton
403.208	Hot Bituminous Pavement – Grading “C” (12.5 mm)	Ton

## **SECTION 409 - BITUMINOUS TACK COAT**

The provisions of Section 409 of the Standard Specifications shall apply with the following additions or modifications:

### **409.07 Application of Bituminous Material**

The rate of application shall be 0.02 gallons per square yard. During application, care shall be taken to assure curbing shall not be discolored. Curbing discolored by tack coat shall be cleaned by CONTRACTOR at no cost to the CITY.

### **409.08 Method of Measurement**

The application of the bituminous tack coat shall be incidental to the application of Hot Bituminous Pavement and shall require no measurement or payment.

### **409.09 Basis of Payment**

The payment for this work shall be incidental to Section 403 - Hot Mix Asphalt Pavement

## SECTION 534 - PRECAST STRUCTURAL CONCRETE

### **534.01 Description**

The CONTRACTOR shall design, manufacture, furnish, and install elements, precast structural structures, and appurtenances, in accordance with the contract documents.

### **534.02 Materials**

Structural precast elements for the vault structures and other associated precast elements shall meet the requirements of the following Subsection: Structural Precast Concrete Units 712.061.

Grout, concrete patching material, and geotextiles shall be one of the products listed on the Department's list of prequalified materials, unless otherwise approved by the Department.

### **534.04 Design Requirements**

The CONTRACTOR shall design the precast structural concrete structure in accordance with the AASHTO Standard Specifications for Highway Bridges, current edition, by either the Load Factor Design (LFD) or Load and Resistance Factor Design (LRFD) method. The design live load shall be as follows: MS-22.5 (HS-25) for LFD method, \*modified HL-93 Strength I for LRFD method. \*(modify HL-93 by increasing all wheel loads by a factor of 1.25).

The CONTRACTOR shall submit design calculations and shop drawings for the precast structure to the Department for approval. A Registered Professional ENGINEER, licensed in accordance with State of Maine laws, shall sign and seal all design calculations and drawings. Drawings shall conform with Section 105.7 - Working Drawings of the Standard Specifications.

The CONTRACTOR shall submit the following items for review by the Resident at least ten working days prior to production:

1. The name and location of the manufacturer.
2. Method of manufacture and material certificates.
3. Description of method of handling, storing, transporting, and erecting the members.
4. Shop Drawings with the following minimum details:
  - a. Fully dimensioned views showing the geometry of the members, including all projections, recesses, notches, openings, block outs, and keyways.
  - b. Details and bending schedules of reinforcing steel including the size, spacing, and location. Reinforcing provided under lifting devices shall be shown in detail.
  - c. Details and locations of all items to be embedded.
  - d. Total mass (weight) of each member.
  - e. Joint system.
  - f. Special fabrication for mechanical/electrical components.
  - g. Access covers and frames.
  - h. Anti-Flotation Calculations
5. All structures shall be cast with a rust inhibitor equal to Rheocrete CNI Rust Inhibitor applied at 3 gallons/cubic yard of concrete.
6. In addition to the corrosion inhibitor described in item 5, coat exterior with waterproofing material suitable for marine environments. Coating shall not be

bituminous. Submit manufacturer's literature for City approval.

#### **534.40 Construction Requirements**

The applicable provisions of Subsection 535.10 - Forms and Casting Beds and Subsection 535.20 – Finishing Concrete and Repairing Defects shall be met.

#### **534.401 Manufacture of Precast Units:**

The internal dimensions shall not vary by more than 1 percent from the design dimensions or 38 mm [1 ½ in], whichever is less. The haunch dimensions shall not vary by more than 19 mm [¾ in] from the design dimension. The dimension of the legs shall not vary by more than 6 mm [¼ in] from the dimension shown on the approved shop drawings.

The slab and wall thickness shall not be less than the design thickness by more than 6 mm [¼ in]. A thickness greater than the design thickness shall not be cause for rejection.

Variations in laying lengths of two opposite surfaces shall not be more than 15 mm [⅝ in] in any section, except where beveled ends for laying of curves are specified.

The under-run in length of any section shall not be more than 12 mm [½ in].

The cover of concrete over the outside circumferential reinforcement shall be 50 mm [2 in] minimum. The concrete cover over the inside reinforcement shall be 38 mm [1 ½ in] minimum. The clear distance of the end of circumferential wires shall not be less than 25 mm [1 in] or more than 50 mm [2 in] from the end of the sections. Reinforcement shall be single or multiple layers of welded wire fabric or a single layer of deformed billet steel bars.

Welded wire fabric shall meet the space requirements and contain sufficient longitudinal wires extending through the section to maintain the shape and position of the reinforcement. Longitudinal distribution reinforcement may be welded wire fabric or deformed billet steel bars which meet the spacing requirements. The ends of the longitudinal distribution reinforcement shall be not more than 75 mm [3 in] from the ends of the sections.

The inside circumferential reinforcing steel for the haunch radii or fillet shall be bent to match the radii or fillets of the forms.

Tension splices in the reinforcement will not be permitted. For splices other than tension splices, the overlap shall be a minimum of 300 mm [12 in] for welded wire fabric or billet steel bars. The spacing center to center of the circumferential wires in a wire fabric sheet shall be not less than 50 mm [2 in] or more than 100 mm [4 in]. For the wire fabric, the spacing center to center of the longitudinal wires shall not be more than 200 mm [8 in]. The spacing center to center of the longitudinal distribution steel for either line of reinforcing in the top slab shall be not more than 375 mm [15 in].

The members shall be free of fractures. The ends of the members shall be normal to the walls and centerline of the section, within the limits of variation provided, except where beveled ends are specified. The surfaces of the members shall be a smooth steel form or toweled surface finish, unless a form liner is specified. The ends and interior of the assembled structure shall make a

continuous line of members with a smooth interior surface.

Defects which may cause rejection of precast units include the following:

1. Any discontinuity (crack or rock pocket etc.) of the concrete which could allow moisture to reach the reinforcing steel.
2. Rock pockets or honeycomb over 4000 mm<sup>2</sup> [6 in<sup>2</sup>] in area or over 25 mm [1 in] deep.
3. Edge or corner breakage exceeding 300 mm [12 in] in length or 25 mm [1 in] in depth.
4. Extensive fine hair cracks or checks.
5. Any other defect that clearly and substantially impacts the quality, durability, or maintainability of the structure as measured by accepted industry standards.

The CONTRACTOR shall store and transport members in a manner to prevent cracking or damage. The CONTRACTOR shall not place precast members in an upright position until a compressive strength of at least 30 MPa [4350 psi] is attained.

Precast structure sections shall be manufactured with CNI rust inhibitor admixture or approved equal incidental to the pay item.

#### **534.20 Installation of Precast Units:**

The CONTRACTOR shall not ship precast members until sufficient strength has been attained to withstand shipping, handling and erection stresses without cracking, deformation, or spalling (but in no case less than 30 MPa [4350 psi]).

The CONTRACTOR shall set precast members on 12 mm [½ in] neoprene pads during shipment to prevent damage to the section legs. The CONTRACTOR shall repair any damage to precast members resulting from shipping or handling by saw cutting a minimum of 12 mm [½ in] deep around the perimeter of the damaged area and placing a polymer-modified cementitious patching material.

When footings are required, the CONTRACTOR shall install the precast members on concrete footings that have reached a compressive strength of at least 20 MPa [2900 psi]. The CONTRACTOR shall construct the completed footing surface to the lines and grades shown on the plans. When checked with a 3 m [10 ft] straightedge, the surface shall not vary more than 6 mm [¼ in] in 3 meters [10 ft]. The footing keyway shall be filled with a non-shrink flowable cementitious grout with a design compressive strength of at least 35 MPa [5075 psi].

The CONTRACTOR shall fill holes that were cast in the units for handling, with either Portland cement mortar, or with precast plugs secured with Portland cement mortar or other approved adhesive. The CONTRACTOR shall completely fill the exterior face of joints between precast members with an approved material and cover with a minimum of 300mm [12 in] wide joint wrap. The surface shall be free of dirt and deleterious materials before applying the filler material and joint wrap. The CONTRACTOR shall install and tighten bolts fastening the connection plate(s) between the elements that are designed to be fastened together as designated by the manufacturer.

Final assembly shall be approved by the ENGINEER prior to backfilling. The CONTRACTOR shall backfill the structure in accordance with the manufacturer's instructions and the Contract documents. The CONTRACTOR shall uniformly distribute backfill material in layers of not more than 200 mm [8 in] depth, loose measure, and thoroughly compact each layer using approved

compactors before successive layers are placed. The CONTRACTOR shall compact gravel borrow backfill in accordance with Section 203.12 - Construction of Earth Embankment with Moisture and Density Control, except that the minimum required compaction shall be 95 percent of maximum density as determined by AASHTO T99, Method C or D. The CONTRACTOR shall place and compact backfill without disturbance or displacement of the wall units, keeping the fill at approximately the same elevation on both sides of the structure. Whenever a compaction test fails, the CONTRACTOR shall not place additional backfill over the area until the lift is re-compacted and a passing test achieved.

The CONTRACTOR shall use hand-operated compactors within 1.5 m [5 ft] of the precast structure as well as over the top until it is covered with at least 300 mm [12 in] of backfill. Equipment in excess of 11 Mg [12 ton] shall not use the structure until a minimum of 600 mm [24 in] of backfill cover is in place and compacted.

Precast structure sections shall be installed with water-tight gaskets as approved by the engineer. Gaskets shall be considered incidental to the pay item.

#### **534.21 Method of Measurement**

The Owner/Engineer will measure for payment once precast structural concrete structure is completely installed in accordance with the plans and accepted.

#### **534.20 Basis of Payment**

Payment for the accepted quantity shall include all labor, equipment, materials, professional services, and incidentals for furnishing and installing the precast concrete elements and accessories. Formwork, reinforcing steel, jointing tape, grout, cast-in-place concrete fill or grout fill for precast appurtenances are incidental to the pay item for each precast structural concrete structure and pipe.

Access ports, including frames and covers or hatches, precast risers and cone sections, connection gaskets and boots, steps, cut-off walls, head walls, end caps, backfill between the structures that abut each other and geotextile fabric are incidental to the cost of construction for the related pay item.

Installation of 3-inch diameter PVC vent pipe and all work and materials required for the installation and securing of vent pipe shall be incidental to this pay item.

Testing, testing apparatus and repairs shall be considered incidental to the cost of construction. No extra payment will be made.

Payment for all trench excavation shall be considered incidental and included in the related precast structure pay items with the exception of structural rock excavation and pavement section removal.

All sheeting, shoring, temporary bracing and dewatering will be included in this item. Payment for approved undercuts below the established trench profile will be paid for under Item 206.061 - Structural Earth Excavation Drainage and Minor Structures (Overdepth).

Rock excavation will be paid for as Structural Rock Excavation as specified in Section 206 of the

Supplemental Specifications.

Backfill material and backfilling of the trench shall be incidental to the related pay item.

Should the CONTRACTOR elect to utilize drag boxes or related box shoring structures, sheeting or other methods during installation work, overcutting will be allowed to accommodate the boxes. However, no payment will be made for the excess excavation and backfill material.

CONTRACTOR is responsible for any and all engineering necessary for trench sheeting or shoring of any trench excavation designed by a professional ENGINEER registered in the State of Maine. No extra payment will be made for the engineered sheeting and shoring methods, materials or equipment used by the CONTRACTOR. All trench stabilization shall be considered incidental to the applicable pay items.

The cost of maintaining flows in existing sewer lines, drain lines and manholes and any maintenance and cleaning of said sewers or storm drainage that may be required as a result of new pipe installation shall be incidental to the related pay item and no separate payment for this work will be made.

Flowable fill utilized for precast structures shall be considered incidental to the related pay item.

Pipe bedding materials, geotextile, backfilling, backfill, roadway base and subbase materials is incidental to the pay items under this section.

Removal and resetting of existing electrical service is incidental to the pay items under this section.

Work associated with providing anti-floatation during installation of the precast concrete shall be the responsibility of the CONTRACTOR and shall be considered incidental to the pay items under this section.

Temporary and permanent erosion controls are included under pay item 656.75. Loaming, seeding, mulching and restoration of all disturbed areas are included under pay item 615.071.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
534.73	Precast Diamond Check Valve Vault Structure	Each

## SECTION 603 - PIPE CULVERTS AND STORM DRAINS

The provisions of Section 603 of the Standard Specifications shall apply with the following additions and modifications:

### **603.01 Description**

This work shall consist of the construction of storm drains, sewer pipes by means of trenched installation, casing pipe, service leads, hereinafter referred to as "pipe" as shown on the plans, details, and specified herein.

Where noted on the plans, the Contractor shall use the specific pipe material indicated.

When alternatives for pipe material are listed in the Proposal, the CONTRACTOR shall signify their choice of pipe to be used by inserting their mark in the proper space provided. CONTRACTOR is responsible for all associated work, connections and appurtenances for the pipe selection. This shall be considered incidental to the pay item.

The CONTRACTOR shall install locating/warning tape over the centerline of all sanitary, storm, and combined sewer pipes including main lines, service leads and catch basin laterals both within the right of way and outside of the established street as required by City ordinance. Both a green warning tape and a number 10 or 12 gauge single strand coated wire shall be installed at a maximum of 24 inches below finish surface grade for the entire length of the pipe. Magnetic warning tape may be used in place of the separate warning tape and wire. The end of all services stubs shall be recorded on the included sheet entitled Storm Sewer Service Location and submitted to the City upon completion of the work.

All connections shall be made in conformance with the Plumbing Code of the City of Portland and the Maine State Plumbing Code.

**603.02 Materials**

Materials shall meet the requirements shown in the pipe schedule below as specified in 603.03:

TAG	DESCRIPTION	LOCATION	ACCEPTABLE MATERIAL	SIZE	JOINT SYSTEM	CLASS, RATING, OR STANDARD
SD	STORM DRAIN	BURIED	REINFORCED CONCRETE PIPE (RCP)	ALL	BELL-SPIGOT/PUSH-ON WITH RUBBER OR RUBBER TYPE GASKETS	CLASS III MINIMUM ASTM 443-67
			SDR 35 PVC	4"-15"	BELL-SPIGOT/PUSH-ON	SDR 35 ASTM D3034
			SDR 35 PVC	18"-36"	BELL-SPIGOT/PUSH-ON	PS-46 ASTM F679
SAN	SANITARY SEWER	BURIED	SDR 35 PVC	4"-15"	BELL-SPIGOT/PUSH-ON	SDR 35 ASTM D3034
			SDR 35 PVC	18"-36"	BELL-SPIGOT/PUSH-ON	PS-46 ASTM F679
			DUCTILE IRON PIPE (DIP)	ALL	PUSH-ON JOINTS	CLASS 50 AWWA C151 AWWA C104 AWWA C111

### **603.03 Construction Requirements**

#### **Reinforced Concrete Storm Drain Pipe:**

Reinforced concrete pipe shall be obtained only from a manufacturer of established good reputation in the industry. The pipe shall have a smooth and even interior surface, free from projections, indentations, or irregularities of any kind. The joint shall be such that when joined the pipes will form a continuous and uniform line without projections, off-sets or irregularities and be capable of satisfying the specified leakage requirements.

Pipes shall be joined with rubber or rubber type gaskets that conform to the requirements established in ASTM Designation 443-67.

Each length of pipe shall be provided with proper ends made either of concrete formed on machined rings to ensure accurate joint surfaces or of metal rings. The diameters of the joints surface, depended upon to compress the gasket, shall not vary from the theoretical diameters by more than 1/16 inch. The joint shall be sealed by the rubber gasket so that the joint will remain tight under all conditions of service.

The rubber gasket shall be applied in accordance with the manufacturer's recommendations. After the pipes are aligned in the trench and are ready to be jointed, all joint surfaces shall be cleaned. Immediately before jointing the pipe, the inside surface of the groove shall be thoroughly lubricated with a recommended lubricant. Pipe shall then be coupled immediately by carefully pushing each pipe into place without damage to pipe or gasket. The position of the gasket in the joint shall then be inspected to be sure it is properly put together and is tight.

Pipes shall be coupled by any suitable arrangement of come-along, winch, jack, or other power equipment that can exert sufficient force to couple pipe to its tightest position.

All pipe thirty-six inches in diameter or larger shall be sealed on the inside with cement mortar or with gunite by the grout-weld method using a pneumatic machine of the Nicholson, Bondactor, or equal type. Cement mortar if used shall be applied by trowel and the joint shall be thoroughly filled and finished smoothly with the inside surface of the pipe. The grout-weld seal shall be applied only by experienced and skilled workmen in accordance with the instructions of the manufacturers of the machine.

The pipe shall be laid accurately to line and grade. Pipe bedded in compacted crushed stone shall not be supported on blocking, wedges, brick, or anything except the bedding material. Pipe on concrete cradle shall be supported on solid concrete blocks or precast concrete saddles which become part of the completed cradle.

Each length of pipe shall be shoved home against the pipe previously laid, and held securely in position. Joints shall not be "pulled" or "cramped". Holes provided for jointing shall be filled and compacted.

Pipe from which a core has been cut and the resulting hole repaired, shall be placed with the cored hole located forty-five degrees above or below the horizontal centerline of the pipe.

To prevent the entrance of earth and other materials when pipe laying is not actually in progress,

the open ends of pipe shall be closed by suitable temporary bulkheads. The CONTRACTOR shall take all necessary precautions to prevent floatation of the pipe because of flooding of the trench. If water is in the trench when work is resumed, the bulkheads shall not be removed until the danger of earth and other materials entering the pipe has passed.

All pipe joints and structures shall be made water tight. There shall be no visible leakage, spurting or gushing of water, sand, silt, clay or soil of any description entering the pipe lines at the joints or structures. Where there is evidence of water or soil entering the pipeline, connecting pipes or structures, defects shall be repaired.

All pipe sections installed downstream of tide gates (i.e. subject to marine environment) shall include a corrosion inhibitor equal to Rheocrete CNI Rust Inhibitor applied at 3 gallons/cubic yard of concrete. In addition to the corrosion inhibitor described, coat exterior and interior of pipe with waterproofing material suitable for marine environments. Coating shall not be bituminous. Submit manufacturer's literature for City approval.

SDR 35 Poly Vinyl Chloride (PVC) Sewer and Storm Drain Pipe and Fittings:

Each pipe length shall be inspected before being laid. Pipe shall be laid to conform to the lines and grades indicated on the drawings. Each pipe shall be so laid as to form a close joint with the next adjoining pipe and bring the inverts continuously to the required grade.

Bell holes shall be excavated or provided in the base material to receive the bell or coupling so that only the barrel of the pipe receives bearing pressure from the supporting material.

When each pipe has been properly bedded, enough of the backfill material shall be placed and compacted between the pipe and the sides of the trench to hold the pipe in correct alignment.

No pipe or fitting shall be permanently supported on blocks, wedges, boards or stones.

All joints shall be made in a dry trench and in accordance with the manufacturer's recommendations.

All PVC Gravity Pipe SDR 35 or equal supplied shall conform to all aspects of ASTM specification D3034-73A and/or ASTM Spec. F789 for PVC sewer pipe, joints and fittings. Joints shall be rubber gasketed "Bell and Spigot" type. Installation of materials shall be as suggested in ASTM D2321. Minimum "pipe stiffness" at 4% deflection shall be 46 psi for all sizes when tested in accordance with ASTM D2421.

It is the responsibility of the CONTRACTOR to assure that the trench and the backfill around the pipe has been compacted sufficiently to limit deflection in the pipe to no more than 4%. All flexible pipe installed under this contract shall be tested by a "go-no-go" mandrel permitting no greater than 4% deflection. Testing of the pipe shall be done in the presence of a city inspector. The inspector shall be given a minimum of 24 hour advance notice before testing is to take place. All pipe not passing the 4% deflection limit test shall be removed and replaced at no additional cost to the City.

Pipe bundles shall be stored on a flat surface so as to support the barrels evenly. This is important as in hot weather PVC pipe will deflect or warp causing installing problems in line and grade. If a warped section is found, the CONTRACTOR shall not use such length of pipe.

In order to ensure proper compaction, alignment, and grade, and eliminate any construction problems that may be encountered, the CONTRACTOR shall be required to use only the 12-1/2 foot lengths of PVC pipe.

Pipe shall remain stacked in the original shipping bundles, and only pipe taken off the bundle for one day's laying shall be distributed along the trench.

PVC pipe will not bond to concrete or mortar and therefore connection to a cast-in-place or brick manhole and catch basin shall be made as shown on the pipe connection detail of the project plans.

Ductile Iron Pipe:

AWWA C151; thickness Class 50 AWWA C151; double cement lined, AWWA C104; push-on joints with rubber gaskets, AWWA C111; fittings, AWWA C110.

Rigid Insulation:

Extruded closed-cell rigid foamed polystyrene, 2-inch thickness, width of trench, Styrofoam HI-60, by Dow Chemical, or approved equal.

**603.13 Testing**

Gravity sewers shall be tested by one of the following methods:

- A. Low Pressure Air
- B. Infiltration
- C. Exfiltration

Approval of method will be made by the ENGINEER with due consideration for subsurface conditions and size and type of pipe.

The CONTRACTOR shall have the proper plugs, weirs, and other equipment to perform all required tests. Testing of each section of sewer installed shall include the portions of service laterals installed under this contract.

A. Low Pressure Air:

When low pressure air test is used, it shall be conducted in compliance with the following:

After completing backfill of the wastewater line, the CONTRACTOR shall, at no additional cost to the City, conduct a line acceptance test using low pressure air. The test shall be performed according to stated procedures and in the presence of the ENGINEER.

Procedures:

All pneumatic plugs shall be seal tested before being used in the actual test installation. One (1) length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plugs to be checked. Air shall be introduced into the plugs at 25 psig. The sealed pipe shall be pressured to 5 psig. The plugs shall hold against this pressure without bracing and without movement of the

plugs out of the pipes.

After a manhole to manhole reach of pipe has been backfilled and cleaned, and the pneumatic plugs are checked by the above procedure, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure off any ground water that may be over the pipe. At least two minutes shall be allowed for the air pressure to stabilize.

After the stabilization period (3.5 psig minimum pressure in the pipe), the air hose from the control panel to the air supply shall be disconnected. The portion of line being tested shall be termed "acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than average back pressure of any ground water that may be over the pipe) shall not be less than the time shown for the given diameters in the following table:

<u>Pipe Diameter</u> <u>(inches)</u>	<u>Time (Min.) for Length of Pipe</u>			
	<u>0-100 ft</u>	<u>101-200 ft</u>	<u>201-300 ft</u>	<u>301-400 ft</u>
4	2.0	2.0	2.0	2.0
6	3.0	3.0	3.0	3.0
8	4.0	4.0	4.0	5.0
10	5.0	5.0	6.0	8.0
12	5.5	5.5	8.5	11.5
15	7.0	8.5	13.0	17.0
18	8.5	12.0	19.0	25.0
21	10.0	17.5	26.0	35.0
24	11.5	23.0	34.0	45.5
27 and larger	14.5	29	43.0	58.0

In areas where groundwater is known to exist, the CONTRACTOR shall install a one-half inch diameter capped pipe nipple, approximately 10" long, through the manhole wall on top of one of the sewer lines entering the manhole. This shall be done at the time the sewer line is installed. Immediately prior to the performance of the Line Acceptance Test, the groundwater shall be determined by removing the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The hose shall be held vertically and a measurement of the height in feet shall be divided by 2.3 to establish the pounds of pressure that will be added to all readings. (For example, if the height of the water is 11-1/2 feet, then the added pressure will be 5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound and the timing shall remain the same.)

If the installation fails the air test, the CONTRACTOR shall, at no additional cost to the City, determine the source of the leakage. He shall then repair or replace all defective materials and/or workmanship.

Infiltration:

An infiltration test requires groundwater levels to be a minimum of one foot above the crown of the pipe of the high end of the section being tested. Infiltration test procedures are:

1. ENGINEER to determine length of sewer main and the connecting lines to be tested.
2. With all connecting pipes plugged (other than those included in test section) install a V notch weir in downstream end of pipe. The V notch weir must be constructed accurately and installed to maintain a watertight seal between weir and pipe.
3. Allow time for water to build up behind weir until steady, uniform flow passes through V notch.
4. Readings shall be taken and recorded.

Exfiltration:

Exfiltration test procedures are:

1. ENGINEER to determine length of sewer to be tested.
2. Properly cap or plug and block service laterals, stubs and fittings into sewer lines being tested.
3. Plug upstream and downstream ends of test section providing a water supply connection downstream and standpipe in manhole upstream.
4. Fill test section and upstream standpipe and allow time for water absorption in manholes.
5. Measure drop in upstream standpipe over 3 or 4-15 minute periods and compute leakage. Note: The upstream manhole may be used as the standpipe. Test sections shall be kept short enough to maintain a reasonably low head to prevent excess pressures.

Leakage in gravity sewers shall not exceed 300 gallons per inch diameter, per day, per mile of pipe when tested by either internal pressure or external pressure means. Should the pipe as laid fail to meet these requirements, the CONTRACTOR shall perform the necessary work, at no additional cost to the City, to meet these requirements.

**603.014 Inspection**

Pipe may be inspected at the manufacturing plant, or on the work site and shall be subject to rejection at any time, even though sample pipes may have been accepted as satisfactory at the manufacturing plant.

All pipe shall be subject to thorough inspection and tests. All tests shall be made in accordance with the methods prescribed by, and the acceptance or rejections shall be based on, applicable ASTM specifications.

Pipe will be inspected upon delivery and all pipe which does not conform to the requirements of this contract will be rejected and shall be immediately removed from the work area by the CONTRACTOR.

Unsatisfactory pipe will be either permanently rejected or minor repairs made. After delivery, any pipe will be rejected which has been damaged beyond the possibility of satisfactory repair.

If such pipe is found in the pipeline, it shall be removed and replaced or encased in a Class A concrete collar or envelope as directed, at no additional cost to the City.

An inspection of the interior of all mainline pipe and catch basin lateral connections installed as part of the project shall be completed prior to final paving of the project by experienced personnel

trained in locating breaks, obstacles and service connections by closed circuit television. A video tape and suitable log shall be provided to the City for review prior to final paving.

### **603.11 Method of Measurement**

Pipes will be measured by the linear foot in place within the limits specified below.

For measurement purposes the end of the pipe in closed structures will be considered at the inside face of the wall, and in masonry headwalls it will be considered to be at least the face of the headwall.

### **603.12 Basis of Payment**

The accepted quantities of pipe for culverts, drains and sewers will be paid for at the contract unit price per linear foot, complete in place.

Payment for the 18-inch sewer pipe includes furnishing and installing the sewer pipe within the 24-inch DI casing and associated spacer blocks complete with riser and runners.

Payment for all trench excavation shall be considered incidental and included in the pay item with the exception of structural rock excavation and pavement section removal.

All sheeting, shoring, temporary bracing and dewatering will be included in this item. Payment for approved undercuts below the established trench profile will be paid for under Item 206.061 - Structural Earth Excavation Drainage and Minor Structures (Overdepth).

Rock excavation will be paid for as Structural Rock Excavation as specified in Section 206 of the Supplemental Specifications.

Backfill material and backfilling of the trench shall be incidental to the related pipe pay item.

Should the CONTRACTOR elect to utilize drag boxes or related box shoring structures, sheeting or other methods during installation work, overcutting will be allowed to accommodate the boxes. However, no payment will be made for the excess excavation and backfill material.

CONTRACTOR is responsible for any and all engineering necessary for trench sheeting or shoring of any trench excavation designed by a professional ENGINEER registered in the State of Maine. No extra payment will be made for the engineered sheeting and shoring methods, materials or equipment used by the CONTRACTOR. All trench stabilization shall be considered incidental to the applicable pay items.

The cost of locating/warning tape including installation shall be considered incidental to the appropriate pipe item.

The cost of removing, stacking, stockpiling, and replacing the top organic layer in areas disturbed along I-295 necessary for project work shall be considered incidental to pay item 615.071. Topsoil removed and stockpiled shall be re-used and supplemented to achieve a 4" loam depth as part of finish grading. Loam shall be tested to achieve optimum nutrient soil conditions and shall include adding soil amendments as stipulated in section 615. All work described shall be considered incidental to pay item 615.071.

The cost of maintaining flows in existing sewer lines, drain lines and manholes and any maintenance and cleaning of said sewers or storm drainage that may be required as a result of new pipe installation shall be incidental to the related pay item and no separate payment for this work will be made.

Work associated with providing anti-floatation during installation of the pipes shall be the responsibility of the CONTRACTOR and shall be considered incidental to the pay items under this section.

The accepted quantity of service leads will be paid for at the contract unit price per linear foot of pipe installed, complete in place. The amount bid for each lateral shall be full compensation for furnishing all labor, equipment, tools, adapters, reducers, and materials necessary to satisfactorily connect all laterals.

Bypass pumping will be required for some pipe installations to maintain existing sewer, storm drainage, and combined sewer flows. Bypass pumping and other required work to maintain flows shall be considered incidental to the related pipe pay item.

Removal and resetting of existing electrical service is incidental to the pay items under this section.

Full depth reconstruction of Marginal Way and Diamond Street above piping installed under this section, including excavation, pipe bedding materials, geotextile, installation of temporary base and subbase gravel and all associated work within Marginal Way and Diamond Street is incidental to the pay items under this section.

Temporary erosion controls are included under pay item 656.75. Loaming, seeding, mulching and restoration of all disturbed areas are included under pay item 615.071. Permanent erosion controls are to be paid for under respective pay item for the type of permanent erosion control installed.

The costs for PVC and DI fittings, bends, retainer glands and thrust blocking shall be incidental to the appropriate pipe item.

The costs to install rigid insulation shall be considered incidental to the related pay item.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
603.87	12 Inch Diameter Storm Drain Pipe (All Depths)	Linear Foot
603.88	12 Inch Diameter Sewer Pipe (All Depths)	Linear Foot
603.91	18 Inch Diameter Sewer Pipe (All Depths) with 24-Inch Casing Pipe	Linear Foot
603.92	24 Inch Diameter Storm Drain Pipe (All Depths)	Linear Foot
603.93	30 Inch Diameter Storm Drain Pipe (All Depths)	Linear Foot
603.100	66 Inch Diameter Storm Drain Pipe (All Depths)	Linear Foot
603.101	72 Inch Diameter Storm Drain Pipe (All Depths)	Linear Foot

## **SECTION 604 - MANHOLES, INLETS AND CATCH BASINS**

The provisions of Section 604 of the Standard Specifications shall apply with the following additions and modifications:

### **604.01 Description**

This work shall consist of the construction, alteration, repair, or placement of manholes, inlets, and catch basins.

### **604.02 Materials**

Manhole covers used on this project shall be 30-inch diameter East Jordan, Neenah, or approved equal, cast iron frame and cover in paved areas. Sewer covers shall have "SEWER" cast into the cover, and storm covers shall have "DRAIN" cast into the cover.

### **604.03 Construction Requirements**

Concrete Blocks shall not be used in any way in the construction or alteration of manholes or catch basins.

All manhole bases, barrel sections and top sections shall be marked, by the manufacturer, with the appropriate manhole station (and offset if applicable) and the street name, if more than one street is incorporated within a single contract.

Between the third and fourth paragraphs of the Subsection insert the following paragraphs. Sanitary sewer inverts shall be constructed by brick masonry or approved precast insert. Special precautions shall be taken to provide adequate ventilation and attending personnel for the safety of all workers who may be required to enter existing sewers or sewers under construction.

It is emphasized to the CONTRACTOR that sanitary sewer and drainage construction under this contract shall be coordinated with existing sewer facilities so that continuous service and handling of existing flows is accomplished.

In the existing fifth paragraph, first sentence of that Subsection delete only "Metal frames and traps", and substitute therefore "Metal frames, steps, other appurtenances, and traps".

The outside surface of any masonry work for catch basins and manholes shall be plastered with mortar from 1/4 inch to 3/8 inch thick. The masonry shall be properly wetted before the plaster is applied. The plaster shall be carefully spread and troweled so that all cracks are thoroughly worked out. After hardening, the plaster shall be carefully checked by being tapped for bond and soundness.

All brick masonry surfaces with mortar shall be waterproofed with one coat of DEHYDRATINE 6 TROWEL MASTIC, DEHYDRATINE 10 SEMI-MASTIC or approved equal.

All poured concrete or precast concrete surfaces shall be waterproofed with two heavy coats of bituminous waterproofing materials. The material shall be MINWAX FIBROUS BRUSH COAT made by the Minwax Company, New York, New York; TREMCO 121 FOUNDATION

COATING, made by the Tremco Manufacturing Company, Cleveland, Ohio; INERTOL NO-7 made by Inertol Company, Newark, New Jersey or approved equal.

All waterproofing material shall be applied according to the manufacturer's specifications and directions.

Storm and sewer manholes shall have the shelf and invert channels formed by brick set in cement mortar or by factory precast concrete. Precast concrete shall be epoxy coated and shelves shall have a permanent non-skid surface. The epoxy coating shall be SIKAGARD 62 made by Sika Corporation, Lyndhurst, New Jersey or approved equal. Precast concrete inverts shall cure for 7 days before application of the epoxy. The epoxy shall cure for an additional 3 days prior to shipping the manhole to the site.

Catch basins shall be constructed as shown on the contract drawings. Unless otherwise indicated, catch basins shall have A-4 inlet stones and traps, which shall be incidental to the contract unit price of the structure.

#### Vacuum Testing of Manholes:

All manholes constructed by the Contractor shall be vacuum tested for leakage in the presence of a Engineer after installation and prior to backfilling. Vacuum testing shall be performed in accordance with ASTM C1244. The vacuum test requirement will apply to any existing manhole altered.

The Contractor shall furnish all labor, equipment, and any appurtenant items necessary to satisfactorily perform the vacuum test. All testing equipment shall be approved for vacuum testing manholes.

#### Procedure:

All lifting holes shall be plugged with an approved non-shrink grout inside and out. Manhole joints shall be grouted from the outside only. All pipes entering the manhole shall be plugged. The Contractor shall securely brace the plugs in order to keep them from being drawn into the manhole. The test head shall be placed at the inside of the top of the cone section of the manhole and the seal inflated in accordance with the manufacturer's recommendations.

A vacuum of 10 inches of mercury shall be drawn and the vacuum pump shut off. With the valves closed, the time for the vacuum to drop to 9 inches of mercury shall not be less than that shown below:

DEPTH (Feet)	MANHOLE DIAMETER (Inches)		
	48	60	72
0-8	20	26	33
10	25	33	41
12	30	39	49
14	35	46	57
16	40	52	67
18	45	59	73
20	50	65	81
22	55	72	89
24	59	78	97
26	64	85	105
28	69	91	113
30	74	98	121

(Times shown are minimum elapsed times, in seconds, for a drop in vacuum of 1 inch of mercury.)

If the manhole fails the initial rest, necessary repairs shall be made with a non-shrink grout to manhole exterior, while the vacuum is still being drawn. Retesting shall proceed until a satisfactory test is obtained.

Frame and Covers:

The approved models for manhole frame and covers are:

- East Jordan: Frame = 2006Z, Cover = 2006A1 either "SEWER" or "DRAIN" lettering.
- Neenah: Frame = R-1743, Cover = R-1743 "SEWER" or "DRAIN" lettering.

The approved model for the bolt down manhole frame and cover is:

- Neenah: Frame = R-1916-H, Cover = R-1916-H "DRAIN" lettering.

The approved models of catch basin frame and covers are:

- East Jordan: Frame = 7375Z, Grate = 2440M
- Neenah: Frame = R-3248, Grate = R-3248

**604.031 Drainage Structures Abandoned or Removed**

The existing castings on manholes and/or catch basins to be abandoned or removed shall be carefully removed, cleaned and delivered to the City stockyard as directed. All such castings shall become the property of the City.

Inlet stones for catch basins to be abandoned or removed shall be carefully removed, cleaned and delivered to the City Stockyard as directed.

The inlets and outlets of structures to be abandoned shall be plugged with bricks and mortar and filled with flowable fill. The structure shall be completely removed.

The existing masonry of structures to be removed shall be completely removed. The inlets and

outlets shall be fully plugged with bricks and mortar. The cavity shall be completely filled with selected excavated materials placed in six (6") inch layers and thoroughly compacted.

**604.032 Remove Existing Drainage Structures and Replace with New Drainage Structures**

The existing castings on manholes and/or catch basins to be removed and replaced shall be carefully removed, cleaned and delivered to a City stockyard as directed. All such castings shall become the property of the City. Existing inlet stones for catch basins to be replaced shall be carefully removed, cleaned, and delivered to a City Stockyard as directed and shall be incidental to the cost of said item.

**604.04 Altering, Adjusting and Rebuilding Catch Basins and Manholes**

Replace existing manhole frame and cover shall include removal of existing frame and cover, reconstructing riser brick and furnishing and installing a new frame and cover that meets the City's specifications.

Alter existing manhole and catch basin shall include making alterations as indicated on the plans or as required by field conditions. Alterations may include (as applicable) adjustments to manhole invert channel caused by new pipe connections, waterproofing, installation of new steps, replacement of inlet stone, replacement of frame and/or grate, replacement of outlet trap.

Adjust existing structure to grade shall include adjusting a catch basin frame and grate or manhole frame and cover to grade. Adjusting manholes and catch basins to grade shall include removing and resetting curb inlet stone and terminal curbs (as applicable), removing and resetting frame and cover/grate, and fully reconstructing riser brick to install frame at finish grade.

Core inlet/outlet pipe hole in catch basin or manhole shall include equipment and labor costs to coring a new hole in a catch basin or manhole. Costs for connection boot or mortaring pipe in place are incidental to cost of the pipe.

**604.05 Method of Measurement**

Under this Subsection the following sections shall be amended and expanded as follows:

Subsection (a) of the Standard Specifications shall be deleted and the following paragraph shall be included: Complete structures. Each catch basin and manhole will be measured per each complete.

Subsections (c) and (d) of the Standard Specifications shall be deleted and the following paragraph shall be included: All steps, castings or other appurtenances installed as shown on the plans or as required shall not be measured for payment.

Each existing catch basin or manhole to be abandoned or removed will be incidental to the installation of new catch basin or manholes.

Proposed drops in sewer manholes will be incidental to the installation of new sewer structures.

Each existing catch basin or manhole to be removed and replaced with a new catch basin or manhole will be considered as one unit, including inlet stone, tipdowns, frame, grate, trap, adjustment to grade, connection of the underdrain to basin and installation of new inlet/outlet.

**604.06 Basis of Payment**

The first paragraph shall be amended by adding the following sentence:

The cost of furnishing and installing steps, installing stubs and drop connections and other appurtenances shall be considered as incidental to the structure and no separate payment will be made therefore.

The following paragraphs shall be added:

The cost of excavation and backfill of all catch basins or manholes, either new, abandoned, or removed and/or replaced shall be included in the cost of the specific work for each type of structure.

All sheeting, shoring, temporary bracing, and dewatering will be included in this item. Payment for approved undercuts below the established trench profile will be paid for under Item 206.061 – Structural Earth Excavation Drainage and Minor Structures (Overdepth).

The cost of resetting curb inlet stones shall be considered incidental to the cost of adjusting catch basins to grade and no separate payments will be made. The cost of delivering inlet stones and/or castings to the City or other approved sites shall be considered as incidental to the contract items involved.

The cost of maintaining flows in existing sewer lines and manholes and any maintenance and cleaning of said sewers that may be required as a result of new manhole installations shall be incidental to the related pay item and no separate payment for this work will be made.

CONTRACTOR shall pay special attention to maintaining flows in existing sewers and CSO pipes. The interceptor pipe and CSO pipes will require bypass pumping and shall be the CONTRACTOR’s responsibility including all bypass pumping, associated work elements and coordination with City. In addition, the CSO outlets impacted during the project will require the CONTRACTOR to provide for maintaining flows during CSO events. Work shall be coordinated with the ENGINEER and will require special consideration and work to maintain sewer, drainage and CSO’s during project construction. This work shall be considered incidental to the costs of construction.

Removal and resetting of existing electrical service is incidental to the pay items under this section.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
604.132	5 Foot Diameter Catch Basin, Type “E”	Each
604.150	4 Foot Diameter Sewer Manhole	Each
604.155	6 Foot Diameter Drain Manhole	Each
604.159	9 Foot by 9 Foot Square Drain Manhole	Each
604.181	Replace Existing Manhole Frame and Cover	Each

## **SECTION 609 - CURB**

The provisions of Section 609 of the Standard Specifications shall apply with the following additions and modifications:

### **609.01 Description**

Work shall include removal and stacking at the City designated location all granite curbing, tipdowns, curb inlets, and sidewalk brick. Materials removed and not reused in construction of the proposed project shall be delivered to the City stockyard as directed. Material shall be in accordance with Section 712.04 except that drill holes through the curb will not be allowed.

### **609.03 Vertical Stone Curb, Terminal Section and Transition Sections**

All joints of the curb shall have a four-inch (4") by eight and one half inch (8-1/2") pad on the back side. The pad shall be filter fabric such as that used for underdrain or for roadway stabilization. The pad shall be placed in full contact with the curb from a half inch (1/2") below top of curb to two inches (2") below gutter grade and backfilled to hold in place.

### **609.081 Removing and Stacking Existing Vertical Curbing, Terminal Curbing, Transition Sections, Curb Inlets, Curb Corners and Cobble Stone**

The CONTRACTOR shall be responsible for the removal without damage, cleaning and stacking at a City designated location, all straight and curved curbing, terminal sections, curb corners and cobble stone which are designated to be removed and stacked (R & S). Removal of curbing so designated shall be in accordance with the requirements of Subsection 609.08.

Each section of straight curbing shall have its overall length painted legibly and plainly on one end. Each section of circular curbing shall have its overall arc length and radius painted on one end.

Removing and stacking curb or edging shall include all labor, equipment, tools and materials for excavating, removing, cleaning, backfilling, handling, stacking and any incidental work necessary.

### **609.09 Method of Measurement**

All proposed new straight and circular curb to be set will be measured by the linear foot along the face of the curb, complete in place. Curb removed and stacked at the City designated location will be measured as a lump sum.

**609.10 Basis of Payment**

The accepted quantity of new curb and reset existing curb will be paid for at the contract unit price, complete in place. This price shall include the cost of excavation and all labor, materials and equipment necessary to satisfactorily complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
609.34	Granite Curb, Type 5 – Remove and Reset	Linear Foot

## **SECTION 615 - LOAM, SEED & MULCH**

This Supplemental Specification shall replace Section 615, 618 and 619 of the Standard Specifications:

### **615.01 Description**

This work shall consist of loaming, seeding and mulching areas as shown on the plans or as required. Include restoration of existing lawn and seeded areas disturbed by Work as well as new lawn and seeded areas indicated.

Seeding Season: Unless variance is requested in writing and approved by Department of Public Works, perform seeding only during the following periods: April 15 to July 1 and August 15 to September 30.

### **615.02 Submittals**

Loam/topsoil testing: Provide soils testing by an approved soil testing laboratory for any loam/topsoil to be used. Submit the following: pH, mechanical analysis, percentage of organic content, recommendations on type and quantity of additives to establish satisfactory pH level and supply of nutrients to bring topsoil to satisfactory level for planting.

Certification: Submit manufacturers or vendors certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.

Seed Mix: Submit certificate that seed mix meets the specified grass species, proportions and minimum percentages of purity, germination and maximum percentage of weed seed.

Seeding Schedule: Submit proposed schedule for seeding work. Once accepted, revise dates only after request in writing including documentation of reason for delays, and approval of the Department of Public Works.

### **615.03 Warranty**

Lawns & Seeded Areas: Warranty lawns through specified lawn maintenance period of 2 years. Make necessary repairs to grades, lawn areas and paving required because of seeding repairs or replacements. Such repairs shall be done at no additional cost to the City.

### **615.04 Materials**

Loam/topsoil: Conform to the requirements of Section 615. Loam shall have a finished depth of four (4) inches, unless noted otherwise on the plans and shall be screened and free of foreign materials greater than 1 inch in every dimension. Acidity range shall be between 5.0 and 7.0 and shall contain not less than 6% organic matter by weight as determined by loss on ignition of moisture-free samples dried at 65 degrees C.

#### **Soil amendments:**

1. Fertilizer: Provide a complete fertilizer and a standard product complying with the State and United States fertilizer laws. Deliver to site in original unopened containers which shall bear the manufacturer's name and guaranteed statement of analysis. At least 40% by weight of the nitrogen content of fertilizer shall be derived from organic materials. Fertilizer shall contain not less than 10% nitrogen, 10% phosphorus, and 10% potash by

- weight of ingredients or as otherwise indicated by topsoil test results.
2. Superphosphate: Finely ground phosphate rock as commonly used for agricultural purposes, containing not less than 18 percent available phosphoric acid.
  3. Ground limestone: Dolomitic limestone and contain not less than 85% of total carbonates and magnesium, ground to such fineness that 50% will pass a 100 mesh sieve and 90% will pass through a 20 mesh sieve. Coarser material will be accepted provided the specified rates of application are increased proportionately on the basis of quantities passing the 100 mesh sieve.
  4. Humus: Reed peat, sedge peat or moss peat furnished air dried, finely shredded and suitable for horticultural use.
  5. Compost: Commercially processed, well composted food waste, wood ash, leaf and yard waste, wood waste, shredded paper and other acceptable materials and containing no chemicals or ingredients harmful to plants. Compost processing temperatures should exceed 131 degrees to kill any weed seeds and disease organisms.

**Seed mix:**

Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as specified. Purchase seed only from a recognized distributor, and composed of the following varieties mixed in proportions indicated. Seed shall test to minimum percentages of purity and germination specified.

Grass Seed Mixture	Proportion by Weight	% Germination
KenBlue Kentucky Bluegrass	20%	80
Trifecta Perennial Ryegrass	30%	80
Creeping Red Fescue	40%	85
Chewings Fescue	10%	80

**Mulch:**

1. Mechanical method: Provide long fibered hay or straw mulch free from noxious weeds and other undesirable material. Use no material which is excessively wet, decayed or compacted as to inhibit even and uniform spreading. Use no chopped hay, grass clippings or other short fibered material unless approved by the Department of Public Works.
2. Hydraulic spray method: Provide cellulose fiber mulch consisting of natural wood, recycled paper or humus cellulose fiber containing no materials which will inhibit seed germination or plant growth. Add sufficient quantity of non-toxic water soluble green dye to provide a definite color contrast to ground surface to aid in uniform distribution.

**615.05 Execution**

**Preparation:**

1. Planting soil (loam/topsoil) depths shall be not less than 4 inches unless otherwise noted. Loosen subgrade of lawn areas to a minimum depth of 4 inches.
2. Remove stones over 1 ½ inches in any dimensions and sticks, roots, rubbish and other extraneous matter.
3. Limit preparation to areas which will be planted promptly after preparation.
4. Place topsoil and add specified soil amendments and mix thoroughly into the loam.
5. Fine Grading: Fine grade lawn areas to smooth, even surface with loose, uniformly fine texture. Roll, rake and drag lawn areas, remove ridges and fill depressions as required to

meet finish grades. Remove all lumps, clots, stones, roots and other extraneous matter greater than 1-inch size. Roll to compact topsoil surface sufficient to support pedestrian traffic without leaving footprints greater than ½ inch deep.

6. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
7. Restore lawn areas to specified soil condition if eroded or otherwise disturbed after fine grading and prior to planting.

Loam Additives:

1. Applying fertilizers: Apply commercial fertilizer and work thoroughly into topsoil.
2. Applying Superphosphate: Incorporate superphosphate into topsoil with application of commercial fertilizer at rate of 25 pounds per 1,000 square feet or at rate determined from test results.
3. Applying ground limestone: After topsoil has been spread and graded, and if recommended as result of the soil analysis, apply ground limestone at rate of 50 pounds per 1,000 square feet or at rate recommended by Testing Laboratory.

Hydroseeding:

1. Hydroseeding method is required for seeding except as otherwise approved by City.
2. Apply slurry uniformly to all areas to be seeded. Provide rate of application as required to obtain specified seed sowing rate.
3. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.
4. Application rate: Sow seed mixture at rate of five and one-half (5.5) pounds per 1,000 square feet unless otherwise indicated in specifications.
5. Protect seeded areas against erosion by spreading specified mulch after completion of seeding operations. Spread uniformly to form a continuous blanket not less than 1 ½ inch loose measurement over seeded areas.

Cleanup and Protection:

1. During seeding work, keep pavements clean and work areas in orderly condition.
2. Protect seeding work and materials from damage due to seeding operations, other work operations and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged seeding work as directed.

Maintenance and Acceptance:

1. Begin maintenance immediately after seeding.
2. Maintain grassed areas by watering (on a daily basis during germination), fertilizing, weeding, mowing whenever the grass height exceeds 3 inches, trimming and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable lawn, free or eroded or bare areas.
3. Maintain each lawn area until acceptance of such area.
4. Include protection such as placement of signs and barricades.
5. Repair damaged areas which do not produce a satisfactory stand of grass to re-establish the intended condition; re-fertilize, re-seed and re-mulch as required to produce satisfactory results.
6. If maintenance period extends from fall of one growing season into the following spring, CONTRACTOR shall be required to provide a spring fertilization to all lawn areas in early spring.

Maintenance Periods: Maintain grassed areas for not less than 60 days after completion of seeding.

Acceptance: When seeding work is completed, including maintenance, City will, upon request, make an inspection to determine acceptability.

1. Seeding work may be inspected for acceptance in parts agreeable to City provided work offered for inspection is complete, including maintenance.
2. Where inspected seeding work does not comply with requirements, replace rejected work and continue specified maintenance until re-inspected by City and found to be acceptable. Remove rejected plants and materials promptly from the site.
3. Acceptance of seeded areas will be given only upon attainment of a reasonably thick uniform stand of grass of not less than 80% permanent grass coverage, free from weeds or sizable think or bare spots larger than 100 square inches.
4. If all other Work of Contract has been completed and some seeded areas still have not been accepted, CONTRACTOR shall maintain such period for an additional 60 days, exclusive of periods stated below. Seeded areas will be accepted upon attainment of a reasonably thick uniform stand of grass.
5. Maintenance Exclusion Period: November 15 through April. Note that if maintenance period extends into spring of following year, CONTRACTOR shall apply spring fertilization to seeded areas according to soil test requirements. If at or near the end of such 60-day period, unacceptable areas still remain, City may direct a final re-seeding by CONTRACTOR or authorize the contract value of performing such work deducted from monies due to CONTRACTOR.
6. Acceptance of any seeded area shall be in writing. After acceptance, CONTRACTOR will be relieved of further expense for maintaining such areas, other than for damage caused by any Work under the Contract.

**615.06 Method of Measurement**

Lump sum based on percentage of work completed or per square yard under this Section.

**615.07 Basis of Payment:**

Lump sum items shall be based on percentage of work completed under this Section. This item shall include the cost of excavation and all labor, materials, and equipment necessary to satisfactorily provide loam, seed, and mulch in all areas disturbed by CONTRACTOR's operations. All costs for watering, furnishing labor and equipment for mowing will not be paid for separately, but shall be considered as incidental to this pay item.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
615.071	Loam, Seed and Mulch	Lump Sum

**SUPPLEMENTAL SPECIFICATIONS**  
**SECTION 620**  
**GEOTEXTILE**

The provisions of Section 620 of the Standard Specifications shall apply with the following additions or modifications:

**620.01 Description**

This work shall consist of furnishing and installing geotextile fabric as shown on the plans.

**620.02 Materials**

Fabrics shall be on the Maine DOT's Qualified Product List and be as follows:

Woven slit-film polypropylene geotextile fabric: CONTRACTOR shall use Mirafi 600X geotextile fabric, or approved equal.

**620.06 Basis of Payment**

Payment for geotextile fabric shall be incidental to the cost of construction for the related pay item.

**SUPPLEMENTAL SPECIFICATIONS**  
**SECTION 622**  
**TREE PROTECTION**

The following items shall be considered additions to the Standard Specifications under Section 622. Section 622 in the standard specs is for Transplanting Trees and Shrubs.

**622.01 Description**

This section applies to all work within the critical root zone of existing trees within and adjacent to the project area.

- a. The Critical Root Zone (CRZ) shall be defined as the area for each tree which contains the estimated minimal amount of both structural and feeder roots that must be protected to minimize tree damage and retain structural stability.
- b. The CRZ for each tree is calculated based on the Tree Species Tolerance to construction impacts and age class, as outlined in the International Society of Arboriculture's *Best Management Practices: Managing Trees During Construction* (K. Fite, T. Smiley, 2008). Although CRZs will differ by species and tree age, zones range from ½ foot per one inch DBH (diameter at breast height) to 1½ foot per one inch DBH. If the species tolerance is unknown, then the 1½ foot per one inch DBH standard is assumed.
- c. To the extent possible, the CONTRACTOR shall limit encroachment of the CRZ during construction activities.

**622.011 Removal of Existing Infrastructure**

Extreme care must be exercised in removing curbing, sidewalk or pavement in the CRZ, lifting rather than dragging paving pieces. Tools and equipment for this activity shall be approved by the ENGINEER prior to the start of excavation.

**622.012 Methods of Excavation**

Any excavation for utility or infrastructure installation within a CRZ shall be done by hand or pneumatic excavation, or microtunneling. Trenching shall not occur within the CRZ unless absolutely necessary and without prior approval of the ENGINEER.

**622.013 Treatment of Exposed Roots**

Where such excavation does occur for the removal of existing features or the installation of new work, the excavated area shall be backfilled immediately. Exposed roots shall be covered with burlap or other approved material, and kept constantly moist. Burlap shall be checked a minimum of two (2) times a day, once in the morning and once in the afternoon in order to maintain appropriate levels of moisture, until backfill is complete. If directed, soaker hoses shall be installed to facilitate properly moist conditions of excavated areas.

**622.014 Root Pruning**

No roots over one (2) inch diameter should be shaved or cut without the approval of the City Arborist. If small roots must be cut this should be done with a sharp implement to leave a clean

finish. Use of heavy equipment such as a backhoe to cut roots is prohibited.

#### **622.015 Canopy Pruning**

If clearance pruning is proposed, it shall not take place without the written permission of the City Arborist, and shall only be performed with professional equipment as per the City's standards and specifications for such work. No trees shall be pruned or removed without the written permission of the City Arborist. Tree work is to be performed by an arborist holding certification from the International Society of Arboriculture (ISA). The City Arborist is to receive notification 48 hours before any tree work is to begin.

#### **622.016 Adjustments in Grade**

Soil Removal: Any removal of soil within the CRZ shall be performed under the supervision of a Consulting Arborist.

Soil Addition: Soil addition of up to three (3) inches additional depth *may* be permitted with the written approval of the City Arborist.

#### **622.017 General Requirements**

In addition to those requirements detailed above:

- a. All contact between equipment and overhead tree limbs should be avoided. Bending or breakage of limbs is prohibited. Stockpiling of materials.
- b. Under no circumstances should equipment and materials be stockpiled within the CRZs.
- c. Disposal of wastewater and other debris. No contaminants or wastewater from construction activities should be disposed of within or around protected areas.
- d. Parking. No vehicle shall be parked within or driven onto CRZs.
- e. Exhaust fumes and excessive heat should always be directed away from trees to prevent scorching.
- f. All trees within and directly adjacent to the construction area shall be encircled with wooden tree guards. Tree guards shall remain in place through construction and shall be removed upon project completion.

#### **622.08 Basis of Payment**

The payment for this work shall be incidental to the project.

**SUPPLEMENTAL SPECIFICATION  
SECTION 623  
MONUMENTS**

The provisions of Section 623 of the Standard Specifications shall apply with the following additions or modifications:

**623.01 Description**

This work shall consist of protecting right-of-way monuments and survey monuments.

**623.05 Basis of Payment**

The accepted quantities for protection of monuments shall be considered incident to the contract.

**SECTION 627 – PAVEMENT MARKINGS**

The provisions of Section 627 of the Standard Specifications shall apply with the following additions or modifications:

**627.01 Description**

This work shall consist of providing pavement lines and markings in all areas where existing pavement markings are damaged or removed by CONTRACTOR’s operations.

All pavement markings removed or damaged shall be replaced in kind.

**627.10 Basis of Payment**

Pavement lines and markings shall be incidental to Section 403 Hot Bituminous Pavement.

**SECTION 629 - HAND LABOR**

The provisions of Section 629 of the Standard Specifications shall apply with the following additions and modifications:

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
629.05	Hand Labor, Straight Time*	Hour
629.06	Mason, Straight Time*	Hour

**SECTION 631 - EQUIPMENT RENTAL**

The provisions of Section 631 of the Standard Specifications shall apply with the following additions and modifications:

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
631.105	Air Tool and Compressor, Including Operator*	Hour
631.12	All-Purpose Large Capacity Excavator, Including Operator*	Hour
631.171	Truck, Small, Including Operator*	Hour
631.22	Front End Loader, Including Operator*	Hour
631.36	Foreman, Straight Time*	Hour

### **SECTION 637 - DUST CONTROL**

The provisions of Section 637 of the Standard Specifications shall apply with no additions or modifications:

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
637.071	Dust Control	Lump Sum

### **SECTION 645 – HIGHWAY SIGNING**

The provisions of Section 645 of the Standard Specifications shall apply with additions or modifications:

All highway signing and related work as well as removing and resetting existing signs shall be considered incidental to Section 652, Maintenance of Traffic.

## SECTION 646 - CHECK VALVES

### **646.01 Description**

This work shall include furnishing and installing check valves in accordance with these specifications and placed in conformity with data shown on the plans or established by the Engineer. See Section 646.04 for Tideflex clamping requirements.

### **646.02 General**

All check valves shall be of the Series CM-SL slip-in CheckMate Ultraflex™ Valve as called out on the drawing and as manufactured by Tideflex Technologies Inc., or approved equal. Refer to Section 646.05 for Valve Manufacturer.

The slip-in Check Valves are to be all rubber and flow operated check type in accordance with the operational conditions defined within this specification section. The entire valve shall fit within the pipe inside diameter. Once installed, the slip-in valve shall not protrude beyond the face of the structure or end of the pipe.

The valve shall allow forward flow through the carrier pipe and through the valve at the specified flow rate and not exceed the allowable headloss specified. When forward flow through the carrier pipe is discontinued the valve shall prevent backflow through the carrier pipe by sealing closed when hydrostatic pressure is applied to the exterior of the valve. The valve shall be capable of withstanding the specified backpressure capacity without any leakage through the valve.

It is the intent of these specifications to define the operational parameters and performance requirements of the valves and that the valves are fabricated in accordance with these specifications. Submittals containing generic valve constructions with headloss characteristics outside the required operating range and/or without representative headloss data shall not be accepted. Refer to the submittal section for required documentation.

### **646.03 Operation Conditions**

The valve manufacturer shall provide within their submittal documents, as defined in these specifications, confirmation that the valves proposed will perform as required under the specified operating conditions. Refer to the submittal section for required documentation.

The operational conditions and valve performance requirements are listed in the following table for each specific valve required:

Valve Identification	Model Number	Nominal Pipe Diameter, in.	Maximum Flowrate, CFS (MCD)	Max. Allowable Headloss <sup>1</sup> (ft)	Back pressure Max. Anticipated (ft)	Elastomer Material	External Layer Elastomer Material
Diamond Check Valve	Checkmate Ultraflex	72"	220 (142)	0.8	13	Neoprene	EPDM

1. Maximum allowable headloss at the specified maximum flowrate.
2. Back pressure measured from pipe invert.

### **646.04 Valve Construction**

The slip-in valve shall be ply reinforced throughout the body, saddle and bill, which is cured and vulcanized into a one-piece unibody construction. A separate valve body or pipe used as the

housing is not acceptable. The valve shall be manufactured with no metal, mechanical hinges or fasteners, which would be used to secure any component of the valve to a valve housing. The port area of the saddle shall contour into a circumferential sealing area concentric with the pipe which shall allow passage of flow in one direction while preventing reverse flow. The entire valve shall fit within the pipe inside diameter.

The outside diameter of the upstream and downstream sections of the valve must be circumferentially in contact with the inside diameter of the pipe.

The slip-in valve manufacturer's name, manufactured location, model number and serial number shall be bonded onto the exterior of the valve.

The slip-in valve manufacturer shall supply a set of stainless steel expansion clamps. The clamps, which will secure the valve in place, shall be installed in the upstream or downstream cuff of the valve, depending on installation orientation, and shall expand outwards by means of a turnbuckle. Each band shall be pre-drilled allowing for the valve to be pinned and secured into position in accordance with the manufacturer's installation instructions.

The compression clamps and bolting hardware shall be constructed of 304L stainless steel and provided as an ancillary component with each exterior mounted valve. The following clamp type and qualities shall be provided:

Valve Size	Clamp Type	Quantity
60"-Greater	Bolted – Fabricated Band Clamp	3 sets

The total weight of the 72" slip-in check valve flowing full shall be determined by the CONTRACTOR for use in planning installation and anchoring. The CONTRACTOR shall submit a plan for anchoring the check valve to the pipe. The plan shall be reviewed and approved by a Maine Licensed Professional ENGINEER retained by the CONTRACTOR. If necessary, the CONTRACTOR shall modify the pipe to accommodate the applied weight of the check valve. This cost shall be incidental to the costs of the related pay item.

#### **646.05 Valve Manufacturer**

The valve manufacturer shall have a minimum of five years' experience in fabrication and installations within the United States of America for valves of similar size as required within these specifications. Refer to submittal documents section for required certification documentation.

Manufacturer shall have conducted independent hydraulic testing to determine headloss, jet velocity and vertical opening height characteristics on a representative set of check valves. The testing must include multiple constructions (stiffness) within each size designated by backpressure rating and must have been conducted for free discharge (discharge to atmosphere) and submerged conditions. Refer to submittal documents section for required submittal documentation.

Manufacturer shall have conducted an independent hydraulic test where multiple valves (at least three) of the same size and construction (stiffness) were tested to validate the submitted headloss characteristics and to prove the repeatability of the manufacturing process to produce the same

hydraulic characteristics. Refer to submittal documents section for required submittal documentation.

The pre-approved manufacturer of these slip-in inline check valves is Tideflex Technologies / Red Valve Company, 600 N. Bell Ave., Carnegie, PA 15106 (412)-279-0044. Alternate manufacturer's must be pre-approved by the ENGINEER, the valve manufacturer shall submit to the ENGINEER at least ten days prior to the bid date a reference submittal package as defined within the section entitled Submittal Documents showing that the alternate manufacturer can comply with the scope, performance and general intentions of this specification.

#### **646.06 Submittal Documents**

The following documents must be submitted in their entirety within one complete package; submittal packages not including all of these items will be deemed incomplete and rejected without review. The following is an itemized list of documents to be included within the submittal package:

1. Valve Dimensional Drawing
2. Valve Installation Orientation Drawing
3. Manufacturer's Certification Drawing
4. Verification of Headloss and Velocity
5. Verification of Backpressure Capacity
6. Verification of Manufacturing Consistency
7. Hydraulic Curve for each size valve showing headloss versus flow, operating point and backpressure capacity.
8. Installation, Operation and Maintenance Manual.
9. Anchoring Plan by CONTRACTOR

The following defines the specific requirements for each submittal item:

##### **1. Valve Dimensional Drawing**

The drawing shall be a scaled version of the actual valve, generic drawings with listed dimensions will not be accepted. Dimensions required on the drawing include the following as applicable to the valve type:

- a. Overall length
- b. Cuff diameter
- c. Cuff seating depth
- d. Overall height at the bill
- e. Length of opening at the bill
- f. Orientation of the curvature at the bill and curvature angle
- g. Location of Lifting Clevis
- h. Thimble Plate Dimensions
- i. Elastomer Material used in construction
- j. Elastomer Material used on exterior layer

2. Valve Installation Orientation Drawing

The drawing shall be a scaled version of the actual valve, generic drawings with listed dimensions will not be accepted. The drawing shall show the valve installed on the pipe from side view and front view showing the bill opening orientation. Adjacent floor elevations and wall locations shall be shown dimensionally and graphically accurate.

3. Manufacturer's Certification Document

The valve manufacturer shall certify in a written document that they have a minimum of fifteen years' experience in fabrication and installations within the United States of America for valves of similar size as required within these specifications.

4. Verification of Headloss and Velocity

The valve manufacturer shall provide summary documentation of headloss and jet velocity characteristics on a representative set of duckbill valves.

5. Verification of Backpressure Capacity

The valve manufacturer shall provide summary documentation for hydraulic testing to determine the backpressure capacity of the duckbill check valves with respect to their construction designation (thickness and fabric reinforcing ratio).

6. Verification of Manufacturing Consistency

The valve manufacturer shall provide summary documentation where multiple valves (at least four) of similar size and construction (stiffness) were tested to validate the submitted headloss characteristics and to prove the repeatability and consistency of the manufacturing process to produce the same hydraulic characteristics.

7. Hydraulic Curve

The hydraulic curve shall be developed from the testing conducted by the Independent Laboratory for headloss and backpressure characteristics. Each valve curve shall indicate the headloss versus flow, the backpressure capacity of the valve and operating point as defined within the required operating conditions defined within these specifications.

**646.07 Delivery, Storage and Materials Handling**

The manufacturer shall provide supplemental supports and bracing to the interior and/or exterior to maintain the shape and form of the valve through the packaging and shipping process. The valves shall be adequately strapped to the pallet to prevent movement while handling and moving the entire pallet assembly; strapping shall not cause deflection or deformation of the valve. The valves shall be externally covered in clear plastic static wrap prior to leaving the manufacturing facility.

The check valves shall be stored in a cool, dry location and remained packaged on the shipping pallets for storage periods prior to installation. Do not remove any bracing or shipping rings until the valve is to be installed. During the storage period, avoid exposure to UV light, corrosive chemicals, and concentrated noxious gases (i.e. Ozone).

Refer to the manufacturer's Installation, Operation and Maintenance Manual for handling procedures of the valve during installation and proper use of lifting clevis and clamp rings.

**646.08 Installation**

The manufacturer shall provide a representative to assist the installation CONTRACTOR on installation procedures and to conduct a site inspection of the installed unit. The manufacturer’s representative shall submit documentation to the ENGINEER that the valve has been installed in accordance with the manufacturer’s recommended installation procedures.

**646.09 Warranty**

The check valve manufacturer shall provide a one-year warranty against defective workmanship and/or defective materials when properly installed, operated and serviced in accordance with the manufacturer’s recommendations and shall be effective from the date of inspection and installation approval by the manufacturer’s representative.

**646.10 Method of Measurement**

Check valves will be measured by each unit of the kind specified and installed.

**646.11 Basis of Payment**

Check valves will be paid for at the contract unit price for each type and size specified complete in place.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
646.10	72” Inline Check Valve - Diamond	Each

## SECTION 652 - MAINTENANCE OF TRAFFIC

The provisions of Section 652 of the Standard Specifications shall apply with the following additions and modifications:

### **652.3.6 Traffic Control**

The CONTRACTOR shall be responsible for the maintenance and protection of all vehicular and pedestrian traffic at all times during construction and shall erect suitable warning signs, flashers, electronic variable reader boards, barriers and temporary lighting devices of sufficient size and number to afford protection to the traveling public. The CONTRACTOR shall be held responsible for all damage to the work due to any failure of the warning devices to properly protect the work from the traffic, pedestrians or other causes.

A traffic control plan shall be the responsibility of the CONTRACTOR. The CONTRACTOR must submit his/her traffic plan to the City of Portland Transportation Engineer for review and approval, 10 working days prior to the pre-construction meeting. The traffic plan must include and meet the requirements of the contract documents together with any additional traffic control provisions to ensure the efficient and safe passage of the public.

Guidelines for the construction and erection of barricades, lighting devices, warning signs, etc. may be found in the most recent edition of "Manual on Uniform Traffic Control Devices for Streets and Highways" published by the Department of Transportation of the Federal Highway Administration. This work shall be considered a subsidiary obligation of the contract for which no specific payment will be made.

This project will include unique traffic maintenance requirements which shall be the CONTRACTOR's sole responsibility to provide and maintain at the CONTRACTORs expense. The CONTRACTOR shall be responsible for cooperating with the City and shall make modifications/changes to the traffic control as directed by the City. No extra payment will be made.

CONTRACTOR is responsible for traffic control flaggers and work zone security and safety. This work will be considered incidental to Maintenance of Traffic.

### **652.7 Method of Payment**

The accepted quantity will be paid based upon a percentage of construction completed as agreed to by the ENGINEER.

**652.8 Basis of Payment**

Preparation of traffic control plans, construction signage, barrels, variable message boards (changeable message signs) cones, barriers, maintenance of traffic control devices, flaggers and other necessary incidentals to maintain traffic in accordance with the specifications and the MUTCD shall be paid for Lump Sum.

Payment will be made under:

Pay Item

652.39

Work Zone Traffic Control

Pay Unit

Lump Sum

**SECTION 654 - SOIL BACKFILL COMPACTION TESTING**

**654.01 Description**

This work shall consist of furnishing an approved certified soil testing laboratory, when required, to conduct in-place density tests of backfill materials in the field and all related laboratory tests. The testing shall be bid under the appropriate line item.

**654.02 General**

Field tests shall be performed at the minimum frequency of 1 test per 50 linear feet of pipe trench, and no less than 1 test per trench at the top of the base course.

Upon completion of the field test, the results shall be made available to the City Inspector on site. Copies of all test results shall be transmitted to the Engineering Department of the City of Portland.

The minimum in-place densities shall meet or exceed the laboratory maximum density as determined by ASTM D 1557 - 78 as follows:

Embankment	Ninety percent	(90%)
Trench Backfill	Ninety-five percent	(95%)
Aggregate Base Course and Aggregate Subbase Course	Ninety-five percent	(95%)

**654.03 Method of Measurement**

Density tests will be measured by each conducted. Roadway tests will be conducted at 50' intervals. If the initial tests do not meet the specifications, the areas shall be retested at no additional cost to the City.

**654.04 Basis of Payment**

The accepted quantities of density tests will be paid for at the contract unit price per each.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
654.08	Trench Density Tests*	Each
654.09	Roadway Density Tests*	Each

**SECTION 656 - TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL**

The provisions of Section 656 of the Standard Specifications shall apply with the following additions and modifications:

**656.01 Description**

CONTRACTOR shall provide temporary soil and water pollution control as called out on the plans and as necessary. Catch basin filter sacks shall be installed in all existing catch basins within the limits of work, and immediately downgradient as determined by Engineer.

**656.09 Method of Measurement**

Temporary Soil Erosion and Water Pollution Control shall be measured as a percentage of work completed to date relative to total work as shown on Contract Plans.

**656.10 Basis of Payment**

The accepted quantity will be paid for at the contract lump sum price. Payment for dust control shall be made under Item 637.071 and not included for payment under Item 656.75.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
656.75	Temporary Soil Erosion and Water Pollution Control	Lump Sum

**SUPPLEMENTAL SPECIFICATION**  
**SECTION 656 - TEMPORARY SOIL EROSION AND WATER POLLUTION**  
**CONTROL**  
**CONSTRUCTION DEWATERING**

The provisions of Section 656 of the Standard Specifications shall apply with the following further additions and modifications specific to Construction Dewatering:

**PART 1 - GENERAL**

**1.01 SCOPE OF WORK**

- A. Design, furnish, install, operate, monitor, maintain and remove temporary dewatering equipment and systems as required. This Contractor designed system shall, at a minimum and at all times, lower and control water levels to at least 2 ft below the lowest level of the excavation to permit excavation, construction and backfilling to be conducted in-the-dry. Dewatering systems will be needed to install the tide gate structures.
- B. Furnish the services of a Licensed Professional Engineer registered in the State of Maine, to prepare dewatering system designs and submittals.
- C. Work shall include the design, equipment, materials, installation, protection, and monitoring the performance of dewatering systems as required herein (e.g., observation wells and/or piezometers), including, but not limited to, monitoring flow rates from the dewatering system, measuring water levels in observation wells and/or piezometers, and sampling and testing water quality in accordance with permits and approvals required for the dewatering discharge.
- D. The Contractor shall install observation wells and/or piezometers, as needed, to monitor groundwater levels during excavation and backfilling activities to insure safe completion of the Work. The wells shall be located and installed to monitor water levels both within and adjacent to the limits of excavation. The Contractor shall propose the specific locations to the Owner and Engineer for review prior to proceeding with the installation of the wells or piezometers.
- E. Design, furnish, install, operate, monitor, maintain and remove temporary surface water control measures/drainage systems that are needed to drain and remove surface water entering excavation.
- F. Collect and properly dispose of all discharge water from the dewatering and drainage systems in accordance with State and local requirements and permits. Original permits shall be permanently displayed on the site prior to conducting dewatering. Obtain and pay for all permits required for temporary dewatering and drainage systems.
- G. Protect all adjacent facilities and structures from damage due to dewatering and drainage system equipment and operations.

- H. Remove temporary dewatering and drainage systems when no longer needed. Restore all disturbed areas.

## 1.02 RELATED SECTIONS

- A. Supplemental Specification 230 – Excavation and Embankment

## 1.03 SUBMITTALS

- A. Submit the following information to the Engineer and Owner:

1. Dewatering and Drainage Plan.
2. Flood Contingency Plan.
3. Instrumentation and Monitoring Plan, including planned location of proposed observation wells and/or piezometers.
4. Well permits.
5. Discharge permits.
6. Water level elevations observed in existing and/or proposed observation wells: Submit same day measured.
7. Inflow measurements: submit weekly record.

- B. At least 2 weeks prior to the installation of test wells or the start of construction in any areas of anticipated dewatering, submit to the Engineer for review, a proposed Dewatering and Drainage Plan. The submittal shall include shop drawings and a written description of the proposed system(s) layout and design methodology, including design calculations and the proposed installation methods to be used. The submittal shall describe the dewatering and drainage system, equipment drilling methods, well screen openings, filter sand gradation, filter sand placement techniques, filter and sealing materials, development techniques, use of existing observation wells, etc. The plan shall identify the anticipated area influenced by the dewatering and drainage systems and address impacts to adjacent existing utilities and structures. The Contractor shall not proceed with construction until the Engineer has reviewed and commented on the submittal and all outstanding comments have been resolved to the satisfaction of the Engineer. If the dewatering and drainage systems are modified during installation or operation, the Contractor shall revise or amend and resubmit the Plan for review and comment by the Engineer. Review of the Dewatering and Drainage Plan by the Engineer or Owner shall not in any way relieve the Contractor from full responsibility for the complete and adequate design and performance of the dewatering system to provide the necessary construction dewatering.

At a minimum, the Dewatering and Drainage Plan shall include:

1. Descriptions of proposed groundwater and surface water control facilities including, but not limited to, equipment; construction sequences; methods; standby equipment and power supply, pollution control facilities, proposed discharge locations for dewatering and drainage waters, and provisions for immediate temporary water supply as required by this section.
2. Drawings showing locations, dimensions, and relationships of elements of each system, including but not limited to locations of observation wells and/or piezometers, surface water control, drainage and dewatering system elements, locations and sizes of effluent treatment equipment and proposed discharge point(s) for dewatering and drainage system waters.

Drawings shall include the arrangements, locations and depths of the dewatering system, a complete description of equipment and materials to be used and the procedures to be followed in installation, operation and maintenance in relation to the proposed sequence of excavation, conduit construction and backfilling.

3. Design calculations demonstrating adequacy of proposed dewatering systems and components, including sizing of well-screen and filter materials, and estimated discharge rates. Dewatering and drainage system design shall be prepared by a licensed Professional Engineer, registered in the State of Maine, having a minimum of 5 years of professional experience in the design and construction of dewatering and drainage systems.
  4. Manufacturer's technical literature for equipment and materials to be used.
  5. Protocols to be following in the event that running sands are encountered.
  6. Details of abandoning each sump, well, wellpoint, and observation well after its use has been completed.
- C. Submit as a separate document a Flood Contingency Plan consisting of a written description of the measures to be taken by the Contractor during construction to protect life and property and to prevent pollution during significant rainfall events.

#### 1.04 DEFINITIONS

- A. Construction Dewatering: Controlling groundwater levels, hydrostatic pressures and surface water, such that excavation required on the Contract Drawings can be performed to required depths in substantially dry and stable conditions.
- B. Dewatering System: System of deep wells, well points, sumps, ejectors, pumps, piping, power supply, effluent treatment equipment and other equipment designed by Contractor, submitted to and reviewed by the Engineer prior to dewatering, that will effectively dewater the excavation as required herein and as specified in the Contract Drawings. Adequate monitoring wells shall be included in the dewatering system to verify drawdown levels inside the excavation area and monitor groundwater levels outside the limits of the excavation near adjacent structures.
- C. In-the-Dry: Where the phrase “in-the-dry” is used in this Section, it shall be defined as an excavation subgrade where the groundwater level has been lowered to at least 2 ft below the lowest level of the excavation, is stable with no ponding water, mud or muck, is able to support construction equipment without rutting or disturbance, and is suitable for the placement and compaction of fill material, pipes or concrete foundations.
- D. Engineer: Authorized representative of the Owner.

#### 1.05 DESIGN AND PERFORMANCE RESPONSIBILITY

- A. Comply with requirements of agencies having jurisdiction.
- B. Obtain all necessary permits from agencies with control over the use of groundwater and matters affecting well installation, water discharge, and use of natural water sources. Permits shall include, but not be limited to, a Dewatering General Permit administered through the EPA National Pollution Discharge Elimination System (NPDES) program.
- C. Discharge clean water in accordance with the Contract Documents and any applicable permits obtained by the Contractor in connection with the proposed work.
- D. The method of dewatering and control of water both inside and outside the excavation shall be selected by the Contractor who shall be solely responsible for the location, arrangement and depth of any system(s) selected to accomplish the work. The Contractor shall construct protective works as necessary to dewater, cut off porous zones of fill and direct the flow of water from whatever source away from the excavations and adjacent areas. Protective works could include slurry methods, grouting, clay seepage plugs, toe drains with appropriate filters, deep wells, wellpoints, sumps, dikes, ditches and all supporting features as required to permit construction in-the-dry.
- E. The dewatering system shall be designed and implemented so as to maintain a minimum factor of safety of 1.3 against uplift groundwater pressures in any soil strata. The factor of safety shall be calculated by considering the stabilizing pressure to consist of overburden soil weight alone. The dewatering system shall be maintained operational

until the dead weight of the overburden soil plus any completed portion of the structure is able to provide the required factor of safety at static (normal) groundwater level / pressure.

- F. The Contractor shall coordinate the design, timing of installation and means/methods used to install dewatering systems with support of excavation installation activities. Damage to installed dewatering systems caused by support of excavation system installation or blasting/rock removal activities shall be remedied to the satisfaction of the Engineer at no additional cost to the Owner.
- G. Contractor shall be solely responsible for damage to properties, buildings or structures, sewers and other utility installations, pavements and work that may result from dewatering and drainage control operations.
- H. Any design review and field monitoring activities by the Owner or the Engineer shall not relieve the Contractor of their responsibilities for the Work of this Section.
- I. The design shall include provisions for monitoring and recording total daily volume (gallons), and instantaneous flow rate (gallons per minute).
- J. In addition to the Dewatering General Permit requirements the following effluent limits and Best Management Practices shall be complied with at no additional cost to the Owner:
  - 1. The pH shall be between 5.0 and 10.0 (pH-control requirements in the Dewatering General Permit may be more restrictive, and they take precedence over this range).
  - 2. The total suspended solids (TSS) limit for the discharge shall not exceed 30 mg/L (TSS control requirements in the Dewatering General Permit may be more restrictive, and they take precedence over this range).
  - 3. Erosion and sedimentation controls shall be used at and adjacent to the project limits to prevent discoloration or sedimentation of surface waters as a result of activities related to dewatering and drainage control.
  - 4. All erosion and sedimentation controls shall conform to the State of Maine and/or City of Portland guidelines.
  - 5. No litter, debris, building materials, or similar materials shall be discharged from the Site.
  - 6. The discharge shall be treated on-site to reduce concentrations of constituents listed in the Dewatering General Permit and other applicable permits and approvals to below applicable limits stated in the Dewatering General Permit and other permits and approvals.

## 1.06 QUALITY ASSURANCE

- A. The dewatering work shall be performed by a general contractor or a specialty subcontractor specializing in and having experience installing and operating dewatering systems in similar subsurface conditions for at least 5 years.
- B. Dewatering and drainage system design shall be prepared by a licensed Professional Engineer, registered in the State of Maine, having a minimum of 5 years of professional experience in the design and construction of dewatering and drainage systems.
- C. Well drillers shall be licensed in the State of Maine.

## 1.07 JOB CONDITIONS

- A. The Contractor shall anticipate that fill soils may contain man-made structures (e.g., abandoned foundations), cobbles, boulders, utilities, former utilities, debris, previous earth support systems, and other structures that may affect dewatering. The Contractor is advised that numerous utilities are present in the general area of the Work. The Contractor shall investigate, understand, and protect all utilities as part of its Work for this project.
- B. Subsurface investigation data are available in the following documents, which are provided for reference in Appendix A, B, and C.
  - 1. Report entitled “Revised Geotechnical and Environmental Data Report, Back Cove South CSO Storage Conduit, Marginal Way, Portland, Maine,” dated 7 August 2015, prepared by Haley & Aldrich, Inc.
  - 2. Memorandum entitled “Supplemental Environmental Testing Results/Urban Fill Management, Back Cove South Storage Conduit, Marginal Way, Portland, Maine,” dated 19 February 2016, prepared by Haley & Aldrich, Inc.
  - 3. Memorandum entitled “Groundwater Level Monitoring Data, Back Cove South Storage Conduit, Marginal Way, Portland, Maine,” dated 23 June 2016, prepared by Haley & Aldrich, Inc.
- C. The Contractor shall review and understand the information contained in the reports/memoranda. The information contained in the reports/memoranda is made available to the Contractor for information on factual data only and shall not be interpreted as a warranty of subsurface conditions whether interpreted from written text, boring logs, or other data.
- D. Test borings, installation of observation wells and other exploratory operations may be made by the Contractor at no additional cost to the Owner.

## **PART 2 - PRODUCTS**

### **2.01 MATERIALS**

- A. Materials and equipment shall be of suitable size, capacity and type to:
  - 1. Dewater soils to a level equal to 2 ft below the final excavation level in accordance with the requirements herein.
  - 2. Collect and remove groundwater, groundwater seepage, precipitation, surface water runoff, and other construction-generated waters from the excavation for the purpose of maintaining dry and stable working surfaces.
  - 3. Maintain suspended solids and other contaminants below permit criteria.
  - 4. Pump, store, manage, treat and discharge treated groundwater as necessary.
- B. Dewatering well casings, screens, discharge columns and appurtenances (if used) shall be designed by the Contractor, reviewed and accepted by the Engineer, and shall conform to American Water Works Association (AWWA) Standards for Water Supply Wells. Well diameters shall be large enough to accommodate submersible pumps capable of producing the Contractor-estimated dewatering flow rates per well.
- C. Filter sand for the dewatering wells shall be Morie sand (specific gradation to be designed by the Contractor and reviewed and accepted by the Engineer) or Engineer-accepted equivalent.
- D. Filter sand for the observation wells shall be Ottawa sand or Engineer-accepted equivalent.
- E. Granular bentonite for well seals shall be Enviroplug Medium, as manufactured by Wyo-Ben, Inc., Billings, MT, or Holeplug, as manufactured by Baroid Division, Petroleum Services, Inc., Houston, TX, or acceptable equivalent.
- F. Crushed stone for dewatering trenches and sumps shall be in accordance with the Maine Department of Transportation Standard Specifications, 703.13.
- G. Employ equipment capable of installing dewatering and drainage system components and observation wells under conditions at the planned time of installation. Under no circumstances shall use of any drilling fluids other than potable water or degradable polymer slurry be permitted. Drilling procedures shall not result in borehole smearing.
- H. Provide a calibrated flow meter and a totalizer to measure the discharge flow rate and the total volume of water discharged.

- I. Provide sampling ports in the discharge line for sampling water in accordance with applicable permits.
- J. Pipe for observation wells, if required, shall consist of minimum 2-in I.D., Schedule 40 PVC pipe and machine slotted PVC wellpoints, maximum slot size 0.020-in.

## 2.02 TREATMENT SYSTEMS

- A. Treatment systems shall be implemented as required to control suspended solids, pH, oil/grease, and to meet permit discharge requirements. Treatment systems shall be of sufficient size and capacity to process the anticipated groundwater flows and volumes, and to reduce contaminant concentrations to below limits listed in the Dewatering General Permit and other applicable permits.
- B. Storage units used to handle quantities of groundwater in excess of the pretreatment unit capacity shall be of sufficient size, and capacity to allow the Work to proceed without interruption.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Construction Dewatering is required to protect foundation subgrades and to maintain dry and stable conditions for construction. The Contractor shall maintain a continuous and completely effective dewatering system during the course of construction, including weekends and holidays and during periods of work stoppages, and provide adequate backup systems to maintain control of water until construction has been completed to such an extent that the foundation, structure, pipe, conduit, or fill will not be floated or otherwise damaged.
- B. Methods of groundwater control may include but not limited to trenches and sump pumping, wellpoints, shallow or deep wells or some combination thereof. It is anticipated that wellpoints will be required to dewater the fine-grained water-bearing soils within the project limits; however, the Engineer may approve the use of deep wells if the Contractor can prove, through installation of a test well and completion of a pumping test at least 72 hours in duration, that deep wells can achieve the required drawdown and allow work to proceed in-the-dry.
- C. Control surface water and groundwater such that excavation to final grade is made in-the-dry, the bearing soils are maintained undisturbed, and softening and/or instability or disturbance due to the presence or seepage of water does not occur. All construction and backfilling shall proceed in-the-dry and flotation of completed portions of work shall be prohibited.
- D. The Contractor shall consider the impact of anticipated subsurface soil/water when selecting methods of excavation and temporary dewatering and drainage systems. When groundwater levels are above the proposed excavation subgrade, the dewatering system

shall pre-drain the soils to at least 2 ft below the lowest level of the excavation until construction has been completed to such an extent that the foundation, structure, pipe, conduit, or fill will not be floated or otherwise damaged. The type of dewatering system, spacing of dewatering extraction points and other details of the work shall be determined by the Contractor and may vary with the soil/water conditions at a particular location.

- E. Dewatering and drainage operations shall be conducted in a manner that does not cause loss of ground or disturbance to the soil that supports overlying or adjacent utilities or structures.
- F. Locate groundwater control system components where they will not interfere with construction activities within or adjacent to the Work area, including installation of support-of-excavation elements, installation and monitoring of geotechnical instrumentation, or existing utilities or structures. Excavations for sumps or drainage ditches shall not be made within or below 1H:1V slopes extending downward and out from the outer edges of existing utilities or the proposed storage conduit.
- G. Install, monitor and report data from observation wells and/or piezometers (if used) as shown on the accepted submittals. Evaluate the collected data relative to groundwater control system performance and modify systems as necessary to dewater the site in accordance with the requirements herein.
- H. Install dewatering and drainage systems in accordance with the approved submittals and in the presence of the Engineer.

### 3.02 SURFACE WATER CONTROL

- A. Intercept surface water and divert it away from excavations through use of dikes, ditches, curb walls, pipes, sumps, or other approved means. The requirement includes temporary works required to protect adjoining properties from surface drainage caused by construction operations.
- B. Divert surface water and seepage water into sumps and pump it into drainage channels or storm drains located within the project limits, when approved by agencies having jurisdiction. Provide settling basins when required by such agencies.
- C. Subgrades shall be sloped to prevent ponding of water.
- D. Subgrades that become disturbed due to surface water shall be over-excavated and replaced at no additional cost to the Owner to the satisfaction of the Engineer.
- E. Remove surface runoff controls when no longer needed.

### 3.03 DEWATERING SYSTEMS

- A. At all times during construction, the Contractor shall furnish and maintain proper equipment and facilities to remove promptly and legally dispose of all water entering

excavations. Excavations shall be kept in-the-dry, so as to obtain a satisfactory undisturbed subgrade foundation condition until the fill, structure or pipes to be built thereon have been completed to such extent that they will not be floated or otherwise damaged by allowing water levels to return to static elevations.

- B. Dewatering systems may include deep or shallow wells, wellpoints, sumps, trenches, and other equipment and appurtenances designed by a Professional Engineer licensed in the State of Maine and installed by the Contractor sufficiently below the lowest point of excavation, and to maintain the groundwater level 2 ft below the bottom of the excavation. The Owner and Engineer will reject Submittals that propose to dewater the excavation using sumps and trenches exclusively.
- C. Design and Operate Dewatering Systems:
  - 1. To prevent loss of ground as water is removed.
  - 2. To avoid inducing settlement or damage to existing utilities, facilities, completed Work, or adjacent property.
  - 3. To relieve any artesian pressures and resultant uplift of excavation subgrade.
- D. Where the groundwater level is above the proposed bottom of the excavation level, it is expected that some type of pumped dewatering system will be required for pre-drainage of the soils prior to final excavation and for maintaining the lowered groundwater level until construction has been completed to such an extent that the structure, pipeline or fill will not be floated or otherwise damaged. It is further expected that the type of system, spacing of dewatering units and other details of the Work will vary depending on soil /groundwater conditions at a particular location.
- E. Provide sufficient redundancy in each system to keep excavation free of water in event of dewatering system component failure.
- F. Provide 100 percent emergency power backup with automatic startup and switchover in event of electrical power failure.
- G. Dewatering and drainage operation shall at all times be conducted in such a manner as to preserve the natural undisturbed capacity of the subgrade soils at proposed bottom of excavation subgrade. If the subgrade of the trench bottom or excavation becomes disturbed due to inadequate drainage, the Contractor shall excavate below normal grade as directed by the Engineer and refill with screened gravel, compacted structural fill, etc. at the Contractor's expense to restore the bearing capacity of the subgrade to its original undisturbed condition.
- H. If the dewatering system does not properly dewater the project limits as specified, install groundwater observation wells and/or piezometers as directed by the Engineer and at no additional cost to the Owner and do not place any pipe or structure until the readings

obtained from the observation wells and/or piezometers indicate that the groundwater has been lowered a minimum of 2 ft below the excavation subgrade within the project limits.

- I. Dewatering wells used in the work shall be surrounded by suitable filters, screens, and/or sand and gravel packs such that, after initial development, the quantity and size of soil particles discharged shall be negligible. Pumping from the dewatering system shall be continuous until pipe or structure is adequately backfilled. Stand-by pumps and a source of stand-by power shall be provided.
- J. Dewatering wells shall be developed in accordance with the accepted submittals. At a minimum, the wells and/or wellpoints shall be developed by pumping and surging, alternately jetting (with water or air) and pumping, or alternative method acceptable to the Engineer, until the water clears visibly, specific capacity (flow rate per ft of drawdown) has increased, and there is no visible evidence of suspended solids, including entrained soils and drilling fluids.
- K. Dewatering systems and components shall be installed and operational, and the Contractor shall demonstrate that it has achieved the performance criteria herein prior to excavating within 2 ft of the groundwater level at the time of excavation.
- L. The Contractor shall furnish, provide, install, operate, maintain, move and subsequently remove as often as necessary or required to achieve the requirements herein, all the pumps, piping, hoses, flumes, dams, equipment, labor and materials necessary or required for controlling surface and subsurface water entering the project limits, regardless of source or quantity, during the construction of the proposed facilities and the subsequent filtration of said waters prior to discharge at no additional cost to the Owner.

#### 3.04 OBSERVATION WELLS AND PIEZOMETERS

- A. Install observation wells and/or piezometers in accordance with the approved submittals to monitor groundwater levels beneath and adjacent to the excavated areas until adjacent structures and pipelines are completed and backfilled, and as necessary to indicate that the groundwater control system is performing as intended. Additional observation wells may be required by the Engineer if deemed necessary to monitor the performance of the Contractor's groundwater control system at no additional cost to the Owner. Please note that observation wells exist within the project limits and are available for use by the Contractor. The Contractor shall protect the existing wells throughout construction and shall replace if damaged at no additional cost to the Owner to the satisfaction of the Engineer.
- B. Observation wells and/or piezometers shall be developed so as to provide a reliable indication of groundwater levels. Wells and/or piezometers shall be re-developed if well clogging is observed, in the event of apparent erroneous readings, or as directed by the Engineer.
- C. The Contractor shall maintain each observation well and/or piezometer until adjacent structures and pipelines are completed and backfilled. Clean out or replace any

observation well or piezometer that ceases to be operable before adjacent Work is completed. It is the Contractor's obligation to maintain observation wells/piezometers and repair or replace them at no additional cost to the Owner, whether or not the observation wells/piezometers are damaged by the Contractor's operations or by third parties.

- D. Submit observation well/piezometer installation logs, top of casing elevation, and locations to the Engineer within one week of completion of well/piezometer installation.
- E. The Contractor shall begin daily monitoring of groundwater levels in Work areas prior to initial operation of drainage and dewatering system. Daily monitoring in areas where groundwater control is in operation shall continue until the time that adjacent structures and pipelines are completed and backfilled and until the time that groundwater control systems are turned off.
- F. The Contractor is responsible for processing and reporting well/piezometer data to the Engineer on a daily basis. Data is to be provided to the Engineer on a form that shall include the following information: observation well/piezometer number, depth to groundwater, total depth of well, top of casing elevation, groundwater level elevation and date and time of reading.

### 3.05 MONITORING AND RECORDING FLOWS

- A. Monitor and record average flow rate of operation for each deep well, or for each well point or eductor header in dewatering system. Also monitor and record water level and ground water recovery. These records shall be obtained daily until steady conditions are achieved, and twice weekly thereafter.
- B. Observe and record elevation of water level daily as long as groundwater control system is in operation, and weekly thereafter until Work is completed or piezometers and/or observation wells are removed, except when the Engineer determines that more frequent monitoring and recording are required.
- C. Monitor dewatering system discharge to confirm that the system is not extracting fines or sands from the ground. Contractor shall stop dewatering and drainage activities and take appropriate remedial actions if loss of ground is observed.

### 3.06 DISPOSAL OF WATER

- A. All water discharged from temporary dewatering and drainage systems shall be permitted, pretreated, sampled and disposed of in accordance with the permit requirements. The Contractor shall notify the Engineer and the Owner 48 hours in advance in writing, prior to discharge of dewatering and drainage waters. Following permitting and onsite pretreatment, all water discharged from the temporary dewatering and drainage systems shall be routinely sampled and routed to the permitted discharge point(s).

- B. Obtain discharge permit for water disposal from authorities having jurisdiction.
- C. Treat water collected by dewatering operations, as required by regulatory agencies, prior to discharge.
  - 1. Discharge water as required by discharge permit and in a manner that will not cause erosion or flooding, or otherwise damage existing facilities, completed Work, or adjacent property.
  - 2. Remove solids from treatment facilities and perform other maintenance of treatment facilities as necessary to maintain their efficiency.
- D. Dewatering wastewaters discharged to surface waters shall be discharged in a manner that minimizes the discoloration of the receiving waters and prevents dewatering wastewaters from causing scouring or erosion or entrainment of suspended solids in amounts that could reasonably be expected to cause pollution of waters of the State.

### 3.07 PROTECTION

- A. Dewatering and drainage facilities, procedures, measures, equipment, etc. that cause, or threaten to cause, damage to the Work, completed or under construction, or other existing facilities, shall be expeditiously modified or replaced so as to prevent further damage or the potential for damage. The Contractor shall be responsible for determining the modifications or replacements to be made, at no additional expense to the Owner. The Contractor shall be responsible for the repair or replacement of any facilities of whatever nature, new, existing, or under construction, damaged by or incidental to the Contractor's operations, at no additional cost to the Owner. The Contractor shall take all additional precautions to prevent uplift of any structure during construction.
- B. The Contractor shall continuously monitor dewatering and drainage effluents so as to ensure and prevent the unnoticed prolonged displacement, extraction or migration of particulate matter from the bottoms and sides of trenches or excavations resulting in the immediate or latent subsidence of same, which in turn, threaten the Work, completed or in progress, or other utilities, structures, adjacent properties, buildings, pavements or other surfaces, and the like.

### 3.08 MAINTENANCE AND OBSERVATION

- A. On a daily basis, maintain and observe the dewatering and drainage system components, including observation wells and/or piezometers. Replace damaged dewatering and drainage systems components and observation wells at no additional cost to the Owner.

### 3.09 REMOVAL OF SYSTEMS

- A. At the completion of the excavation and backfilling Work, and when approved by the Engineer, all pipes, deep wells, wellpoints, sumps, trenches, pumps, generators, observation wells and/or piezometers, other equipment and accessories used for the groundwater and surface water control systems shall be removed from the site. All materials and equipment shall become the property of the Contractor. All areas disturbed by the installation and removal of groundwater control systems and observation wells shall be restored to their original condition.
- B. If approved by the Engineer and Owner, leave in place any casings for deep wells, wellpoints, sumps, or observation wells and/or piezometers, trenches and sumps, located within the plan limits of structures or pipelines. If approved by the Engineer, these same elements may be left in place within the zone below 1H:1V planes extending downward and out from the edges of the storage conduit or from the downward projected plan limits of the pipe, or where removal would otherwise result in ground movements causing adverse settlement to adjacent ground surface, utilities or existing structures. Fill casings and boreholes with cement grout to preclude upward discharge of groundwater into the work area or finished structure.
- C. When directed by the Engineer, observation wells and/or piezometers located beyond the limits of structures should be left in place for continued monitoring. When so directed, the Contractor shall cut casings of these observation wells and/or piezometers flush with final ground level and provide protective lockable boxes with locking devices. The protective boxes shall be suitable for the traffic and for any other conditions to which the observation wells and/or piezometers will be exposed.

### **PART 4 – MEASUREMENT/PAYMENT**

- 4.01 No separate measurement or payment will be made for construction dewatering activities associated with the proposed construction activities. This work shall be considered incidental to the related pay items requiring dewatering.
- 4.02 No separate measurement or payment will be made for acquisition of permits, backfill, equipment, material disposal, stockpiling, material rehandling, surveying, water treatment, or other associated items or work considered incidental to the conduct the Work of this Section.

**SECTION 700 - MATERIALS**

The following are revisions and additions to the Material Details Division of the Standard Specifications, Highways and Bridges, Revision of December, 2002. Provisions contained herein shall be considered to supplement or supersede those portions of the Standard Specifications as they apply to the Contract.

The GENERAL STATEMENT of this Division is hereby revised to read as follows:  
All materials which are to be used in the work for which there is no prescribed testing by the project inspectors or other certified laboratories, the CONTRACTOR shall, prior to final acceptance as specified in subsection 107.9.4, submit a Materials Certification Letter similar to:

Company Letterhead

Mr. \_\_\_\_\_ Resident \_\_\_\_\_ Date \_\_\_\_\_  
Address \_\_\_\_\_ Project No. \_\_\_\_\_  
\_\_\_\_\_ Town \_\_\_\_\_

"This is to certify that the below listed materials, which are incorporated into the above designated project, comply with the pertinent specified material requirements of the contract. Processing, project testing and inspection control of raw materials are in conformity with the applicable drawings and/or standards of all articles furnished. (List only those items used.)

- Castings, Grates, Frames and Traps
- Concrete Blocks, Bricks, Precast Sections, Appurtenant Structures
- Culverts, Underdrain, Sanitary Sewer Pipe and Storm Drain Pipe
- Regulatory Signs and Posts

All records and documents pertinent to this letter and not submitted herewith shall be maintained available by the undersigned for a period of not less than three (3) years from the date of completion of the project.

The Materials Certification letter shall be signed by a person having legal authority to bind the CONTRACTOR.

Materials for which the above Certificate is acceptable may be subject to random sampling and testing by the City. Certified materials which fail to meet specification requirements may not be accepted.

## SECTION 703 - AGGREGATES

The provisions of Section 703 of the Standard Specifications shall apply with the following additions and modifications:

### **703.02 Coarse Aggregate for Concrete:**

Designated Aggregate Size

Sieve Size	Percent Passing Sieve				
	2 in.	1½ in.	1 in.	¾ in.	½ in.
2 in.	95-100	100	-	-	-
1-1/2 in.	-	95-100	100	-	-
1 in.	50-70	-	90-100	100	-
¾ in.	-	50-70	-	90-100	100
½ in.	15-30	-	25-60	-	90-100
¾ in.	-	10-30	-	20-55	-
No. 4	0-5	0-5	0-10	0-10	0-15
F.M. (+0.20)	7.45	7.20	6.95	6.70	6.10

Aggregate used in concrete shall not exceed the following maximum designated sizes:

- a. 2 inches for mass concrete
- b. 1-1/2 inch for piles, pile caps, footings, foundation mats, and walls 8 inches or more thick
- c. ¾ inch for slabs, beams, and girders.
- d. ½ inch for fireproofing on steel columns and beams
- e. 1 inch for all other concrete

### **703.06 (a) Aggregate Base:**

Aggregate base - crushed, type "B" shall not contain particles of rock which will not pass the two inch square mesh sieve, and shall conform to the type "B" aggregate, as listed in the subsection of the Standard Specifications.

"Crushed" shall be defined as consisting of rock particles with at least 50 percent of the portion retained on the 1/4 inch square mesh sieve, having a minimum of 2 fracture faces.

### **703.06 (b) Aggregate Subbase:**

Gravel subbase shall not contain particles of rock which will not pass the three inch square mesh sieve, and shall conform to type "D" Aggregate, as listed in this subsection of the Standard Specifications.

Gravel subbase shall not contain particles of rock which will not pass the three inch (3") square mesh sieve, and shall conform to type "D" Aggregate, as listed in this subsection of the Standard Specifications.

Sieve Size	Aggregate Type		
	Type B	Type D	Type F
3"	--	100	--
2"	100	--	--
1"	--	--	100
1/2"	35-75	--	--
1/4"	25-60	25-70	60-100
No. 40	0-25	0-30	0-50
No. 200	0-5	0-7	0-7

**703.18 Common Borrow:**

Common borrow shall not contain any particle of bituminous material.

**703.19 Granular Borrow:**

Granular borrow shall contain no particles which will not pass a three inch (3") square mesh sieve.

**703.20 Gravel Borrow:**

Gravel borrow shall not contain particles of rock which will not pass three inch ("3") square mesh sieve.

**703.30 Crushed Stone for Pipe Bedding and Underdrain Drainage Layer**

"Crushed Stone" shall be defined as rock of uniform quality and shall consist of clean, angular fragments of quarried rock, free from soft disintegrated pieces or other objectionable matter.

Crushed stone used as a bedding material for pipe and underdrain shall be uniformly graded and shall meet the follow gradations:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
3/4 – inch-----	100
3/8 – inch-----	20 – 55
No. 4-----	0 – 10

The stone shall be free from vegetation, lumps or balls of clay, and other deleterious substances.

**703.31 Crushed Stone for Excavation Below Grade**

Crushed stone shall meet the following gradation requirements:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
2-1/2 –inch-----	100
2 –inch-----	95 – 100
1-inch-----	0 – 30
3/4-inch-----	0 – 5

The stone shall be free from vegetation, lumps or balls of clay, and other deleterious substances.

**703.50 Structural Fill**

Structural fill shall meet the following gradation requirements:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieve
4 – inch-----	100
3 – inch-----	90 – 100
¼ - inch-----	25 – 90
No. 40-----	0 - 30
No. 200-----	0 - 5

The fill shall be free from vegetation, lumps or balls of clay, and other deleterious substances.

**Appendix A – Geotechnical and Environmental Data Report, Back Cove South CSO  
Storage Conduit, Marginal Way, Portland, Maine – Haley & Aldrich, Inc. revised August  
7, 2015**

**(Available Upon Request)**

**Appendix B – Supplemental Environmental Testing Results/Urban Fill Management, Back Cove South Storage Conduit, Marginal Way, Portland, Maine – Haley & Aldrich, Inc., dated February 19, 2016**

**(Available Upon Request)**

**Appendix C – Groundwater Level Monitoring Data, Back Cove South Storage Conduit, Marginal Way, Portland, Maine – Haley & Aldrich, Inc. dated June 23, 2016.**

**(Available Upon Request)**

**ATTACHED PLANS - Contract Drawings Sheets 1 through 7**