

Updated 05/15/2020

STATE PROJECT

BIDDING INSTRUCTIONS

FOR ALL PROJECTS:

1. Use pen and ink to complete all paper Bids.
2. As a minimum, the following must be received prior to the time of Bid opening:

For a Paper Bid:

- a) a copy of the Notice to Contractors, b) the completed Acknowledgement of Bid Amendments form, c) the completed Schedule of Items, d) two copies of the completed and signed Contract Offer, Agreement & Award form, e) a Bid Guaranty, (if required), and f) any other certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

For an Electronic Bid:

NOTE: Not all projects accept Electronic Bids. Please review the Notice to Contractors and see if it specifically states that Electronic Bids will be accepted.

- a) a completed Bid using Expedite® software and submitted via the Bid Express™ web-based service, b) an electronic Bid Guaranty (if required) or a faxed copy of a Bid Bond (with original to be delivered within 72 hours), and c) any other Certifications or Bid requirements listed in the Bid Documents as due by Bid opening.
3. Include prices for all items in the Schedule of Items (excluding non-selected alternates).
4. Bid Guaranty acceptable forms are:
 - a) a properly completed and signed Bid Bond on the Department's prescribed form (or on a form that does not contain any significant variations from the Department's form as determined by the Department) for 5% of the Bid Amount or
 - b) an Official Bank Check, Cashier's Check, Certified Check, U.S. Postal Money Order or Negotiable Certificate of Deposit in the amount stated in the Notice to Contractors or
 - c) an electronic bid bond submitted with an electronic bid.
5. If a paper Bid is to be sent, "FedEx First Overnight" delivery is suggested as the package is delivered directly to the DOT Headquarters Building located at 16 Child Street in Augusta. Other means, such as U.S. Postal Service's Express Mail has proven not to be reliable.

IN ADDITION, FOR FEDERAL AID PROJECTS:

6. Complete the DBE Proposed Utilization form, and submit with your bid. If you are submitting your bid electronically, you must FAX the form to (207) 624-3431. This is a curable defect.

*If you need further information regarding Bid preparation, call the DOT
Contracts Section at (207) 624-3410.*

*For complete bidding requirements, refer to Section 102 of the Maine Department
of Transportation, Standard Specifications, March 2020 Edition.*

NOTICE

The Maine Department of Transportation is attempting to improve the way Bid Amendments/Addendums are handled, and allow for an electronic downloading of bid packages from our website, while continuing to maintain an optional plan holders list.

Prospective bidders, subcontractors or suppliers who wish to download a copy of the bid package and receive a courtesy notification of project specific bid amendments must fill out the on-line plan holder registration form and provide an email address to the MDOT Contracts mailbox at: MDOT.contracts@maine.gov. Each bid package will require a separate request.

Additionally, interested parties will be responsible for reviewing and retrieving the Bid Amendments from our web site, and acknowledging receipt and incorporating those Bid Amendments in their bids using the Acknowledgement of Bid Amendment Form.

The downloading of bid packages from the MDOT website is not the same as providing an electronic bid to the Department. Electronic bids must be submitted via <http://www.BIDX.com>. For information on electronic bidding contact Rebecca Snowden at rebecca.snowden@maine.gov or Diane Barnes at diane.barnes@maine.gov.

NOTICE

For security and other reasons, all Bid Packages which are mailed, shall be provided in double (one envelope inside the other) envelopes. The *Inner Envelope* shall have the following information provided on it:

Bid Enclosed - Do Not Open

PIN:

Town:

Date of Bid Opening:

Name of Contractor with mailing address and telephone number:

In Addition to the usual address information, the *Outer Envelope* should have written or typed on it:

Double Envelope: Bid Enclosed

PIN:

Town:

Date of Bid Opening:

Name of Contractor:

This should not be much of a change for those of you who use Federal Express or similar services.

Hand-carried Bids may be in one envelope as before, and should be marked with the following information:

Bid Enclosed: Do Not Open

PIN:

Town:

Name of Contractor:

October 16, 2001

STATE OF MAINE DEPARTMENT OF TRANSPORTATION
Bid Guaranty-Bid Bond Form

KNOW ALL MEN BY THESE PRESENTS THAT _____

_____, of the City/Town of _____ and State of _____

as Principal, and _____ as Surety, a

Corporation duly organized under the laws of the State of _____ and having a usual place of

Business in _____ and hereby held and firmly bound unto the Treasurer of

the State of Maine in the sum of _____ for payment which Principal and Surety bind

themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

The condition of this obligation is that the Principal has submitted to the Maine Department of

Transportation, hereafter Department, a certain bid, attached hereto and incorporated as a

part herein, to enter into a written contract for the construction of _____

_____ and if the Department shall accept said bid

and the Principal shall execute and deliver a contract in the form attached hereto (properly

completed in accordance with said bid) and shall furnish bonds for this faithful performance of

said contract, and for the payment of all persons performing labor or furnishing material in

connection therewith, and shall in all other respects perform the agreement created by the

acceptance of said bid, then this obligation shall be null and void; otherwise it shall remain in full

force, and effect.

Signed and sealed this _____ day of _____ 20____

WITNESS:

WITNESS

PRINCIPAL:

By _____

By: _____

By: _____

SURETY:

By _____

By: _____

Name of Local Agency: _____

NOTICE

Bidders:

Please use the attached “Request for Information” form when submitting questions concerning specific Contracts that have been advertised for Bid, include additional numbered pages as required. RFI’s may be faxed to 207-624-3431, submitted electronically through the Departments web page of advertised projects by selecting the RFI tab on the project details page or via e-mail to RFI-Contracts.MDOT@maine.gov.

These are the only allowable mechanisms for answering Project specific questions. Maine DOT will not be bound to any answers to Project specific questions received during the Bidding phase through other processes.

When submitting RFIs by Email please follow the same guidelines as stated on the “Request for Information” form and include the word “RFI” along with the Project name and Identification number in the subject line.

RFI No: _____

Date _____ **Time** _____

WIN(S): _____ **Town(s):** _____ **Bid Date:** _____

Question(s):_____

Company Name:_____ **Phone:()**_____

Email: _____ **Fax:** (____) _____

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Vendor Registration

Prospective Bidders must register as a vendor with the Department of Administrative & Financial Services if the vendor is awarded a contract. Vendors will not be able to receive payment without first being registered. Vendors/Contractors will find information and register through the following link –

<http://www.maine.gov/purchases/venbid/index.shtml>

STATE OF MAINE DEPARTMENT OF TRANSPORTATION NOTICE TO CONTRACTORS

Sealed Bids addressed to the Maine Department of Transportation, Augusta, Maine 04333 and endorsed on the wrapper "Bids for **Large Culvert Replacement** in the Town of **Cumberland**" will be received from contractors at the Reception Desk, MaineDOT Building, Capitol Street, Augusta, Maine, until 11:00 o'clock A.M. (prevailing time) on **July 29, 2020** and at that time and place, publicly opened and read. Bids will be accepted from all bidders. The lowest responsive bidder must complete, or successfully complete a **Highway Construction Prequalification** or a project specific prequalification to be considered for the award of this contract. **We now accept electronic bids for bid packages posted on the bidx.com website. Electronic bids do not have to be accompanied by paper bids. Please note: The Department will accept a facsimile of the bid bond; however, the original bid bond must then be received at the MDOT Contract Section within 72 hours of the bid opening. Until further notice, dual bids (one paper, one electronic) will be accepted, with the paper copy taking precedence.**

Description: WIN. 022668.00

Location: In Cumberland County, project is located on the Tuttle Rd. 1.93 miles southeast of Rte.9.

Outline of Work: Large Culvert Replacement and other incidental work.

For general information regarding Bidding and Contracting procedures, contact George Macdougall at (207) 624-3410. Our webpage at <http://www.maine.gov/mdot/contractors/> contains a copy of the Schedule of Items, Plan Holders List, written portions of bid amendments, drawings, bid results and an electronic form for RFI submittal. For Project-specific information fax all questions to **Project Manager** LaRay Hamilton at (207) 624-3431, use electronic RFI form or email questions to RFI-Contracts.MDOT@maine.gov, project name and identification number should be in the subject line. Questions received after 12:00 noon of Monday (or if that Monday is a state holiday, Friday) prior to bid date will not be answered. Bidders shall not contact any other Departmental staff for clarification of Contract provisions, and the Department will not be responsible for any interpretations so obtained. TTY users call Maine Relay 711.

Plans, specifications and bid forms may be seen at the MaineDOT Building in Augusta, Maine and at the Department of Transportation's Regional Office in Scarborough. They may be purchased from the Department between the hours of 8:00 a.m. to 4:30 p.m. by cash, credit card (Visa/Mastercard) or check payable to Treasurer, State of Maine sent to Maine Department of Transportation, Attn.: Mailroom, 16 State House Station, Augusta, Maine 04333-0016. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. Full size plans **\$15.00 (\$18.50 by mail)**. Half size plans **\$7.50 (\$9.75 by mail)**, Bid Book \$10 (\$13 by mail), Single Sheets \$2, payment in advance, all non-refundable.

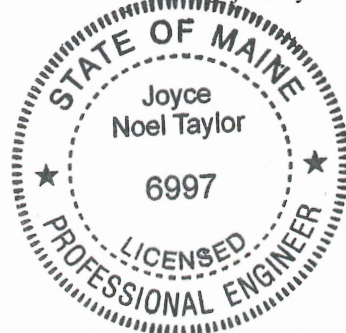
Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of **\$20,000.00** payable to Treasurer, State of Maine as a Bid guarantee. A Contract Performance Surety Bond and a Contract Payment Surety Bond, each in the amount of 100 percent of the Contract price, will be required of the successful Bidder.

This Contract is subject to all applicable State Laws.

All work shall be governed by *State of Maine, Department of Transportation, Standard Specifications, March 2020 Edition*, price \$10 [\$15 by mail], and *Standard Details, March 2020 Edition*, price \$10 [\$15 by mail]. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. *Standard Detail* updates can be found at <http://www.maine.gov/mdot/contractors/publications/>.

The right is hereby reserved to the MaineDOT to reject any or all bids.

Augusta, Maine
July 8, 2020



JOYCE NOEL TAYLOR P. E.
CHIEF ENGINEER

NOTICE TO CONTRACTORS - PREFERRED EMPLOYEES

Sec. 1303. Public Works; minimum wage

In the employment of laborers in the construction of public works, including state highways, by the State or by persons contracting for the construction, preference must first be given to citizens of the State who are qualified to perform the work to which the employment relates and, if they can not be obtained in sufficient numbers, then to citizens of the United States. Every contract for public works construction must contain a provision for employing citizens of this State or the United States. The hourly wage and benefit rate paid to laborers employed in the construction of public works, including state highways, may not be less than the fair minimum rate as determined in accordance with section 1308. Any contractor who knowingly and willfully violates this section is subject to a fine of not less than \$250 per employee violation. Each day that any contractor employs a laborer at less than the wage and benefit minimum stipulated in this section constitutes a separate violation of this section. [1997, c. 757, §1 (amd).]

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS

With this form, the Bidder acknowledges its responsibility to check for all Amendments to the Bid Package. For each Project under Advertisement, Amendments are located at <http://www.maine.gov/mdot/contractors/> . It is the responsibility of the Bidder to determine if there are Amendments to the Project, to download them, to incorporate them into their Bid Package, and to reference the Amendment number and the date on the form below. The Maine DOT will not post Bid Amendments any later than noon the day before Bid opening without individually notifying all the planholders.

Amendment Number	Date

The Contractor, for itself, its successors and assigns, hereby acknowledges that it has received all of the above referenced Amendments to the Bid Package.

CONTRACTOR

Date

Signature of authorized representative

(Name and Title Printed)

7/3/2020

Maine Department of Transportation

Proposal Schedule of Items

Page 1 of 4

Proposal ID: 022668.00

Project(s): 022668.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0010	203.20 COMMON EXCAVATION	455.000 CY	_____	 _____	_____	 _____
0020	203.25 GRANULAR BORROW	350.000 CY	_____	 _____	_____	 _____
0030	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	475.000 CY	_____	 _____	_____	 _____
0040	403.208 HOT MIX ASPHALT 12.5 MM HMA SURFACE	74.000 T	_____	 _____	_____	 _____
0050	403.213 HOT MIX ASPHALT 12.5 MM BASE	124.000 T	_____	 _____	_____	 _____
0060	409.15 BITUMINOUS TACK COAT - APPLIED	16.000 G	_____	 _____	_____	 _____
0070	511.07 COFFERDAM: Downstream	LUMP SUM	LUMP SUM		_____	 _____
0080	511.07 COFFERDAM: Upstream	LUMP SUM	LUMP SUM		_____	 _____
0090	602.30 FLOWABLE CONCRETE FILL	16.000 CY	_____	 _____	_____	 _____
0100	603.4073 128" X 83" POLYMER COATED CORRUGATED STEEL PIPE	96.000 LF	_____	 _____	_____	 _____
0110	606.363 GUARDRAIL REMOVE AND DISPOSE	166.000 LF	_____	 _____	_____	 _____
0120	610.08 PLAIN RIPRAP	45.000 CY	_____	 _____	_____	 _____

7/3/2020

Maine Department of Transportation

Proposal Schedule of Items

Page 2 of 4

Proposal ID: 022668.00

Project(s): 022668.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0130	613.319 EROSION CONTROL BLANKET	10.000 SY	_____	_____	_____	_____
0140	615.10 DIRTY BORROW	29.000 CY	_____	_____	_____	_____
0150	618.14 SEEDING METHOD NUMBER 2	5.000 UN	_____	_____	_____	_____
0160	619.12 MULCH	5.000 UN	_____	_____	_____	_____
0170	619.14 EROSION CONTROL MIX	10.000 CY	_____	_____	_____	_____
0180	620.58 EROSION CONTROL GEOTEXTILE	39.000 SY	_____	_____	_____	_____
0190	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	450.000 LF	_____	_____	_____	_____
0200	629.05 HAND LABOR, STRAIGHT TIME	20.000 HR	_____	_____	_____	_____
0210	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20.000 HR	_____	_____	_____	_____
0220	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	20.000 HR	_____	_____	_____	_____
0230	639.19 FIELD OFFICE TYPE B	1.000 EA	_____	_____	_____	_____
0240	652.312 TYPE III BARRICADE	4.000 EA	_____	_____	_____	_____

7/3/2020

Maine Department of Transportation

Proposal Schedule of Items

Page 3 of 4

Proposal ID: 022668.00

Project(s): 022668.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0250	652.33 DRUM	50.000 EA	_____	 _____	_____	 _____
0260	652.34 CONE	100.000 EA	_____	 _____	_____	 _____
0270	652.35 CONSTRUCTION SIGNS	350.000 SF	_____	 _____	_____	 _____
0280	652.36 MAINTENANCE OF TRAFFIC CONTROL DEVICES	65.000 CD	_____	 _____	_____	 _____
0290	652.38 FLAGGER	790.000 HR	_____	 _____	_____	 _____
0300	652.61 STAGED CONSTRUCTION AND TRAFFIC CONTROL	LUMP SUM	_____	 LUMP SUM	_____	 _____
0310	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM	_____	 LUMP SUM	_____	 _____
0320	659.10 MOBILIZATION	LUMP SUM	_____	 LUMP SUM	_____	 _____
0330	803.181 REMOVE/ ABANDON MANHOLE	2.000 EA	_____	 _____	_____	 _____
0340	822.3405 8 INCH CLASS 52 DUCTILE IRON PIPE PUSH ON JOINT	140.000 LF	_____	 _____	_____	 _____
0350	822.3605 12" CLASS 52 DUCTILE IRON PIPE PUSH ON JOINT	10.000 LF	_____	 _____	_____	 _____
0360	822.3705 16" CL 52 DI PIPE WITH PUSH ON JOINT	170.000 LF	_____	 _____	_____	 _____

7/3/2020

Maine Department of Transportation

Proposal Schedule of Items

Page 4 of 4

Proposal ID: 022668.00

Project(s): 022668.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0370	823.341 AIR RELEASE VALVE 1"	1.000 EA	_____	_____	_____	_____
0380	823.375 16" BUTTERFLY VALVE	2.000 EA	_____	_____	_____	_____
0390	824.3021 HYDRANT ASSEMBLY (TEE/GATE VALVE)	1.000 EA	_____	_____	_____	_____
0400	825.542 TEMPORARY WATER SERVICE	1.000 EA	_____	_____	_____	_____
0410	825.57 1 " WATER SERVICE - RECONNECT	1.000 EA	_____	_____	_____	_____
0420	825.62 8" HIGH DENSITY POLYETHYLENE WATER MAIN	240.000 LF	_____	_____	_____	_____
0430	825.63 16" HIGH DENSITY POLYETHELENE WATER MAIN	240.000 LF	_____	_____	_____	_____
Section: 1			Total:		_____	_____
			Total Bid:		_____	_____

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____ a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, **WIN. 022668.00- for Large Culvert Replacement in the town of Cumberland, County of Cumberland, Maine.**

The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **October 16, 2021** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

\$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications March 2020 Edition*, *Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

WIN. 022668.00 - for Large Culvert Replacement - in the town of Cumberland, County of Cumberland, State of Maine, on which bids will be received until the time specified in

the “Notice to Contractors” do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached “Schedule of Items.”

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached “Schedule of Items” in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached “Schedule of Items,” which may be ordered by the Resident, and to accept as full compensation the amount determined upon a “Force Account” basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier’s check, certificate of deposit or U. S. Postal Money Order in the amount given in the “Notice to Contractors”, payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Fifth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Bruce A. Van Note, Commissioner

Witness

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____ a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

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A. The Work.

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The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **October 16, 2021** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

\$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications March 2020 Edition*, *Standard Details March 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

WIN. 022668.00 - for Large Culvert Replacement - in the town of Cumberland, County of Cumberland, State of Maine, on which bids will be received until the time specified in

the “Notice to Contractors” do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached “Schedule of Items.”

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached “Schedule of Items” in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached “Schedule of Items,” which may be ordered by the Resident, and to accept as full compensation the amount determined upon a “Force Account” basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier’s check, certificate of deposit or U. S. Postal Money Order in the amount given in the “Notice to Contractors”, payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Fifth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Bruce A. Van Note, Commissioner

Witness

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

(Name of the firm bidding the job)

a corporation or other legal entity organized under the laws of the State of Maine, with its principal place of business located at **(address of the firm bidding the job)**

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No.01 **12345.00**, for the **Hot Mix Asphalt Overlay** in the town/city of **South Nowhere**, County of **Washington**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **November 15, 2006**. Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is (Place bid here in alphabetical form such as One Hundred and Two dollars and 10 cents)
\$ (repeat bid here in numerical terms, such as \$102.10) Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition*, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in Appendix A to Division 100 of the *Standard Specifications March 2020 Edition* (Federal Contract Provisions Supplement), and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition*, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 012345.00 South Nowhere, Hot Mix Asphalt Overlay,

State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items."

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

Date

(Witness Sign Here)
Witness

CONTRACTOR

(Sign Here)
(Signature of Legally Authorized Representative
of the Contractor)

(Print Name Here)
(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Bruce A. Van Note, Commissioner

(Witness)

BOND # _____

CONTRACT PERFORMANCE BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ **in the State of** _____, as principal,
and.....
a corporation duly organized under the laws of the State of and having a
usual place of business
as Surety, are held and firmly bound unto the Treasurer of the State of Maine in the sum
of _____ **and 00/100 Dollars (\$** _____ **)**,
to be paid said Treasurer of the State of Maine or his successors in office, for which
payment well and truly to be made, Principal and Surety bind themselves, their heirs,
executors and administrators, successors and assigns, jointly and severally by these
presents.

The condition of this obligation is such that if the Principal designated as Contractor in
the Contract to construct Project Number _____ in the Municipality of
_____ promptly and faithfully performs the Contract, then this
obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the State
of Maine.

Signed and sealed this day of, 20.... .

WITNESSES:

Signature.....
Print Name Legibly

Signature
Print Name Legibly

SURETY ADDRESS:

.....
.....
.....

TELEPHONE.....

SIGNATURES:

CONTRACTOR:

.....
Print Name Legibly

SURETY:

.....
Print Name Legibly

NAME OF LOCAL AGENCY:

ADDRESS
.....
.....

BOND # _____

CONTRACT PAYMENT BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____
_____ **in the State of** _____, as principal,
and.....
a corporation duly organized under the laws of the State of and having a
usual place of business in
as Surety, are held and firmly bound unto the Treasurer of the State of Maine for the use
and benefit of claimants as herein below defined, in the sum of
_____ **and 00/100 Dollars (\$** _____ **)**
for the payment whereof Principal and Surety bind themselves, their heirs, executors and
administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in
the Contract to construct Project Number _____ in the Municipality of
_____ promptly satisfies all claims and demands incurred for all
labor and material, used or required by him in connection with the work contemplated by
said Contract, and fully reimburses the obligee for all outlay and expense which the
obligee may incur in making good any default of said Principal, then this obligation shall
be null and void; otherwise it shall remain in full force and effect.

A claimant is defined as one having a direct contract with the Principal or with a
Subcontractor of the Principal for labor, material or both, used or reasonably required for
use in the performance of the contract.

Signed and sealed this day of, 20

WITNESS:

SIGNATURES:

CONTRACTOR:

Signature.....

.....

Print Name Legibly

Print Name Legibly

SURETY:

Signature.....

.....

Print Name Legibly

Print Name Legibly

SURETY ADDRESS:

NAME OF LOCAL AGENCY:

.....

ADDRESS

.....

.....

TELEPHONE

.....

NOTICE

(COVID-19 Pandemic)

The Department considers the COVID-19 Pandemic an Uncontrollable Event as defined in Section 101.2 of the Department's Standard Specifications.

Accordingly, any documented delay to the project's Critical Path due to COVID-19 related issues, such as impacted workforce, subcontracts, or material supply, will be considered an Excusable Delay as defined in Section 109.5(A)(3) of the Department's Supplemental Specifications.

As an Excusable Delay, the Contractor is entitled to an extension of time provided that other associated notification, documentation, and procedural requirements set forth in the Contract are met.

State of Maine
Department of Labor
Bureau of Labor Standards
Augusta, Maine 04333-0045
Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRS §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid to laborers and workers employed on the below titled project.

**2020 Fair Minimum Wage Rates
Highway & Earth Cumberland County**

<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>	<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>
Asphalt Raker	\$16.00	\$0.00	\$16.00	Laborers (Helpers & Tenders)	\$16.00	\$0.79	\$16.79
Backhoe Loader Operator	\$22.72	\$4.21	\$26.93	Laborer - Skilled	\$18.75	\$1.15	\$19.90
Boom Truck (Truck Crane) Operator	\$25.00	\$4.94	\$29.94	Loader Operator - Front-End	\$20.00	\$3.00	\$23.00
Bulldozer Operator	\$27.25	\$6.14	\$33.39	Mechanic- Maintenance	\$23.00	\$3.09	\$26.09
Carpenter	\$22.46	\$2.19	\$24.65	Millwright	\$29.82	\$7.73	\$37.55
Cement Mason/Finisher	\$16.00	\$4.04	\$20.04	Painter	\$18.00	\$0.45	\$18.45
Crane Operator =>15 Tons)	\$30.00	\$7.76	\$37.76	Paver Operator	\$20.75	\$0.00	\$20.75
Crusher Plant Operator	\$20.50	\$5.33	\$25.83	Pipelayer	\$25.00	\$1.40	\$26.40
Driller - Rock	\$12.00	\$8.82	\$20.82	Plumber (Licensed)	\$26.00	\$4.50	\$30.50
Electrician - Licensed	\$28.00	\$6.27	\$34.27	Reclaimer Operator	\$22.91	\$13.25	\$36.16
Electrician Helper/Cable Puller	\$18.00	\$1.84	\$19.84	Roller Operator - Earth	\$16.00	\$0.24	\$16.24
Elevator Constructor/Installer	\$20.00	\$1.78	\$21.78	Roller Operator - Pavement	\$18.50	\$1.48	\$19.98
Excavator Operator	\$23.39	\$3.11	\$26.50	Screed/Wheelman	\$18.43	\$1.24	\$19.67
Fence Setter	\$18.00	\$1.30	\$19.30	Stone Mason	\$20.00	\$0.42	\$20.42
Flagger	\$14.50	\$0.00	\$14.50	Truck Driver - Light	\$16.00	\$0.44	\$16.44
Grader/Scraper Operator	\$20.00	\$0.65	\$20.65	Truck Driver - Medium	\$19.00	\$1.84	\$20.84
Highway Worker/Guardrail Installer	\$18.25	\$1.66	\$19.91	Truck Driver - Heavy	\$18.00	\$1.40	\$19.40
Hot Top Plant Operator	\$22.91	\$13.25	\$36.16	Truck Driver - Tractor Trailer	\$19.50	\$2.55	\$22.05
Ironworker - Reinforcing	\$29.23	\$7.18	\$36.41	Truck Driver - Mixer (Cement)	\$17.25	\$2.26	\$19.51
Ironworker - Structural	\$26.01	\$22.27	\$48.28				

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices – The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Title 26 §1310 requires that a clearly legible statement of all fair minimum wage and benefits rates to be paid the several classes of laborers, workers and mechanics employed on the construction on the public work must be kept posted in a prominent and easily accessible place at the site by each contractor and subcontractor subject to sections 1304 to 1313.

Appeal – Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates.

A true copy

Attest: 
Scott R. Cotnoir
Wage & Hour Director
Bureau of Labor Standards

SPECIAL PROVISIONS
SECTION 104
Utilities

UTILITY COORDINATION

The contractor has primary responsibility for coordinating their work with utilities after contract award. The contractor shall communicate directly with the utilities regarding any utility work necessary to maintain the contractor's schedule and prevent project construction delays. The contractor shall notify the resident of any issues.

THE CONTRACTOR SHALL PLAN AND CONDUCT WORK ACCORDINGLY.

MEETING

A Preconstruction Utility Conference, as defined in Subsection 104.4.6 of the Standard Specifications **IS** required.

GENERAL INFORMATION

These Special Provisions outline the arrangements that have been made by the Department for utility and/or railroad work to be undertaken in conjunction with this project. The following list identifies all known utilities or railroads having facilities presently located within the limits of this project or intending to install facilities during project construction. Utilities have been notified and will be furnished a project specification.

Utility Contact Information				
Utility	Contact Person	Contact Phone	Aerial	Underground
Central Maine Power	Jason Ward	629-1432	X	
Charter Communications	Dennis Heffernan Mark Pelletier	253-2226 253-2324	X	
Consolidated Communications	Marty Pease	535-4208	X	
Portland Water District	Joe Parent	774-5961		X
Summit Natural Gas	Bryan Haberman	331-6574		X

Utility working days are generally Monday through Friday. Times are estimated on the basis of a single crew working 8 hours per day for each utility. Any times and dates mentioned are **estimates only** and are dependent upon favorable weather, working conditions, and freedom from emergencies.

All adjustments are to be made by the respective utility unless otherwise specified herein.

All clearing and tree removal in areas where utilities are involved must be completed before the utilities are able to relocate their facilities.

Fire hydrants shall not be disturbed until all necessary work has been accomplished to provide proper fire protection.

The Contractor shall provide the utilities access to the new pole locations. Construction of any spot cuts or fills more than 2 feet must be completed prior to utility relocations.

The contractor shall give all Utilities **10 working days' notice** prior to beginning any work on this project.

AERIAL

Aerial utility adjustments **are** anticipated as part of this project. If any unexpected utility relocations become necessary, they will be scheduled in compliance with Section 104 of the Standard Specifications and will be done by the utilities in conjunction with the work by the Contractor.

Temporary utility adjustments **are not** anticipated on this project. Should the contractor choose to have any poles temporarily relocated, all work will be done by pole owner at the contractor's request and expense with no additional cost or schedule impacts to the Department. All adjustments are to be made by the respective utility unless otherwise specified herein.

All of the aerial utilities have lines along and crossing the project location. There may also be underground services from the utility poles into homes or businesses.

If any utility poles need to be held, call **Central Maine Power Co.**

Central Maine Power has replaced pole CMP#61 with pole #60 at sta 12+60 28' left. CMP and Charter have already transferred their lines. Consolidated Communications may still need to transfer their lines. After the lines have been transferred, CMP will remove the old pole.

SUMMARY:

Utility	Summary of Work	Estimated Working Days
Central Maine Power	Relocate /Remove Pole #61/60Transfer Lines	1
Charter Communications	Transfer Lines	N/A
Consolidated Communications	Transfer Lines	2
Total		3

SUBSURFACE

Subsurface utility adjustments **are** anticipated as part of this project. If any unexpected utility relocations become necessary, they will be scheduled in compliance with Section 104 of the Standard Specifications and will be done by the utilities in conjunction with the work by the Contractor.

Temporary utility adjustments **are not** anticipated as part of this project. If any unexpected utility relocations become necessary, they will be scheduled in compliance with Section 104 of the Standard Specifications and will be done by the utilities in conjunction with the work by the Contractor. All work

will be done at the contractor's request and expense with no additional cost or schedule impacts to the Department.

Portland Water District (PWD) has an existing 8" ductile iron **sewer force main** over the culvert. The **PWD** also has a 12" cast iron **water line** over the culvert. The **PWD** has entered into an agreement with the **Maine DOT** to have **contractor** include the replacement of their existing water and sewer force main in the Department's contract. Both of these lines will be replaced using directional drilling methods to install the pipes below the new culvert. The Contractor shall perform the work as part of the bid document and include the work in the schedule for construction. The work shall be completed in accordance with plans and specifications provided by the **PWD**. The **PWD** shall be notified ten (10) working days prior to work taking place so they may have an on-site representative for inspection purposes. The 8" ductile iron sewer force main will be replaced with an 8" HDPE sewer force main. The 12" cast iron water line will be replaced with a 16" HDPE water line. See the **PWD** plans and specifications in these bid documents.

The **PWD water gate valve box adjustments** within the limits of the water main system replacement are incidental to the water main system replacement.

Summit Natural Gas Has a 12" **HDPE natural gas line** under the existing culvert that was installed using directional drilling methods. This line is expected to be well below the excavation limits for the new culvert. The **contractor shall coordinate with Summit Natural Gas to determine the best way to protect the gas line.** The **contractor** shall notify **Summit Natural Gas ten (10) working days prior to work taking place so they may have an on-site representative for inspection purposes. At a minimum, the notification shall be by e-mail to bhaberman@summitnaturalgas.com and david.lycette@maine.gov.**

MAINTAINING UTILITY LOCATION MARKINGS

The Contractor will be responsible for maintaining the buried utility location markings following the initial locating by the appropriate utility or their designated representative.

UTILITY SIGNING

Any utility working within the construction limits of this project shall ensure that the traveling public is adequately protected at all times. All work areas shall be signed, lighted, and traffic flaggers employed as determined by field conditions. All traffic controls shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, as issued by the Federal Highway Administration.

SPECIAL PROVISION
SECTION 105
General Scope of Work
(Environmental Requirements)

In-Water work consists of any activity conducted below the normal high water mark of a river, stream, brook, lake, pond or “Coastal Wetland” areas that are subject to tidal action during the highest tide level for the year which an activity is proposed as identified in the tide tables published by the National Ocean Service. <http://www.oceanservice.noaa.gov/> For the full definition of “Coastal Wetlands”, please refer to 38 MRSA 480-B(2)

I. In-Water Work shall not be allowed between the dates of October 2 and May 31.

(In-Water work is allowed from June 1 to October 1)

II. In-Water work window applies to the following water body at the following station #:
Unnamed stream between Station 101+00 and 102+00

III. Special Conditions:

1. Special Conditions of Army Corps of Engineers (ACOE) Category II permit apply (see permit and conditions in contract documents).

IV. Approvals:

1. Soil Erosion and Water Pollution Control Plan (SEWPCP)
2. Permitted Resource Impacts (square feet), see ACOE permit NAE-2020-00126 for locations:

Stream:

Permanent: RUS- +/-700 s.f.

Temporary RUS- +/-623 s.f.

Wetland:

Permanent: +/- 254 s.f.

Temporary: NA.

V. All activities are prohibited (including placement and removal of cofferdams unless otherwise permitted by Regulatory Agencies) below the normal high water mark if outside the prescribed in-water work window, except for the following:

1. Work within a cofferdam constructed according to MaineDOT’s Standard Specifications and in adherence with the contractors approved “Soil Erosion and Water Pollution Control Plan”.

VI. No work is allowed that completely blocks a river, stream, or brook without providing downstream flow.

NOTE: Regulatory Review and Approval is required to modify the existing In-Water work window. Requests for work window extensions must be submitted to the MaineDOT Environmental Office. Approval of requests for work window extensions is not guaranteed and may result in delays in construction schedule that are the sole responsibility of the contractor.

NOTE: Reauthorization of the ACOE Permit is required for any work in jurisdictional resources that is not completed by October 13, 2021. The Contractor shall allow up to 2 weeks for MaineDOT to reauthorize the permit prior to beginning construction

SPECIAL PROVISION

SECTION 105

General Scope of Work
(Limitations of Operations)

1. The contractor shall plan operations so that the Resident will have sufficient advance notification to provide the necessary inspection and testing. Sufficient notification will be considered 48 hours.
2. The contractor's Traffic Control Plan shall address construction practices and schedules that will be implemented to minimize vehicle, pedestrian, and bicycle disruptions.

SPECIAL PROVISION
SECTION 107
Prosecution and Progress
(Contract Time)

1. The Contractor is allowed to commence work any time after all required plans/submittals have been received and approved by the MaineDOT.
2. The completion date for this contract is October 16, 2021.
3. Once operations commence, for every weekday not worked the Department will charge Supplemental Liquidated Damages in accordance with the per diem rates set forth in section 107.7.2. of Standard Specification; excluding days lost to inclement weather, holidays, and approved absences.

SPECIAL PROVISION
SECTION 203
EXCAVATION AND EMBANKMENT
(Dredge Materials)

Description: Dredge Material (See MaineDOT Standard Specifications § 101.2 Definitions) is regulated as a Special Waste.

Work associated with the Tuttle Road Culvert Replacement initiative will require excavation of select Dredge Material from the subject water body. It is estimated that approximately 35 cubic yards of dredge will be excavated at the project location. There is onsite Beneficial Use for all Dredge Material.

It is acknowledged that excavation of Dredge for this work may include some boulders. The MDEP has determined that sound boulders (rock 12-inches or more in diameter), that are free of adhering sediment or other contaminants, shall be deemed to be Inert Fill material and shall not be included in Dredge Material Quantities.

CONSTRUCTION REQUIREMENTS

Management: The Contractor shall Beneficially Use all Dredge Material excavated at the Tuttle Road Culvert Replacement project in areas adjacent to and draining into the dredged water body. No more than 500-cubic yards of Dredge Material may be excavated at the project location.

Method of Measurement: Excavation of Dredge Material will be measured for payment under related Contract items.

Basis of Payment: Payment for the Beneficial Use of Dredge Material will be incidental to the Contract Pay Items.

Payment shall be full compensation for dewatering, managing, transporting, and placement of Dredge Materials.

SPECIAL PROVISION
SECTION 403
HOT MIX ASPHALT

Desc. Of Course	Grad Design.	Item Number	Total Thick	No. Of Layers	Comp. Notes
<u>4" HMA Overlay Areas - Full Construction</u>					
<u>Travelway & Shoulders (As Indicated)</u>					
Wearing	12.5 mm	403.208	1 ½"	1	1,4,10,22,24,31
Base	12.5 mm	403.213	2 ½"	1/more	4,10,22,24,31

COMPLEMENTARY NOTES

1. The required PGAB for this mixture will meet a **PG 64-28** grading. All asphalt grades utilized on the travelway and shoulders shall be treated with an approved liquid anti-strip. PG binders shall be treated with a minimum 0.50 percent anti-strip by weight of asphalt binder used unless otherwise recommended by the anti-strip manufacturer. The PGAB and anti-strip blend shall meet the **PG 64-28** requirements. The Contractor shall provide supporting test data showing the PGAB and anti-strip blend meet the required criteria.
4. The design traffic level for mix placed shall be 0 to <3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
10. Section 106.6 Acceptance, (2) Method D. The Contractor shall submit a QCP to the Department no less than 21 days prior to beginning paving operations and shall not begin paving operations until the Department approves the QCP in writing. The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement including, but not limited to, the following:
 - a. All Method D Requirements as specified in Section 401 of the Standard Specifications.
 - b. Sections a, d – k, n, o-q, and u – v of the QCP Requirements as specified in Section 401.18 of the Standard Specification.
 - c. Anticipated Compaction Temperature Zones during placement.
22. The Contractor shall supply a QCP Administrator, Process Control Technician (PCT), and a Quality Control Technician (QCT) with the requirements as specified in Section 401.18 of the Standard Specifications. Prior to placing any mix, the Department and the Contractor shall hold a Pre-paving Conference to discuss the paving schedule, source of mix, type and amount of equipment to be used, sequence of paving pattern, project lots and traffic control. All personnel of the Department and the Contractor who have significant information relevant to the paving items shall attend, including the responsible onsite paving supervisor for the Contractor. The Resident will prepare minutes of the conference and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 Days of Receipt. These minutes will constitute the final record of the Pre-paving conference.
24. Summaries of each day's results, including a daily paving report, summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and number of roller passes, shall be recorded and signed by the QCT and presented to the Department's representative by the end of the working day.

31. The contractor shall mill a butted lap joint into the existing pavement at both the beginning and end joints for each pavement layer excluding the bottom base layer. For each layer, the lap joint shall be cut to the depth and width of the pavement layer being placed and extend 5 feet beyond the immediate underlying layer. The Resident may extend this length as determined by the condition of the match point. No additional payment will be made for the milling of the butt joints but will instead be considered incidental to associated paving items.

Tack Coat

A tack coat of emulsified asphalt, RS-1, RS-1h, CRS-1 or CRS-1h, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.030 gal/yd², and on milled pavement approximately 0.05 gal/yd² prior to placing a new course. A fog coat of emulsified asphalt shall be applied between shim /base courses and surface course as well as to any bridge membrane prior to the placement of HMA layers at a rate not to exceed 0.030 gal/yd². Tack used will be paid for at the contract unit price for Item 409.15 Bituminous Tack Coat.

SPECIAL PROVISION
SECTION 534
PRECAST STRUCTURAL CONCRETE

Revise Paragraph 2 of 534.07 Quality Control to say:

Provide a copy of the Quality System Manual (QSM) to the Fabrication Engineer for review and approval.

Add the following Paragraph to 534.07 Quality Control:

QC staff shall be separate from production and shall not perform any production work.

Revise Sentence 1 in 534.17 Finishing Concrete to say:

Concrete Products shall be finished to meet the Standard Grade finish as described in the MNL-116.

SPECIAL PROVISION
SECTION 602
FLOWABLE CONCRETE FILL

Description This work shall consist of providing and placing flowable concrete fill at the locations designated on the plans.

MATERIALS

Materials shall conform to the requirements specified in the following Subsections of Division 700 — Materials:

Portland Cement	701.01
Water	701.02
Air Entraining Admixtures	701.03
Fine Aggregate	703.01
FlyAsh	701.10
Water Reducing Admixtures	701.04
Accelerating Admixtures	AASHTO M-194 Type “C”

CONSTRUCTION REQUIREMENTS

Composition and Proportioning Flowable concrete fill shall be composed of a homogeneous mixture of Portland cement and/or pozzolans, fine aggregate, water, and chemical admixtures proportioned according to these specifications.

The flowable concrete fill shall be proportioned to produce a 28-day compressive strength of 110 psi [760 kPa].

The water cement ratio for flowable concrete fill shall not be high enough to cause segregation of the mix.

Air content of 5 to 15% is the target. Higher air contents may be acceptable but will increase set time. All flowable concrete fill shall be air entrained by the addition of an air entraining admixture or other chemical admixtures.

At least 30 days prior to the first placement, a flowable concrete fill mix design shall be submitted by the Contractor to the Department for approval. No flowable concrete fill shall be placed on the project until the mix design is approved by the Department. At a minimum, the mix design submitted by the Contractor shall include the following:

- A. Target water cement ratio
- B. Target strength
- C. Target air content

Quality Control Process control measurements of air content, mix temperature, and slump shall be performed on the portion or portions of flowable concrete fill batches delivered to the site. At least one set of measurements for air content, temperature, and slump of flowable concrete fill mix shall be performed per placement or per day, whichever is less frequent. Test cylinders will not be required.

Air content shall be measured following the requirements of AASHTO T152 utilizing Type B equipment.

Slump shall be measured by Modified Slump Test as described below:

Apparatus:

Scoop, measuring tape, flat edge, 3 in x 6 in [75 mm x 150 mm] cylinder mold open at both ends, and a flat non-absorbent surface.

Procedure:

1. Set cylinder upright on flat non-absorbent surface.
2. Scoop representative sample of flowable concrete fill.
3. Fill the cylinder, with the sample in one lift without tamping. Strike off the top with the flat edge to form a level surface.
4. Clear any residue from around the bottom of the cylinder.
5. During a count of three seconds, lift the cylinder straight up allowing the sample to spread on the flat surface.
6. Measure the spread diameter to the nearest 5/8 in [15 mm]. A spread of 9 to 14 in [225-350 mm] is considered flowable.

Batching Measuring and batching of materials shall be performed at an approved batching plant, either commercial or otherwise.

Mixing and Delivery The Contractor shall provide a Certificate of Compliance as described in Standard Specification 502 Structural Concrete, Section 502.0501 Quality Control METHOD A, METHOD B and METHOD C for each truckload of flowable concrete fill.

Cold Weather Placement The requirements of Standard Specification 502 Structural Concrete, Section 502.08 Cold Weather Concrete, amended as follows, apply.

The Cold Weather Temperature Table does not apply to flowable concrete fill. The minimum concrete temperature as placed shall be 40° F [4.40°C]. No housing framework or heating will be required when placed under approved cold weather conditions.

Forms and Containment Berms When necessary to contain flowable concrete fill within a defined area; berms shall be constructed of compacted granular material

Placing Flowable Concrete Fill Flowable concrete fill shall not be placed until forms and/or containment berms have been checked and approved. Flow able concrete fill shall not be placed under water. The method and sequence of placing flowable concrete fill shall be approved by the Department before any flowable concrete fill is placed. A

technical representative from the flowable concrete fill supplier shall be present during the initial placement.

All flowable concrete fill shall be placed before it has taken its initial set. Flow able concrete fill shall be placed in such a manner as to avoid separation and segregation of the mix.

Consolidation, tamping, and vibration is not required or allowed.

Flow able concrete fill shall be discharged directly from the truck into the space to be filled. The drop height of the flowable concrete fill shall be as low as practicable. Flow able concrete fill shall not flow down the vertical face of a trench causing erosion of the trench face.

Finishing and curing of flowable concrete fill is not required.

Flow able concrete fill placed will not be opened to traffic or covered with structural concrete or pavement for a minimum of 24 hours.

Method of Measurement Flow able concrete fill satisfactorily placed and accepted will be measured by the cubic meter, in accordance with the pay limits established, if such limits have been established, If the Contractor elects to omit forms, or berms, then any excavation or flowable concrete fill placed beyond the pay limits indicated on the Plans shall not be paid for, but shall be at the Contractor's expense. In the absence of pay limits, the Resident may use discretion to accept the delivered quantity as the measurement for payment.

Basis of Payment The accepted work done under flowable concrete fill will be paid for at the contract unit price per cubic meter. Payment will be full compensation for furnishing and placing flowable concrete fill, including all forms, berms, granular material, pumping, dewatering and necessary incidentals.

Payment will be made under:

Pay Item

602.30 Flowable Concrete Fill

Pay Unit

Cubic Yard

SPECIAL PROVISION
SECTION 603
PIPE CULVERTS AND STORM DRAINS

603.12 Basis of Payment: This section shall be amended with the addition of the following:

<u>Pay Item</u>	<u>Pay Unit</u>
603.4073 128" X 83" Polymer Coated Corrugated Steel Pipe	Linear Foot

SPECIAL PROVISION
SECTION 606
GUARDRAIL

606.09 Basis of Payment: This section shall be amended with the addition of the following:

<u>Pay Item</u>		<u>Pay Unit</u>
606.363	Guardrail – Remove and Dispose	Linear Foot

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
(Staged Construction and Traffic Control)

Description This work shall consist of furnishing, installing, maintaining, and removing traffic control devices and staged construction items necessary to maintain the temporary travelway as specified in the Contract Documents and Standard Specifications.

Materials All materials utilized shall meet the appropriate requirements of the Standard Specification and the Contract Documents.

Geometric and Approach Requirements

A. Horizontal Alignment Horizontal curve radii shall not be less than 200 feet at the centerline of the temporary roadway.

B. Vertical Alignment Grades shall not exceed 10% and all grade changes will accommodate all legal highway vehicle components and attached loads.

Construction Requirements At or before the preconstruction meeting the Contractor shall submit a Staged Construction and Traffic Control Plan (SCTCP) to the Department. The Department will review the SCTCP for completeness and conformity with Federal requirements, Contract provisions, the current edition of the MUTCD, and Department policies and procedures. The Department will review and provide comments to the Contractor within 14 days of receipt of the SCTCP. No review or comment by the Department, or any failure to review or comment, shall operate to absolve the Contractor of its responsibility to design and implement the plan in accordance with the Contract, or to shift any responsibility to the Department. If the SCTCP is determined by the Department to be operationally ineffective, the Contractor shall submit modifications of the SCTCP to the Department for review, and shall implement these changes at no additional cost to the Contract. Nothing in this Section shall negate the Contractor's obligations set forth in Section 110 - Indemnification, Bonding, and Insurance. The creation and modifications of the SCTCP shall be considered incidental to the related 652 items.

The plan shall address:

- Construction staging and phasing
- Maintenance of the required travelway width and impacts to vehicle movement
- Traffic Control items to be utilized
- Any shoring, excavation, fill or other items not included in the plan set design
- Removal of any materials placed outside the final limits of impacts and beyond the neat lines of the Plans

- Sections of the plan dealing with shoring and/or horizontal/vertical design shall be stamped by a professional engineer licensed in the state of Maine.

The Contractor is ultimately responsible for all costs associated with obtaining all additional and required permits and/or property rights required by their plan. Certain rights and permits must be acquired by the Department. The contractor shall factor the time and cost for these acquisitions into their plan.

Method of Measurement Staged Construction and Traffic Control will be measured and paid as one lump sum

Basis of Payment The lump sum price will be full compensation for the design of the Staged Construction and Traffic Control Plan and for all items not included in the Bid Documents and utilized as depicted. All 652 items utilized by the SCTCP and included in the Schedule of Items shall be paid for separately. All additional shoring, excavating, placement of fill, piles, permits, rights, and any other work associated with this item shall be considered incidental.

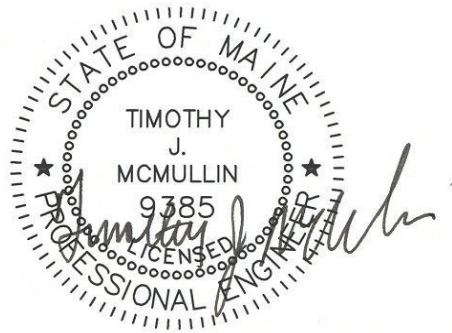
Incremental payment will be made on the following schedule:

- Approval of SCTCP 25%
- Installation of SCTCP items 25%
- Removal of SCTCP items 25%
- All work related to SCTCP complete 25%

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
652.61 Staged Construction and Traffic Control	Lump Sum

CONTRACT DOCUMENTS
FOR
WATER & FORCE MAIN REPLACEMENTS
TUTTLE RD
CUMBERLAND



MAY 2020

PORTLAND WATER DISTRICT
225 Douglass Street
Portland, Maine 04104

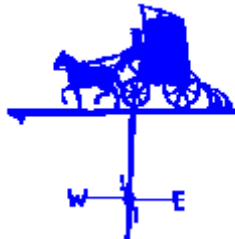


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SECTION 01001 - DESCRIPTION OF WORK

PART 1: GENERAL

1.1 SCOPE:

- A. The CONTRACTOR shall furnish and install water, force main and appurtenances in Tuttle Rd., Cumberland, Maine and as shown on the drawings and specified herein.
- B. The CONTRACTOR shall perform leakage and pressure tests on sewer/ water mains and disinfect the installed water main as specified herein.

1.2 DUTIES OF THE OWNER:

- A. The OWNER will locate the terminal points of the work and will also locate any of its facilities lying in close proximity which would in any way be a hazard to the CONTRACTOR's operations.
- B. The OWNER will operate any valves or hydrants which may be found desirable or necessary to be used for any purpose. The OWNER will perform work in coordination with the CONTRACTOR at the locations specified on the plans.
- C. The OWNER will notify customers of all work involving temporary shutdown of service.
- D. The OWNER will maintain sewer service during the shutdown of the force main by utilizing septic pumping trucks to remove sewage from the PWD pump station located at 229 Tuttle Rd and delivering to the first downstream manhole located near 59 Tuttle Rd.

1.3 DUTIES OF THE CONTRACTOR:

- A. The CONTRACTOR will familiarize himself with all obstructions which he can foresee, such as existing pipes, services, conduits, ducts, sewers or any other such obstructions which might interfere with the construction, and he agrees to make arrangements with the owners of such facilities so as to save the OWNER harmless from any damages thereto caused by his operations and to make whatever arrangements might be necessary to move or remove and replace these facilities so as to permit the construction, all at his own expense. The CONTRACTOR agrees that there will be no extras charged for this type of work, except by special agreement with the ENGINEER and upon written order from him.

- B. The CONTRACTOR will make any changes which may be required, such as the removing or restoring of the property of others in the land through which this line will cross in right-of-way or otherwise. The CONTRACTOR will place all pipe, fittings and all attendant facilities to proper line and grade, as called for in the plans and specifications and to the satisfaction of the ENGINEER.
- C. The CONTRACTOR must give the District at least 4 days notice prior to a shutdown in order to properly notify customers.
- D. The CONTRACTOR will furnish all fuel, gasoline, oil, etc. for the operation of his equipment, all tools and equipment, and all labor and supervision necessary for the handling of material, for excavation, installation, backfilling and cleaning the site as required. He will dispose of excess spoil and restore the land surface over the entire length of the project. Restoration shall be made to the satisfaction of the OWNER / PORTLAND WATER DISTRICT.
- E. The CONTRACTOR will perform the pressure and leakage test on sewer and water mains and disinfection of water mains as described herein in the presence of the OWNER / PORTLAND WATER DISTRICT.
- F. The CONTRACTOR shall install the mains to supply the PORTLAND WATER DISTRICT with a satisfactory, watertight pipeline, laid to proper line and grade in accordance with these contract documents to the satisfaction of the PORTLAND WATER DISTRICT.
- G. The CONTRACTOR will obtain any necessary street opening permits and comply with all rules and regulations associated with the permits.

END OF SECTION

SECTION 01035 - CONTROL OF WORK

PART 1: GENERAL

1.01 PLANT

- A. The Contractor shall furnish plant and equipment which will be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Proposal. If at any time such plant appears to the Owner to be inefficient, inappropriate or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he may order the Contractor to increase the efficiency, change the character or increase the plant equipment, and the Contractor shall conform to such order. Failure of the Owner to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.

1.02 PIPE LOCATIONS

- A. Pipelines shall be located substantially as indicated on the Drawings, but the Owner reserves the right to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him from laying and jointing different or additional items where required.

1.03 CARE AND PROTECTION OF PROPERTY

- A. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Owner.

1.04 PROTECTION AND RELOCATION OF EXISTING STRUCTURES, TREES AND UTILITIES

- A. The Contractor shall assume full responsibility for the protection of all trees, buildings, structures, and utilities, public or private, including poles, signs, services to buildings, buried utilities, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the Drawings. The Contractor shall carefully support and protect all

such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.

- B. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be a part of the work under the Contract and all costs in connection therewith shall be included in the Prices in the Proposal.

1.05 CLEANUP

- A. During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as is possible. He shall dispose of all residue resulting from the construction work and, at the conclusion of the work, he shall remove and haul away any surplus excavation, lumber, equipment, temporary structures, and any other refuse remaining from the construction operations, and shall leave the entire site of the work in a neat and orderly condition.

END OF SECTION

SECTION 01151 - MEASUREMENT AND PAYMENT

PART 1: GENERAL

1.1 METHOD OF MEASUREMENT AND BASIS OF PAYMENT:

All measurements for payments will be based on completed work performed in strict accordance with the drawings and specifications, and on the contract bidding and payment item schedules. All work completed under the contract will be measured by the PORTLAND WATER DISTRICT ("DISTRICT") according to the methods outlined below. In cases where the payment clause in the specifications relating to any unit or lump sum price stated in the contract requires that the said unit or lump sum price cover and be considered compensation for certain work or material essential to the item, this same item will not be measured or paid for under any other pay item which may appear elsewhere in the specifications.

PART 2: PAYMENT ITEMS:

2.1 ITEM NO. 803.181 – Remove/Abandon Manhole

- A. Method of Measurement: Actual number abandoned
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavating, backfill, shoring and bracing, removal and disposal of manhole section, removal and disposal of sewage, restoration and associated work as specified and shown on the Drawings.

2.2 ITEM NO. 822.3405, 822.3605 & 822.3705 – Ductile Iron Water Main

- A. Method of Measurement: Linear feet as measured along the centerline of the pipe for the actual number of linear feet of pipe and fittings installed.
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavating, shoring and bracing, dewatering, pipe, poly wrapping, laying and jointing, removal and disposal of existing piping and appurtenances, select backfill, bedding, backfilling, testing, disinfection, restoration and associated work as specified and shown on the Drawings.

2.3 ITEM NO. 825.62(8") & 825.63 (16") – High Density Polyethelene Water Main

- A. Method of Measurement: Linear feet as measured along the centerline of the pipe for the actual number of linear feet of pipe and fittings installed.

- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavating, shoring and bracing, dewatering, pipe, fittings, fusing, locator wire, installation utilizing horizontal directional drilling methods, testing, disinfection, restoration and associated work as specified and shown on the Drawings.

2.4 ITEM NO. 823.341 – Air Release Assembly

- A. Method of Measurement: Actual number installed
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, shoring and bracing, dewatering, corporation, angle valve, fittings, operating rod, service box, valve box, installation, backfill, testing and associated work as specified and shown on the Drawings.

2.5 ITEM NO. 823.375 – Butterfly Valves

- A. Method of Measurement: Actual number installed
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, shoring and bracing, dewatering, valve, valve box, backfill, testing and associated work as specified and shown on Drawings.

2.6 ITEM NO. 824.3021 – Hydrant Assembly

- A. Method of Measurement: Each
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, removal of existing hydrant, shoring and bracing, dewatering, hydrant, 6" DI pipe, swivel tee, 6" gate valve, thrust blocks, backfill, testing and associated work as specified and shown on Drawings.

2.7 ITEM NO. 825.542 – Temporary Water Service

- A. Method of Measurement: Lump Sum
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for installation and removal of temporary valves, fittings, piping and connections, laying and jointing, maintenance, restoration of property and associated work as specified and shown on the Drawings.

2.8 ITEM NO. 825.57 – Reconnect 1" Copper Service

- A. Method of Measurement: Each
- B. Basis of Payment: Payment of the unit price established in the Bid shall be full compensation for excavation, gravel, shoring and bracing, dewatering, pipe, corporation, fittings, connection to existing service, backfilling and associated work as specified and shown on Drawings.

END OF SECTION

SECTION 01310 - SUBMITTALS

PART 1 - GENERAL

1.01 SUBMITTALS FOR OWNER'S APPROVAL

- A. For all products to be incorporated into the Work submit to the OWNER for approval sufficient information in the form of shop drawings, product data and/or samples such that the OWNER can determine that the product is in compliance with the Technical Specifications and Drawings.
- B. Submit two (2) copies of each submittal. One (1) copy will be returned to the CONTRACTOR. Each copy shall include a cover sheet which clearly identifies the product and corresponding specification section. Each cover sheet shall bear the CONTRACTOR's stamp and signature certifying that the submittal is in full compliance with the Contract Documents or that any deviations from the Contract Documents are clearly identified on a separate sheet(s) labeled "Deviations From Contract Documents" and attached to the cover sheet.
- C. OWNER's Review: The OWNER shall review the submittals and indicate their status as:
 - 1. APPROVED SUBJECT TO REQUIREMENTS OF THE CONTRACT DOCUMENTS
 - 2. APPROVED AS NOTED, SUBJECT TO REQUIREMENTS OF THE CONTRACT DOCUMENTS
 - 3. REVISE AS NOTED, RESUBMITAL REQUIRED.
 - 4. NOT APPROVED

OWNER's review is only for general conformance with the design concept and general conformance with the information given in the Contract Documents. Corrections or comments made during the review do not relieve the CONTRACTOR from compliance with the requirements of the Contract Documents.

- D. Re-submittals: Make re-submittals under procedures specified for submittals; identify changes made since previous submittal.
- E. CONTRACTOR shall be responsible for the delays and or additional expenses that result from the CONTRACTOR's failure to submit a complete submittal and/or to identify portions of the submittal that does not conform to the specifications.

END OF SECTION

SECTION 01710 - CLEANUP

PART 1: GENERAL

1.1 SCOPE:

- A. The work covered by this section is to provide all cleanup over the entire project.

PART 2: PRODUCTS

2.1 METHOD:

- A. The Contractor may choose any method he wishes for cleanup and shall assume all responsibility for the adequacy of the method and equipment employed.

PART 3: EXECUTION

3.1 CLEANING UP:

- A. During the progress of the work, the construction areas shall be kept clean and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damages repaired so that the public and property owners will be inconvenienced as little as possible.
- B. Contractor shall fill in all depressions and water pockets on public and private property caused by his operations; clean all drains, ditches and culverts which have been obstructed by his work; and, shall leave the site in a neat condition wherever his operations have disturbed existing conditions.
- C. Contractor shall make restitution for any damage to trees, shrubbery or other structures or facilities owned by adjacent property owners.
- D. Cleanup shall follow directly behind the progress of the project.
- E. All excess material, rubbish or other type of mess shall be cleaned up and the site shall be left to the satisfaction of the right-of-way grantor, or any abutters, as well as to the satisfaction of any municipal or state authority which may be involved if in public right-of-way.

- F. Any damage to or displacement of street or highway surfaces due to blasting or otherwise shall be either replaced satisfactorily by the Contractor or shall be paid for by him to the authority responsible for the street or highway

END OF SECTION

SECTION 02105 - CLEARING, GRUBBING AND RESTORATION

PART 1: GENERAL

1.1 SCOPE:

- A. The CONTRACTOR shall do all clearing, grubbing, topsoil stripping, and restoration necessary for the construction of this project.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Cleanup - Section 01710
- B. Loam and Seeding - Section 02821

PART 2: PRODUCTS

2.1 MATERIALS:

- A. Materials shall be at CONTRACTOR's option, except that stripped topsoil shall be stockpiled and replaced in approximately its original location and to its original depth.

PART 3: EXECUTION

3.1 CLEARING AND GRUBBING:

- A. Before any excavation shall begin, the CONTRACTOR shall remove all underbrush, trees, stumps, or other obstructions within the work area, but shall not work on any private property without permission. The Contractor and Engineer shall agree upon the extent of clearing within the work area prior to the start of work. The Contractor shall not deviate from the agreed upon limits without the permission of the Engineer.
- B. All limbs, stumps, etc., shall be disposed of off site by the CONTRACTOR and at his expense unless otherwise specified.
- C. After the trees have been cut and stumps removed from wooded areas and in all field areas, existing topsoil and humus material shall be excavated and stockpiled by the CONTRACTOR. After pipelines have been completed, the topsoil and humus material shall be placed back over the disturbed areas and seeded in accordance with Section 02821.
- D. If the CONTRACTOR fails to salvage and reuse existing topsoil and humus material, he shall furnish sufficient loam from off the project site to restore the disturbed areas to match the existing topsoil depth, at his own expense.
- E. No excavations for pipe laying shall begin until the existing topsoil and humus material has been stockpiled.

3.2 CARE AND RESTORATION OF EXISTING PROPERTY:

- A. Excavating machinery shall be of suitable type and be operated with care to prevent injury to trees not to be cut, and particularly to overhanging branches or limbs.
- B. Branches, limbs and roots shall not be cut except by permission of the ENGINEER. All cutting shall be smooth and neatly done without splitting or crushing. In case of cutting or unavoidable injury to branches, limbs, or trunks of trees, the cut or injured portion shall be neatly trimmed and covered with an application of grafting wax or tree-healing paint as directed.
- C. Cultivated hedges, shrubs, and plants which might be injured by the CONTRACTOR's operations shall be protected by suitable means or shall be dug up and temporarily replanted and maintained. After the construction operations have been substantially completed, they shall be replanted in their original position and cared for until growth is re-established. If cultivated hedges, shrubs and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of kind and quality at least equal to the kind and quality existing at the start of the work.
- D. All surfaces which have been damaged by the CONTRACTOR's operations shall be restored to a condition at least equal to that in which they were found immediately before work was started.
- E. The CONTRACTOR shall be fully responsible for all damages to public and private property and will be expected to carefully protect from injury all walls, fences, buildings, and underground facilities. If removal and replacement is required, it shall be done so that the replacement is equivalent to that which existed prior to construction and shall be paid for by the CONTRACTOR.

END OF SECTION

SECTION 02217 - EXCAVATION AND BACKFILLING FOR MAINS

PART 1: GENERAL

1.1 SCOPE:

- A. This section includes all excavation for water mains, hydrants and appurtenances, including drainage, sheeting and bracing, backfilling, disposal of surplus material, and miscellaneous grading. All work shall be done as indicated on the drawings and as herein specified.
- B. Excavation for water mains shall be the width and depth as indicated on the standard details. Excavation for hydrants and appurtenances shall provide suitable room for their construction.
- C. The CONTRACTOR shall furnish and place all sheeting, bracing and supports, and necessary dewatering, and shall carry out the excavation in such a manner as to eliminate all possibilities of undermining or disturbing existing pipelines, utilities, roadways, shoulders and/or structures.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Bedding and Backfill Material - Section 02219

PART 2: PRODUCTS

2.1 EQUIPMENT:

Equipment shall be at CONTRACTOR'S option.

PART 3: EXECUTION

3.1 EXCAVATION:

- A. When any pavement, regardless of type, must be cut, it shall be done in a neat and symmetrical manner by use of a saw, chisel, or other suitable method. In no case shall pavement be torn up with a backhoe bucket except between and inside of cuts previously made as above. Should any further pavement be broken, outside of the cuts, as by blasting, such damaged pavement shall be cut out in a neat and orderly fashion.
- B. The CONTRACTOR shall perform all excavation of every description and of whatever substances encountered to the depths shown on the drawings or directed by the ENGINEER.

- C. No extras will be allowed for quicksand excavation, muck excavation, or any other type unless specifically provided for in the bidding schedule.
- D. Surplus excavated material may be used at other parts of the construction project as required for fill, etc. Excess material shall be disposed of by the CONTRACTOR.
- E. The sidewalls of all trench excavation shall be kept as nearly vertical as possible in all roadways, lawns, near homes, etc. by sheeting, bracing, or other means. The width of the trench at a point six (6) inches above the top of the water pipe shall not be greater than the width detailed. If the type of excavated material will not allow the width detailed, then the trench shall be properly sheeted and braced. The cost of sheeting, bracing, or other means is included in the cost of the pipelines and no extras will be allowed.
- F. The excavation shall be made to secure a flat bottom trench (undisturbed earth bottom) for the full length of the pipe so as to give a uniform support to the pipe and shall be in accordance with ANSI A21.50 (AWWA C150), Type 2 Laying Condition.
- G. The bottom of the trench shall be accurately graded to provide support to the full length of the pipe barrel. Excavate at each bell to prevent bell from bearing on trench bottom.

3.2 EXCAVATION BELOW TRENCH GRADE:

- A. By mistake of CONTRACTOR: Where the bottom of the trench shall, by mistake of the Contractor, have been taken out to a greater depth than required, it shall be refilled to the proper grade with bedding material, and all to be placed and compacted as specified. The CONTRACTOR shall receive no additional compensation.
- B. By instruction from ENGINEER: If, in the opinion of the ENGINEER, existing material below trench grade is unsuitable for properly laying the pipe, the CONTRACTOR will excavate and remove the unsuitable material and replace the same with bedding material as authorized by the ENGINEER and properly compacted to his satisfaction. The CONTRACTOR will be paid under the item titled "Unsuitable Material Excavated Below Trench Grade."

3.3 EXCAVATION NEAR EXISTING UTILITIES, ETC.

- A. It will be necessary to excavate near existing pipes, drains and other utilities in certain locations. Some of these have been indicated on the drawings, but no attempt has been made to show all of the services and the completeness and accuracy of the information given is not guaranteed. The CONTRACTOR shall call "Dig-Safe" at least three business days in advance of any excavation to allow utilities to locate underground facilities.

- B. As the excavation approaches pipes, conduits, or other underground structures and utilities, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools.
- C. If the utility is of the opinion that at any point sufficient or proper support has not been provided, they may order additional supports placed at the expense of the CONTRACTOR. Compliance with such order shall not relieve the CONTRACTOR from his responsibility for the sufficiency of such supports. It shall be the responsibility of the CONTRACTOR to prevent damage to or displacement of utilities and to consult with and request the concurrence of the utility company's representative in this matter at all locations. The cost of protecting such utilities shall be considered incidental to the cost of laying the pipe.

3.4 TRENCH SURCHARGES:

The excavated material shall be placed adjacent to the excavation in a manner to cause no excessive surcharge on the trench bank nor to obstruct free access to hydrants and valves. Should traffic or other conditions make it impractical or unsafe to stack material adjacent to trench, it shall be hauled and stored at a location provided by the CONTRACTOR and at the expense of the CONTRACTOR. When required, it shall be re-handled and used in backfilling the trench by the CONTRACTOR and at his expense.

3.5 SHEETING AND BRACING:

- A. The CONTRACTOR shall be responsible for the design, construction, maintenance and safety of all sheeting and bracing required to support the sides of the excavation and to prevent the movement of earth which could in any way damage or endanger adjacent structures, utilities, roadways, increase the width of the excavation to more than that specified, or delay the work.
- B. All sheeting, bracing and shoring is to be included in prices bid for several items of work in bidding schedule and will not be paid for as separate items.
- C. No shoring shall be left in place unless so directed by the ENGINEER.

3.6 DRAINAGE AND DEWATERING OF EXCAVATIONS:

- A. The CONTRACTOR shall conduct his operations so as to prevent at all times the accumulation of water, ice and snow in excavations or in the vicinity of excavated areas so as to prevent water from interfering with the progress or quality of the work. Under no conditions shall water be allowed to rise in unbackfilled trenches after pipe has been placed.
- B. Accumulated water, ice and snow shall be promptly removed and disposed of by dewatering. Disposal shall be carried out in a manner which will not create a

hazard to public health; nor cause injury to public or private property, work completed or in progress, or public streets; nor cause any interference in the use of streets and roads by the public. Pipes under construction shall not be used for drainage of excavations.

- C. During construction, when an unstable condition in the pipe sub-grade has been created due to the CONTRACTOR'S excavation, the sub-grade shall be stabilized by dewatering or other means accepted by the ENGINEER.

3.7 BACKFILLING - GENERAL:

- A. In general and unless other material is indicated on the drawings or is specified, material used for backfilling trenches and excavations around structures shall be suitable material which was removed in the course of making the construction excavations or as specified.
- B. Frozen materials shall not be placed in the backfill, nor shall material be placed upon frozen material. Previous frozen material shall be removed or shall be otherwise treated as required before new backfill is placed.
- C. Backfilling shall be done as soon as practical after the pipe has been laid and jointed.

3.8 SUITABLE BACKFILL MATERIAL

Suitable backfill material shall be the following or a combination of the following:

- (1) Excavated material that will compact to the compaction requirements.
- (2) Material that does not contain rocks larger than 8" in any dimension.
- (3) Dry clay backfill free from lumps.
- (4) Wet clay that alone would pump but when mixed with sand and/or gravel will be stable and will compact.

3.9 BACKFILLING PIPE TRENCHES:

- A. As soon as practicable after the pipes have been laid and jointed, backfilling shall begin and shall proceed until it is completed or has sufficient backfill to allow pipe testing.
 - (1) The first layer of suitable backfill material shall be brought half-way up the pipe and compacted to 80% maximum density and then the normal backfilling shall begin and shall be compacted as specified.
 - (2) All backfill shall be thoroughly compacted by hand tamping as placed, by use of mechanical or vibratory compactors, or by other acceptable methods.

- (3) Remainder of the trench shall be backfilled as follows:
 - a) In paved areas, road shoulders and seeded areas, the entire depth of trenches above the center line of the pipe shall be backfilled in eight (8) inch layers with suitable backfill material and each layer thoroughly and carefully compacted as specified. Bring backfill up to bottom of gravel base and/or loam.
 - b) In other areas, the trench above the center- line of the pipe shall have suitable backfill material placed and compacted in eighteen (18) inch maximum layers as specified.
- B. The nature of the excavated materials will govern both their acceptability for backfill and the method best suited for their placement and compaction in the backfill.
 - (1) Both the materials and the methods shall be subject to the acceptance of the ENGINEER.
 - (2) No stones or rock larger than 8" in the greatest dimension shall be placed in the backfill.
- C. Backfilling in public right-of-way, along the streets or highways in or along shoulder, berm or backslope shall be done in accordance with the specifications and requirements of the state or municipality, whichever is responsible for the street or highway involved. Responsibility for the fulfillment of permit conditions or any other applicable requirements of the street or highway authority shall be the obligation of the CONTRACTOR. Surface restoration shall be carried out to the satisfaction of the street or highway authority or as shown on the plans.
- D. Backfilling shall follow pipe laying as closely as reasonable, so that a minimum of trench shall be open at any time. The regulations of the highway authorities shall be observed as regards the amount of trench to be open at any one time. Over night, and especially over weekends and holidays, the amount of open trench shall be kept at an absolute minimum. Any caved-in trench, especially after heavy rain and flooding, shall be cleaned out and the bottom consolidated before any additional pipe shall be laid.

3.10 TOP OF BACKFILL:

- A. In paved and shoulder areas, backfill shall be carried up to pavement or shoulder sub-grade ready to receive the gravel base. In other areas, backfill shall be brought up to adjacent finished grade minus the depth of any required topsoil and so as to provide a finished surface slightly mounded over the trench. Any trenches improperly backfilled, or where settlement occurs, shall be reopened to the depth required for proper compaction, and shall then be

refilled and compacted with the surface restored to required grade and degree of compaction, mounded over, and smoothed off, at no additional expense.

- B. In unpaved areas, the gravel topping shall be left in a smooth and even condition, with no large stone on or in the surface. In cases where a paved surface has been broken, a temporary bituminous patch and/or a permanent paving restoration shall be made as required by the appropriate local or state road authority.

3.11 COMPACTION:

- A. Compaction densities specified herein shall be the percentage of the maximum density obtainable at optimum moisture content as determined and controlled in accordance with AASHTO Standard T-180, Method A or D depending on the material size. Field density tests shall be made in accordance with AASHTO Standard T-147.

Each layer of backfill shall be moistened or dried as required and shall be compacted to the following densities, unless otherwise specified in the project specifications.

(1) Bedding material	80%
(2) Suitable backfill material under paved or shoulder areas	90%
(3) Gravel base:	
(a) Under paved areas	95%
(b) In shoulder areas	90%
(c) As replacement for unsuitable material excavated below grade	90%
(4) Loam areas	90%
(5) All other areas	85%

- B. Methods and equipment proposed for compaction shall be subject to prior acceptance by the ENGINEER. Compaction generally shall be done with vibrating equipment. Displacement of, or injury to, the pipe and structure shall be avoided. Movement of in-place pipe or structures shall be at the CONTRACTOR'S risk. Any pipe or structure damaged thereby shall be replaced or repaired as directed by the ENGINEER and at the expense of the CONTRACTOR.

C. Testing:

- (1) Field density tests may be ordered by the ENGINEER for each foot of depth of backfill at an average interval of 200 feet along the trench.
- (2) The CONTRACTOR shall furnish all necessary samples for laboratory tests and shall provide assistance and cooperation during field tests. The

CONTRACTOR shall plan his operations to allow adequate time for laboratory tests and to permit taking of field density tests during compaction.

- (3) Any costs of retesting required as a result of failure to meet compaction requirements shall be borne by the CONTRACTOR.

3.12 FILL AND GRADING:

- A. Excavated material not required for backfilling around pipes or structures may be used for fill in areas which require material for re-grading.
- B. The re-grading shall be carried out as directed by the ENGINEER, so that all surface water will drain towards brooks or drainage pipes.
- C. All material shall be of such nature that after it has been placed and properly compacted, it will make a dense and stable fill.

3.13 PROTECTION OF EXISTING STRUCTURES:

- . All existing pipes, wires, poles, fences, property line markers and other items, which must be preserved in place without being temporarily or permanently relocated, shall be carefully supported and protected from injury by the CONTRACTOR, at no additional cost to the OWNER. Should such items be injured, they shall be restored by the CONTRACTOR, without compensation therefore, to at least as good condition as that in which they were found immediately before the work was begun.

3.14 ACCOMMODATION OF TRAFFIC:

- A. The CONTRACTOR shall construct and maintain, without extra compensation, such adequate and proper bridges over excavations as may be necessary or as directed for the safe accommodation of pedestrians and vehicles. The CONTRACTOR shall furnish and erect, without cost to the OWNER, substantial barricades at crossing of trenches, or along the trench, to protect the traveling public.
- B. The CONTRACTOR shall not obstruct fire hydrants.

END OF SECTION

SECTION 02219 - BEDDING AND BACKFILL MATERIAL

PART 1: GENERAL

1.1 SCOPE:

- A. The CONTRACTOR shall furnish, place and compact various types of bedding material and trench sand as called for in the specifications or as directed.
- B. The types and quality of bedding and backfill material are specified in this section, but its use for pipe bedding, backfill, replacement of unsuitable material excavated below trench grade, and other uses are as specified elsewhere.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

Excavation and Backfilling for Water Mains - Section 02217

PART 2: PRODUCTS

2.1 MATERIALS:

A. Bedding Material:

- 1. Screened or crushed gravel bedding material shall be hard durable particles free from organic matter, lumps of clay and other deleterious substances. The gradation shall meet the requirements of the following table and MDOT specifications Section 703.06 Type B aggregate

<u>Sieve Size Designation</u>	<u>% By Weight</u>
1/2 inch	35 - 75
1/4 inch	25 - 60
No. 40	0 - 25
No. 200	0 - 5.0

- 2. Select backfill as specified below may be used for bedding material.
- 3. Bedding material shall not contain particles of rock which have any dimensions greater than 4".

B. Select Backfill:

- 1. Sand backfill shall be hard, durable particles of granular material with 100% passing the 1/2" sieve and between 0-15% passing the #200 mesh.

All percentages are by weight. Sand shall be graded so as to secure the required compaction.

C. Backfill:

1. Suitable native material that does not contain stone or rock particles with any dimensions greater than 8".
2. Bank Run gravel borrow consisting of uniformly graded granular material having no rocks with a maximum dimension greater than 8" and that portion passing a 3-inch square mesh sieve shall contain no more than 70% passing 1/4 inch mesh sieve and not more than 10% passing a No. 200 mesh sieve.

PART 3: EXECUTION

3.1 METHODS:

The materials will be used in accordance with the requirements of the various sections of the specifications, drawings and standard details.

END OF SECTION

SECTION 02270 - SEDIMENTATION AND EROSION CONTROL

PART 1: GENERAL

1.1 SCOPE

Furnish all labor, materials, equipment and incidentals necessary to perform all installation, maintenance, removal and area cleanup related to sediment and erosion control work as shown on the Drawings and as specified herein. The work shall include, but not necessarily be limited to installation of silt fences, sediment traps, sediment removal and disposal, device maintenance, removal of temporary devices, temporary mulching, erosion control blanket, and final cleanup

1.2 RELATED WORK

A. Loam and seeding is included in Section 02821.

1.3 SUBMITTALS

Within 10 days after award of Contract, submit to the ENGINEER for approval technical product literature for all commercial products to be used for sedimentation and erosion control.

1.4 REFERENCE MANUAL.

Except as otherwise specified herein, the material and construction shall be in accordance with the Department of Transportation "Standard Specifications for Highways and Bridges of the State of Maine" and the "Maine Erosion and Sedimentation Control Handbook for Construction, Best Management Practices" (BMP Handbook).

1.5 TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES

A. Minimizing the exposed soil areas on the construction site is one of the most important and reliable methods of erosion control. The CONTRACTOR must phase the work so that areas of bare soil will be minimized. Exposed areas must be treated as described below and in the BMP Handbook.

Temporary erosion and sedimentation control measures will include silt fences, hay bale barriers, temporary seeding, temporary mulching and topsoil stockpiling. These measures are described in more detail below.

B. Silt fence will be placed down slope of all construction areas which drain toward a stream, wetland or improved area.

C. Hay bale barriers will be used as necessary until final restoration is complete. They may also be used as check dams in drainage areas. Hay bales will be

staked end to end in an excavated trench four inches deep across the area of runoff.

- D. Temporary mulching will be placed on all disturbed areas within two days or prior to any storm event. Mulch anchoring will be used on areas where the slope is greater than 5% or when placed after September 15. Straw mulch shall be applied at a rate of 90 lbs. per 1000 sq. ft. All mulched areas will be inspected before and after storms. If less than 90% of the surface is covered by mulch, additional mulch shall be applied immediately. Mulching shall be installed and maintained as recommended in the BMP Handbook.
- E. Topsoil shall be stockpiled on site with silt fence installed down slope of the piles. These stockpiles shall be mulched in accordance with the temporary mulching requirements.

1.6 PERFORMANCE REQUIREMENTS

- A. The CONTRACTOR shall be responsible for the timely installation and maintenance of all sedimentation control devices necessary to prevent the movement of sediment from the construction site to off site areas or into streams and wetland areas via surface runoff or underground drainage systems. Measures in addition to those shown on the drawings necessary to prevent the movement of sediment off site, control erosion or stabilize disturbed areas shall be installed, maintained, removed and cleaned up at no additional cost to the OWNER.
- B. Sedimentation and erosion control measures shall conform to the requirements of the BMP Handbook.
- C. Where CONTRACTOR's effort to control erosion has been demonstrated to be ineffective or potentially ineffective in the opinion of the ENGINEER, the ENGINEER may order that the erosion control plan be amended and that additional erosion control measures be constructed at no additional cost to the OWNER.

1.7 SEQUENCE OF CONSTRUCTION

- A. All hay bale check dams and silt fencing shall be in place below or adjacent to construction areas before actual construction begins. These devices shall remain in place until a healthy grass cover is obtained and the site is stabilized. These temporary structures shall be inspected weekly throughout the construction phase. They shall be repaired or replaced when necessary. These devices shall be removed when the area they serve is completely stabilized.
- B. Permanent re-vegetation or seeding of all disturbed areas shall occur immediately upon completion of work or, if temporary stabilization measures

were used, within 7 days from the time the area was last actively worked. Temporary stabilization measures are required within two days from the time the area was last actively worked or prior to storm events.

PART 2: PRODUCTS

2.1 MATERIALS

A. Silt Fence

- 1) Steel or wood posts shall be a minimum of 5 feet in length.
- 2) Silt fence fabric shall be a woven, polypropylene, ultraviolet resistant material such as Mirafi 100X as manufactured by Mirafi, Inc., Charlotte, N.C. or equal.

- B. Mulch material for all slopes equal to or greater than 20% shall be an erosion control blanket (ECB). The ECB shall consist of 70% long fiber hay or straw and 30% coconut fiber. The fibrous material shall be held in place by top and bottom netting sewn together. The fibrous material shall be reasonably free from noxious weeds or other undesirable material. The ECB shall be Type SC150 as manufactured by North American Green, or approved equal.
- C. For slopes less than 20% and level areas, mulch material shall consist of long fiber hay or straw reasonably free from noxious weeds or other undesirable material. No material shall be used which is so wet, decayed, or compacted as to inhibit even and uniform spreading. No chopped hay, grass clippings or other short fiber material shall be used unless directed. The hay or straw shall be treated with a mulch tackifier.
- D. Latex acrylic copolymer such as Soil Sealant with coalescing agent as manufactured by Soil Stabilization Co., Merced, California, or approved equivalent, shall be used as hay or straw mulch tackifier. Asphalt tackifiers are not allowed.

PART 3: EXECUTION

3.1 INSTALLATION

A. Silt Fence Installation

- 1) Position silt fences as shown on the Drawings and as necessary to prevent off site movement of sediment produced by construction activities as directed by the ENGINEER.

- 2) Dig trench approximately 4 inches wide and 4 inches deep along proposed fence lines.
- 3) Drive stakes 8 feet on center (maximum) at back edge of trenches. Drive stakes 2 feet (minimum) into ground.
- 4) Attach filter fabric on stakes to bottom of trench with about 4 inches of fabric laid across bottom of trench. Stretch fabric fairly taut along fence length and secure.
- 5) Backfill trench with excavated material and tamp.
- 6) Install pre-fabricated silt fence according to manufacturer's instructions.

3.2 MAINTENANCE AND INSPECTIONS

A. Inspections

- 1) CONTRACTOR shall make a visual inspection of all sediment control devices daily and immediately before and after every rainstorm.
- 2) If such inspection reveals that additional measures are needed to prevent movement of sediment to off site areas or into streams or wetland areas, CONTRACTOR shall promptly install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.

B. Device Maintenance

Silt Fences

- a) Remove accumulated sediment once it builds up to one-half of the height of the fabric.
- b) Replace damaged fabric or patch with a two foot minimum overlap.
- c) Make other repairs as necessary to ensure that the fence is filtering all runoff directed to the fence.

3.4 EROSION CONTROL BLANKET

- A. Install erosion control blankets in accordance with manufacturer's instructions. Properly prepare, fertilize and seed the area to be covered with permanent vegetation before the blanket is applied. Apply the blankets in the direction of water flow and staple together in accordance with manufacturer's instructions. Side overlaps shall be 2-inch minimum. The staples shall be made of wire .091-inch in diameter or greater, "U" shaped with legs 10 inches in length and a 1-

inch crown. The staples shall be driven vertically into the ground at a rate of one staple per square yard according to manufacturer's staple pattern guide.

- B. Bury upper and lower ends of the matting to a depth of 4 inches in a trench. Where the matting must be cut or more than one roll is required, turn down upper end of downstream roll into a slit trench to a depth of 4 inches. Overlap lower end of upstream roll 4 inches past edge of downstream roll and staple.
- C. To ensure full contact with soil surface, roll matting with a roller weighing 100 pounds per foot of width perpendicular to flow direction after seeding, placing matting, and stapling. Thoroughly inspect after completion. Correct any areas where matting does not present a smooth surface in full contact with the soil below.

3.5 REMOVAL AND FINAL CLEANUP

Once the site has been fully stabilized against erosion, remove sediment control devices and all accumulated silt. Dispose of silt and waste materials in proper manner. Re-grade all areas disturbed during this process and stabilize.

END OF SECTION

SECTION 02537 - DUCTILE IRON WATER PIPE & FITTINGS

PART 1: GENERAL

1.1 SCOPE:

- A. This section includes the furnishing and installing of ductile iron water pipe and ductile iron or cast iron fittings as specified.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

- A. Excavation and Backfill for Water Mains - Section 02217
- B. Bedding and Backfill Material - Section 02219

1.3 SUBMITTALS:

- A. Submit shop drawings for all material in accordance with the provisions of Section 01310.

PART 2: PRODUCTS

2.1 MATERIALS:

- A. See SEC02999 – Water Main Material Specifications

PART 3: EXECUTION

3.1 PIPE LAYING CONDITIONS:

- A. The interior of each pipe shall be inspected while being joined to see that the alignment is preserved and to assure that no dirt or debris has entered the pipe after laying and partial backfilling.
- B. Pipe fittings and accessories shall be carefully lowered into the trench, piece by piece, by means of derrick, crane, slings and other suitable tools and equipment, in a manner such as to prevent damage to the material or to its protective coating and linings. No chain or slings shall be passed through the inside bore of any pipe or valve or fitting. Under no circumstances shall piping materials be dropped or dumped into the trench.

3.2 LAYING DUCTILE IRON PIPE:

- A. As soon as the excavation is completed and the existing trench bottom has been brought to the proper grade, the pipe shall be laid.

- B. All pipe, before being lowered into the trench, shall be inspected inside and out. Both ends shall be cleaned and any visible dirt or debris removed from inside the pipe. Care shall be taken to lay the pipe to true lines and grades as shown on the drawings.
- C. Coupling holes shall be excavated so that the barrel of the pipe shall bear upon the trench bottom.
- D. Blocking under the pipe will not be permitted.
- E. Each section shall rest upon the pipe bed for the full length of its barrel.
- F. The circular rubber gasket shall be inserted in the gasket seat provided. A thin film of gasket lubricant shall be applied to the inside surface of the gasket. Gasket lubricant shall be a solution of vegetable soap or other solution supplied by the pipe manufacturer.
- G. The spigot end of the pipe shall be cleaned and entered into the rubber gasket in the bell, using care to keep the joint from contacting the ground. The joint shall then be completed by forcing the plain end to the seat of the bell. Pipe which is not furnished with a depth mark shall be marked before assembly to assure that the spigot end is inserted to the full depth of the joint.
- H. Pipe shall be aligned with the preceding unit and laid so as to form a close joint with the adjoining pipe and bring the inverts continuously to the required line and grade.
- I. No length of pipe shall be laid until the previous length has had sufficient material tamped about it to firmly secure it in place so as to prevent any movement or disturbance.
- J. Under no circumstances shall pipe be laid in water, and no pipe shall be laid when trench conditions or weather are unsuitable for such work, except by permission of the ENGINEER.
- K. The pipe shall be laid with the bell ends facing the direction of the laying, unless otherwise permitted by the ENGINEER.
- L. Joints, when made, shall be done in the manner prescribed by the manufacturer of the pipe. In the case of rubber gasket joints, these joints shall be made up in accordance with the American National Standards for the jointing of cast iron pressure pipe and fittings. (ANSI/AWWA C111/A21.11).
- M. Thrust blocks shall be used behind tees, bends, or other fittings where shown. Size shall be appropriate for soil conditions and thrust forces acting on the specific fitting.

3.3 TRENCH BOTTOM:

- A. Should the trench bottom contain unsuitable material, as indicated in Section 02217, Article 3.2-b, the CONTRACTOR shall over-excavate and replace with bedding material as required and authorized by the ENGINEER. The quantity of unsuitable material will be measured from the bottom outside of the pipe.
- B. Should ledge be encountered, it shall be removed to a depth of 6" below the bottom of the pipe, and replaced with bedding material.

3.4 CUTTING PIPE:

- A. All ductile iron pipe shall be cut using abrasive wheel cutter, rotary wheel hand cutter (with carbide cutter) or a guillotine pipe saw. All cuts shall be square and even with no ragged rough ends.
- B. Field cut pipe lengths shall be beveled and filed to avoid damage to the gasket and facilitate making the joint.
- C. When the cut end of pipe is to be used as a joint, the outside of the cut end shall be tapered back about 1/8-inch at an angle of about 30 degrees with the center line of the pipe. This shall be done with a coarse file or a portable grinder.

3.5 TEMPORARY PLUGS:

When pipelaying is not actually in progress, the openings of pipes shall be closed by temporary watertight plugs or other accepted means.

3.6 RETAINER GLANDS:

Install retainer glands on all mechanical joints of fittings, valves and hydrants.

3.7 POLYETHYLENE ENCASEMENT:

- A. Tube type polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with AWWA Standard C105 - latest revision, Method A. Circumferential wraps of tape or plastic tie straps shall be placed at 2-ft. intervals along the barrel of the pipe.
- B. The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely airtight or watertight enclosure. All lumps of clay, mud, cinders, and so forth, on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be exercised to

prevent soil or embankment material from becoming trapped between the pipe and the polyethylene.

- C. The polyethylene film shall be fitted to the contour of the pipe to effect a snug, but not tight, encasement with minimum space between the polyethylene and the pipe. Sufficient slack shall be provided in contouring to prevent stretching the polyethylene where it bridges irregular surfaces, such as bell-spigot interfaces, bolted joints, or fittings, and to prevent damage to the polyethylene due to backfilling operations. Overlaps and ends shall be secured with adhesive tape, string, plastic tie straps, or any other material capable of holding the polyethylene encasement in place until backfilling operations are complete.

END OF SECTION

SECTION 02538 - HIGH DENSITY POLYETHYLENE PIPE & APPURTENANCES

PART 1: GENERAL

1.1 SCOPE

- A. This section includes the furnishing and installing of High Density Polyethylene (HDPE) pipe.

1.2 SUBMITTALS

- A. Submit detailed description of proposed construction methods and equipment.

PART 2: PRODUCTS

2.1 HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS

- A. HDPE pipe shall be manufactured in accordance with AWWA C906. This material shall have a long term Hydrostatic Strength of 1600 psi when tested in accordance with ASTM D2837. HDPE shall be manufactured from PE 4710 polyethylene compounds that meet or exceed ASTM D3350 cell classification 445574. The manufacturer shall comply with NSF Standard 61 and/or Standard 14 and must be certified by the NSF International for potable water.
- B. The pipe and fittings shall have a Standard Dimension Ratio (SDR) of 11 and be rated for a working pressure of 200 psi at a temperature of 75 degrees Fahrenheit with a service life of 50 years. All pipe and fittings shall be ductile iron pipe size.
- C. Service connections shall be made using an electrofusion transition corporation saddle. Outlet material shall be brass alloy and the compression ring shall be 304 stainless.

PART 3: EXECUTION

3.1 HIGH DENSITY POLYETHYLENE PIPE JOINTS

- A. The HDPE pipe sections shall be joined on the job site using heat fusion methods. Transitions to other pipe materials shall be via heat fused polyethylene stub ends connected to an H.D.P.E. mechanical joint adaptor.
- B. All heat fused joints shall be made by qualified personnel of the pipe supplier. The Contractor shall be responsible for scheduling, coordination and all costs associated with the pipe jointing.

- C. Joining pipe lengths shall be performed using equipment specifically designed for heat fusion of polyethylene pipe of the sizes specified. The equipment shall have a trimming mechanism to produce a clean, flush surface perpendicular to the pipe wall at all joints and a Teflon coated heating plate to prevent adhesion of the pipe to the plate. Pipe ends shall be clean and free of polyethylene trimmings, dirt or other deleterious material prior to fusing.
- D. The heat fusion process shall be performed in full accordance with the pipe manufacturer's recommendations. Pipe joining equipment shall monitor pressure and heating plate temperature to insure proper jointing.

3.2 OPEN CUT PIPE INSTALLATION

- A. Proper implements, tools and facilities, satisfactory to the Owner, shall be provided and used by the Contractor for the safe and convenient handling of all materials. Pipe fittings and accessories shall be carefully installed in a manner such as to prevent damage to the material or to its protective coating.
- B. Every possible precaution shall be taken to prevent foreign material from entering into the pipe as it is being fabricated and placed in the trench.
- C. Suitable mechanical equipment shall be used to pull, lift and push the pipeline into place. Under no circumstances should the pipe be pulled by attaching to the flange. If flange assemblies are installed, these must be elevated to keep them from dragging, both in front and behind.
- D. The majority of the pipeline except the connection area shall be backfilled and compacted prior to the final connection to minimize movement away from the connection.
- E. Detectable warning tape shall be buried approximately one foot above all HDPE pipe. Tape shall be 6" wide and read "Buried Water Line". Tape shall be manufactured for below ground applications and contain a core such as aluminum for detection. In addition a locator wire per material specification shall be installed. The wire shall be fastened approximately every 10'.

3.3 DIRECTIONAL DRILLING INSTALLATION (See Section 02600)

END OF SECTION

SECTION 02593
PRESSURE AND LEAKAGE TESTS OF HDPE WATER MAINS

PART 1: GENERAL

1.1 SCOPE

- A. Furnish all labor, materials, equipment gages and related items necessary to complete all pressure and leakage tests of all water mains.

PART 2: PRODUCTS

2.1 MATERIALS

- A. Materials shall be at the Contractor's option.
- B. All gages shall be certified.

PART 3: EXECUTION

3.1 PRESSURE AND LEAKAGE TESTS:

- A. After the pipe has been laid and backfilled, it shall be pressure tested and tested for leakage in the presence of the Engineer and/or the Owner. Following acceptance of the pressure and leakage tests, the new mains shall be thoroughly cleaned by flushing and shall be disinfected by chlorination per Section 2595.
- B. All tests shall be conducted at a time and in a manner to minimize as much as possible any interference with the operation of the existing water system. The Owner will supply all water necessary for testing and placing the lines in service. The Contractor shall supply all labor, materials and equipment necessary to make any necessary connections to the water system and to carry out the tests.
- C. The Contractor shall provide a corporation tap (or use blow off assembly) for pressure and leak testing and chlorination as directed by the Engineer. The Contractor is responsible for all work associated with the excavation, including proper trench protection, barricades, traffic control and proper backfilling and compaction upon successful completion of the test.
- D. Each section of pipe shall be slowly filled with water and all air expelled from the pipe. If permanent air vents are not located at all high points, Contractor shall install corporation stops at such high points to bleed off air as the line is filled with water.

- E. A pressure test pump will be connected to the new main at the testing point. The pressure will be slowly increased to 150 psi. The 150 psi test pressure shall be maintained for four hours by adding water as necessary. The pump will then be shut off and the test pressure reduced to 140 psi. If the pressure remains steady (about 5%) for one hour, no leakage is indicated.
- F. If any test discloses leakage greater than that specified above, the Contractor shall, at his own expense, locate and make repairs as necessary until the leakage is within the specified allowance.
- G. Final acceptance of the lines will not occur until satisfactory tests have been passed.

END OF SECTION

SECTION 02594 - PRESSURE AND LEAKAGE TESTS OF DI/PVC PRESSURE MAINS

PART 1: GENERAL

1.1 SCOPE:

Furnish all labor, materials, equipment, gages and related items necessary to complete all pressure and leakage tests of all ductile iron (DI) and PVC mains.

PART 2: PRODUCTS

2.1 MATERIALS:

Materials shall be at CONTRACTOR'S option.

PART 3: EXECUTION

3.1 PRESSURE AND LEAKAGE TESTS OF WATER MAINS:

- A. After the pipe has been laid and backfilled, it shall be pressure tested and tested for leakage in the presence of the ENGINEER and/or the OWNER.
- B. All tests shall be conducted at a time and in a manner to minimize as much as possible any interference with the operation of the existing water system. The OWNER will supply all water necessary for testing and placing the lines in service. The CONTRACTOR shall supply all labor, materials and equipment necessary to make any necessary connections to the water system and to carry out the tests.
- C. The CONTRACTOR shall excavate and provide a corporation tap for pressure and leak testing as directed by the ENGINEER. The CONTRACTOR is responsible for all work associated with the excavation, including proper trench protection, barricades, traffic control and proper backfilling and compaction upon successful completion of the test.
- D. The pipe shall be slowly filled with water and all air expelled from the pipe. If permanent air vents are not located at all high points, CONTRACTOR shall install corporation stops at such high points to bleed off air as the line is filled with water.
- E. A pressure test pump will be connected to the new main at the testing point. The pressure will be slowly increased to 150 p.s.i. and allowed to stabilize (+/- 2.5 psi) for a minimum of 15 minutes.

- F. A reservoir of potable water shall be connected to the test pump and the initial level of water recorded.
- G. The pump pressure shall be maintained at 150 p.s.i. for one hour with all make up water withdrawn from the reservoir.
- H. After one hour, the water level in the reservoir will be measured and the volume of water drawn from the reservoir calculated and compared with the following allowable leakage:

$$\text{Allowable Leakage (gph)} = \frac{\text{Pipe Length (feet)} \times \text{Nominal Diameter (inches)}}{10,876^*}$$

*Correct only for 150 psi test pressure

- I. If any test discloses leakage greater than that specified above, the CONTRACTOR shall, at his own expense, locate and make repairs as necessary until the leakage is within the specified allowance.
- J. Final acceptance of the lines will not occur until satisfactory tests have been passed.

3.2 PRESSURE AND LEAKAGE TESTS OF D.I./PVC SEWER FORCE MAINS:

- A. Fill section of pipe with water and expel air.
- B. Pressurize to 1.5 times the normal operating pressure but not less than 60 psi.
- C. Measure leakage over a 2 hour test period.
- D. Acceptable leakage: Less than 10 gallons per day per inch diameter per mile of pipe tested.

END OF SECTION

SECTION 02595 - DISINFECTION OF WATER MAINS

1.1 Products:

Acceptable Disinfectants:

Sodium hypochlorite (NaOCl):

- o Shall conform to the provisions of AWWA B300 'Standard for Hypochlorites' and
- o Shall be certified to meet NSF/ANSI Standard 60 - *latest revision*, Drinking Water Treatment Chemicals – Health Effects.

Acceptable Dechlorination (neutralizing) Agents:

As defined in AWWA C651 'Standard for Disinfecting Water Mains',

Appendix C

2.1 Scope

This specification becomes a standard part of the contract documents and covers the disinfecting and flushing of water mains within the Portland Water District distribution system. Unless specified otherwise, all procedures apply to new mains, cleaned mains, cleaned and relined mains, repaired mains, and mains which have been out of service for a long period of time.

In certain circumstances, the Director of Water Services or designee may waive or alter the requirements in this specification where it is determined that no reasonable threat of contamination constituting a health hazard or aesthetic deterioration exists in the water main in question.

3.1 Keeping the Pipe Clean and Dry

Precautions shall be taken by the Contractor to protect the interiors of pipes, fittings, and valves against contamination:

- Pipe delivered for construction, or any remaining piece of cut pipe not immediately installed, shall be strung and protected so as to prevent entrance of any foreign material.
- Pipe shall not be laid in water, or when trench conditions or weather conditions are unsuitable for such work.
- All openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day's work or for other reasons.
- Joints of all pipe in the trench shall be completed before work is stopped.
- The surface of the joint rings shall be thoroughly cleaned with an approved soap solution and all foreign matter removed from the pipe and fittings before the pipe is lowered in the trench.

- If dirt enters the pipe, it shall be removed and the interior of all affected pipe and fittings shall be swabbed with a 5% Hypochlorite solution (compliant with NSF/ANSI Standard 60, latest revision) immediately before they are installed.
- Pipes and services in the ground shall be closed off when not under construction.

4.1 Pre-Flushing

The District shall flush the source water, as near the shut off as possible prior to tying-in to ensure that contaminants or debris are not introduced into the new pipe.

5.1 Flushing

The main shall be flushed through a hydrant at the end of the main. If no hydrant is installed at the end of the main, the Contractor shall provide a tap large enough with a goal of achieving a velocity of 2.5 ft/sec. The gallons per minute to achieve 2.5 ft./sec velocities for different diameter pipes are provided in Table 1.

Table 1 Gallons per minute required to obtain 2.5 feet per second flushing velocity

Main Size (in.)	Gallons per minute
6	200
8	400
12	900
16	1600

District water at no cost to the Contractor will be available to the work site for use in disinfecting and flushing mains. The Contractor shall furnish all necessary pipe and hose connections. The Contractor shall exercise care in the use of the water to prevent contamination of the existing water supply. The Contractor is responsible for providing adequate drainage during flushing and is responsible for any damage that may occur. Drainage shall be away from the main, and flooding of the trench shall be prevented. The volume of water flushed shall be measured or calculated and reported to the District Inspector.

Wherever the conditions allow, the new water main shall be kept isolated from the active distribution system using a physical separation until satisfactory bacteriological testing has been completed and the disinfectant water flushed out. Water required to fill the new main for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a temporary connection between the distribution system and the new main. The temporary connection shall include a double check valve assembly backflow preventer and shall be disconnected (physically separated) from the new main during the hydrostatic pressure test. It will be necessary to reestablish the temporary connection after completion of the hydrostatic pressure test to flush out the disinfectant water prior to final connection of the new main to the distribution system.

6.1 Methods of Disinfection

The Contractor shall disinfect all portions of the water main that was worked on as well as any portion(s) of the network that was taken out-of-service to allow completion of the contract. The chlorine solution to be used must be Sodium Hypochlorite.

NOTE – The use of Calcium Hypochlorite granules left in the main to be dissolved on filling of the main is not an approved method.

6.1.1 Continuous Feed Method

The continuous feed method consists of, in this order: completely filling the main to remove all air pockets, flushing the completed main to remove particulates, and filling the main with chlorinated potable water so that after a 24±4-hour holding period in the main there will be a free chlorine residual of not less than 10 mg/L at all locations of the main.

NOTE – Flushing is not a substitute for preventive measures to avoid pipe contamination during construction.

At a point not more than 10 ft. downstream from the beginning of a new main, water entering the new main shall receive a dose of chlorine pumped at a constant rate such that the water at any location will have not less than 25 mg/L of chlorine. To ensure that this concentration is provided, the District representative shall measure the chlorine concentration at regular intervals at available blow-offs or hydrants in accordance with procedures described in the current editions of “Standard Methods for the Examination of Water and Wastewater” or using an appropriate chlorine test kit.

Table 2 gives the amount of chlorine required for each 100 ft. of pipe of various diameters. Solutions of 1% chlorine shall be prepared with Sodium Hypochlorite. During the application of chlorine, valves shall be closed so that the strong chlorine solution in the main being treated will not flow into water mains in active service. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained in the main for at least 24±4 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. At the end of this 24±4-hour period, the treated water in all the portions of the main shall have a residual of not less than 10 mg/L of free chlorine.

Table 2 Chlorine Required to Produce 25 mg/L Concentration in 100 feet of Pipe by diameter

Pipe size (in.)	Volume (gals in 100 feet of Pipe)	12.5% Chlorine solution per 100 feet of Pipe	
4	65	2 oz.	
6	150	4oz.	
8	260	7 oz.	
10	410	10 oz.	

12	590	15 oz.	
16	920	27 oz.	
24	2350	60 oz.	
30	3680	94 oz.	
36	5290	1.06	
42	7200	1.44	
48	9400	1.88	
54	11900	2.38	
60	14690	2.94	

NOTE: To make a 5% chlorine solution. Using Sodium Hypochlorite, dilute the hypochlorite according to the percent available chlorine on the container. For example, if you have one gallon of 12.5% Sodium Hypochlorite, place 1 gallon in 1.5 gallons of water. You then have 2.5 gallons of 5% solution.

6.1.2 Slug Method (Emergency Use Only)

At a point not more than 10 ft. downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 100 mg/L of free chlorine. To ensure that this concentration is provided, the District representative shall measure the chlorine concentration at regular intervals along the main where taps and/or hydrants have been provided. The chlorine shall be applied continuously and for sufficient period to develop a solid column or 'slug' of chlorinated water that will, as it moves through the main, expose all interior surfaces to a concentration of approximately 100 mg/L for at least 3 hours.

The free chlorine residual shall be measured in the slug as it moves through the main. If at any time it drops below 50 mg/L, the Contractor shall stop the flow, chlorination equipment shall be relocated at the head of the slug, and as flow is resumed, chlorine shall be applied to restore the free chlorine in the slug to not less than 100 mg/L.

As the chlorinated water flows past fittings and valves, related valves and hydrants shall be operated so as to disinfect appurtenances and pipe branches.

7.1 Flushing After Disinfection

After the applicable retention period, the heavily chlorinated water shall be flushed from the main into the sewer until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the system. Where domestic sewers are not available, the heavily chlorinated water shall be dechlorinated. The replacement water shall be allowed to remain in the pipeline for 24 hrs.(+/- 4 hrs.) prior to sampling for physical, bacteriological, and chemical testing.

7.2 Analytical Tests

After the appropriate retention time (24±4 hours or 3 hours for the slug method), after flushing and before the water main is placed into service, a sample or samples shall be collected for sanitary analysis by a District representative. Suitable sample piping shall be furnished by the Contractor to allow sample collection. The sampling point or points shall provide samples, which are representative of the water in all sections of the main for which sanitary approval is requested. All samples shall be collected in a manner as to avoid contamination from the environment surrounding the main. Rubber or synthetic hose shall not be connected to the main to collect a representative sample. The area around the sampling point of the main shall not be filled with water. At least one sample shall be taken from each main, and in the case where a main is greater than 1000 feet, one sample from each 500 feet of line. The samples shall be submitted to the District Laboratory for bacteriological, chemical, and physical analysis. The following analyses shall be completed and reported on the appropriate form. Total chlorine residual, Total Coliform (Membrane Filtration method), pH, and turbidity.

7.3 Final Flushing

Disinfected water mains shall be flushed within 4 hours of being placed into service. Flushing shall be designed to restore water quality to that of the source water, immediately prior to being placed into service. The length of time of flushing shall depend on the size and length of the water main, however at least three volumes of water should flow through the entire length of the main. Pipe volumes can be calculated by using Table 2 and adjusting for the full length of the main.

7.4 Redisinfection

If the initial disinfection and flushing fail to produce satisfactory analytical results, the main may be reflushed and shall be resampled. If check samples show the presence of coliform organisms, then the main shall be rechlorinated by the Contractor using the continuous feed method of chlorination.

7.5 Foam Pigging

If re-chlorination still produces unsatisfactory test results the main shall be cleaned utilizing polyurethane foam pigs. Pigging shall be performed by a contractor experienced in pigging operations acceptable to the District. Foam pigs shall be new and only used once. The pig shall be immersed in a 25 mg/l solution of sodium hypochlorite prior to launching. Pigs shall be pushed through the main with water pressure until the water is clear and the pig is clean. If water samples taken after the pigging operation indicate the presence of coliform bacteria, the pigging process shall be repeated until two consecutive samples test negative for bacteria.

7.6 Miscellaneous

The contractor will be responsible for all District costs beginning with pigging operations and continuing through successful bacteriological testing. This includes all inspection, sampling and laboratory costs.

7.7 Final Connection

Water mains and appurtenances must be completely installed, flushed, tested for leakage, disinfected, and satisfactory bacteriological sample results received prior to permanent connections being made to the active distribution system where the new main was isolated from the existing system. Sanitary construction practices must be followed during installation of the final connection to insure that there is no contamination of the new or existing water main with foreign material or groundwater.

The new pipe, fittings, and valve(s) required for the connection will be spray-disinfected or swabbed with a 5% solution of chlorine just prior to being installed.

7.8 Dechlorination

Contact the local sewer authority before discharging the highly chlorinated water to the sewer. The discharge of water to the environment with chlorine concentrations greater than the ambient distribution system chlorine residual is prohibited. The highly chlorinated water must be dechlorinated before being discharged to the environment.

END OF SECTION

SECTION 02600 – INSTALLING MAINS BY DIRECTIONAL DRILLING

PART 1: GENERAL

1.1 SCOPE

- A. This work shall consist of furnishing and installing mains by directional drilling methods in accordance with these specifications and the contract plans.

1.2 EQUIPMENT

- A. Furnish equipment of adequate capacity and power to install water main by directional drilling methods. Supplement each rig with the necessary auxiliaries, appurtenances, tools and other equipment required for proper operation. The alignment, profile, size and length of the installation are specified in the contract documents.

1.3 SUBMITTALS

- A. Submit for review and approval a detailed work plan and schedule of activities required to perform all directional drilling, including any proposed variation from the methods and techniques stipulated in this specification. Information in this work plan should include, but not limited to, the following:
 - 1. Qualifications of the Contractor showing that all directional drilling operations will be performed by a competent driller with a minimum of 5 years of relevant experience. The experience must include at least 5 projects with installations of 12" or larger pipe and lengths equal to or greater than this project. Completed projects with details of the types of pipe installations, owner contact names, and telephone numbers must be included.
 - 2. Designed directional drill path indicating compliance with the project design criteria.
 - 3. Plan showing the work zone equipment configuration at the end of the bores, staging areas and the location of slurry, cuttings and pit spoil handling areas.
 - 4. Equipment list including make and model number and specifications of all major equipment proposed for use on the project.
 - 5. Boring procedure, tooling for drilling, method to control slurry, design of entrance and exit pits and method to verify that installed water main is acceptable.
 - 6. Steering and tracking equipment, procedures and proposed locations of ground based tracking coils or other equipment requiring subsurface access.

7. Materials list including bentonite and bentonite additives proposed for use on the project along with material detail sheets for all material used on site.
8. Methods for erosion and sediment control.

1.4 SHORING

- A. Shore entrance and exit pits as necessary to meet OSHA requirements.

PART 2: PRODUCTS

2.1 HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS (See SEC 02538)

PART 3: EXECUTION

3.1 GENERAL

- A. Exercise special care and handling during delivery and distribution of pipe to avoid damage. Damaged pipe will be rejected and replaced at the contractor's expense. Store materials prior to use so as to keep the interior free from dirt and foreign matter. Thoroughly clean any piping that becomes contaminated before it is incorporated into the work.
- B. The alignment of the pipe must conform to the following requirements:
 1. Choose the ground entry and exit angles such that the water main can be installed along the alignment and profile indicated on the contract plans and to the depths indicated.
 2. The entrance and exit points shall be approved by the Engineer and physically located in the field.
 3. The exit point shall be no more than 1 foot left or right of the location in the field
 4. Limit the longitudinal pull so as to prevent any damage of the water main. Continuously monitor the longitudinal pulling forces during pullback.

3.2 INSTALLATION PROCEDURE

- A. Direct all drilling operations using steering and tracking systems capable of producing the required alignment. The control system shall provide an angle of inclination reading and the direction in which the cutting tool is pointing. Provide access to the Engineer at all times all measuring or gauging devices used for drilling operations including drilling logs maintained by the Contractor.
- B. Adequately support the water main on rollers during the pullback into the pre-drilled hole. Rollers and cradles shall be a type that will prevent damage to the water main and in sufficient number to prevent overstressing during pullback. Pullback equipment shall be adequate for the length and depth of the runs and soil types encountered.

- C. The Owner's representative will examine the pipe at the entrance pit upon pullback for scratches, scores, gouges, cuts and other forms of damage. The permissible depth of gouges and scratches shall not exceed 10% of the wall thickness of the pipe.
- D. Pull a solid copper-clad steel (CCS) tracer wire with a minimum break load of 2,000 lbs. Wire size shall be #10 AWG and shall contain a 45mil HDPE insulated coating. Rated for direct burial use at 30 volts. Copperhead Soloshot or equal.
- E. Take necessary precautions to prevent bentonite leakage.
- F. Supply portable mud tanks or construct temporary mud pits to contain excess drilling fluids during construction. Upon completion of the water main installation, dispose of any cuttings and excess drilling fluid in a manner consistent with local, state and federal regulations.
- H. In the event that the drill hole must be abandoned before completion of the installation, fill abandoned drill hole with grout. Progress new drill hole at the Contractor's expense.
- I. During construction, maintain the site in a neat and orderly condition. At the completion of work, remove all temporary structures erected, drill and pipe staging areas, platforms, and drilling fluids. Restore the area to the approximate original conditions.
- J. Provide shapefile GPS points every 25 feet of the installed location to the Owner.

END OF SECTION

SECTION 02999 – Water /Sewer Main Materials Specifications

Note: All materials must meet the Buy America provisions of MDOT contract documents

BOLTS AND NUTS

GENERAL SPECIFICATIONS

General Description of Properties Required:

- 1.0 Stainless Steel: Type 304 – contains the addition of Molybdenum to the nickel-chromium steels.
- 2.0 All buried mechanical joint bolts and nuts (T-head, etc.) shall be Cor-Blu or equal

STEEL TRANSITION COUPLING

GENERAL SPECIFICATIONS

- 1.0 End Rings and center ring made from ASTM 36 steel
- 2.0 Coupling length to be 18".
- 3.0 Coating: Fusion bonded epoxy per AWWA C213.
- 4.0 Bolts and Nuts: High strength low alloy steel bolts and nuts.

APPROVED MANUFACTURERS

- A. Smith Blair 413
- B. Romac Series 400

CORPORATION STOPS

GENERAL SPECIFICATIONS

- 1.0 Conforming to AWWA C-800.
- 2.0 $\frac{3}{4}$ " to 2" curb stops shall be ball valve design with brass ball that is teflon coated or brass ball with teflon seats.
- 3.0 The ball shall be supported by seats which are water tight in either direction.
- 4.0 The valve shall have a full port opening.
- 5.0 The body of the corporation stop shall be of heavy duty design.
- 6.0 The valve working pressure shall be 300 p.s.i.

APPROVED MANUFACTURERS

- A. A.Y. McDonald
- B. Cambridge Brass
- C. Ford Meter Box Co.
- D. Mueller Co.

CURB STOPS

GENERAL SPECIFICATIONS

- 1.0 Conforming to AWWA C-800
- 2.0 ¾" to 2" curb stops shall be ball valve design with brass ball that is teflon coated or brass ball with teflon seats.
- 3.0 The ball shall be supported by seats which are water tight in either direction.
- 4.0 The valve shall have a full-port opening.
- 5.0 The valve shall open with ¼ turn (90°) with a check or stop.
- 6.0 The valve shall not have a drain.
- 7.0 The valve stem shall have 2 "O" rings and a bronze ring lock which holds the stem solidly in the valve body.
- 8.0 The valve body shall be of heavy duty design.
- 9.0 The valve working pressure shall be 300 p.s.i.

APPROVED MANUFACTURERS

- A. A.Y. McDonald
- B. Cambridge Brass
- C. Ford Meter Box Co.
- D. Mueller Co.

CUT-IN SLEEVE

GENERAL SPECIFICATIONS

- 1.0 The sleeve shall be mechanical joint to plain-end type.
- 2.0 The sleeve shall fit over either AB or CD pattern pipe.
- 3.0 Coatings:
 - a) Interior – Seal-coated – AWWA C104-74, min. 4 mils D.F.T.
 - b) Exterior – Bituminous coated, min. 4 mils D.F.T.
- 4.0 Mechanical joint accessories shall be furnished:
 - a) Glands: Duck-tipped for AB pipe, Plain Gaskets for CD pipe
 - b) Cor-Ten tee bolts and nuts
- 5.0 Cut-in sleeves shall have at least one stop-screw in sizes up through 10" and at least 2 stop-screws in 12" size.
- 6.0 The stop-screw "O" ring shall be recessed into the body of the sleeve between stop-screw and body.

APPROVED MANUFACTURERS

- A. Mueller Co.

DUCTILE IRON FITTINGS

INCLUDING BENDS, REDUCERS, OFF-SETS, TEES AND SLEEVES

GENERAL SPECIFICATIONS

- 7.0 Material shall be ASTM A536 latest, grade 70-50-05, in accordance with AWWA C110 (latest revision) for fittings larger than 24" and C153 (latest revision) for fittings 3" thru 24".
- 8.0 Fittings shall be cement lined AWWA C104 (latest revision) or fusion bonded epoxy coated with a 5 mil nominal thickness per AWWA C550 and C116.
- 9.0 Interior seal coated AWWA C104 with minimum of 4 mils dry film thickness.
- 10.0 Exterior bituminous coated, 4 mils minimum dry film thickness or fusion bonded epoxy coated with a 5 mil nominal thickness per AWWA C550 and C116.
- 11.0 Sleeves shall not be cement lined, but shall be bituminous coated inside to 4 mils dry film thickness. All sleeves shall be long body type.
- 12.0 Mechanical joint with accessories furnished: D.I. glands, gaskets, Cor-Ten T-bolts and nuts.
- 13.0 Pressure Ratings:
 - a) Class 350 pressure rating in accordance with AWWA C153 - 3"-24" sizes.
 - b) Class 250 pressure rating in accordance with AWWA C110 - 30"-48" sizes.
- 14.0 The "compact design" fittings must provide adequate space for the MJ joint and accessories to be installed without special tools (i.e. Lowell wrench can be used).

APPROVED MANUFACTURERS

- A. All Manufacturers (American)

DUCTILE IRON PIPE

GENERAL SPECIFICATIONS

- 1.0 Ductile iron pipe shall meet requirements of AWWA Standard C-151 (latest revision) and be cement lined and seal coated to meet AWWA Standard C-104 (latest revision).
- 2.0 Joints shall meet requirements of AWWA C-111 (latest revision).
- 3.0 Interior seal coated, bituminous paint oil cut, emulsion not acceptable, thickness minimum of 2 mils dry film thickness.
- 4.0 Exterior bituminous coated with minimum of 2 mils dry film thickness.
- 5.0 Class 52 wall thickness, 4-inch diameter through 12-inch diameter inclusive.
- 6.0 Ductile Iron Pipe with diameters 16-inches and larger shall be Class 51.
- 7.0 State nominal laying length and mark shorter lengths near bell.
- 8.0 Mechanical joint pipe to be furnished with gland, gaskets and Cor-Ten bolts and nuts.
- 9.0 Welded-on thrust collars, for wall pipe and pipe thrust restraint, shall be welded steel collars designed for the thrust generated by 250 psi working pressure with a safety factor of at least two (2.0) against failure. The manufacturer shall qualify all welding procedures and welders per the requirements of a documented quality assurance system based on ANSI/AWS D11.2.

APPROVED MANUFACTURERS

- A. American Cast Iron Pipe
- B. Griffin Pipe
- C. U.S. Pipe

FIRE HYDRANT

GENERAL SPECIFICATIONS

- 1.0 The hydrant shall open right.
- 2.0 The operating nut shall:
 - a) be D.I. or bronze
 - b) be pentagon in shape with dimensions: Top 1-13/16" tapering to 1-7/8" on bottom.
- 3.0 Nozzles shall be:
 - a) 2 each – 2-1/2" National Standard Thread
 - b) 1 each – 4-1/2" National Standard Thread.
- 4.0 Port covers shall be supplied without chains and shall have the same size pentagon operator as specified in 3.0(b) above.
- 5.0 Traffic model hydrant with breakaway feature
- 6.0 Barrel length(s) shall be:
 - a) 6 ft. cover, 6-1/2 ft. bury; or
 - b) 5-1/2 ft. cover, 6 ft. bury, or
 - c) 5 ft. cover, 5'-6" bury
- 7.0 Hydrant shoe or base shall have the following:
 - a) 6" MJ inlet;
 - b) 5-1/4" valve opening with non-draining bronze seat that is permanently plugged;
 - c) valve seat and sub-seat arrangement shall be bronze to bronze;
 - d) Horizontal and vertical blocking planes manufactured into hydrant base
- 8.0 Bolts:
 - a) all buried mechanical joint bolts and nuts (T-head, etc.) shall be Cor-Ten or equal;
 - b) all buried flange joint bolts shall be stainless steel (Type 304) or silicone bronze.
- 9.0 Protective Coatings shall consist of the following:
 - a) all paintings and coatings shall be a minimum of 3 mils total dry film thickness, unless noted

- b) the internal area of the hydrant base, which is normally exposed to water and which includes the internal body of hydrant shoes, including lower valve plate, shall be epoxy coated
- c) all internal and external cast iron or ductile iron components shall be coated with an approved bituminous coating, 3 mils minimum
- d) Coatings for upper barrel - exterior:
 - 1. Surface preparation blast clean SSPC-SP-6
 - 2. Primer Sherwin Williams Red Oxide E61RC21, 1.5 mils, dry
 - 3. Finish coat Sherwin Williams – Regal Yellow, F78Y30, 1.5 mils, dry or sufficient paint to hide the second coat
 - 4. Total dry film thickness - 3 mils minimum.
- e) Coatings for bonnet, operating nut, port cap:
 - 1. Surface preparation: Blast clean, SSPC-SP-6
 - 2. Exterior primer
 - 3. Exterior aluminum
 - 4. Total dry film thickness: 3 mils minimum.

10.0 Flow Indicator Collars: PWD personnel shall install flow indicator collars on all new hydrants.

FIELD TEST OF INSTALLED HYDRANT

- 1.0 Hydrant flow shall completely stop with no more than 200 ft. lb. of torque applied to the operating nut.
- 2.0 Failure to shut completely at no more than 200 ft. lb. of torque will be cause for rejection of that hydrant.

APPROVED HYDRANTS

- A. Clow Eddy – with lower stem machined from bar stock
- B. American Darling Models: B62B-1, B62B-5

PIPE JOINT RESTRAINER

GENERAL SPECIFICATIONS

1.0 Pipe Restraints:

- 1.1 Use in conjunction with mechanical joint fittings.
- 1.2 The joint restraint ring and its wedging components shall be made of ductile iron conforming to ASTM A536-80.
- 1.3 Dimensions of the restrainer must allow use with standard M.J. bell conforming to AWWA C111 and AWWA C153.
- 1.4 Restrainer must restrain up to 350 psi of working pressure in 3" to 16" sizes and 250 psi of working pressure in 18" to 48" sizes with a 2:1 safety factor.
- 1.5 Torque limiting twist off nuts shall be used to ensure proper actuation of the restraining wedges (used on a,b,c below).

APPROVED MANUFACTURERS

- A. Sigma Super Lug
- B. Ford Uni-Flange Series 1400
- C. Ebba Mega Lug
- D. Romac Grip Ring
- E. Star Grip Series 300
- F. Romac Romagrip
- G. MJ FIELD LOK Gasket

POLYETHYLENE ENCASEMENT

GENERAL SPECIFICATIONS

- 1.0 Tube type polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with AWWA Standard C105 - latest revision, Method A.
- 2.0 Polyethylene encasement shall be either linear low-density polyethylene (LLDPE) film with a minimum thickness of 8-mil or high-density, cross-laminated polyethylene (HDCLPE) film with a minimum thickness of 4-mil.
- 3.0 Circumferential wraps of tape or plastic tie straps shall be placed at 2-ft. intervals along the barrel of the pipe.
- 4.0 The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely airtight or watertight enclosure. All lumps of clay, mud, cinders, and so forth, on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be exercised to prevent soil or embankment material from becoming trapped between the pipe and the polyethylene.
- 5.0 The polyethylene film shall be fitted to the contour of the pipe to effect a snug, but not tight, encasement with minimum space between the polyethylene and the pipe. Sufficient slack shall be provided in contouring to prevent stretching the polyethylene where it bridges irregular surfaces, such as bell-spigot interfaces, bolted joints, or fittings, and to prevent damage to the polyethylene due to backfilling operations. Overlaps and ends shall be secured with adhesive tape, string, plastic tie straps, or any other material capable of holding the polyethylene encasement in place until backfilling operations are complete.
- 6.0 Three layers of polyethylene adhesive tape shall be wrapped around any polywrapped pipe where a tapping machine will be placed. All copper services connected to a pipe wrapped in polyethylene encasement shall be wrapped within three feet of the pipe.

PVC WATER PIPE

GENERAL SPECIFICATIONS

- 1.0 For all water main installations that are less than 4" I.D. (4" and larger use ductile iron), the District will require use of 2" I.D. PVC plastic water pipe meeting the following: Under special site conditions the District does require the use of C-900 PVC in sizes larger than 4".
- 2.0 Pipe Specifications (2"):
 - 2.1 Diameter:
 - A. The I.D. shall be a minimum of 2"
 - B. The O.D. shall be a maximum of 2.38"
 - C. The minimum wall thickness shall be 0.113"
 - 5.2 Pressure Rating
 - A. The minimum working pressure rating shall be 200 PSI (SDR-21).
 - B. The pipe shall conform to standard ASTM 2241.

Pipe Length

 - A. The pipe shall be provided in 20' lengths.
* Shorter lengths may be allowed and/or field cut following manufacturer's recommended procedures.
 - 5.2 Gaskets
 - A. The gasket or O-Ring material shall be rubber meeting ASTM F 477 and of the "permanent use" type.- 3.0 Fittings:
 - 3.1 Standard AWWA C900 fittings are not available in the 2" I.D. and therefore "steel pipe" class fittings, or Certa-Lok Yelomine couplings and fittings meeting ASTM D 3139 shall be used.
 - 5.2 The normal nomenclature for "steel fittings" is Schedule 40 or Schedule 80, with the respective pressure ratings of 280 PSI and 400 PSI. Both of these fitting classes are acceptable for use.
- 4.0 Service Connections:

- 4.1 All service connections shall be made with tapping saddles* per Portland Water District specifications or by use of tees meeting the above noted fitting specifications.
- 5.0 Installation:
 - 5.1 Follow manufacturer's instructions.
 - 5.2 Detectable warning tape shall be buried approximately eighteen inches above all PVC pipe. Tape shall be 6" wide and read "Buried Water Line". Tape shall be manufactured for below ground applications and contain a core such as aluminum for detection.
 - 5.3 In addition a 10 gauge insulated (for direct buried use) solid copper wire shall be fastened to the buried PVC pipe to facilitate electronic pipe locating. The wire shall be fastened at two locations per length and not at any joint.
 - a. Wire shall be polyethylene coated per ASTM D-1248
 - b. Insulation thickness shall be a minimum of .030"
- 6.0 The District requires 305 PSI (SDR-14) PVC pipe for sizes such as 4", 6", 8", and 12". Pipe shall conform to AWWA C-900.

APPROVED MANUFACTURER / TYPE

- A. J-M Manufacturing - Blue Brute
- B. Certainteed - Yelomine
- C. Victaulic - Aquamine
- D. IPEX – Blue Brute

RESILIENT SEATED GATE VALVE

GENERAL SPECIFICATIONS

- 1.0 Valve shall meet the latest revision of the AWWA C-509 or C-515 Standard.
- 2.0 Valve shall have a smooth unobstructed water way which shall be a minimum diameter of the valve.
- 3.0 Valve ends to be specified and shall be furnished with Cor-ten (or equal) bolts and nuts.
- 4.0 Valve shall be rated for zero leak rate at 200 psi differential working pressure and have a 400 psi hydrostatic test for structural integrity.
- 5.0 Sealing - Valve shall have a minimum of 2 "O" rings situated such that the "O" rings above the thrust collar can be replaced with the valve under pressure and in the open position.
- 6.0 Stem - Valve stem shall:
 - a) open right with a stem nut made of grade D,E manganese bronze;
 - b) be non-rising;
 - c) be designed with a thrust collar integrally cast to the stem;
 - d) be designed with two (2) thrust washers, placed one above and one below the stem thrust collar;
 - e) be constructed of grade D,E manganese bronze;
 - f) be such that the thrust washers are made of a synthetic polymer with physical properties required.
- 7.0 Valve Body - The body, including the stuffing box and the bonnet, shall be constructed of cast iron or ductile iron, meeting the latest revision of AWWA C-153.
- 8.0 Valve Wedge:
 - a) shall be constructed of ductile iron (less guiding mechanism);
 - b) shall be fully encapsulated and permanently bonded with a resilient elastomer;
 - c) shall be constructed such to allow the flushing of any interior exposed surface during operations.
- 9.0 Coatings:

- a) the internal and external valve body, including the stuffing box, bonnet, and interior of the wedge shall be fusion bonded epoxy coated with 8 mils D.F.T.
 - b) interior shall meet latest version of AWWA C-550.
 - c) shall be holiday free, interior and exterior, per testing method described in AWWA C-550, Sec. 5.1.
- 10.0 Operating Nut:
- a) shall be two (2) inch square ductile iron:
 - 2. with a countersunk hold down nut (made of 316 stainless steel or silicone bronze). This applies to stems that are tapered; or
 - 3. with a stainless steel pin inserted thru the stem. This applies to stems of full diameter.
- 11.0 Bolts – The seal plate and bonnet bolts shall be stainless steel (Type 316 or Type 304).
- 12.0 Valves 12" nominal diameter and smaller shall be directly operated by the nut on the valve stem and mounted vertically. Number of turns to open or close shall closely match the formula: $(3 \times D) + 2$. For example, a 12" valve should open or close with approximately $(3 \times 12) + 2 = 38$ turns of the operating nut.
- 13.0 Horizontal valves larger than 12" nominal diameter shall have bevel gear operators driven by the operating nut. Vertical valves larger than 12" nominal diameter shall have spur gear operators driven by the operating nut. Valves 14" – 24" nominal diameter shall have 4:1 bevel gear operators. Valves with 30" – 36" nominal diameters shall have 6:1 bevel gear operators and valves with 42" – 48" nominal diameters shall have 8:1 bevel gear operators. Number of turns to open or close shall closely match the formula: $((3 \times D) + 2)$ times the bevel gear ratio. For example, a 24" valve should open or close with approximately $((3 \times 24) + 2) \times 4 = 296$ turns of the operating nut.

GENERAL PROVISIONS

- 1.0 Vendor shall identify any and all exceptions to the specifications.
- 2.0 Vendor shall provide standard brochures for item quoted.
- 3.0 Vendor may be required to supply a valve for inspection and determination of coating process.

APPROVED RESILIENT SEATED GATE VALVES

- A. U.S.P.
- B. AFC Series 2500
- C. Mueller A-2360/61
- D. Clow Series F6100

BUTTERFLY VALVES

1.0 SPECIFICATION:

Butterfly valves and their operators shall conform generally, to AWWA standard C504, short body pattern Class 150B, and specifically to the following requirements:

- 1.1 The valve bodies shall be of cast or ductile iron. Buried valves shall have mechanical joint ends per AWWA C111. Non-buried valves shall have two ANSI B16.1 Class 125 flanges. The bolt holes at the valve shaft hubs may be drilled and tapped on either or both flanges.
- 1.2 The valve shafts shall be in two parts, inserted from each side of the valve. The disc pins or bolts shall be fastened to prevent loss, loosening in service, and shall be sealed as necessary to prevent leakage through the disc. Valve shafts shall be stainless steel. Carbon steel shafts with stainless steel journals are not permitted. Shaft seals shall be the "O" ring type or self adjusted packing.
- 1.3 The valve disc shall be cast of either ductile iron or alloy iron and epoxy coated. The disc periphery shall be accurately machined or faced to form a 360 degree seating surface uninterrupted by shaft holes. The disc and shaft geometry shall be such that the seat rubber is not compressed when the valve is fully open.
- 1.4 The natural rubber, insert type valve seat shall be mechanically retained in place, independent of cementing or bonding agents. The mating seat material shall be stainless steel.
- 1.5 The stub shaft of all valves 16" and larger shall have a two way thrust bearing adequate to hold the disc centered in the valve seat.
- 1.6 The valve operators shall be manual, totally enclosed, grease packed, and of traveling nut and lever design. The gear housing shall be suitable for buried and submerged service; special provisions shall be made to seal the gear housing from water infiltration from the ground or along the valve shaft into the housing. The space between the valve body and the gear box shall be one iron casting designed so as to provide access sufficient to inspect and replace the "O" ring seals. Operating stems shall be fitted with standard AWWA 2" square operating nuts. All valves shall turn to the RIGHT to open.

1.7 The internal and external valve body shall be epoxy coated to C-550 with a minimum of 5 mils dry film thickness.

1.8 Seal plate and end cover bolts shall be 304 stainless steel, and valve ends as specified will be furnished with Cor-Ten, or equal, bolts and nuts.

Approved Manufacturers:

- a) Henry Pratt "Groundhog" Class 150 B
 - b) Mueller: "Linesal III" Class 150 B
 - c) Clow / M&H / Kennedy Class 150 B
-

RESTRAINED JOINT GASKETS

GENERAL SPECIFICATIONS

- 1.0 All accepted restrained joint gaskets in the Portland Water District distribution system shall be rated in accordance with the performance requirements of ANSI/AWWA C111/A21.11.
- 2.0 Required Applications
 - 2.1 Any hydrant branch or service with a distance greater than 18' shall have an approved restrained joint gasket in the bell ends.
 - 2.2 Where a casing is required, all joints within the casing shall have an approved restrained joint gasket unless restrained joint pipe is used.
 - 2.3 At any time as required by a PWD Engineer.
 - 2.4 Any live service tap where there is a joint between the connection and the end of the service.

APPROVED MANUFACTURERS

- A. American Fast-Grip Gasket – American Pipe
- B. Field Lok 350 Gasket – US Pipe

SERVICE BOX AND ROD

GENERAL SPECIFICATIONS

Reference Standard Details

- 1.0 Service Box - Approved Manufacturers: Bingham & Taylor or equal American Manufacturer
 - 1.1 Shall be 1.0" Schedule 40 steel pipe with top having 1.0" N.P.T. pipe threads for screw-on cover or coupling.
 - 1.2 Shall be Erie style with 6' slide-type riser.
 - 1.3 Any extension of a service box requires a threaded merchant coupling with no set screw.
- 2.0 Service Box Cover – Approved Manufacturers: Bingham & Taylor or equal American Manufacturer
 - 2.1 Shall be Quincy type (heavy duty) cover that screws on Service Box (1.1 above).
 - 2.2 Shall be tapped with a 1" rope thread with a solid brass plug with pentagon operating head.
- 3.0 Service Box Foot Piece – Approved Manufacturer: Bingham & Taylor or equal American Manufacturer
 - 3.1 The standard foot piece shall be heavy duty (Ford style or equal) cast iron design.
 - 3.2 The large, heavy-duty foot piece shall have an arch that will fit over 2" ball-valve curb stops.
- 4.0 Service Rod – Approved Manufacturer: Bingham & Taylor or equal American Manufacturer
 - 4.1 Shall have a self aligning design.
 - a) 36" length for all services.
 - b) 24" length for air valves.

- 4.2 Shall be round and constructed of stainless steel (304) with an epoxy coating (minimum 4 mil D.F.T.).
- 4.3 Shall have a yoke design that is an integral part of the rod.
- 4.4 The curb-stop attachment pin shall be a brass cotter pin.
- 4.5 The rod "wrench-flat" shall have a minimum thickness of $\frac{1}{4}$ " tapered to $\frac{1}{16}$ " and width of $\frac{5}{8}$ " or $\frac{1}{2}$ ".
- 4.6 Diameter
 - a) $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" services use $\frac{1}{2}$ " diameter.
 - b) $1\frac{1}{2}$ " and 2" services use $\frac{5}{8}$ " diameter.

SERVICE SADDLES

GENERAL SPECIFICATIONS FOR DUCTILE IRON PIPE

- 1.0 The service saddle shall have the "larger sized" body, the same as associated with the "service repair" saddle, which shall have a minimum diameter of 6 in. and multiple "O" ring type sealing.
- 2.0 The saddle body shall be constructed of epoxy coated ductile iron.
- 3.0 The sealing gasket(s) shall be either Buna-N rubber or SBR rubber (ASTM D2000).
- 4.0 Service saddles shall be installed with all 1 1/2" and 2" corporation stops (cc only).

Approved Manufacturers

<u>Size</u>	<u>Tap</u>	<u>Saddle</u>
2" – 2-1/4"	3/4", 1" cc	Smith-Blair 315, Ford FC 202
4" - 12" D.I.	3/4"- 1 1/2" cc	Smith Blair 331
4" - 12" D.I.	2" cc	Smith-Blair 313
16"	3/4"-2" cc	Smith-Blair 313
20" – 36"	3/4"-2"cc	Smith-Blair 366

GENERAL SPECIFICATIONS FOR PVC PIPE

- 1.0 Stainless steel straps will be used on saddles on C-900 PVC Pipe

Approved Manufacturers

<u>Size</u>	<u>Tap</u>	<u>Saddle</u>
2" – 2-1/4"	3/4", 1" cc	Smith-Blair 315, Ford FC 202
4"-12"		Smith-Blair 265

GENERAL SPECIFICATIONS FOR HDPE PIPE

- 1.0 Spring washers are required for service saddles on HDPE Pipe.

Approved Manufacturer

<u>Size</u>	<u>Tap</u>	<u>Saddle</u>
4"-12"		Smith-Blair 265

STAINLESS STEEL REPAIR CLAMPS

GENERAL SPECIFICATIONS

- 1.0 The sleeve shall be of full circle design, either one piece or two piece, for pipe sizes 2" thru 12".
- 2.0 Body: Shall be 18-8 stainless steel shell.
- 3.0 Gasket:
 - a) Shall be full length and diameter of the body size;
 - b) This gasket shall form a multiple O-ring, or grid, sealing barrier for the entire length and circumference;
 - c) Shall be virgin SBR rubber (ASTM D2000 AA 415).
- 4.0 Lugs, sidebar, and lifting bar shall be heavy gauge 18-8 stainless steel with TIG/MIG welding and chemical passivation of all welds.
- 5.0 Bolts and Nuts shall be Teflon coated 18-8 heavy gauge stainless steel.
- 6.0 Armor: The armor, or bridging plate between the side bars shall be heavy gauge 18-8 stainless steel bonded to the gasket to bridge the lug area.

APPROVED MANUFACTURERS

- A. All Manufacturers

TAPPING SLEEVES (on Ductile Iron Pipe)

GENERAL SPECIFICATIONS

- 1.0 For sizes 12" and smaller tapping sleeve shall be ductile iron or approved fabricated steel:
 - 1.1 Tapping sleeve shall be mechanical joint with recessed outlet flange for tapping valve.
 - 1.2 Tapping sleeve shall conform to AWWA C-207, Class D, with rated maximum working pressure of 200 psi.
 - 1.3 The side rubber gaskets shall be rectangular in cross-section and fit into grooved channels in the casting. These gaskets shall extend the entire length of the sleeve and shall not require cutting or trimming to match MJ end gaskets.
 - 1.4 Tapping sleeve shall be AB-CD pattern to permit use of plain rubber and duck-tipped gaskets for various O.D. piping sizes.
 - 1.5 Mechanical joint with accessories furnished; glands, gaskets, and Cor-Ten T-bolts and nuts or equal.
 - 1.6 All flange outlet bolts shall be stainless steel (Type 304).
 - 1.7 Interior and exterior to be bituminous coated with a minimum of 4 mils dry film thickness or fusion bonded epoxy coated.
 - 1.8 The sleeve shall be provided with a ¾" F.I.P.T. test port and brass lug.
- 2.0 For sizes 16" and larger tapping sleeve shall be fabricated steel:
 - 2.1 Body and Flange - A-36
 - 2.2 Coating - Fusion-bonded epoxy coating with minimum D.F.T. of 15 mils, inside and out.
 - 2.3 Bolts, Nuts - Stainless Steel (Type 304).
 - 2.4 Gaskets - Nitrile

- 2.5 Flange - AWWA Class D plate flange with ANSI 150# drilling, proper recessing for tapping valves.
- 2.6 Sleeves shall be provided with 3/4" F.I.P.T. test port and plug.
- 2.7 Taps larger than 20" require an experience submittal. The tapping contractor shall have a minimum of seven continuous years of experience tapping pipes larger than 20" in diameter. Furmanite Corp. – Paulsboro, NJ or equal.

APPROVED MANUFACTURERS (4"-12")

- A. AFC
- B. Mueller Co.
- C. U.S. Pipe
- D. Tyler / Union
- E. Powerseal Model 3490 and 3490MJ (Fabricated Steel)

APPROVED MANUFACTURERS (16" and larger)

- A. Romac FTS 420
- B. Ford FTSC
- C. Smith Blair 622
- D. JCM 412
- E. Powerseal Model 3490 and 3490 MJ (up to 24")
- F. JCM 415 or approved equal (for RCCP pipe only)

VALVE BOXES

GENERAL SPECIFICATIONS

Reference Standard Details

- 1.0 The valve box bottom section shall be slide-type with bell-type base with bottom lip.
Manufacturer: American Manufacture
- 2.0 The valve box top section shall be slide-type, 36 inches long (minimum). No top flange and no "bead" or bottom flange.
Manufacturer: American Manufacture
- 3.0 The valve box cover shall be a 2" drop-type cover to fit the 7-1/4" opening of the top section.
Manufacturer: Bingham & Taylor or equal American Manufuacturer
- 4.0 The valve box intermediate (mid) section shall be slide-type with a minimum 3" belled bottom. Base section No. 645 may be used as an alternate.
Manufacturer: American Manufacture
- 5.0 Material shall be cast iron or ductile iron free from defects.
- 6.0 Interior and exterior of all components shall be bituminous coated with a minimum of 4 mils dry film thickness.

END OF SECTION

SUPPLEMENTAL SPECIFICATIONS
(Corrections, Additions, & Revisions to Standard Specifications – March 2020)

SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way Revise the last sentence in the first paragraph by removing “105.4.5 – Special Detours” and replacing it with “**105.4.5 – Maintenance of Existing Structures.**”.

SECTION 502
STRUCTURAL CONCRETE

502.09 Forms and Falsework Amend this subsection by adding the subsection title “**502.10 Placing Concrete**” after section “D” Removal of Forms and False work” and after the paragraph beginning with “2. Forms and False work, including blocking...”. So that a new subsection starts and reads:

“502.10 Placing Concrete

A. **General** Concrete shall not be placed until forms”

SECTION 606
GUARDRAIL

Amend this section by replacing it with the following:

606.01 Description This work shall consist of furnishing and installing guardrail components in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or as established. Guardrail is designated as:

31” W-Beam Guardrail - Mid-Way Splice

Galvanized steel w-beam, 8” wood or composite offset blocks, galvanized steel posts

Thrie Beam

Galvanized steel thrie beam, 8” wood or composite offset blocks, galvanized steel posts

Median guardrail shall consist of two beams of the above types, mounted on single posts.

Bridge mounted guardrail shall consist of furnishing all labor, materials, and equipment necessary to install guardrail as shown on the plans. This work shall also include drilling for and installation of offset blocks if specified, and incidental hardware necessary for satisfactory completion of the work.

Remove and Reset and Remove, Modify, and Reset guardrail shall consist of removing the existing designated guardrail and resetting in a new location as shown on the plans or directed by the Resident. Remove, Modify, and Reset guardrail and Modify guardrail include the following guardrail modifications: Removing plate washers at all posts, except at anchorage assemblies as

noted on the Standard Details, adding offset blocks, and other modifications as listed in the Construction Notes or General Notes. Modifications shall conform to the guardrail Standard Details.

Bridge Connection shall consist of the installation and attachment of beam guardrail to the existing bridge. This work shall consist of constructing a concrete end post or modifying an existing end post as required, furnishing, and installing a terminal connector, necessary hardware, and incidentals required to complete the work as shown on the plans. Bridge Transition shall consist of a bridge connection and furnishing and installing guardrail components as shown in the Standard Details.

606.02 Materials Materials shall meet the requirements specified in the following Sections of Division 700 - Materials:

Timber Preservative	708.05
Metal Beam Rail	710.04
Guardrail Posts	710.07
Guardrail Hardware	710.08

Guardrail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report.

Posts for underdrain delineators shall be "U" channel steel, 8 ft long, 2 ½ lb/ft minimum and have 3/8-inch round holes, 1-inch center to center for a minimum distance of 2 ft from the top of the post.

Reflectorized Flexible Guardrail Markers shall be mounted on all guardrails. A marker shall be mounted onto guardrail posts at the flared guardrail terminal end point and tangent point, both at the leading and trailing ends of each run of guardrail. The marker's flexible posts shall be gray with either silver-white or yellow reflectors (to match the edge line striping) at the tangents, red at leading ends, and green at trailing ends. Whenever the guardrail terminal is not flared, markers will only be required at the terminal end point. These shall be red or green as appropriate. Markers shall be installed on the protected side of guardrail posts unless otherwise approved by the Resident. Reflectorized flexible guardrail markers shall be from the Department's Qualified Products List of Delineators. The marker shall be gray, flexible, durable, and of a non-discoloring material to which 3-inch by 9-inch reflectors shall be applied, and capable of recovering from repeated impacts and meeting MASH 16 requirements. Reflective material shall meet the requirements of Section 719.01 for ASTM D 4956 Type III reflective sheeting. The marker shall be secured to the guardrail post with two fasteners, as shown in the Standard Details.

Reflectorized beam guardrail ("butterfly"-type) delineators shall be mounted on all "w"-beam guardrail. The delineators shall be mounted within the guardrail beam at guardrail posts. Delineators shall be fabricated from high-impact, ultraviolet & weather resistant thermoplastic. Reflectorized beam guardrail delineators shall be placed at approximately 62.5 ft intervals or every tenth post on tangents and at approximately 31.25 ft intervals or every fifth post on curves. Exact locations of the delineators shall be as directed by the Resident. On divided highways, the left-hand delineators shall

be yellow, and the right-hand delineators shall be silver/white. On two directional highways, the right-hand side shall be silver/white, and no reflectorized delineator used on the left. All reflectors shall have reflective sheeting applied to only one side of the delineator facing the direction of traffic as shown in the Standard Details. Reflectorized sheeting for guardrail delineators shall meet the requirements of Section 719.01.

Single wood post shall be of cedar, white oak, or tamarack, well-seasoned, straight, and sound and have been cut from live trees. The outer and inner bark shall be removed, and all knots trimmed flush with the surface of the post. Posts shall be uniform taper and free of kinks and bends.

Single steel post shall conform to the requirements of Section 710.07 b.

Single steel pipe post shall be galvanized, seamless steel pipe conforming to the requirements of ASTM A120, Schedule No. 40, Standard Weight.

Acceptable multiple mailbox assemblies shall be listed on the Department's Qualified Products List and shall be MASH 16 tested and approved.

Flared and Tangent w-beam guardrail terminals and guardrail offset blocks shall be from the Department's Qualified Products List. Flared terminals shall be installed with a 4 ft offset as shown in the Manufacturer's installation instructions.

Anchorage assemblies used to anchor trailing ends, radius guardrail, or other ends not exposed to traffic shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report, Drawing SEW02a.

Existing materials damaged or lost during adjusting, removing and resetting, or removing, modifying, and resetting, shall be replaced by the Contractor without additional compensation. Existing guardrail posts and guardrail beams found to be unfit for reuse shall be replaced when directed by the Resident.

606.03 Posts Posts for guardrail shall be set plumb in holes or they may be driven if suitable driving equipment is used to prevent battering and distorting the post. When posts are driven through pavement, the damaged area around the post shall be repaired with approved bituminous patching. Damage to lighting and signal conduit and conductors shall be repaired by the Contractor.

When set in holes, posts shall be on a stable foundation and the space around the posts, backfilled in layers with suitable material, thoroughly tamped.

The reflectorized flexible guardrail markers shall be set plumb with the reflective surface facing the oncoming traffic. Markers shall be installed on the protected side of guardrail posts. Markers, which become bent or otherwise damaged, shall be removed and replaced with new markers.

Single wood posts shall be set plumb in holes and backfilled in layers with suitable material, thoroughly tamped. The Resident will designate the elevation and shape of the top. The posts, that are not pressure treated, shall be painted two coats of good quality oil base exterior house paint.

Single steel posts shall be set plumb in holes as specified for single wood posts or they may be driven if suitable driving equipment is used to prevent battering and distorting the post.

Additional bolt holes required in existing posts shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.04 Rails Brackets and fittings shall be placed and fastened as shown on the plans. Rail beams shall be erected and aligned to provide a smooth, continuous barrier. Beams shall be lapped with the exposed end away from approaching traffic.

End assemblies shall be installed as shown on the plans and shall be securely attached to the rail section and end post.

All bolts shall be of sufficient length to extend beyond the nuts but not more than ½ inch. Nuts shall be drawn tight.

Additional bolt holes required in existing beams shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.045 Offset Blocks The same offset block material is to be provided for the entire project unless otherwise specified.

606.05 Shoulder Widening At designated locations the existing shoulder of the roadway shall be widened as shown on the plans. All grading, paving, seeding, and other necessary work shall be in accordance with the Specifications for the type work being done.

606.06 Mail Box Post Single wood post shall be installed at the designated location for the support of the mailbox. The multiple mailbox assemblies shall be installed at the designated location in accordance with the Standard Details and as recommended by the Manufacturer. Attachment of the mailbox to the post will be the responsibility of the home or business owner.

606.07 Abraded Surfaces All galvanized surfaces of new guardrail and posts, which have been abraded so that the base metal is exposed, and the threaded portions of all fittings and fasteners and cut ends of bolts shall be cleaned and painted with two coats of approved rust resistant paint.

606.08 Method of Measurement Guardrail will be measured by the linear foot from center to center of end posts along the gradient of the rail except where end connections are made to masonry or steel

structures, in which case measurement will be as shown on the plans. When connected to radius rail, measurement will be to the end of the last tangent beam.

Guardrail terminal, reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be measured by each unit of the kind specified and installed.

Widened shoulder will be measured as a unit of grading within the limits shown on the plans.

Excavation in solid rock for placement of posts will be paid under force account unless otherwise indicated in the Bid Documents.

606.09 Basis of Payment The accepted quantities of guardrail will be paid for at the contract unit price per linear foot for the type specified, complete in place. Reflectorized beam guardrail ("butterfly"-type) delineators will not be paid for directly but will be considered incidental to guardrail items. Reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be paid for at the contract unit price each for the kind specified complete in place.

Guardrail terminals will be paid for at the contract price each, complete in place which price shall be full payment for furnishing and installing all components including the terminal section, posts, offset blocks, "w" beam, cable foundation posts, plates and for all incidentals necessary to complete the installation within the limits as shown on the Standard Details or the Manufacturer's installation instructions. Pay limits for a flared terminal will be 37.5 feet. Pay limits for a tangent terminal will be 50 feet. Each guardrail terminal will be clearly marked with the Manufacturer's name and model number to facilitate any future needed repair. Such payment shall also be full compensation for furnishing all material, excavating, backfilling holes, assembling, and all incidentals necessary to complete the work, except that for excavation for posts or anchorages in solid ledge rock, payment will be made under 109.7.5 – Force Account. Type III Retroreflective Adhesive Sheeting shall be applied to the approach buffer end sections and sized to substantially cover the end section. On all roadways, the ends shall be marked with alternating black and retroreflective yellow stripes. The stripes shall be 3 in wide and sloped down at an angle of 45 degrees toward the side on which traffic is to pass the end section. Guardrail terminals shall also include a set of installation drawings supplied to the Resident.

Anchorage to bridge end posts will be part of the bridge work. Connections thereto will be considered included in the unit bid price for guardrail.

Guardrail to be placed on a radius of curvature of 150 ft or less will be paid for under the designated radius pay item for the type guardrail being placed.

Widened shoulder will be paid for at the contract unit price each complete in place and will be full compensation for furnishing and placing, grading and compaction of aggregate subbase and any required fill material.

Adjust guardrail will be paid for at the contract unit price per linear foot and will be full compensation for adjusting to grade. Payment shall also include adjusting guardrail terminals where required.

Modify guardrail will be paid for at the contract unit price per linear foot and will be full compensation for furnishing and installing offset blocks, additional posts, and other specified modifications; removing, modifying, installing, and adjusting to grade existing posts and beams; removing plate washers and backup plates, and all incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals where required.

Remove and Reset guardrail will be paid for at the contract unit price per linear foot and will be full compensation for removing, transporting, storing, reassembling all parts, necessary cutting, furnishing new parts when necessary, reinstalling at the new location, and all other incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals when required.

Remove, Modify, and Reset guardrail will be paid for at the contract unit price per foot and will be full compensation for the requirements listed in Modify guardrail and Remove and Reset guardrail.

Bridge Connections will be paid for at the contract unit price each. Payment shall include, attaching the connection to the endpost including furnishing and placing concrete and reinforcing steel necessary to construct new endposts if required, furnishing and installing the terminal connector, and all miscellaneous hardware, labor, equipment, and incidentals necessary to complete the work.

Bridge Transitions will be paid for at the contract unit price each. Payment shall include furnishing and installing the thrie beam or "w"-beam terminal connector, doubled beam section, and transition section, where called for, posts, hardware, precast concrete transition curb, and any other necessary materials and labor, including the bridge connection as stated in the previous paragraph.

No payment will be made for guardrail removed, but not reset and all costs for such removal shall be considered incidental to the various contract pay items.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
606.1301 31" W-Beam Guardrail - Mid-Way Splice – Single Faced	Linear Foot
606.1302 31" W-Beam Guardrail - Mid-Way Splice – Double Faced	Linear Foot
606.1303 31" W-Beam Guardrail - Mid-Way Splice, 15' Radius and Less	Linear Foot
606.1304 31" W-Beam Guardrail - Mid-Way Splice, Over 15' Radius	Linear Foot
606.1305 31" W-Beam Guardrail - Mid-Way Splice Flared Terminal	Each
606.1306 31" W-Beam Guardrail - Mid-Way Splice Tangent Terminal	Each
606.1307 Bridge Transition (Asymmetrical) – Type IA	Each
606.1721 Bridge Transition - Type I	Each

606.1722	Bridge Transition - Type II	Each
606.1731	Bridge Connection - Type I	Each
606.1732	Bridge Connection - Type II	Each
606.178	Guardrail Beam	Linear Foot
606.25	Terminal Connector	Each
606.257	Terminal Connector - Thrie Beam	Each
606.259	Anchorage Assembly	Each
606.265	Terminal End-Single Rail - Galvanized Steel	Each
606.266	Terminal End-Single Rail - Corrosion Resistant Steel	Each
606.275	Terminal End-Double Rail - Galvanized Steel	Each
606.276	Terminal End-Double Rail - Corrosion Resistant Steel	Each
606.353	Reflectorized Flexible Guardrail Marker	Each
606.354	Remove and Reset Reflectorized Flexible Guardrail Marker	Each
606.356	Underdrain Delineator Post	Each
606.358	Guardrail, Modify	Linear Foot
606.362	Guardrail, Adjust	Linear
Foot		
606.365	Guardrail, Remove, Modify, and Reset	Linear Foot
606.366	Guardrail, Remove and Reset	Linear Foot
606.367	Replace Unusable Existing Guardrail Posts	Each
606.47	Single Wood Post	Each
606.48	Single Galvanized Steel Post	Each
606.50	Single Steel Pipe Post	Each
606.51	Multiple Mailbox Support	Each
606.568	Guardrail, Modify - Double Rail	Linear Foot
606.63	Thrie Beam Rail Beam	Linear Foot
606.64	Guardrail Thrie Beam - Double Rail	Linear Foot
606.65	Guardrail Thrie Beam - Single Rail	Linear Foot
606.66	Terminal End Thrie Beam	Each
606.70	Transition Section - Thrie Beam	Each
606.71	Guardrail Thrie Beam - 15 ft radius and less	Linear Foot
606.72	Guardrail Thrie Beam - over 15 ft radius	Linear Foot
606.73	Guardrail Thrie Beam - Single Rail Bridge Mounted	Linear
Foot		
606.74	Guardrail - Single Rail Bridge Mounted	Linear Foot
606.753	Widen Shoulder for Low Volume Guardrail End	Each
606.754	Widen Shoulder for Flared Guardrail Terminal	Each
606.78	Low Volume Guardrail End	Each
606.80	Buried-in-Slope Guardrail End	Each

SECTION 626

FOUNDATIONS, CONDUIT, AND JUNCTION BOXES FOR HIGHWAY SIGNING, LIGHTING, AND SIGNALS

626.034 Concrete Foundations Revise this Section by changing '626.037' to '**626.036**' in the Second Paragraph which begins with "Foundations shall consist of cast-in-place..."

Revise the 10th paragraph beginning with "Before placing concrete, the required elbows..." by removing "...in accordance with **Standard Specification 633.**"

SECTION 645

HIGHWAY SIGNING

Section 645.023 Sign Support Structures. Under letter "c.", revise the fifth paragraph beginning with "In addition to the required details..." by removing the words "**and foundation**" from the 5th sentence.

Section 645.08 Method of Measurement. Revise the second paragraph beginning with "Bridge-type, cantilever and..." by removing the words "**including the foundation**" .

Section 645.09 Basis of Payment. Revise the third paragraph beginning with "The accepted bridge-type, cantilever and..." by removing the word "**foundation**" from the second sentence. Add the following sentence to the end of the paragraph "**Conduits, Junction Boxes, and Foundations will be paid for under Section 626.**"

SECTION 703

AGGREGATES

Add the following to the beginning of Section 703 - Aggregates

703.01 Fine Aggregate for Concrete Fine aggregate for concrete shall consist of natural sand or, when approved by the Resident, other inert materials with similar characteristics or combinations thereof, having strong, durable particles. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of construction or mix without permission of the Resident.

All fine aggregate shall be free from injurious amounts of organic impurities. Should the fine aggregate, when subjected to the colorimetric test for organic impurities, AASHTO T 21, produce a

color darker than the reference standard color solution (laboratory designation Plate III), the fine aggregate shall be rejected.

Fine aggregate shall have a sand equivalent value of not less than 75 when tested in accordance with AASHTO T 176.

Fine aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

The fineness modulus shall not be less than 2.26 or more than 3.14. If this value is exceeded, the fine aggregate will be rejected unless suitable adjustments are made in proportions of coarse and fine aggregate. The fineness modulus of fine aggregate shall be determined by adding the cumulative percentages of material by weight retained on the following sieves: Nos. 4, 8, 16, 30, 50, 100 and dividing by 100.

Fine aggregate, from an individual source when tested for absorption as specified in AASHTO T 84, shall show an absorption of not more than 2.3 percent.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
$\frac{3}{8}$ inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10
No. 200	0-5.0

703.02 Coarse Aggregate for Concrete Coarse aggregate for concrete shall consist of crushed stone or gravel having hard, strong, durable pieces, free from adherent coatings and of which the composite blend retained on the $\frac{3}{8}$ inch sieve shall contain no more than 15 percent, by weight of flat and elongated particles when performed in accordance with test method ASTM D 4791, Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate, using a dimensional ratio of 1:5.

The coarse aggregate from an individual source shall have an absorption no greater than 2.0 percent by weight determined in accordance with AASHTO T 85 modified for weight of sample.

The composite blend shall have a Micro-Deval value of 18.0 percent or less as determined by AASHTO T 327 or not exceed 40 percent loss as determined by AASHTO T 96.

Coarse aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

Coarse aggregate shall conform to the requirements of the following table for the size or sizes designated and shall be well graded between the limits specified.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves			
Grading	A	AA	S	LATEX
Aggregate Size	1 inch	$\frac{3}{4}$ inch	$1\frac{1}{2}$ inch	$\frac{1}{2}$ inch
2 inch			100	
$1\frac{1}{2}$ inch	100		95-100	
1 inch	95-100	100	-	
$\frac{3}{4}$ inch	-	90-100	35-70	100
$\frac{1}{2}$ inch	25-60	-	-	90-100
$\frac{3}{8}$ inch	-	20-55	10-30	40-70
No. 4	0-10	0-10	0-5	0-15
No. 8	0-5	0-5	-	0-5
No. 16	-	-	-	-
No. 50	-	-	-	-
No. 200	0 - 1.5	0 - 1.5	0 - 1.5	0 - 1.5

703.0201 Alkali Silica Reactive Aggregates. All coarse and fine aggregates proposed for use in concrete shall be tested for Alkali Silica Reactivity (ASR) potential under AASHTO T 303 (ASTM C 1260), Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction, prior to being accepted for use. Acceptance will be based on testing performed by the Department. Sampling will be performed by the Department from stockpiles located at the Contractor's/supplier's ready mixed concrete plants. Aggregate approvals will be performed on a 3-year cycle, unless the source or character of the aggregate in question has changed within 3 years from the last test date.

A list of pre-approved coarse aggregate and aggregate-cement/pozzolan blends is maintained by the Department and will determine the acceptability of concrete mix designs proposed for use.

As per AASHTO T 303 (ASTM C 1260): Use of a particular coarse or fine aggregate will be allowed with no restrictions when the mortar bars made with this aggregate expand less than or equal to 0.10 percent at 30 days from casting. Use of a particular coarse or fine aggregate will be classified as potentially reactive when the mortar bars made with this aggregate expand greater than 0.10 percent at 30 days from casting. Use of this aggregate will only be allowed with the use of cement-

pozzolan blends and/or chemical admixtures that result in mortar bar expansion of less than 0.10 percent at 30 days from casting.

Acceptable pozzolans and chemical admixtures that may be used when an aggregate is classified as potentially reactive include the following:

- a. Class F Coal Fly Ash meeting the requirements of AASHTO M 295.
- b. Ground Granulated Blast Furnace Slag (Grade 100 or 120) meeting the requirements of AASHTO M 302.
- c. Densified Silica Fume meeting the requirements of AASHTO M 307.
- d. Lithium Hydroxide Monohydrate (LiOH-H₂O).

Pozzolans or chemical admixtures required to offset the effects of potentially reactive aggregates will be incorporated into the concrete at no additional cost to the Department.

Aggregates classified as potentially reactive by the requirements of this specification may be used if certified test results from an accredited independent laboratory utilizing the current AASHTO T 303 (ASTM C 1260) Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction, indicating an acceptable alkali-aggregate combination, are submitted to the Department.

703.05 Aggregate for Sand Leveling Aggregate for sand leveling shall be sand of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The aggregate shall meet the grading requirements of the following table.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
$\frac{3}{8}$ inch	85-100
No. 200	0-5.0

703.06 Aggregate for Base and Subbase The following shall apply to Sections (a.) and (c.) below. The material shall have a Micro-Deval...” and replace with “The material shall have a minimum degradation value of 25.0 or less¹⁵ as determined by AASHTO T 327. If the Micro-Deval value exceeds 25.0, the Washington State Degradation DOT Test Method T 113T113, Method of Test for Determination of Degradation Value (January 2009 version) shall be performed), except that the test shall be performed on the reported degradation value will be the result of testing a single specimen from that portion of the sample that passes the $\frac{1}{2}$ in sieve and is retained on the No. 10 sieve. If the material has a Washington Degradation value of less than 15, the material shall be rejected.

The material, minus any reclaimed asphalt pavement used in Section (b.) below shall have a Micro-Deval value of 25.0 or less as determined by AASHTO T 327. If the Micro-Deval value exceeds 25.0 the material may be used if it does not exceed 25 percent loss on AASHTO T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. If AASHTO T 96 is used for acceptance of the material, the material shall be retested at intervals of 25%, 50% and 75% completion of the course.

Recycled Asphalt Pavement (RAP) shall not be used for or blended with aggregate base or subbase.

- a. Aggregate for base, Type A and B shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type A	Type B
½ inch	45-70	35-75
¼ inch	30-55	25-60
No. 40	0-20	0-25
No. 200	0-6.0	0-6.0

At least 50 percent by weight of the material retained on the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

Type A aggregate for base shall only contain particles of rock that will pass the 2 inch square mesh sieve.

Type B aggregate for base shall only contain particles of rock that will pass the 4 inch square mesh sieve.

- b. Aggregate for base, Type C shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The material shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
	Type C
4 inches	100
3 inches	90-100
2 inches	75-100
1 inch	50-80
½ inch	30-60
No. 4	15-40
No. 200	0-6.0

At least 50 percent by weight of the material coarser than the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

c. Aggregate for subbase shall be sand or gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type D	Type E
½ in	35-80	
¼ inch	25-65	25-100
No. 40	0-30	0-50
No. 200	0-7.0	0-7.0

Type D aggregate for subbase gravel may contain up to 50 percent by weight Recycled Concrete Aggregate (RCA). When RCA is used, the portion of the resulting blend of gravel and RCA retained on a ½" square mesh sieve shall contain a total of no more than 5 percent by weight of other recycled materials such as brick, concrete masonry block, or asphalt pavement as determined by visual inspection.

RCA shall be substantially free of wood, metal, plaster, and gypsum board as defined in Note 9 in Section 7.4 of AASHTO M 319. RCA shall also be free of all substances that fall under the category of solid waste or hazardous materials.

Aggregate for subbase shall not contain particles of rock which will not pass the 6 inch square mesh sieve.



Environmental Summary Sheet

WIN: 22668.00

Town: Cumberland

CPD Team Leader: Audie Arbo

ENV Field Contact: Deborah Moore

Date Submitted: 05/13/2020

NEPA Complete: Completed by U.S. Army Corps of Engineers via Section 404 Permit

☒ **Section 106**
SHPO Concurrence-No effect (SHPO Concurrence on 08/11/2015)

☒ **Section 4(f) and 6(f)**
Section 4(f)
Review Complete- No USDOT \$
Section 6(f)
Not Applicable - no takes

☐ **Maine Department of Inland Fisheries and Wildlife Essential Habitat**
Not Applicable **Timing Window:** Not Applicable

☒ **Section 7**
Informal Consultation
Species of Concern: Northern long-eared bat (May affect- 4(d) rule applies)

☒ **Essential Fish Habitat**
No adverse effect (1/8/2018)

☐ **Maine Department of Conservation/Public Lands, Submerged Land Lease**
Not Applicable

☐ **Maine Land Use Regulation Commission**
Not Applicable

**Applicable Standards and Permits are included with the contract*

☐ **Maine Department of Environmental Protection**
Exempt per §480-Q. 2-D. Existing Crossings
**Applicable Standards and Permits are included with the contract*

☒ **Army Corps of Engineers, Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.**
U.S. Army Corps of Engineers Category 2 Permit # NAE-2020-00126
-Work Start Notification form to be completed by ENV Field Contact and submitted to ACOE with copy to Kristen Chamberlain and Audie Arbo
-Compliance Certification Form to be completed by ENV Field Contact and submitted to ACOE with copy to Kristen Chamberlain and Audie Arbo
**Applicable Standards and Permits are included with the contract*

☒ **Stormwater Review**
Not Applicable

☒ Special Provisions Required		
Special Provision 105-Environmental Requirements	N/A ☐	Applicable ☒
Special Provision 656-Minor Soil Disturbance	N/A ☒	Applicable ☐
Standard Specification 656-Erosion Control Plan	N/A ☐	Applicable ☒
Special Provision 203-Dredge Spec	N/A ☐	Applicable ☒
Special Provision 203-Special Fill	N/A ☒	Applicable ☐
Special Provision 610-Stream Channel Stone	N/A ☒	Applicable ☐
General Note for Hazardous Waste	N/A ☒	Applicable ☐
Special Provision 203-Hazardous Waste	N/A ☒	Applicable ☐
Special Provision 105.9	N/A ☒	Applicable ☐

**All permits and approvals based on plans/scope as of: 1/7/2020*



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

MAINE GENERAL PERMIT (GP)
AUTHORIZATION LETTER AND SCREENING SUMMARY

ENVIRONMENTAL OFFICE
MAINE DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333

CORPS PERMIT # NAE-2020-00126
CORPS GP ID# 20-036
STATE ID# PBR

DESCRIPTION OF WORK:

Place temporary and permanent fill below the ordinary high water mark of an unnamed stream and in adjacent freshwater wetlands at Cumberland, Maine in order to replace an existing deteriorated culvert beneath Tuttle Road. This work will result in approximately 700 s.f. of permanent and 623 s.f. of temporary stream bed impact; and 254 s.f. of permanent wetland impact. This work is shown on the attached plans entitled "TUTTLE ROAD CUMBERLAND, CUMBERLAND COUNTY" in two sheets undated and "CUMBERLAND TUTTLE ROAD" in eight sheets revised "02/20/19". DOT WIN: 22668.00

LAT/LONG COORDINATES : 43.780410° N -70.226810° W USGS QUAD: CUMBERLAND CNTR, ME

I. CORPS DETERMINATION:

Based on our review of the information you provided, we have determined that your project will have only minimal individual and cumulative impacts on waters and wetlands of the United States. Your work is therefore authorized by the U.S. Army Corps of Engineers under the Federal Permit, the Maine General Permit (GP). [http://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/ME/Maine General Permit 2015.pdf](http://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/ME/Maine%20General%20Permit%202015.pdf)

You must perform the activity authorized herein in compliance with all the terms and conditions of the GP [including any attached Additional Conditions and any conditions placed on the State 401 Water Quality Certification including any required mitigation]. Please review the enclosed GP carefully, including the GP conditions beginning on page 5, to familiarize yourself with its contents. You are responsible for complying with all of the GP requirements; therefore you should be certain that whoever does the work fully understands all of the conditions. You may wish to discuss the conditions of this authorization with your contractor to ensure the contractor can accomplish the work in a manner that conforms to all requirements.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

Condition 38 of the GP (page 16) provides one year for completion of work that has commenced or is under contract to commence prior to the expiration of the GP on October 13, 2020. You will need to apply for reauthorization for any work within Corps jurisdiction that is not completed by October 13, 2021.

This authorization presumes the work shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to the undersigned.

No work may be started unless and until all other required local, State and Federal licenses and permits have been obtained. This includes but is not limited to a Flood Hazard Development Permit issued by the town if necessary.

II. STATE ACTIONS: PENDING [X], ISSUED [], DENIED [] DATE _____

APPLICATION TYPE: PBR: X, TIER 1: _____, TIER 2: _____, TIER 3: _____, LURC: _____, DMR LEASE: _____, NA: _____

III. FEDERAL ACTIONS:

JOINT PROCESSING MEETING: 1/9/20 LEVEL OF REVIEW: CATEGORY 1: _____ CATEGORY 2: X

AUTHORITY (Based on a review of plans and/or State/Federal applications): SEC 10 _____, 404 X, 10/404 _____, 103 _____

EXCLUSIONS: The exclusionary criteria identified in the general permit do not apply to this project.

FEDERAL RESOURCE AGENCY OBJECTIONS: EPA NO, USF&WS NO, NMFS NO

If you have any questions on this matter, please contact my staff at 207-623-8367 at our Augusta, Maine Project Office. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

JAY L. CLEMENT
SENIOR PROJECT MANAGER
MAINE PROJECT OFFICE

FRANK J. DELGIUDICE
CHIEF, PERMITS & ENFORCEMENT BRANCH
REGULATORY DIVISION
DATE 2/28/20

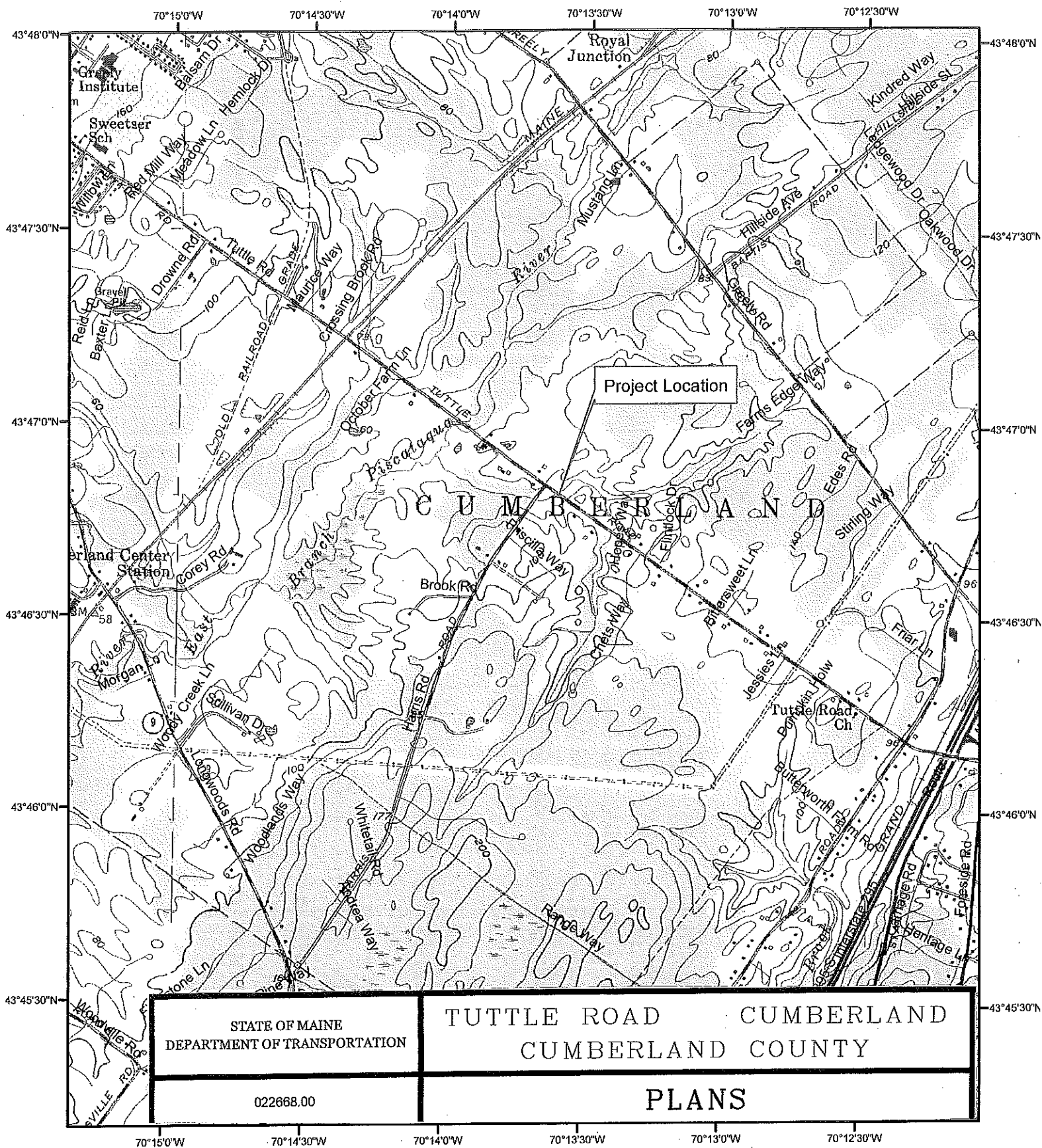


**US Army Corps
of Engineers®**
New England District

**PLEASE NOTE THE FOLLOWING CONDITIONS FOR
DEPARTMENT OF THE ARMY
GENERAL PERMIT
NO. NAE-2020-00126**

1. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).
2. The permittee shall assure that a copy of this permit is at the work site whenever work is being performed and that all personnel performing work at the site of the work authorized by this permit are fully aware of the terms and conditions of the permit. This permit, including its drawings and any appendices and other attachments, shall be made a part of any and all contracts and sub-contracts for work which affects areas of Corps of Engineers' jurisdiction at the site of the work authorized by this permit. This shall be done by including the entire permit in the specifications for the work. If the permit is issued after construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps of Engineers jurisdiction.
3. Adequate sedimentation and erosion control devices, such as geotextile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work and stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland.
4. All exposed soils resulting from the construction will be promptly seeded and mulched in order to achieve vegetative stabilization.
5. All areas of temporary fill shall be restored to their original contour and character upon completion of the work.
6. In water work shall be conducted between June 1 and October 1 of any year in order to minimize potential impacts to aquatic resources and local water quality.

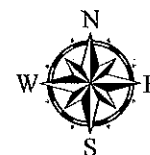
Section 3 Project Location Map



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43.78041

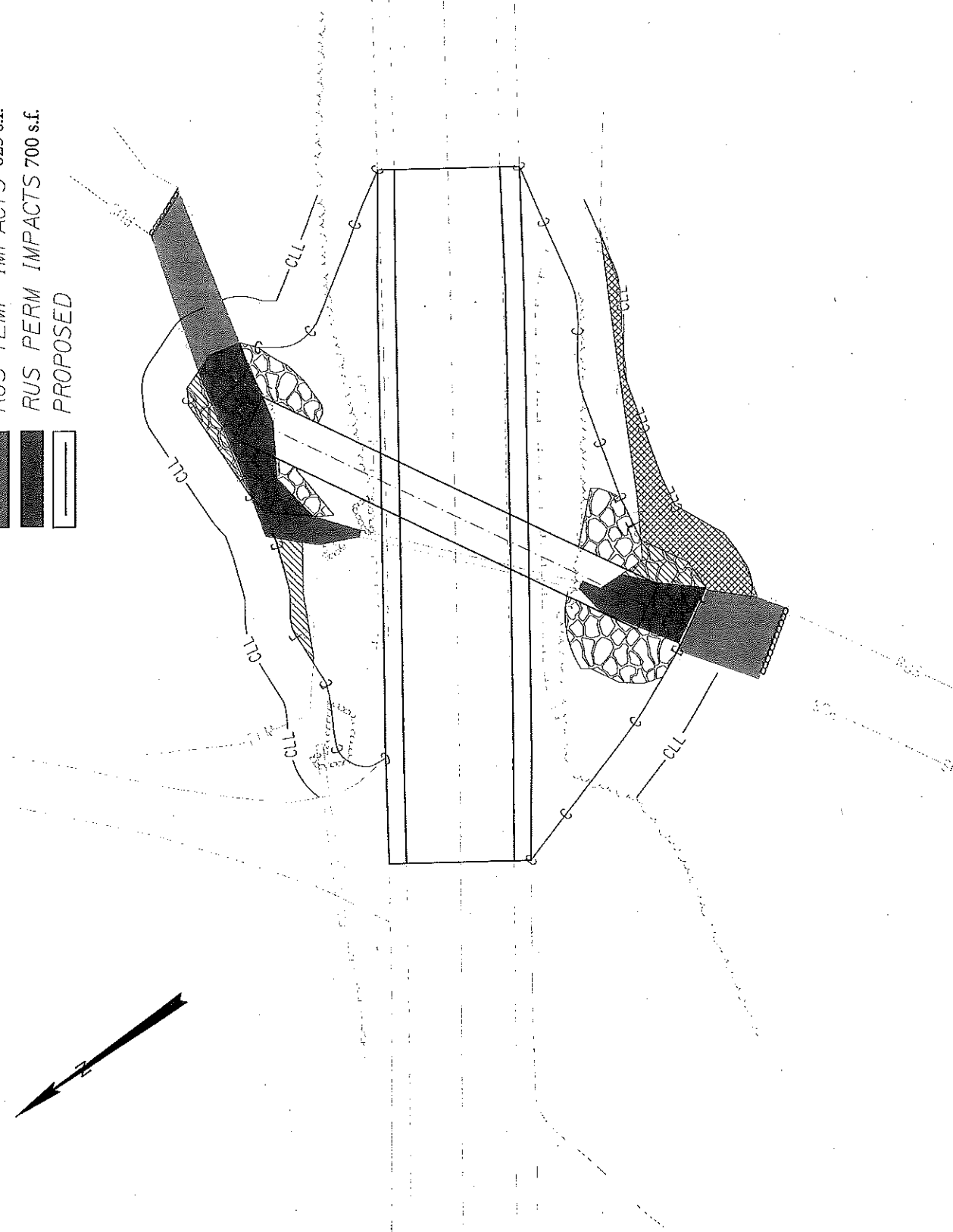
0 335 670 1,340 2,010 2,680
Feet

MDOT WIN 222668.00
Cumberland- Tuttle Road
culvert replacement



Section 6: Plans

- PEM TEMP WETLAND IMPACTS NA
- PEM PERM WETLAND IMPACTS 254 s.f.
- RUS TEMP IMPACTS 623 s.f.
- RUS PERM IMPACTS 700 s.f.
- PROPOSED





STATE PROJECT NO. 22668.00
BRIDGE NO. 6553

INDEX OF SHEETS

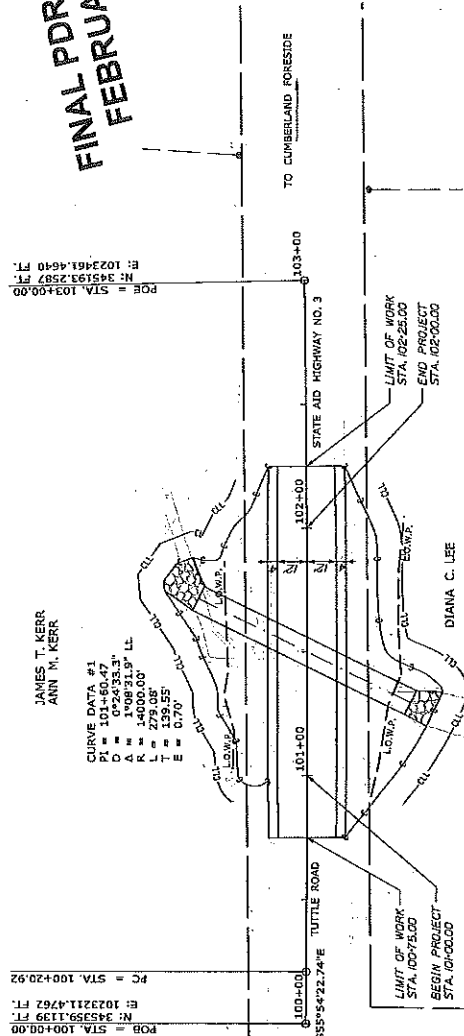
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Title Sheet	1
General Notes, Typical Section and Estimated Quantities	2
Culvert Details	3
Boring Location Plan and Interpretive Subsurface Profile	4
Boring Logs	5
Plan / Profile	6
Cross-Sections	7-10
Detour Plan	11
Right of Way Map	12

FINAL PDR SUBMISSION
FEBRUARY 20, 2019

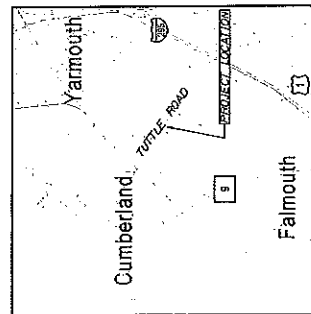
JAMES T. KERR
ANN M. KERR

0+00.00	139 FT.	762 FT.	0+20.92
---------	---------	---------	---------

CURVE DATA #1
PI = 101+50.47
D = 0°24'33.3"



TO COPY



Scale in Miles

LOCATION MAP

TRAFFIC DATA

Current (2016) AADT.....	3,900
Future (2028) AADT.....	4,370
Design Hour Volume.....	748
% Heavy Trucks (AADT).....	9%
% Heavy Trucks (ADHV).....	5%
Directional Distribution (ADHV).....	63%
18 kip Equivalent P 2.0.....	185
18 kip Equivalent P 2.5.....	177
Design Speed (mph).....	35
Function Class.....	Minor Collector
Highway Corridor Priority.....	4

<u>PROJECT LOCATION:</u>	<u>PROGRAM AREA:</u>	<u>SCOPE OF WORK:</u>
--------------------------	----------------------	-----------------------

Located on Tuttle Road, 1.93 miles southeast of the intersection of Tuttle Road and Route 9

HIGHWAY PROGRAM

LARGE CULVERT REPLACEMENT



Scale in Foot

[illegible]

CUMBERLAND
TUTTLE ROAD
TITLE SHEET

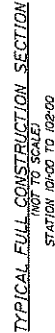
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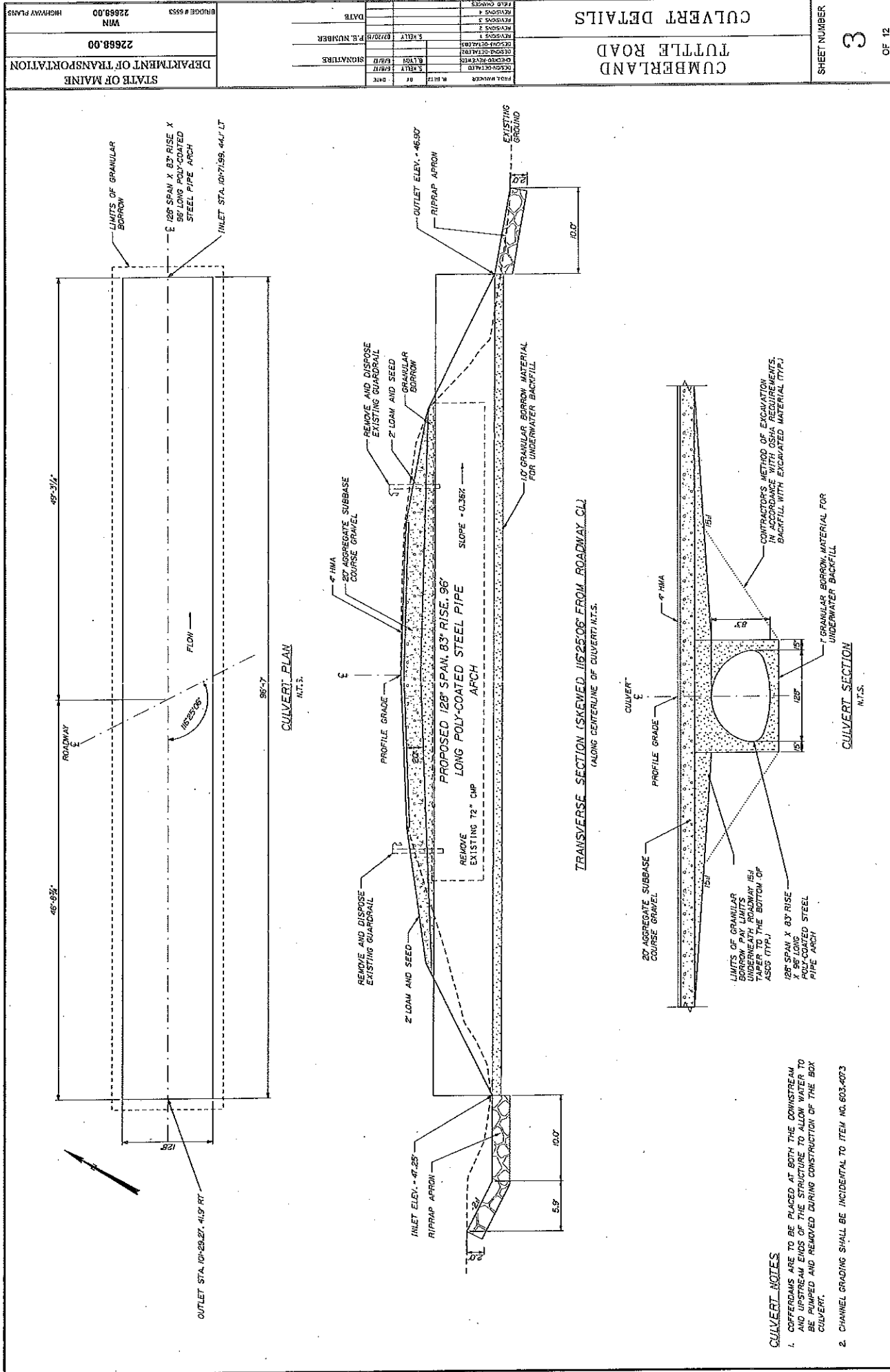
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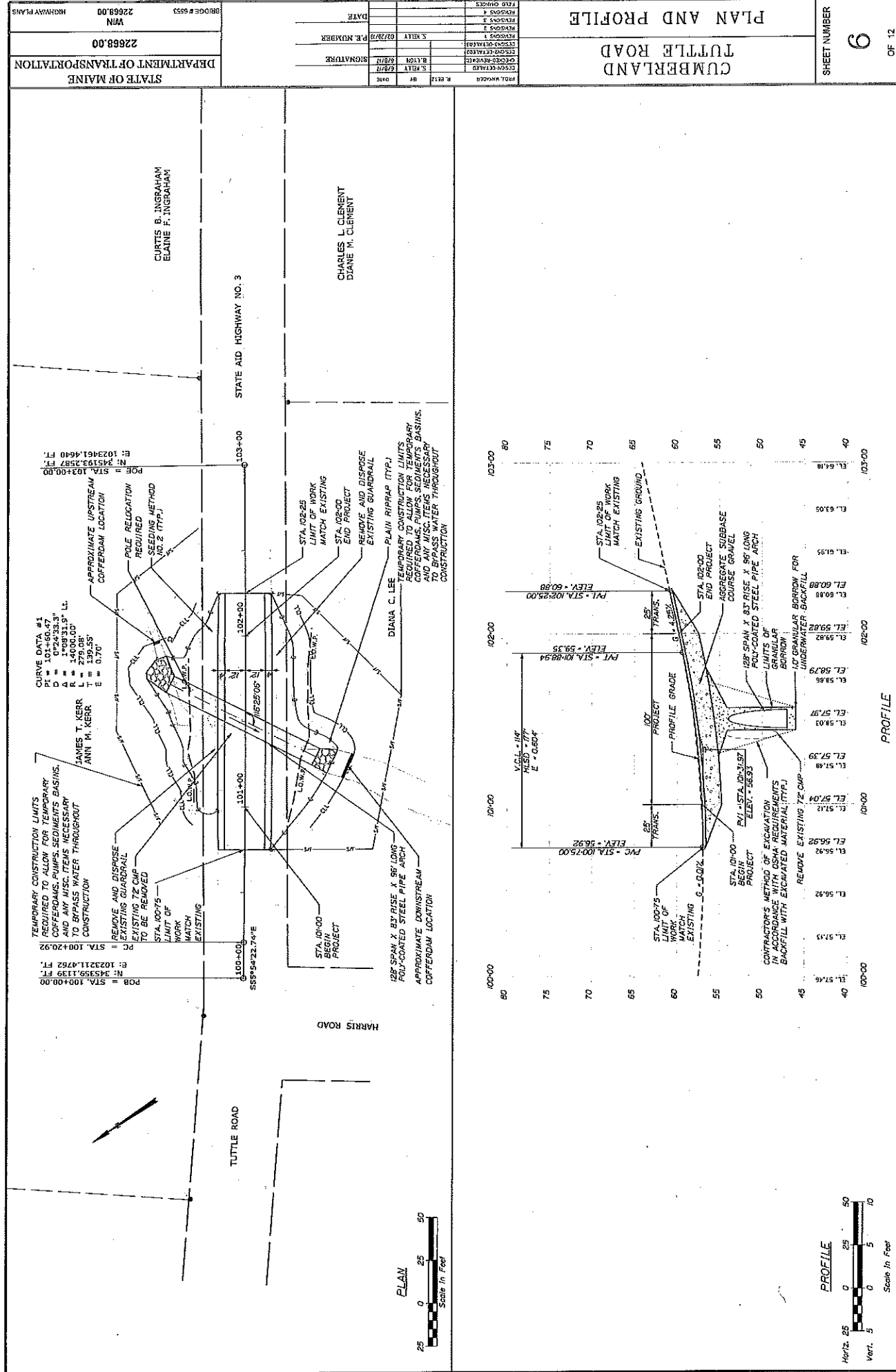
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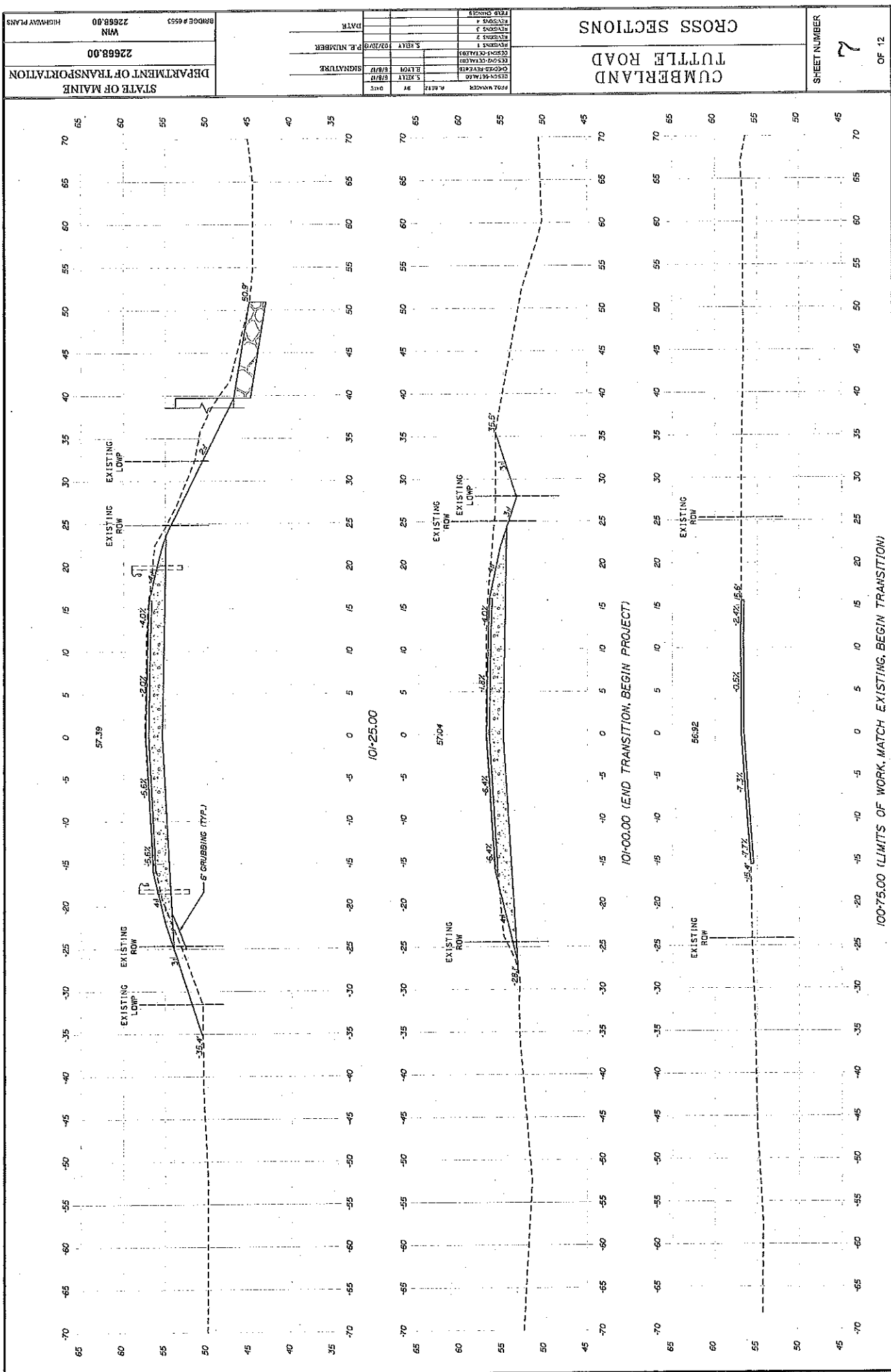
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ESTIMATED QUANTITIES











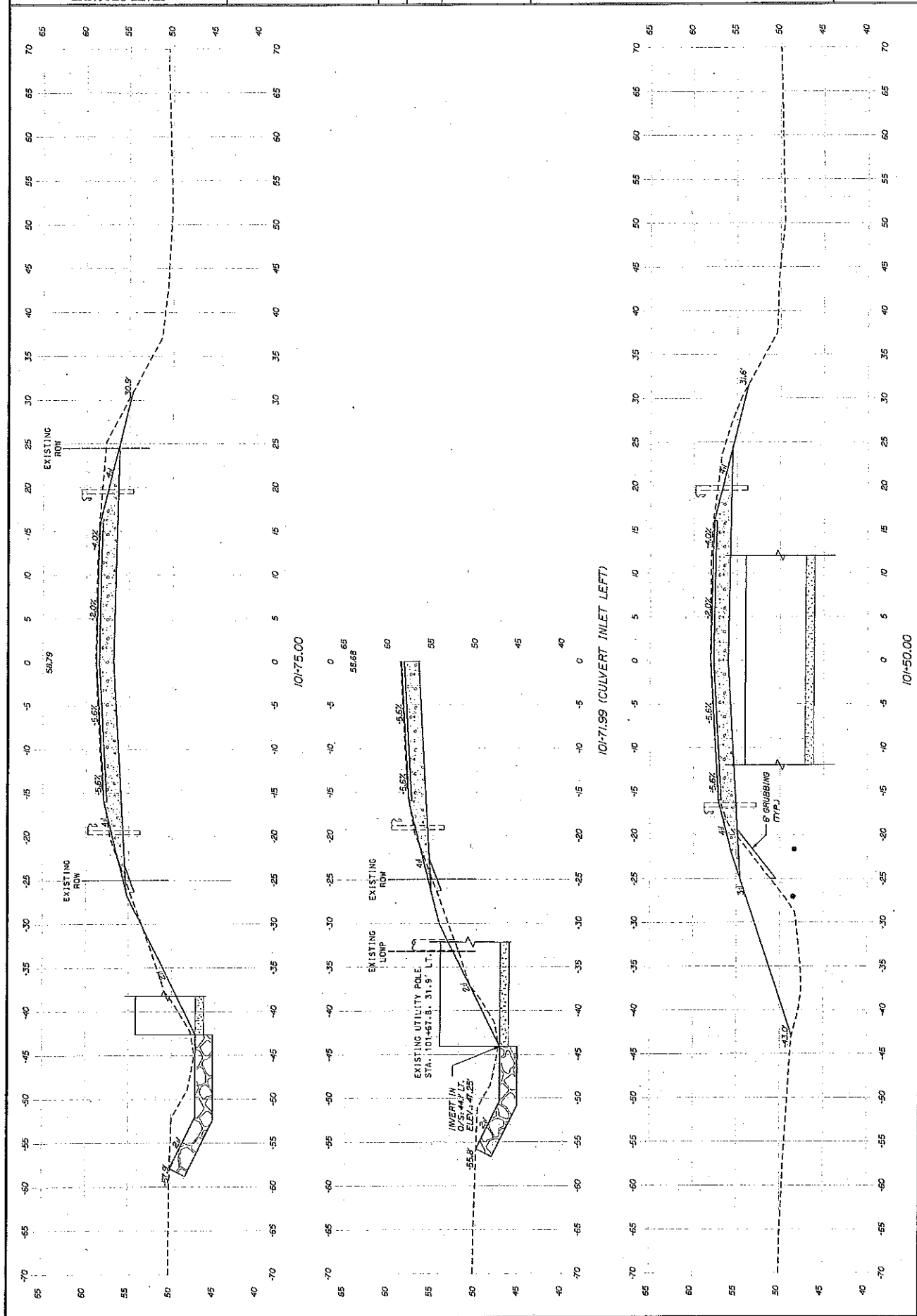
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CUMBERLAND
TUTTLE ROAD
CROSS SECTIONS

[illegible]

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	22668.00
WIN	22668.00
RIDGE # 6553	22668.00
HIGHWAY PLANS	



Sta. 102+00.00 to Sta. 102+50.00

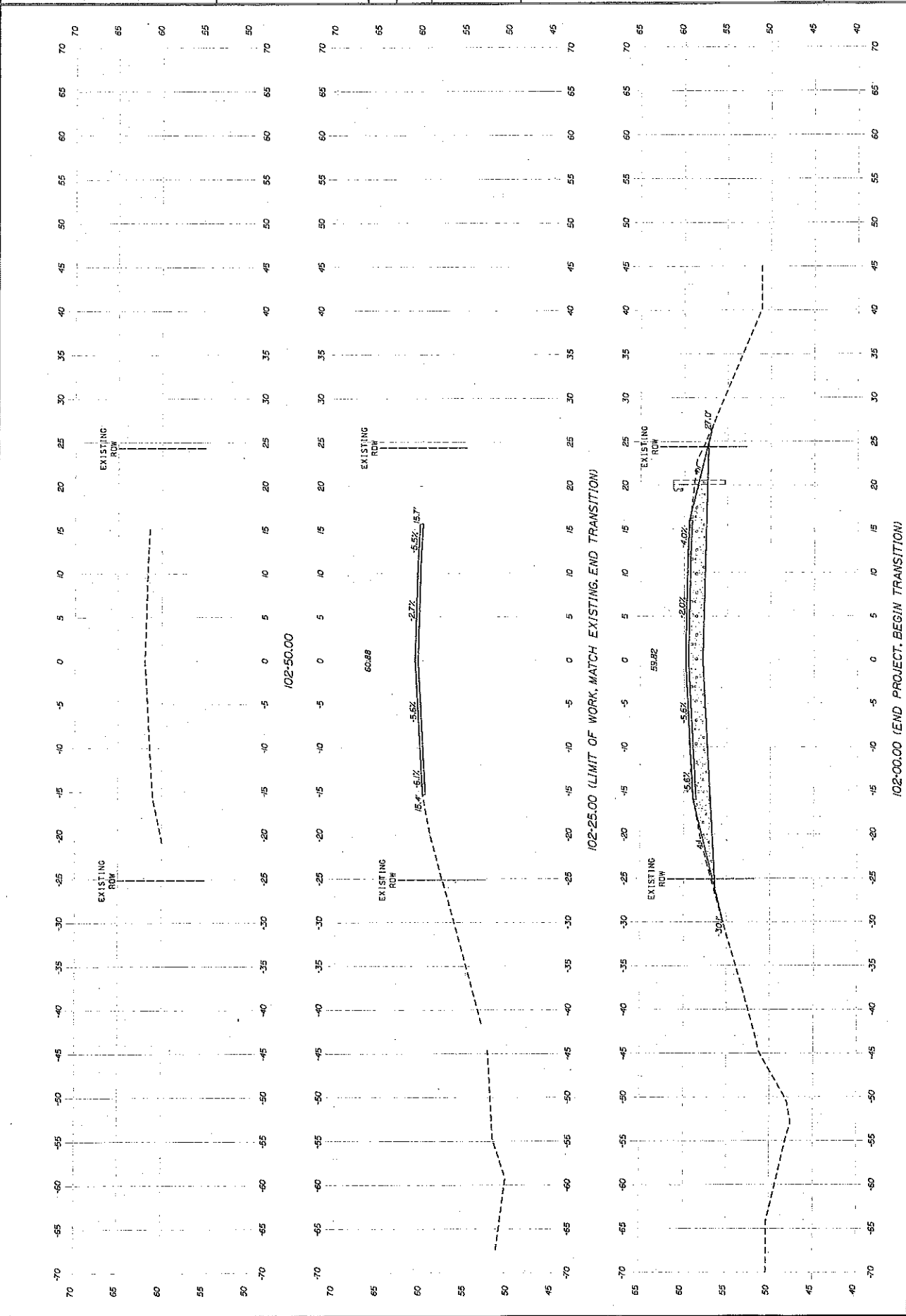
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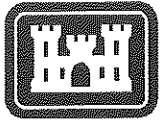
SHEET NUMBER
10
OF 12

CUMBERLAND
TUTTLE ROAD
CROSS SECTIONS

PROJECT NUMBER	22668.00
REVISION 1	1. 5.00/0.00
REVISION 2	2. 5.00/0.00
REVISION 3	3. 5.00/0.00
REVISION 4	4. 5.00/0.00
REVISION 5	5. 5.00/0.00
REVISION 6	6. 5.00/0.00
REVISION 7	7. 5.00/0.00
REVISION 8	8. 5.00/0.00
REVISION 9	9. 5.00/0.00
REVISION 10	10. 5.00/0.00
DATE	02/20/19
P.E. NUMBER	
SIGNATURE	
DATE	

STATE OF MAINE DEPARTMENT OF TRANSPORTATION	WIN 22668.00
BRIDGE # 6553	





**US Army Corps
of Engineers®**
New England District

(Minimum Notice: Permittee must sign and return notification
within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: NAE-2019-03093

Project Manager Clement

Name of Permittee: Maine Turnpike Authority

Permit Issuance Date: _____

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch C *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date

Printed Name

Date of Work Completion

() _____
Telephone Number

() _____
Telephone Number



**US Army Corps
of Engineers®**
New England District

WORK-START NOTIFICATION FORM
(Minimum Notice: Two weeks before work begins)

EMAIL TO: jay.l.clement@usace.army.mil

or

MAIL TO:

Jay Clement
US Army Corps of Engineers
Maine Project Office
442 Civic Center Drive
Augusta, Maine 04330

Corps of Engineers Permit No. NAE-2019-03093 was issued to the Maine Turnpike Authority. This work is located in freshwater wetlands off Forest Avenue at Portland, Maine and authorized the permittee to fill approximately 17.111 s.f. of freshwater wetland in order to construct emergency vehicle ramps to the Maine Turnpike northbound and southbound lanes from Riverside Industrial Parkway and Forest Avenue respectively.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

Phone & email: () _____ () _____

Proposed Work Dates: Start: _____ Finish: _____

Permittee/Agent Signature: _____ Date: _____

Printed Name: _____ Title: _____

Date Permit Issued: _____ Date Permit Expires: _____

FOR USE BY THE CORPS OF ENGINEERS

PM: Clement _____ Submittals Required: No _____

Inspection Recommendation: Inspect as convenient _____
