

ADDENDUM NO. 1

**TO SPECIFICATIONS AND PLANS FOR THE
CITY OF TRAVERSE CITY**

Grand Traverse Commons Water System Improvement Project

BIDS DUE: Thursday, May 8, 2025 10:00AM

ISSUED: April 10, 2025

This Addendum is issued prior to receipt of bids to provide for certain changes and clarifications to the Specifications and/or the Drawings, as herein specified, and is hereby made a part of the Contract Documents and shall be taken into consideration in preparing the Proposal. All other conditions remain the same.

Receipt of this addendum must be noted in the place provided on the Bid Form and dated April 10, 2025

ADDENDUM:

Contractor Q & A:

Question 1: *Is electrical work for the meter hook-up part of the Contractor's bid or should this be added to the City's separate SCADA work to be done by others?*

Answer 1: The electrical work required to provide the meter hook-up will be part of the Contractor's bid. The Installation and programming of the SCADA system shall be done by others.

Question 2: *Will the Contractor need to salvage appurtenances removed from inside the booster station for Grand Traverse County to pick up?*

Answer 2: Refer to section 1.6 of the specification for Existing Booster Station Demolition Work. The disposal and/or salvage of any appurtenances from inside the existing booster station will need to be coordinated with Garfield Township and the Grand Traverse County DPW.

Question 3: *Is the traffic control plan the responsibility of the General Contractor?*

Answer 3: Yes, the General Contractor will need to present a traffic control plan to the engineer. Quantities have been provided in the contract to cover traffic control. Any closures of Medical Campus Drive will need to be coordinated with the Munson Hospital facilities manager.

Question 4: *Will there be any conflicts between proposed water main and underground tunnels on the Commons property?*

Answer 4: Yes, there are tunnels present that will most likely be encountered during construction. These tunnels have a top width of +/- 5' and a bottom depth ranging from

6' deep to 7.5' deep. A pay item has been added to the contract via this addendum. The pay item is "Underground Utility Tunnel, Conflict" – Ea. This item will cover additional costs incurred by the Contractor for providing the required 18" of separation between the water main and the bottom of the tunnel, as well as supporting the tunnel. The cost of installing the water main will be paid for separately. A detail has been added to sheet 4, and a specification and pay item added to the Bid Item Description section of the specifications.

Question 5: *Is irrigation system damage the responsibility of the Contractor?*

Answer 5: A pay item and special provision for repairing sprinkler systems has been added to the Contract via this addendum. This item is "Maintaining Water Sprinkler Systems" – Ea. This will be an allowance provided to the Contractor for each property with sprinkler systems that get damaged.

Question 6: *Will trees need to be protected within the project since many are listed as historic preservation documents?*

Answer 6: Yes, trees will need to be protected. A specification and pay item for tree protection fence has been added to the Contract via this addendum. This item is "Temp Tree Protection" – Ft.

Question 7: *Are there available soil borings for this project in order to plan the best dewatering system needed?*

Answer 7: There are no soil borings

PLANS:

- a) Sheet 2
 - i) Three new pay items have been added to the as-directed quantity table. These items are "Temp Tree Protection", "Maintaining Water Sprinkler System", and "Underground Utility Tunnel, Conflict".
- b) Sheet 4
 - i) detail has been added to sheet 4. This detail is "Proposed Water Main Deflection at Underground Utility Tunnels".
- c) Sheet 14
 - i) The pay item "Water Service, V-Bio® Wrap, Short Side, 2 inch, Special" has been replaced with "Water Service, V-Bio® Wrap, Long Side, 2 inch, Special" on the quantity table.

SPECIFICATIONS:

1. Section 01220: Bid Item Description
 - a. The pay item "Temp Tree Protection" has been added.
 - b. The pay item "Maintaining Water Sprinkler System" has been added.
 - c. The pay item "Underground Utility Tunnel, Conflict" has been added.
2. Special Provision for Temporary Tree Protection
 - a. This special provision has been added to the Contract to provide tree protection fencing in the water main installation areas.
3. Special Provision for Repairing and Maintaining Irrigation System
 - a. This special provision has been added to the Contract to provide the Contractor an allowance for the repair of any underground sprinkler systems damaged during construction.
4. Special Provision for Water Main, Special
 - a. The pay item "Water Service, V-Bio® Wrap, Long Side, 2 inch, Special" has been added to the special provision.

All other conditions of this Invitation for Bids remain the same.

Bidders must acknowledge receipt of this amendment. Acknowledgement must be shown in the spaces provided herein or on the bid form in the Invitation for Bids, and must be receipted before the time set for receiving bids, **Thursday, May 8, 2025, 10:30 am** local time, at the place of bid opening at the office of **The City Engineer, 400 Boardman Avenue, Traverse City, MI. 49684.**

Alternatively, emailed bids will be accepted. Please indicate in the subject line of your email that you are submitting a “Sealed Bid” together with the project description “**Grand Traverse Commons Water System Improvement Project**” and submit your emailed bid to tcmanage@traversecitymi.gov before **10:30 on Thursday, May 8, 2025.**

FAILURE TO ACKNOWLEDGE RECEIPT OF THIS AMENDMENT WILL CAUSE
REJECTION OF BID.

Dated: _____

Sincerely,

Art Krueger, P.E
Director of Municipal Utilities

ACKNOWLEDGED:
Bidder: _____
By: _____
Title: _____

GRAND TRAVERSE COMMONS WATER SYSTEM IMPROVEMENTS PROJECT

The undersigned bidder, having carefully examined the local conditions affecting the cost of the work and with the specifications, contract documents and any other applicable information, hereby proposes to perform everything required to be performed and to provide and furnish all labor, materials, necessary tools, equipment and all utility and transportation services necessary to perform and complete this project in a workmanlike manner in accordance with the plans and the work description.

Bidder submits this bid and agrees to meet or exceed all of the City of Traverse City's requirements and specifications unless otherwise indicated in writing and attached hereto.

Bidder certifies that as of the date of this bid, Bidder's company or Bidder is not in arrear to the City of Traverse City for debt or contract and is in no way a defaulter as provided in Section 152, Chapter XVI of the Charter of the City of Traverse City.

Bidder understands and agrees, if selected as successful bidder, to enter with the City into the contract included with the specifications.

Bidder understands that the City reserves the right to accept any or all bids in whole or in part and to waive irregularities in any bid in the best interest of the City of Traverse City. The bids will be evaluated and awarded on the basis of the best value to the City. Criteria used will include, but not be limited to, price, accessories, options and overall capability meeting the needs of the City.

Bidder agrees that the bid may not be withdrawn for a period of sixty (60) days from the actual date of the opening of the bid.

The prices shown in this bid reflect a specified completion date of **November 14, 2025** starting from the date specified in the "Notice to Proceed". The Bidder shall be responsible for liquidated damages for each day after the **specified completion date** specified in the Notice to Proceed based on the table below. It is the intent of the City to have this project substantially completed by **November 14, 2025**

Owner of Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

Liquidated Damages will be assessed per MDOT Section 108.10, Table 108-1 for project delays.

**Table 108-1: Schedule of Liquidated Damages
for Department Oversight**

Original Contract Amount		Amount per Calendar Day
From More Than	To and Including	
\$0	\$100,000	\$500
\$100,000	\$500,000	\$800
\$500,000	\$1,000,000	\$1,000
\$1,000,000	\$5,000,000	\$1,500
\$5,000,000	\$15,000,000	\$2,000
Over \$15,000,000		\$4,000

Category 1- Division 1

Item No.	Est Qty	Unit	Description of Items	Unit Price	Total Price
100	1	LSUM	PRV Facility, Complete		

Total Bid for items 100 inclusive

\$ _____

_____ **DOLLARS**
(write in amount)

Category 2- Division 2

Item No.	Est Qty	Unit	Description of Items	Unit Price	Total Price
200	48	Ft	Curb and Gutter, Rem		
201	38	Syd	Sidewalk, Rem		
202	313	Syd	Pavt, Rem, Modified		
203	132	Ton	Aggregate Base, Modified		
204	354	Ft	Dewatering System, Trench		
205	22	Ton	HMA, 4EL Base (165#/SYD)		
206	10	Ton	HMA, 4EL Base (275#/SYD)		
207	22	Ton	HMA, 4EL Top (165#/SYD)		
208	8	Ton	HMA, 4EL Top (220#/SYD)		
209	56	Ft	Curb and Gutter, Conc, Det F4		
210	336	Sft	Sidewalk, Conc, 4 inch		
211	586	Syd	Turf Establishment		
212	1	Ea	Water Main, 10 inch, Cut and Plug		
213	25	Ft	Water Main, Rem		
214	5	Ft	Water Main, Zinc Coated DI, V-Bio® Wrap, 10 inch, Tr Det G, Special		
215	349	Ft	Water Main, Zinc Coated DI, V-Bio® Wrap, 12 inch, Tr Det G, Special		
216	2	Ea	Gate Valve and Box, V-Bio® Wrap, 12 inch, Special		
217	3	Ea	Hydrant Assembly, V-Bio® Wrap, Special		

Total Bid for items 200 through 217, inclusive

\$ _____

_____ **DOLLARS**
(write in amount)

Category 3- Division 3

Item No.	Est Qty	Unit	Description of Items	Unit Price	Total Price
300	4	Ea	Dewatering System, Excavation		
301	139	Syd	Turf Establishment		
302	52	Ft	Water Main, Rem		
303	44	Ft	Water Main, Zinc Coated DI, V-Bio® Wrap, 12 inch, Tr Det F, Special		
304	108	Ft	Water Main, Zinc Coated DI, V-Bio® Wrap, 6 inch, Tr Det F, Special		
305	1	Ea	Check Valve and Manhole Assembly, 12 inch		
306	3	Ea	Check Valve and Manhole Assembly, 6 inch		
307	8	Ea	Connect to Existing Water Main, Modified		
308	3	Ea	Gate Valve and Box, V-Bio® Wrap, 12 inch, Special		
309	9	Ea	Gate Valve and Box, V-Bio® Wrap, 6 inch, Special		
310	2	Ea	Post Flushing Hydrant Assembly, V-Bio® Wrap, Special		

Total Bid for items 300 through 310, inclusive

\$ _____

DOLLARS

(write in amount)

Category 4- Division 4

Item No.	Est Qty	Unit	Description of Items	Unit Price	Total Price
400	280	Syd	Sidewalk, Rem		
401	458	Syd	Pavt, Rem, Modified		
402	183	Ton	Aggregate Base, Modified		
403	1388	Ft	Dewatering System, Trench		
404	40	Ton	HMA, 4EL Base (165#/SYD)		
405	40	Ton	HMA, 4EL Top (165#/SYD)		
406	2510	Sft	Sidewalk, Conc, 4 inch		
407	4598	Syd	Turf Establishment		
408	3	Ea	Hydrant, Rem		
409	1	Ea	Water Main, 6 inch, Cut and Plug		
410	522	Ft	Abandon Existing 10 inch Water Main		
411	903	Ft	Abandon Existing 6 inch Water Main		
412	1063	Ft	Water Main, Zinc Coated DI, V-Bio® Wrap, 12 inch, Tr Det G, Special		
413	320	Ft	Water Main, Zinc Coated DI, V-Bio® Wrap, 8 inch, Tr Det G, Special		
414	1	Ea	Connect to Existing Water Main, Modified		
415	5	Ea	Gate Valve and Box, V-Bio® Wrap, 12 inch, Special		
416	1	Ea	Gate Valve and Box, V-Bio® Wrap, 6 inch, Special		
417	1	Ea	Gate Valve and Box, V-Bio® Wrap, 8 inch, Special		
418	4	Ea	Hydrant Assembly, V-Bio® Wrap, Special		
419	1	Ea	Water Service, V-Bio® Wrap, Long Side, 2 inch, Special		

420	2	Ea	Water Service, V-Bio® Wrap, Short Side, 2 inch, Special		
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Total Bid for items 400 through 420, inclusive

\$ _____

_____ **DOLLARS**

(write in amount)

Category 5- Misc.

Item No.	Est Qty	Unit	Description of Items	Unit Price	Total Price
500	1	LSUM	Mobilization, Max		
501	50	Ft	Exploratory Investigation, Vertical		
502	5	Ea	Erosion Control, Inlet Protection, Fabric Drop		
503	150	Ft	Erosion Control, Silt Fence		
504	14	Ton	Maintenance Gravel		
505	5	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn		
506	5	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper		
507	20	Ea	Channelizing Device, 42 inch, Fluorescent, Furn		
508	20	Ea	Channelizing Device, 42 inch, Fluorescent, Oper		
509	1	LSUM	Minor Traf Devices		
510	1	LSUM	Traf Regulator Control		
511	350	Ft	Temp Tree Protection		
512	223	Syd	Turf Establishment		
513		Ea	Maintaining Water Sprinkler System (Max 10)		
514	3	Ea	Underground Utility Tunnel, Conflict		

Total Bid for items 500 through 514, inclusive

\$ _____

DOLLARS

(write in amount)

Total Bid for items 100 through 514, inclusive

\$ _____

DOLLARS

(write in amount)

Accompanying this bid is a certified check, bank draft or a bid bond in the amount of five percent (5%) of the total bid payable to the City of Traverse City, which it is agreed will be forfeited to said City if the undersigned fails to enter into the contract specified in the specifications within fourteen (14) days after the contract is awarded to the undersigned.

Bidder guarantees that he or she has authority to submit this bid for the firm named below.

Submitted by:

Signature

Company Name

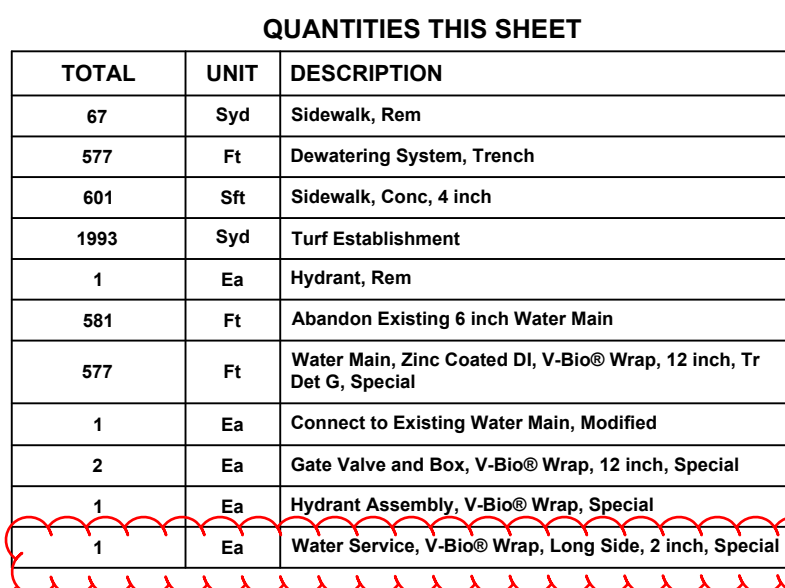
Name and Title (Print)

Company Address

Phone

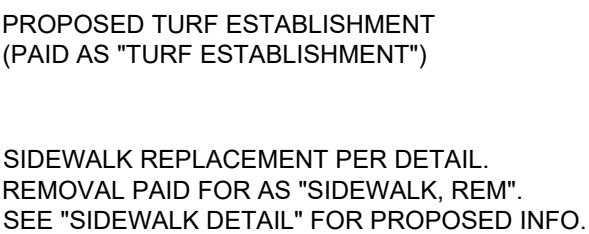
City, State, Zip

Email Address



QUANTITIES THIS SHEET		
TOTAL	UNIT	DESCRIPTION
67	Syd	Sidewalk, Rem
577	Ft	Dewatering System, Trench
601	Sft	Sidewalk, Conc, 4 inch
1993	Syd	Turf Establishment
1	Ea	Hydrant, Rem
581	Ft	Abandon Existing 6 inch Water Main
577	Ft	Water Main, Zinc Coated DI, V-Bio® Wrap, 12 inch, Tr Det G, Special
1	Ea	Connect to Existing Water Main, Modified
2	Ea	Gate Valve and Box, V-Bio® Wrap, 12 inch, Special
1	Ea	Hydrant Assembly, V-Bio® Wrap, Special
1	Ea	Water Service, V-Bio® Wrap, Long Side, 2 inch, Special

LEGEND

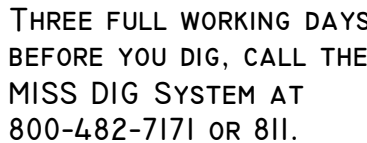


UTILITY NOTES:

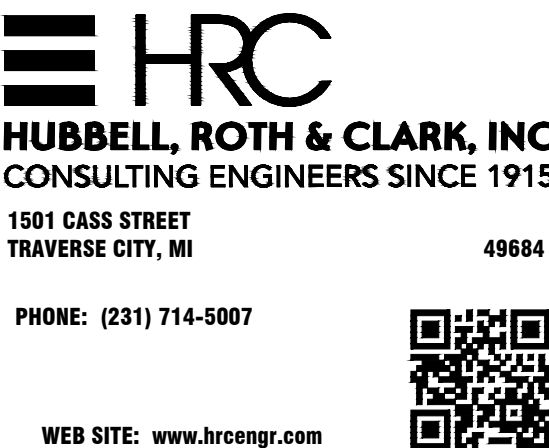
1. MIN 15" VERTICAL CLEARANCE BETWEEN WATER MAIN AND SANITARY AND/OR STORM SEWERS. USE FITTINGS AS NECESSARY TO DEFLECT THE WATER MAIN AND ENSURE PROPER SEPARATION.
 2. THE UNIT PRICE FOR "WATER MAIN, ZINC COATED DI, V-BIO WRAP, 1/2 INCH, TR DET G, SPECIAL" INCLUDES THE COST OF PROVIDING AND INSTALLING FITTINGS AND GASKETS, AS WELL AS CONNECTING TO EXISTING WATER MAIN. THIS INCLUDES THE USE OF LIVE TAPS AND STOPS.
- 2.1 SEE WATER MAIN SPECS FOR ADDITIONAL INFO.


NOTE: UTILITY INFORMATION ON THIS DRAWING MAY BE FROM INFORMATION DISCLOSED TO THIS FIRM BY THE VARIOUS UTILITY COMPANIES, CITY/COUNTY AGENCIES AND OTHER VARIOUS SOURCES. THE INFORMATION WHICH ARE ON PRIVATE PROPERTY ARE USUALLY NOT DELINEATED UPON A UTILITY COMPANY'S PUBLISHED PLANS. THEIR LOCATION, IF SHOWN UPON THIS SURVEY, ARE APPROXIMATED FROM FOUND PAINT MARKS/STAKES, ETC. AS LOCATED BY THIS FIRM FROM SOURCES WHICH ARE UNKNOWN. NO GUARANTEE IS GIVEN AS TO THE COMPLETENESS OR ACCURACY THEREOF.

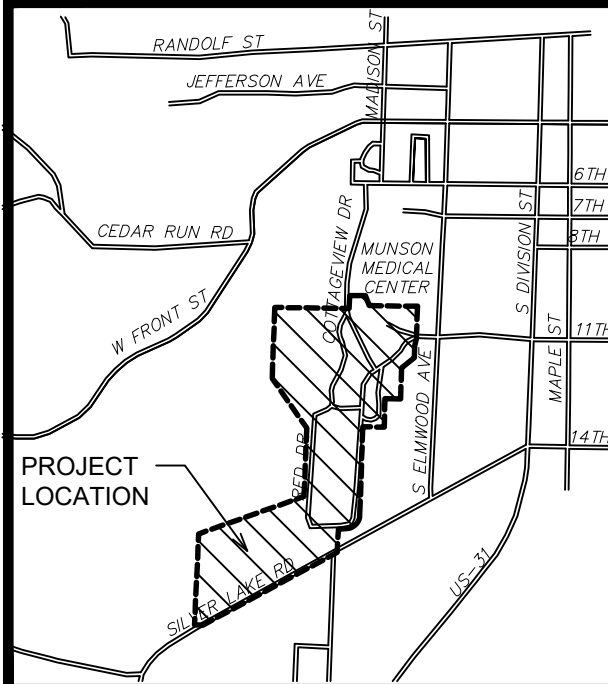
PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING UTILITIES (IN CONFLICT WITH PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. CALL MISS DIG 3 WORKING DAYS PRIOR TO CONSTRUCTION.



THREE FULL WORKING DAYS
BEFORE YOU DIG, CALL THE
MISS DIG SYSTEM AT
800-482-7171 OR 811.



5/01/2025	ADDENDUM 1 
4/10/2025	SUBMITTED FOR BID
3/12/2025	RE-ISSUED FOR EGLE PERMIT
2/05/2025	ISSUED FOR EGLE PERMIT
11/29/2024	RE-ISSUED FOR TWP REVIEW
2/20/2024	SUBMITTED FOR CLIENT REVIEW
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	LNM/DRW
DRAWN	LNM/DRW
CHECKED	RWW/EAL
APPROVED	RWW



**CITY OF
TRAVERSE CITY**

GRAND TRAVERSE COMMONS WATER SYSTEMS IMPROVEMENTS

DIVISION 4 RUN #1 - STA 15+00 TO 21+00 PROPOSED WATER MAIN

HRC JOB NO. 20240704	SCALE 1" = 20'
DATE April 29, 2025	SHEET NO. 14 OF 15

PROJECT NOTES:

THE PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK.

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL, 1-800-482-7171 OR 811, A MINIMUM OF THREE WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. EXCAVATION MUST COMMENCE WITHIN 14 CALENDAR DAYS OF THE DIG START DATE ON THE MISS DIG 811 TICKET. A NEW TICKET MUST BE OBTAINED IF EXCAVATION HAS NOT OCCURED WITHIN THAT TIME FRAME. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM. LOCATION AND SIZE OF EXISTING UNDERGROUND UTILITIES IF SHOWN IS APPROXIMATE. CONTRACTOR SHALL USE SOFT METHODS TO LOCATE.

IF A PROPERTY CORNER IS DISTURBED DURING CONSTRUCTION IT SHALL BE REPLACED AT THE CONTRACTORS EXPENSE BY A PROFESSIONAL LAND SURVEYOR.

TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR UTILITY POLES AS NECESSARY. CONTRACTOR SHALL COORDINATE WORK WITH UTILITY OWNER.

ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY INCLUDING THE LATEST EDITION OF MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION.

ANY OTHER WORK REQUIRED TO COMPLETE THE CONSTRUCTION SHOWN ON THE PLANS AND DESCRIBED ON THE SPECIFICATIONS THAT DOES NOT HAVE A SPECIFIC PAY ITEM SHALL BE INCIDENTAL TO ONE OF THE OTHER PAY ITEMS AND THE CONTRACTOR SHALL ARRANGE ITS BID PROPOSAL ACCORDINGLY.

FINISH GRADE AROUND EXISTING TREES TO REMAIN SHALL MATCH PRE-CONSTRUCTION GRADE. AT NO TIME DURING OR AFTER CONSTRUCTION SHOULD SOIL BE IN CONTACT WITH THE TRUNK OF THE TREE ABOVE THE BASAL FLAIR.

CONTRACTOR SHALL PROVIDE TRENCH BOX TO REDUCE IMPACT ON WETLAND AREAS, BASED ON ACTUAL SOIL TYPES/CONDITIONS IN ACCORDANCE WITH MIOSHA RULES.

LIMITATIONS ON PRIVATE WORK: DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOT PERFORM ANY WORK BY PRIVATE AGREEMENT WITH PROPERTY OWNERS ADJACENT TO THE PROJECT WITHOUT PRIOR CITY APPROVAL.

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER TO COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES FOR NOISE LEVELS, VIBRATIONS, OR ANY OTHER RESTRICTIONS WHILE PERFORMING ANY CONSTRUCTION OPERATIONS WITHIN THIS CONTRACT; COSTS TO BE INCLUDED IN THE RESPECTIVE ITEM OF WORK.

A LIST OF CONTACTS SHALL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING AND THE CONTRACTOR SHALL NOTIFY ALL CONTACTS 72 HOURS IN ADVANCE OF PROPOSED WORK.

THE CONTRACTOR SHALL, BEFORE EACH DAYS WORK, OR WHEN MOVING TO A NEW AREA OF WORK, DETERMINE AND EVALUATE THE LOCATION OF ALL UNDERGROUND FACILITIES IN THE AREA. IF LOCATION STAKES HAVE BEEN MOVED OR DO NOT APPEAR CORRECT, THE CONTRACTOR SHALL NOT EXCAVATE UNTIL ALL UTILITIES HAVE HAD AN OPPORTUNITY TO CHECK OR RESTAKE THEIR LOCATIONS. ANY DELAYS INCURRED DUE TO THE CHECKING OR RESTAKING OF UTILITIES SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION.

PROPERTY OWNERS' NAMES, WHERE SHOWN, ARE FOR INFORMATION ONLY AND THEIR ACCURACY IS NOT GUARANTEED.

THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM THE BEST AVAILABLE DATA, THE CITY OF TRAVERSE CITY, THE GRAND TRAVERSE BROWNFIELD REDEVELOPMENT AUTHORITY, HUBBELL, ROTH & CLARK, INC., GARFIELD TOWNSHIP, GRAND TRAVERSE COUNTY AND THEIR RESPECTIVE ENGINEERS WILL NOT BE HELD RESPONSIBLE FOR ANY OMISSION OR VARIATIONS FROM THE LOCATIONS PURSUANT TO ACT 53 OF THE PA OF 1974 AS A CONDITION OF THIS CONTRACT, NOTICE SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED IN ACCORDANCE WITH THIS CONTRACT. PHONE (800)-482-7171 OR 647-7344.

CONTRACTOR TO SUBMIT DETAILED CONSTRUCTION SEQUENCE AND PROGRESS SCHEDULE AT THE PRE-CONSTRUCTION MEETING NOTING ALL CHANGES TO PROPOSED SCHEDULE OF WORK PROPOSED OR WORK PROPOSED TO OCCUR CONCURRENTLY WITH OTHER ITEMS OF WORK.

SYSTEM SHALL NOT BE ALLOWED TO BE PLACED INTO SERVICE UNTIL IT HAS BEEN TESTED AND APPROVED BY THE GCDPW, GARFIELD TOWNSHIP, CITY AND RESPECTIVE ENGINEERS.

COSTS RELATED TO MECHANICAL, PLUMBING, AND ELECTRICAL PERMITS, INCLUDING FEES, ARE PRESUMED TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

WATER MAIN INSTALLATION NOTES:

1. ALL CONSTRUCTION MATERIALS AND PROCEDURES SHALL CONFORM WITH THE TRAVERSE CITY DEPARTMENT OF PUBLIC WORKS CURRENT STANDARDS, SPECIFICATIONS SPECIAL PROVISIONS AND DETAILS SHOWN IN THE PROPOSAL.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS PRIOR TO THE START OF CONSTRUCTION OF THE WATER MAIN. CONTRACTOR SHALL ISSUE A WORK SCHEDULE TO THE ENGINEER PRIOR TO THE START OF THE WATER MAIN CONSTRUCTION.
3. ALL WATER MAIN SHALL BE DUCTILE IRON PIPE THICKNESS CLASS 52, MEETING CURRENT AWWA STANDARDS. ALL FITTINGS SUCH AS TEES, ELBOWS, BENDS, ETC. SHALL BE INCLUDED IN THE WATER MAIN PAY ITEM.
4. WATER MAIN SHALL HAVE A MINIMUM OF SIX (6) FEET OF COVER BELOW EXISTING OR PROPOSED GRADE, UNLESS OTHERWISE NOTED ON PLANS. MAINTAIN A 10 FOOT MINIMUM HORIZONTAL SEPARATION AND 18" VERTICAL SEPARATION FROM ALL SEWERS. MAINTAIN 5' OF SEPARATION FROM ALL SURFACE WATER.
5. BURLAP, PLASTIC OR POLY (20 MILLS) OR APPROVED EQUAL SHALL BE PLACED BETWEEN THE CONCRETE THRUST BLOCK AAND DEAD-END MAINS OR DEAD-END PLUGS, TEES, HYDRANTS AND CROSSES, TO FACILITATE THE REMOVAL OF THE THRUST BLOCK FOR FUTURE EXTENSION AND MAINTENANCE.
6. A PHYSICAL GAP SHALL BE MAINTAINED BETWEEN THE WATER MAIN AND THE EXISTING WATER SYSTEM UNTIL ALL WATER MAIN TESTING HAS BEEN COMPLETED AND APPROVED BY THE ENGINEER AND THE CITY OF TRAVERSE CITY.
7. THE CONTRACTOR SHALL COORDINATE THE CONNECTION TO THE EXISTING WATER SYSTEM WITH THE CITY OF TRAVERSE CITY DEPARTMENT OF PUBLIC WORKS. THE OPERATION OF EXISTING GATE VALVES ON THE SYSTEM SHALL BE PERFORMED BY THE DEPARTMENT OF PUBLIC WORKS ONLY. THE ENGINEER AND THE DEPARTMENT OF PUBLIC WORKS SHALL BE GIVEN A MINIMUM OF 24 HOURS NOTICE PRIOR TO THIS CONNECTION.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN WATER FOR FLUSHING AND TESTING PURPOSES. CONTRACTOR SHALL COORDINATE WITH THE DEPARTMENT OF PUBLIC WORKS IF WATER IS OBTAINED FROM THE EXISTING WATER SYSTEM. THE DEPARTMENT OF PUBLIC WORKS SHALL BE GIVEN 24 HOURS NOTICE PRIOR TO USING ANY WATER FROM THE EXISTING WATER SYSTEM.
9. PROPOSED WATER SERVICES SHALL BE PROVIDED FOR ALL EXISTING WATER SERVICES. THE COST OF LOCATING EXISTING WATER SERVICES SHALL BE INCLUDED IN WATER SERVICE, SHORT SIDE, INCH, SPECIAL. THE CONTRACTOR SHALL COORDINATE LOCATING EXISTING WATER SERVICES WITH THE CITY OF TRAVERSE CITY.
10. FITTINGS REQUIRED TO CONNECT PROPOSED WATER MAIN TO EXISTING WATER MAIN SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION AND SHALL BE INCLUDED IN THE COST OF THE CONNECT TO EXISTING WATER MAIN PAY ITEM. THE CONTRACTOR SHALL FIELD VERIFY THE TYPES OF EXISTING WATER MAINS PRIOR TO ORDERING CONNECTION FITTINGS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE EXISTING WATER MAIN WHILE MAKING CONNECTIONS. ANY ADDITIONAL WATER MAIN REQUIRED TO REPAIR DAMAGE INCURRED WHILE MAKING CONNECTIONS TO EXISTING WATER MAIN SHALL BE AT THE CONTRACTORS EXPENSE.
12. ALL BENDS, TEES AND SLEEVES AND OTHER MISCELLANEOUS FITTINGS SHALL BE COMPACT MECHANICAL JOINT DUCTILE IRON FITTINGS UNLESS OTHERWISE INDICATED.
13. ALL UNDERGROUND TEES, BENDS AND PLUGS REQUIRE MECHANICAL JOINT RESTRAINT SYSTEM CONNECTIONS AND CONCRETE THRUST BLOCKS PER STANDARD WATER MAIN DETAILS. ALL VALVES REQUIRE MECHANICAL JOIN RESTRAINT SYSTEM CONNECTIONS.
14. THRUSTS BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH. ALL THRUST BLOCKS SHALL TERMINATE AT THE FACE OF THE PIPE BELLS.
15. PHYSICAL CONNECTION OF THE NEW WATER MAIN TO THE EXISTING SYSTEM SHALL BE MADE ONLY AFTER THE NEW MAIN HAS BEEN SUCCESSFULLY PRESSURE TESTED, CHLORINATED AND HAS PASSED BACTERIOLOGICAL TESTING.
- 15.1. WATER MAIN TESTING SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
16. ALL WATER MAIN COMPONENTS REQUIRED FOR THE SUCCESSFUL INSTALLATION, TESTING AND CONNECTION OF THE WATER MAIN TO THE EXISTING SYSTEM, INCLUDING BUT NOT LIMITED TO TEES, BENDS, PLUGS, MECHANICAL JOINT RESTRAINT SYSTEMS, THRUST BLOCKS, ADAPTERS, REDUCERS, BLOW OFFS, BEDDING, BACKFILL AND PE ENCASEMENT INCLUDED IN THE UNIT PRICE BID FOR WATER MAIN INSTALLATION UNLESS OTHERWISE INDICATED.
17. IT IS ANTICIPATED THAT TRENCH BOXES OR OTHER SHEETING AND SHORING METHODS WILL BE NECESSARY TO CONSTRUCT THE WATER MAIN IMPROVEMENTS. THESE ITEMS, IF NECESSARY, SHALL BE INCLUDED IN THE COST OF WATER MAIN AND WILL NOT BE PAID FOR SEPARATELY.
18. LOCATIONS AND ELEVATIONS OF POTENTIAL STORM SEWER CONFLICTS SHALL BE FIELD VERIFIED PRIOR TO WATER MAIN CONSTRUCTION. FITTINGS REQUIRED TO AVOID CONFLICT ARE INCLUDED IN THE COST OF WATER MAIN AND WILL NOT BE PAID FOR SEPARATELY.
19. WHEN PROPOSED WATER MAIN PASSES BENEATH EXISTING SEWERS/UTILITIES, TEMPORARY SUPPORT OF EXISTING SEWERS/UTILITIES IS INCLUDED IN THE COST OF WATER MAIN PAY ITEMS.
20. REMOVAL OF ABANDONED WATER MAINS AS REQUIRED FOR CLEARANCE TO CONSTRUCT THE PROPOSED WATER MAINS SHALL BE INCLUDED AS PART OF THE PROPOSED WATER MAIN CONSTRUCTION.
21. ON ALL WATER MAINS THAT ARE ABANDONED, VALVES NO LONGER NEEDED SHALL BE REMOVED, AND SHALL REMAIN THE PROPERTY OF THE CITY OF TRAVERSE CITY.
22. ALL MAINS ABANDONED SHALL BE CUT TWO FEET FROM MAIN OR VALVE AND CAPPED WITH RETAINING GLANDS AND THRUST BLOCK.
23. HYDRANTS SHALL BE CITY OF TRAVERSE CITY STANDARD EAST JORDAN MODEL 5-BR.
24. FOR PROPOSED WORK IN AREAS CLOSE TO TRAFFIC SIGNAL POLES AND UTILITY POLES, NO EXCAVATIONS WITHIN TEN (10) FEET AND NO BORES WITHIN THREE (3) FEET FROM THE EDGE OF FOUNDATION/POLE ARE ALLOWED WITHOUT PERMISSION OF THE OWNER OF THE FACILITY.
25. ALL WATER SYSTEM COMPONENTS SHALL BE LEAD FREE PER THE SDW/NSF STD. 61.
26. CONTRACTOR SHALL PROVIDE CERTIFICATION THAT ALL JOINTS REQUIRING A THRUST BLOCK HAVE THE PROPER SIZE, REINFORCEMENT, AND BEARING SURFACE AREA REQUIRED BY THE PLANS WHEN MAIN IS INSTALLED IN CLAY.

MISCELLANEOUS RESTORATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PROPERTY BEYOND THE LIMITS OF CONSTRUCTION, INCLUDING EXISTING FENCING, LAWN, TREES, SHRUBBERY AND ANY AREAS AFFECTED BY IMPACTS OF CONSTRUCTION SUCH AS INSUFFICIENT IRRIGATION DUE TO DAMAGE TO SPRINKLER SYSTEM, UNCONTROLLED DUST, DIRT AND DEBRIS COLLECTION, EXCESSIVE VIBRATORY IMPACTS, ETC.

SOIL EROSION NOTES

ALL DISTURBED AREAS SHALL BE TOPSOILED, SEEDED, FERTILIZED AND MULCHED. MULCH BLANKET SHALL BE INSTALLED IN AREAS AS DESIGNATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER AND SHALL BE INCIDENTAL TO OTHER ITEMS. AVOID UNNECESSARY DISTURBING OR REMOVING EXISTING VEGETATED TOPSOIL OR EARTH COVER.

THE CONTRACTOR SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD OF ONE (1) YEAR AT NO ADDITIONAL COST TO THE CITY OF TRAVERSE CITY.

EXISTING STORM DRAINAGE DITCHES SHALL BE REBUILT IF FILLED IN OR REMOVED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE, AS REQUIRED, ALL DRAINAGE CULVERTS TO REMAIN THAT ARE DAMAGED DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

REMOVAL NOTES:

ALL PAVEMENT EXCAVATED MATERIAL TO BE REMOVED OFFSITE BECOMES THE PROPERTY OF THE CONTRACTOR.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROPER DISPOSAL IN ACCORDANCE WITH LOCAL, COUNTY, STATE AND FEDERAL REGULATIONS.

SAW CUTTING IS REQUIRED FOR ALL PAVEMENT REMOVAL OPERATIONS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT UNLESS OTHERWISE INDICATED.

EXISTING PAVEMENT TO BE REMOVED TO INCLUDE PROPER DISPOSAL OF MATERIALS OFFSITE OR APPROVED REUSE AS SPECIFIED BY THE PROJECT ENGINEER.

ADDITIONAL COMPENSATION WILL NOT BE MADE FOR UNDERCUTS DUE TO CONTRACTOR'S FAILURE TO PROTECT OPEN GRADE.

MISCELLANEOUS ITEMS OF WORK:

SEVERAL PAY ITEMS INCLUDED IN THE PROPOSAL ARE NOT SPECIFICALLY SHOWN ON THE PLANS. THESE ITEMS SHALL BE CONSTRUCTED AS DIRECTED BY THE OWNER OR USED AS NEEDED. SEE CONTRACT DOCUMENTS FOR PAY ITEM SPECIFICS.

ELECTRICAL NOTES:

BASIC MATERIALS AND METHODS

1. WIRE FOR GENERAL USE SHALL BE COPPER, TYPE THHN/THWN, 90 DEGREES C. ALUMINUM WIRE SHALL NOT BE USED. ALL WIRE SHALL BE RATED AT 600 VOLTS, WET AND DRY LOCATION, MINIMUM SIZE NO. 12 A.W.G. INSTALLED IN CONDUIT, SIZED AS SHOWN ON THE DRAWINGS, MINIMUM SIZE 3/4".
2. BOXES SHALL BE GALVANIZED STEEL, CODE THICKNESS, A MINIMUM OF 1" DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE DEVICES THEY SERVE, ACCORDING TO N.E.C. REQUIREMENTS. PULL BOXES FOR ALL CONDUIT RUNS FOR ALL SYSTEMS SHALL BE INSTALLED AT INTERVALS NOT EXCEEDING 100 FEET OR AFTER 270 DEGREES OF BENDS.
3. CONDUITS SHALL NOT BE SUPPORTED FROM MECHANICAL DUCTS, PIPE, OR PIPE AND DUCT SUPPORTS.
4. ELECTRIC SYSTEM GROUNDING SHALL IN ALL INSTANCES COMPLY WITH THE MINIMUM REQUIREMENTS OF THE N.E.C. ALL CONDUITS SERVING WIRING OF 120 VOLTS OR GREATER SHALL INCLUDE A GROUND WIRE.
5. ELECTRICAL ENCLOSURES, CONDUIT SYSTEMS, ETC., SHALL BE THOROUGHLY GROUNDED IN ACCORDANCE WITH THE N.E.C. AND ALL LOCAL CODES.
6. ALL CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1 1/2" CLEAR.
7. FOR ALL 120 VAC LIGHTING AND RECEPTACLE CIRCUITS, RUN 2-#12 (MINIMUM) + #12 GRD., 3/4"C. TO THE LIGHTING PANELBOARD INDICATED, UNLESS NOTED OTHERWISE.
8. CIRCUIT BREAKERS FOR PANELBOARDS SHALL BE OF THE BOLT-IN-PLACE TYPE USING SINGLE POLE OR COMMON TRIP, TWO OR THREE POLE AS INDICATED ON THE DRAWINGS. CIRCUIT BREAKERS SHALL BE ON MOLDED CASE TYPE WITH THERMAL MAGNETIC TRIP AND BREAKER HANDLES INDICATING "ON", "OFF" AND "TRIP" POSITIONS. GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE BREAKERS SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS. BREAKERS SHALL HAVE 22,000 AMPERE INTERRUPTING CAPACITY. MINIMUM AND SHALL BE APPROVED FOR "SWITCHING DUTY." ALL CIRCUIT BREAKERS SHALL BE LOCKABLE. CIRCUIT BREAKERS SHALL BE EATON-CUTLER-HAMMER, SQUARE D BY SCHNEIDER ELECTRIC, OR GENERAL ELECTRIC.
9. CONDUITS SHALL BE RIGID STEEL AND SHALL CONSIST OF HEAVY WALL, MILD STEEL TUBE, HOT-DIPPED GALVANIZED WITH THREADS ELECTROGALVANIZED AFTER CUTTING, AS MANUFACTURED BY WHEATLAND TUBE, ALLIED TUBE, OR EQUAL.

1

AS-DIRECTED QUANTITIES

TOTAL	UNIT	DESCRIPTION
1	LSUM	Mobilization, Max
50	Ft	Exploratory Investigation, Vertical
5	Ea	Erosion Control, Inlet Protection, Fabric Drop
150	Ft	Erosion Control, Silt Fence
14	Ton	Maintenance Gravel
5	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn
5	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper
20	Ea	Channelizing Device, 42 inch, Fluorescent, Furn
20	Ea	Channelizing Device, 42 inch, Fluorescent, Oper
1	LSUM	Minor Traf Devices
1	LSUM	Traf Regulator Control
350	Ft	Temp Tree Protection
223	Syd	Turf Establishment
10	Ea	Maintaining Water Sprinkler System (Max 10)
3	Ea	Underground Utility Tunnel, Conflict



HRC

HUBBELL, ROTH & CLARK, INC

CONSULTING ENGINEERS SINCE 1915

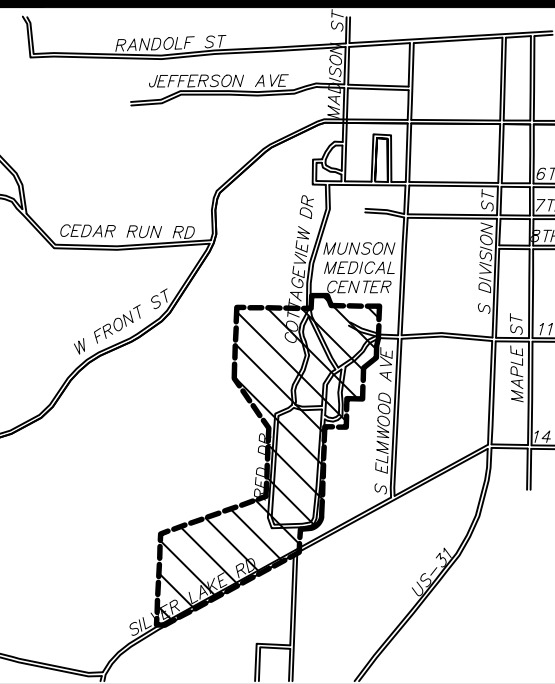
1501 CASS STREET
TRAVERSE CITY, MI

49684

PHONE: (231) 714-5007

WEB SITE: www.hrcengr.com

05/01/2025	ADDENDUM 1
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02/05/2025	ISSUED FOR EGLE PERMIT
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12/20/2024	SUBMITTED FOR CLIENT REVIEW
DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	LNM/DRW
DRAWN	LNM/DRW
CHECKED	RVW/EAL
APPROVED	RVW

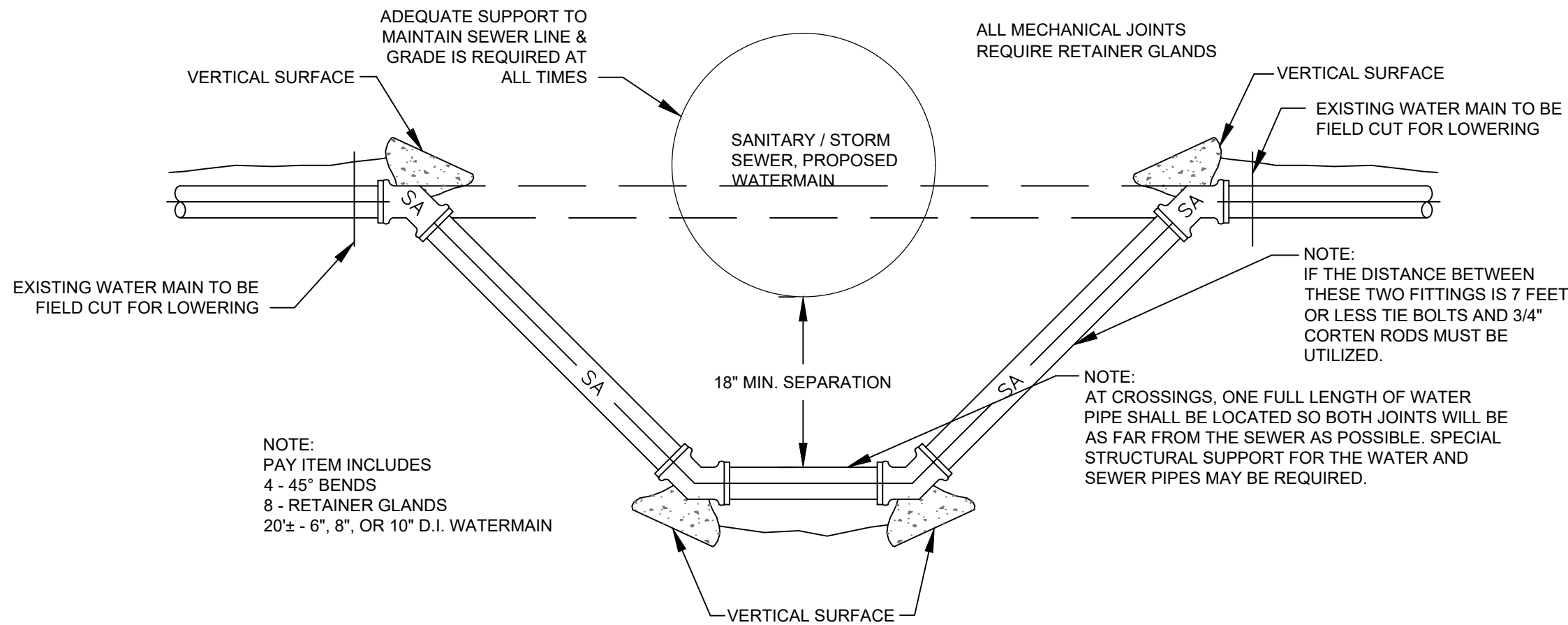


CITY OF TRAVERSE CITY

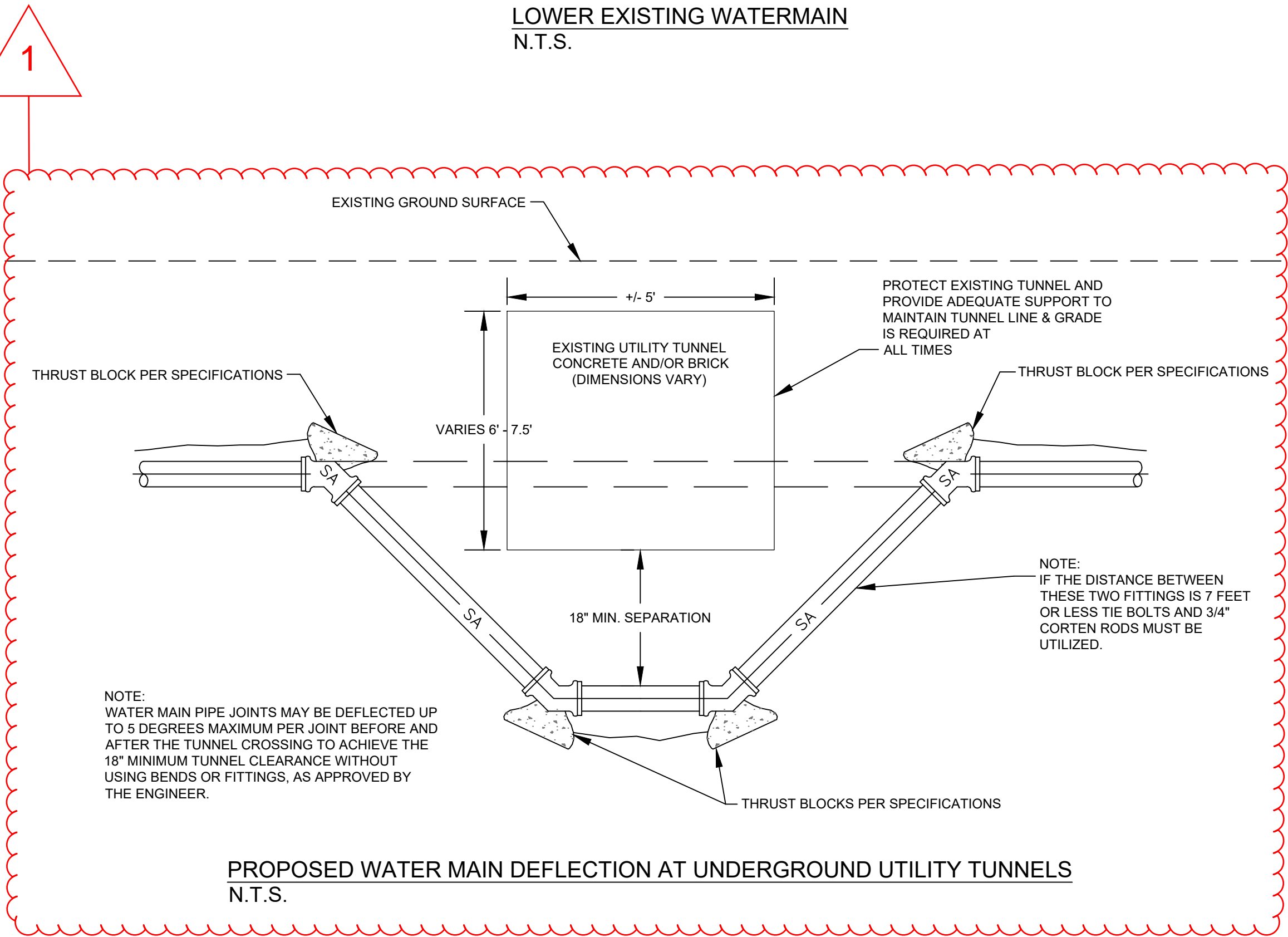
GRAND TRAVERSE COMMONS WATER SYSTEMS IMPROVEMENTS

NOTES

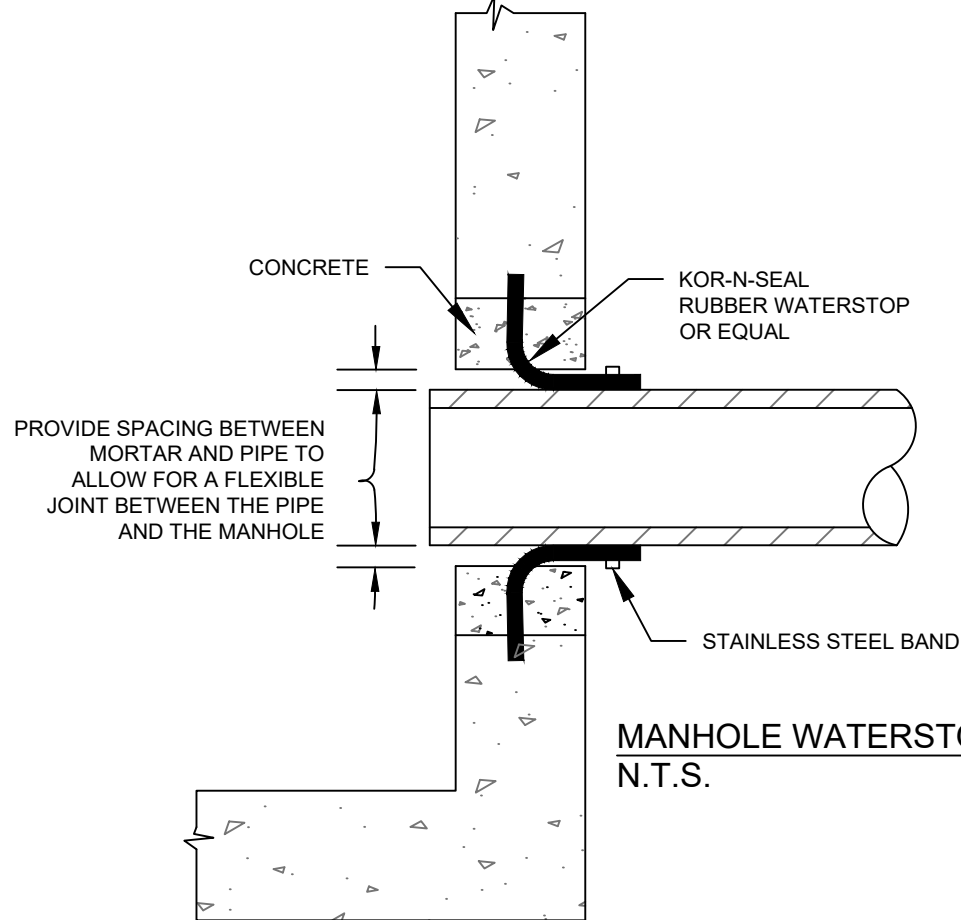
HRC JOB NO. 20240704	SCALE
DATE April 29, 2025	SHEET NO. 2 OF 15



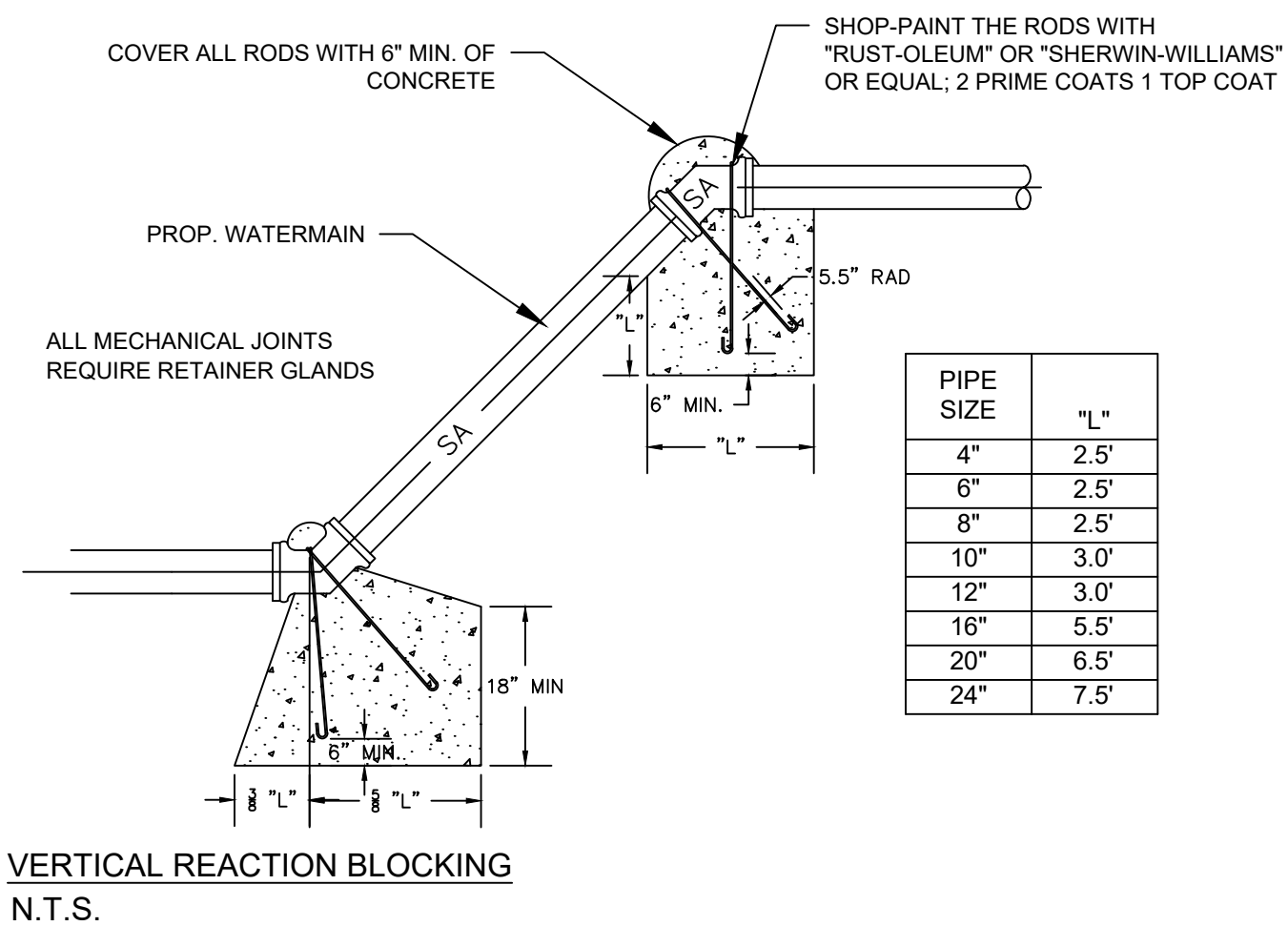
LOWER EXISTING WATERMAIN
N.T.S.



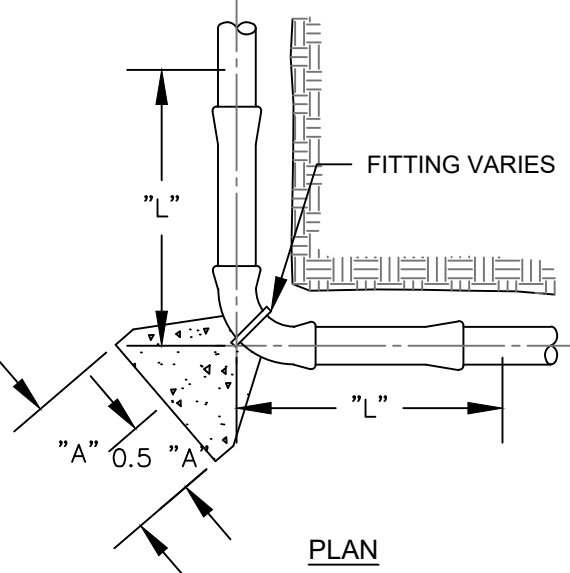
PROPOSED WATER MAIN DEFLECTION AT UNDERGROUND UTILITY TUNNELS
N.T.S.



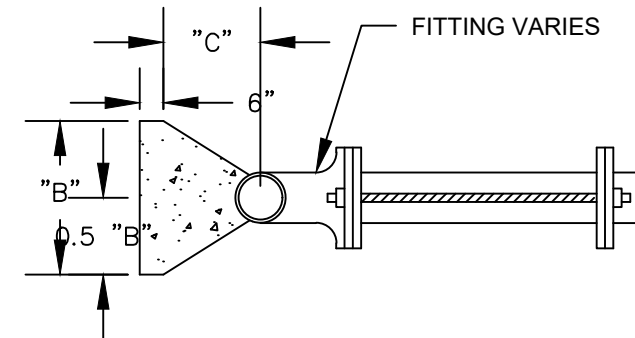
MANHOLE WATERSTOP DETAIL
N.T.S.



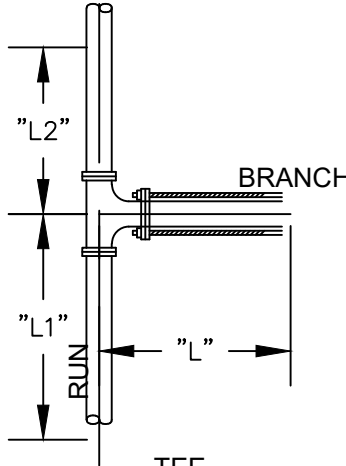
VERTICAL REACTION BLOCKING
N.T.S.



PLAN



PROFILE



TEE

FITTING	THRUST BLOCK DIMENSION	WATER MAIN MAX DIMENSION, "D"						
		6"	8"	12"	16"	20"	24"	
90°	A	2'-9"	3'-0"	5'-6"	6'-0"	9'-0"	11'-0"	
	B	1'-6"	2'-6"	3'-0"	5'-0"	5'-0"	6'-0"	
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
45°	A	2'-0"	2'-0"	3'-6"	5'-6"	6'-6"	7'-0"	
	B	1'-6"	2'-0"	2'-6"	3'-0"	4'-0"	5'-0"	
	C	1'-0"	1'-3"	1'-6"	1'-9"	1'-9"	2'-0"	
22.5°	A	1'-6"	1'-9"	3'-0"	4'-0"	4'-0"	4'-0"	
	B	1'-0"	1'-3"	1'-6"	2'-0"	3'-0"	4'-6"	
	C	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
11.25°	A	1'-0"	1'-3"	1'-6"	2'-0"	3'-1"	3'-0"	
	B	1'-0"	1'-3"	1'-6"	2'-0"	2'-0"	3'-0"	
	C	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
TEE	A	2'-0"	2'-6"	4'-0"	5'-0"	8'-0"	9'-0"	
	B	1'-6"	2'-0"	3'-0"	4'-0"	4'-0"	5'-0"	
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
PLUG	A	2'-0"	2'-6"	4'-0"	5'-0"	8'-0"	9'-0"	
	B	1'-6"	2'-0"	3'-0"	4'-0"	4'-0"	5'-0"	
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	

FITTING	THRUST BLOCK DIMENSION	WATER MAIN MAX DIMENSION, "D"						
		6"	8"	12"	16"	20"	24"	
90°	A	2'-9"	3'-0"	5'-6"	6'-0"	9'-0"	11'-0"	
	B	1'-6"	2'-6"	3'-0"	5'-0"	5'-0"	6'-0"	
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
	L	6"	7'-6"	10'-6"	13'-6"	16"	19"	
45°	A	2'-0"	2'-0"	3'-6"	5'-6"	6'-6"	7'-0"	
	B	1'-6"	2'-0"	2'-6"	3'-0"	4'-0"	5'-0"	
	C	1'-0"	1'-3"	1'-6"	1'-9"	1'-9"	2'-0"	
	L	2'-6"	3'	4'-6"	5'-6"	7'	8'	
22.5°	A	1'-6"	1'-9"	3'-0"	4'-0"	4'-0"	4'-0"	
	B	1'-0"	1'-3"	1'-6"	2'-0"	3'-0"	4'-6"	
	C	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
	L	1'-6"	1'-6"	2'-6"	3'	3'-6"	4'	
11.25°	A	1'-0"	1'-3"	1'-6"	2'-0"	3'-1"	3'-0"	
	B	1'-0"	1'-3"	1'-6"	2'-0"	2'-0"	3'-0"	
	C	1'-0"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
	L	1'	1'	1'	1'-6"	2'	2'	
TEE	A	2'-0"	2'-6"	4'-0"	5'-0"	8'-0"	9'-0"	
	B	1'-6"	2'-0"	3'-0"	4'-0"	4'-0"	5'-0"	
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
	L	2'-0"	2'-6"	4'-0"	5'-0"	8'-0"	9'-0"	
PLUG	A	2'-0"	2'-6"	4'-0"	5'-0"	8'-0"	9'-0"	
	B	1'-6"	2'-0"	3'-0"	4'-0"	4'-0"	5'-0"	
	C	9"	1'-0"	1'-3"	1'-6"	1'-9"	2'-0"	
	L	14'	19'	27'	35'	42'	50'	

BRANCH	LENGTH	WATERMAIN RUN						
		6"	8"	12"	16"	20"	24"	
6"	L	10'	10'	10'	10'	10'	17'	
	L1	5'	5'	10'	10'	10'	10'	
	L2	5'	5'	10'	10'	10'	10'	

THRUST BLOCK NOTES:

- 3500 P.S.I. CONCRETE POURED AGAINST UNDISTURBED EARTH.
- WHEN "A" DIMENSION IS 6 FEET OR GREATER, USE #4 BAR AT 12-INCH O.C. EACH WAY.
- THE TABLE IS BASED ON 1500 P.S.F. THEREFORE, WHEN PLACED IN MUCK, PEAT OR OTHER UNSUITABLE SOILS HAVING A SOIL BEARING LESS THAN 1500 P.S.F., THE CONTRACTOR SHALL PROVIDE SUITABLE ADDITIONAL BLOCKING, ENCASEMENT, OR RESTRAINTS.
- BLOCK HEIGHT SHOULD BE EQUAL TO OR LESS THAN ONE-HALF OF THE TOTAL DEPTH TO THE BOTTOM OF THE BLOCK BUT NOT LESS THAN THE PIPE DIAMETER.
- BLOCK HEIGHT SHOULD BE CHOSEN SUCH THAT THE CALCULATED BLOCK WIDTH VARIES BETWEEN ONE AND TWO TIMES THE HEIGHT.
- RESTRAINED JOINTS MAY BE USED AS AN ALTERNATIVE METHOD OF PROVIDING THRUST RESTRAINT.

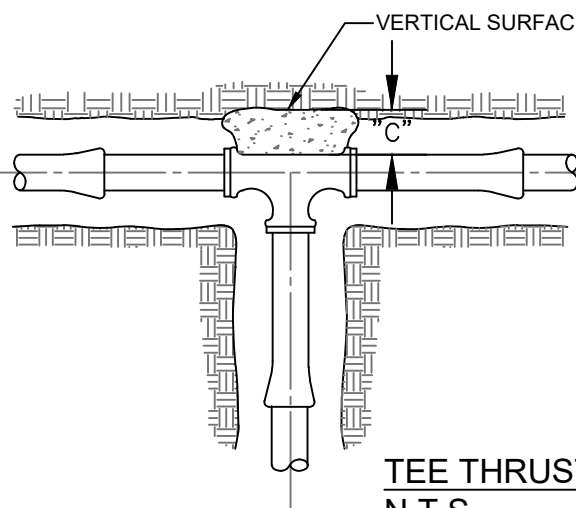
PIPE SIZE	MIN. BEARING SURFACE ON UNDISTURBED SOIL FOR THRUST BLOCKS	"C"
4"	1'-0"x 1'-0" = 1 SQ. FT.	1'-0"
6"	1'-4"x 1'-3" = 1-2/3 SQ. FT.	1'-0"
8"	1'-9"x 1'-8" = 3 SQ. FT.	1'-3"
10"	2'-0"x 2'-0" = 4 SQ. FT.	1'-3"
12"	2'-3"x 2'-3" = 5-1/2 SQ. FT.	1'-6"
16"	3'-4"x 3'-4" = 11 SQ. FT.	1'-9"
20"	4'-4"x 4'-4" = 18-1/2 SQ. FT.	1'-9"
24"	5'-2"x 5'-2" = 26-1/2 SQ. FT.	2'-0"

90° BEND IN PIPE
(45° BEND SIMILAR)

PIPE SIZE	MIN. BEARING SURFACE ON UNDISTURBED SOIL FOR THRUST BLOCKS
4"	1'-4"x 1'-0" = 1-1/3 SQ.FT.
6"	1'-8"x 1'-6" = 2-1/2 SQ.FT.
8"	2'-0"x 2'-0" = 4 SQ.FT.
10"	2'-3"x 2'-3" = 5-1/2 SQ.FT.
12"	2'-9"x 2'-9" = 7-1/2 SQ.FT.
16"	3'-9"x 3'-9" = 14 SQ.FT.
20"	3'-9"x 3'-9" = 26 SQ.FT.
24"	3'-9"x 3'-9" = 37 SQ.FT.

45° BEND

16"	3'-1"x 3'-1" = 9.5 SQ.FT.
20"	3'-9"x 3'-9" = 14 SQ.FT.
24"	4'-6"x 4'-6" = 20 SQ.FT.



TEE THRUST BLOCK DETAIL
N.T.S.

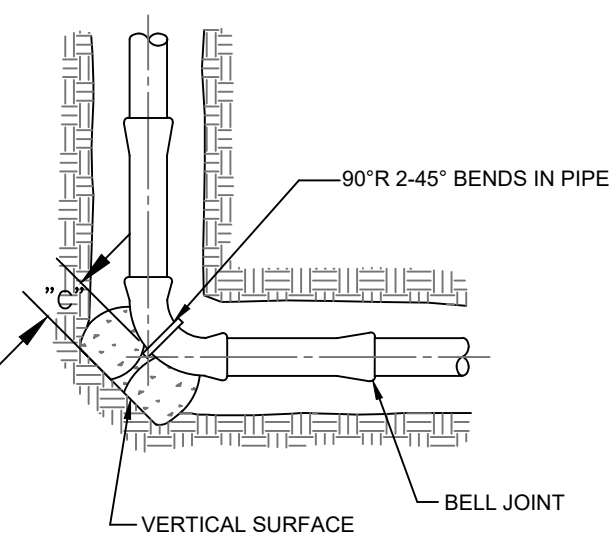
PIPE SIZE	MIN. BEARING SURFACE ON UNDISTURBED SOIL FOR THRUST BLOCKS	"C"
4"	1'-0"x 1'-0" = 1 SQ. FT.	1'-0"
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8"	1'-9"x 1'-8" = 3 SQ. FT.	1'-3"
10"	2'-0"x 2'-0" = 4 SQ. FT.	1'-3"
12"	2'-3"x 2'-3" = 5-1/2 SQ. FT.	1'-6"
16"	3'-4"x 3'-4" = 11 SQ. FT.	1'-9"
20"	4'-4"x 4'-4" = 18-1/2 SQ. FT.	1'-9"
24"	5'-2"x 5'-2" = 26-1/2 SQ. FT.	2'-0"

90° BEND IN PIPE
(45° BEND SIMILAR)

PIPE SIZE	MIN. BEARING SURFACE ON UNDISTURBED SOIL FOR THRUST BLOCKS	"C"
4"	1'-4"x 1'-0" = 1-1/3 SQ.FT.	1'-0"
6"	1'-8"x 1'-6" = 2-1/2 SQ.FT.	1'-0"
8"	2'-0"x 2'-0" = 4 SQ.FT.	1'-3"
10"	2'-3"x 2'-3" = 5-1/2 SQ.FT.	1'-3"
12"	2'-9"x 2'-9" = 7-1/2 SQ.FT.	1'-6"
16"	3'-9"x 3'-9" = 14 SQ.FT.	1'-9"
20"	4'-4"x 4'-4" = 18 SQ.FT.	1'-9"
24"	4'-11"x 7'-9" = 37 SQ.FT.	2'-0"

45° BEND

16"	3'-1"x 3'-1" = 9.5 SQ.FT.
20"	3'-9"x 3'-9" = 14 SQ.FT.
24"	4'-0"x 5'-0" = 20 SQ.FT.



BEND THRUST BLOCK DETAIL
N.T.S.



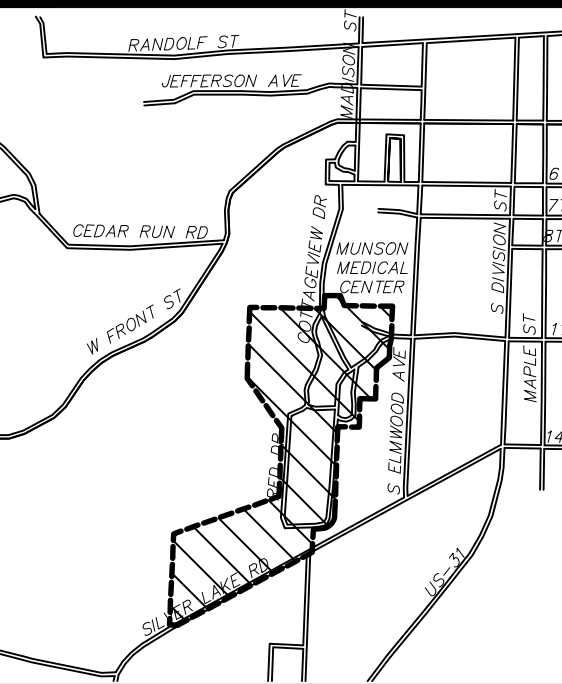
HRC
HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915
1501 CASS STREET
TRAVERSE CITY, MI 49684

PHONE: (231) 714-5007

WEB SITE: www.hrcengr.com



DATE	ADDITIONS AND/OR REVISIONS
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12/20/2024	SUBMITTED FOR CLIENT REVIEW
DESIGNED	LNW/DRW
DRAWN	LNW/DRW
CHECKED	RVW/EAL
APPROVED	RVW



**CITY OF
TRAVERSE CITY**

**GRAND TRAVERSE COMMONS
WATER SYSTEMS
IMPROVEMENTS**

WATER MAIN DETAILS

HRC JOB NO.

20240704

SCALE

DATE

April 29, 2025

SHEET NO.

4 OF 15

SECTION 01220

BID ITEM DESCRIPTION

PART 1 GENERAL

1.1 SCOPE

- A. This Section describes the method of measurement and basis of payment for several items of Work included in the Contract and specified in the Proposal.
1. The Contractor shall provide all labor, material, tools, equipment, and services required to complete the Work specified herein and indicated on the Plans and all other items necessary to complete the job, whether specifically mentioned or implied.
 2. Payment will only be made for the items listed in the Proposal Form.
- B. The Owner will make no allowances for items not included in the Proposal Form.

1.2 ITEMS OF THE PROPOSAL

PRV Facility, Complete

This bid item shall be paid for at the Contract Unit Price **lump sum**. Measurement and payment for this item includes furnishing all materials (except as noted below) and labor to provide a fully functional PRV facility as shown in the plans, specifications, and as listed herein.

This work includes, but is not necessarily limited to:

- Removal of existing piping and equipment as indicated.
- Isolation of existing piping to remain (blind flanges as indicated)
- Installation of two Pressure Reducing Valves (PRVs) that will be **furnished by the City**.
- Furnishing and installation of:
 - Magnetic Flow Meter
 - Testing Ports
 - Valves
 - Piping
 - Fittings
 - Gauges
 - Piping hangers and supports
 - Other appurtenant materials and equipment
- Electrical Connections
- Surface preparation and painting
- Disinfection
- Pressure testing
- Coordination with SCADA contractor. **Equipment and installation by others.**
- Providing Operation and Maintenance documentation
- Start-up of all equipment including SCADA start-up coordination
- Clean-up and restoration

This work will be performed at locations where required and as shown on the construction drawings.

Curb and Gutter, Rem

This bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Sidewalk, Rem

This bid item shall be paid for at the Contract Unit Price per **square yard**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Pavt, Rem, Modified

This bid item shall be paid for at the Contract Unit Price per **square yard**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for "Pavement Removal, Modified".

This work will be performed at locations where required and as shown on the construction drawings.

Aggregate Base

This bid item shall be paid for at the Contract Unit Price per **ton**. Measurement and payment and the Work included and required by this item are described herein, on the plans and according to the City of Traverse City Special Provision for "Aggregate Base, Modified".

This work will be performed at locations where required and as shown on the construction drawing.

Dewatering System, Trench

Where it is determined to be required, this bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

HMA, 4EML Base (#/SYD)

This bid item shall be paid for at the Contract Unit Price per **ton**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City Special Provision for “HMA, 4EL Application Estimate”.

This work will be performed at locations where required and as shown on the construction drawing.

HMA, 4EML Top (#/SYD)

This bid item shall be paid for at the Contract Unit Price per **ton**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City Special Provision for “HMA, 4EL Application Estimate”.

This work will be performed at locations where required and as shown on the construction drawing.

Curb and Gutter, Conc, Det F4

This bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Sidewalk, Conc, 4 inch

This bid item shall be paid for at the Contract Unit Price per **square feet**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Turf Establishment

This bid item shall be paid for at the Contract Unit Price per **square yard**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for “Turf Establishment”.

This work will be performed at locations where required and as shown on the construction drawings.

Temp Tree Protection

This bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for “Temporary Tree Protection”.

This work will be performed at locations where required and as shown on the construction drawings.

Maintaining Water Sprinkler System (Max 10)

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for "Repairing and Maintaining Sprinkler System".

This work will be performed at locations where required and as shown on the construction drawings.

Water Main, inch, Cut and Plug

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Water Main, Rem

This bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for "Water Main, Remove".

This work will be performed at locations where required and as shown on the construction drawings.

Water Main, Zinc Coated DI, V-Bio® Wrap, inch, Tr Det G, Special

This bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for "Water Main, Special".

This work will be performed at locations where required and as shown on the construction drawings.

Gate Valve and Box, V-Bio® Wrap, inch, Special

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for "Water Main, Special".

This work will be performed at locations where required and as shown on the construction drawings.

Hydrant Assembly, V-Bio® Wrap, Special

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for “Water Main, Special”.

This work will be performed at locations where required and as shown on the construction drawings.

Dewatering System, Excavation

Where it is determined to be required, this bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for “Dewatering System, Excavation”.

This work will be performed at locations where required and as shown on the construction drawings.

Check Valve and Manhole Assembly, inch

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement and payment for this item includes furnishing all materials and labor to provide a fully functioning check-valve and manhole as shown in the plans, specifications, and as listed herein.

This work includes, but is not necessarily limited to:

- Furnishing and installation of:
 - Check Valve Manhole as shown on plans and detail (including lid, base, stainless steel band, and rubber water stop)
 - Check Valve (including valve box and cover)
 - 1” corporation stops
 - Other appurtenant materials and equipment
- Disinfection
- Pressure testing
- All excavation and backfill required for the installation of the structure

All bypass piping, connective piping, gate valves, bends, tees and turf restoration will be paid for separately as shown on the plans.

This work will be performed at locations where required and as shown on the construction drawings. This work will be performed at locations where required and as shown on the construction drawings.

Underground Utility Tunnel, Conflict

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement and payment for this item includes furnishing all materials and labor to deflect proposed water main a minimum of 18” beneath existing utility tunnels, while supporting and not disturbing the existing tunnel. The price of “Underground Utility Tunnel, Conflict” – Ea does not include the installation of the water

main. The cost of installing the water main will be paid at the per foot unit price of the other water main items included in the contract.

This work includes, but is not necessarily limited to:

- Furnishing of:
 - Work required to provide the proper 18" of separation between the water main and utility tunnel (Up to 10' depth)
 - Structural support of existing tunnel
 - Other necessary materials and equipment

This work will be performed at locations where required.

Connect to Existing Water Main, Modified

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City's "Technical Specifications for Watermains and Appurtenances".

This work will be performed at locations where required and as shown on the construction drawings.

Post Flushing Hydrant Assembly, V-Bio® Wrap, Special

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for "Water Main, Special".

This work will be performed at locations where required and as shown on the construction drawings.

Hydrant, Rem

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Water Main, inch, Cut and Plug

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Abandon Existing inch Water Main

This bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for “Abandon Existing Water Main”.

This work will be performed at locations where required and as shown on the construction drawings.

Water Service, V-Bio® Wrap, Short Side, 2 inch, Special

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the City of Traverse City special provision for “Water Main, Special”.

This work will be performed at locations where required and as shown on the construction drawings.

Mobilization, (Max. 10%)

This bid item shall be paid for at the Contract Unit Price per **lump sum** basis. The Work required by this item shall include, but not be limited to, the preparatory work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of the Contractor’s offices, buildings, and other facilities necessary to undertake the Work on the project; and for other work and operations which must be performed or for expenses incurred prior to beginning work on the various contract items on the project site. It shall also include pre-construction costs, exclusive of bidding costs, which are necessary direct costs to the project and are of a general nature rather than directly attributable to other pay items under the contract. The Work shall include all demobilizations and remobilizations which are required due to seasonal suspension of the Work. This contract pay item also includes all other items and costs not included in the price bid for specific items such as overhead, insurance, permits, safety program, coordination with others, and the like. All cost to the Contractors for full compliance with all requirements of the General Conditions sections shall also be included in this pay item.

The Contract Unit Price for “Mobilization, (Max. 10%)” **shall not exceed ten (10) percent** of the Total Amount of Bid minus the amount for this pay item. Payment for this item will be based upon the following Partial Payment schedule:

Percentage of Original Contract Amount Earned	Percentage of Bid Price for Mobilization Allowed
5	50%
10	75%
25	100%

Additional unit prices will not be paid for the Contractor to remobilize to the site regardless of the staging or sequence of construction preferred by the Contractor. The initial payment for the project

shall not be made until construction has been started and a schedule of values for the project has been approved. The total sum of all payments for this item shall not exceed the original contract amount bid for "Mobilization, (Max. 10%)", regardless of the facts that the Contractor may have, for any reason, shut down his work on the project, moved equipment away from the project and then back again, or for additional quantities or items of work added to the contract.

Exploratory Investigation, Vertical

This bid item shall be paid for at the Contract Unit Price per **foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Erosion Control, Inlet Protection, Fabric Drop

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Erosion Control, Silt Fence

This bid item shall be paid for at the Contract Unit Price per **lineal foot**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Maintenance Gravel

This bid item shall be paid for at the Contract Unit Price per **ton**. Measurement and payment and the Work included and required by this item are described herein, on the plans and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawing.

Barricade, Type III, High Intensity, Double Sided, Lighted

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Channelizing Device, inch, Fluorescent

This bid item shall be paid for at the Contract Unit Price per **each**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Minor Traf Devices

This bid item shall be paid for at the Contract Unit Price **lump sum**. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

Traf Regulator Control

This bid item shall be paid for at the Contract Unit Price on a **lump sum** basis. Measurement, payment, and work included and required by this item are described herein, on the plans, and according to the latest edition of the MDOT Standard Specifications for Construction.

This work will be performed at locations where required and as shown on the construction drawings.

END OF SECTION

CITY OF TRAVERSE CITY
SPECIAL PROVISION
FOR
REPAIRING AND MAINTAINING IRRIGATION SYSTEM

PART 1 GENERAL

1.1 DESCRIPTION

- A. This work consists of repairing and replacing existing automatic sprinkler heads, valves, boxes, piping, electrical power feeds and appurtenances within the project limits.

1.2 MATERIALS

- A. Furnish Schedule 40, Type 1120-1220 PVC pipe in accordance with ASTM D1785.
- B. Furnish Type 1, medium weight Schedule 40 PVC fittings as manufactured by LASCO Manufacturing Company, Spears or approved equal.
- C. Furnish solvent cement compatible with PVC pipe for this application in accordance with ASTM D2564.

1.3 CONSTRUCTION METHODS

- A. Notify the property owner in writing at least 14 calendar days prior to the start of the work performed in the water sprinkler areas. Remove and salvage all impacted sprinkler heads. Replace, in-kind, any sprinkler heads damaged by the Contractor at no cost to the contract. Mark the location of the removed heads, plug and cap the existing line. Ensure that the portion of the sprinkler system that is unaffected by the construction remains operational. Reinstall the salvaged sprinkler heads or the in-kind replacements. Perform tests for leaks in the areas damaged by the Contractor. Determine the proper grade and height of the reinstalled sprinkler heads and obtain approval from the Engineer and property owner. Reconnect any electrical power disrupted by the Contractor during this work.
 - 1. Pipeline Assembly.
 - a. Solvent weld PVC pipe and fittings using solvent and methods as recommended by manufacturer of the pipe, except where threaded connections are required. Thoroughly clean pipe and fittings of dirt, dust and moisture before applying solvent.
 - 2. Sprinkler Heads.
 - a. Use pipe joint compound on all threaded ferrous joints. Use Polytetrafluoroethylene (PTFE) tape for threaded joints in PVC assemblies.
 - 3. Closing of Pipe and Flushing Lines.
 - a. Cap or plug all openings as soon as the heads have been removed to prevent the entrance of materials that would obstruct the pipe. Leave temporary caps in place until removal is necessary for reinstallation of the heads.

- b. Thoroughly flush out all water lines before installing heads, valves and other hydrants.
 - c. Test in accordance with subsection 1.3.A.4 of this special provision.
 - d. Upon completion of the testing, complete assembly and adjust sprinkler heads for proper distribution.
- 4. Hydrostatic Tests.
 - a. Request the presence of the Engineer in writing at least 2 working days in advance of testing.
 - b. Test pipe at 160 psi or at the rated pressure of the pipe, whichever is lower for 2 hours, to identify any potential leaks at operating pressure.
 - c. Repair leaks resulting from failed tests and retest.
 - d. Retest as required due to failure of any system components to pass hydrostatic testing at no additional cost to contract.
- 5. Backfill and Compaction.
 - a. Backfill, compact, and adjust to proper grade with suitable, excavated material approved by Engineer.
- 6. Clean Up.
 - a. Remove all debris resulting from the repair and/or replacement of the sprinkler system once work has been completed on the property. Complete restoration of all disturbed areas in accordance with the standard specifications.

PART 2 MEASUREMENT AND PAYMENT

- A. The completed work, as described, will be measured and paid for at the contract unit price allowance using the following pay item:

Pay Item	Pay Unit
Maintaining Water Sprinkler System (MAX 10)	Each

- B. **Maintaining Water Sprinkler System** includes fittings, temporary caps, salvaging sprinkler heads, temporary storage of the sprinkler heads, reinstalling sprinkler heads, valves, boxes, testing, electrical work, and additional pipe.
- C. Each individual property with a water sprinkler system that needs maintenance or repairs will be measured as one system **each** for payment under this pay item. Payment per system will be \$400 max.
- D. Payment equated for the maintenance and repair of 10 sprinkler systems upon reaching the max allowance (\$4,000) all future repairs will be completed at the cost of the contractor.
- E. The Contractor has the option, at no additional cost to the contract, of installing all new in-kind heads versus salvaging the existing heads.

- F. Restoration of disturbed areas will be paid for separately.

END OF SECTION

CITY OF TRAVERSE CITY
SPECIAL PROVISION
FOR
TEMPORARY TREE PROTECTION

HRC

1 of 1

04/30/25

a. Description. This work consists of installing, maintaining and removing a temporary fence as directed by the Engineer which will provide protection for existing trees and plants.

b. Materials. Provide a plastic or wooden snow fence, at least 48 inches tall, supported by posts. Ensure posts are as recommended by the fence manufacturer.

c. Construction. Furnish and install fence around trees at the drip line and loosely around low branched plants. Place posts at 8 foot maximum intervals. Where plants are in groups, ensure the entire group is enclosed with fence.

Place fencing prior to the start of any construction activity. Remove fencing only when all remaining work is completed as directed by the Engineer. Maintain fence and kept upright and taut until no longer needed and removed. Replace damaged sections of fence as necessary at no cost to the contract.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item

Pay Unit

Temp Tree ProtectionFoot

Temp Tree Protection includes disposal of fence and posts and will not be paid for separately.

CITY OF TRAVERSE CITY

SPECIAL PROVISION
FOR
WATER MAIN, SPECIAL

CITY OF TRAVERSE CITY:ARY/HRC 1 of 3

03-12-2025

a. Description. This work consists of providing all labor, equipment and materials necessary to install ductile iron (DI) water main, appurtenances and water services in open trenches. All work shall be in accordance with City specifications, except as modified by this special provision.

b. Materials. Provide DI water main pipe in accordance with City specifications and as specified herein. Pipe shall be zinc coated pressure class 350 / thickness class 52 for 12 inch and smaller ductile iron pipe. Pipe shall be designed with restrained flexible joints and smoothly contoured bells. Pipe shall be zinc coated US Pipe TR Flex or zinc American Ductile Iron Pipe Flex-Ring or approved equal. Pipe shall be provided with conductive bonding straps. Field welded bonding straps shall require pipe coating repairs in accordance with the pipe manufacturers recommendations.

The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179. The mass of the zinc applied shall be 200 g/m² of pipe surface area. A finishing layer topcoat shall be applied to the zinc. The mean dry film thickness of the finishing layer shall not be less than 3 mils with a local minimum not less than 2 mils. The zinc coating system shall conform to ISO 8179-1 "Ductile iron pipes – External zinc-based coating – Part 1: Metallic zinc with finishing layer. Second edition 2004-06-01."

Provide TR Flex Gripper Ring or approved equal for field cut joints to construct a fully restrained piping system.

Provide DI fittings in accordance with City specifications and as specified herein. All DI fittings for 12 inch and smaller DI pipe such as bends, wyes, tee, reducers, crosses, caps and plugs shall be mechanical joint compact fittings. Fitting joints shall be fully restrained. Joint restraints shall be Megalug Series 1100 mechanical joint restraint for ductile iron pipe or approved equal.

Provide valves in accordance with City specifications and as specified herein. All valves shall be provided with mechanical joint end connections. Valve joints shall be fully restrained. Joint restraints shall be Megalug Series 1100 mechanical joint restraint for ductile iron pipe or approved equal.

Provide fire hydrant assemblies in accordance with City specifications, details and as specified herein. Fire hydrant and associated gate valve shall be provided with mechanical joint connections with tie rods. Hydrant and valve shall be fully restrained at the connections to the water main. Joint restraints shall be Megalug Series 1100 mechanical joint restraint for ductile iron pipe or approved equal. Tie rods shall be 3/4 inch dia. corten threaded rod.

Water service line pipe and appurtenances shall be in accordance with City specifications.

Water main, appurtenances, and a portion of the water service line pipe shall be wrapped with V-Bio® Enhanced Polyethylene Encasement in accordance with ANSI/AWWA C105/A21.5, ASTM A674, and ISO 8180 in tube or sheet form. Adhesive tape shall be a general-purpose polyethylene adhesive tape, 2.00

in. wide and at least 0.008 in. (8 mil) thick or as recommended by polyethylene encasement manufacturer.

Contractor shall submit pipe, appurtenances and water service components to the Engineer for review and approval.

c. Construction. Ensure that all work is in accordance with the City specifications and as specified herein.

Water main and appurtenances installed in open trenches shall be a fully restrained piping system that is not dependent upon the surrounding soil for thrust restraint.

After assembly of restrained joints such as TR Flex the joint shall be fully extended to remove all slack. Joint deflection shall be limited to one half of allowable deflection per the manufacturer's recommendations.

Water main joints for field cut pipe shall be in accordance with the pipe manufacturer's recommendations and fully restrained with a TR Flex gripper ring or approved equal.

Water main and pipe shaped appurtenances shall wrapped with V-Bio® Enhanced Polyethylene Encasement in accordance with ANSI/AWWA C105/A21.5, ASTM A674, and ISO 8180 and as specified herein. Encasement shall prevent contact between the pipe and surrounding soil. Cut polyethylene tube to length to provide sufficient overlap (1 foot min.) onto adjacent pipe and fittings. Clean and dry the pipe and pipe shaped appurtenances. Contractor shall use Modified Method A *in wet conditions* regardless of soil moisture condition.

When it is not practical to wrap valves, tees, crosses, and other odd-shaped water main appurtenances in a tube, wrap with a flat sheet or split length of V-Bio® Enhanced Polyethylene Encasement tube by passing the sheet under the appurtenance and bringing the sheet up and around the body. Make seams by bringing the edges of the polyethylene sheet together, folding them over twice, and taping them then tape the appurtenance circumferentially. Provide sufficient overlap (1 foot min.) from or onto adjoining pipe and tape seams. Tape polyethylene securely in place at the valve stem and other penetrations.

Repair cuts, tears, punctures, or damage to polyethylene with tape and short length of sheet, or with tube cut open, double wrapped around the pipe to cover the damaged area, and secure in place.

Water service taps shall be made directly through the polyethylene, with any resulting damaged areas being repaired as described previously. To make direct service taps, apply two or three wraps of adhesive tape completely around the polyethylene encased pipe to cover the area where the tapping machine is mounted, the corporation stop is installed directly through the tape and polyethylene. After the direct tap is completed, the entire circumferential area shall be closely inspected for damage and repaired if needed. Copper water service lines shall be wrapped with V-Bio® Enhanced Polyethylene Encasement and taped circumferentially for a minimum distance of 3 feet from the DI water main.

Tie straps shall not be used to secure the polyethylene encasement to the pipe or appurtenances.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay items:

Pay Item	Pay Unit
Water Main, Zinc Coated DI, V-Bio® Wrap, __ inch, Tr Det __, Special	Foot

Gate Valve and Box, V-Bio® Wrap, _ inch, SpecialFoot
Hydrant Assembly, V-Bio® Wrap, Special.....Each
Post Flushing Hydrant Assembly, V-Bio® Wrap, SpecialEach
Water Service, V-Bio® Wrap, Short Side, _ inch, SpecialEach
Water Service, V-Bio® Wrap, Long Side, _ inch, Special.....Each

Water Main, Zinc Coated DI, V-Bio® Wrap, __ inch, Tr Det __, Special / Gate Valve and Box, V-Bio® Wrap, _ inch, Special / Hydrant Assembly, V-Bio® Wrap, Special / Post Flushing Hydrant Assembly, V-Bio® Wrap, Special / Water Service, V-Bio® Wrap, Short Side, _ inch, Special/ Water Service, V-Bio® Wrap, Long Side, _ inch, Special includes all utility location, excavation, backfill, sheeting and bracing, testing, disinfection and flushing, cleanup, as-built plans and all other miscellaneous items of work necessary to complete the complete the work. The City may withhold payment until the Engineer accepts the as-built plans.