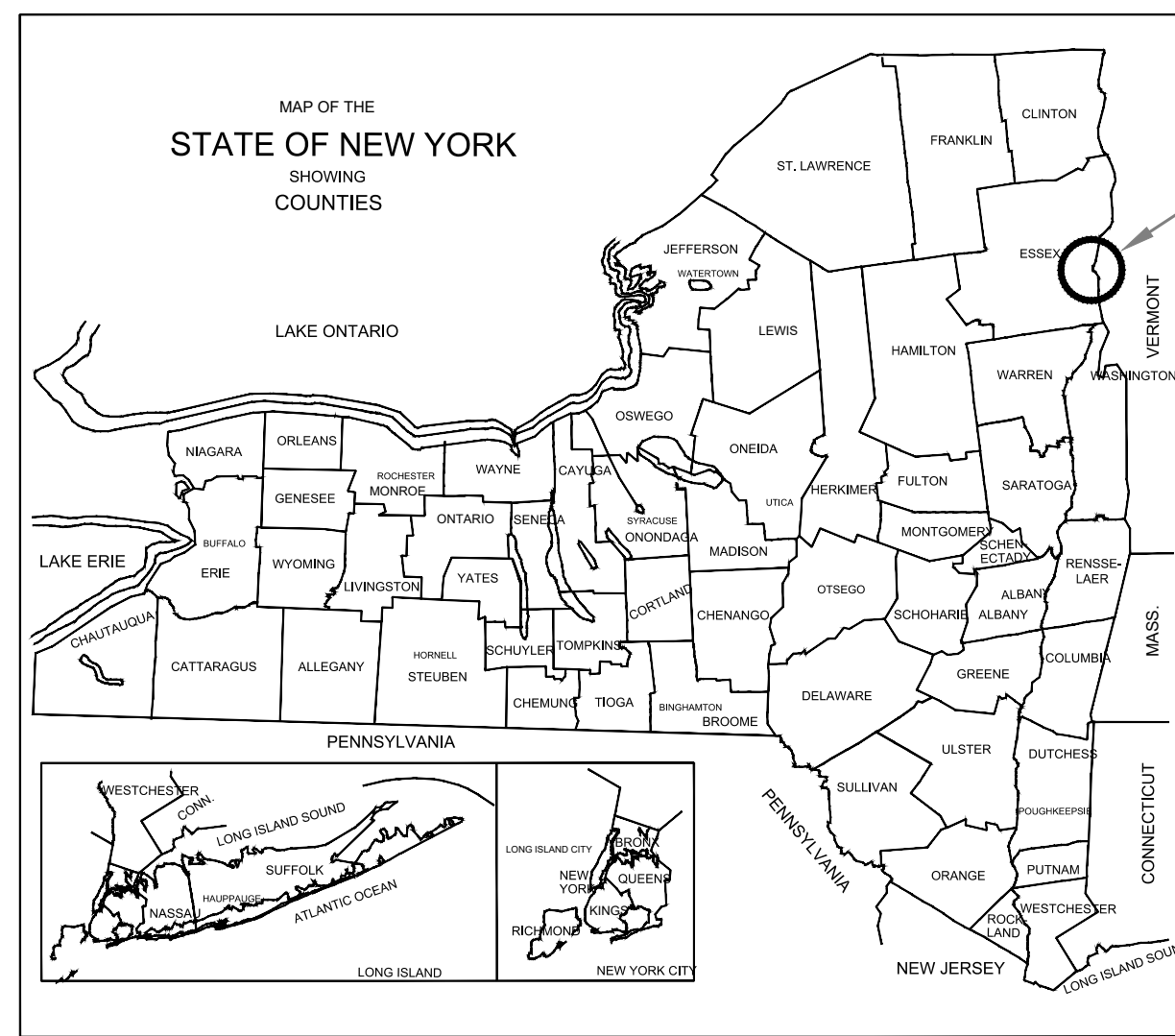


TOWN OF MORIAH

WATER & SEWER

REPLACEMENT PHASE II



PROJECT LOCATION



PROJECT LOCATION

SOURCE: U.S.G.S. 7.5' TOPOGRAPHIC MAP
 QUADRANGLE: PORT HENRY, NY
 SCALE: 1"=15,000'

SUPERVISOR:
 THOMAS R. SCOZZAFAVA

BOARD MEMBERS/COUNCILMEN:
 PAUL SALERNO - DEPUTY SUPERVISOR
 THOMAS ANDERSON
 MATTHEW BRASSARD
 NATHAN GILBO

WATER & SEWER DEPARTMENT:
 ARTHUR MORGAN

WASTEWATER TREATMENT PLANT:
 CARL (CHIP) PERRY

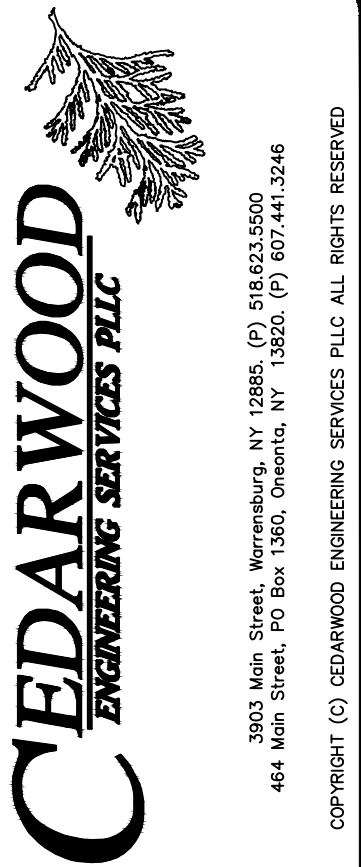
PREPARED BY:

Cedarwood Engineering Services, PLLC
 CIVIL & ENVIRONMENTAL ENGINEERING
 3903 Main Street
 Warrensburg, New York 12885
 518-623-5500
 464 Main Street
 Oneonta, New York 13820
 607-441-3246

MARCH 2021

DRAWING INDEX

- C-0 COVER
- C-1 INDEX, LEGEND AND NOTES
- C-2 EXISTING CONDITIONS PLAN
- C-3 DEMOLITION PLAN
- C-4 1ST LANE PLAN & PROFILE
- C-5 2ND LANE PLAN & PROFILE
- C-6 SITE REHABILITATION PLAN
- C-7 BID ALTERNATE #1
- C-8 WATER DETAILS
- C-9 WATER DETAILS
- C-10 SANITARY SEWER DETAILS
- C-11 GENERAL DETAILS
- C-12 GENERAL DETAILS



PROJECT INFORMATION:	
DATE:	2/1/2021
SCALE:	1" = 20'
DESIGNED BY:	LJC
DRAWN BY:	LJC
REVIEWED BY:	JMS
PROJECT NO.:	20-027

REVISIONS:		
NO.	DATE	DESCRIPTION
1	3/9/21	NYS DEC REVISION 1
2	3/11/21	NYS DOH REVISION 1

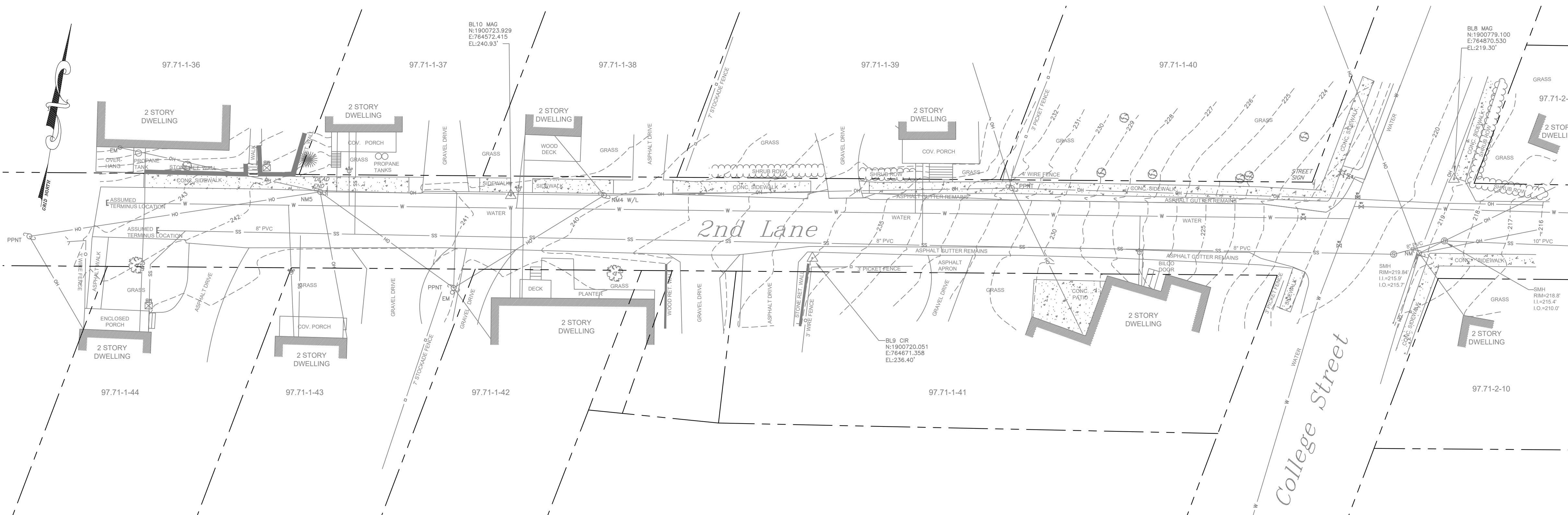
ANY CHANGES MADE AFTER THE COMMENCEMENT OF WORK SHALL BE THE RESPONSIBILITY OF THE CLIENT. THE ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. THE ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT.



TOWN OF MORIAH
 NEW YORK
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 ESSEX

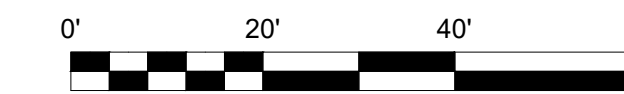
MORIAH WATER & SEWER
 MAIN REPLACEMENT PHASE II
 COVER

C-0



① 2ND LANE EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



PROJECT CONTACTS:
OWNER: TOWN OF MORIAH

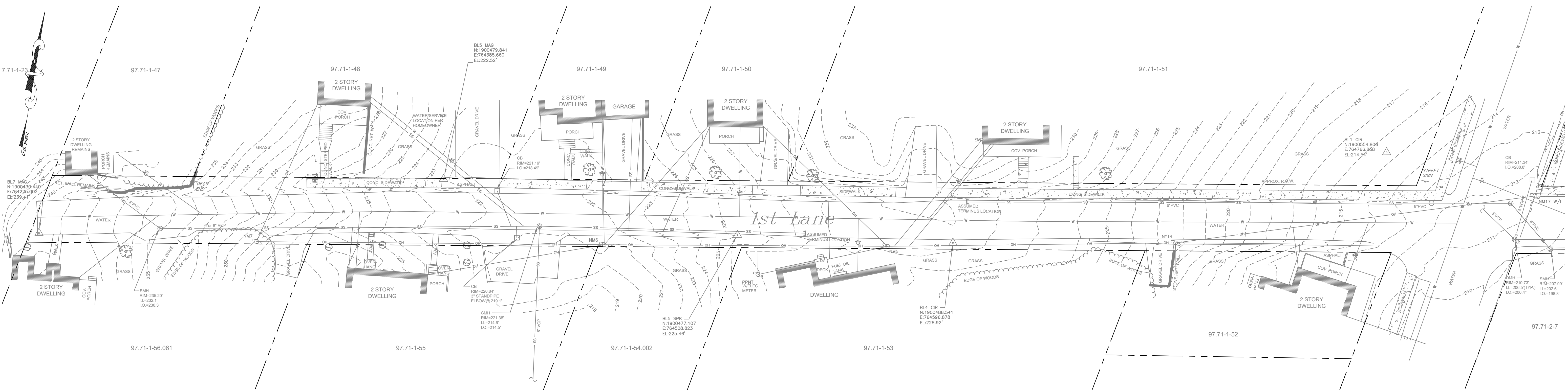
ENGINEER: CEDARWOOD ENGINEERING SERVICES PLLC
3903 MAIN STREET
WARRENSBURG, NY 12885
CONTACT: JONATHAN SOUKUP, P.E.
518-623-5500

SURVEY/REFERENCE MAP NOTES:

1. THE BASE MAP SURVEY HAS BEEN PREPARED FROM A SEPTEMBER 2020 FIELD SURVEY COMPLETED BY S.Y. KIM LAND SURVEYOR, P.C.
2. THE SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN UP-TO-DATE ABSTRACT OF TITLE OR TITLE REPORT AND IS SUBJECT TO ANY STATEMENTS OF FACT THAT SUCH AN ABSTRACT OF TITLE OR TITLE REPORT MAY REVEAL.
3. THE SURVEY IS SUBJECT TO ANY SUBSURFACE CONDITIONS THAT MAY EXIST, IF ANY.
4. PARCEL SUBJECT TO ANY SETBACKS, RESTRICTIONS, RIGHTS-OF-WAY (PUBLIC OR PRIVATE), EASEMENTS (PUBLIC OR PRIVATE), UTILITY EASEMENTS OF RECORD OR OTHERWISE THAT MAY AFFECT THE PREMISES SHOWN, IF ANY.
5. UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND BASED ON UTILITY EVIDENCE VISIBLE AT GROUND SURFACE AND ARE SUBJECT TO FIELD VERIFICATION BY EXCAVATION. UTILITIES SHOWN DO NOT IMPLY TO CONSTITUTE OR REPRESENT ALL UTILITIES UPON OR ADJACENT TO THE SURVEYED AREA. OTHER UTILITIES MAY EXIST, IF ANY.
6. PROPERTY LINES AND R.O.W. SHOWN HEREON ARE APPROXIMATE. NO BOUNDARY RETRACEMENTS WERE PERFORMED BY S.Y. KIM IN THE PREPARATION OF THIS MAP.
7. ALL BEARINGS ARE WITH REFERENCE TO GRID NORTH NEW YORK STATE PLANE COORDINATES, NEW YORK EAST ZONE, NORTH AMERICAN DATUM 1983.
8. ALL ELEVATIONS ARE WITH REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM 1988.

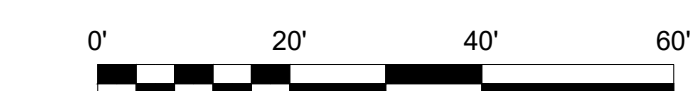
DIG SAFE NOTE:

1. ALL UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLACED ON THIS DRAWING FROM FIELD LOCATIONS, WHERE VISIBLE OR FROM RECORDED DRAWINGS PROVIDED. THEREFORE, LOCATIONS SHOULD BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHER FACILITIES OR UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN. FOR THIS REASON, DIG SAFELY SHALL BE CONTACTED BY THE CONTRACTOR A MINIMUM OF 72 HOURS PRIOR TO ANY UNDERGROUND EXCAVATION.



② 1ST LANE EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



PROJECT INFORMATION:	
DATE:	2/1/2021
SCALE:	1" = 20'
DESIGNED BY:	LJC
DRAWN BY:	LJC
REVIEWED BY:	JMS
PROJECT NO.:	20-027

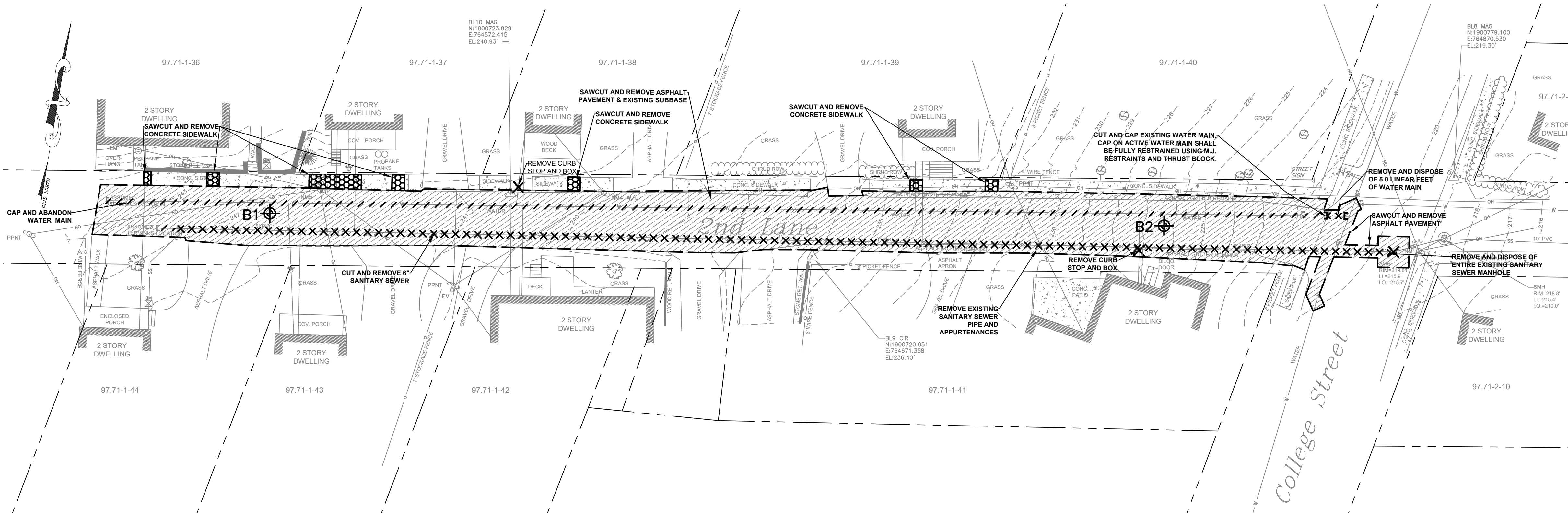
REVISIONS:		
NO.	DATE	DESCRIPTION
1	3/9/21	NYS DEC REVISION 1
2	3/11/21	NYS DOH REVISION 1

ANY CHANGES MADE AFTER THIS DOCUMENT IS RECORDED BY LAW TO BE MADE BY THE ENGINEER AND THE CONTRACTOR. ALL REVISIONS TO BE MADE BY THE ENGINEER AND THE CONTRACTOR. NO REVISIONS TO BE MADE BY THE CONTRACTOR WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.



TOWN OF MORIAH
NEW YORK
TOWN OF MORIAH
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MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
EXISTING CONDITIONS PLAN



① 2ND LANE DEMOLITION PLAN
SCALE: 1" = 20'



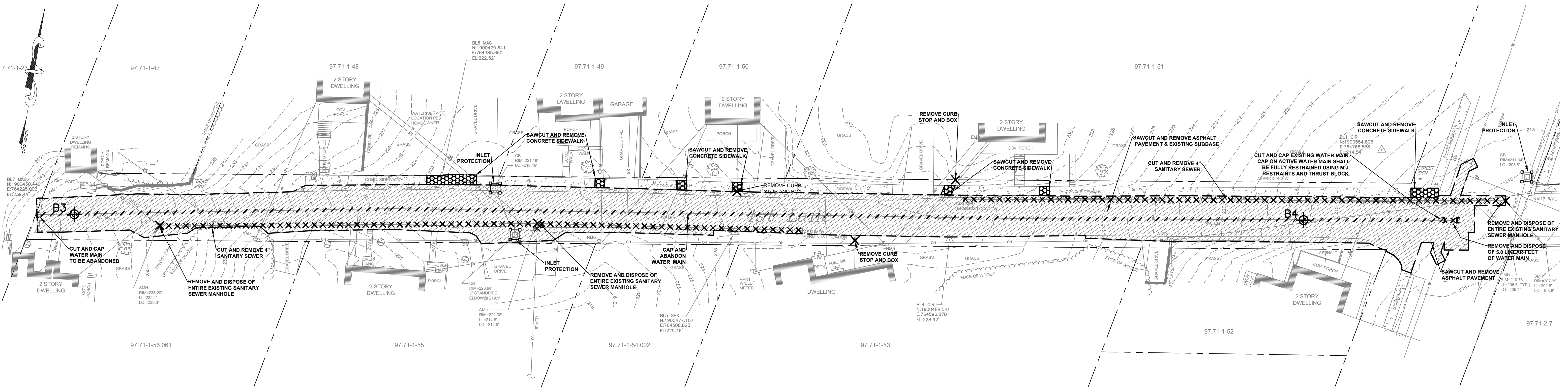
LEGEND

SOIL BORING	B1 ⊕
CAP/PLUG	1
OUT-OF-PAVEMENT INLET PROTECTION	⊠
OBJECT TO BE REMOVED	X
SILT FENCE	SF
UTILITY TO BE ABANDONED	////
UTILITY TO BE REMOVED	XXXXXXXXXX
PAVEMENT SAWCUT	- - - - -
ASPHALT PAVEMENT REMOVAL	▨
CONCRETE SIDEWALK REMOVAL	⊞

PROJECT INFORMATION:	
DATE:	2/1/2021
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DESIGNED BY:	LJC
DRAWN BY:	LJC
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PROJECT NO.:	20-027

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NO.	DATE	DESCRIPTION
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2	3/11/21	NYS DOH REVISION 1

ANY LICENSEE WHO ALTERS THIS DOCUMENT IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF CEDARWOOD ENGINEERING SERVICES PLLC IS SUBJECT TO THE PENALTIES OF THE PROFESSIONAL ENGINEERING LAW AND THE PENALTIES OF THE PROFESSIONAL SURVEYING LAW.

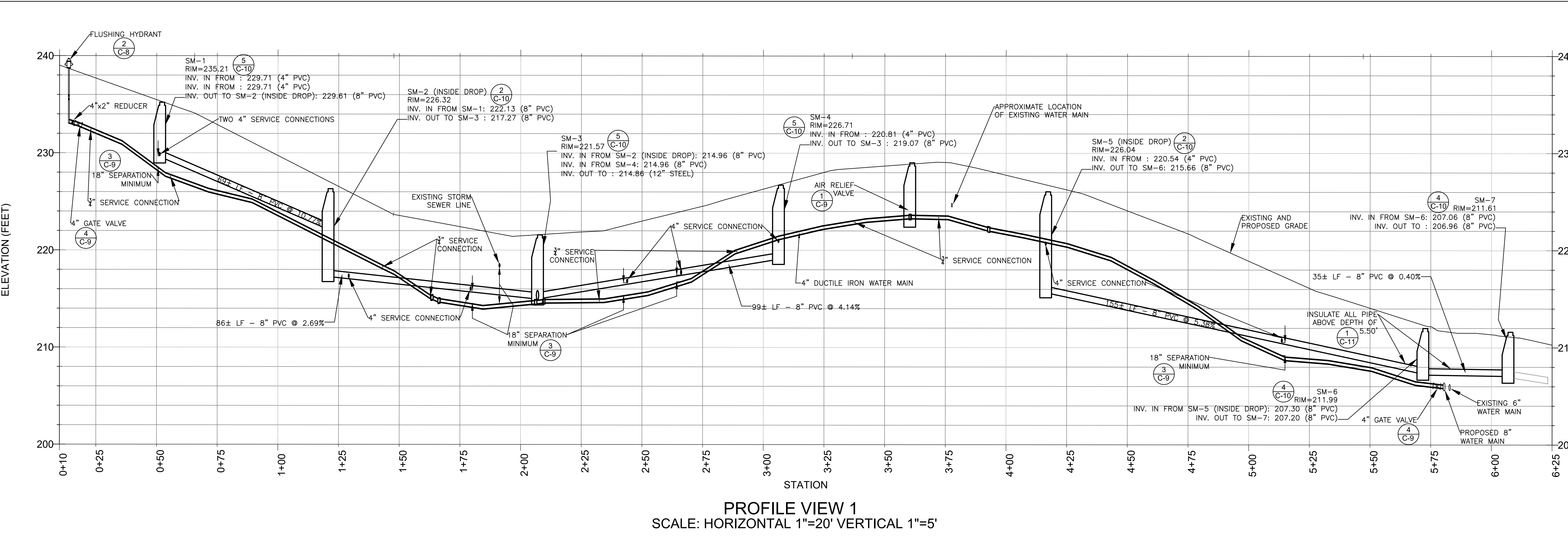
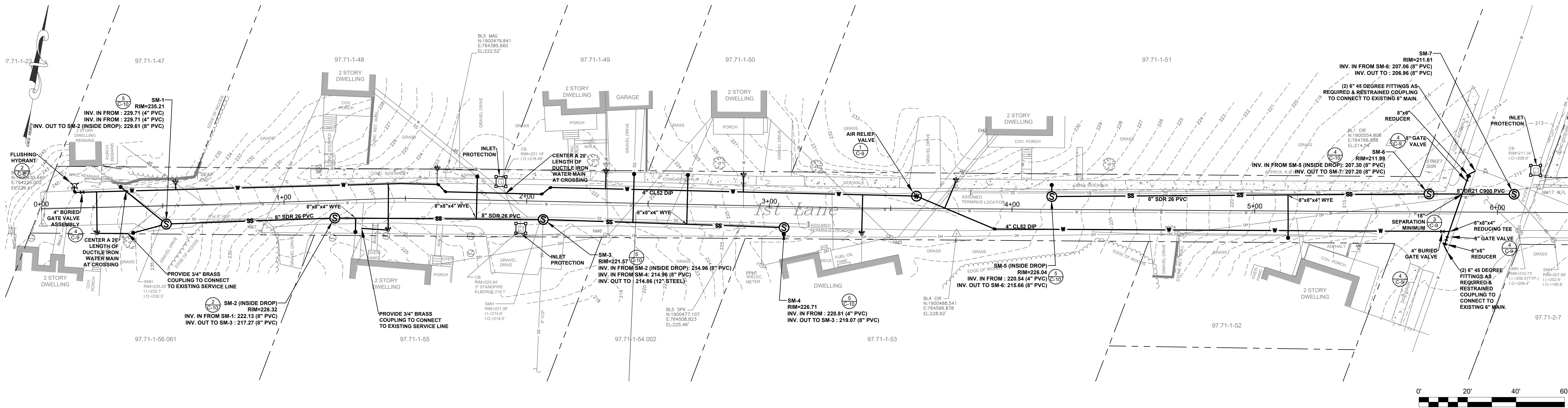


② 1ST LANE DEMOLITION PLAN
SCALE: 1" = 20'



TOWN OF MORIAH
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ESSEX

MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
DEMOLITION PLAN



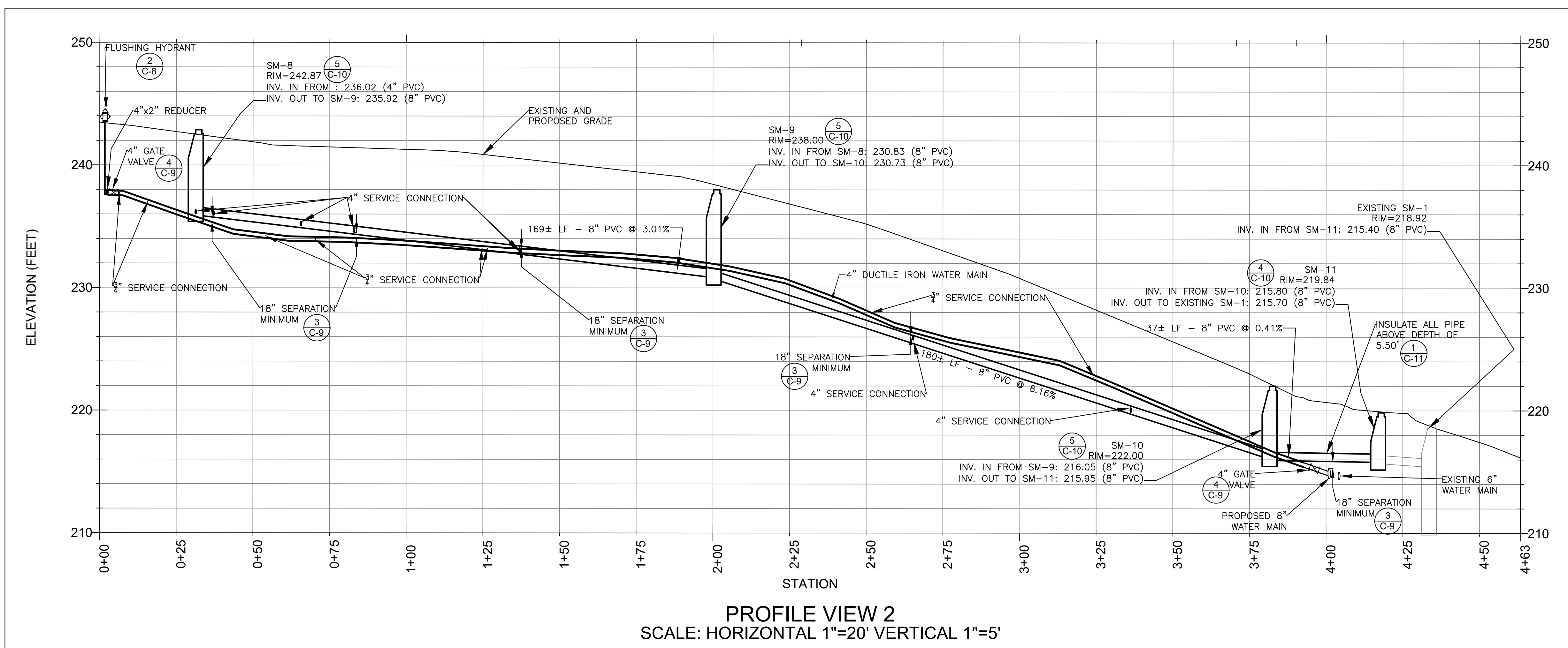
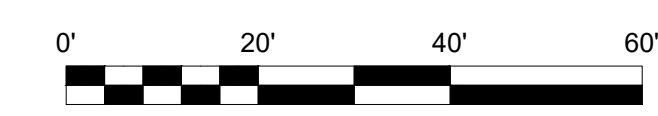
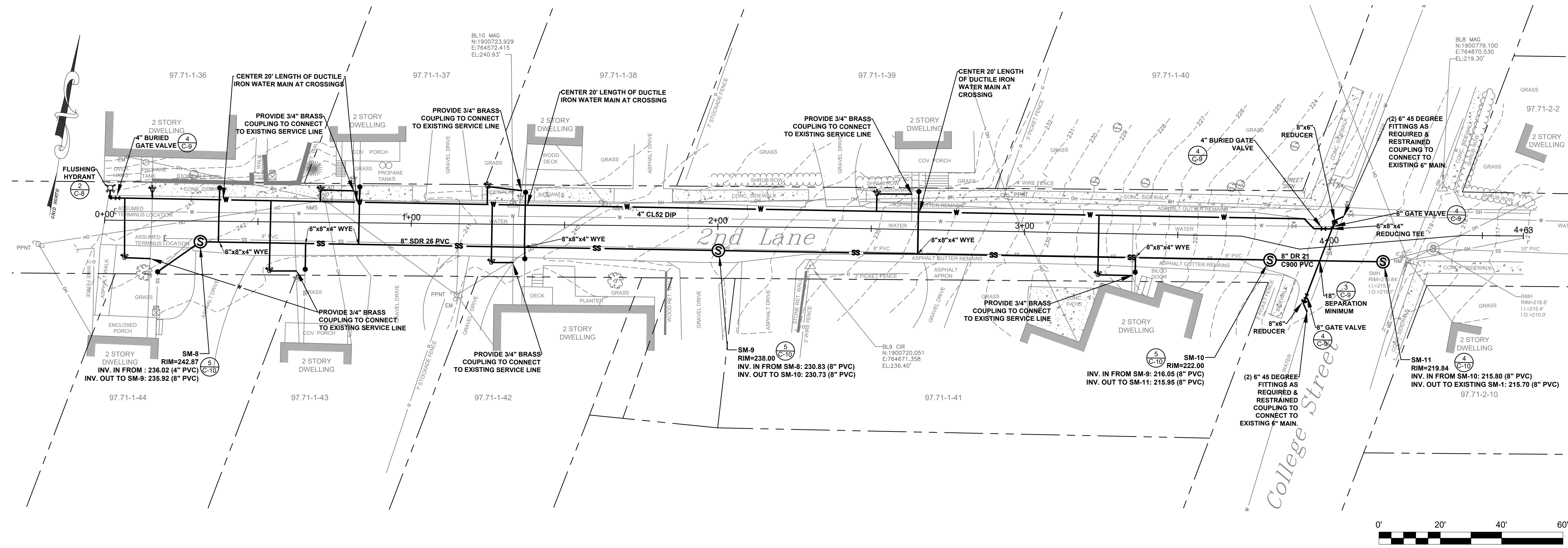
PROFILE VIEW 1
SCALE: HORIZONTAL 1"=20' VERTICAL 1"=5'

PROJECT INFORMATION:	
DATE:	2/1/2021
SCALE:	1" = 20'
DESIGNED BY:	LJC
DRAWN BY:	LJC
REVIEWED BY:	JMS
PROJECT NO.:	20-027



TOWN OF MORIAH
NEW YORK
TOWN OF MORIAH
ESSEX

**MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
1ST LANE PLAN & PROFILE**



PROFILE VIEW 2
SCALE: HORIZONTAL 1"=20' VERTICAL 1"=5'

PROJECT INFORMATION:	
DATE:	2/1/2021
SCALE:	1" = 20'
DESIGNED BY:	LJC
DRAWN BY:	LJC
REVIEWED BY:	JMS
PROJECT NO.:	20-027

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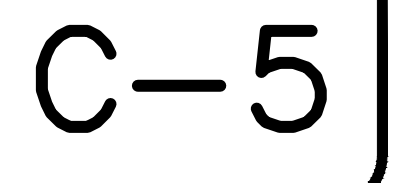
ANY USER WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER NAME AND THE DATE OF SUCH ALTERATION TO THE ORIGINAL DRAWING. IN THE EVENT OF A REVISION TO THIS DOCUMENT, THE REVISION NUMBER AND DATE SHALL BE INDICATED IN THE REVISIONS SECTION OF THIS DOCUMENT BY THE USER. THE USER SHALL BE RESPONSIBLE FOR NOTIFYING THE PROJECT SUPERVISOR OF ANY SUCH ALTERATION.

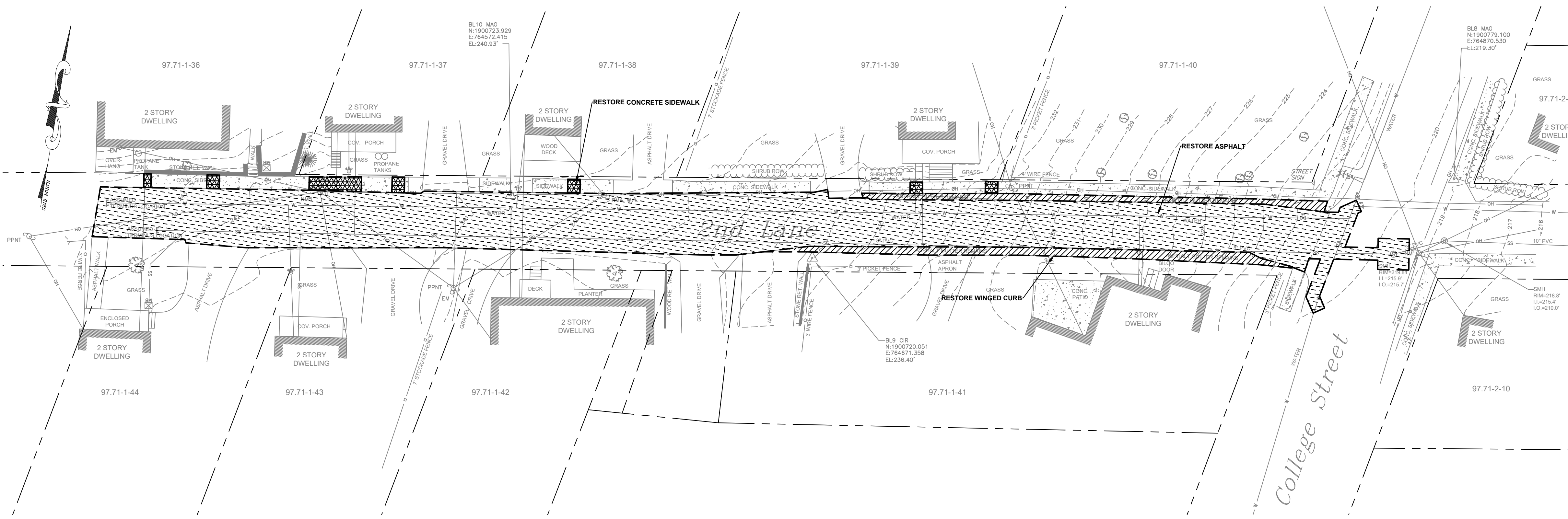


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**MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
2ND LANE PLAN & PROFILE**




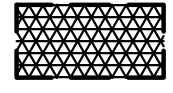


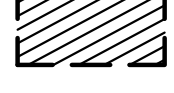
① 2ND LANE SITE REHABILITATION PLAN
SCALE: 1" = 20'

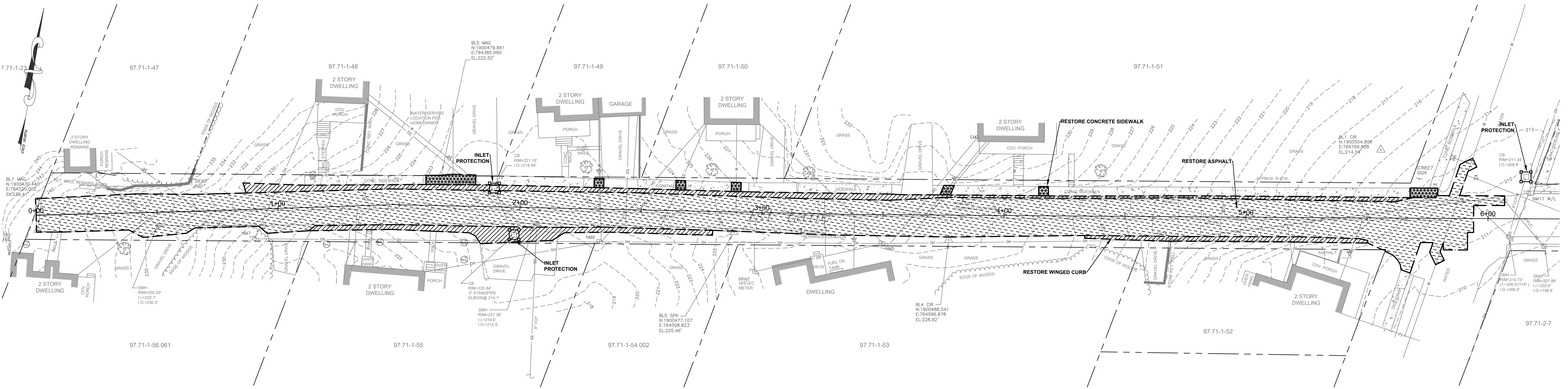


LEGEND

RESTORE ASPHALT 

RESTORE CONCRETE SIDEWALK 

RESTORE WINGED CURB 



② 1ST LANE SITE REHABILITATION PLAN
SCALE: 1" = 20'



PROJECT INFORMATION:	
DATE:	2/1/2021
SCALE:	1" = 20'
DESIGNED BY: LJC	
DRAWN BY: JMS	
REVIEWED BY: JMS	
PROJECT NO.: 20-027	

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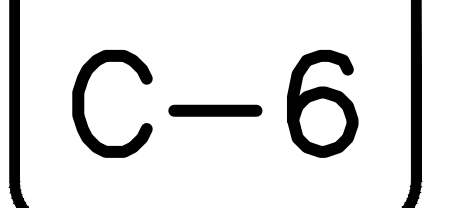
ANY USER WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO NOTIFY CEDARWOOD ENGINEERING SERVICES PLLC BY E-MAIL OR BY MAIL. ANY USER WHO ALTERS THIS DOCUMENT WITHOUT THE WRITTEN PERMISSION OF CEDARWOOD ENGINEERING SERVICES PLLC IS SUBJECT TO PROSECUTION. THIS DOCUMENT IS THE PROPERTY OF CEDARWOOD ENGINEERING SERVICES PLLC AND IS TO BE KEPT IN A SAFE PLACE. IT IS TO BE RETURNED TO CEDARWOOD ENGINEERING SERVICES PLLC UPON COMPLETION OF THE PROJECT.

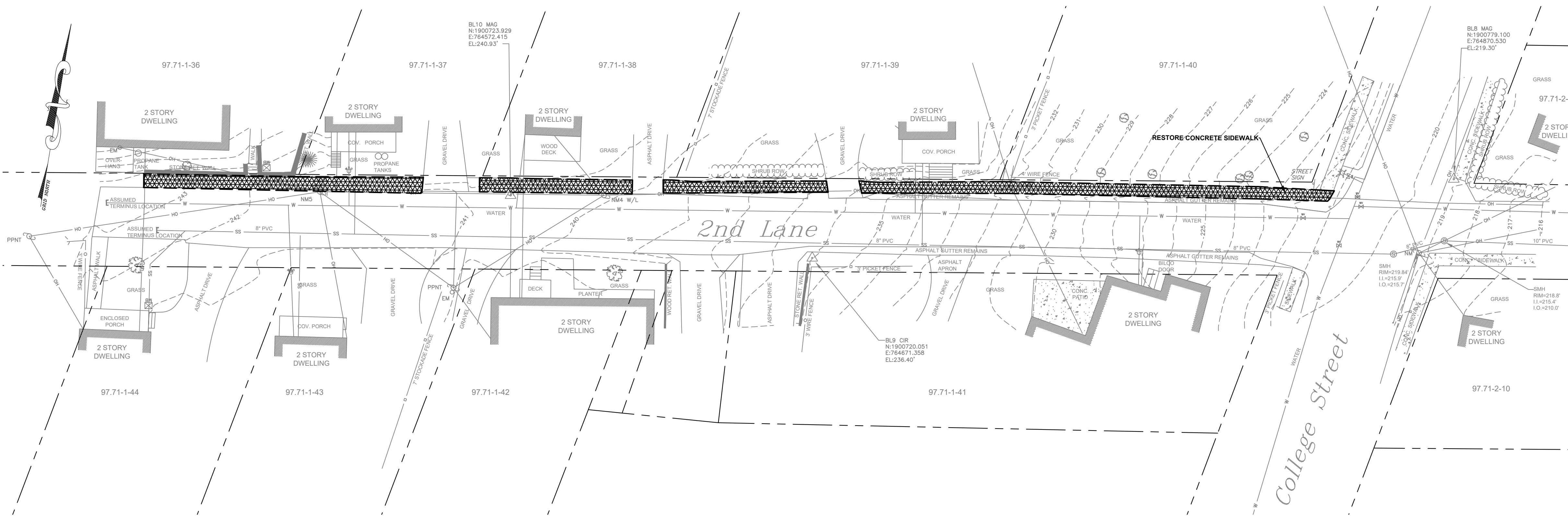


TOWN OF MORIAH
NEW YORK

TOWN OF MORIAH
ESSEX

MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
SITE REHABILITATION PLAN

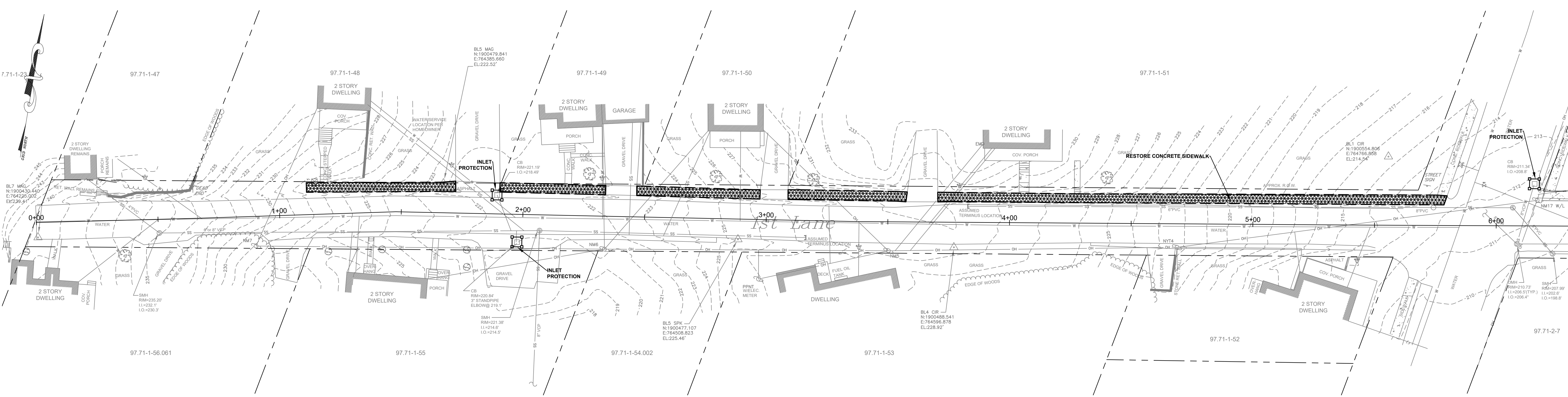




LEGEND

- RESTORE ASPHALT
- RESTORE CONCRETE SIDEWALK
- RESTORE WINGED CURB

1 2ND LANE SITE REHABILITATION PLAN
SCALE: 1" = 20'



2 1ST LANE SITE REHABILITATION PLAN
SCALE: 1" = 20'



PROJECT INFORMATION:

DATE:	2/1/2021
SCALE:	1" = 20'
DESIGNED BY:	LJC
DRAWN BY:	JMS
REVIEWED BY:	JMS
PROJECT NO.:	20-027

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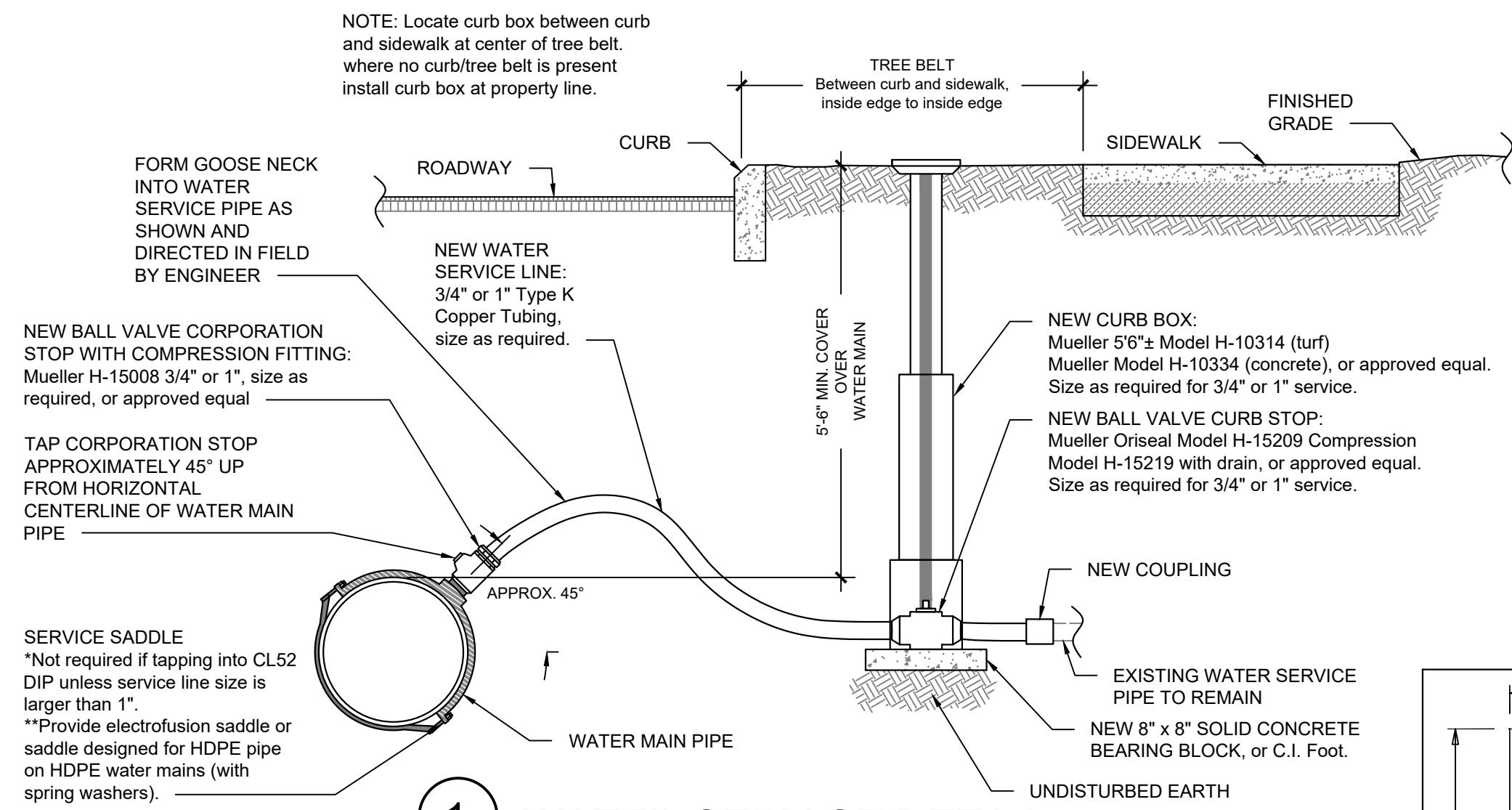
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TOWN OF MORIAH
NEW YORK

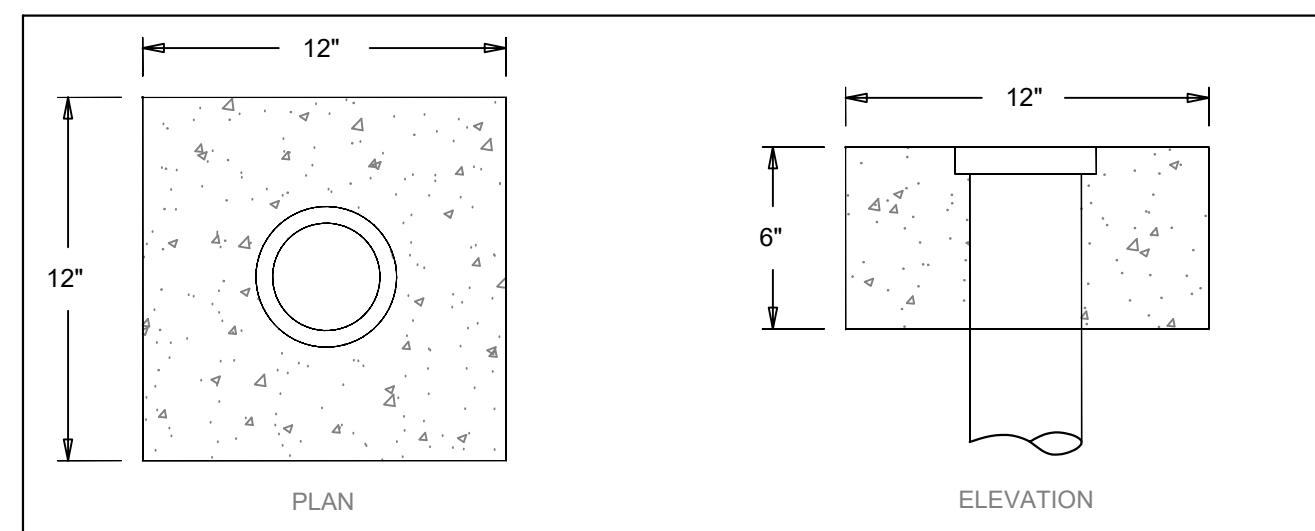
ESSEX

**MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
BID ALTERNATE #1**



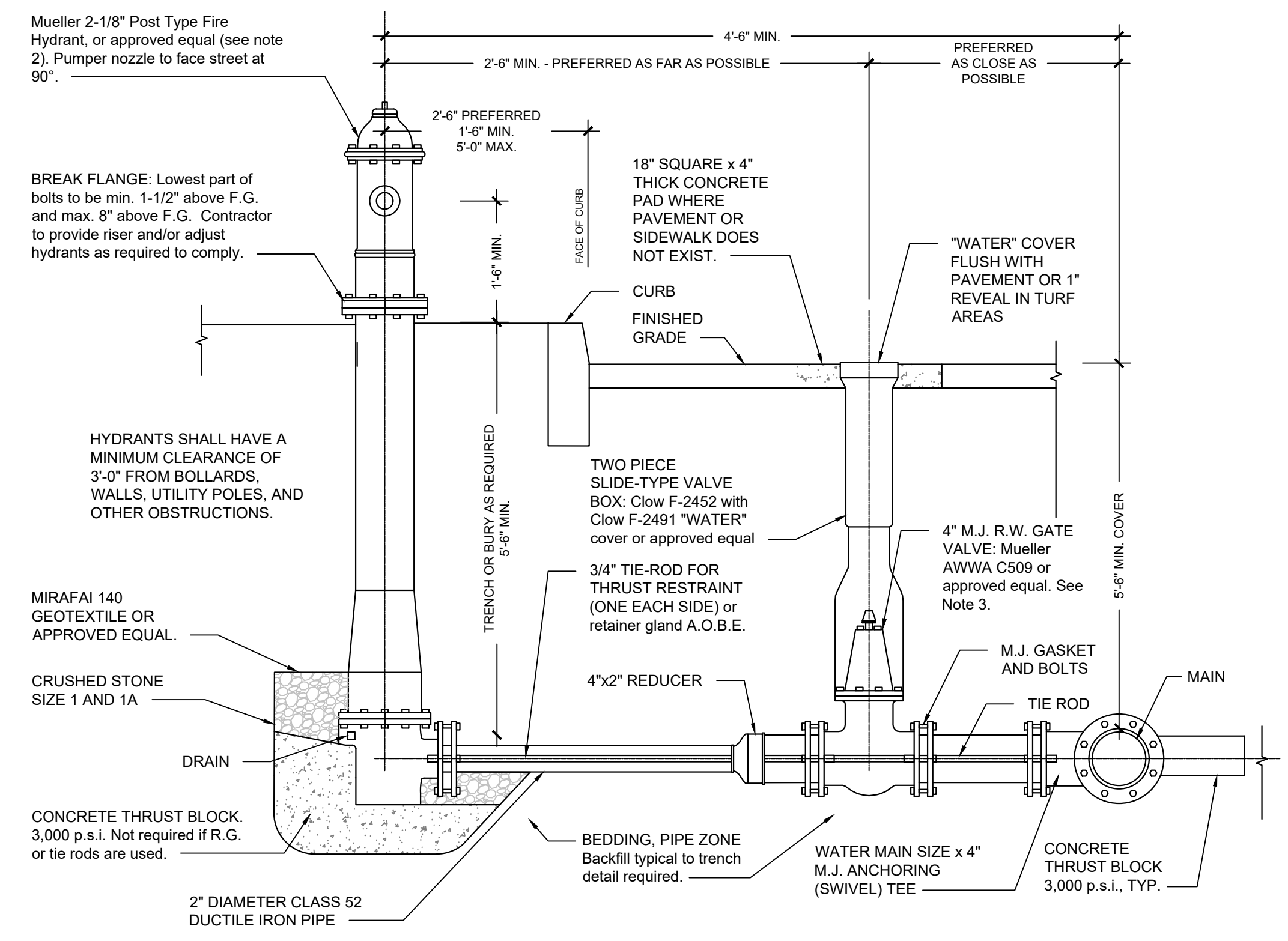
1 WATER SERVICE DETAIL
NTS

- NOTES:**
1. VERIFY WITH OWNER FOR FINAL LOCATION OF NEW WATER SERVICE RELATED ITEMS.
 2. ALL WATER SERVICE WORK SHALL ONLY BE COMPLETED FROM THE WATER MAIN TO THE PROPERTY LINE, AS DIRECTED BY THE ENGINEERING IN THE FIELD.
 3. IF LEAD SERVICE LINES ARE ENCOUNTERED, CONTRACTOR SHALL CEASE WORK BEFORE CUTTING INTO EXISTING SERVICE LINE AND NOTIFY THE OWNER AND ENGINEER IMMEDIATELY. ADDITIONAL WORK TO REPLACE ENTIRE LEAD SERVICE LINE WILL BE REQUIRED, AND A CHANGE ORDER WILL BE COMPLETED PRIOR TO COMMENCING ADDITIONAL WORK.
 4. WATER SERVICE PIPE IS TO HAVE MINIMUM COVER DEPTH OF 5 FEET FROM FINISHED SURFACE.
 5. ALL SERVICE LINES, VALVES, AND FITTINGS SHALL COMPLY WITH AWWA C800.
 6. SEAMLESS COPPER WATER SERVICE PIPE SHALL BE TYPE K AND COMPLY WITH ASTM B88.
 7. ALL BRASS COMPONENTS SHALL BE "NO LEAD" BRASS MEETING UNS C89833 AS PER ASTM B584.
 8. WATER SERVICE TAP IS TO BE MADE ON CUSTOMER SIDE OF WATER MAIN PIPE.
 9. WATER SERVICE PIPE IS TO BE RUN PERPENDICULAR TO WATER MAIN PIPE.
 10. FOR WATER SERVICE PIPE 1-1/2 INCHES AND LARGER, ADD CURB BOX ARCH TO CURB BOX.
 11. WARNING TAPE MUST BE INSTALLED WITH ALL OPEN CUT TRENCHED WATER SERVICE PIPE INSTALLATIONS.
 12. USE RIGID TEES FOR ALL SERVICE CONNECTIONS LARGER THAN 2 INCHES.
 13. DIRECTIONAL DRILLED WATER SERVICE NOTES:
 - 13.1. TRACER WIRE MUST BE INSTALLED FOR PLASTIC WATER SERVICE PIPE.
 - 13.2. DIRECTIONAL DRILLED SERVICE CONNECTIONS SHALL UTILIZE SDR-9 CTS HDPE, STAINLESS STEEL INSERT STIFFENERS SHALL BE UTILIZED FOR CONNECTIONS TO COMPRESSION FITTINGS (E.G.: CURB STOP AND CORPORATION TAP FITTINGS).



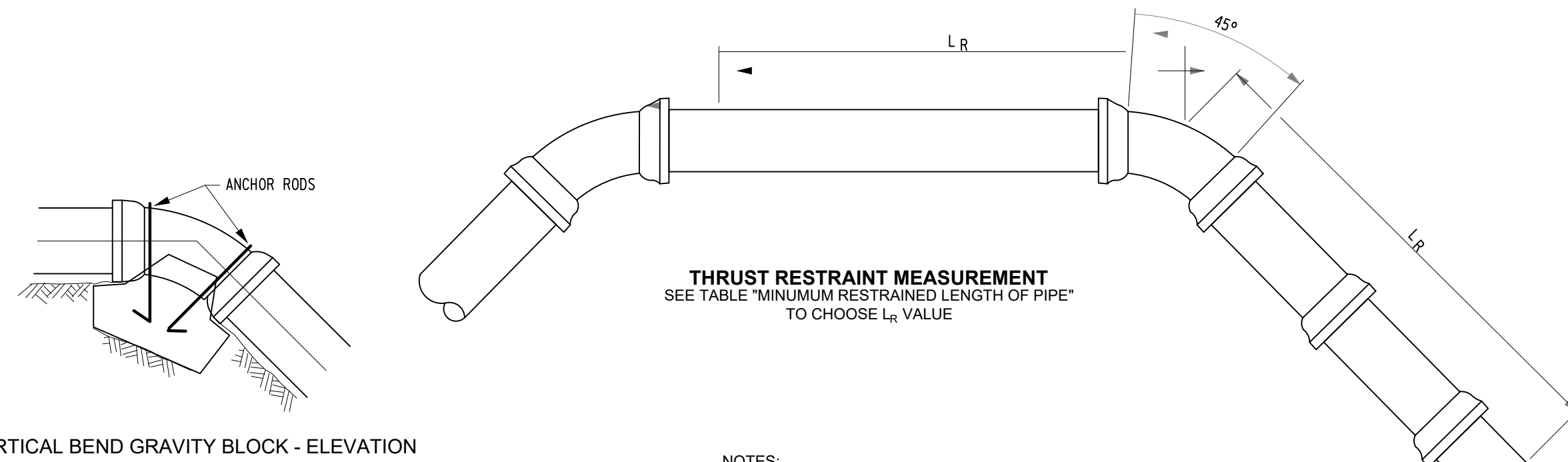
2 DRIVEWAY CURB STOP ENCASEMENT
NTS

- NOTE:**
1. CONCRETE ENCASEMENT TO BE USED ON ALL CURB STOPS LOCATED IN DRIVEWAYS.



3 FLUSHING HYDRANT ASSEMBLY DETAIL
NTS

- NOTES:**
1. VERIFY WITH OWNER AND LOCAL FIRE DISTRICT FOR FINAL LOCATIONS OF ALL NEW HYDRANTS.
 2. HYDRANT WEEPHOLES MUST BE PLUGGED IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION. HYDRANTS SHALL BE PUMPED AND DRAINED AFTER USE WHEN WEEPHOLES ARE PLUGGED.
 3. CONTRACTOR SHALL PROVIDE RISERS AS REQUIRED TO ADJUST HYDRANT TO GRADE.
 4. MAINS SHALL BE CLASS 52 DIP AND VALVED TO INSURE THAT WATER FLOW IS NOT INTERRUPTED TO MORE THAN TWO HYDRANTS AT ANY GIVEN TIME.
 5. HYDRANTS SHALL BE MUELLER 2-1/8\"/>



MINIMUM GRAVITY BLOCK VOLUMES FOR VERTICAL BENDS (CU.FT.)

FITTING	4 NPS	6 NPS	8 NPS	10 NPS	12 NPS	14 NPS	16 NPS	18 NPS	20 NPS	24 NPS
11 1/2"	4	11	18	25	35	46	60	74	92	131
22 1/2"	11	18	32	49	67	92	120	148	184	261
45°	18	35	64	95	134	180	233	293	360	512
90°	32	67	117	177	247	332	431	540	664	950

MINIMUM RESTRAINED LENGTH OF PIPE (Lr)

FITTING	VERTICAL UPWARD BENDS - NPS (FT.)									
	4 NPS	6 NPS	8 NPS	10 NPS	12 NPS	14 NPS	16 NPS	18 NPS	20 NPS	24 NPS
11 1/2"	1.5	2.0	3.0	3.0	4.0	4.0	5.0	5.0	6.0	6.5
22 1/2"	1.5	2.0	3.0	3.0	4.0	4.0	5.0	5.0	6.0	7.0
45°	3.0	4.0	5.5	6.5	8.0	9.0	10.0	10.5	11.5	13.5
90°	7.0	10.0	12.5	15.5	18.5	20.5	23.0	26.0	28.0	32.5

FITTING	VERTICAL DOWNWARD BENDS - NPS (FT.)									
	4 NPS	6 NPS	8 NPS	10 NPS	12 NPS	14 NPS	16 NPS	18 NPS	20 NPS	24 NPS
11 1/2"	3.5	5.0	6.5	8.0	9.5	10.5	12.0	13.0	14.5	17.0
22 1/2"	7.0	10.0	13.0	15.5	18.5	21.0	24.0	26.5	29.0	34.0
45°	14.5	20.5	27.0	32.5	38.5	44.0	49.0	54.5	60.0	70.0
90°	35.0	49.5	64.0	78.0	92.0	105.0	118.5	131.5	144.5	169.0

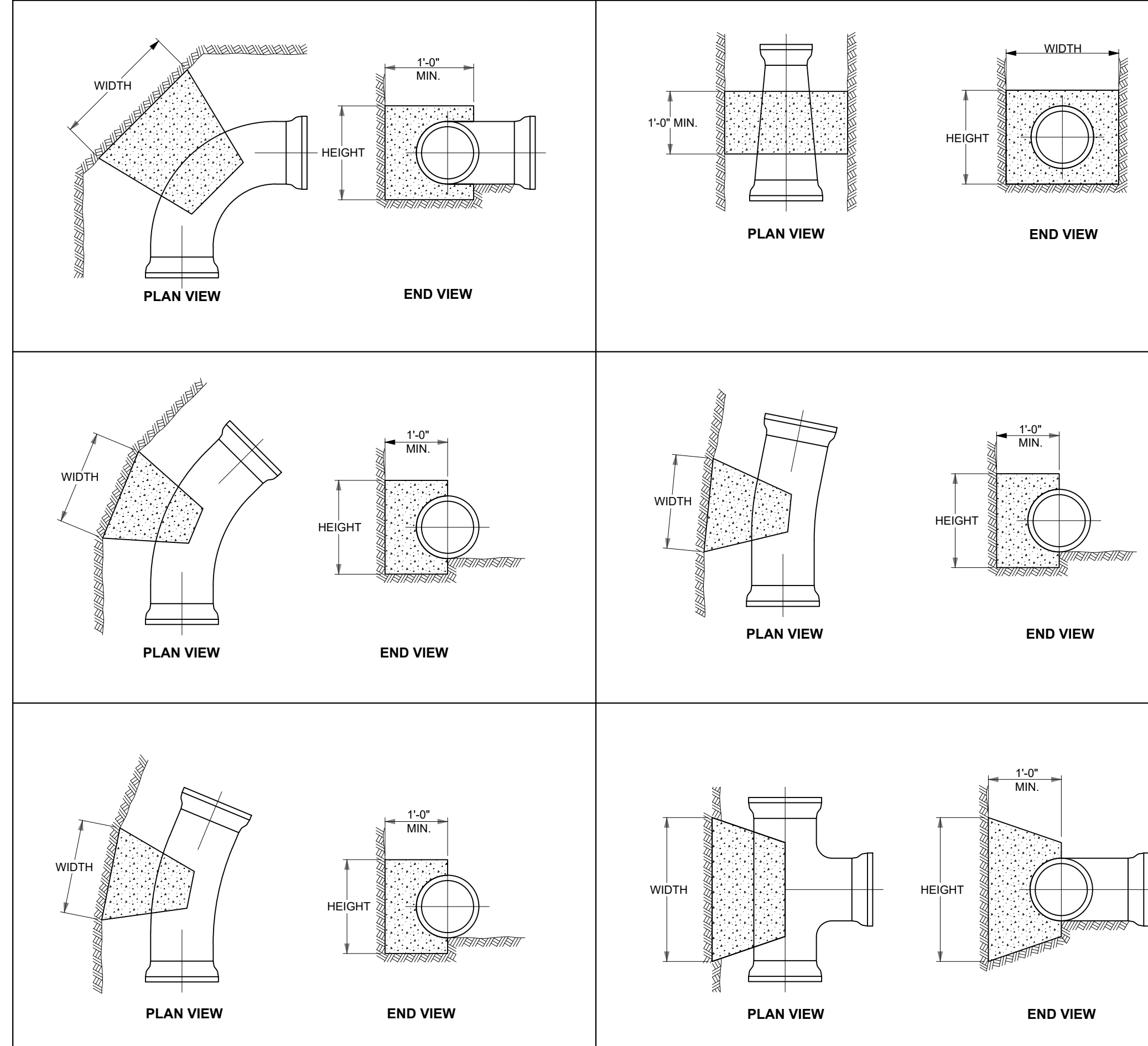
NOTE: FOR POLYETHYLENE WRAPPED PIPE, MULTIPLY VALUES IN TABLE BY 1.45
NOTE: FOR PVC PIPE MULTIPLY VALUES IN TABLE BY 1.15

ANCHOR ROD SCHEDULE FOR GRAVITY BLOCKS

PIPE SIZE	RODS	MIN. EMBEDMENT LENGTH
4 NPS	1 - (3)	6"
6 NPS	1 - (3)	6"
8 NPS	2 - (4)	6"
10 NPS	2 - (4)	6"
12 NPS	2 - (5)	7"
14 NPS	2 - (6)	8"
16 NPS	2 - (6)	8"
18 NPS	2 - (7)	10"
20 NPS	2 - (8)	11"
24 NPS	2 - (9)	12"

NUMBERS IN PARENTHESES ARE BAR SIZES MARKED IN EIGHTHS OF INCHES

- NOTES:**
1. SEE SPECIAL NOTES ENTITLED "OWNER REQUIREMENTS FOR WATER MAINS AND APPURTENANCES" FOR INFORMATION ON ADDITIONAL THURST RESTRAINT REQUIREMENTS.
 2. THURST RESTRAINT USING THURST BLOCKS OR RESTRAINED LENGTHS ARE SHOWN ON THESE SHEETS. THURST BLOCKS, RESTRAINED JOINTS USING TIE RODS, OR RETAINER GLANDS ARE ALL ACCEPTABLE METHODS TO NYSOT. HOWEVER, THE THURST RESTRAINT METHOD SELECTED SHALL BE APPROVED BY THE SYSTEM OWNER.
 3. IF THE OWNER OF THE WATER SYSTEM REQUIRES A METHOD THAT RESTRAINS INDIVIDUAL JOINTS, EACH JOINT THAT FALLS WITHIN THE MINIMUM RESTRAINED LENGTH, MEASURED FROM THE CENTER OF THE FITTING, AS SHOWN ON THESE SHEETS SHALL BE RESTRAINED, AND SHALL WITHSTAND THE MAXIMUM PRESSURE APPLIED TO THE SYSTEM.
 4. CLASS A CONCRETE SHALL NOT BE PLACED UNDER WATER. THE CONTRACTOR SHALL DEWATER THE EXCAVATION OR PLACE TYPE "G" CONCRETE USING APPROPRIATE UNDERWATER PLACEMENT TECHNIQUES.
 5. CONCRETE FOR THURST BLOCKS SHALL NOT BE ALLOWED TO COVER OR INTERFERE WITH JOINT OR RESTRAINT HARDWARE. PLASTIC SHEETING OR BUILDING FELT MAY BE PLACED OVER PIPE OR FITTINGS TO PREVENT CONCRETE FROM ADHERING TO SURFACES. CONCRETE FOR THURST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
 6. THURST BLOCK ANCHOR RODS SHALL MEET THE REQUIREMENTS OF §708-03 OF THE STANDARD SPECIFICATIONS. ALL EMBEDDED RODS SHALL HAVE STANDARD ACI HOOKS ON EACH END, AND SHALL HAVE A MINIMUM OF 3" CONCRETE COVER IN ALL DIRECTIONS.
 7. THURST RESTRAINTS FOR SIZES OVER 24 NPS OR FOR FITTINGS NOT SHOWN ON THESE SHEETS WILL BE AS SHOWN IN THE CONTRACT DOCUMENTS.
 8. THURST BLOCK SIZES AND MINIMUM RESTRAINED LENGTHS SHOWN ON THESE SHEETS ARE BASED UPON THE FOLLOWING ASSUMED CONDITIONS:
 - 1.5 - SAFETY FACTOR
 - 5'-0" - DEPTH OF COVER
 - 200 PSI - WATER SYSTEM TEST PRESSURE
 - 30° SOIL FRICTION ANGLE
 - 90 LB/CF - SOIL UNIT WEIGHT
 - IF SOILS ARE POORER THEN REFER TO REFERENCES
 9. FOR INSTALLATIONS NOT MEETING THE CONDITIONS OF NOTE 8, THE CONTRACTOR SHALL SUBMIT CALCULATIONS TO THE ENGINEER FOR APPROVAL OF RESTRAINT LENGTH CHOSEN.
 10. TO DETERMINE REQUIRED SIZES FOR DIFFERENT TEST PRESSURES, MULTIPLY THE DIMENSION BY A FACTOR OF THE SPECIFIC VALUE DIVIDED BY THE STANDARD VALUE.
- EXAMPLES: GRAVITY BLOCK VOLUME FOR 12 NPS 45° BEND WITH 100 PSI TEST PRESSURE:
- WIDTH = 3'-3"
HEIGHT = 1'-7"
VOLUME REQUIRED 134 CF X (100/200) = 67 CF
- REFERENCES:
DUCTILE IRON PIPE RESEARCH ASSOCIATION
EBAI IRON CONNECTIONS TECHNICAL DATA SERIES



4 HORIZONTAL THURST RESTRAINT DETAILS (DOT STD. DETAIL REFERENCE 663-02)
NTS

- NOTES:**
1. SEE SPECIAL NOTES ENTITLED "OWNER REQUIREMENTS FOR WATER MAINS AND APPURTENANCES" FOR INFORMATION ON ADDITIONAL THURST RESTRAINT REQUIREMENTS.
 2. THURST RESTRAINT USING THURST BLOCKS OR RESTRAINED LENGTHS ARE SHOWN ON THESE SHEETS. THURST BLOCKS, RESTRAINED JOINTS USING TIE RODS, OR RETAINER GLANDS ARE ALL ACCEPTABLE METHODS TO NYSOT. HOWEVER, THE THURST RESTRAINT METHOD SELECTED SHALL BE APPROVED BY THE SYSTEM OWNER.
 3. IF THE OWNER OF THE WATER SYSTEM REQUIRES A METHOD THAT RESTRAINS INDIVIDUAL JOINTS, EACH JOINT THAT FALLS WITHIN THE MINIMUM RESTRAINED LENGTH, MEASURED FROM THE CENTER OF THE FITTING, AS SHOWN ON THESE SHEETS SHALL BE RESTRAINED, AND SHALL WITHSTAND THE MAXIMUM PRESSURE APPLIED TO THE SYSTEM.
 4. CLASS A CONCRETE SHALL NOT BE PLACED UNDER WATER. THE CONTRACTOR SHALL DEWATER THE EXCAVATION OR PLACE TYPE G CONCRETE USING APPROPRIATE UNDERWATER PLACEMENT TECHNIQUES.
 5. CONCRETE FOR THURST BLOCKS SHALL NOT BE ALLOWED TO COVER OR INTERFERE WITH JOINT OR RESTRAINT HARDWARE. PLASTIC SHEETING OR BUILDING FELT MAY BE PLACED OVER PIPE OR FITTINGS TO PREVENT CONCRETE FROM ADHERING TO SURFACES. CONCRETE FOR THURST BLOCKS SHALL BE POURED AGAINST UNDISTURBED SOIL.
 6. FOR BENDS, BEARING AREA SHALL BE PARALLEL TO THE EDGE OF THE FITTING AT THE FITTING MIDPOINT.
 7. FOR TEES, BEARING AREA SHALL BE PERPENDICULAR TO THE BRANCH (SINGLE LEG) AXIS.
 8. FOR REDUCERS, BEARING AREA SHALL BE PERPENDICULAR TO THE FITTING AXIS. THE MINIMUM THICKNESS ALONG THE FITTING AXIS SHALL BE 1'-0" OR THE LENGTH BETWEEN THE BELLS, WHICHEVER IS SMALLER.
 9. THURST RESTRAINTS FOR SIZES OVER 24 NPS OR FOR FITTINGS NOT SHOWN ON THESE SHEETS WILL BE DESIGNED ON A CASE BY CASE BASIS, AND WILL BE SHOWN IN THE CONTRACT DOCUMENTS.
 10. THURST BLOCK SIZES AND MINIMUM RESTRAINED LENGTHS SHOWN ON THESE SHEETS ARE BASED UPON THE FOLLOWING STANDARD CONDITIONS:
 - 1.5 - SAFETY FACTOR
 - 5'-0" - DEPTH OF COVER
 - 200 PSI - WATER SYSTEM TEST PRESSURE
 - 14 PSI - SOIL BEARING CAPACITY
 - 90 LB/CF - SOIL UNIT WEIGHT
 11. FOR INSTALLATIONS NOT MEETING THE CONDITIONS OF NOT 10, THE CONTRACTOR SHALL SUBMIT CALCULATIONS TO THE ENGINEER FOR APPROVAL OF RESTRAINT LENGTH CHOSEN.
 12. TO DETERMINE REQUIRED SIZES FOR DIFFERENT CONDITIONS, MULTIPLY THE DIMENSION BY A FACTOR OF THE SPECIFIC VALUE DIVIDED BY THE STANDARD VALUE.
- EXAMPLE: FIND THURST BLOCK DIMENSION FOR 12 NPS 45° BEND WITH 100 PSI TEST PRESSURE:
- FROM TABLE "45° BEND THURST BLOCK DIMENSIONING",
AREA REQUIRED AT 200 PSI IS 4'-6" X 2'-3" = 10.125 SF
FOR 100PSI, AREA = 10.125 X (100/200) = 5.06 SF
USE WIDTH = 3'-6", HEIGHT = 1'-6" (AREA = 5.25 SF)
- | FITTING | MINIMUM RESTRAINED LENGTH OF PIPE (FT-IN) Lr | | | | | | | | | |
|--------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 4 NPS | 6 NPS | 8 NPS | 10 NPS | 12 NPS | 14 NPS | 16 NPS | 18 NPS | 20 NPS | 24 NPS |
| 11 1/2" BEND | 1'-3" | 2'-0" | 2'-6" | 3'-0" | 3'-6" | 4'-0" | 4'-6" | 5'-0" | 5'-6" | 6'-3" |
| 22 1/2" BEND | 1'-3" | 2'-0" | 2'-6" | 3'-0" | 3'-6" | 4'-0" | 4'-6" | 5'-0" | 5'-6" | 6'-6" |
| 45° BEND | 3'-0" | 4'-0" | 5'-3" | 6'-3" | 7'-6" | 8'-6" | 9'-6" | 10'-6" | 11'-6" | 13'-6" |
| 90° BEND | 7'-0" | 9'-9" | 12'-6" | 15'-6" | 18'-0" | 20'-0" | 23'-0" | 25'-6" | 28'-0" | 32'-6" |
| DEAD END | 8'-6" | 12'-6" | 16'-0" | 19'-3" | 23'-0" | 26'-0" | 29'-6" | 33'-0" | 36'-0" | 42'-0" |
- NOTE: PVC PIPE WILL TYPICALLY HAVE SLIGHTLY GREATER RESTRAINED LENGTH
NOTE: FOR POLYETHYLENE WRAPPED PIPE, MULTIPLY VALUES IN TABLE BY 1.45

3 VERTICAL THURST RESTRAINT DETAILS (DOT STD. DETAIL REFERENCE 663-03)
NTS

PROJECT INFORMATION:

NO.	DATE	DESCRIPTION
1	3/9/21	NYS DEC REVISION 1
2	3/11/21	NYS DOB REVISION 1

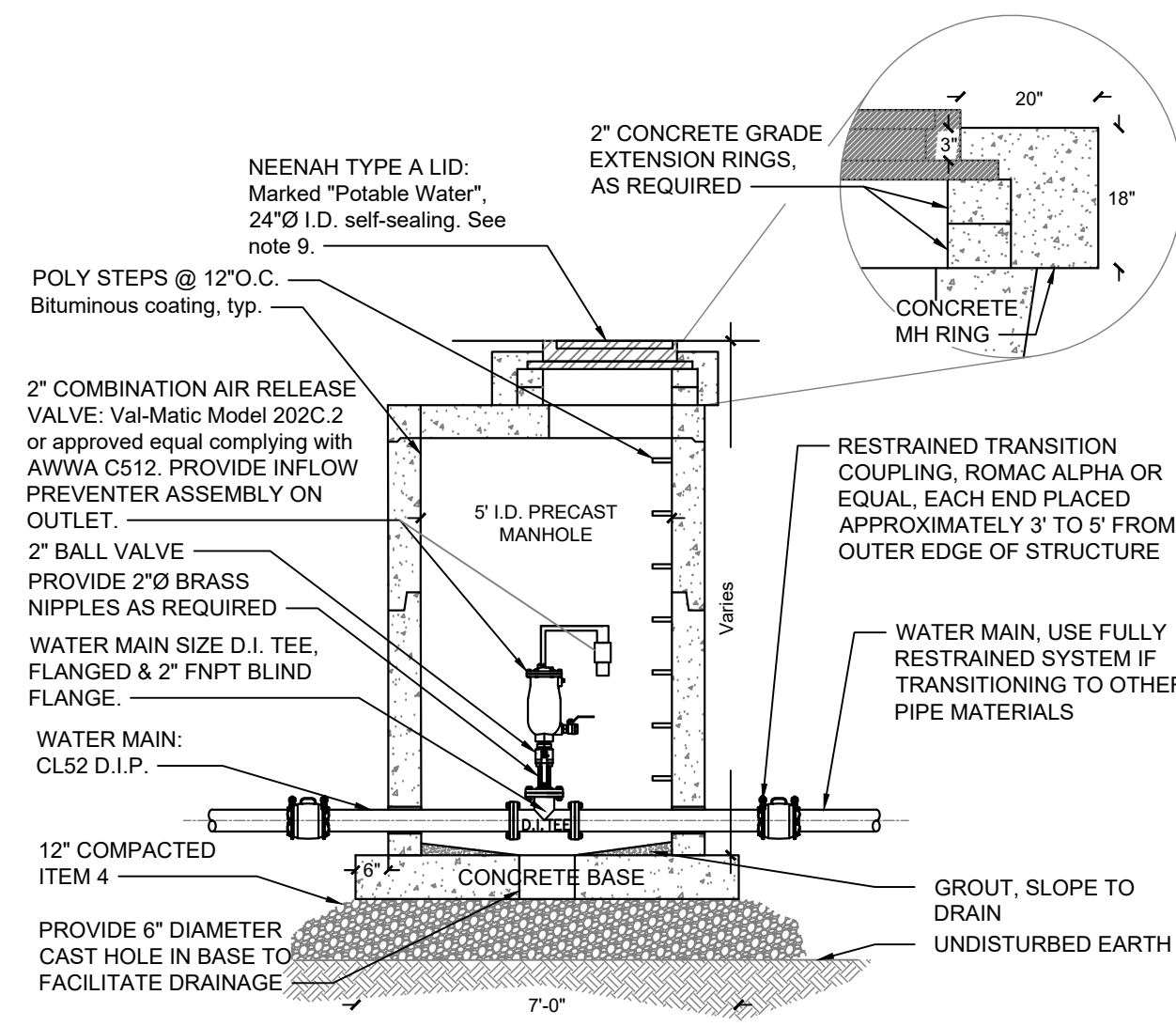
DESIGNED BY: LJC
DRAWN BY: LJC
REVIEWED BY: JMS
PROJECT NO.: 20-027

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TOWN OF MORIAH
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MORIAH WATER & SEWER MAIN REPLACEMENT PHASE II WATER DETAILS

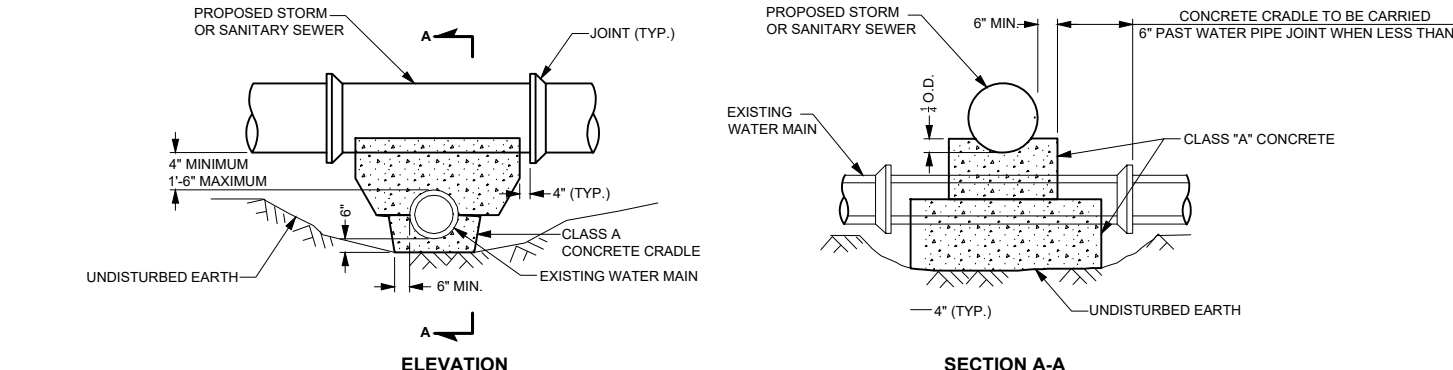


1 AIR RELIEF VALVE DETAIL
NTS

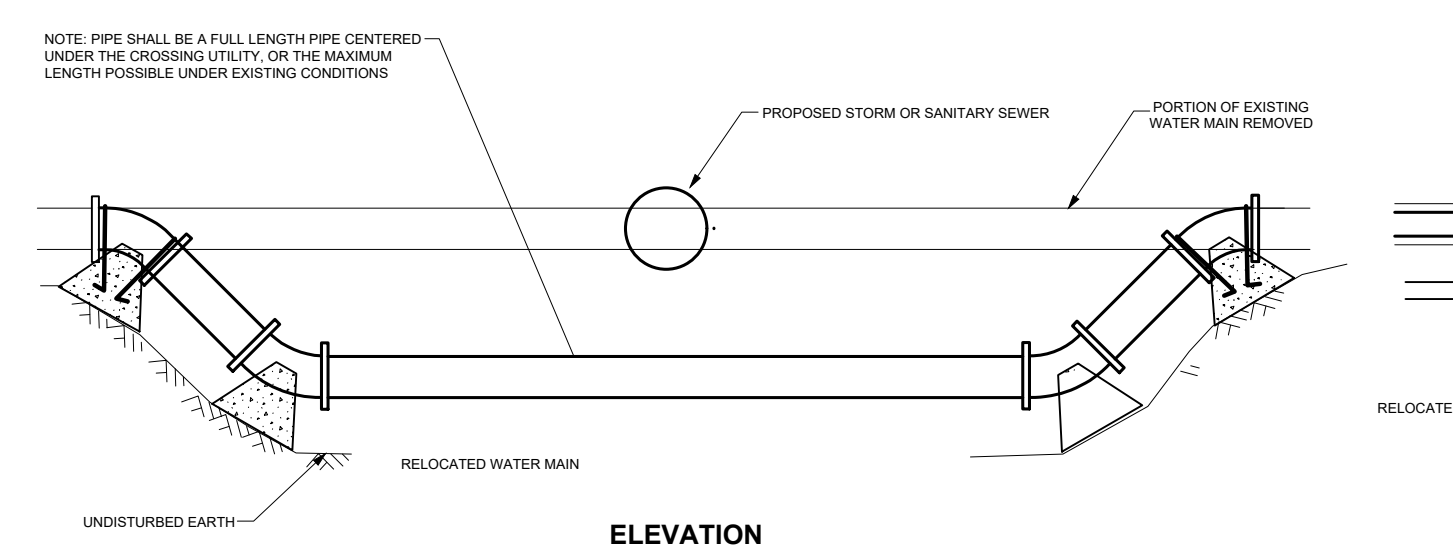
PRECAST CONCRETE MANHOLE NOTES:

- Concrete and reinforcement per ASTM C478-85A
- Design case: AASHTO H20-44 live load traffic loading
- Concrete: 4000 psi
- Reinforcement: ASTM A615 Grade 60 and ASTM A185 Grade 65
- Entrained air: 5.5 to 9.5%
- Base unit: extended monolithic (6" extension around outer perimeter of manhole)
- Joint sealants: o-ring or butyl joints
- Pipe-to-manhole connections: watertight: A-Lok, Kor-n-Seal or equal. For core bores, use Link Seal flexible connectors by PSI Inc., Pipe Seal by Flexicraft Industries, or equal.
- Frame & cover: AASHTO H20 loading, cast iron with round flange, 24" diameter clear opening and no vent holes with cover imprinted "WATER" as manufactured by Campbell Foundry Company (pattern 1030), Neenah R1556, EJ (model 1203) or equal.
- Other dimensions (see table)
- Acceptable precast manufacturers: Fort Miller Company, Inc., Binghamton Precast, or approved equal.

ITEM	5'-0" I.D. MANHOLE
BASE UNIT THICKNESS	8"
BASE UNIT WALL THICKNESS	6"
BASE UNIT HEIGHT	2'-0" MIN., 5'-6" MAX
BARREL WALL THICKNESS	6"
BARREL HEIGHT	1'-0" MIN., 5'-0" MAX
COVER THICKNESS	1'-1"
TOP OPENING	24"
JOINT HEIGHT	5", TYP.
STEPS	12" ON CENTER
COVER	FLAT TOP SLAB

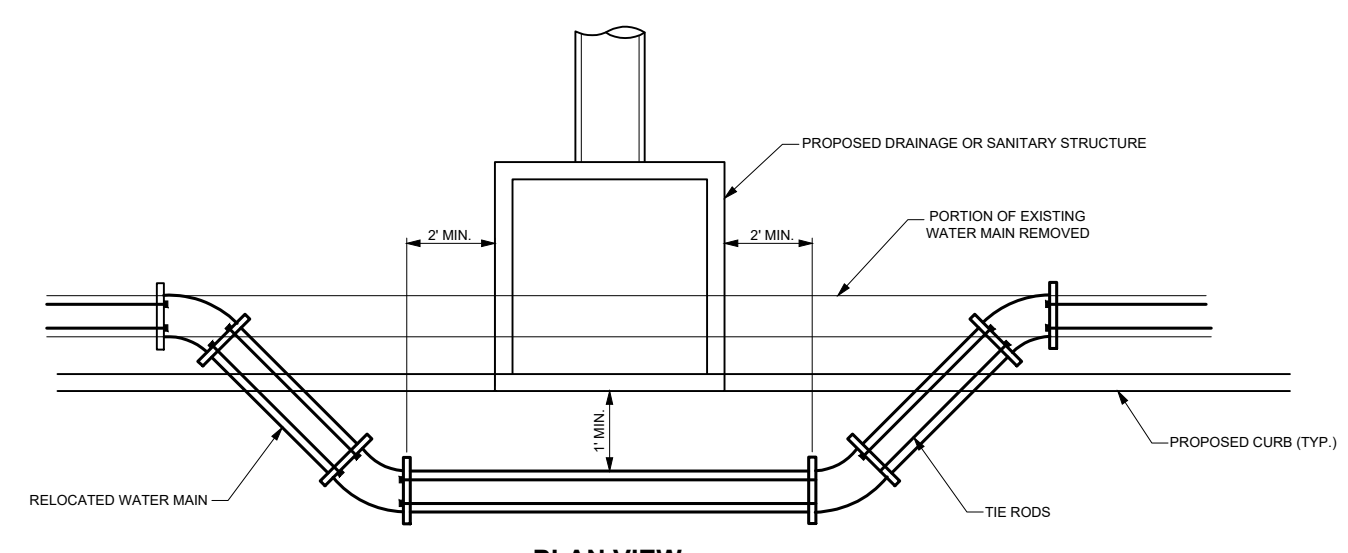


UTILITY CROSSING - VERTICAL OBSTRUCTION LACKING REQUIRED VERTICAL OFFSET
PROPOSED STORM SEWER CROSSING WATER MAIN WITH 4" - 18" OF VERTICAL SEPARATION



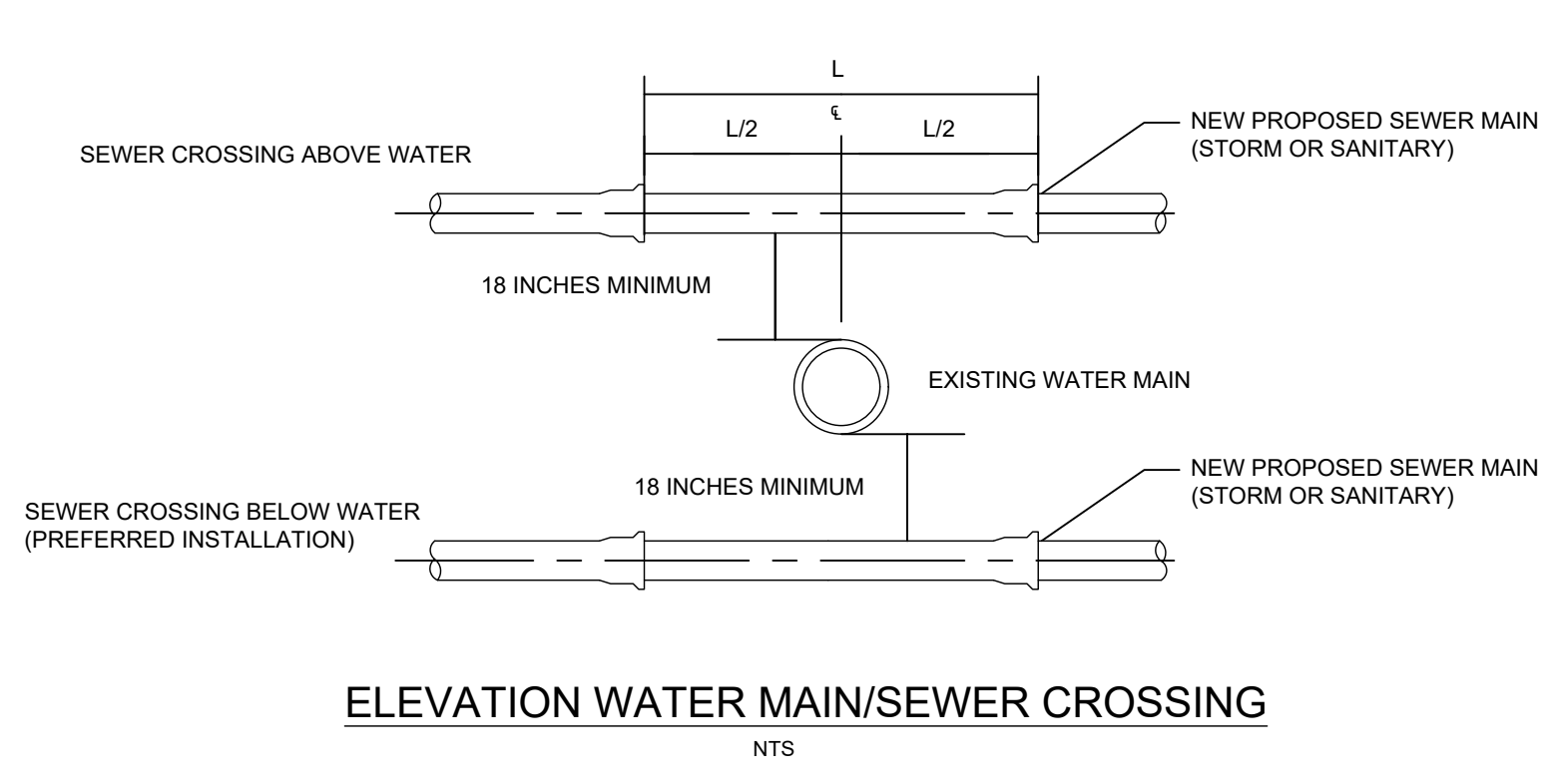
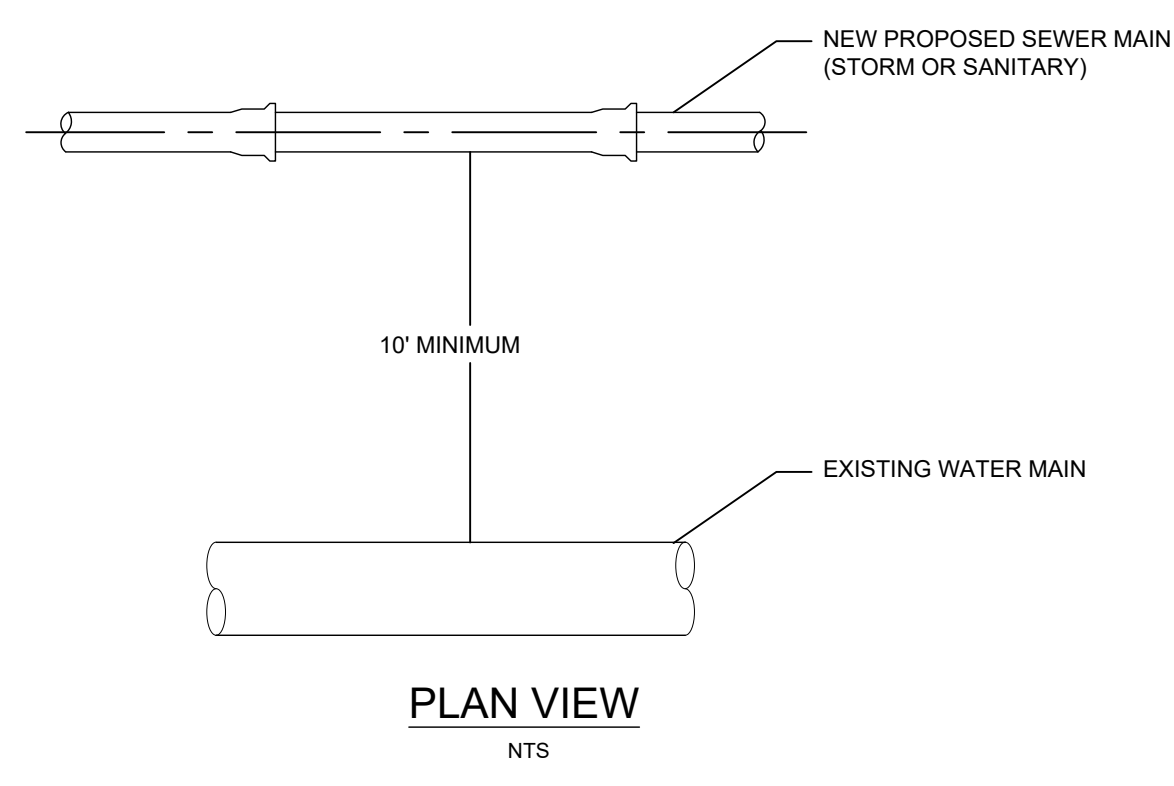
UTILITY CROSSING - VERTICAL OBSTRUCTION WITH REQUIRED VERTICAL OFFSET
NOTE: THRUST BLOCKS SHOWN, THRUST RESTRAINT MAY BE PROVIDED BY ANY SINGLE METHOD IN ACCORDANCE WITH WATER MAIN THRUST RESTRAINT DETAILS

- NOTES:
- SEE SPECIAL NOTES ENTITLED "OWNER REQUIREMENTS FOR WATER MAINS AND APPURTENANCES" FOR INFORMATION ON ADDITIONAL THRUST RESTRAINT REQUIREMENTS.
 - WATER MAIN RELOCATION WORK MAY BE REQUIRED WHERE PROPOSED STORM DRAINS CROSS AN EXISTING WATER MAIN. THE CONTRACTOR SHALL ESTABLISH THE DEPTH OF THE WATER MAIN AT ALL CROSSING POINTS. THE ENGINEER WILL THEN VERIFY THE EXTENT OF THE WATER MAIN RELOCATION WORK REQUIRED.
 - UNLESS OTHERWISE NOTED IN THE OWNER REQUIREMENTS, A SINGLE METHOD OF THRUST RESTRAINT SHALL BE PROVIDED AT EACH FITTING THAT CREATES A THRUST IN ACCORDANCE WITH PRESSURE PIPE THRUST RESTRAINT DETAILS.
 - THE OFFSET OF A WATER MAIN TO AVOID AN OBSTRUCTION SHALL BE ACCOMPLISHED USING A MINIMUM NUMBER AND WEIGHT OF FITTINGS.
 - ENCASEMENT OF A WATER MAIN IN A CONCRETE CRADLE DUE TO PROXIMITY OF A STORM SEWER WILL BE INSTALLED IN ACCORDANCE WITH SECTION 501, WITH THE EXCEPTION THAT BATCHING REQUIREMENTS SHALL NOT APPLY.

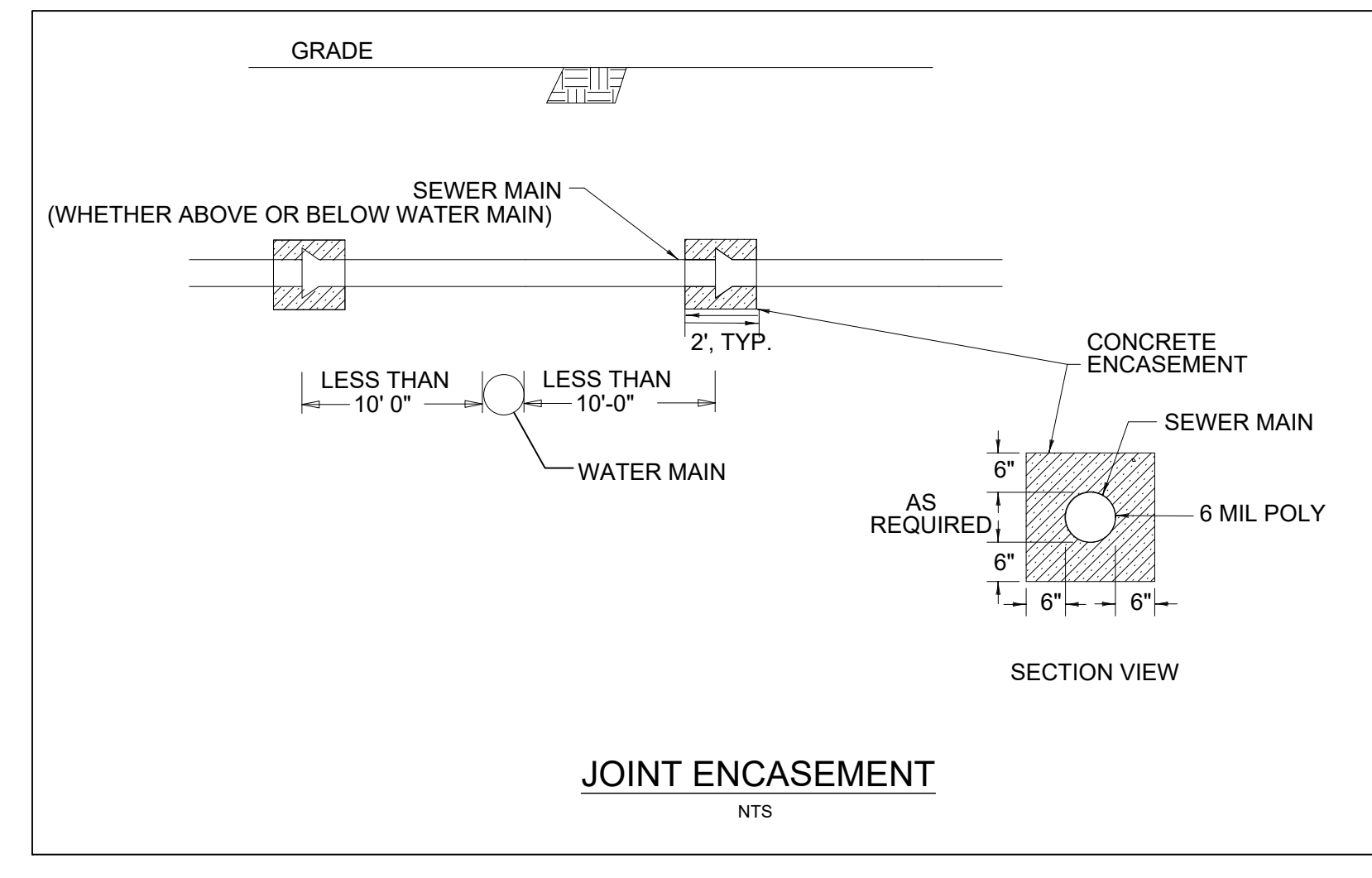
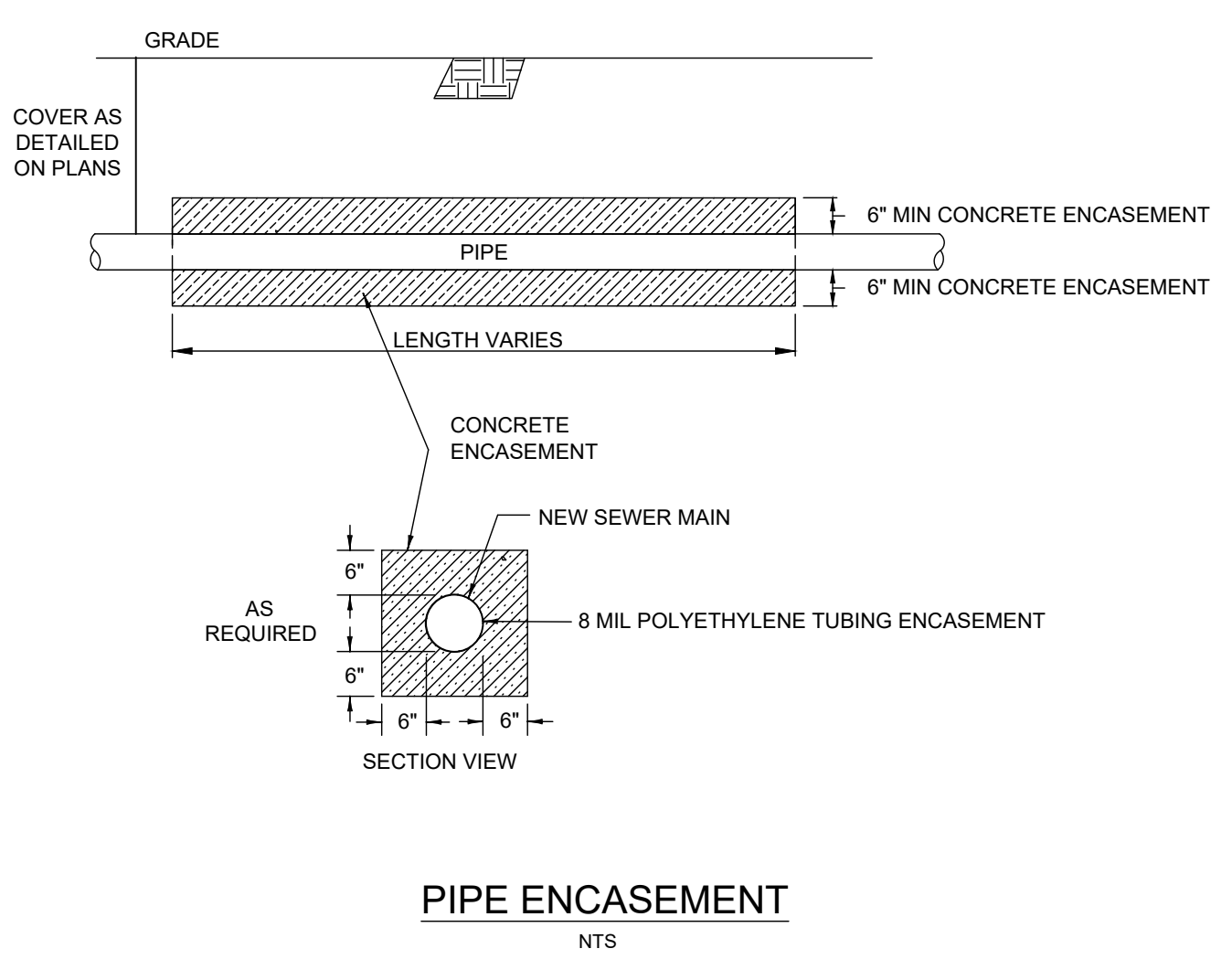


UTILITY CROSSING - HORIZONTAL OBSTRUCTION
NOTE: TIE RODS SHOWN, THRUST RESTRAINT MAY BE PROVIDED BY ANY SINGLE METHOD IN ACCORDANCE WITH WATER MAIN THRUST RESTRAINT DETAILS

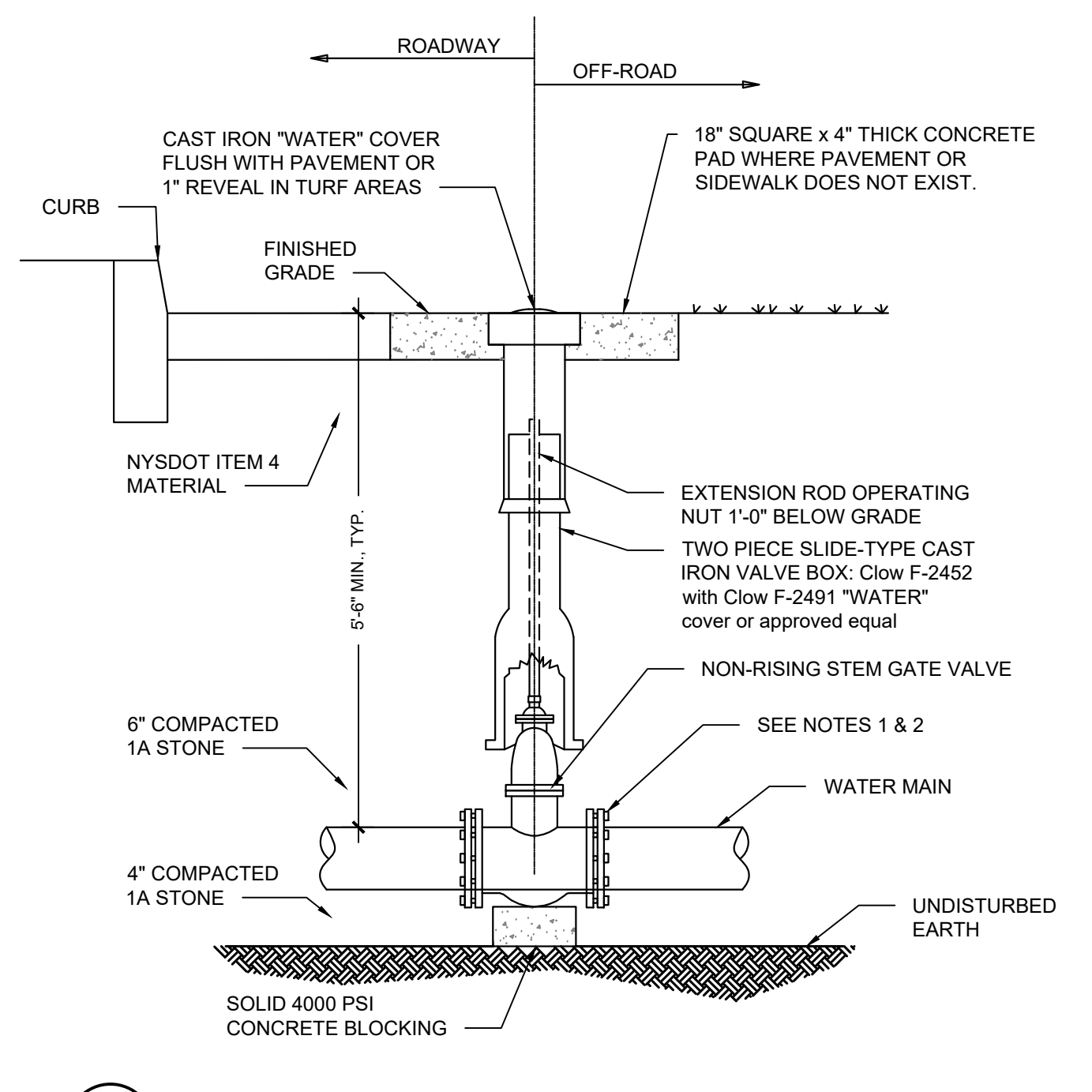
2 UTILITY CROSSING RELOCATION DETAILS (DOT STD. DETAIL REFERENCE 663-04)
NTS



- NOTES:
- NEW SEWER MAINS (SANITARY AND STORM), SEPTIC TANKS, OR SUBSOIL TREATMENT SYSTEM SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE.
 - SEWER MAINS (EITHER STORM OR SANITARY) CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATER MAIN IS EITHER ABOVE OR BELOW THE SEWER WITH PREFERENCE TO THE SEWER MAIN LOCATED BELOW THE WATER.
 - AT CROSSINGS, ONE FULL LENGTH OF SEWER PIPE SHALL BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER AS POSSIBLE. SPECIAL STRUCTURAL SUPPORT FOR THE WATER AND SEWER PIPES MAY BE REQUIRED WHICH SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - WHEN IT IS IMPOSSIBLE TO OBTAIN THE MINIMUM SPECIFIED SEPARATION DISTANCES, THE FOLLOWING METHODS OF INSTALLATION MAY BE USED:
 - SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER MAIN CLOSER TO THE WATER MAIN, PROVIDED THAT THE WATER MAIN IS LAID IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE GRAVITY SEWER.
 - THE SEWER MATERIALS SHALL BE WATER WORKS GRADE 150 PSI (1.0 Mpa) PRESSURE RATED PIPE MEETING AWWA STANDARDS OR PIPE APPROVED BY THE REVIEWING AUTHORITY AND SHALL BE PRESSURE TESTED TO ENSURE WATER TIGHTNESS.
 - IF IT IS IMPOSSIBLE TO OBTAIN THE INSTALLATION METHODS LISTED ABOVE, THE FOLLOWING METHODS OF INSTALLATION MAY BE USED FOR AREAS NOT MEETING SEPARATION REQUIREMENTS:
 - EITHER THE WATER OR SEWER MAY BE ENCASED IN 4000 PSI CONCRETE MEETING THE REQUIREMENTS OF CLASS A CONCRETE IN SECTION 501 (NYS DOT STANDARD SPECIFICATIONS), PORTLAND CEMENT CONCRETE GENERAL, CLASS A CONCRETE THAT COMES INTO CONTACT WITH DUCTILE IRON OR CAST IRON WATER MAINS, INCLUDING PIPE, FITTINGS, HYDRANTS, VALVES AND VALVE BOXES SHALL NOT CONTAIN FLY ASH. CONCRETE SHALL BE INSTALLED (MIN. 6 INCH THICKNESS, AS SHOWN) FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING NOT COMPLYING WITH THE MINIMUM HORIZONTAL AND VERTICAL SEPARATION, MEASURED PERPENDICULAR TO THE LINE BEING ENCASED. PROVIDE ALL NECESSARY PLATING, SIGNAGE, BARRICADES, TRAFFIC CONTROL, ETC., AS REQUIRED TO KEEP TRAFFIC OFF THE TRENCH FOR A PERIOD NOT LESS THAN 24 HOURS FOLLOWING INSTALLATION OF CONCRETE AND/OR UNTIL THE TRENCH IS RESTORED.
 - NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER MANHOLE. SEWER MANHOLES SHALL BE LOCATED AT LEAST 10 FEET FROM ANY WATER MAINS.
 - IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ELEVATIONS OF EXISTING UTILITIES TO ENSURE ADEQUATE CLEARANCE FOR THE SEWER LINE EXISTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER (IN WRITING) OF CONFLICTING ELEVATIONS, ALLOWING THE ENGINEER ADEQUATE TIME TO REVISE GRADES WITHOUT NECESSITATING REMOVAL AND RECONSTRUCTION OF WORK ALREADY COMPLETED BY THE CONTRACTOR.



3 SEWER/WATER MAIN CROSSING DETAILS AND MITIGATION
NTS



4 TYPICAL BURIED GATE VALVE DETAIL
NTS

- NOTES:
- USE FULLY RESTRAINED TRANSITION COUPLINGS WHEN CONNECTING TO HDPE MAINS, PREFERABLY BUTT FUSION MECHANICAL JOINT ADAPTER WITH STAINLESS STEEL INSERT STIFFENERS AND BACKUP RINGS.
 - ALL MECHANICAL JOINTS (MJ) SHALL BE ASSEMBLED WITH MECHANICAL JOINT WEDGE ACTION RESTRAINTS FOR DUCTILE IRON PIPE. ASSEMBLIES SHALL HAVE BREAK-OFF TORQUE CONTROL NUTS.

NO.	DATE	DESCRIPTION
1	3/9/21	NYS DEC REVISION 1
2	3/11/21	NYS DOH REVISION 1

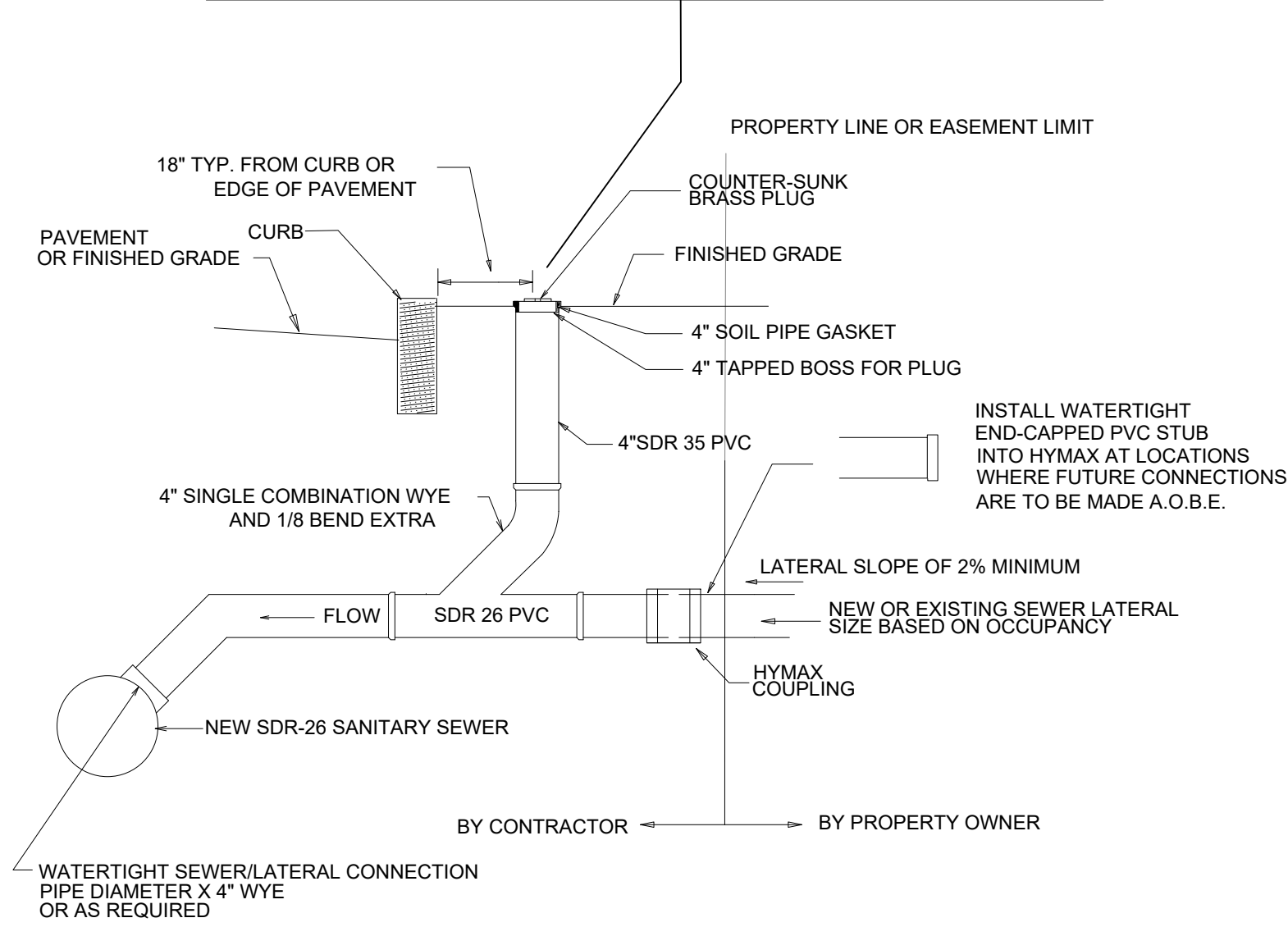
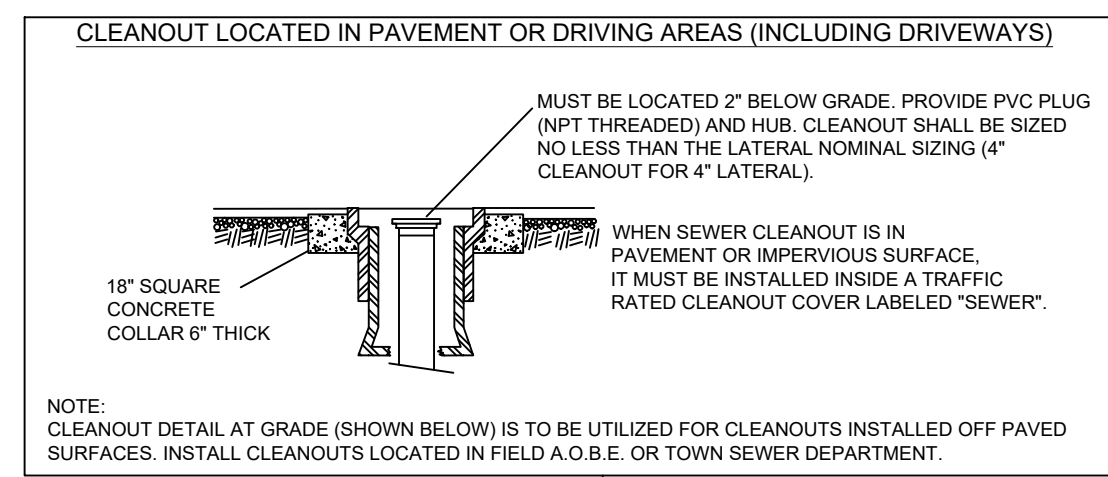
PROJECT INFORMATION:
DATE: 2/1/2021
SCALE: 1" = 20'
DESIGNED BY: LJC
DRAWN BY: LJC
REVIEWED BY: JMS
PROJECT NO.: 20-027

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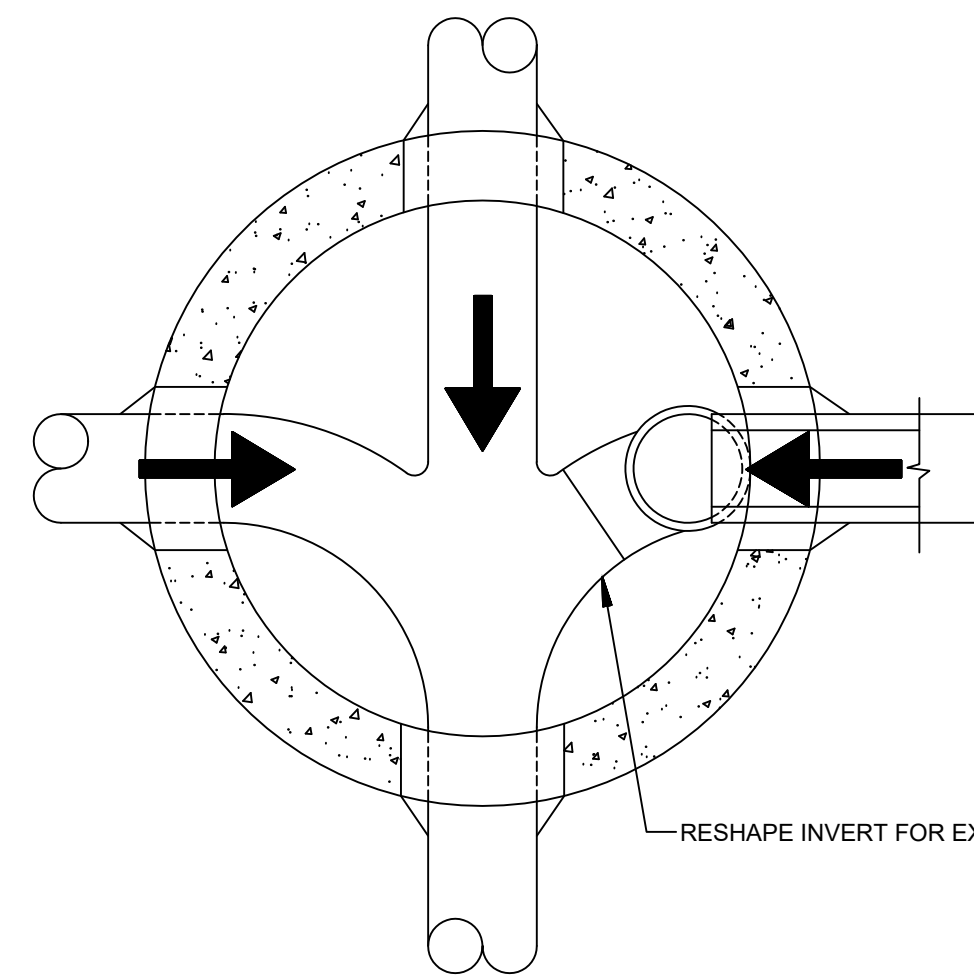
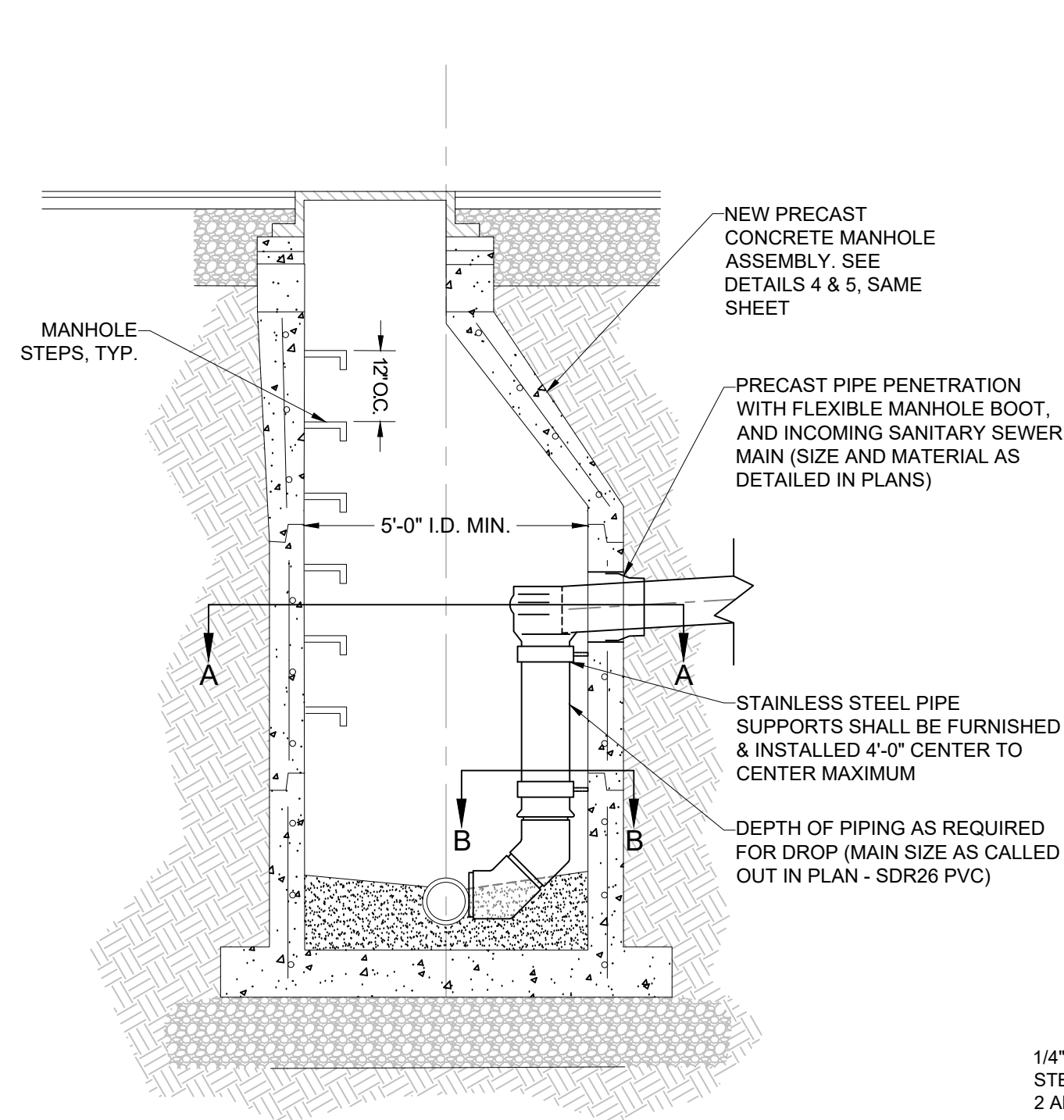
TOWN OF MORIAH

MORIAH WATER & SEWER MAIN REPLACEMENT PHASE II WATER DETAILS



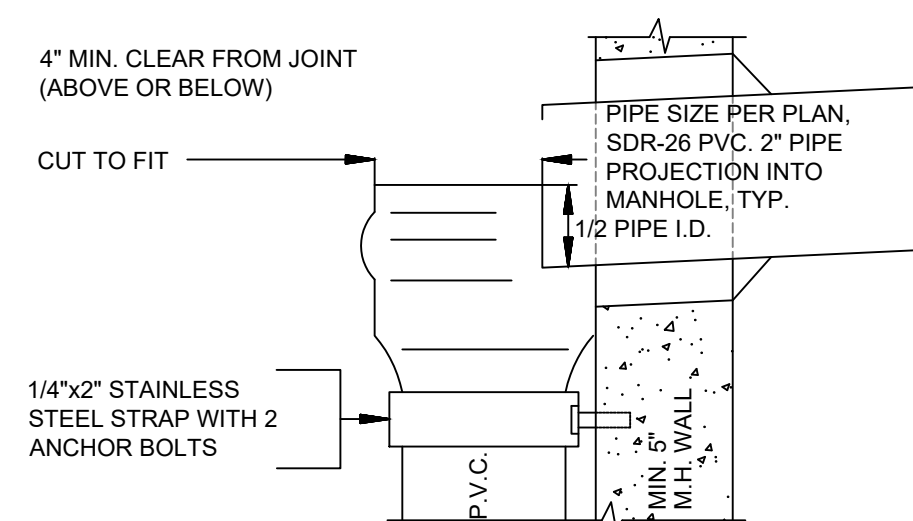
- NOTE:
1. ALL HOUSING UNITS SHALL HAVE A 4" SANITARY SEWER LATERAL INSTALLED FROM PROPERTY OWNER CONNECTION TO HOUSE UNIT. LATERAL SHALL BE INSTALLED WITH SLOPE TO SANITARY COLLECTION SYSTEM NO LESS THAN 2%.
 2. ANY PART OF THE SEWER SERVICE WITHIN 10 FEET OF THE WATER SERVICE PIPE SHALL BE CONSTRUCTED OF WATER WORKS MATERIALS RATED FOR A MINIMUM OF 150 PSI AND APPROVED PRIOR TO INSTALLATION BY THE NYS DEPARTMENT OF HEALTH AND ENGINEER.

1 SANITARY LATERAL DETAIL
NTS

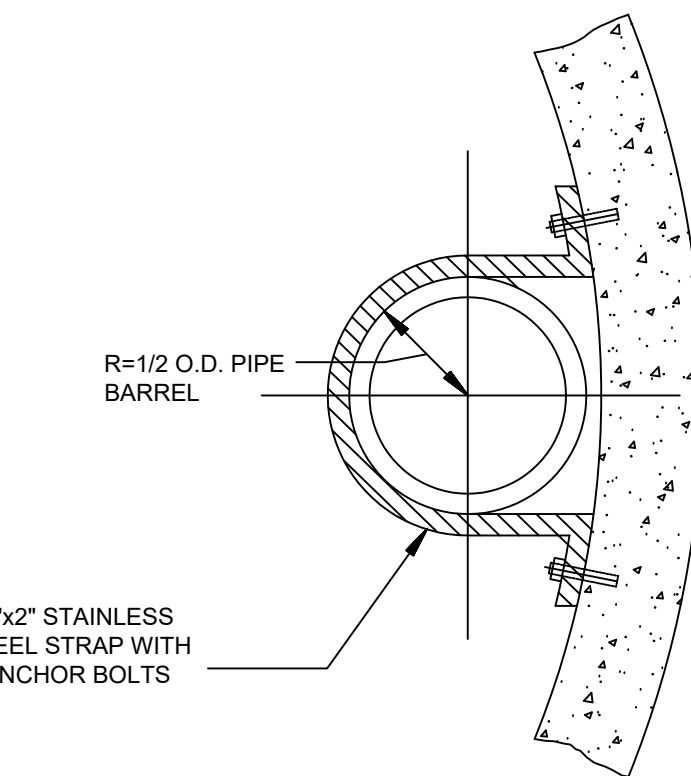


2 INSIDE DROP MANHOLE
NTS

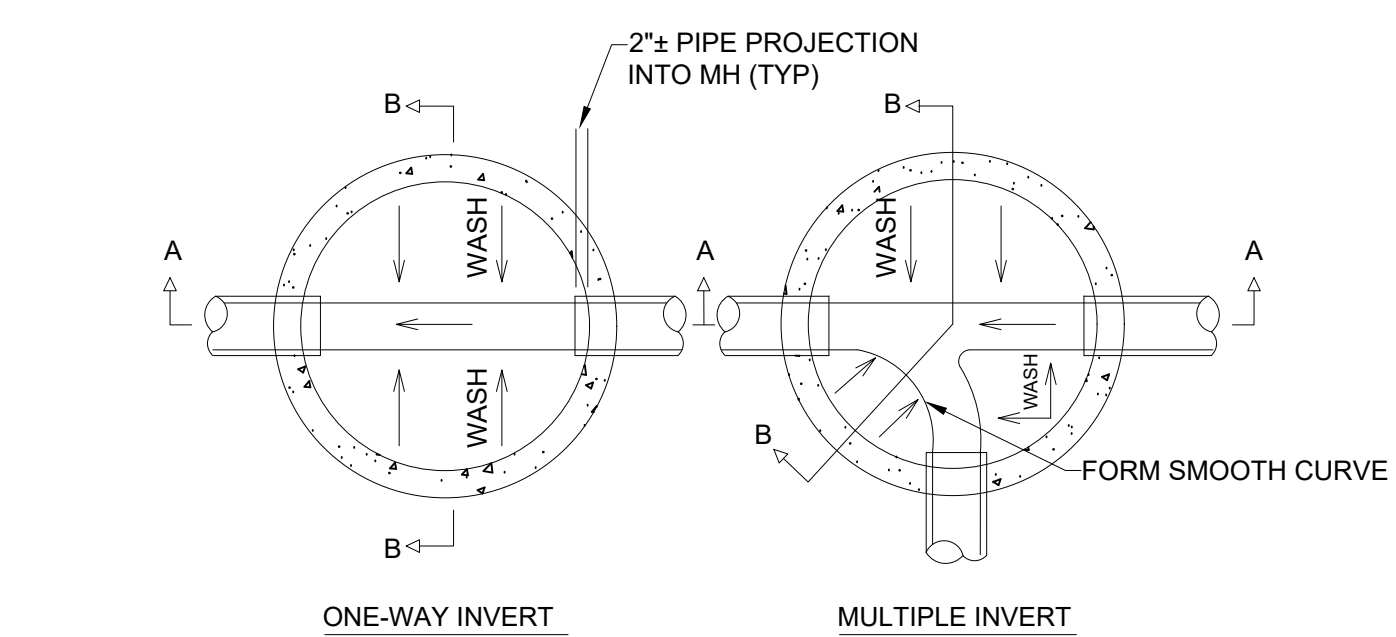
- NOTES:
1. PIPE FOR INSIDE DROP SHALL BE SDR26 PVC CONFORMING TO ASTM SPECIFICATION 03034.
 2. BOTTOM BEND TO BE (2) 45° BENDS, BELL SPIGOT, OF SDR26 PVC. SPIGOT OF BEND TO REST DIRECTLY ON EXISTING OR NEW SHELF. CONSTRUCT MASONRY TROUGH FROM DROP EFFLUENT TO MAIN CHANNEL.
 3. NOTCH BELL OF PVC DROP TO ACCEPT SDR26 PVC SPIGOT AS SHOWN.
 4. LOCATE STRAPS AT PIPE BELL AND ABOVE BELL OF 45° BENDS AS SHOWN. ADD EXTRA STRAPS AS NECESSARY TO MAINTAIN MAXIMUM SPACING OF FOUR FEET (AS DETAILED).
 5. STEPS SHALL BE RELOCATED IF THEY CONFLICT WITH INSIDE DROP.



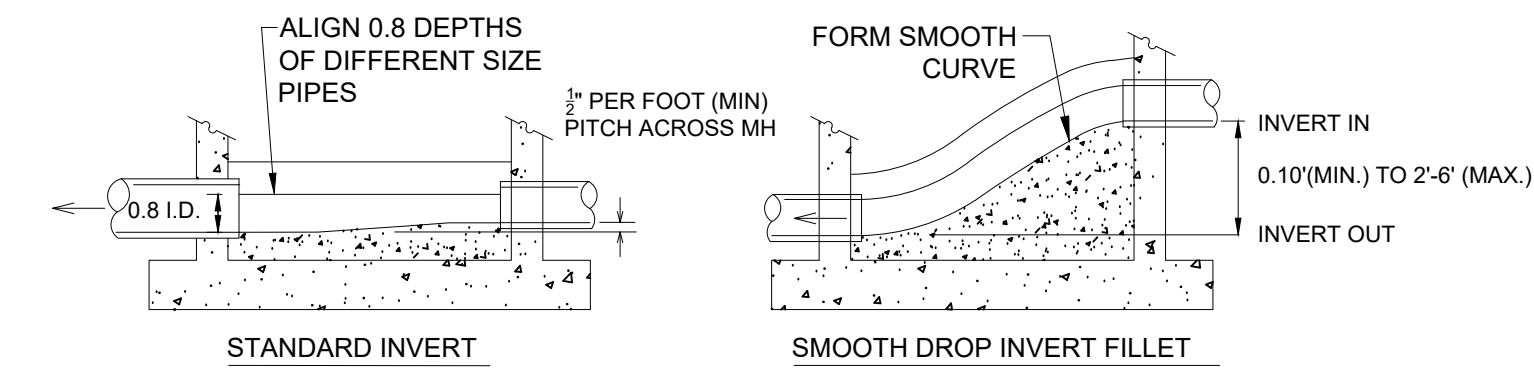
ENLARGED DETAIL



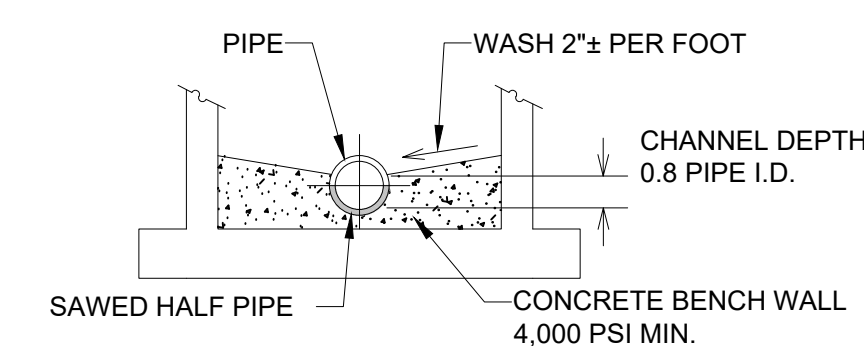
SECTION B-B



PLAN

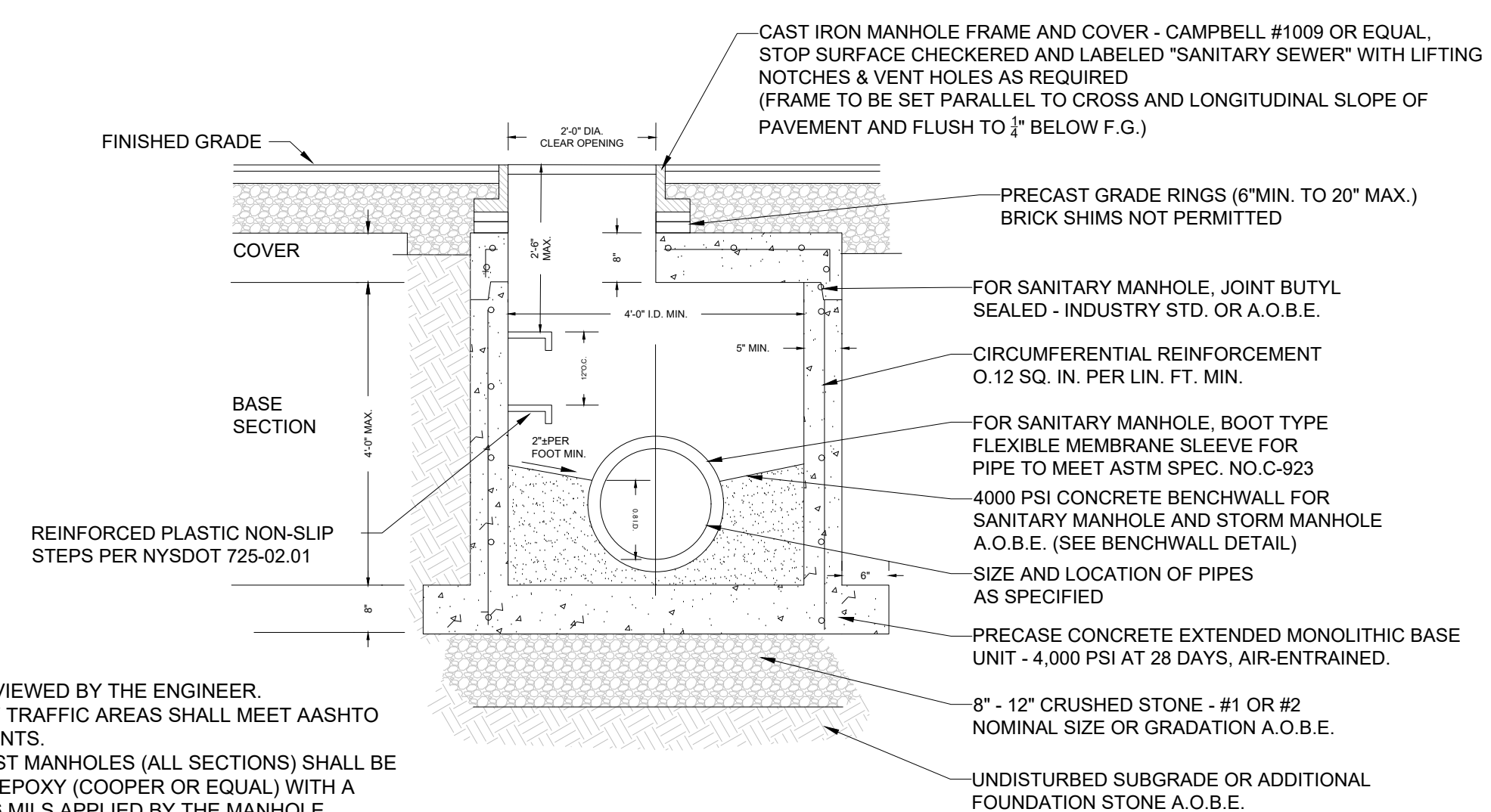


SECTION A-A



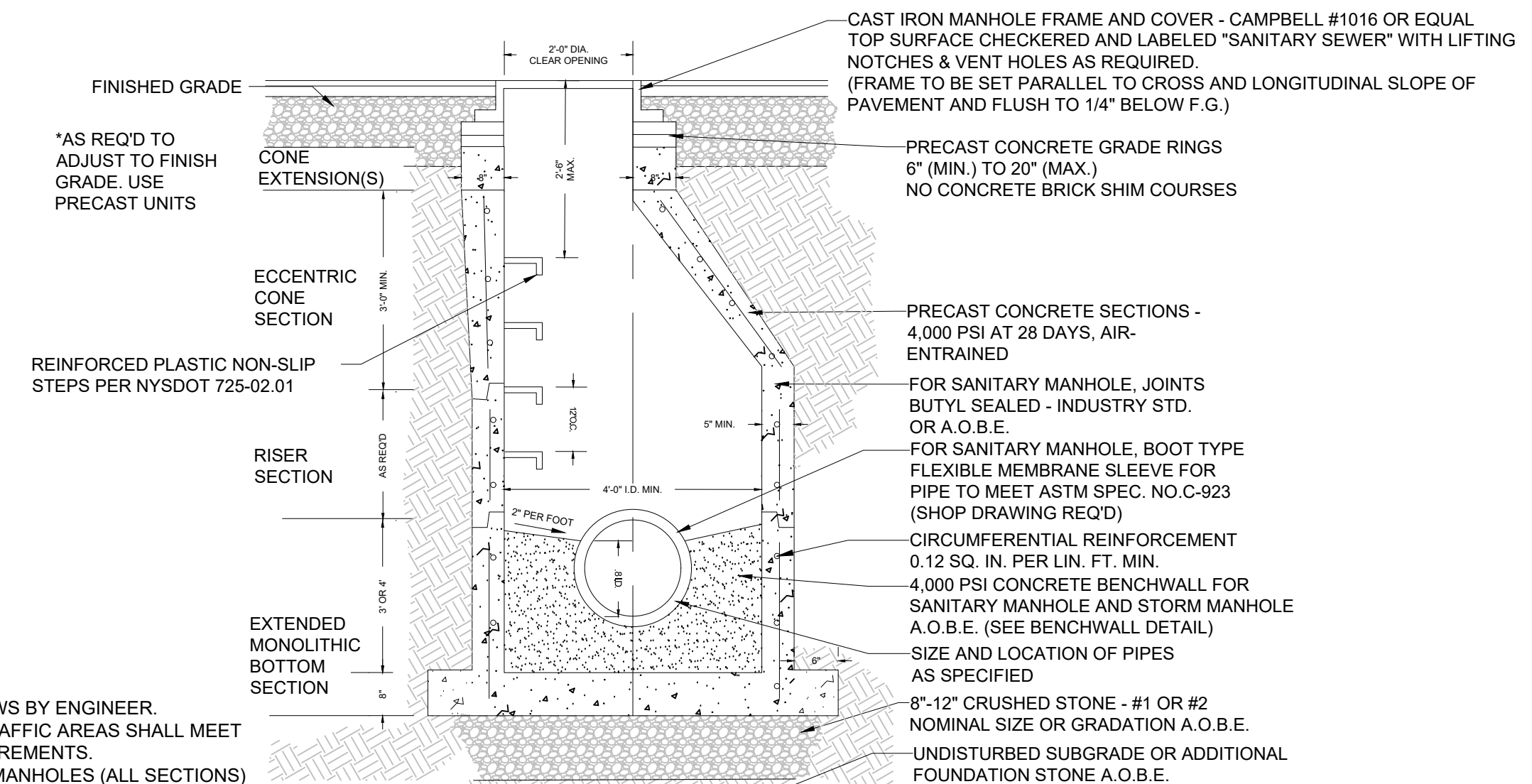
SECTION B-B

3 BENCHWALL AND CHANNEL FOR SANITARY MANHOLE
NTS



- NOTES:
1. SHOP DRAWING REQUIRED TO BE REVIEWED BY THE ENGINEER.
 2. ALL MANHOLES TO BE PLACED IN ANY TRAFFIC AREAS SHALL MEET AASHTO HS20-44 WHEEL LOADING REQUIREMENTS.
 3. INTERIOR & EXTERIOR OF ALL PRECAST MANHOLES (ALL SECTIONS) SHALL BE COATED WITH 2 COATS OF COAL TAR EPOXY (COOPER OR EQUAL) WITH A MINIMUM DRY MIL THICKNESS OF 16 MILS APPLIED BY THE MANHOLE MANUFACTURER IN ACCORDANCE BY THE MANUFACTURER'S RECOMMENDATIONS.

4 PRECAST CONCRETE MANHOLE - UNDER 5' DEEP
NTS



- NOTES:
1. SHOP DRAWING REQUIRED TO BE REVIEWED BY ENGINEER.
 2. ALL MANHOLES TO BE PLACED IN ANY TRAFFIC AREAS SHALL MEET AASHTO HS20-44 WHEEL LOADING REQUIREMENTS.
 3. INTERIOR & EXTERIOR OF ALL PRECAST MANHOLES (ALL SECTIONS) SHALL BE COATED WITH 2 COATS OF COAL TAR EPOXY (COOPER OR EQUAL) WITH A MINIMUM DRY MIL THICKNESS OF 16 MILS APPLIED BY THE MANHOLE MANUFACTURER IN ACCORDANCE BY THE MANUFACTURER'S RECOMMENDATIONS.

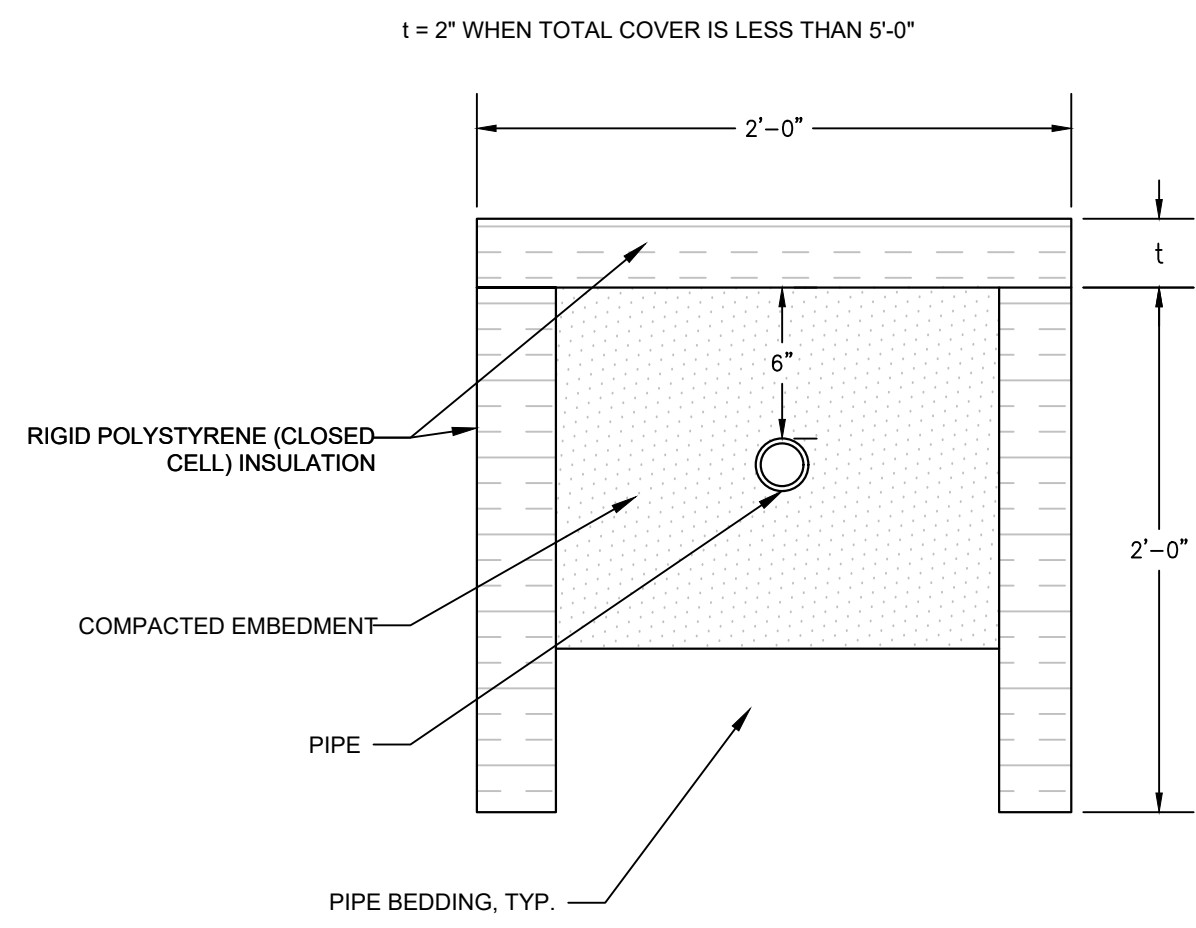
5 PRECAST CONCRETE MANHOLE - 5' DEEP AND OVER
NTS

PROJECT INFORMATION:	DATE:	2/1/2021
NO. / DATE:	DESCRIPTION:	1 3/9/21 NYS DEC REVISION 1
2 3/11/21	NYS DOH REVISION 1	
DESIGNED BY:	LJC	
DRAWN BY:	LJC	
REVIEWED BY:	JMS	
PROJECT NO.:	20-027	

REVISIONS:	NO. / DATE:	DESCRIPTION:
1	3/9/21	NYS DEC REVISION 1
2	3/11/21	NYS DOH REVISION 1

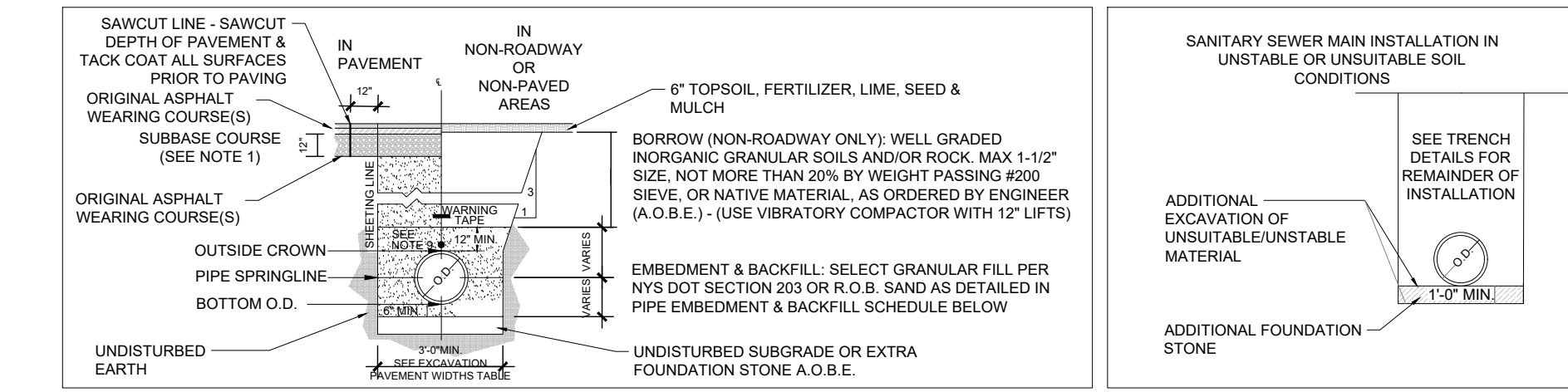
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NOTE:
RIGID FOAM BOARD INSULATION SHALL BE INSTALLED WHERE MINIMUM COVER REQUIREMENTS ARE NOT MET FOR FROST PROTECTION OF SANITARY SEWER MAINS AND SERVICES. RIGID BOARD INSULATION SHALL BE HIGH DENSITY EXTRUDED POLYSTYRENE, MINIMUM 60 PSI, EQUIVALENT TO R-20 PER TWO INCH (2") THICK INSULATION UNLESS OTHERWISE NOTED, OR APPROVED EQUAL.
MINIMUM COVER REQUIREMENTS ARE AS FOLLOWS:
1. 5'-0" MINIMUM COVER (MEASURED FROM TOP OF PIPE TO GRADE) FOR ALL GRAVITY SEWER MAINS, LATERALS, WATER MAINS & SERVICE LINES.

1 PIPE INSULATION DETAIL
NTS

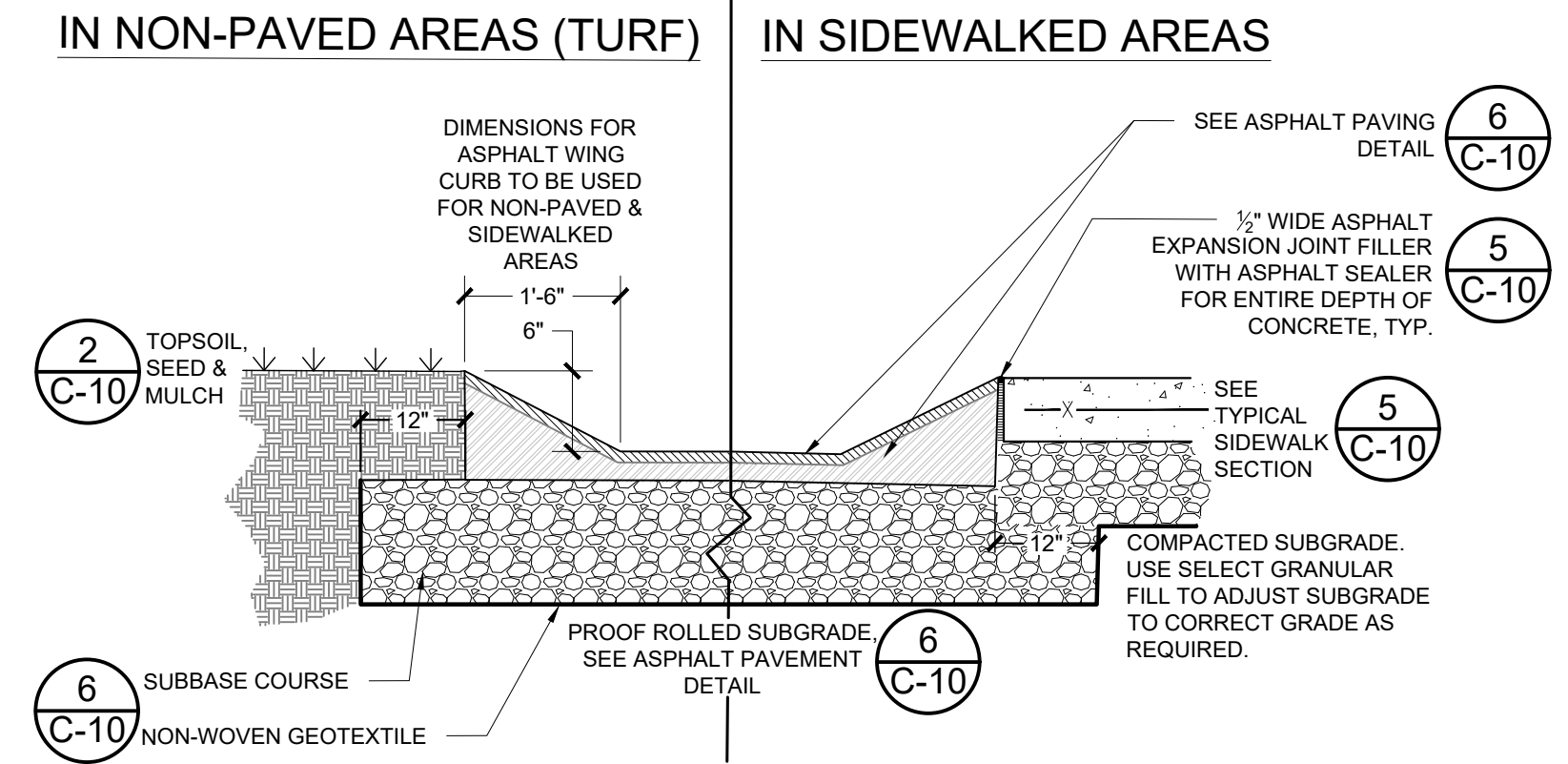


PIPE EMBEDMENT & BACKFILL SCHEDULE							
Application	Pipe Type	Bedding Material	EMBEDMENT		BACKFILL IN NYS DOT ROADWAYS OR PAVED AREAS		
			Depth Under Pipe (Inches)	Depth Over Pipe (Inches)	Depth of Cover	Type of Backfill	
Water Main	CL52 DIP	Select Granular Fill #6	12	60"	All Depths	Select Granular Fill	
Water Service	Type K Copper	R.O.B. SAND	6	12	60"	All Depths	Select Granular Fill
Sanitary Sewer	PVC-SDR 26	Select Granular Fill #6	12	4'-0"	All Depths	Select Granular Fill	
Sanitary Lateral	PVC-SDR 26	Select Granular Fill #6	12	4'-0"	All Depths	Select Granular Fill	

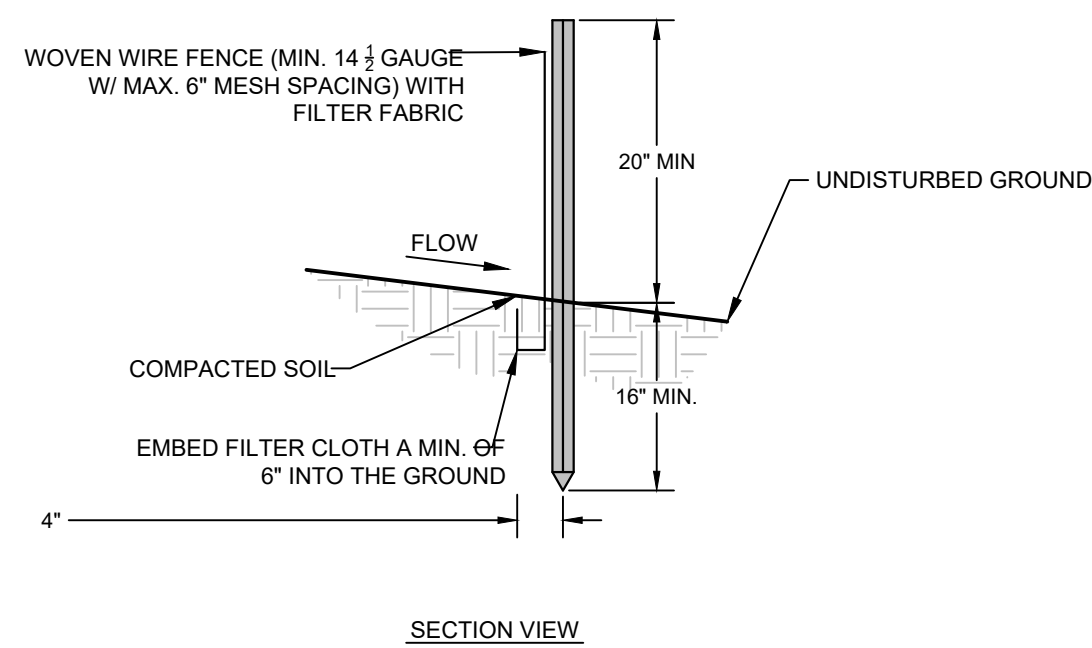
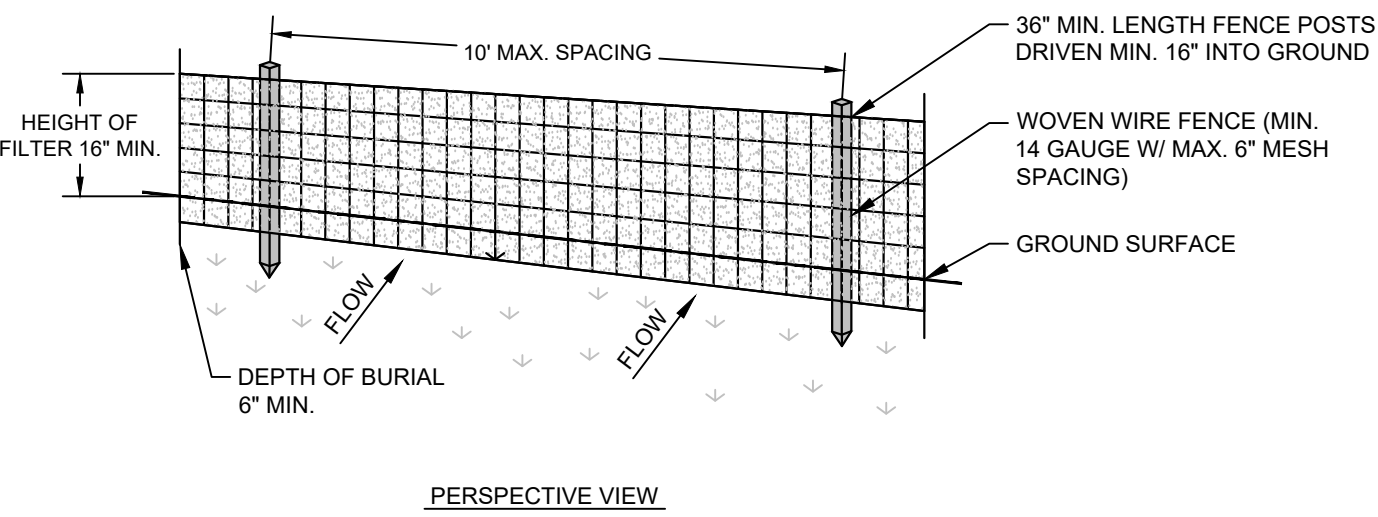
EXCAVATION PAYMENT WIDTHS	PIPE SIZE	TRENCH WIDTH
3	3'-0"	3'-0"
4	3'-0"	3'-0"
6	3'-0"	3'-0"
8	3'-0"	3'-0"
10	4'-0"	4'-0"
12	4'-0"	4'-0"
14	4'-0"	4'-0"
16	4'-0"	4'-0"
18	3'-6"	3'-6"
20	4'-0"	4'-0"
24	4'-0"	4'-0"
30	4'-0"	4'-0"
36	4'-0"	4'-0"
42	5'-0"	5'-0"

2 PIPE TRENCH SECTION DETAILS
NTS

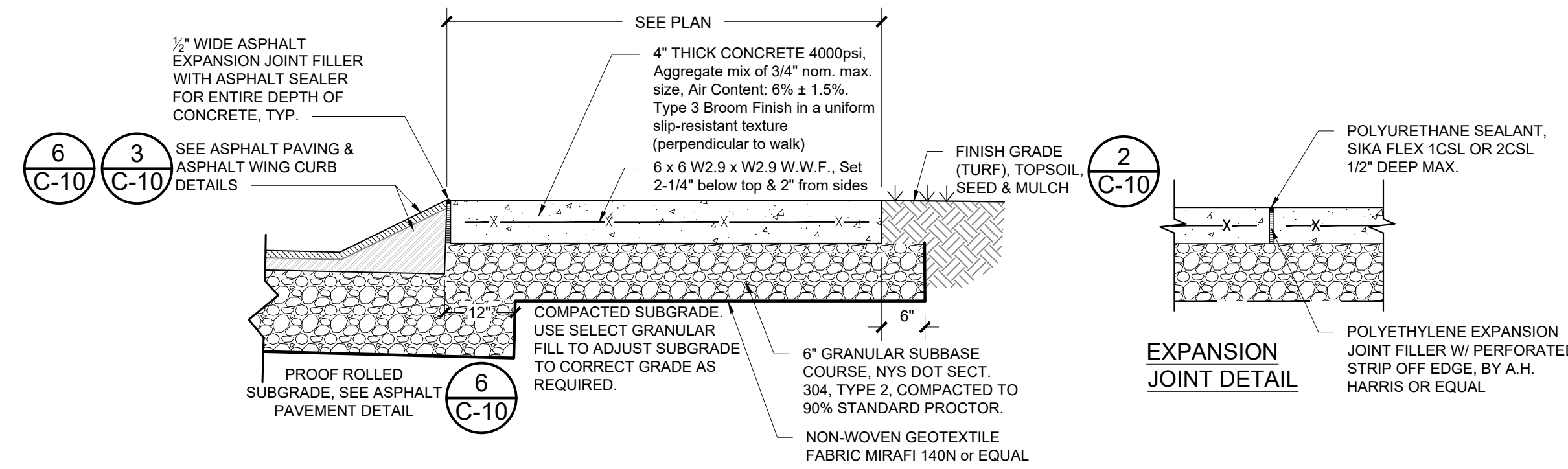
- NOTES:
- SUBBASE COURSE FOR PAVEMENT: CONFORM TO N.Y.S. DOT STD. 304, TYPE 2. SHEETING: IF REQUIRED DURING CONSTRUCTION, SHEET TRENCH SIDEWALLS. PULL SHEETING IN CONJUNCTION WITH GROUT BACKFILLING IF REQUIRED.
 - SEE TABLE FOR EXCAVATION PAYMENT WIDTHS.
 - BEDDING BELOW THE PIPE INVERT SHALL BE REQUIRED ONLY WHEN ROCK OR UNSTABLE OR UNSUITABLE CONDITIONS ARE ENCOUNTERED.
 - IF UNSTABLE OR UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED NEAR THE INVERT ELEVATION, A MINIMUM OF 1' AND A MAXIMUM OF 2' OF MATERIAL SHALL BE EXCAVATED AND REPLACED WITH ADDITIONAL SELECT GRANULAR FILL. ADDITIONAL PAYMENT WILL BE MADE FOR MATERIAL PLACED TO TREAT UNSTABLE OR UNSUITABLE CONDITIONS.
 - COMPACTION OF FILL AND BEDDING SHALL BE TO 95% MIN. OF MAX DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST. FILL OR BACKFILL MATERIAL SHALL BE DEPOSITED IN HORIZONTAL LAYERS NOT EXCEEDING 6 INCHES IN THICKNESS PRIOR TO COMPACTION. COMPACTION OF EACH LAYER SHALL BE AS SPECIFIED WITHIN THE LATEST EDITION OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 203-3.03C, AND BACKFILL SHALL BE INSTALLED AND COMPACTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 203-3.15. COMPACTION, A MINIMUM OF 95% OF STANDARD PROCTOR MAXIMUM DENSITY WILL BE REQUIRED.
 - A WET TRENCH SHALL BE DEWATERED PRIOR TO INSTALLING BEDDING.
 - TRENCHES 4' OR MORE IN DEPTH ENTERED BY PERSONNEL SHALL MEET OSHA SAFETY REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH REQUIRED OSHA REGULATIONS.
 - CONTRACTOR SHALL INSTALL NOT LESS THAN 12" BUT NOT GREATER THAN 24 INCHES ABOVE ALL PIPELINES A 2 INCH WIDE WARNING TAPE WITH CONTINUOUS WORDING: "CAUTION: BURIED UTILITY LINE BELOW." NON-METALLIC PIPELINES SHALL UTILIZE METALLIC WARNING TAPE.
 - *ALL PLASTIC PIPELINES SHALL BE INSTALLED WITH STAINLESS STEEL, HDPE JACKETED TRACER WIRE FOR LOCATING PURPOSES.
 - CONTRACTOR SHALL INSTALL RIGID FOAM BOARD INSULATION ABOVE ALL LATERALS AND MAINS LESS THAN 5'-0" DEPTH OF COVER MEASURED FROM GRADE TO THE TOP OF THE PIPELINE.



3 ASPHALT WING CURB DETAIL
NTS



4 SILT FENCE
NTS



5 TYPICAL SIDEWALK SECTION
NTS

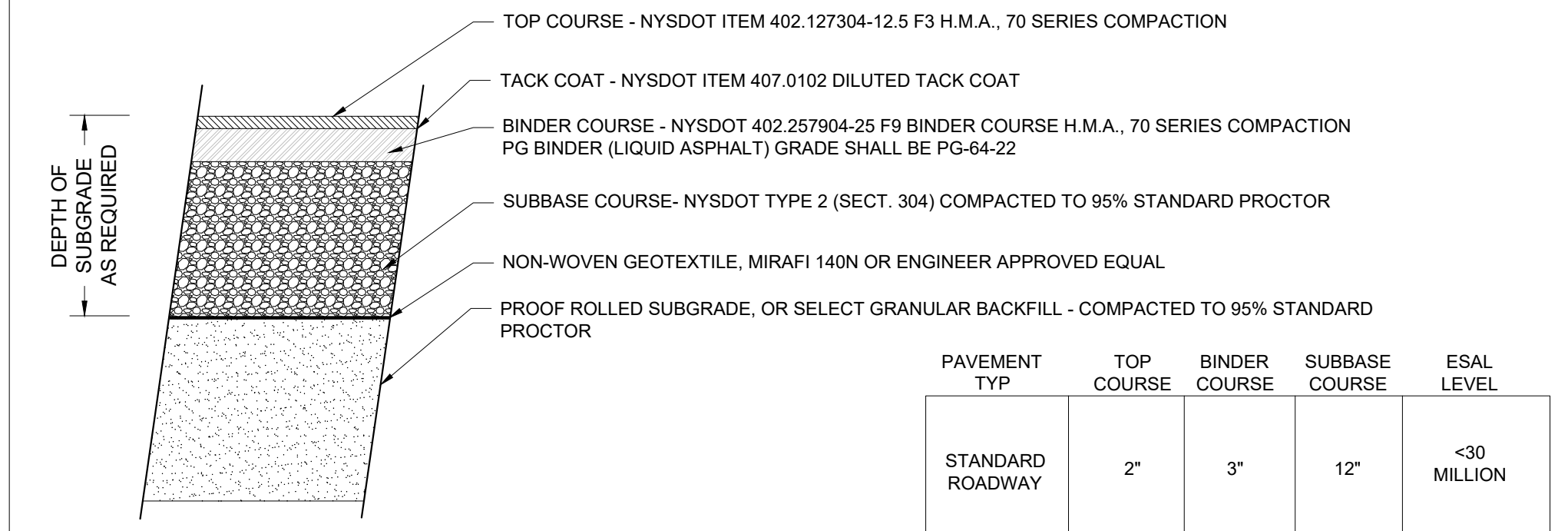
- NOTES:
- Tool the edges and score joints with an edging tool having a 1/4" radius.
 - Score and tool the concrete surface at intervals of 5 feet, a minimum 1/8" to a maximum 1/4" in width and a minimum depth of one third the total thickness of slab.
 - Provide expansion joints full depth every 20 lineal feet.
 - Maximum crosswalk slope 1.5% toward street or A.O.B.E.
 - Apply concrete sealer immediately after final troweling (Conspec #1-30% solids or Equal)
 - Construction joint details to be submitted and approved by Engineer.
 - Sidewalk width to be as shown on plans or A.O.B.E.
 - Sidewalks must be constructed so as not to interfere with drainage.

CONCRETE SPECIFICATION NOTES

- THE FOLLOWING CONCRETE SPECIFICATIONS SHALL APPLY TO ALL CONCRETE WORK FOR THE PROJECT. ALL MATERIALS MUST BE FROM AN APPROVED SOURCE. QUANTITIES MAY VARY DUE TO VARIATIONS IN MATERIALS. PLANT BATCH TICKETS SHALL BE PROVIDED UPON REQUEST BY THE ENGINEER. IF "APPROVED EQUAL" MIXES ARE BEING PROPOSED, PRIOR APPROVAL SHALL BE OBTAINED FROM THE ENGINEER. SUBMITTALS FOR "APPROVED EQUAL" MIXES SHALL BE PROVIDED WITH TEST RESULTS FROM AT LEAST THREE (3) PREVIOUS JOBS.
- WHEN AIR TEMPERATURES ARE 50 DEGREES FARENHEIT AND BELOW, A NON-CHLORINE ACCELERATOR IS REQUIRED PER A.C.I. SECTION 306R-88. WHEN AIR TEMPERATURES ARE 90 DEGREES FARENHEIT AND ABOVE, AN INCREASE IN RETARDER IS REQUIRED TO CONTROL SET TIME PER A.C.I. 305R-99.
- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS AND SHALL CONFORM TO THE NYS DOT 2002 SPECIFICATIONS AS LISTED IN SECTION 501-2 FOR CLASS "A" MIX (OR APPROVED EQUAL).

NOTE: A SUPERPLASTICIZER MAY BE USED TO INCREASE SLUMP AND WORKABILITY WITHOUT INCREASING THE WATER CEMENT RATIO. UP TO 20 PERCENT OF THE CEMENT CONTENT MAY BE SUBSTITUTED WITH POZZOLAN. THE INITIAL SLUMP PRIOR TO THE ADDITION OF A SUPERPLASTICIZER IS APPROXIMATELY 2 INCHES TO 3 INCHES.

- ALL SIDEWALKS CONSTRUCTED FROM NOVEMBER 1 THROUGH APRIL 30 SHALL BE TREATED WITH A PENETRATING TYPE PROTECTIVE SEALER PER NYS DOT ITEM 717-03 TO PROTECT THE FRESH SURFACE AGAINST SPALLING CAUSED BY SALT INFILTRATION.
- ALL SLIP-FORM CONCRETE CURBING SHALL CONFORM TO THE REQUIREMENTS FOR A CLASS J CONCRETE MIXTURE (OR APPROVED EQUAL).
- ANY CLARIFICATIONS, REVISIONS, OR MODIFICATIONS THERETO SHALL ONLY BE MADE SUBJECT TO APPROVAL OF THE ENGINEER.



- NOTES:
- *BINDER TO BE PLACED IN TWO LIFTS WITH TACK COAT BETWEEN.
 - FOLLOW TECHNICAL SPECIFICATION SECTION 02510 FOR INSTALLATION OF HOT MIX ASPHALT.

6 ASPHALT PAVEMENT DETAIL
NTS

PROJECT INFORMATION:

DATE: 2/1/2021
SCALE: 1" = 20'
DESIGNED BY: LJC
DRAWN BY: LJC
REVIEWED BY: JMS
PROJECT NO.: 20-027

REVISIONS:

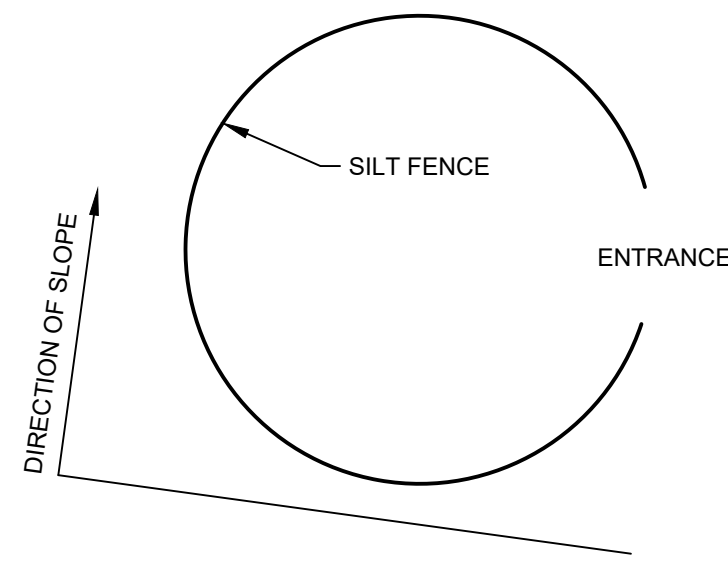
NO.	DATE	DESCRIPTION
1	3/9/21	NYS DEC REVISION 1
2	3/11/21	NYS DOH REVISION 1

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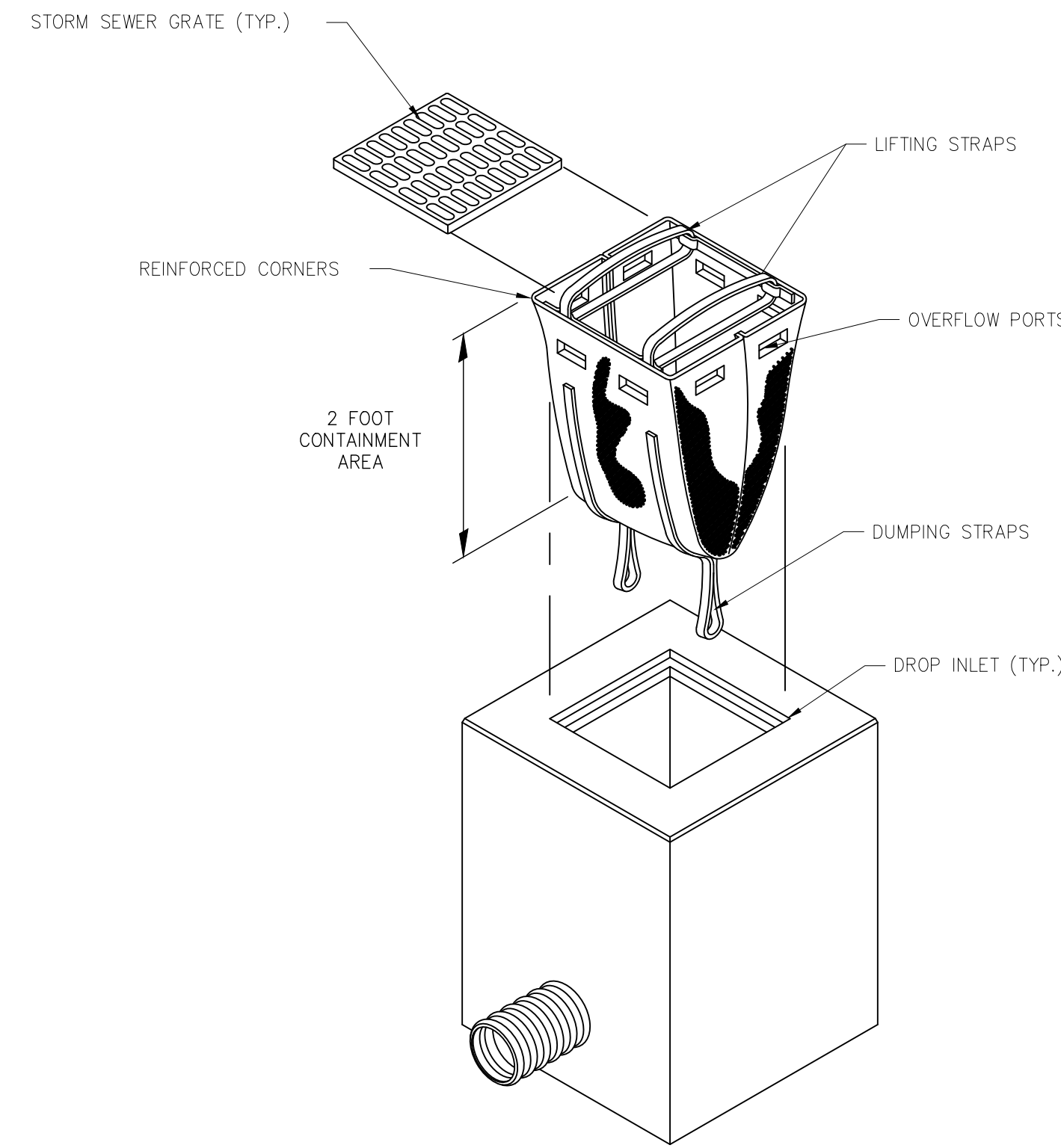


TOWN OF MORIAH
NEW YORK
ESSEX

MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
GENERAL DETAILS



1 EROSION CONTROL STOCKPILE
NTS



NOTE: DROP INLET PROTECTION SHALL BE DANDY SACK™ OR AN APPROVED EQUAL THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
Grab Tensile Elongation	ASTM D 4632	%	15 x 15
Puncture Strength	ASTM D 4833	kN (lbs)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	kPa (psf)	9506 (800)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m ² (gal/min/ft ²)	2852 (70)
Permittivity	ASTM D 4491	Sec ⁻¹	0.90

2 INLET SEDIMENT CONTROL DEVICE DETAIL
NTS

EROSION & SEDIMENT CONTROL FOR UTILITY INSTALLATION NOTES:

1. INSTALLATION OF THE WATER & SEWER UTILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND EROSION & SEDIMENT CONTROL BEST PRACTICES DURING CONSTRUCTION.
2. TEMPORARY AND PERMANENT EROSION & SEDIMENT CONTROL STRUCTURES SHOULD BE INSTALLED PRIOR TO CONSTRUCTION WHEN POSSIBLE. APPLIED MEASURES DURING CONSTRUCTION SHALL GENERALLY INCLUDE:
 - 2.1. MINIMIZE EXPOSURE TIME OF BARE OR DISTURBED AREAS BY PROPERLY SEQUENCING CONSTRUCTION ACTIVITIES.
 - 2.2. VERIFY THAT ALL NEEDED MATERIALS ARE AVAILABLE TO COMPLETE A SPECIFIC TASK WITHOUT DELAYS.
 - 2.3. APPLY TEMPORARY STABILIZATION IMMEDIATELY AFTER GRADING.
 - 2.4. STABILIZE AREAS PRIOR TO DISTURBING NEW AREAS.
 - 2.5. INSTALL EROSION & SEDIMENT CONTROLS PRIOR TO CONSTRUCTION.
 - 2.6. INSPECT AND MAINTAIN ALL EROSION & SEDIMENT CONTROLS ON A REGULAR BASIS, ANY DEFECTS SHALL BE REPAIRED IMMEDIATELY.
 - 2.7. PERMANENT TRAFFIC CORRIDORS SHOULD BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED.
3. VEGETATIVE MEASURES:
 - 3.1. TEMPORARY VEGETATIVE STABILIZATION - NO AREAS SHALL REMAIN DISTURBED FOR MORE THAN 14 DAYS WITHOUT ACTIVE SITE WORK OCCURRING AT THE LOCATION. IF AREAS ARE TO BE RE-DISTURBED, SEEDING AND MULCHING FOR TEMPORARY STABILIZATION SHALL BE PERFORMED, AS NECESSARY. IN ORDER TO OBTAIN TEMPORARY STABILIZATION STATUS, 2 TONS PER ACRE OR 3 BALES PER 1,000 SQUARE FEET OF STRAW MULCH SHALL BE APPLIED BY AN APPROVED METHOD. ALL DISTURBED AREAS SHALL REQUIRE VEGETATION AND/OR 12" MULCH BLANKET.
 - 3.2. PERMANENT VEGETATIVE STABILIZATION - SEEDING AND MULCHING FOR PERMANENT STABILIZATION SHALL BE PERFORMED, AFTER ALL SITE WORK IS COMPLETED FOR AN AREA. IN ORDER TO OBTAIN PERMANENT STABILIZATION STATUS, SOILS SHALL BE OPTIMAL FOR GROWING FINAL COVER WITH SOIL AMENDMENTS ADDED TO MEET PLANTING CRITERIA. PLANTINGS SHALL MEET SEEDING REQUIREMENTS, TIME OF YEAR REQUIREMENTS, AND BE APPLIED IN AN APPROVED MANNER. ALL AREAS SHALL BE MULCHED AND WATERED UNTIL FINAL ACCEPTANCE.
 - 3.3. VEGETATIVE PROTECTION DURING CONSTRUCTION - ADDITIONAL MEASURES SHALL BE PLACED AROUND EXISTING TREES, SHRUBS, AND OTHER GROUND COVER TO BE RETAINED DURING CONSTRUCTION. AREAS FOR VEGETATIVE PROTECTION SHALL BE INSTALLED AS SHOWN ON PLANS, OR AS DIRECTED BY ENGINEER TO ENSURE PERMIT COMPLIANCE. PROTECTION SHALL LIMIT IMPACTS TO ROOT ZONES, PLACE VISIBLE BARRIERS TO PREVENT INTRUSION INTO PROTECTED AREA, AND PREVENT EQUIPMENT FROM DAMAGING VEGETATION.
4. TEMPORARY MEASURES: THE TEMPORARY EROSION & SEDIMENT CONTROL MEASURES LISTED BELOW ARE TO BE USED DURING CONSTRUCTION OF THE PROJECT, AND REMOVED AFTER FINAL STABILIZATION OF THE SITE. ADDITIONAL MEASURES MAY BE REQUIRED BASED UPON SITE CONDITIONS. PROPOSED MEASURES INCLUDE:
 - 4.1. SILT FENCE - PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES, A GEOTEXTILE FILTER FABRIC (OR SILT FENCE) SHALL BE ESTABLISHED AS SHOWN ON THE PLAN, OR AS ORDERED BY ENGINEER, AND/OR ALONG THE DOWN SLOPE PERIMETER OF AREAS TO BE DISTURBED (AS A RESULT OF THE CONSTRUCTION) WHICH ARE LOCATED UP GRADIENT OF WATERCOURSES OR ADJACENT PROPERTIES. THESE BARRIERS MAY EXTEND INTO NON-IMPACT AREAS TO PROVIDE ADEQUATE PROTECTION OF ADJACENT LANDS. CLEARING AND GRUBBING SHALL BE PERFORMED ONLY AS NECESSARY FOR THE INSTALLATION OF THE SEDIMENT CONTROL BARRIER. TO FACILITATE EFFECTIVENESS OF THE SILT FENCING, DAILY INSPECTIONS AND INSPECTIONS IMMEDIATELY AFTER SIGNIFICANT STORM EVENTS SHALL BE PERFORMED BY SITE PERSONNEL. MAINTENANCE OF THE FENCE WILL BE PERFORMED AS NEEDED.
 - 4.2. COMPOST FILTER SOCKS - TO BE USED ON IMPERMEABLE SURFACES FOR THE DURATIONS OF THE CONSTRUCTION PROJECT. COMPOST FILTER SOCKS SHALL BE ESTABLISHED IN WORK AREAS AND RUN THE LINEAGE OF THE WORK AREA WITH THE ENDS OF THE SOCK EXTENDING 8 FEET UPSLOPE AT A 45 DEGREE ANGLE TO PREVENT BYPASS FLOW.
 - 4.3. STABILIZED CONSTRUCTION ENTRANCE - THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION WHICH WILL CONTROL TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY OR STREETS. WHEN NECESSARY, THE PLACEMENT OF ADDITIONAL AGGREGATE ATOP THE FILTER FABRIC SHOULD BE COMPLETED TO ASSURE THE MINIMUM THICKNESS IS MAINTAINED. ALL SEDIMENTS AND SOILS SPILLED, DROPPED, OR WASHED ONTO THE PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH SUBSTANTIAL RAINFALL EVENT.
 - 4.4. TEMPORARY SOIL STOCKPILE - MATERIALS, SUCH AS TOPSOIL, WILL BE TEMPORARY STOCKPILED (IF NECESSARY) ON THE SITE DURING THE CONSTRUCTION PROCESS. STOCKPILES SHOULD BE LOCATED IN AN AREA AWAY FROM STORM DRAINAGE, WATER BODIES AND/OR COURSES, AND WILL BE PROTECTED FROM EROSION BY A SURROUNDING SILT FENCE BARRIER. STOCKPILES SHALL BE COVERED WITH PLASTIC IN TIMES OF STRONG WINDS.
 - 4.5. STORM DRAIN INLET PROTECTION - EXISTING CATCH BASINS LOCATED IN THE WORK AREA SHALL BE PROTECTED TO PREVENT STORMWATER FROM ENTERING UNTREATED. SEE INLET SEDIMENT CONTROL DEVICE DETAIL (SAME SHEET).
 - 4.6. DEWATERING SUMP PUMPING - DUE TO THE NATURE OF EXCAVATING WORK FOR THIS PROJECT, DEWATERING OF TRENCHES MAY OCCUR. IN AREAS WHERE IT APPLIES, DISCHARGE SHALL BE PUMPED TO A GEOTEXTILE FILTER BAG.
 - 4.7. CONSTRUCTION ROAD STABILIZATION - DUE TO THE ACCESS REQUIREMENTS FOR THE PROJECT, TEMPORARY ACCESS ROADS MAY BE REQUIRED TO FACILITATE CONSTRUCTION AND REDUCE EROSION GENERATED. ACCESS ROADS SHALL HAVE A MINIMUM WIDTH OF 12' FOR ONE-WAY TRAFFIC, AND HAVE A 6 INCH LAYER OF APPROVED SUBBASE AS SHOWN IN THE STABILIZED CONSTRUCTION ENTRANCE DETAIL (SAME SHEET).
 - 4.8. DUST CONTROL - DURING PERIODS WHERE LAND DISTURBANCE ACTIVITIES HAVE THE POTENTIAL TO GENERATE DUST, ADDITIONAL MEASURE SHALL BE TAKEN BY THE CONTRACTOR TO REDUCE AIRBORNE DUST. APPROVED CONTROL METHODS WILL BE APPLIED TO BOTH DRIVING AND NON-DRIVING AREAS DURING TIMES OF DUST GENERATION.
5. PERMANENT MEASURES: NO PERMANENT EROSION CONTROL MEASURES OR STORMWATER MANAGEMENT CONTROLS ARE PROPOSED FOR THE WATER AND SEWER UTILITY INSTALLATION PROJECT.
6. CONSTRUCTION HOUSEKEEPING PRACTICES - FOLLOW SPECIFICATIONS.

PROJECT INFORMATION:

DATE:	2/1/2021
SCALE:	AS SHOWN
DESIGNED BY:	LJC
DRAWN BY:	LJC
REVIEWED BY:	JMS
PROJECT NO.:	20-027

REVISIONS:

NO.	DATE	DESCRIPTION
1	3/9/21	NYS DEC REVISION 1
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MORIAH WATER & SEWER
MAIN REPLACEMENT PHASE II
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