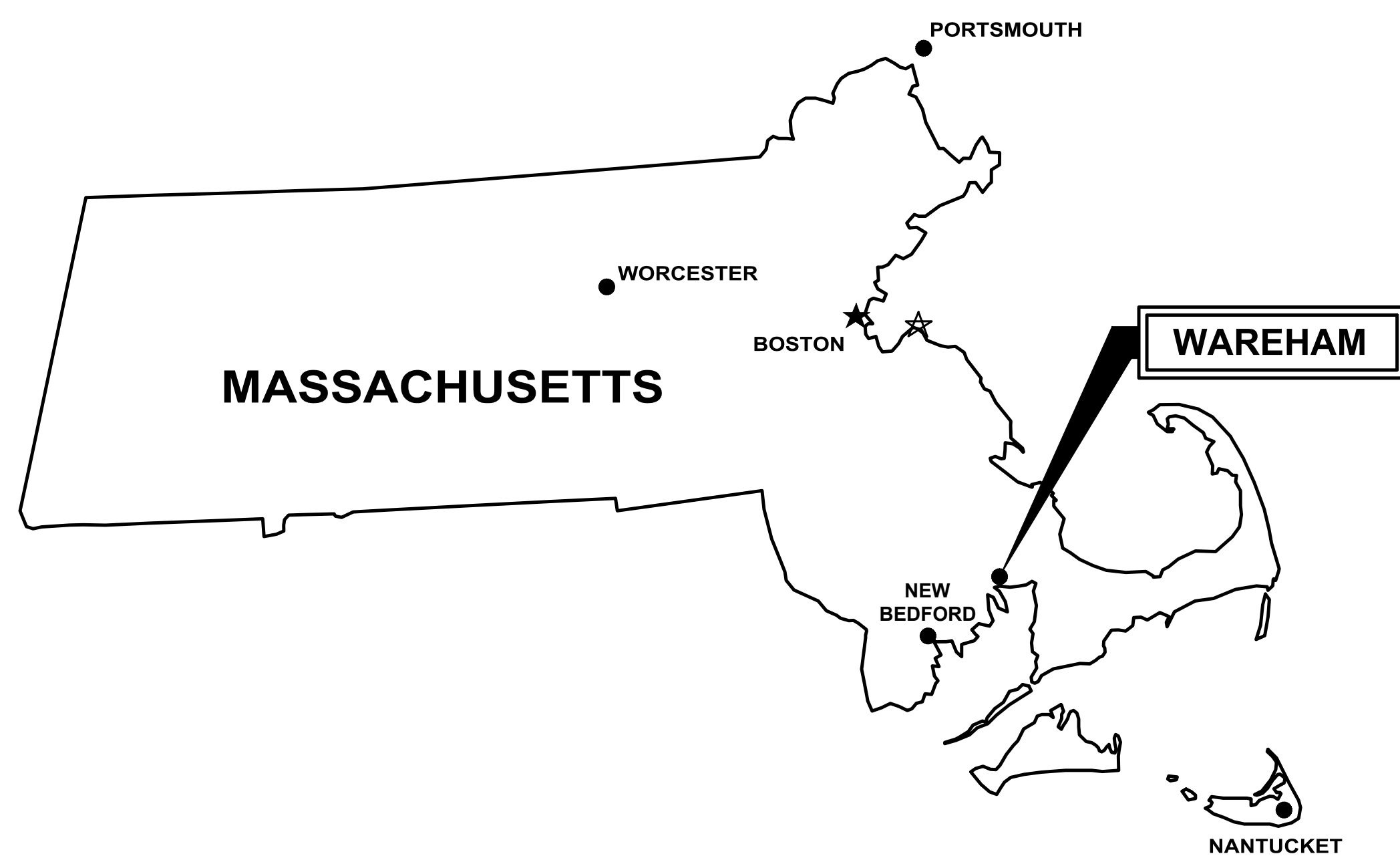


# TOWN OF WAREHAM, MASSACHUSETTS

## CONTRACT DRAWINGS FOR

# NARROWS PUMP STATION FORCE MAIN LINING

## JUNE 2022



**TOWN PERSONNEL**  
 TOWN MANAGER - DEREK SULLIVAN  
 DIRECTOR OF WATER POLLUTION CONTROL - GUY CAMPINHA

**SEWER COMMISSIONERS**  
 CHAIRMAN - JAMES R. GIBERTI  
 VICE CHAIRMAN - MALCOLM R. WHITE  
 CLERK - SANDRA SLAVIN  
 MEMBER - DONNA M. BRONK  
 MEMBER - PETER DUNLOP  
 BOS LIAISON - PATRICK TROPEANO

**DRAWING INDEX**

<b>GENERAL</b>	
---	COVER SHEET
<b>CIVIL</b>	
C-1	GENERAL NOTES, LEGEND, ABBREVIATIONS & KEY PLAN
C-2	PLAN AND PROFILE STA 00+00 TO STA 12+00
C-3	PLAN AND PROFILE STA 12+00 TO STA 24+00
C-4	PLAN AND PROFILE STA 24+00 TO STA 36+00
C-5	PLAN AND PROFILE STA 36+00 TO STA 48+00
C-6	PLAN AND PROFILE STA 48+00 TO STA 60+00
C-7	PLAN AND PROFILE STA 60+00 TO STA 72+00
C-8	PLAN AND PROFILE STA 72+00 TO STA 82+00
C-9	PLAN AND PROFILE STA 82+00 TO END
C-10	SITE PLAN FOR WPCF UPGRADE AT HEADWORKS
C-11	DETAILS
	EROSION CONTROL NOTES AND DETAILS
<b>STRUCTURAL</b>	
S-1	HEADWORKS STRUC-DEMOLITION AND MODIFICATIONS PLANS, SECTIONS AND DETAILS



**LOCATION PLAN**



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GENERAL NOTES

- 1. THE OWNER WILL BE RESPONSIBLE FOR OBTAINING THE PERMITS LISTED IN THE SUPPLEMENTARY OR SPECIAL CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH PERMIT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL OBTAINED PERMITS ARE AVAILABLE FOR REVIEW FROM THE OWNER. ALL OTHER PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHTS OF WAY AND EASEMENTS. THE CONTRACTOR SHALL VERIFY THAT THE NECESSARY EASEMENTS HAVE BEEN SECURED BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH EASEMENT AS IT APPLIES TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL RIGHTS-OF-WAY AND EASEMENTS ARE AVAILABLE FOR REVIEW FROM THE OWNER.
3. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRAFFIC FLOW AT ALL TIMES. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL SIGNS IN ACCORDANCE WITH THE MUTCD AND ALL STATE AND LOCAL REGULATIONS. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER PRIOR TO COMMENCING CONSTRUCTION. THE POLICE DEPARTMENT AND FIRE DEPARTMENT ARE TO BE NOTIFIED AT LEAST 24-HOURS IN ADVANCE OF ANY STREET CLOSING OR DETOUR. REFER TO SPECIFICATION SECTION 01570.
4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
5. CONTRACTOR SHALL COMPLY WITH THE COORDINATION REQUIREMENTS AND RELATED COSTS, IF ANY, AS SPECIFIED IN SPECIFICATION SECTION 01050.
6. CONTRACTOR SHALL NOTE THAT, IN GENERAL, ALL EXISTING CONDITION INFORMATION ON THE DRAWINGS IS SHOWN WITH A LIGHTER LINE WEIGHT.
7. ALL EXISTING GRAVITY SEWER AND STORM DRAIN LINES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE. ANY EXISTING GRAVITY SEWERS, STORM DRAIN LINES OR CULVERTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER, EXCEPT WHEN NOT SHOWN OR INDICATED.
8. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. INJURY TO ANY SUCH STRUCTURES CAUSED BY OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE RESPECTIVE UTILITY.
9. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTICE TO THE RESPECTIVE UTILITY POLE OWNER. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
10. STATE HIGHWAYS: SANDWICH ROAD AND THE SANDWICH ROAD BRIDGE FALL WITHIN THE JURISDICTION OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION. ALL WORK CONDUCTED WITHIN THESE ROADWAYS SHALL CONFORM TO MASSDOT STANDARDS AND ROAD OPENING PERMIT REQUIREMENTS.
11. ALL TEST PITS SHALL BE EXCAVATED PRIOR TO CONSTRUCTION LAYOUT AND RESULTS REPORTED TO THE ENGINEER FOR REVIEW FOR CONFORMANCE WITH THE PLANS. TESTS PITS ARE REQUIRED WHERE SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER. TEST PITS WILL BE DUG PRIOR TO THE START OF CONSTRUCTION. THE RESULTS OF TEST PITS WILL BE REPORTED TO THE ENGINEER AT LEAST 10 DAYS PRIOR TO ANY WORK. ADJUSTMENTS TO LENGTHS OF PROPOSED SEWER LINING MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.
12. THE CONTRACTOR SHALL AT ALL TIMES CONDUCT OPERATIONS SO AS TO INTERFERE AS LITTLE AS POSSIBLE WITH EXISTING WORKS. THE CONTRACTOR SHALL DEVELOP A PROGRAM, IN COOPERATION WITH THE ENGINEER AND INTERESTED OFFICIALS, WHICH SHALL PROVIDE FOR THE CONSTRUCTION AND PUTTING INTO SERVICE OF THE NEW WORKS IN THE MOST ORDERLY MANNER POSSIBLE. THIS PROGRAM SHALL BE ADHERED TO EXCEPT AS DEVIATIONS THEREFROM ARE EXPRESSLY PERMITTED.
13. CONNECTIONS SHALL BE AS FIELD DETERMINED THROUGH CCTV INSPECTION AND AS STATED IN SECTION 02753.
14. INITIAL PAVING SHALL BE CONDUCTED WITHIN TWO WEEKS OF COMPLETION OF PLACEMENT OF FINAL BACKFILL UNLESS OTHERWISE AUTHORIZED BY ENGINEER. INITIAL PAVEMENT SHALL BE INSTALLED AND MAINTAINED BY CONTRACTOR FOR A MINIMUM PERIOD OF TWO MONTHS BEFORE FINAL PAVEMENT IS PLACED. THE BASE COURSE PAVING SHALL BE INSTALLED PRIOR TO WINTER AND THE FINAL PAVING SHALL BE INSTALLED IN THE SPRING OF 2023. FINAL PAVEMENT MAY BE PLACED OVER THE INITIAL PAVING PROVIDED INITIAL PAVING COURSE IS IN GOOD REPAIR. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND SHIMMING THE INITIAL PAVEMENT AS NECESSARY TO ACCEPT THE FINAL PAVING COURSE. IF CONDITIONS WARRANT, THE CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE INITIAL PAVING PRIOR TO FINAL PAVING.
15. THE RIGHT-OF-WAY FOR ROADS AND PERMANENT EASEMENT BOUNDARIES ARE THE CONSTRUCTION LIMITS.
16. CONTOUR INTERVAL EQUALS ONE FOOT.

EXISTING SITE CONDITIONS

- 1. THE LOCATIONS OF UNDERGROUND UTILITIES AND STRUCTURES, AS SHOWN ON THE DRAWINGS, ARE APPROXIMATE AND MAY NOT BE COMPLETE. NO GUARANTEE IS MADE THAT UTILITIES WILL BE ENCOUNTERED WHERE SHOWN, OR THAT ALL UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN. ALL LOCATIONS AND SIZES OF EXISTING UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD.
2. BELOW GRADE UTILITY LOCATION SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES, ARE NOT SHOWN. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING UTILITIES IN THE FIELD WITH THE RESPECTIVE UTILITY COMPANY REPRESENTATIVE PRIOR TO COMMENCING WORK. REFER TO SPECIFICATION SECTION 01050.
3. THERE ARE NO KNOWN HAZARDOUS ENVIRONMENTAL CONDITIONS WITHIN THE AREA OF WORK. REFER TO SPECIFICATION SECTION 00800-SC-5.06. IF THE PRESENCE OF HAZARDOUS ENVIRONMENTAL CONDITIONS IS DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER IMMEDIATELY. ALL ACTIVITIES, HANDLING AND DISPOSAL OF HAZARDOUS ENVIRONMENTAL CONDITIONS AND MATERIALS SHALL BE IN ACCORDANCE WITH OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.
4. THE LOCATIONS AND DEPTHS OF EXISTING WATER AND FORCE MAIN CONNECTIONS ARE UNKNOWN. CONTRACTOR SHALL ANTICIPATE AT LEAST ONE WATER AND FORCE MAIN CONNECTION FOR EACH BUILDING. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING WATER AND FORCE MAIN CONNECTIONS. THE CONTRACTORS SCHEDULE SHALL TAKE INTO CONSIDERATION REASONABLE TIME TO CROSS AND IF REQUIRED TO RELOCATE EXISTING FORCE MAIN CONNECTIONS AND WATER MAINS AFFECTED BY THE WORK AND SHALL HAVE NO CLAIMS FOR ADDITIONAL TIME OR COSTS ASSOCIATED WITH THESE ROUTINE RELOCATIONS.
5. FORCE MAIN PLAN AND PROFILE ARE BASED ON THE FOLLOWING:
A. FORCE MAIN SEWERS - WAREHAM - CONTRACT 3 "RECORD PLAN"; MARCH 1973; FAY, SPOFFORD & THORNDIKE INC.
B. TOWN OF WAREHAM, MASSACHUSETTS; WASTEWATER SYSTEM IMPROVEMENT; WATER POLLUTION CONTROL FACILITY UPGRADE "NOT FOR CONSTRUCTION", PROJECT NO. M02-03; OCTOBER 2001; CDM INC.
C. TOWN OF WAREHAM, MASSACHUSETTS; NARROWS PUMP STATION BYPASS INSTALLATIONS; CONTRACT NO. 2020-WW-2; FEBRUARY 2021; GHD INC.
D. COMMONWEALTH OF MASSACHUSETTS; PROPOSED BRIDGE; WAREHAM ROUTE 6 (AGAWAM ROAD) OVER WAREHAM RIVER; VOLLMER ASSOCIATES.
• SHEET 1 OF 38 SHEETS BRIDGE NO. W-6-1; APRIL 8, 1994
• SHEET 11 OF 38 SHEETS BRIDGE NO. W-6-1; MARCH 24, 1993
• SHEET 12 OF 38 SHEETS BRIDGE NO. W-6-1; APRIL 8, 1994
• SHEET 24 OF 38 SHEETS BRIDGE NO. W-6-1; FEBRUARY 10, 1993
• SHEET 26 OF 38 SHEETS BRIDGE NO. W-6-1; MARCH 24, 1993
E. COMMONWEALTH OF MASSACHUSETTS; WAREHAM ROUTE 6; FED. AID AND PROJ. NO. BR-85-511(361); FISCAL YEAR 1990.
• SHEET 4 OF 76 SHEETS
• SHEET 6 OF 76 SHEETS
• SHEET 13 OF 76 SHEETS

SITE DEMOLITION

- 1. REFER TO THE EXISTING SITE PLAN FOR ADDITIONAL INFORMATION REGARDING EXISTING FACILITIES. REFER TO THE LAYOUT DRAWING FOR LIMITS OF WORK.
2. REFER TO SPECIFICATION SECTION 01010, WHICH CONTAINS INFORMATION ON CONSTRAINTS OF CONSTRUCTION SEQUENCING.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED PIPING, EQUIPMENT AND MATERIALS. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND MATERIALS DESIGNATED FOR DEMOLITION. SUCH MATERIALS TO BE RETAINED SHALL BE PROPERLY STORED IN AN ON-SITE LOCATION. COORDINATE LOCATION AND MATERIALS TO BE SALVAGED WITH THE OWNER/ENGINEER. REFER TO SPECIFICATION SECTION 02050. THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AS PART OF THE PROJECT RECORD DOCUMENTS IN ACCORDANCE WITH SPECIFICATION SECTION 01720.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE DISPOSAL OF FLOWS RESULTING FROM PRECIPITATION AND GROUNDWATER DEWATERING OPERATIONS.

SITE CLEARING, GRUBBING AND GRADING

- 1. STRIPPING OF TOPSOIL (LOAM) SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02115. REFER TO THE LAYOUT AND GRADING DRAWINGS FOR LIMIT OF WORK AND STRIPPING.

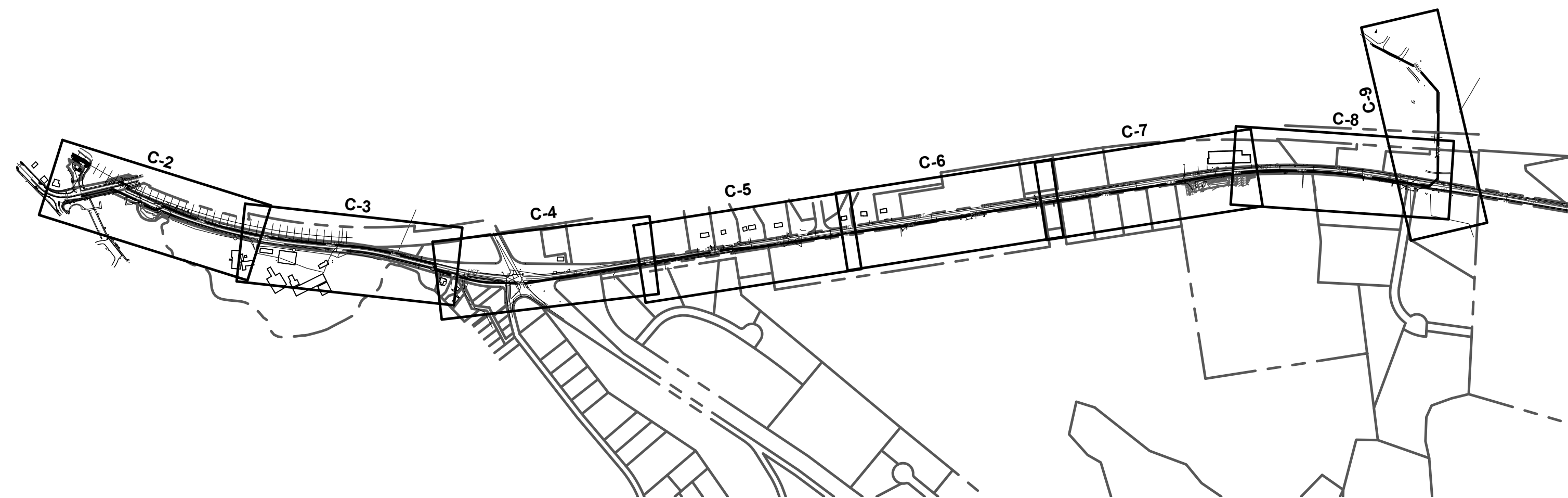
- 2. CONTRACTOR SHALL MINIMIZE CLEARING OPERATIONS. CLEARING AND GRUBBING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02110. CLEARING LIMITS SHALL BE WITHIN EXISTING ROAD RIGHTS-OF-WAY AND PROPERTY LINES ON STATE OR COUNTY-OWNED PROPERTY OR EASEMENTS. ALL CLEARING AND GRUBBING MATERIAL SHALL BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AT A SITE PROVIDED BY THE CONTRACTOR IN COMPLIANCE WITH ALL STATE AND LOCAL LAWS.
3. CONTRACTOR SHALL PROVIDE PROPER EROSION CONTROL AND DRAINAGE MEASURES IN ALL AREAS OF WORK. PRIOR TO BEGINNING EXCAVATION WORK, EROSION CONTROL FENCE SHALL BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE ACTUAL LIMITS OF GRUBBING AND/OR GRADING. CONTRACTOR SHALL TAKE ALL NECESSARY EROSION CONTROL MEASURES. EROSION CONTROL FENCE SHALL ALSO BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE TOPSOIL STOCKPILES. ALL DISTURBED EARTH SURFACES SHALL BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL SHALL BE STABILIZED IN A MANNER THAT WILL MINIMIZE EROSION. ALL INSTALLED EROSION CONTROL FACILITIES SHALL BE REMOVED AT THE END OF THE PROJECT. REFER TO SPECIFICATION SECTION 02270.
4. ALL STORM DRAINAGE INLETS SHALL BE PROTECTED BY HAY BALE FILTERS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL COLLECTED SEDIMENT, AND THAT WHICH COLLECTS IN THE STORM DRAIN SYSTEM. REFER TO THE CIVIL DETAIL DRAWINGS.
5. CONTRACTOR SHALL CONTROL DUST ON THE CONSTRUCTION SITE TO A REASONABLE LIMIT, AS DETERMINED BY THE ENGINEER, AND AS OUTLINED IN SPECIFICATION SECTION 01562.
6. CONTRACTOR SHALL NOT TRACK OR SPILL EARTH, DEBRIS OR OTHER CONSTRUCTION MATERIAL ON PUBLIC OR PRIVATE STREETS AND PLANT DRIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE ASSOCIATED CLEAN UP.
7. ALL CATCH BASINS, MANHOLES, VALVE PITS, VALVE BOXES AND OTHER BURIED FACILITIES WITH SURFACE ACCESS SHALL BE ADJUSTED TO MATCH FINAL GRADES, UNLESS OTHERWISE INDICATED.
8. THE CONTRACTOR SHALL NOT HAVE ANY RIGHT OF PROPERTY IN ANY MATERIALS TAKEN FROM ANY EXCAVATION. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT, WITH EXCESS MATERIAL DISPOSED OF AT A LOCATION PROVIDED BY THE CONTRACTOR. THESE PROVISIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF OBLIGATIONS TO PROPERLY DISPOSE OF AND REPLACE ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE AND EXCESS MATERIAL IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS.
9. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, PAVEMENT AND OTHER ITEMS DAMAGED BY CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER AND ENGINEER.
10. WHERE EXISTING PAVEMENT IS REMOVED AND REPLACED, MATCH EXISTING GRADES TO THE EXTENT POSSIBLE. COORDINATE FINE GRADING WITH THE ENGINEER.
11. ALL ROAD AND DRIVE CROSS SLOPES SHALL PITCH 1/4-INCH PER FOOT MINIMUM. ALL PAVED SURFACES SHALL PITCH 1% UNLESS OTHERWISE NOTED. REFER TO THE CIVIL DETAIL DRAWINGS.
12. ALL NON-ROADWAY AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED, UNLESS OTHERWISE NOTED. THE TOP 4 INCHES OF SOIL SHALL BE LOAM. REFER TO SPECIFICATION SECTION 02485, LOAMING & SEEDING.

CIVIL SITE LAYOUT

- 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION. REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
2. THE LOCATIONS AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED BY AND COORDINATED WITH, AND ACCEPTABLE TO, THE OWNER AND ENGINEER. THE CONTRACTOR SHALL LIMIT ACTIVITIES TO THESE AREAS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETTING ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY CONSTRUCTION. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF MASSACHUSETTS, AT NO ADDITIONAL COST TO THE OWNER.
4. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
5. ALL ELEVATIONS REFER TO THE NAVD88 DATUM. ORIENTATION IS GRID NORTH ON THE NAD83 MASSACHUSETTS STATE PLANE, MAINLAND ZONE, COORDINATE SYSTEM. PROJECT BENCH MARK IS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL VERIFY BENCHMARK ELEVATIONS PRIOR TO USING IN CONSTRUCTION.
6. EXISTING CONDITIONS SITE PLAN DEVELOPED FROM SURVEY DATA PREPARED BY JC ENGINEERING AND EXISTING AVAILABLE DRAWING INFORMATION.
7. WETLAND BOUNDARIES DELINEATED BY JC ENGINEERING. WETLANDS FLAGS SURVEYED BY JC ENGINEERING.

CIVIL SITE PIPING

- 1. DIAMETERS OF MANHOLES ARE NOTED ON THE DRAWINGS. THE TOP OF MANHOLE FRAMES SHALL BE SET FLUSH WITH FINISH GRADE, UNLESS OTHERWISE NOTED ON DRAWINGS.
2. PIPES WITHIN VALVE PITS (MANHOLES) SHALL BE SUPPORTED 12 INCHES ABOVE BOTTOM OF MANHOLE ON ADJUSTABLE PIPE SADDLE SUPPORTS, UNLESS OTHERWISE INDICATED.
3. REFER TO SPECIFICATION SECTION 02200 (EARTHWORK) FOR PIPE AND STRUCTURE BEDDING AND BACKFILL REQUIREMENTS.
4. COMPACTION TESTS WILL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200. ANY SETTLEMENT OCCURRING WITHIN ONE-YEAR OF FINAL COMPLETION OF THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.
5. OPEN TRENCHES IN THE ROADWAY MUST BE BACKFILLED AT THE END OF THE WORKDAY. OPEN TRENCHES OUTSIDE OF THE WAY MUST BE COVERED AT THE END OF EACH DAY.
6. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION. CONTRACTOR SHALL VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. TEST PITS SHALL BE USED AS REQUIRED.
7. ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED ON THE PLANS. ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.



KEY PLAN SCALE: "NTS"

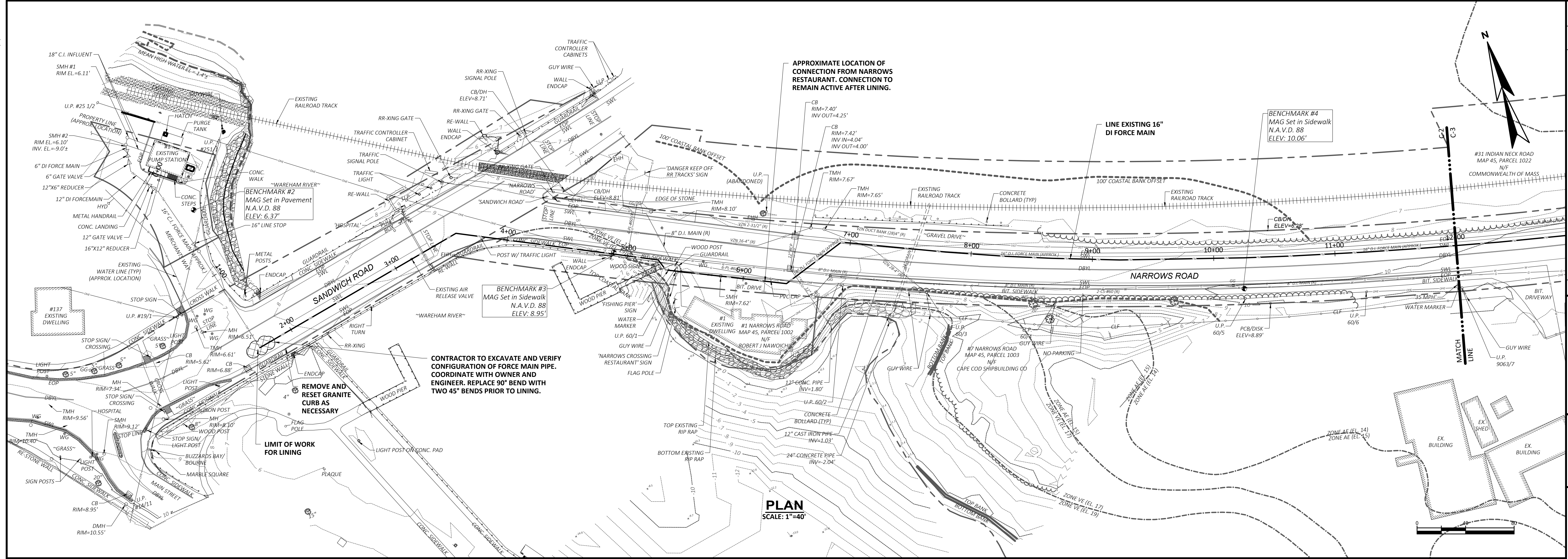
CIVIL ABBREVIATIONS

Table listing abbreviations for various civil engineering terms such as DIA, NO, AC, APP'D, BR, BLDG, CB, CEN, CFS, CI, CIPP, CL, CMP, CO, CONC, COR, CY, DEMO, DMH, DI, DR, DWG, EL, EMH, EP, FM, FT, G, HDPE, HYD, IN, INF, INV, LBS, LF, MAX, MH, MIN, MW, N, NGVD, N/A, NTS, OD, OUT, PC, PSF, PSI, PS, PT, PVC, RCP, RD, REQ'D, S, SD, SF, SMH, SQ, STA, T, XFMR, TBM, THK, TOS, TYP, UD, UG, UGE, VC, VF, W/, W.

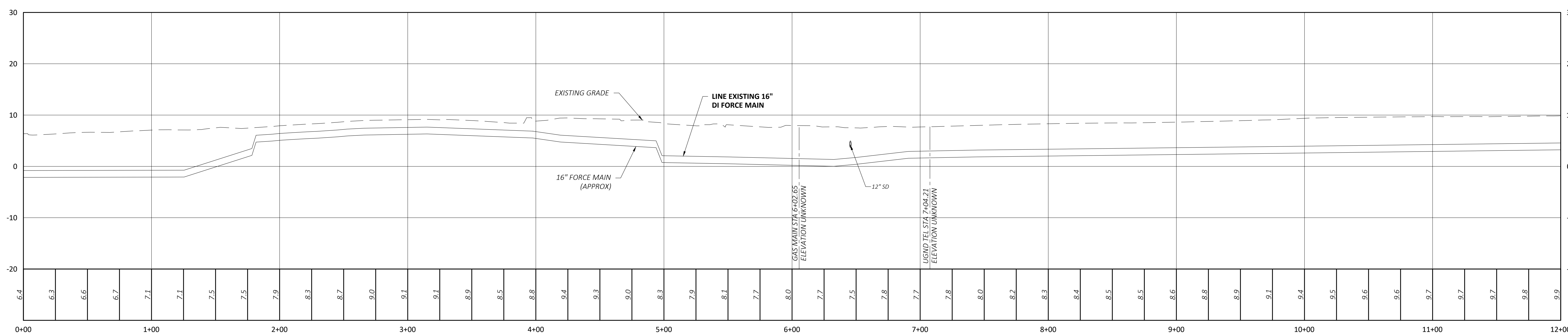
Legend table with columns for EXISTING, LEGEND, and PROPOSED. It lists symbols for various features like PROPERTY/ROW LINE, SETBACK LINE, EASEMENT LINE, CENTERLINE, EDGE OF PAVEMENT, CURBING, EDGE OF GRAVEL, EDGE OF CONCRETE, CONTOUR, BUILDING, STONEWALL, TREELINE, CHAIN LINK FENCE, STOCKADE FENCE, BARB WIRE FENCE, RETAINING WALL, GUARDRAIL, SEWER, SEWER FORCE MAIN, GAS, WATER, STORM DRAIN, UNDERDRAIN, CULVERT, UNDERGROUND ELECTRIC, OVERHEAD ELECTRIC, UNDERGROUND TELEPHONE, UNDERGROUND CABLE TV, IRON PIPE/REBAR, DRILLHOLE, MONUMENT, SURVEY CONTROL POINT, SPOT ELEVATION, SEWER MANHOLE, DRAINAGE MANHOLE, CATCH BASIN, ELECTRIC MANHOLE, TELEPHONE MANHOLE, SHUTOFF VALVE, WATER SERVICE SHUTOFF, YARD HYDRANT, GAS SERVICE SHUTOFF, GAS GATE VALVE, UTILITY POLE, UTILITY POLE W/ GUY, UTILITY POLE W/ LIGHT, LIGHT POLE, BOLLARD, FLAGPOLE, CONIFEROUS TREE, DECIDUOUS TREE, SHRUB, WETLAND FLAG, EDGE OF WATER, STREAM, EDGE OF WETLANDS, FLOODPLAIN, WETLANDS, DRAINAGE FLOW, DRAINAGE SWALE, PAVEMENT MARKINGS, SIGN, MAILBOX, TEMPORARY BENCH MARK, TEST PIT, LIMIT OF WORK, SILT FENCE, RIPRAP, RAILROAD, MATCHLINE, ROCK OUTCROP.

Project information block including PROJECT NO. 20274, DESIGNED BY P. BURBANK, CAD COORD. D. METZ, CHECKED BY M. CORBIN, DATE 06-07-2022, APPROVED BY M. STEIN, DATE 06-07-2022, SUBMISSION CONTRACT DRAWINGS. Includes the Wright-Pierce logo and contact information: 978.416.8000 | www.wright-pierce.com | 600 FEDERAL STREET, SUITE 2151, ANDOVER, MA 01810. Also includes the title 'TOWN OF WAREHAM, MA NARROWS PUMP STATION FORCE MAIN LINING' and 'GENERAL NOTES, LEGEND, ABBREVIATIONS & KEY PLAN'.





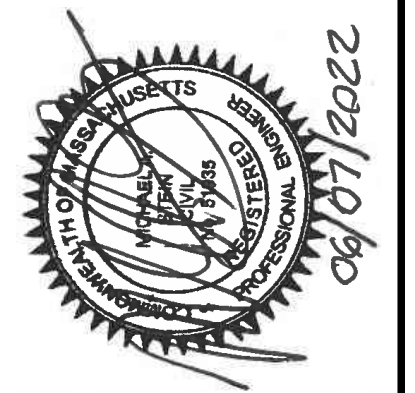
PLAN SCALE: 1"=40'



PROFILE SCALES VERT: 1"=10' HORIZ: 1"=40'

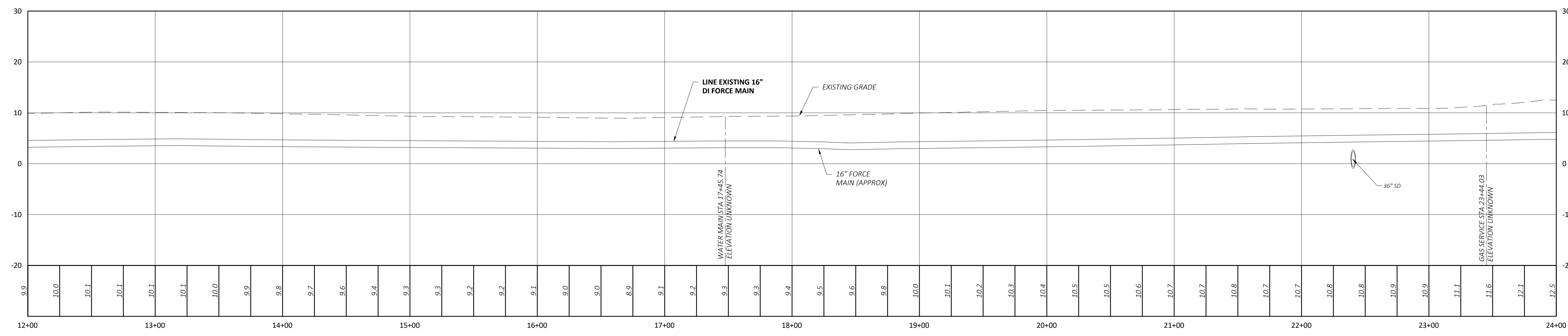
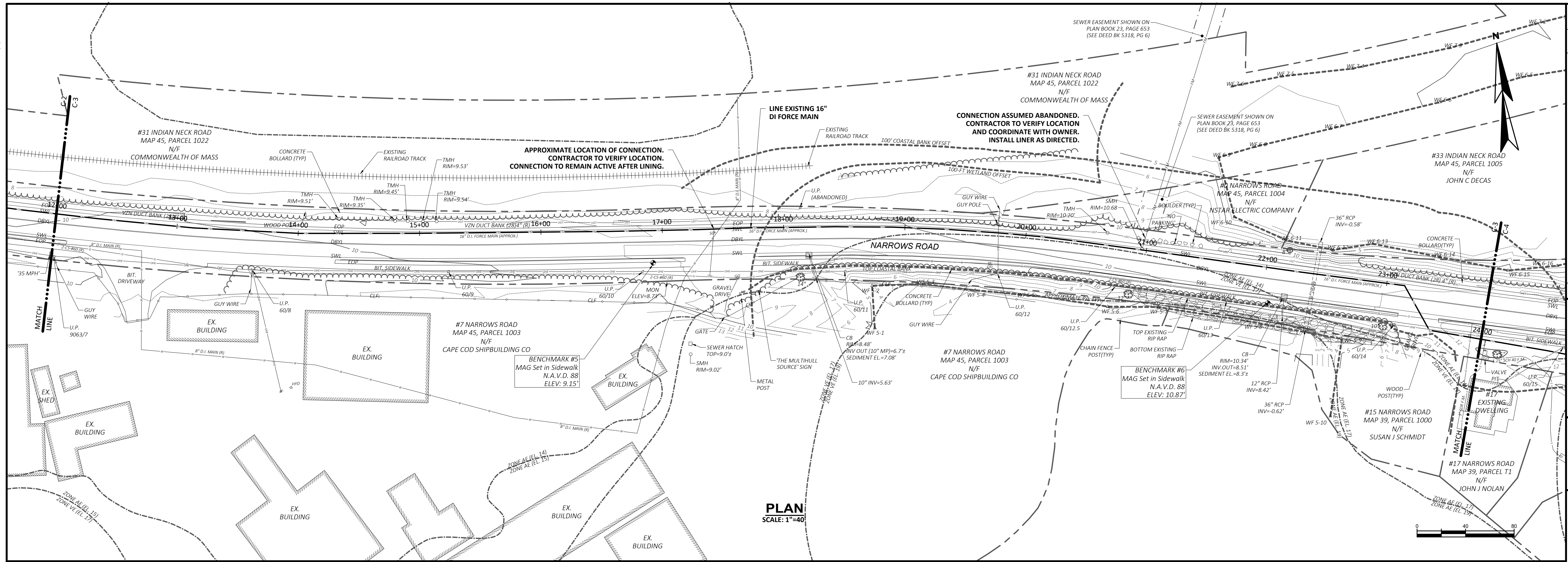
NO	REVISIONS	APPD	DATE

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 CAD COORD: D. METZ  
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TOWN OF WAREHAM, MA  
 NARROWS PUMP STATION  
 FORCE MAIN LINING  
 PLAN AND PROFILE STA 0+00 TO STA 12+00  
 DRAWING C-2



NO	REVISIONS	APPD	DATE

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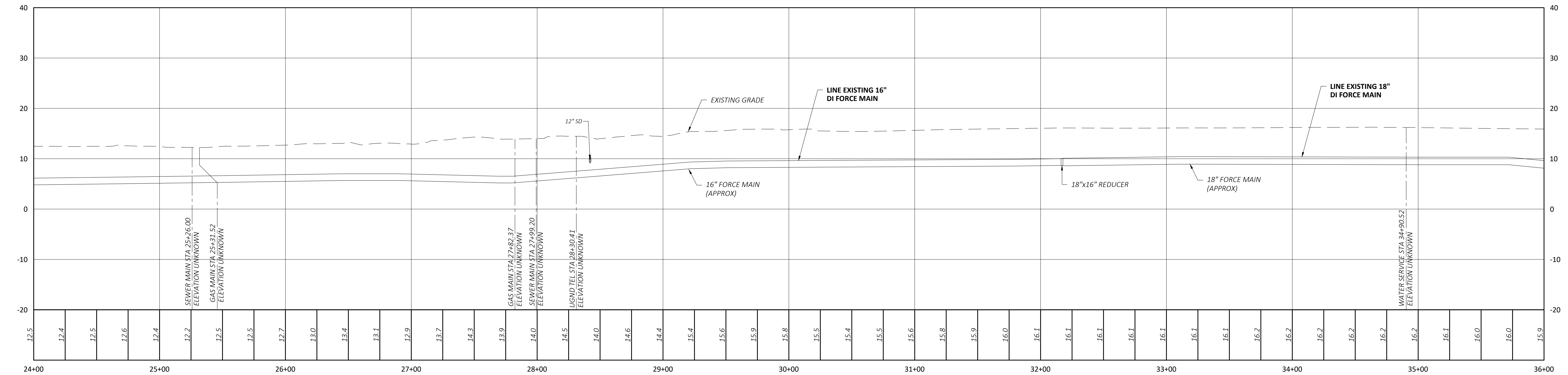
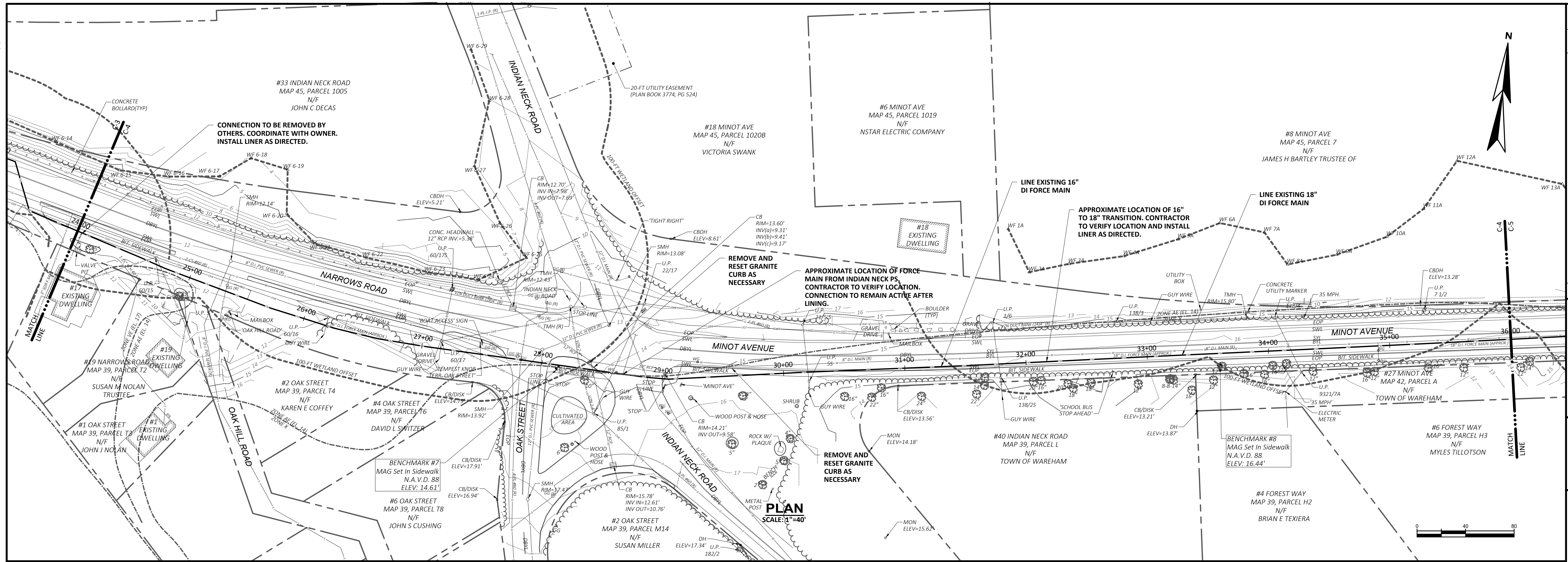
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**TOWN OF WAREHAM, MA**  
**NARROWS PUMP STATION**  
**FORCE MAIN LINING**

PLAN AND PROFILE STA 12+00 TO STA 24+00

DRAWING  
**C-3**





**PROFILE**  
 SCALES  
 VERT: 1"=10'  
 HORIZ: 1"=40'

NO	REVISIONS	APPD	DATE

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 DESIGNED: P. BURBANK  
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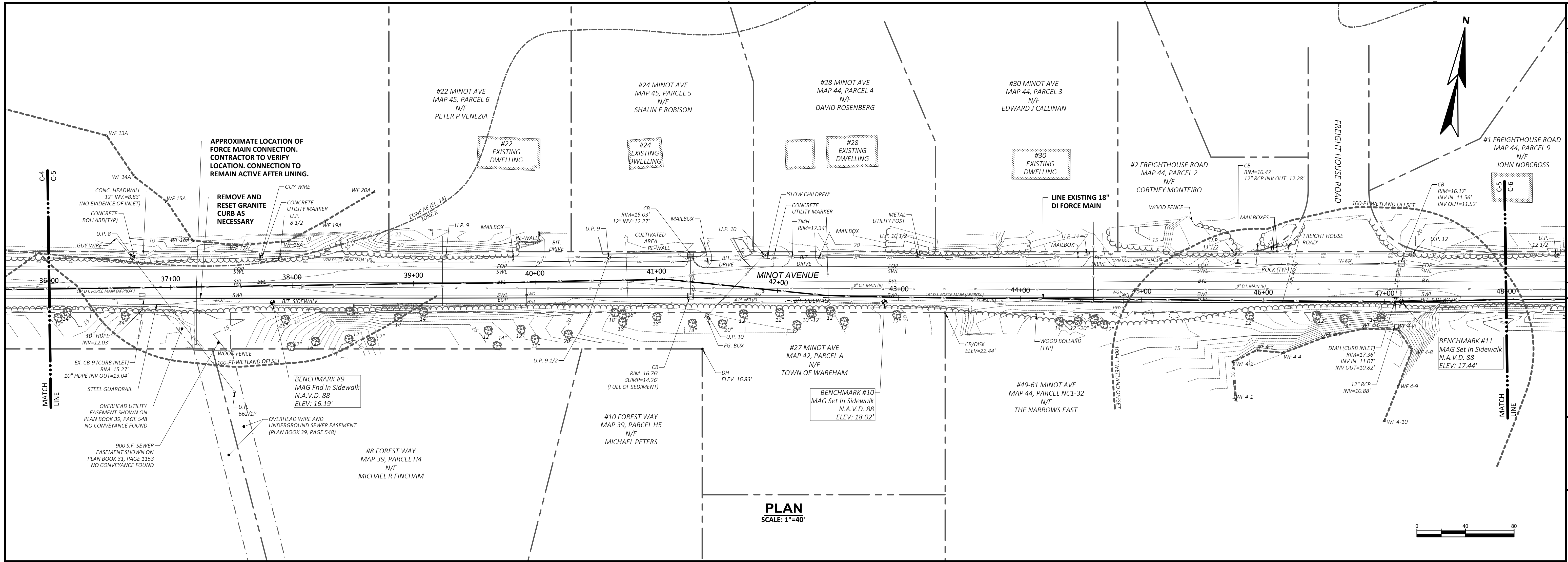


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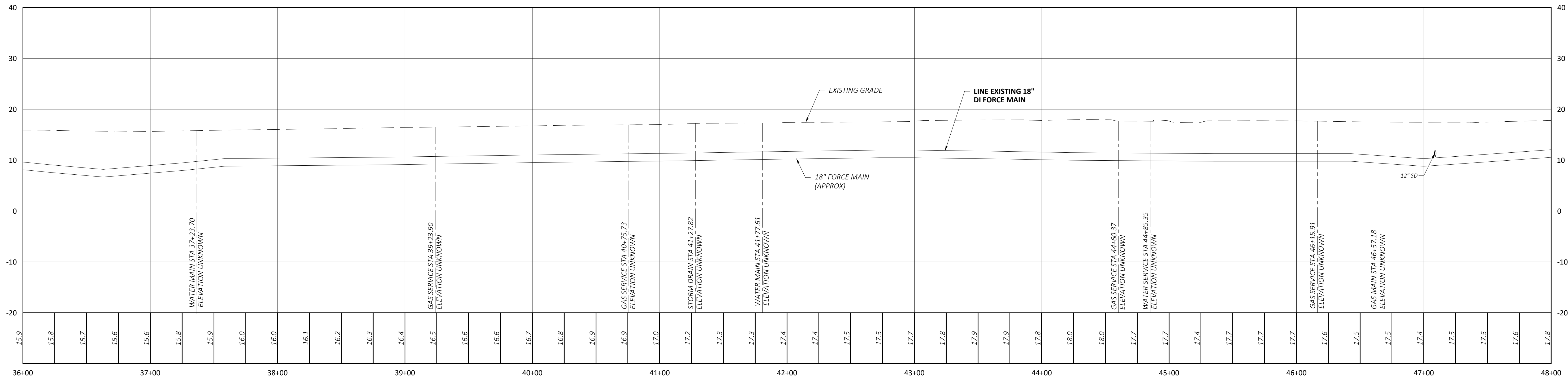
**TOWN OF WAREHAM, MA  
 NARROWS PUMP STATION  
 FORCE MAIN LINING**

PLAN AND PROFILE STA 24+00 TO STA 36+00

DRAWING  
**C-4**



PLAN  
SCALE: 1"=40'



PROFILE

SCALES  
VERT: 1"=10'  
HORIZ: 1"=40'

NO	REVISIONS	APPD	DATE

PROJECT NO: 2024	DESIGNED: P.BURBANK
CAD COORD: D.METZ	CHECKED: M.COBBIN
DATE: 06-07-2022	APPROVED: M.STEIN
DATE: 06-07-2022	DATE: 06-07-2022
SUBMISSION: CONTRACT DRAWINGS	

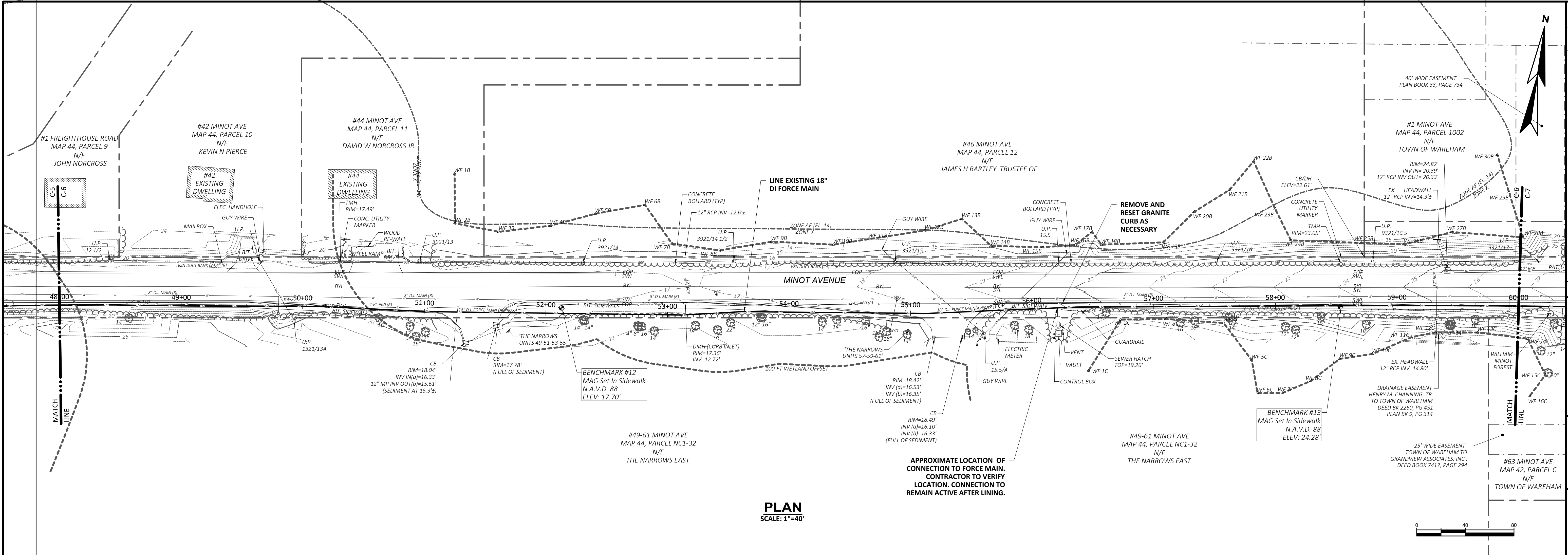
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**TOWN OF WAREHAM, MA  
NARROWS PUMP STATION  
FORCE MAIN LINING**

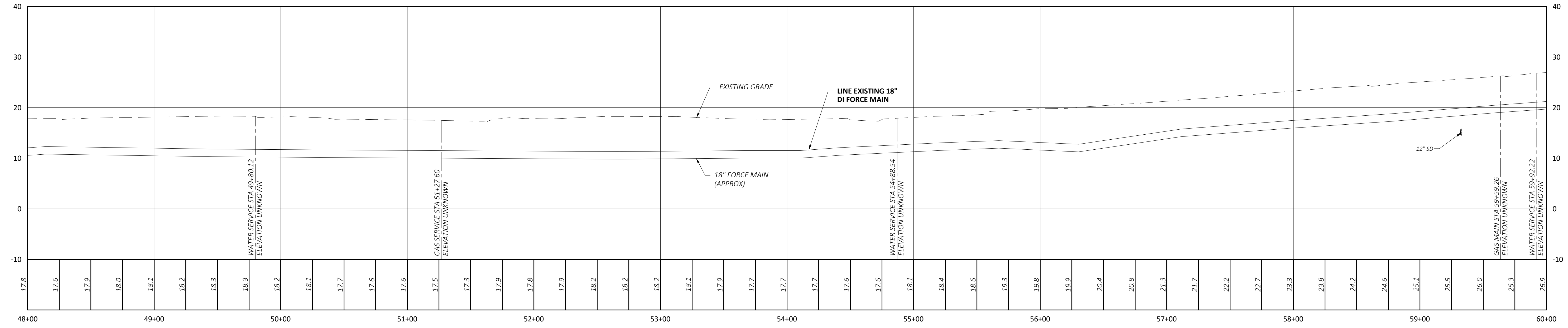
PLAN AND PROFILE STA 36+00 TO STA 48+00

DRAWING  
C-5





**PLAN**  
SCALE: 1"=40'



**PROFILE**  
SCALE:  
VERT: 1"=10'  
HORIZ: 1"=40'

NO	REVISIONS	DATE

PROJECT NO: 20274  
 DESIGNED: P. BURBANK  
 CAD COORD: D. METZ  
 CAD: D. METZ  
 CHECKED: M. COBBIN  
 DATE: 06-07-2022  
 APPROVED: M. STEIN  
 DATE: 06-07-2022  
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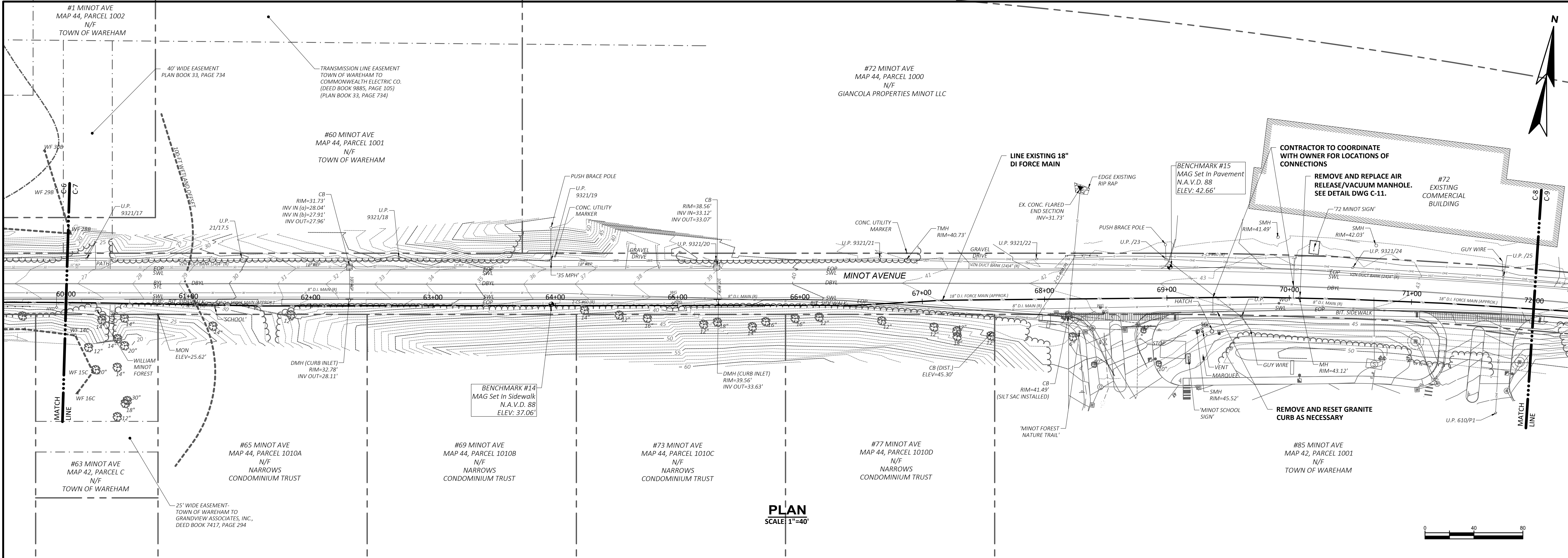
**TOWN OF WAREHAM, MA  
 NARROWS PUMP STATION  
 FORCE MAIN LINING**

PLAN AND PROFILE STA 48+00 TO STA 60+00

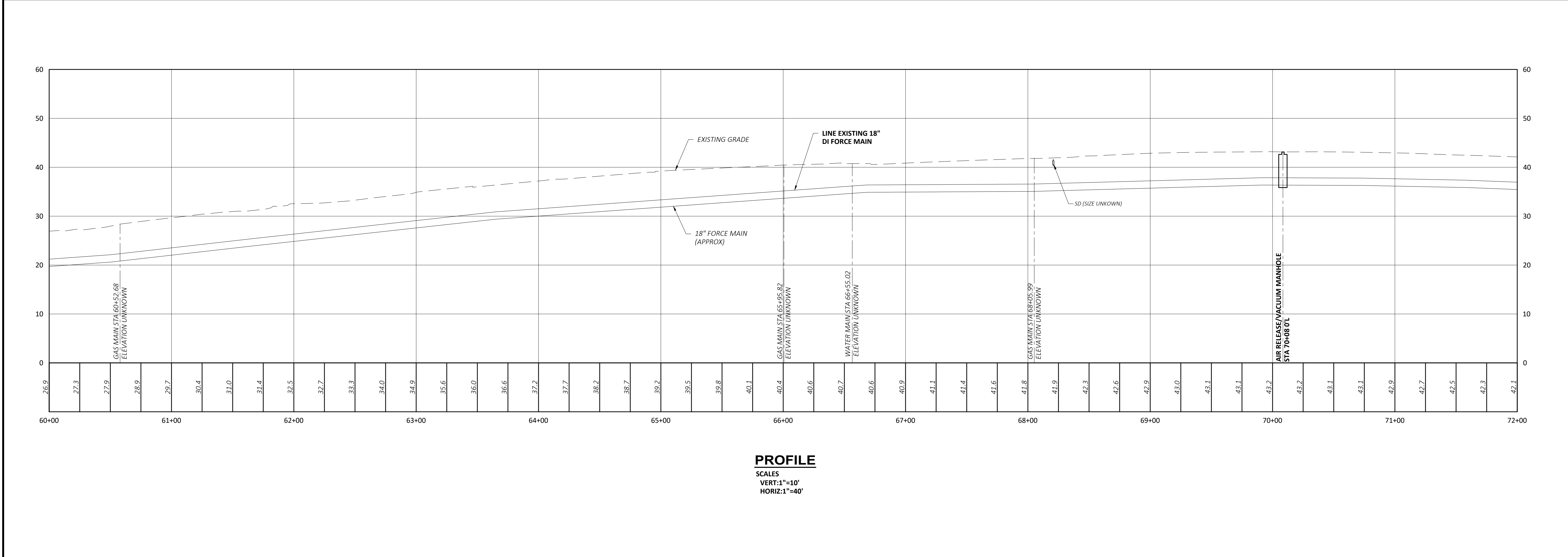
DRAWING  
**C-6**

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A:\ENGINEERING\WAREHAM\2024-NARROWS-CONCRETE\DRAWINGS\CV\2024-CS-PUMP\PROFILE.DWG | 2024-CS-PUMP\PROFILE.DWG | 1:2:56PM | [ 6/7/2022 8:24:00 AM ] DANIEL.METZ



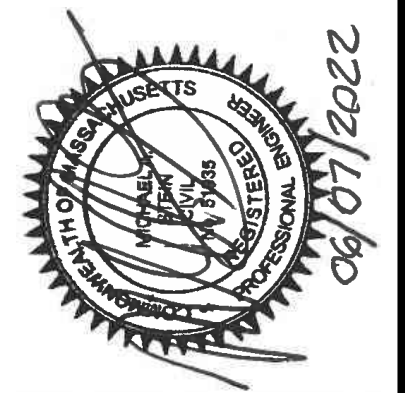
PLAN SCALE 1"=40'



PROFILE SCALES VERT: 1"=10' HORIZ: 1"=40'

NO	REVISIONS	APPD	DATE

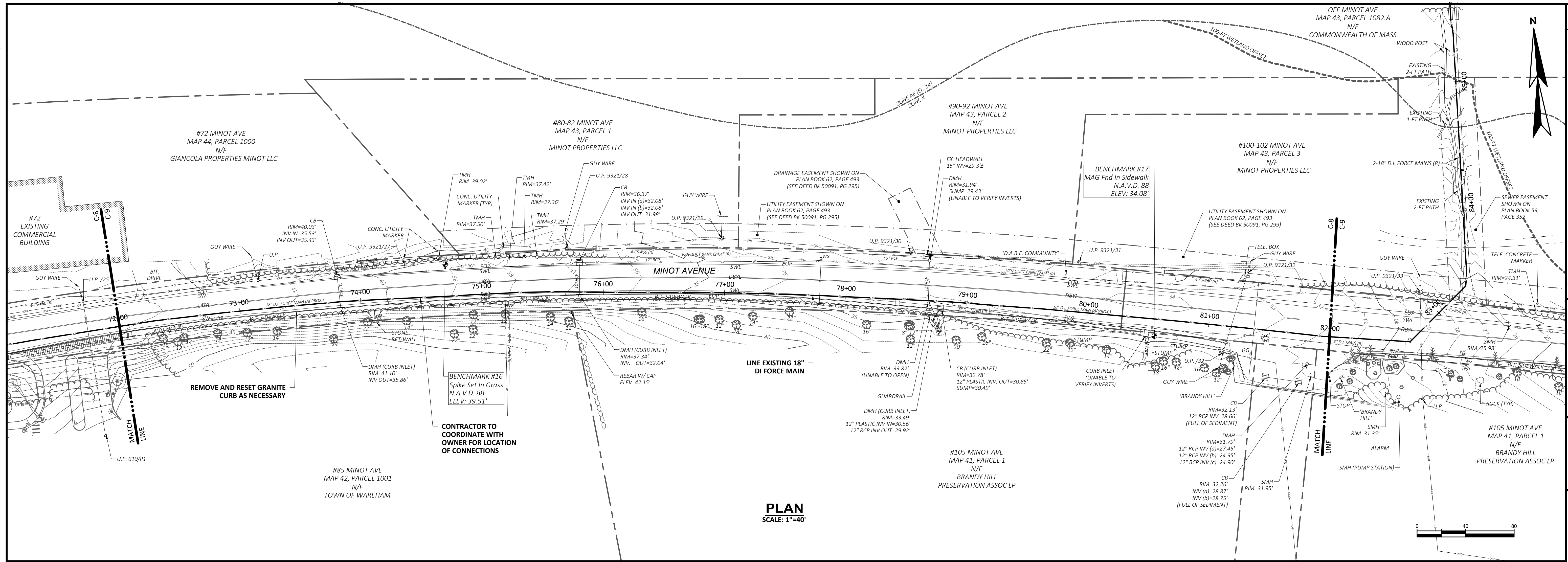
PROJECT NO: 2024  
 DESIGNED: P. BURBANK  
 CAD COORD: D. METZ  
 CAD: D. METZ  
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 DATE: 06-07-2022  
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TOWN OF WAREHAM, MA  
 NARROWS PUMP STATION  
 FORCE MAIN LINING  
 PLAN AND PROFILE STA 60+00 TO STA 72+00  
 DRAWING C-7

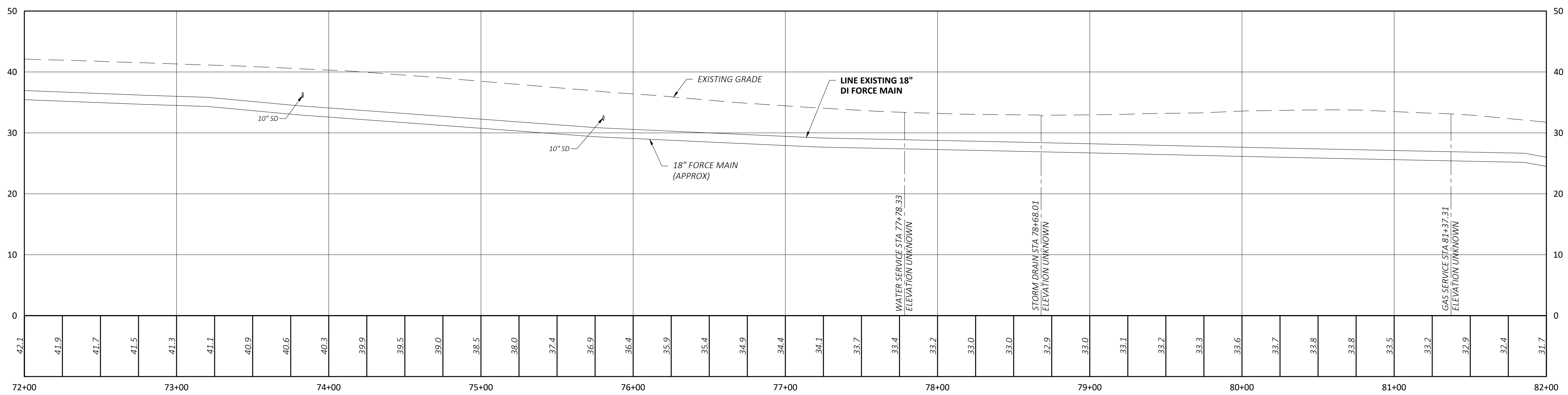




NO	REVISIONS	APPD	DATE

PROJECT NO:	2024
DESIGNED BY:	P. BURBANK
CAD COORD:	D. METZ
CAD:	D. METZ
CHECKED:	M. COBBIN
DATE:	06-07-2022
APPROVED:	M. STEIN
DATE:	06-07-2022
SUBMISSION:	CONTRACT DRAWINGS



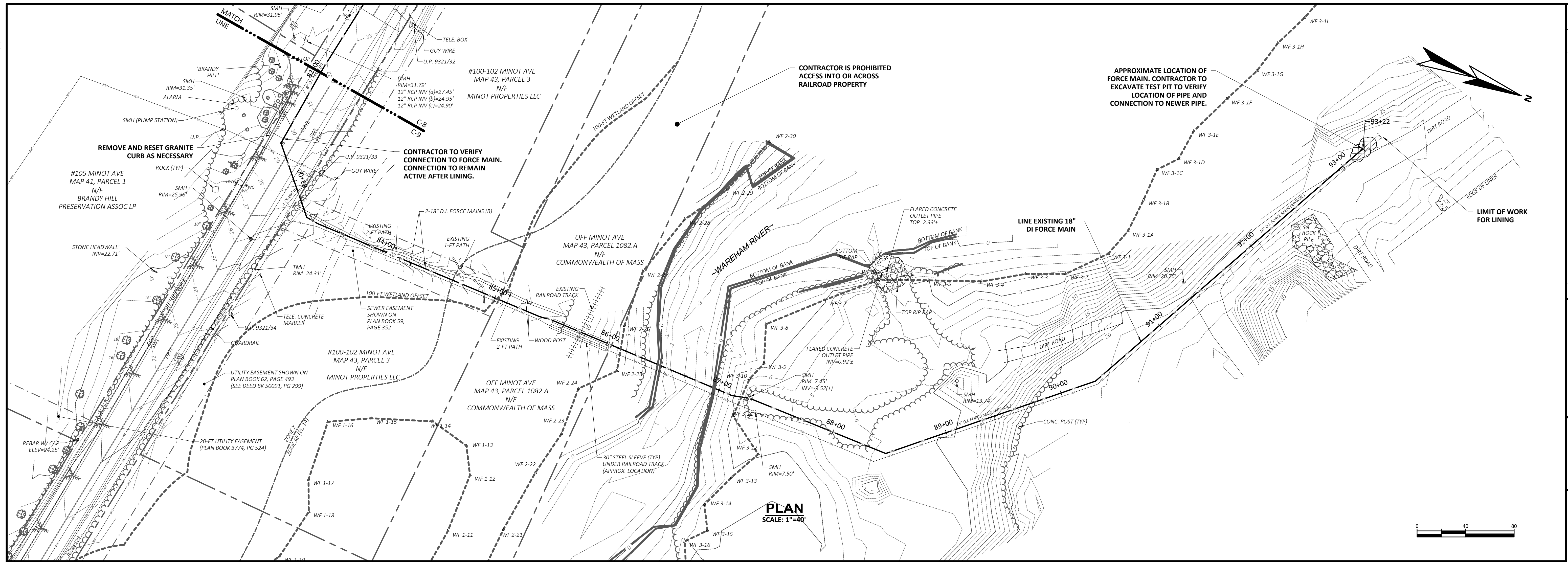
**PROFILE**  
 SCALES  
 VERT: 1"=10'  
 HORIZ: 1"=40'

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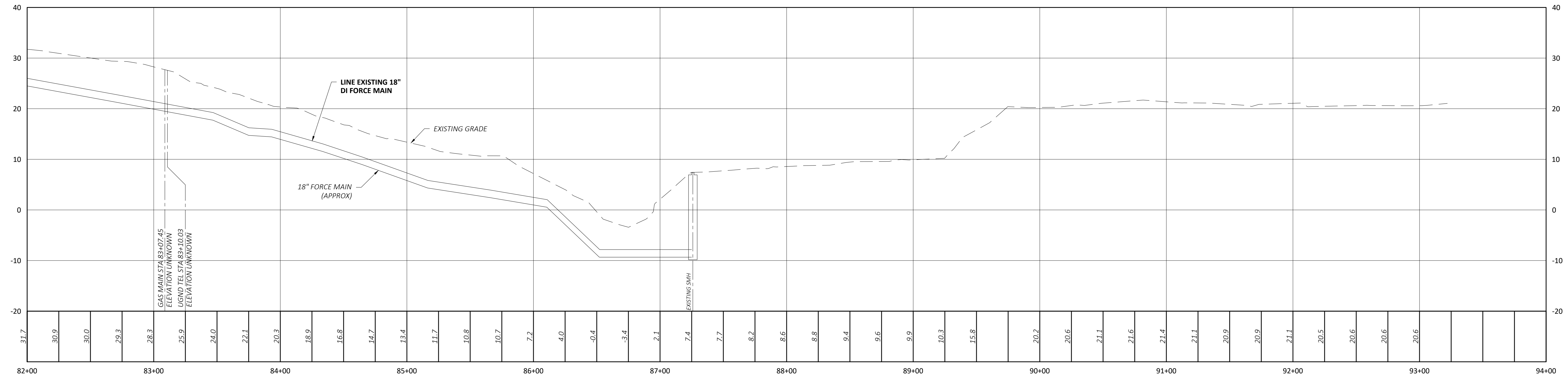
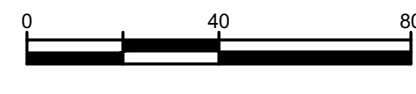
**TOWN OF WAREHAM, MA  
 NARROWS PUMP STATION  
 FORCE MAIN LINING**

PLAN AND PROFILE STA 72+00 TO STA 82+00

DRAWING  
**C-8**



PLAN SCALE: 1"=40'



PROFILE SCALES VERT: 1"=10' HORIZ: 1"=40'

NOTE: FORCE MAIN PROFILE NOT AVAILABLE FROM STA 87+25 TO STA 93+22

NO	REVISIONS	APPD	DATE

PROJECT NO: 20274  
 DESIGNED: P.BURBANK  
 CAD COORD: D.METZ  
 CAD: D.METZ  
 CHECKED: M.COBBIN  
 DATE: 06-07-2022  
 APPROVED: M.STEIN  
 DATE: 06-07-2022  
 SUBMISSION: CONTRACT DRAWINGS



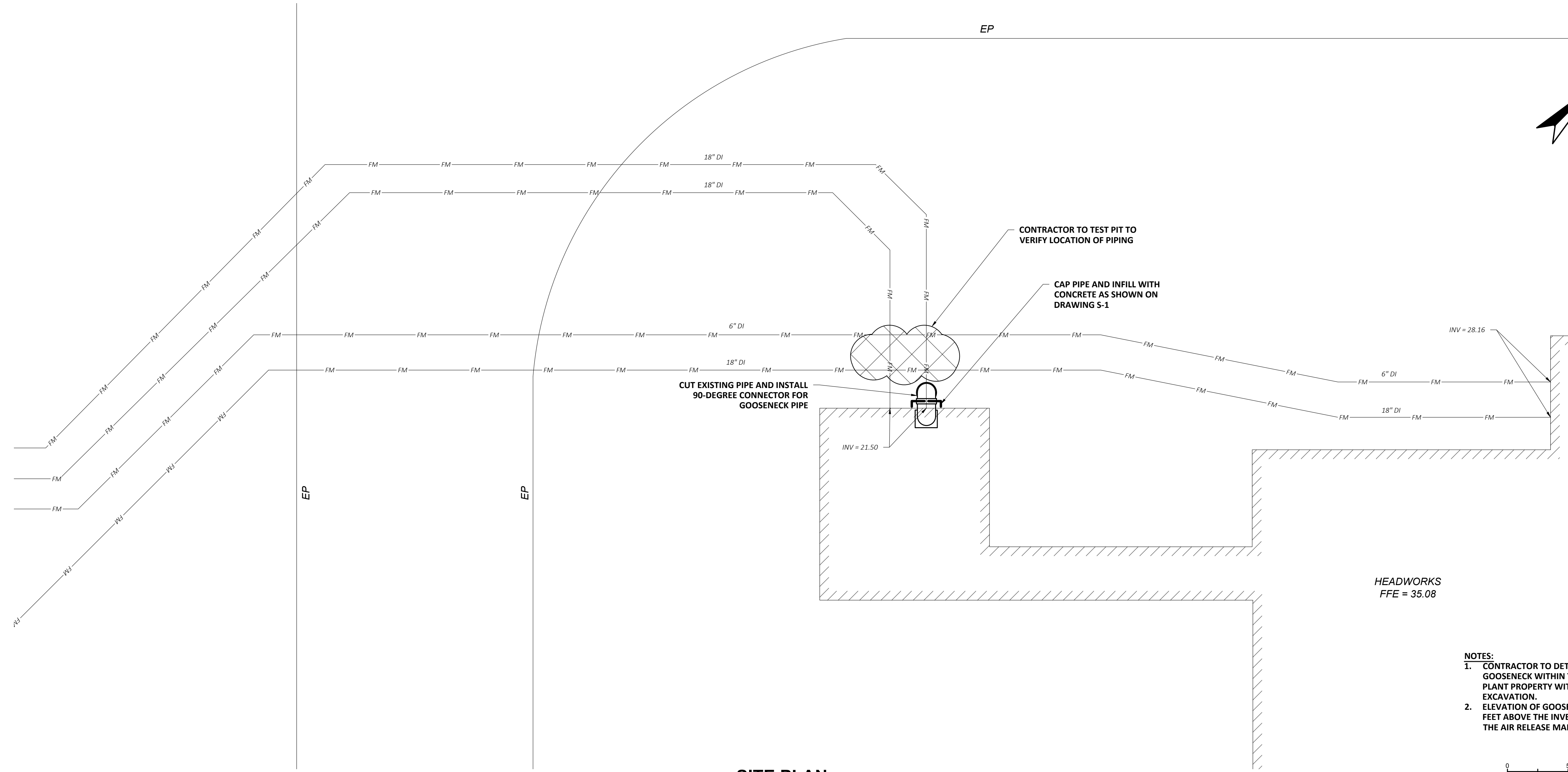
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TOWN OF WAREHAM, MA  
 NARROWS PUMP STATION  
 FORCE MAIN LINING

PLAN AND PROFILE STA 82+00 TO END

DRAWING  
**C-9**

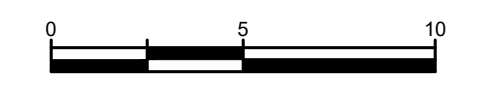




**SITE PLAN**  
SCALE: 1"=5'

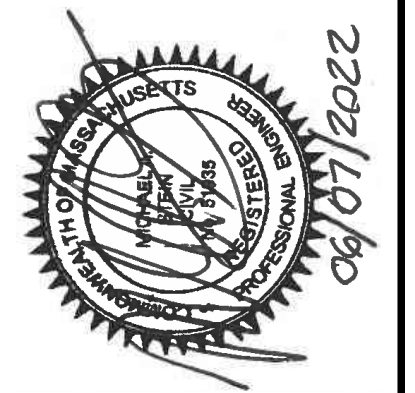
HEADWORKS  
FFE = 35.08

- NOTES:**
- CONTRACTOR TO DETERMINE THE LOCATION OF GOOSENECK WITHIN THE WASTEWATER TREATMENT PLANT PROPERTY WITH OWNER PRIOR TO EXCAVATION.
  - ELEVATION OF GOOSENECK INVERT TO BE MINIMUM 3 FEET ABOVE THE INVERT OF THE 18" FORCE MAIN IN THE AIR RELEASE MANHOLE.



NO	REVISIONS	APPD	DATE
1			
2			
3			
4			
5			

PROJECT NO:	20274
DESIGNED BY:	P. BURBANK
CAD COORD:	D. METZ
CAD:	D. METZ
CHECKED BY:	M. CORBIN
DATE:	06-07-2022
APPROVED BY:	M. STEIN
DATE:	06-07-2022
SUBMISSION:	CONTRACT DRAWINGS



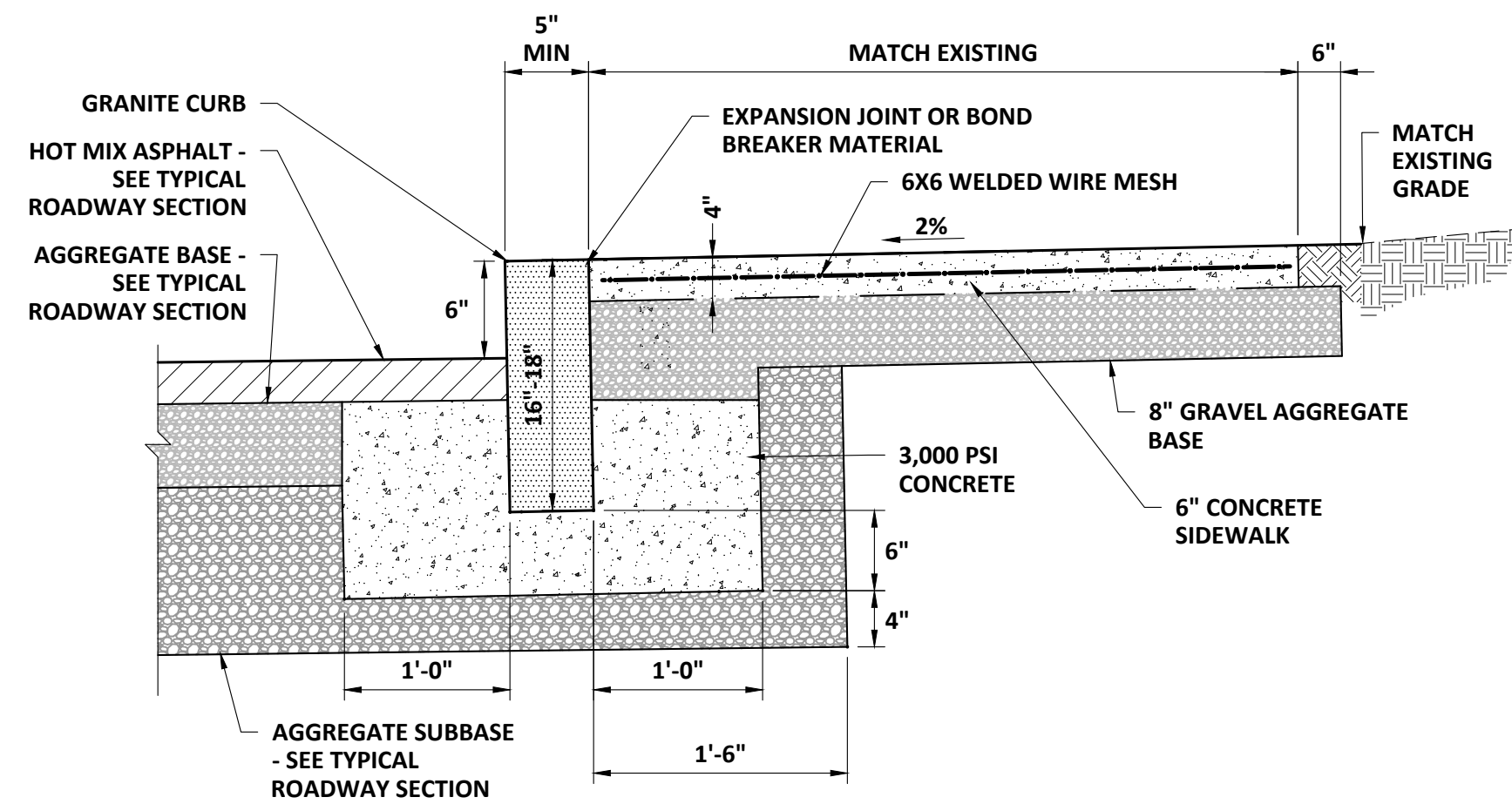
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**TOWN OF WAREHAM, MA  
 NARROWS PUMP STATION  
 FORCE MAIN LINING**

SITE PLAN FOR WPCF UPGRADE AT HEADWORKS

LAST SAVED BY: DANIEL.METZ 6/7/2022 8:18 AM

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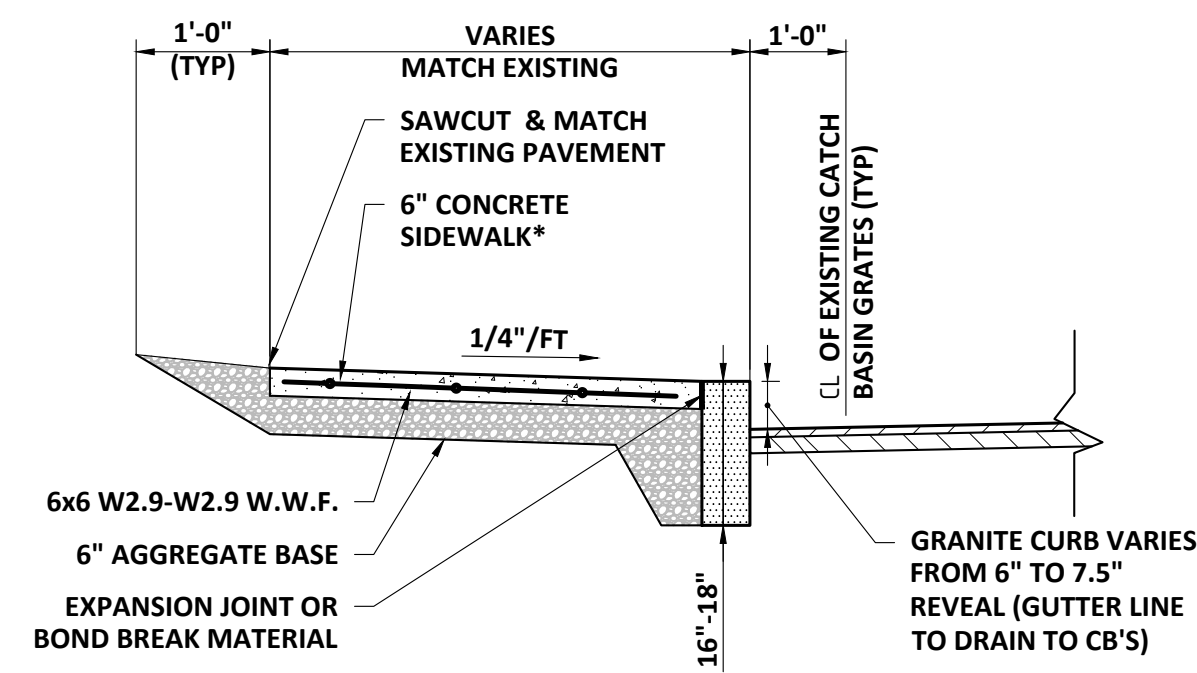


**NOTES:**

1. SAWCUT CONTROL JOINTS AT 5'-0" CENTERS (2" DEEP).
2. SIDEWALK IS 4,000 PSI 3/4" STONE, 7± 1% AIR ENTRAINED CONCRETE.
3. GRANITE CURB TYPE VA 4 OR REMOVE AND RESET EXISTING.

**GRANITE CURB WITH CONCRETE SIDEWALK**

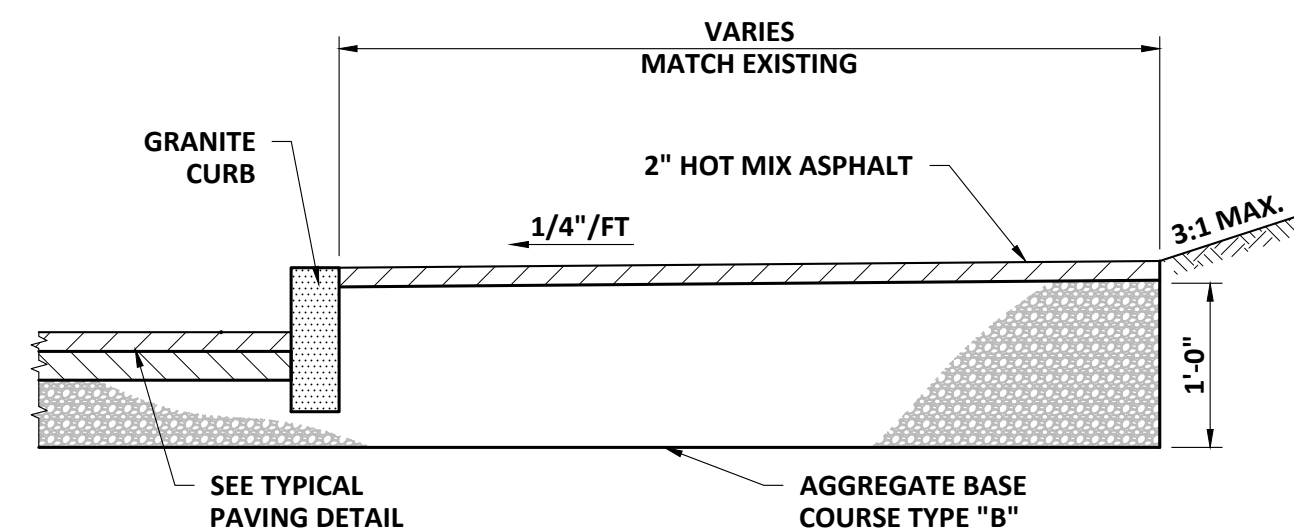
SCALE: NTS



\* SAWCUT CONTROL JOINTS @ 8' TYP

**CONCRETE SIDEWALK WITH GRANITE CURB**

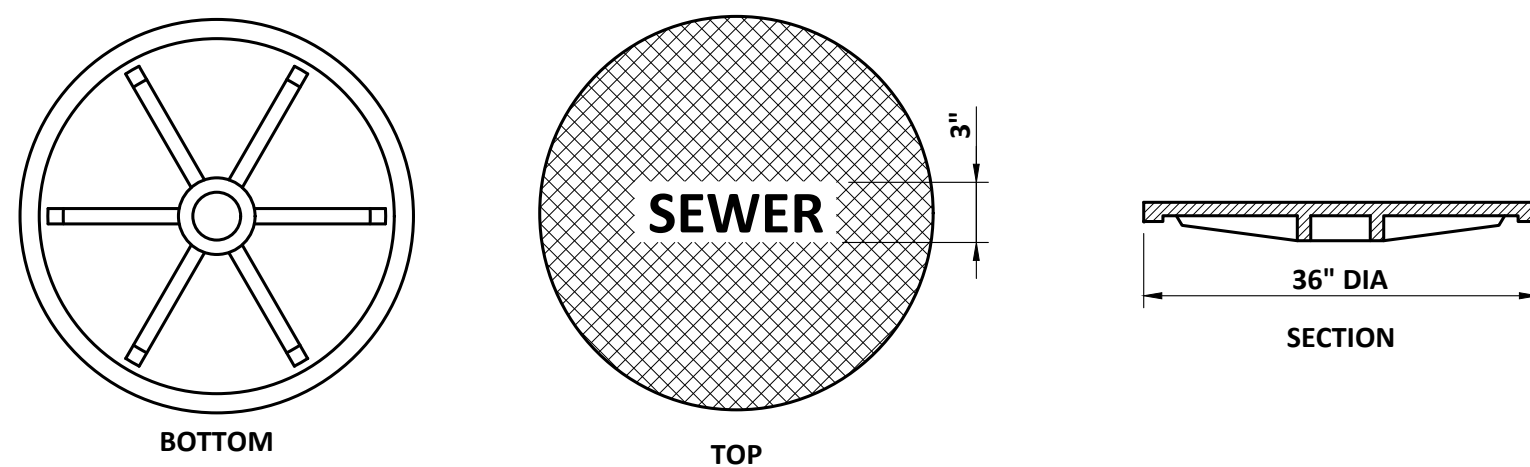
SCALE: NTS



NOTE: SAWCUT EXISTING PAVEMENT AT ALL MATCH LINES WITH NEW PAVEMENT.

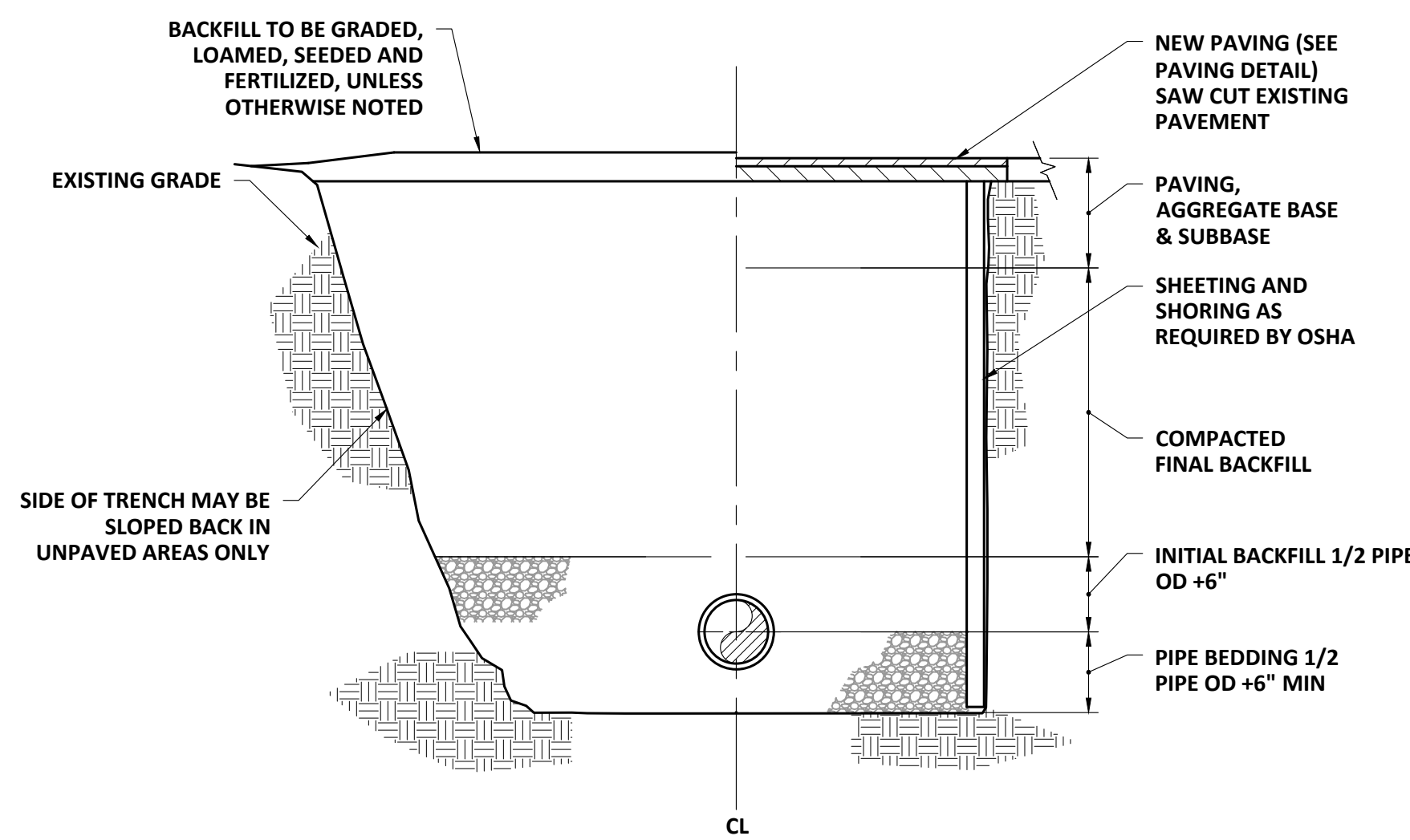
**BITUMINOUS SIDEWALK WITH GRANITE CURB**

SCALE: NTS



**MANHOLE STANDARD FRAME AND COVER**

SCALE: "NTS"

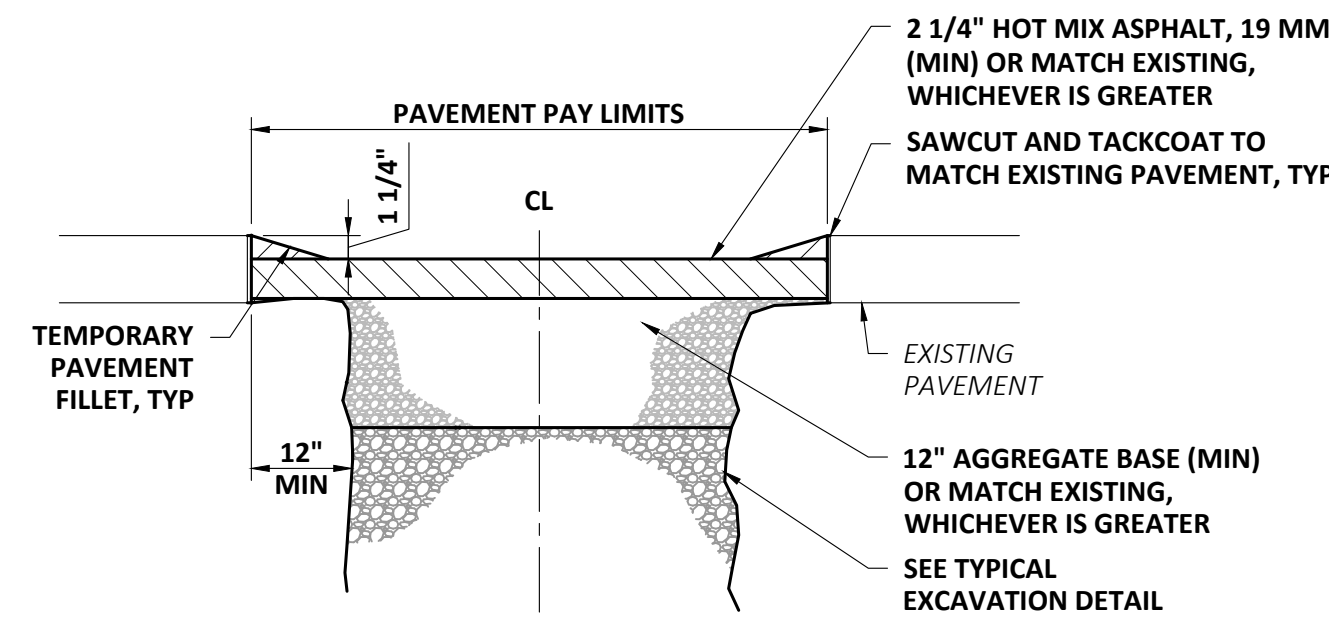


**NOTES:**

1. ALL EXCAVATION MUST MEET OSHA STANDARDS.
2. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.

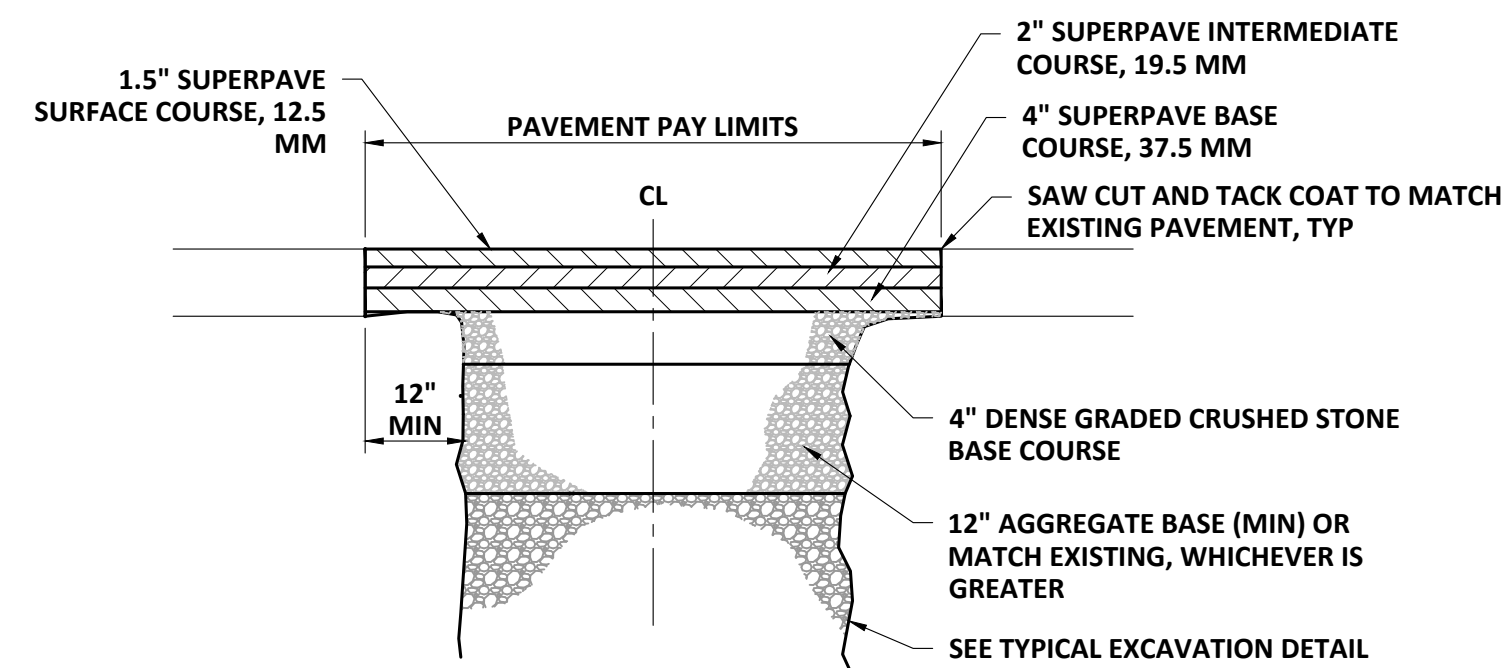
**EXCAVATION PIT**

SCALE: "NTS"



**INITIAL PAVING MINOT AVENUE AND NARROWS ROAD**

SCALE: "NTS"

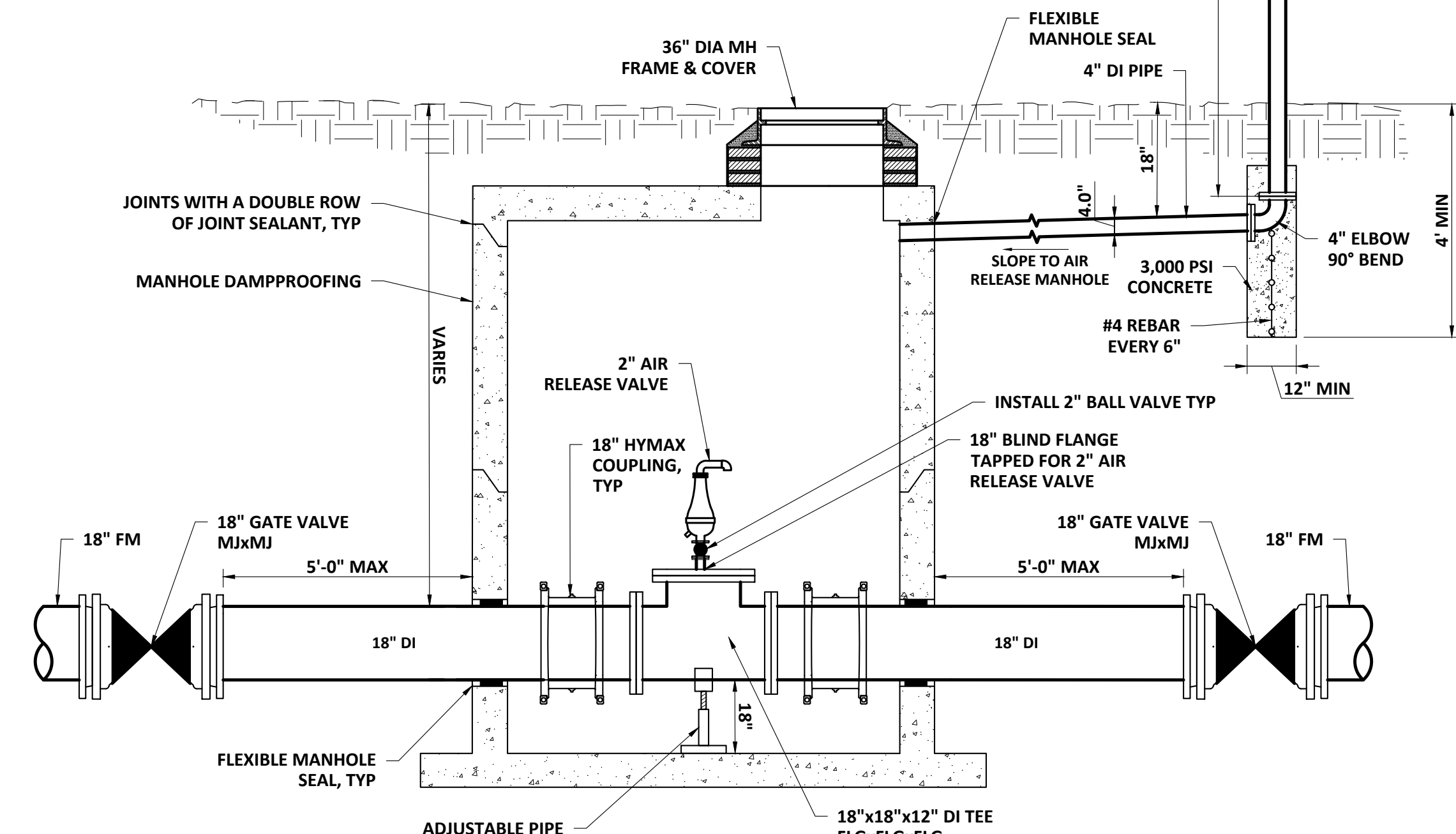


**NOTES:**

1. THIS DETAIL IS TO BE USED FOR EXCAVATION PITS WITHIN STATE HIGHWAY LIMITS.
2. TOTAL PAVEMENT THICKNESS IS TO BE 7.5" OR MATCH EXISTING, WHICHEVER IS GREATER.
3. SAWCUT AND EXCAVATE TRENCH WITH 12" OVERCUTS OF ORIGINAL EXCAVATION.
4. IF EDGE OF PERMANENT PAVEMENT OVERCUT IS LESS THAN 24 INCHES FROM NEAREST CURB/BERM, EXPAND PATCH TO FACE OF CURB/BERM.

**PERMANENT PAVING SANDWICH ROAD**

SCALE: NTS

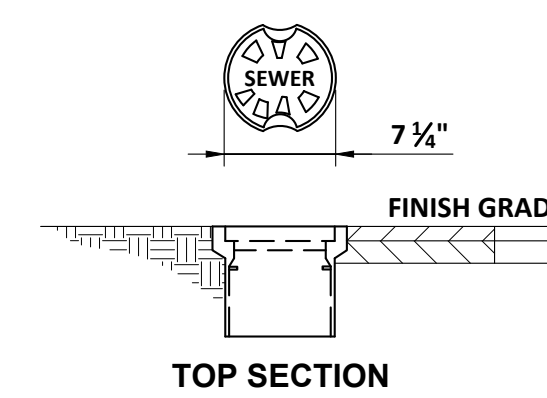


**AIR RELEASE MANHOLE**

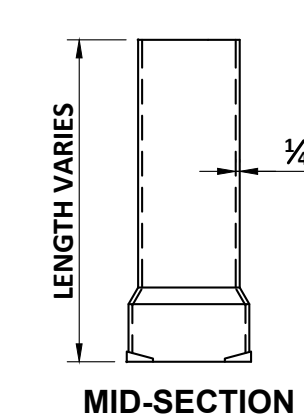
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**NOTE:**

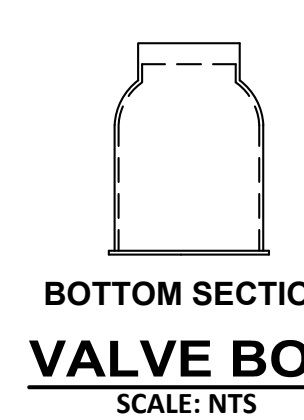
1. ALL MECHANICAL JOINTS TO BE RESTRAINED



**TOP SECTION**



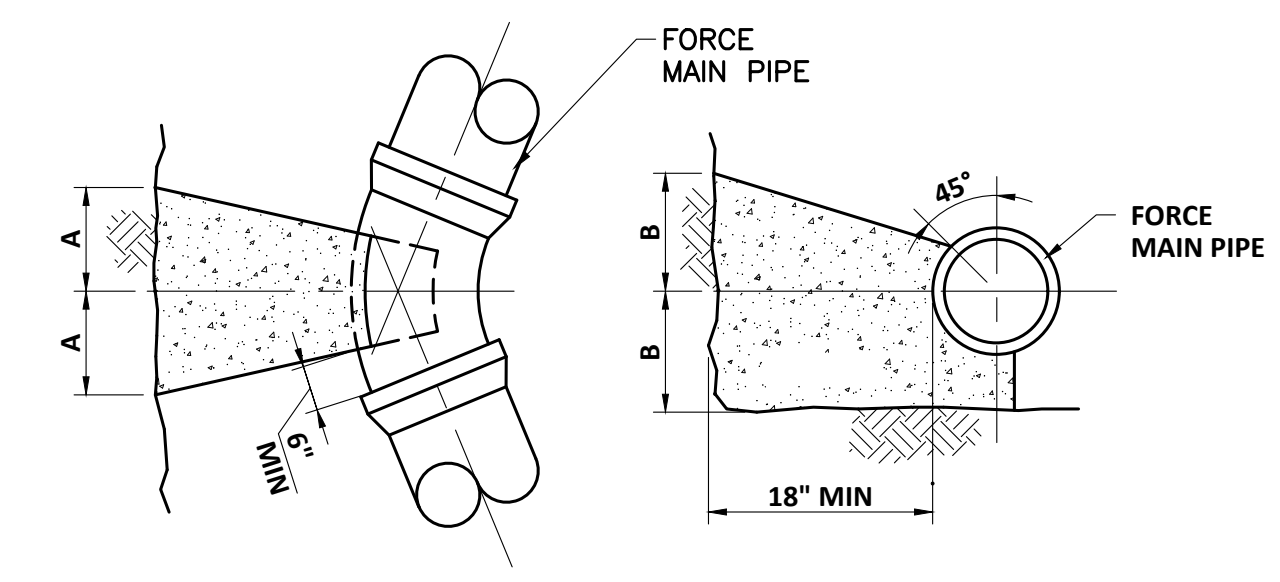
**MID-SECTION**



**BOTTOM SECTION**

**VALVE BOX**

SCALE: NTS



PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND	
	A	B	A	B	A	B
2"	9"	9"	9"	9"	6"	6"
4"	18"	12"	12"	9"	9"	9"
6"	18"	12"	12"	9"	9"	9"
8"	24"	15"	15"	12"	12"	12"
10"	24"	20"	15"	15"	12"	12"
12"	24"	24"	18"	18"	15"	12"
14"	27"	27"	21"	21"	15"	15"
16"	30"	30"	24"	24"	18"	18"

**NOTES:**

1. THRUST BLOCK SIZES ABOVE ARE BASED ON A SOIL BEARING CAPACITY OF 1000 PSF AND TEST PRESSURES OF 100 PSI. CONTRACTOR SHALL NOTIFY THE ENGINEER IF LOW BEARING STRENGTH SOILS ARE ENCOUNTERED.
2. RETAINER GLANDS MAY BE USED IN LIEU OF THRUST BLOCKS ON DUCTILE IRON FORCE MAINS ONLY. INSTALL IN COMPLIANCE WITH DUCTILE IRON & PIPE MANUFACTURERS STANDARDS.

**FORCE MAIN THRUST BLOCK**

SCALE: "NTS"

NO	REVISIONS	DATE

PROJECT NO: 20274	DESIGNED: P.BURBANK	CAD COORD: D.METZ	CHECKED: M.COBBIN	DATE: 06-07-2022	APPROVED: M.STEIN	DATE: 06-07-2022	SUBMISSION: CONTRACT DRAWINGS
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TOWN OF WAREHAM, MA  
NARROWS PUMP STATION  
FORCE MAIN LINING



**EROSION AND SEDIMENTATION CONTROL NOTES**

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN URBAN AND SUBURBAN AREAS AS CONTAINED IN THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPDEN, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES REQUIRED FOR THE PUMP STATION AND WATER METERING STATION ARE SHOWN ON THE GRADING/EROSION CONTROL PLANS. PROVIDE SILT FENCE, STONE CHECK DAMS AND OTHER EROSION CONTROL MEASURES AS REQUIRED TO ADEQUATELY PREVENT SEDIMENT TRANSPORT AS NOTED IN THE BMP.

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS", FRANKLIN, HAMPDEN, HAMPSHIRE CONSERVATION DISTRICTS, DATED MARCH, 1997.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL, AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
- SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADIENT DRAINAGE AREAS.
- INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSITION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH PERMANENT EROSION CONTROL MEASURES.
- IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT TO BE COMPLETED 30 DAYS PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING, UNTIL UPGRADIENT AREAS ARE STABILIZED.
- WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED AS FOLLOWS:
  - A MINIMUM OF FOUR (4) INCHES OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE.
  - APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT DEEMED FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P205-K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).
  - FOLLOWING SEED BED PREPARATION, DITCHES AND BACK SLOPES WILL BE SEEDING WITH A MIXTURE OF 47% CREEPING RED FESCUE, 5% REDTOP, AND 48% TALL FESCUE. THE LAWN AREAS WILL BE SEEDING WITH A PREMIUM TURF MIXTURE OF 44% KENTUCKY BLUEGRASS, 44% CREEPING RED FESCUE, AND 12% PERENNIAL RYE GRASS. SEEDING RATE IS 3.0 LBS PER 1000 SQ. FT. LAWN QUALITY SOD MAY BE SUBSTITUTED FOR SEED.
  - HAY MULCH AT THE RATE OF 70-90 LBS PER 1000 SQUARE FEET OR A HYDRO-APPLICATION OF CELLULOSE FIBER SHALL BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER WILL BE USED ON HAY MULCH FOR WIND CONTROL.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE WORK AREA IS STABILIZED.
- WETLANDS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- IN GENERAL, AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS SHALL HAVE A MAXIMUM PERIOD OF EXPOSURE OF NOT MORE THAN 15 DAYS.
- FOLLOW APPROPRIATE EROSION CONTROL MEASURES PRIOR TO EACH STORM IN ALL AREAS WITHIN 100 FEET OF DELINEATED WETLANDS OR STREAMS.

**EROSION CONTROL DURING WINTER CONSTRUCTION**

- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15.
- WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY PRIOR TO ANY PRECIPITATION EVENT.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 100 POUNDS PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEED, MULCHED, AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED, AND IS SMOOTH, THEN THE AREA MAY BE DORMANT SEED AT A RATE 200%-300% HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS PERMIT, ALL DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT. EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE EITHER WOOD CELLULOSE FIBER OR BE ANCHORED WITH MULCH NETTING OR CHEMICAL TACK.
  - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3%, FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
  - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1, THE CONTRACTOR SHALL APPLY DORMANT SEEDING OR MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING WINTER CONSTRUCTION PERIODS, ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.

**MULCH ANCHORING**

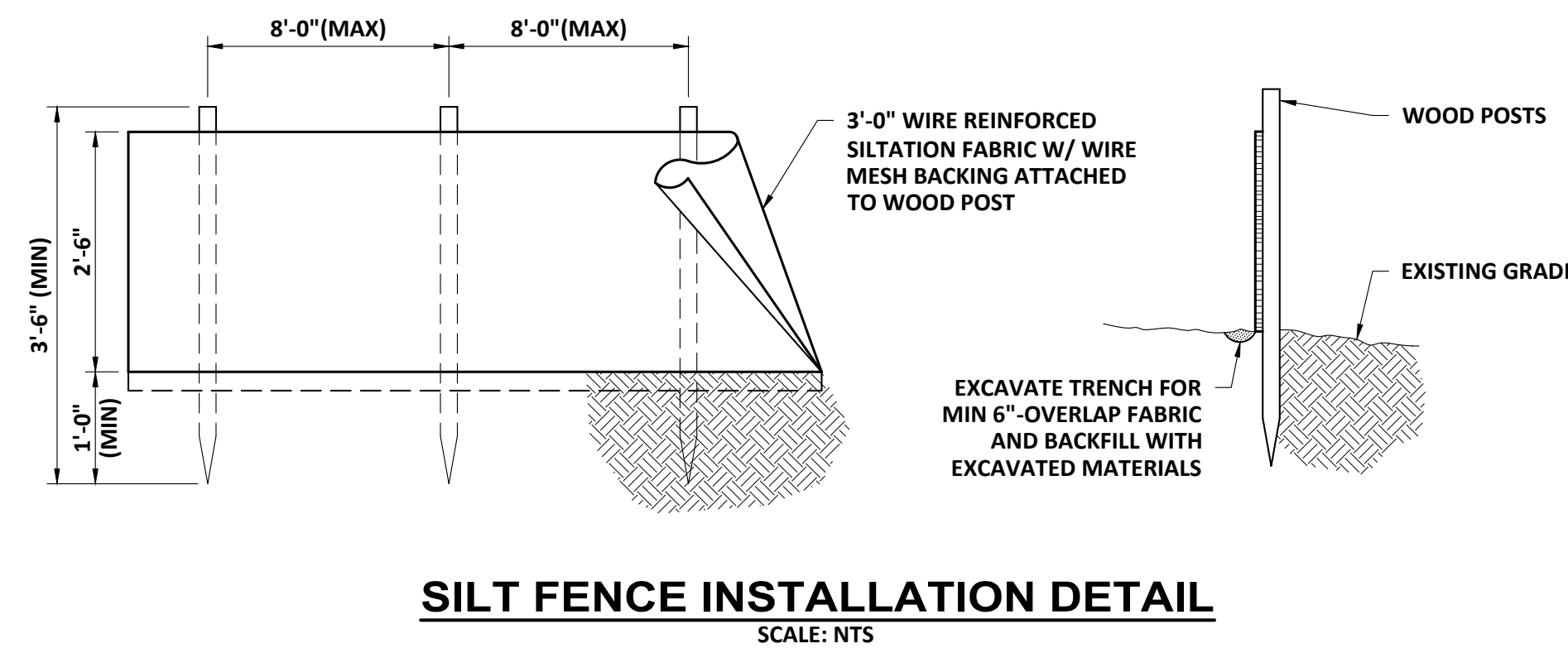
ANCHOR MULCH WITH: MULCH NETTING (AS PER MANUFACTURER); ASPHALT EMULSION (0.05 GALLONS PER SQ. YD.); CHEMICAL TACK (AS PER MANUFACTURER'S SPECIFICATIONS); OR BE WOOD CELLULOSE FIBER (2000 LBS/ACRE). WETTING FOR SMALL AREAS AND ROAD DITCHES MAY BE PERMITTED.

ADDITIONAL TEMPORARY SEED MIXTURE (OR PERIODS LESS THAN 12 MONTHS)		
DATES	SEED	RATE
4/1 - 7/1 8/15 - 9/15	OATS	80 LBS/ACRE
4/1 - 6/1 8/15 - 9/15	ANNUAL RYE GRASS	40 LBS/ACRE
(8/15 - 10/15)	WINTER RYE	120 LBS/ACRE
(11/1 - 4/1)	MULCH W/ DORMANT SEED	80 LBS/ACRE*
(5/1 - 6/30)	FOXTAIL MILLET	30 LBS/ACRE

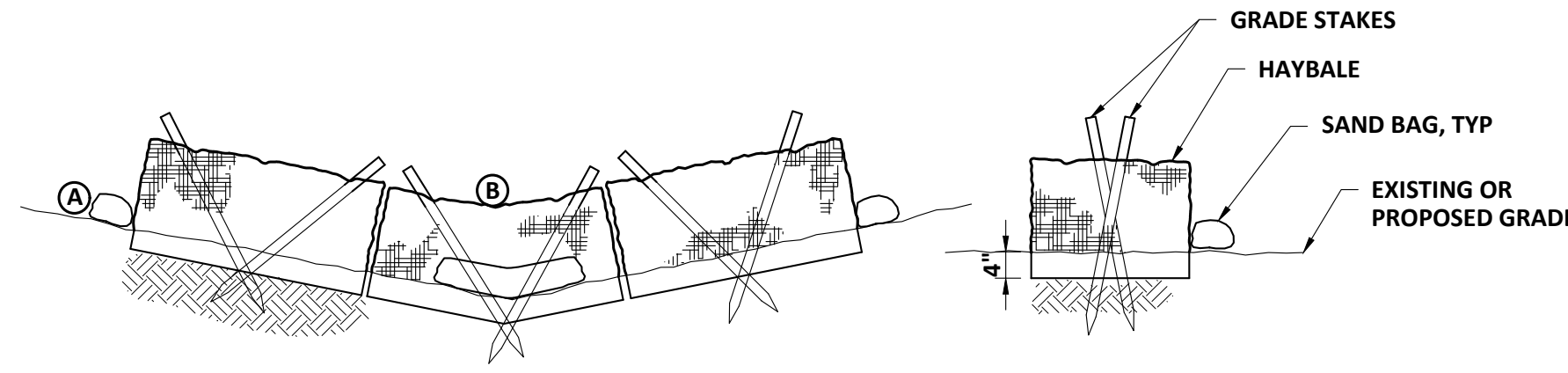
\*SEED RATE ONLY

MULCH AND MULCH ANCHORING		
LOCATION	MULCH	RATE (1000 S.F.)
PROTECTED AREA	STRAW OR HAY *	100 POUNDS
WINDY AREAS	STRAW OR HAY (ANCHORED) *	100 POUNDS
MODERATE TO HIGH VELOCITY AREAS OR STEEP SLOPES (GREATER THAN 3:1)	JUTE MESH,	AS REQUIRED
	EXCELSIOR MAT OR EQUIV.	AS REQUIRED

\* A HYDRO-APPLICATION OF CELLULOSE FIBER MAY BE APPLIED FOLLOWING SEEDING. A SUITABLE BINDER SHALL BE USED ON HAY MULCH FOR WIND CONTROL.

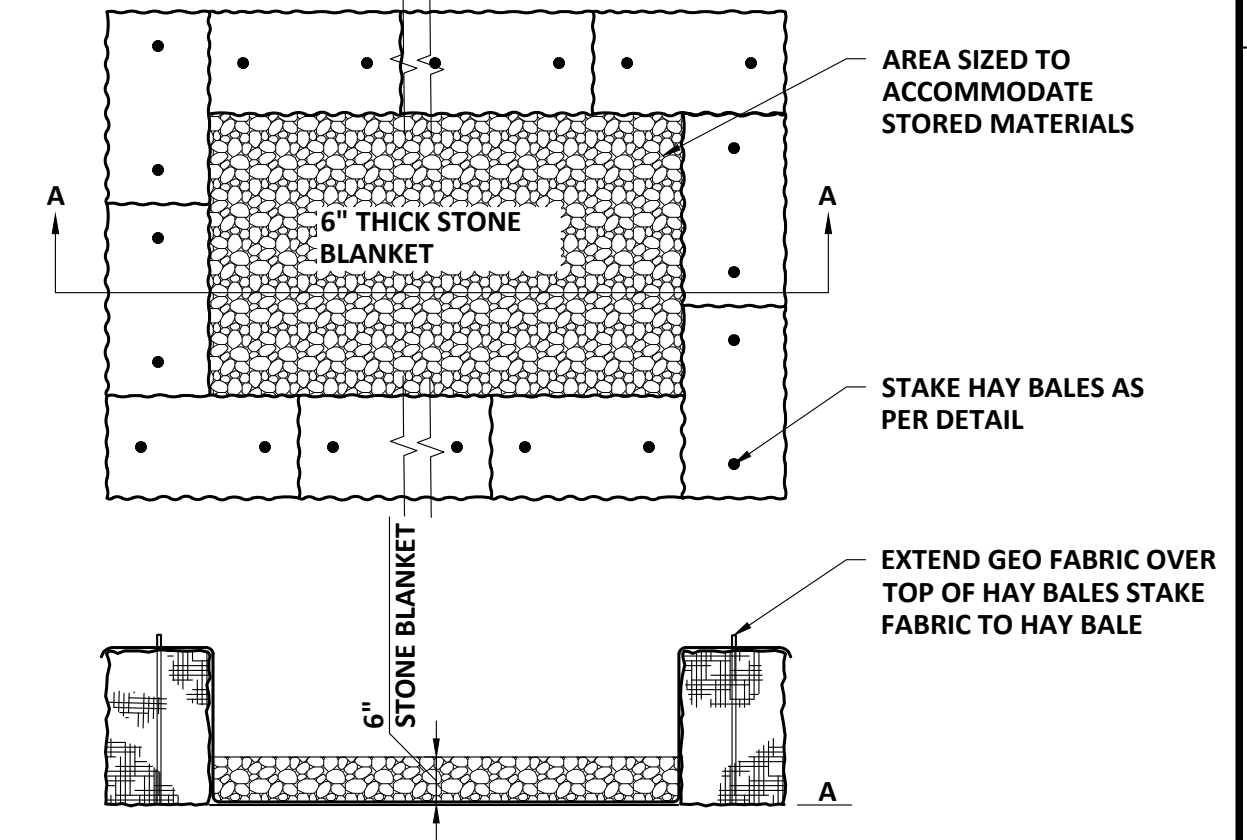


**SILT FENCE INSTALLATION DETAIL**  
SCALE: NTS

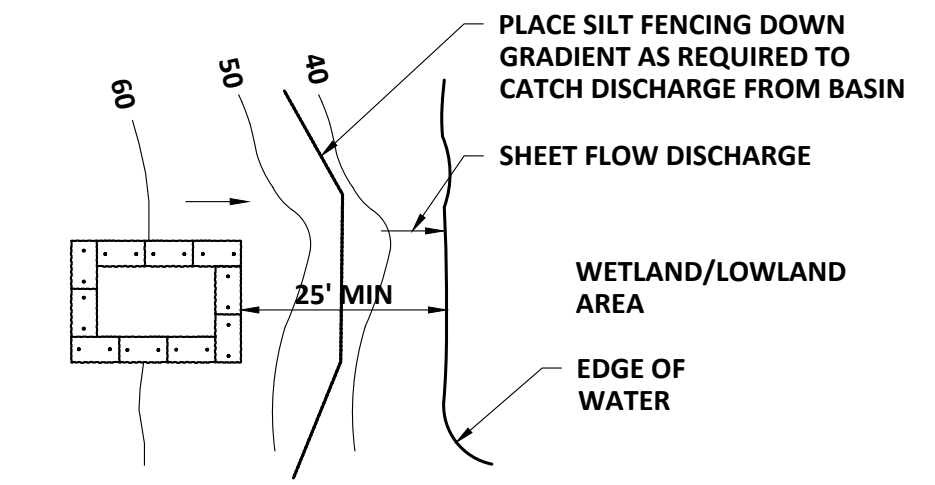


EROSION CHECK TO BE BALES OF HAY SECURED TO THE GROUND WITH TWO 4' LONG GRADE STAKES FOR EACH BALE. SAND BAG AS REQUIRED, PLACE SUFFICIENT BALES TO ESTABLISH ELEVATIONS AT (A) AT LEAST 6 INCHES ABOVE OVERFLOW AT (B).  
**HAY BALE CHECK DAM**  
SCALE: "NTS"

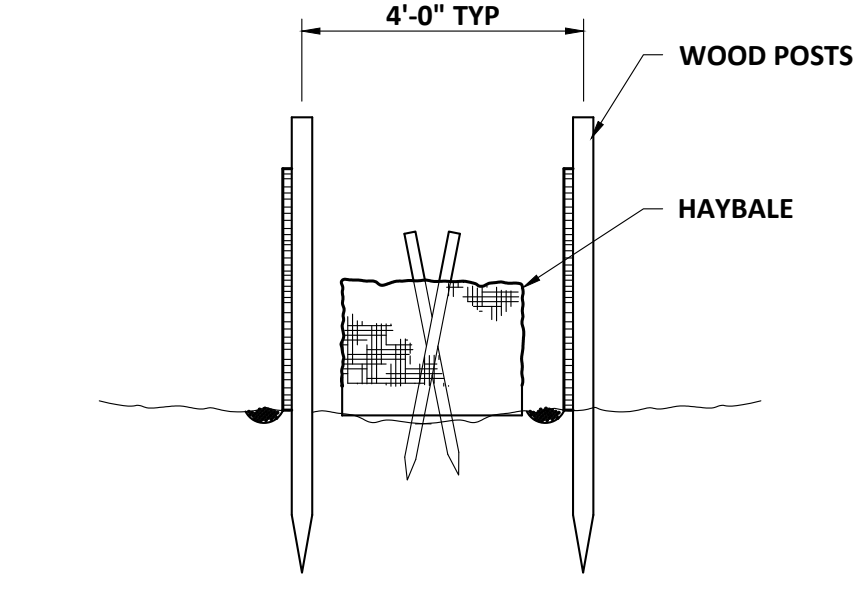
**HAY BALE CHECK DAM**  
SCALE: "NTS"



**TEMPORARY HAY BALE SEDIMENT BASIN**  
SCALE: "NTS"



**STONE CHECK DAM DETAIL**  
SCALE: NTS



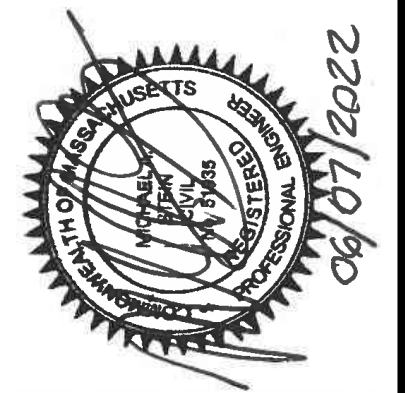
**COMBINATION SILT FENCE AND HAY BALE BARRIER**  
SCALE: "NTS"

DITCH SLOPE (FT/FT)	L (FT)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

**CROSS SECTION**  
**PROFILE**  
**STONE CHECK DAM DETAIL**  
SCALE: NTS

NO	REVISIONS	DATE

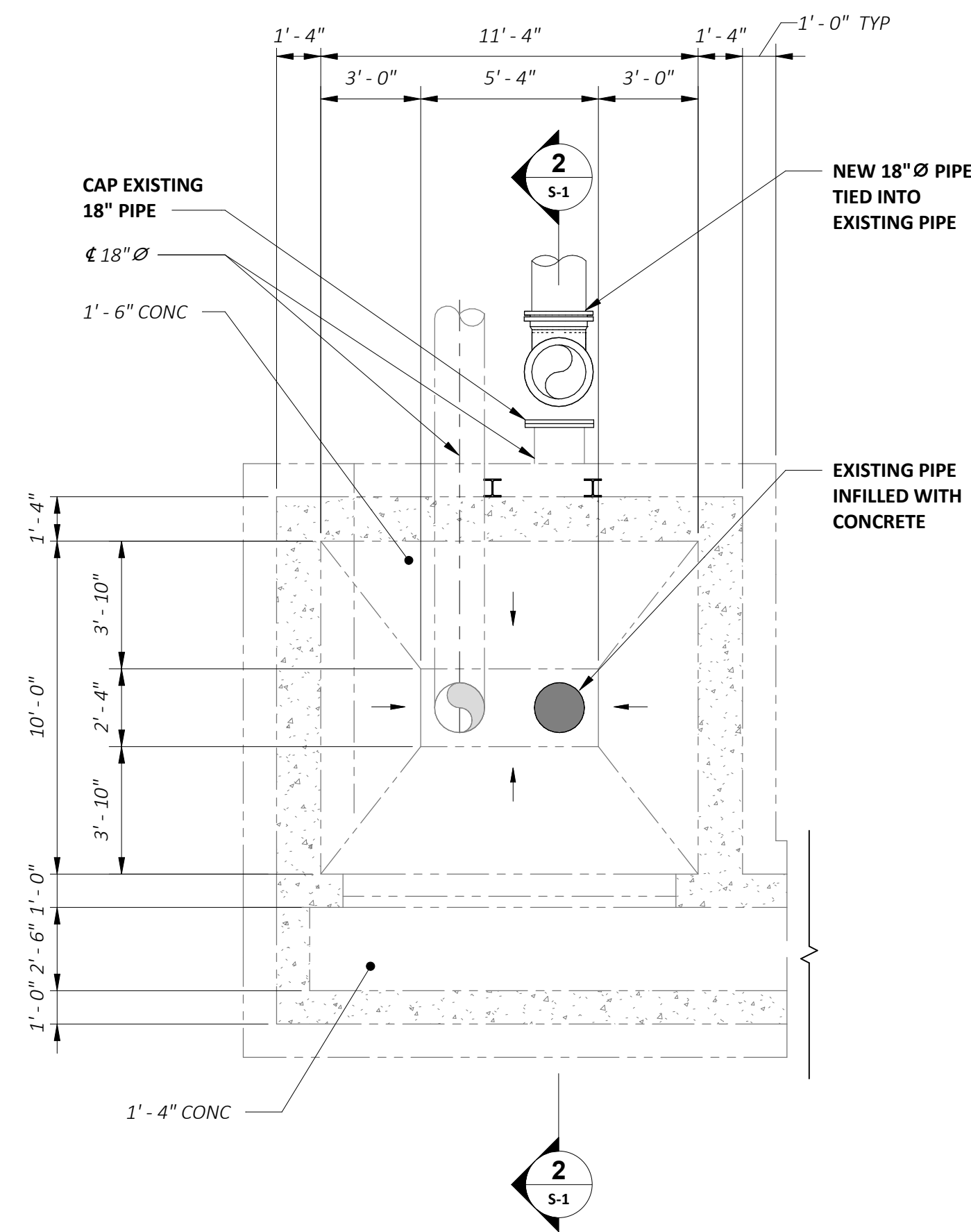
PROJECT NO: 20274  
DESIGNED: P.BURBANK  
CAD COORD: D.METZ  
CAD: D.METZ  
CHECKED: M.COBBIN  
DATE: 06-07-2022  
APPROVED: M.STEIN  
DATE: 06-07-2022  
SUBMISSION: CONTRACT DRAWINGS



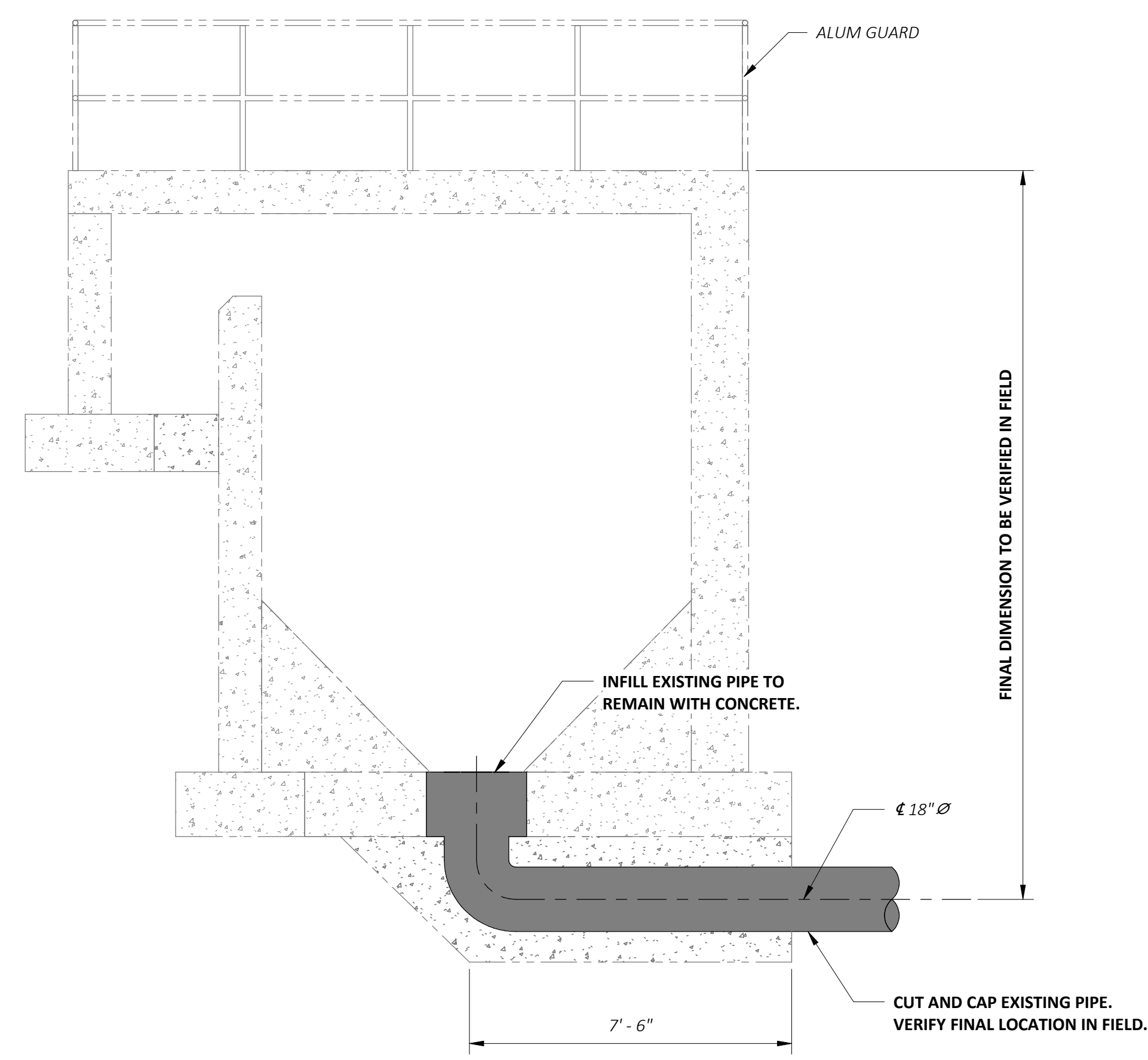
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TOWN OF WAREHAM, MA  
NARROWS PUMP STATION  
FORCE MAIN LINING  
EROSION CONTROL NOTES AND DETAILS

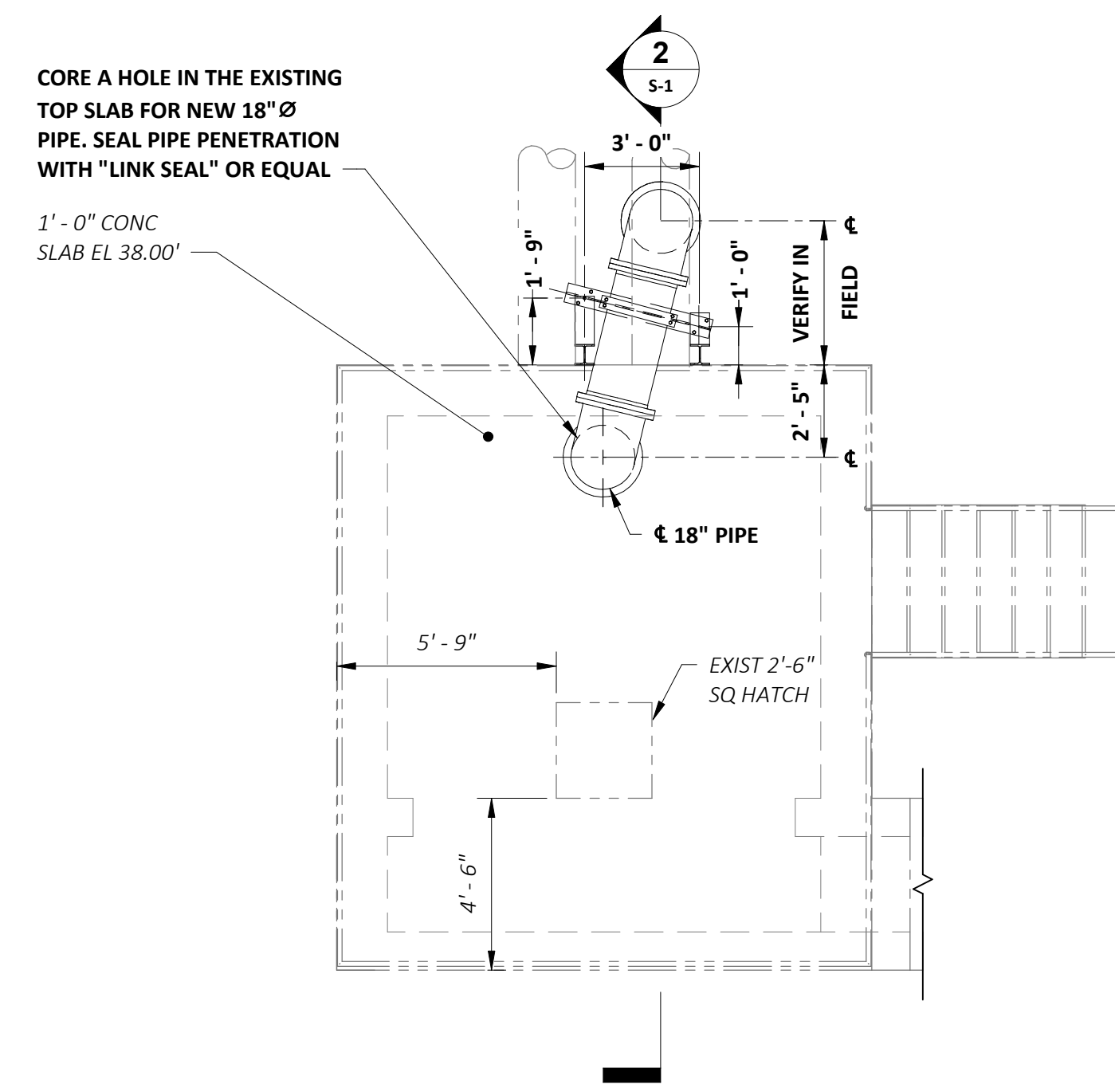




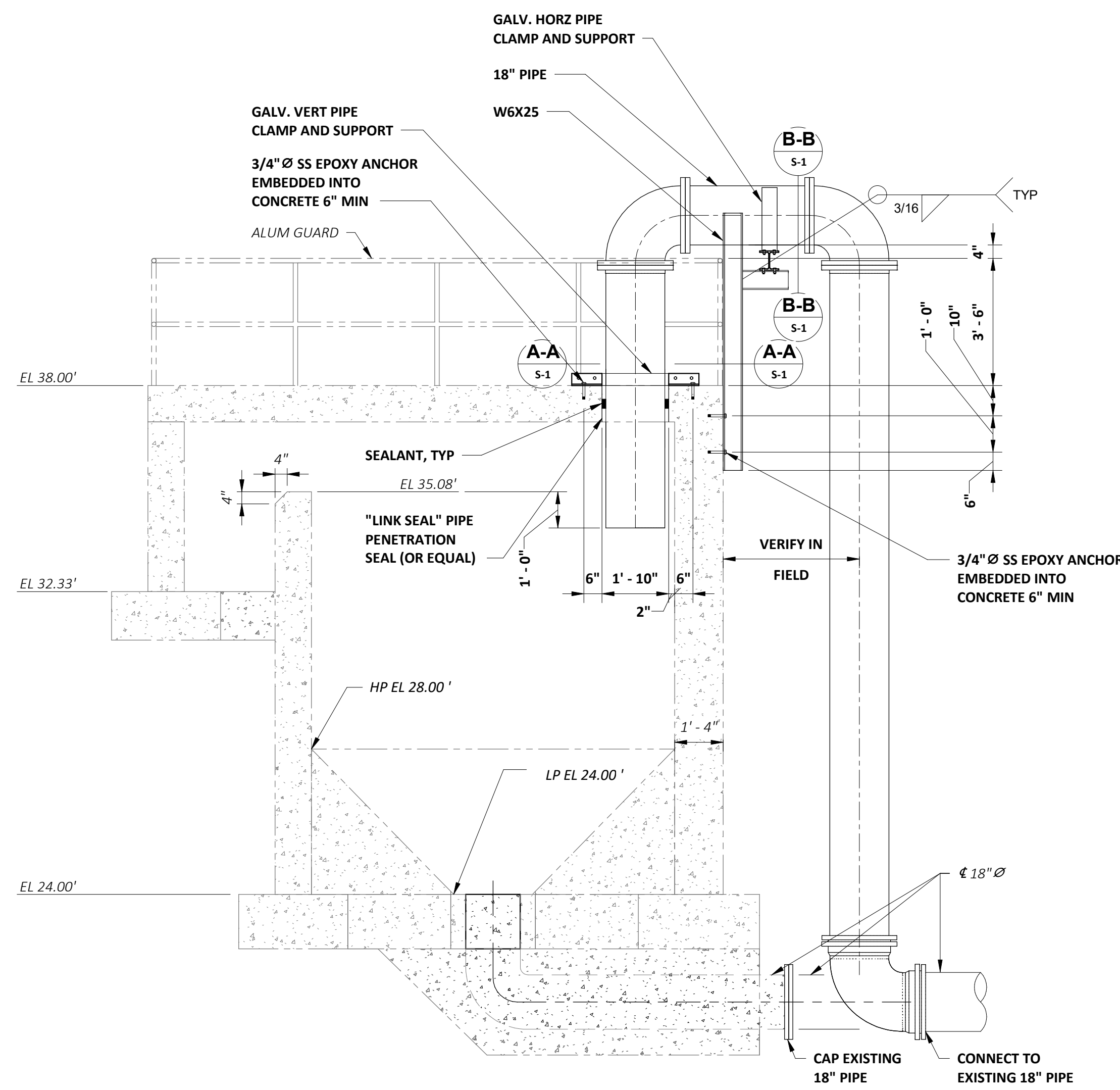
**FOUNDATION MODIFICATIONS PLAN**  
SCALE: 1/4" = 1'-0"



**SECTION 1**  
SCALE: 3/8" = 1'-0"



**TOP MODIFICATIONS PLAN**  
SCALE: 1/4" = 1'-0"



**SECTION 2**  
SCALE: 3/8" = 1'-0"

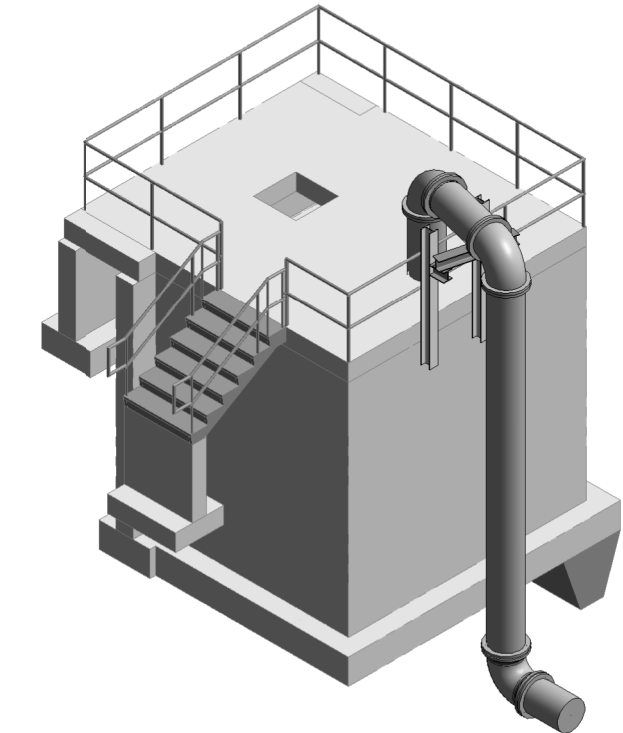
**CONCRETE DEMOLITION NOTES:**

1. REFERENCE SPECIFICATION - 02050.
2. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL CONCRETE, EQUIPMENT AND MATERIALS INDICATED TO BE DEMOLISHED UNLESS OTHERWISE INDICATED.
3. DETAILS AND SECTIONS SHOWN FOR REMOVING OR MODIFYING CONCRETE ARE BASED ON EXISTING REFERENCED DRAWINGS. IF CONDITIONS DIFFER FROM THOSE AS SHOWN ON THE REFERENCED DRAWINGS, GENERAL CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO BEGINNING THE DEMOLITION WORK.
4. USE OF HEAVY DUTY PNEUMATIC HAMMERS ARE NOT PERMITTED TO REMOVE THE EXISTING CONCRETE. UNLESS OTHERWISE PERMITTED, LINE DRILLING OR SAW CUTTING WILL BE REQUIRED FOR CUTTING EXISTING CONCRETE. GENERAL CONTRACTOR SHALL USE CAUTION TO AVOID DAMAGING EXISTING CONCRETE STRUCTURES TO REMAIN.
5. GENERAL CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING STRUCTURES AS A RESULT OF CONTRACTOR ACTIVITIES AT NO ADDITIONAL COST TO THE OWNER.
6. GENERAL CONTRACTOR SHALL THOROUGHLY CLEAN EXISTING CONCRETE TO BE MODIFIED PRIOR TO STARTING WORK.
7. ALL WALL AND/OR FLOOR PENETRATIONS REMAINING AFTER THE REMOVAL OF PIPING, CONDUIT, HATCHES AND OTHER EMBEDDED ITEMS ARE TO BE INFILLED WITH REINFORCED CONCRETE AND FINISHED FLUSH TO MATCH EXISTING SURFACES. (UNLESS OTHERWISE INDICATED ON THE DRAWINGS).
8. ALL CUT REINFORCING STEEL THAT WILL REMAIN EXPOSED AFTER REMOVING CONCRETE SHALL BE COATED AS FOLLOWS (UNLESS OTHERWISE INDICATED ON THE DRAWINGS):  
8.1 DRY SPACES - COAT WITH 4 MILS OF PRIMER AND 4 MILS OF EPOXY PAINT  
8.2 WET SPACES - COAT WITH CEMENTITIOUS OVERLAY.
9. GENERAL CONTRACTOR SHALL COORDINATE THE INDICATED DEMOLITION WITH THE ASSOCIATED PROPOSED NEW WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
10. WHEN REMOVING PORTIONS OF EXISTING CONCRETE OR CONCRETE FILL, ALL OVERCUT CONCRETE SHALL BE PATCHED WITH REPAIR MATERIAL FLUSH WITH REMAINING CONCRETE

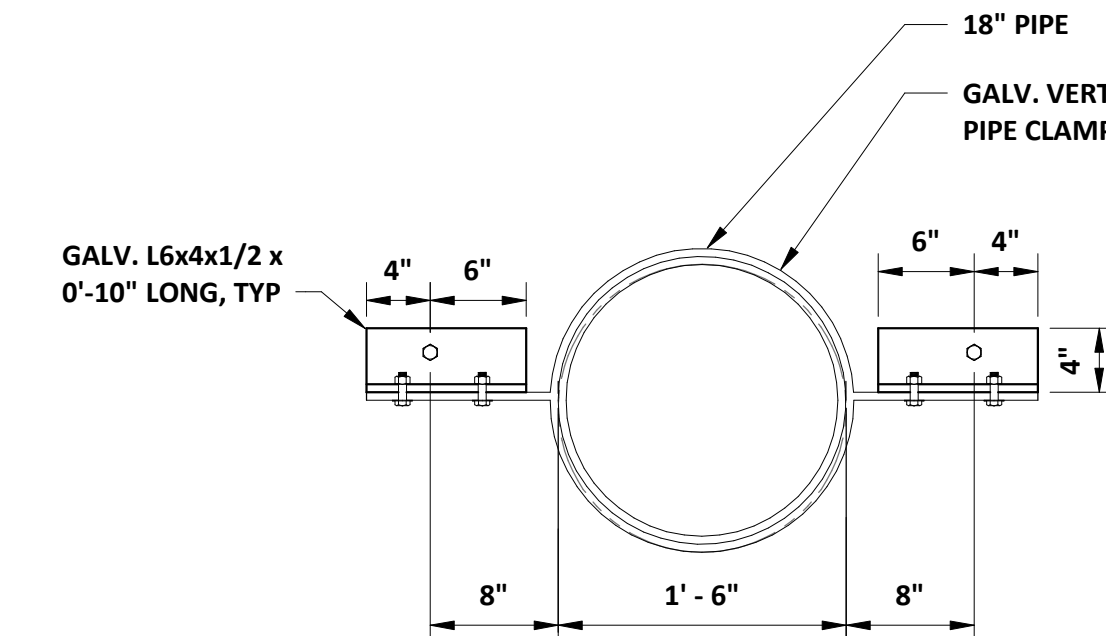
**METALS NOTES:**

1. REFERENCE SPECIFICATION - 05500
2. STRUCTURAL STEEL AND STEEL LINTELS SHALL CONFORM TO THE FOLLOWING:  
2.1 WIDE FLANGE BEAM ("W" SHAPES), ASTM A992  
2.2 CHANNELS AND ANGLES - ASTM A36  
2.3 PLATES - ASTM A572
3. UNLESS OTHERWISE INDICATED, ALL METAL FABRICATIONS SHALL BE STRUCTURAL STEEL.
4. ANCHOR RODS SHALL CONFORM TO ASTM F1554 GRADE 36.
5. STEEL BOLTS SHALL CONFORM TO ASTM F3125 GRADE 325 UNLESS OTHERWISE NOTED.
6. ALUMINUM SHAPES SHALL CONFORM TO ASTM B308 ALLOY 6061-T6 UNLESS OTHERWISE NOTED.
7. STAINLESS STEEL FASTENERS SHALL CONFORM TO ASTM F593 AND ASTM F594 (TYPE 316).
8. EPOXY ANCHORS SHALL BE TYPE 316 STAINLESS STEEL. EMBEDMENT DEPTH OF THESE ANCHORS SHALL BE NOT LESS THAN 6 INCHES UNLESS OTHERWISE NOTED.
9. ALL STRUCTURAL STEEL, HIGH STRENGTH BOLTS AND ANCHOR RODS SHALL BE HOT-DIPPED GALVANIZED AND/OR PAINTED AS SPECIFIED. GALVANIZE STEEL PRIOR TO ASSEMBLY IF POSSIBLE AND AFTER ALL WELDING.
11. ALL SURFACES OF UNCOATED STEEL (EXCEPT REINFORCING STEEL) AND ALUMINUM SHAPES AND FASTENERS THAT ARE IN CONTACT WITH OR EMBEDDED IN CONCRETE, GROUT, OR MASONRY SHALL BE COATED WITH EPOXY PAINT (MIN 5 MIL DFT).
12. ALL SURFACES OF DISSIMILAR METALS IN CONTACT SHALL BE COATED WITH EPOXY PAINT (MIN 5 MIL DFT).

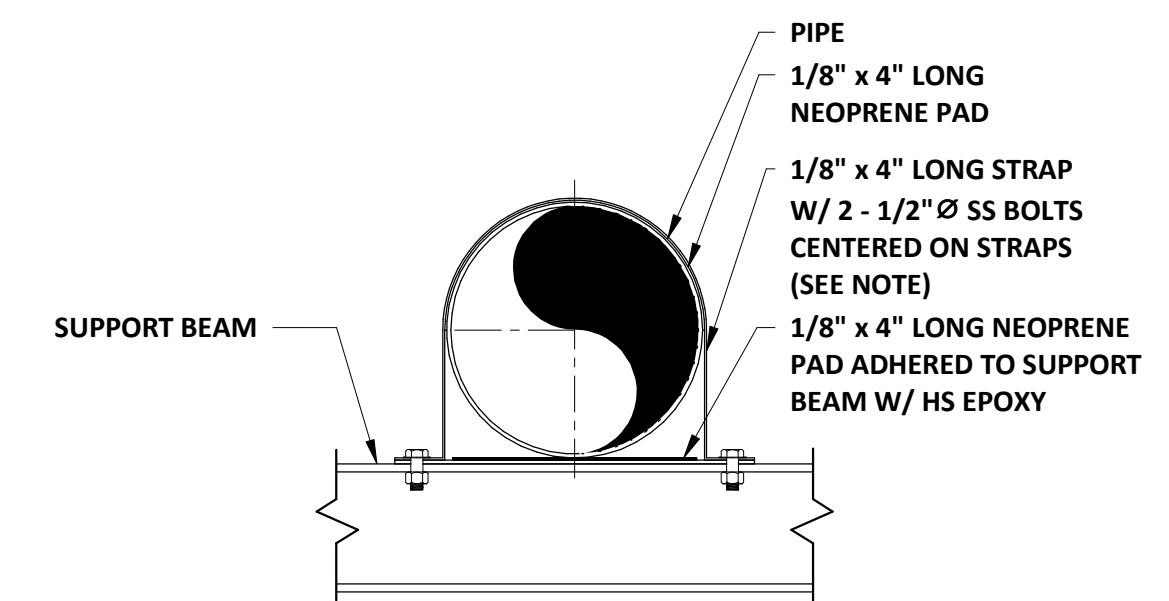
NOTE: THREE-DIMENSIONAL MODELS INTENDED TO SUPPLEMENT VISUALIZING DESIGN INTENT. IN THE EVENT OF DISCREPANCIES OR DIFFERENCES, DIMENSIONS AND DETAILS SHOWN IN TWO-DIMENSIONAL ORTHOGRAPHIC DRAWINGS SHALL SUPERSEDE THOSE SHOWN OR INTERPRETED FROM THE THREE-DIMENSIONAL MODELS



**ISOMETRIC NTS**



**A-A DETAIL**  
SCALE: 1" = 1'-0"

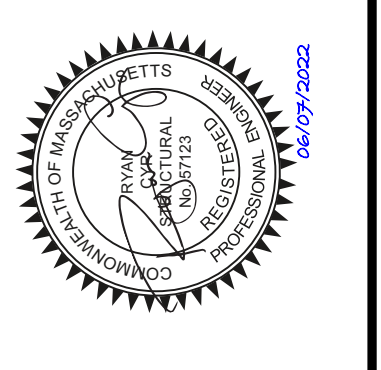


NOTE: BOLTS SHALL BE TIGHTENED TO A FINGER TIGHT CONDITION TO PERMIT THE PIPE TO MOVE PERPENDICULAR TO THE BEAM.

**B-B DETAIL**  
SCALE: 1" = 1'-0"

NO	REVISIONS	APPD	DATE
1			
2			
3			
4			
5			

PROJECT NO:	20274
DESIGNED:	R.C.YR
CAD COORD:	D. METZ
CAD:	C.SAPIEL
CHECKED:	M.STEIN
DATE:	06-07-2022
APPROVED:	R.C.YR
DATE:	06-07-2022
SUBMISSION:	CONTRACT DRAWINGS



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TOWN OF WAREHAM, MA  
NARROWS PUMP STATION  
FORCE MAIN LINING  
HEADWORKS STRUC- DEMOLITION AND MODIFICATIONS  
PLANS, SECTIONS AND DETAILS  
DRAWING  
S-1