

TOWN OF UXBRIDGE, MASSACHUSETTS

DEPARTMENT OF PUBLIC WORKS

IRONSTONE ROAD

BRIDGE PRESERVATION

MAY 2022

BOARD OF SELECTMEN

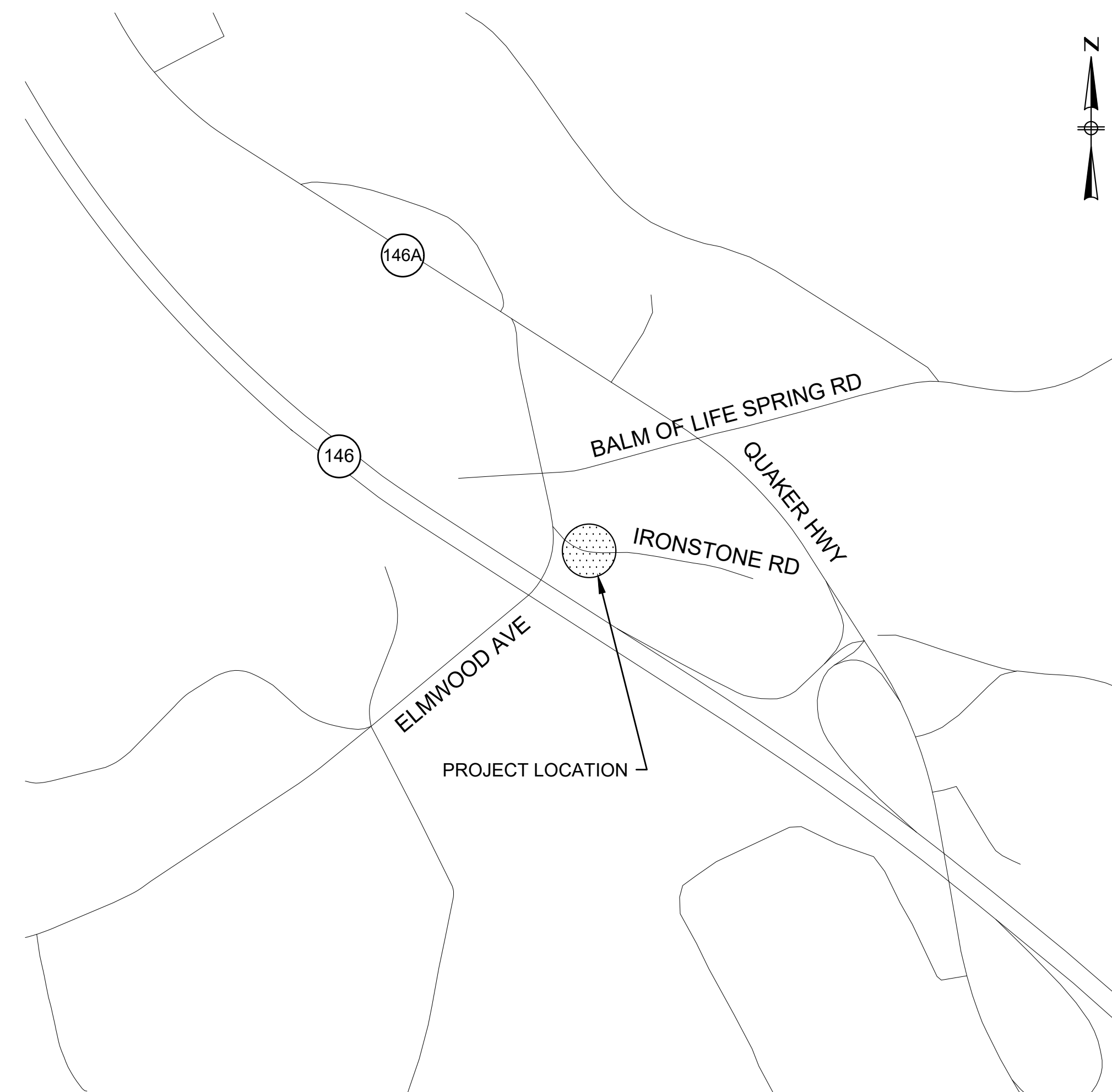
BRIAN BUTLER
JEFF SHAW
STEPHEN MANDILE
SUSAN FRANZ
BRIAN PLASKO

TOWN MANAGER

STEVEN SETTE

DEPARTMENT OF PUBLIC WORKS

BENN S. SHERMAN, P.E., DIRECTOR
PAUL HUTNUK, P.E., CIVIL ENGINEER



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100%
SUBMISSION

PREPARED BY:



ISSUE DATE: APRIL 5, 2022

REGISTERED PROFESSIONAL

DATE

9/19/2022 3:55 PM \\BETA-INC.COM\RITTRANS\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\IRONSTONE\7545_SRL\LEGEND\IRON STONE.DWG (BETA STB BW.STB)

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
		CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
		ELECTRIC HANDHOLE (NUMBER AS NOTED)
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		SEWER MANHOLE
		DRAINAGE MANHOLE
		GAS GATE
		WATER GATE
		CURB STOP
		HYDRANT
		FIRE ALARM BOX
		PARKING METER
		STREET LIGHT POLE
		UTILITY POLE
		UTILITY POLE w/ LIGHT
		SIGN
		GUY POLE
		DRAIN PIPE (SIZE AS NOTED)
		SEWER MAIN (SIZE AS NOTED)
		ELECTRIC DUCT
		GAS MAIN (SIZE AS NOTED)
		WATER MAIN (SIZE AS NOTED)
		TELEPHONE DUCT (SIZE AS NOTED)
		OVERHEAD WIRE
		MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
		HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
		STATE HIGHWAY LAYOUT LINE (SHLO)
		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
		CONSTRUCTION BASELINE
		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		WHEELCHAIR RAMP
		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
		FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND w/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
		SPOT GRADE
		SAW CUT LINE
		TEST PIT
		BORING
		EROSION CONTROL BARRIER/COMPOST FILTER TUBES

ABBREVIATIONS

GENERAL

ABAN	ABANDON
ADJ	ADJUST
ALT	ALTERATION
APPROX	APPROXIMATE
	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BD OR BND	BOUND
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
CC	CONCRETE CURB
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
DWY	DRIVEWAY
EP, EOP	EDGE OF PAVEMENT
EL	ELEVATION
ESMT	EASEMENT
EXIST	EXISTING
FDN	FOUNDATION
GRAN	GRANITE
GC	GRANITE CURB
HOR	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
OC	ON CENTER
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RR	RAILROAD
RT	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SW	SIDEWALK
SHT	SHEET
SHLD	SHOULDER
STA	STATION
TEMP	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
VAR	VARIABLE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
+FY	FLASHING YELLOW LEFT ARROW
R-→	STEADY RED RIGHT ARROW
Y-→	STEADY AMBER RIGHT ARROW
G-→	STEADY GREEN RIGHT ARROW
+R	STEADY RED LEFT ARROW
+Y	STEADY AMBER LEFT ARROW
+G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

UTILITIES

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
		CONTROLLER PHASE
		MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
		MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8" WIDTH)
SL	STOP LINE - 12" WHITE LINE 4" BEHIND CW (TYP.)
SWEL	SOLID WHITE EDGE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWGL	SOLID WHITE GORE LINE 12" @ 33°, (SPACING NOTED)
SWLL	SOLID WHITE LANE LINE - 4"
SWPL	SOLID WHITE PARKING LINE - 4"
BWLL	BROKEN WHITE LANE LINE - 4"
DWLeX	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLeX	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYCL	BROKEN YELLOW CENTERLINE - 4"
DYCL	DOUBLE YELLOW CENTERLINE - 2 - 4" LINES
SYEL	SOLID YELLOW EDGE LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 33°, (SPACING NOTED)
SYLL	SOLID YELLOW LANE LINE - 4"
SYCTEL	SOLID YELLOW CYCLE TRACK EDGE LINE - 4"
DYCTCL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
	SCHOOL ZONE - WHITE
	HANDICAP SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
	LEGEND "ONLY" - WHITE

					DRAWN BY: SD	REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT	SCALE NONE	TITLE Ironstone Road Bridge Improvements Uxbridge, Massachusetts LEGEND AND ABBREVIATIONS	BETA JOB NO. 7545
					DESIGNED BY: BB	For Review Only					ISSUE DATE
					CHECKED BY: TW						SHEET NO. 2
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

TRANSITION TO NCHRP 350 GUARDRAIL STA +038.5 TO +072 LT
TRANSITION TO THRIE BEAM STA +072 TO +078 LT
BRIDGE THRIE BEAM GUARDRAIL +078 TO +117 LT
TRANSITION TO THRIE BEAM STA +117 TO +123 LT
GUARDRAIL - TL2 (SINGLE FACED) +123 TO +142.5 LT
GUARDRAIL TANGENT END TREATMENT, TL2 STA +142.5 TO +167.5 LT

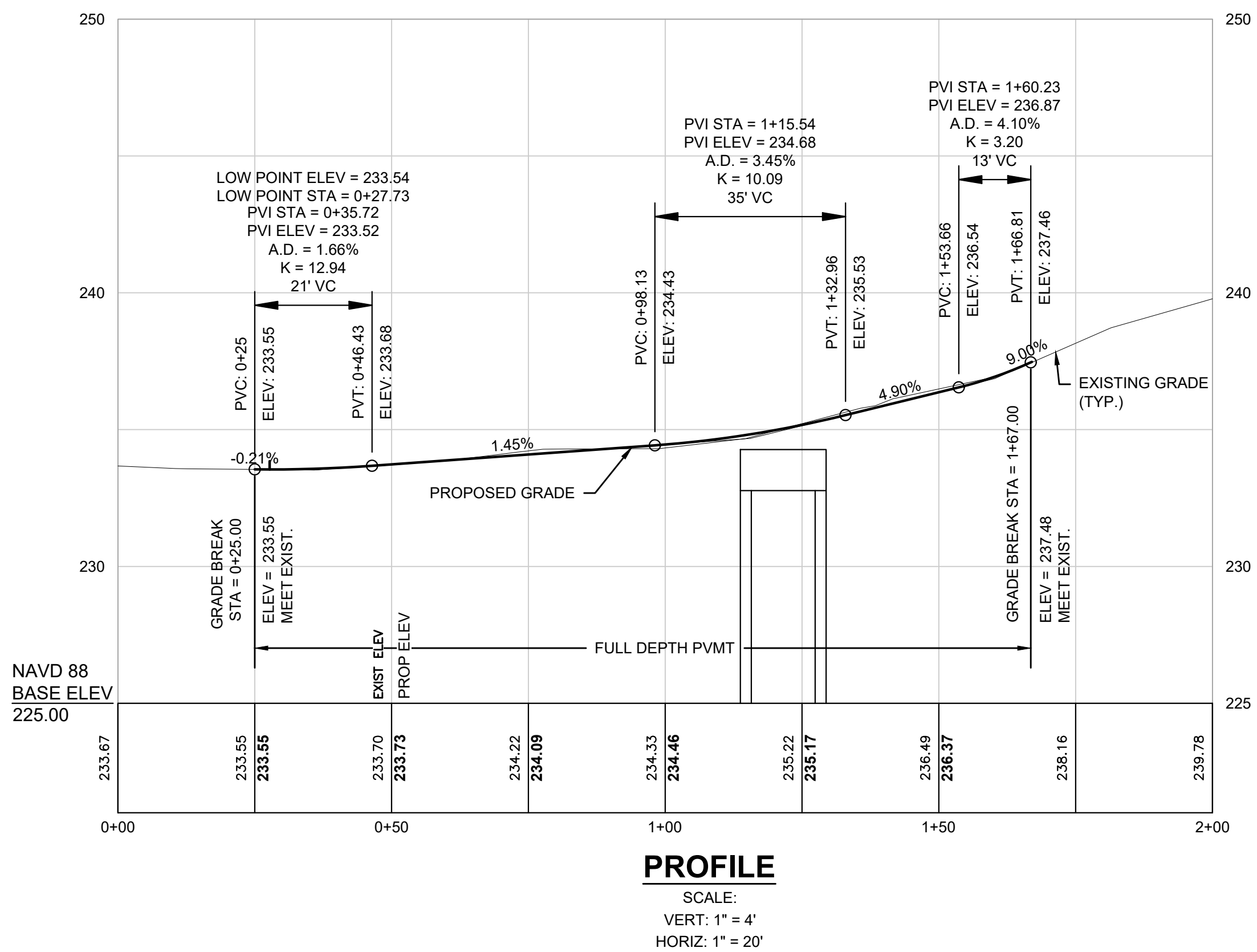
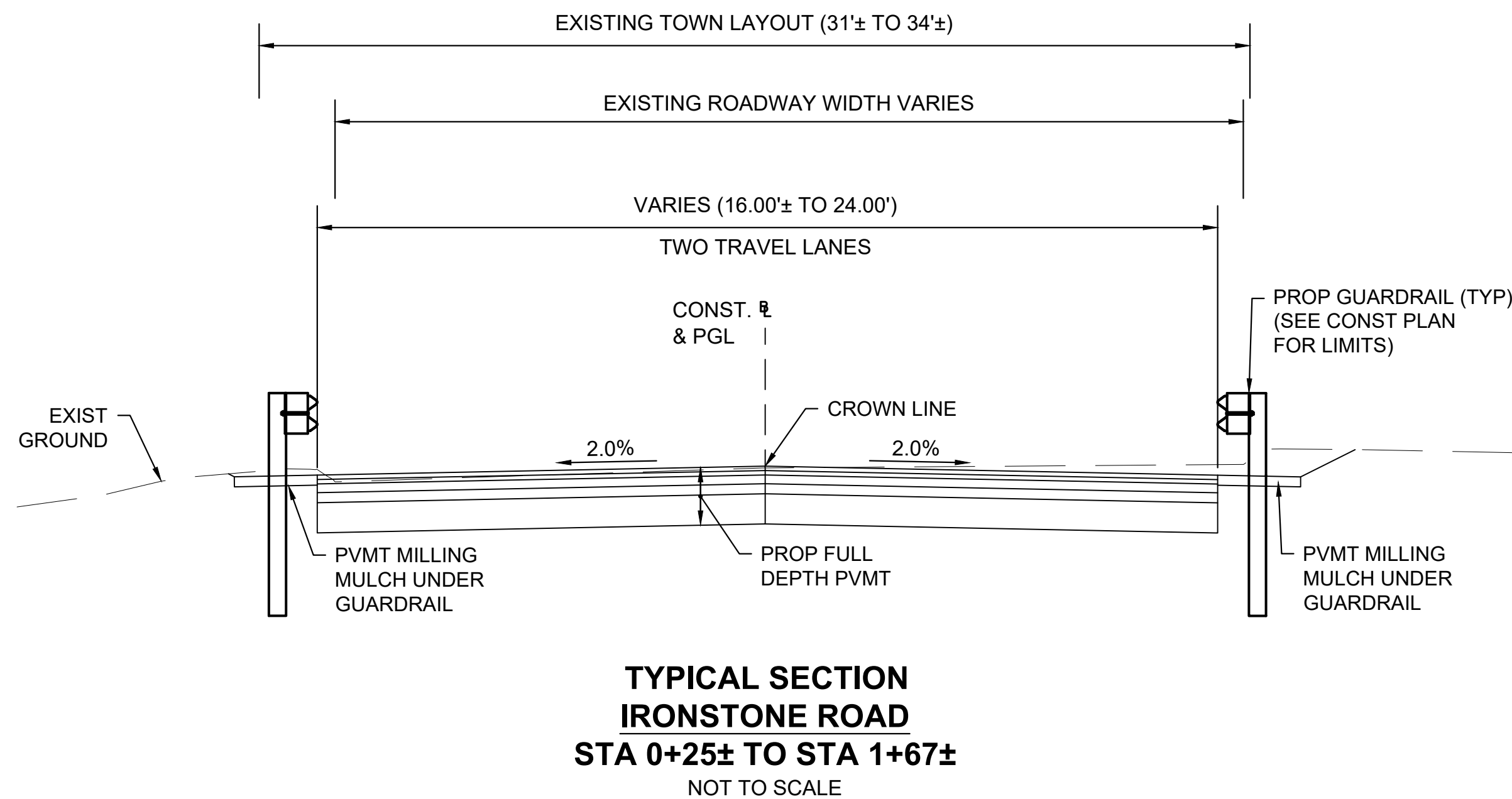
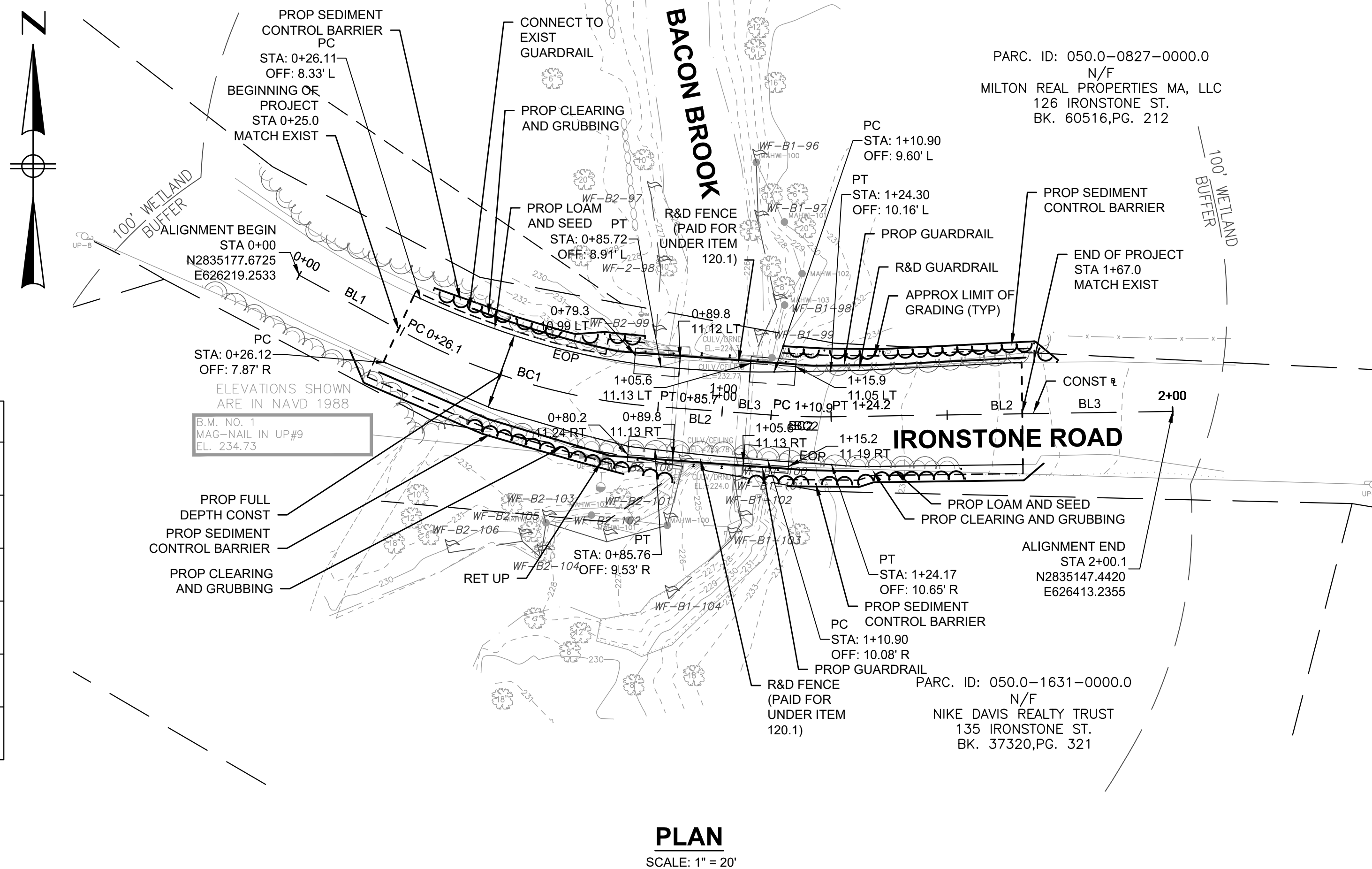
GUARDRAIL TANGENT END TREATMENT, TL2 STA +025 TO +050 RT
GUARDRAIL - TL2 (SINGLE FACED) +050 TO +073 RT
TRANSITION TO THRIE BEAM STA +073 TO +079 RT
BRIDGE THRIE BEAM GUARDRAIL STA +079 TO +116 RT
TRANSITION TO THRIE BEAM STA +116 TO +122 RT
TRAILING ANCHORAGE STA +122 TO +130 RT


FULL DEPTH PAVEMENT

PROJECT TACK COAT NOTES

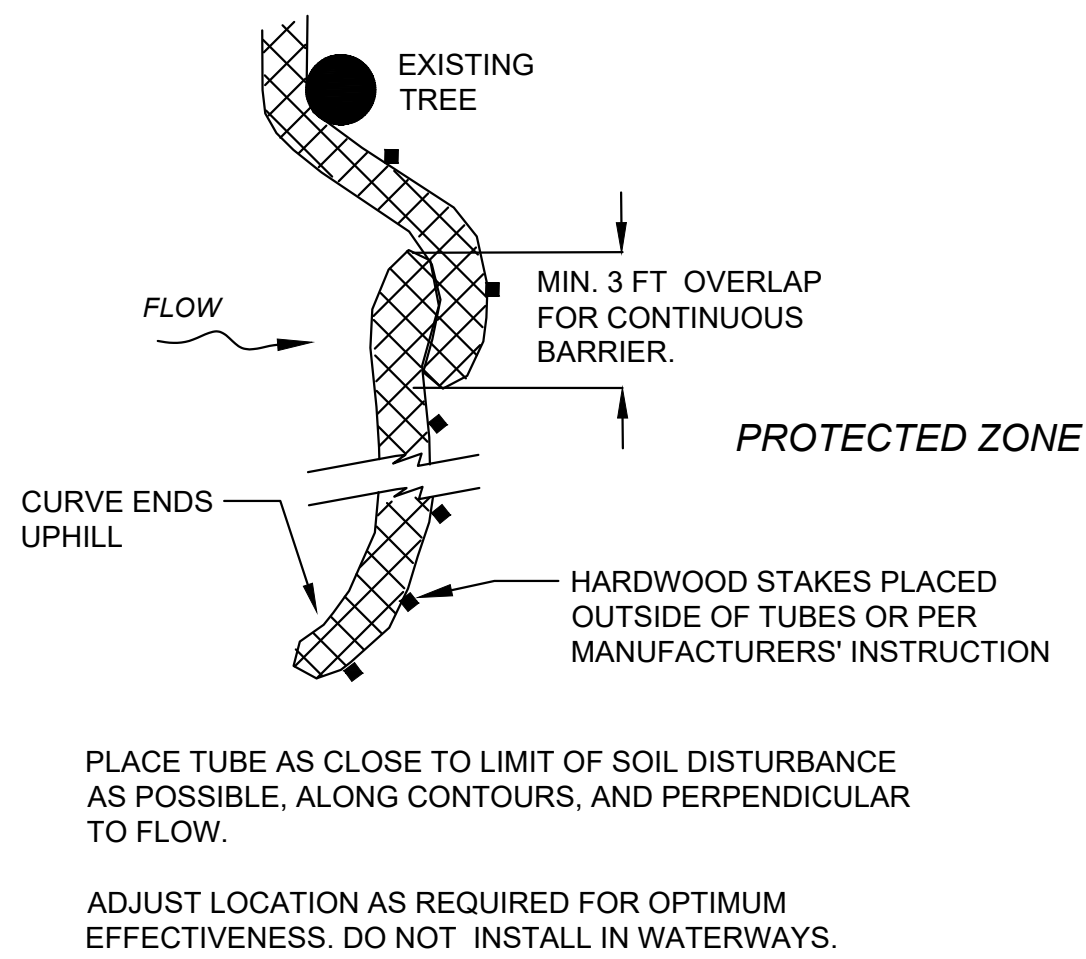
TACK COAT: ASPHALT EMULSION FOR TACK COAT, GRADE RS-1
SHALL BE PLACED AT A RATE OF:
0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES
0.07 GALLONS PER SQUARE YARD OVER CEMENT CONCRETE
BASE COURSE
0.05 GALLONS PER SQUARE YARD OVER SMOOTH TIGHT
PAVEMENTS
PRIOR TO PAVING AN OVERLAY

IRONSTONE ROAD CL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
BL1	0+00.00	2835177.6725	626219.2533		S61°24'17"E 26.11'	0+26.11	2835165.1750	626242.1799
BC1	0+26.11	2835165.1750	626242.1799	R = 140.00' Δ= 24°24'07" L=59.63' T=30.27"		0+85.74	2835148.4728	626298.9494
BL3	0+85.74	2835148.4728	626298.9494		S85°48'24"E 25.16'	1+10.90	2835146.6327	626324.0456
BC2	1+10.90	2835146.6327	626324.0456	R = 150.00' Δ= 5°05'38" L=13.34' T=6.67"		1+24.24	2835146.2497	626337.3715
BL2	1+24.24	2835146.2497	626337.3715		N89°05'58"E 75.87'	2+00.11	2835147.4420	626413.2355

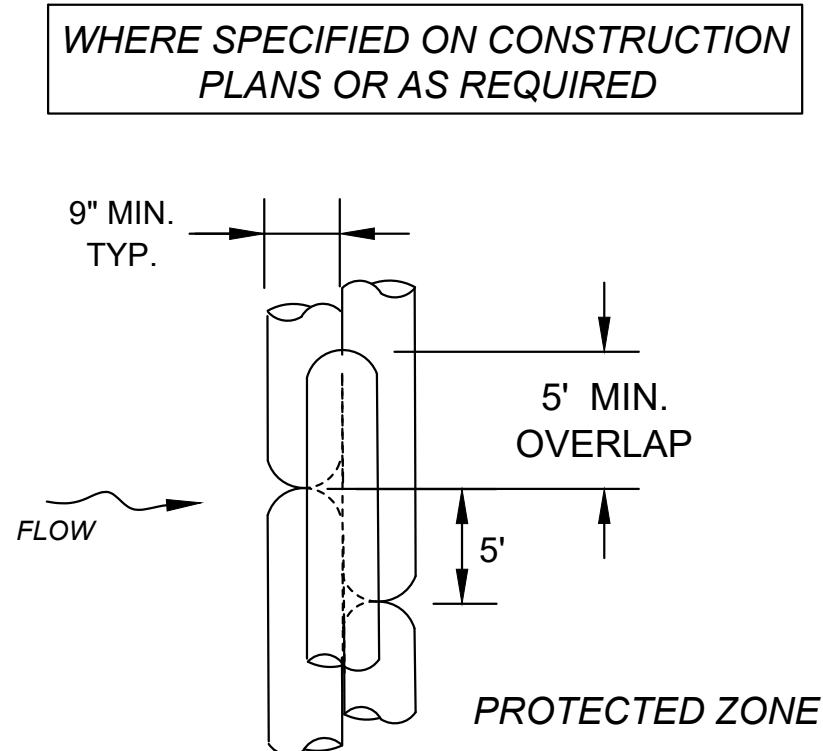


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					DESIGNED BY: BB						ISSUE DATE
					CHECKED BY: TW						SHEET NO. 3
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

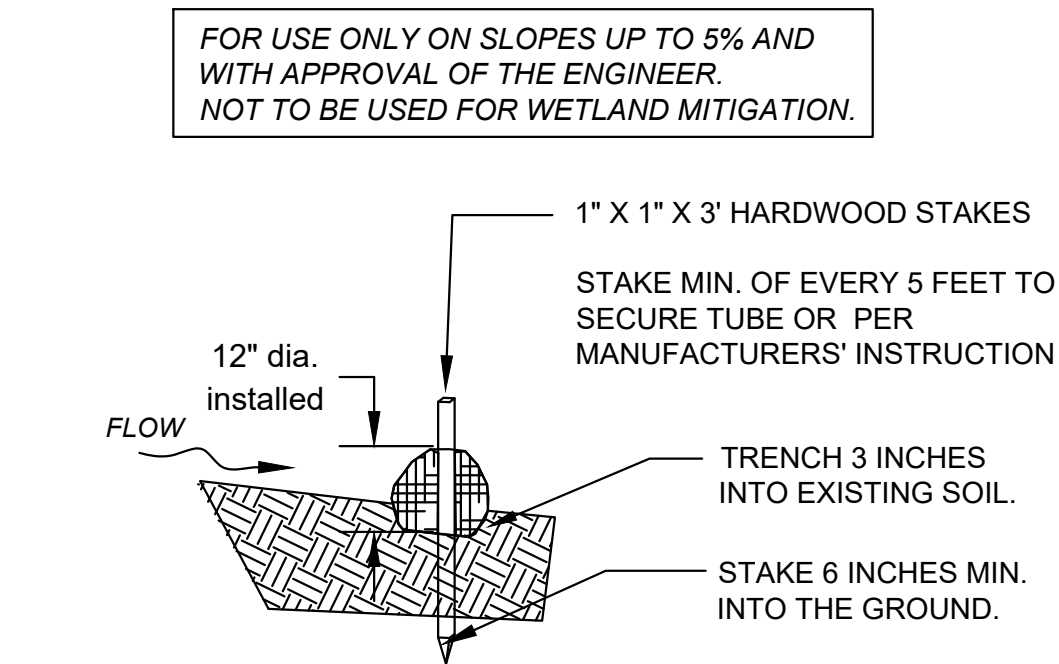
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PLAN VIEW

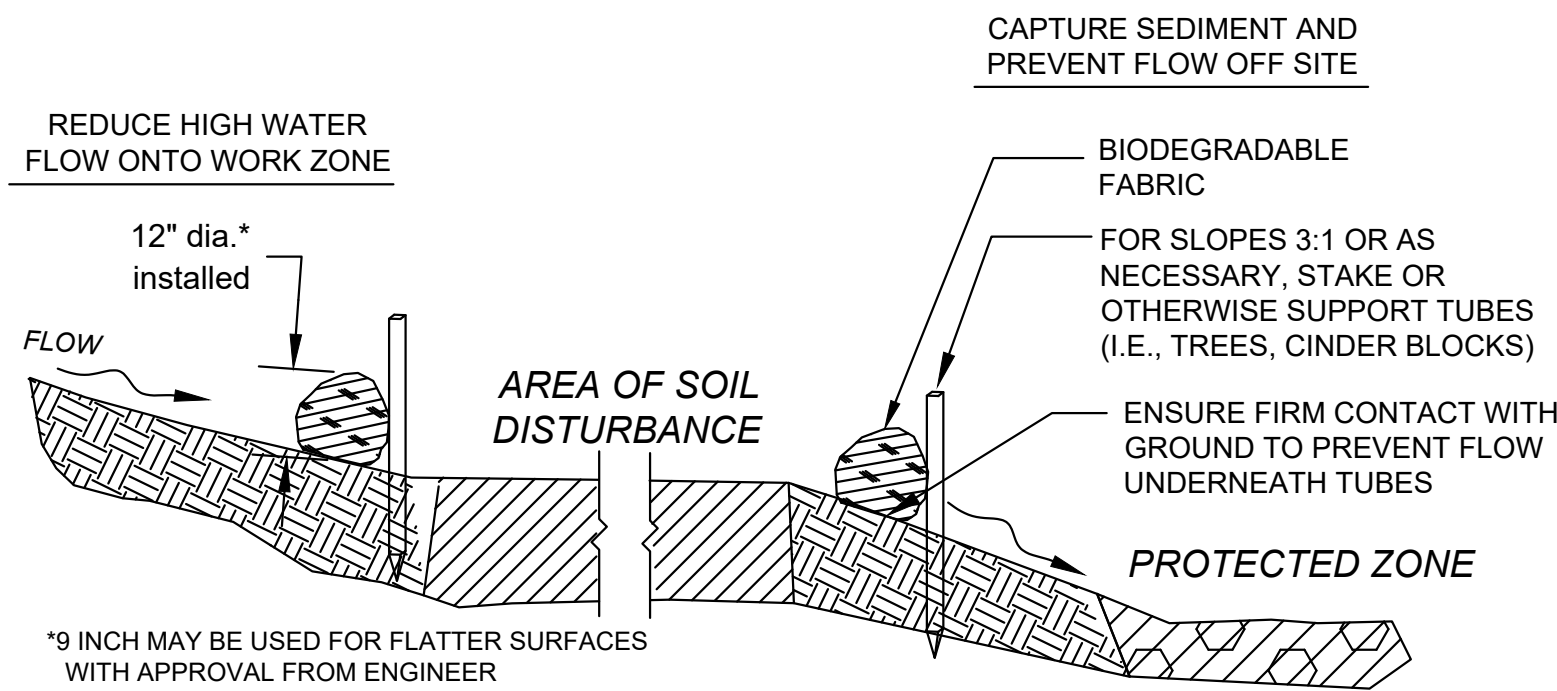


PLAN VIEW



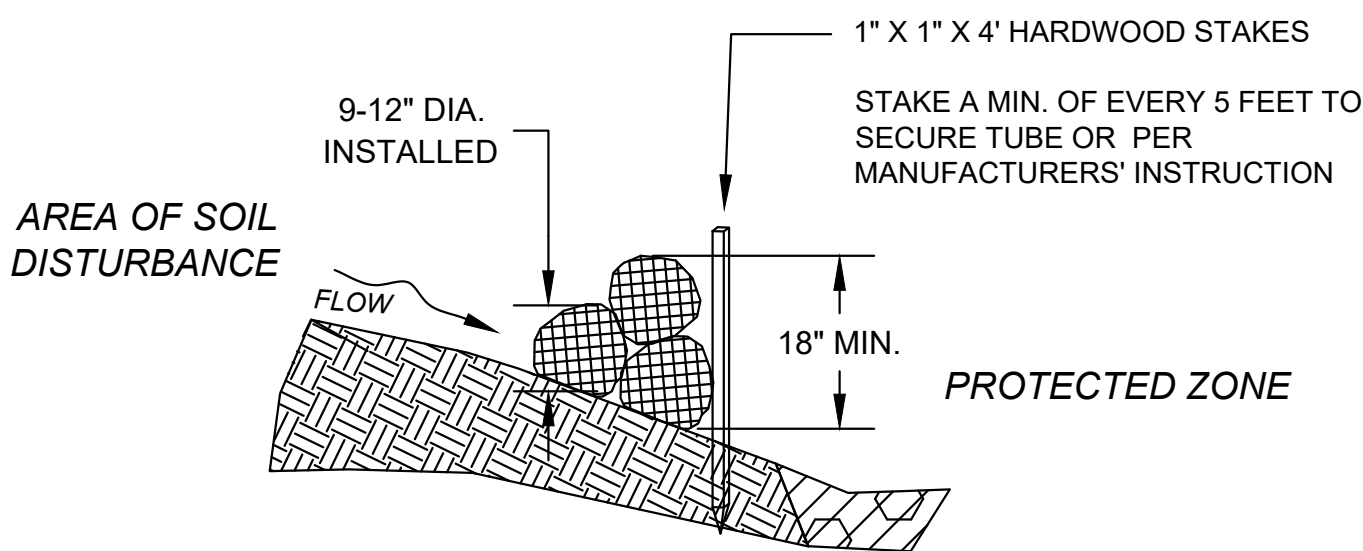
SECTION

12 INCH STRAW WATTLE
NOT TO SCALE



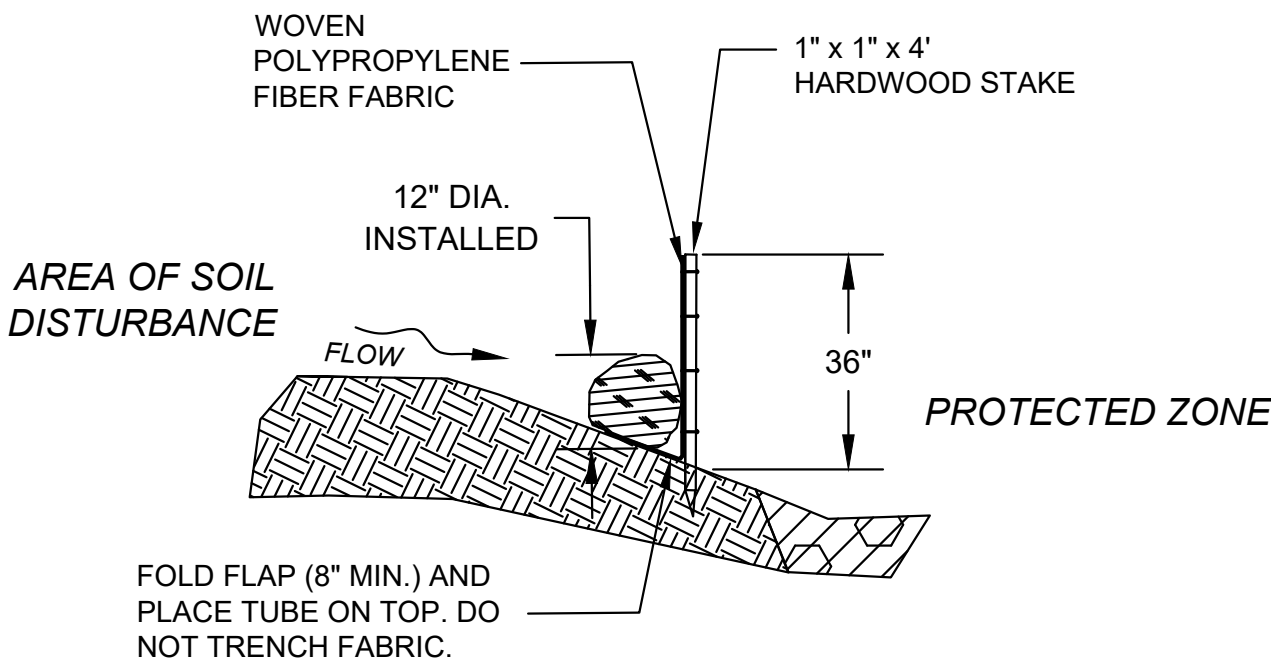
SECTION

SEDIMENT BARRIER - COMPOST FILTER TUBE
NOT TO SCALE




SECTION

COMPOST FILTER TUBES STACKED
NOT TO SCALE

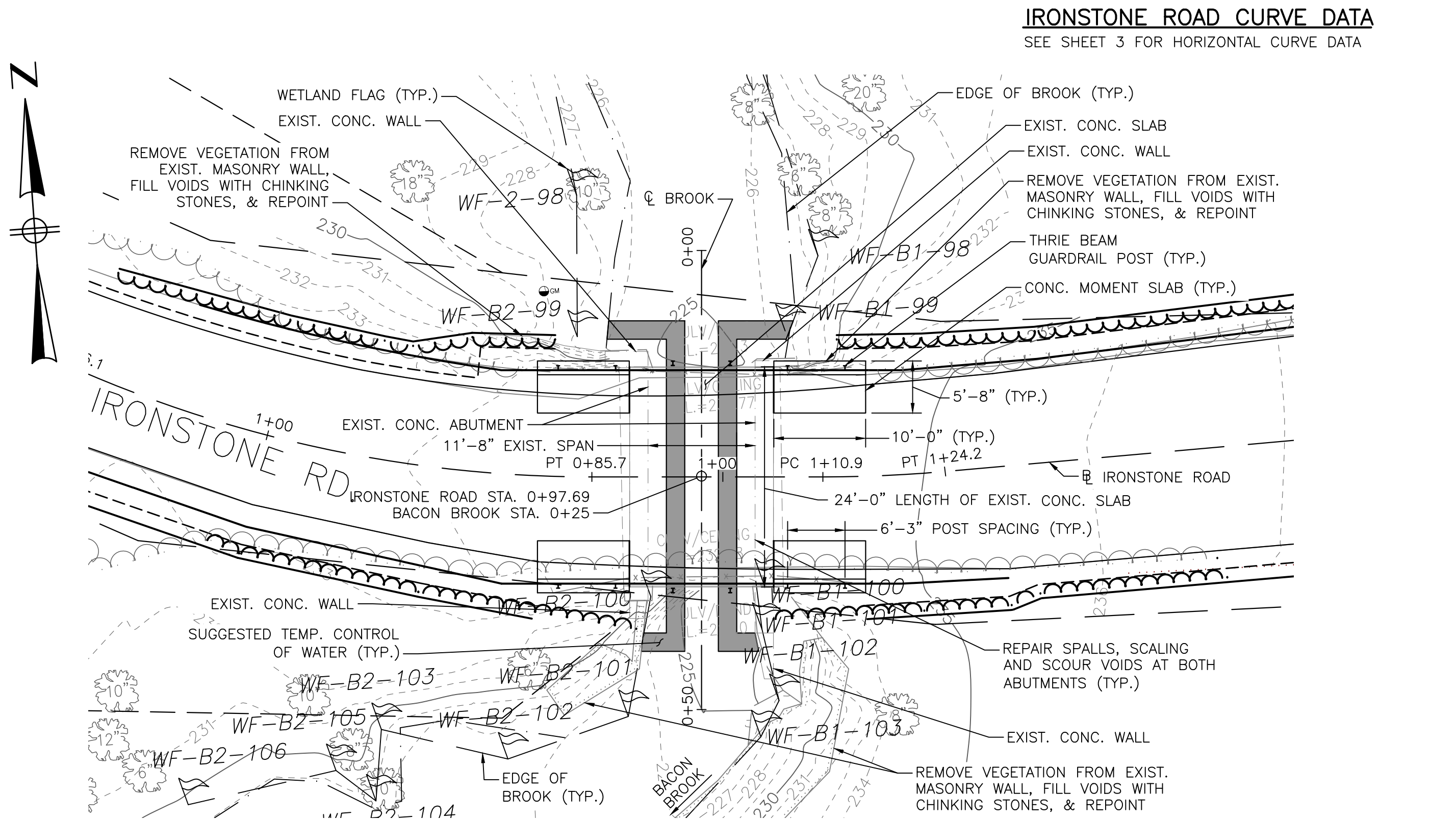


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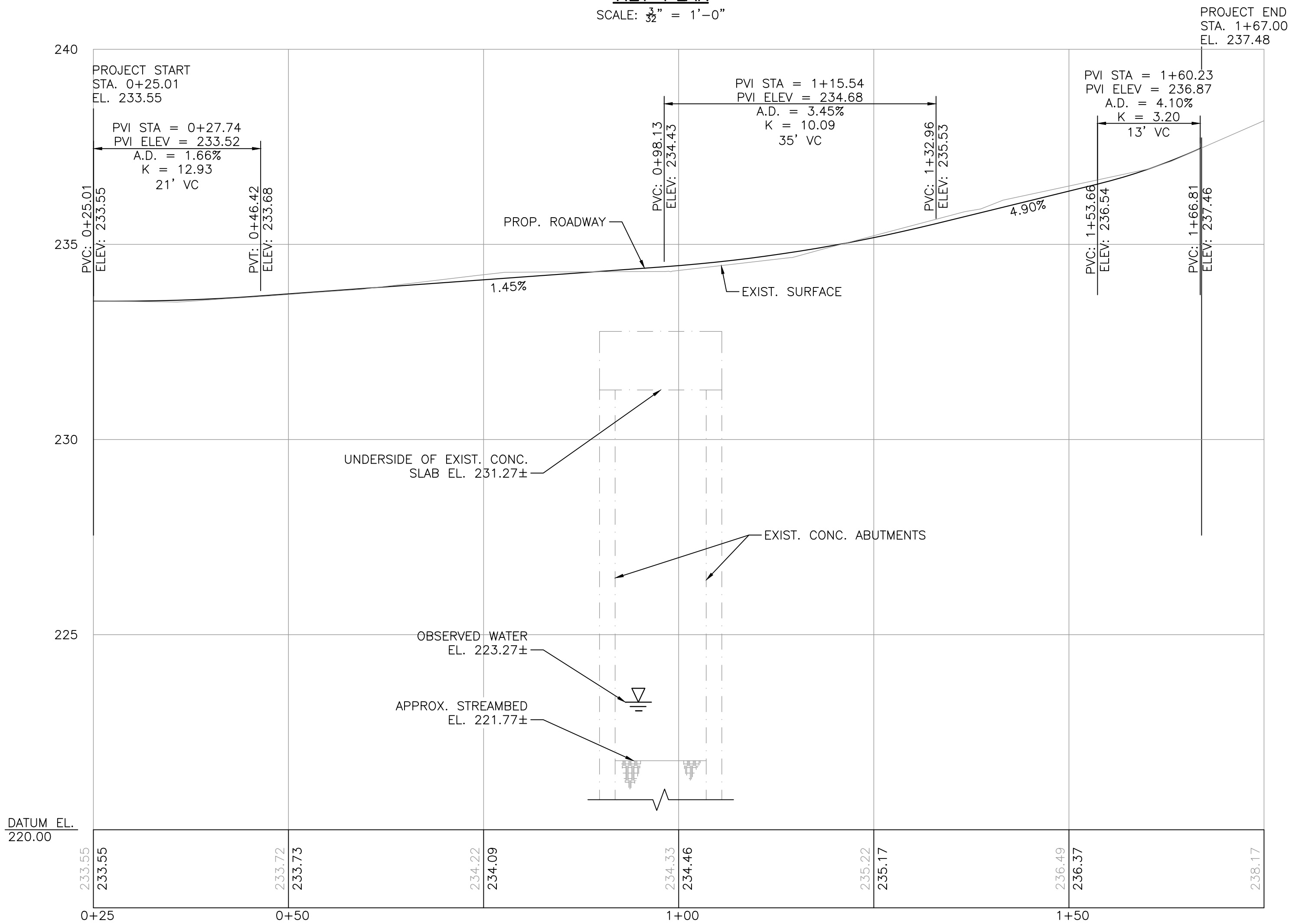
COMPOST FILTER TUBE & SILT FENCE
NOT TO SCALE

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					CHECKED BY: TW						SHEET NO. 4
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

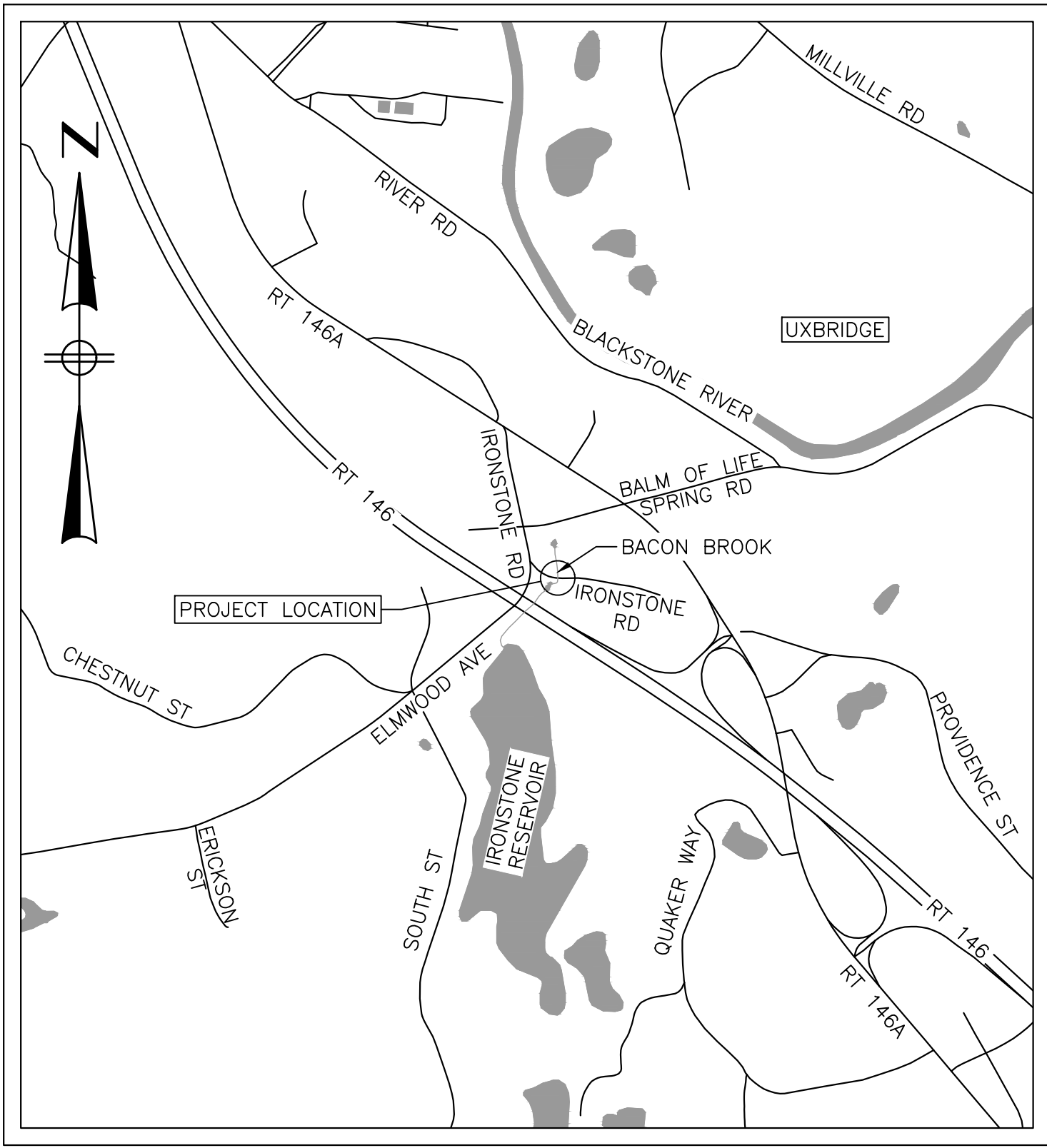
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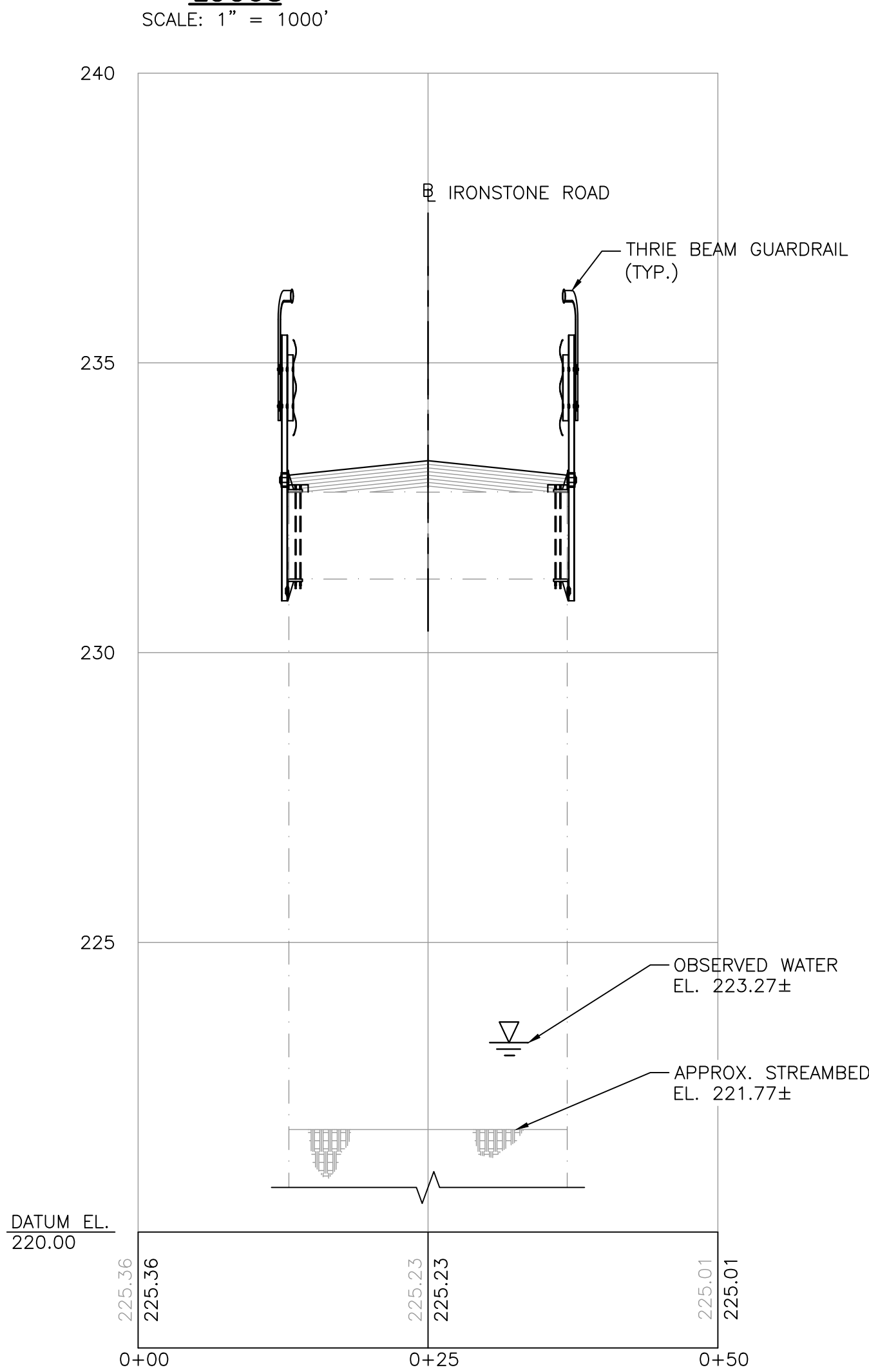
KEY PLAN
SCALE: $\frac{1}{8}$ " = 1'-0"



IRONSTONE ROAD PROFILE
HORIZONTAL SCALE: $\frac{1}{32}$ " = 1'-0"
VERTICAL SCALE: $\frac{1}{32}$ " = 1'-0"



LOCUS
SCALE: 1" = 1000'



BACON BROOK PROFILE
HORIZONTAL SCALE: $\frac{1}{32}$ " = 1'-0"
VERTICAL SCALE: $\frac{1}{32}$ " = 1'-0"

GENERAL NOTES

PROJECT FILE NO.: NA
PROJECT DESCRIPTION: PROPOSED BRIDGE PRESERVATION
BRIDGE DESIGN LOADING: N/A
SURVEY: GOLDSMITH, PREST & RINGWALL, INC.
ELEVATION REFERENCE: NAVD OF 1988

BENCHMARK: MAG-NAIL
LOCATION: UP#9
NORTHING: 34021644.55
EASTING: 7515439.82
ELEVATION: 234.73'

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 5.80 SQUARE MILES
DESIGN FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND
DESIGN FLOOD FREQUENCY: UNK YEARS
DESIGN FLOOD VELOCITY: UNK FEET PER SECOND
DESIGN FLOOD ELEVATION: UNK FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: UNK FEET, NAVD

DESIGN AND CHECK SCOUR DATA

DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY: 25 YEARS
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY: 50 YEARS
FLOOD OF RECORD
DISCHARGE: UNKNOWN CUBIC FEET PER SECOND
FREQUENCY (IF KNOWN): UNKNOWN YEARS
MAXIMUM ELEVATION: UNKNOWN FEET, NAVD
DATE: UNKNOWN MONTH, YEAR

HISTORY OF ICE FLOES: UNKNOWN
EVIDENCE OF SCOUR AND EROSION: UNKNOWN

GENERAL:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING, COORDINATING, AND VERIFYING ALL DIMENSIONS.

THE CONTRACTOR SHALL COORDINATE ALL EXISTING UTILITY LOCATIONS.

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES-2022 EDITION.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER WHEN, IN THE COURSE OF CONSTRUCTION, CONDITIONS ARE UNCOVERED WHICH ARE UNANTICIPATED OR OTHERWISE APPEAR TO PRESENT A DANGEROUS CONDITION.

FOR DIMENSIONS AND DETAILS NOT SHOWN, REFER TO HIGHWAY DRAWINGS.

NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

FOUNDATIONS:
FOOTING SHALL BE FOUNDED ON ONE FOOT OF COMPACTED GRAVEL BORROW. THE ELEVATION OF FOOTING SHALL BE SUCH THAT IT DOES NOT FALL WITHIN A ONE VERTICAL TO TWO HORIZONTAL SLOPE FROM THE BASE OF ANY ADJACENT FOOTING OR UTILITY.

NO BACKFILL SHALL BE PLACED AGAINST WALL OR MOMENT SLAB UNTIL THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TEMPORARY SUPPORT AND DEWATERING AS NECESSARY DURING EXCAVATION TO MAINTAIN THE INTEGRITY OF EXISTING STRUCTURES, ACTIVE UTILITIES, AND STREETS.

REINFORCEMENT:
ALL REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60.

CONCRETE:
UNLESS NOTED OTHERWISE, CONCRETE SHALL BE AS FOLLOWS:

MOMENT SLAB & COPING: 5000 PSI - 3/4" - 685 LB/CY HP
REPAIR CONCRETE: 4000 PSI - 3/8" - 660 LB/CY CEMENT

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER _____ DATE _____

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: BN
DESIGNED BY: TW
CHECKED BY: TW

REGISTERED PROFESSIONAL
For Review Only

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BETA
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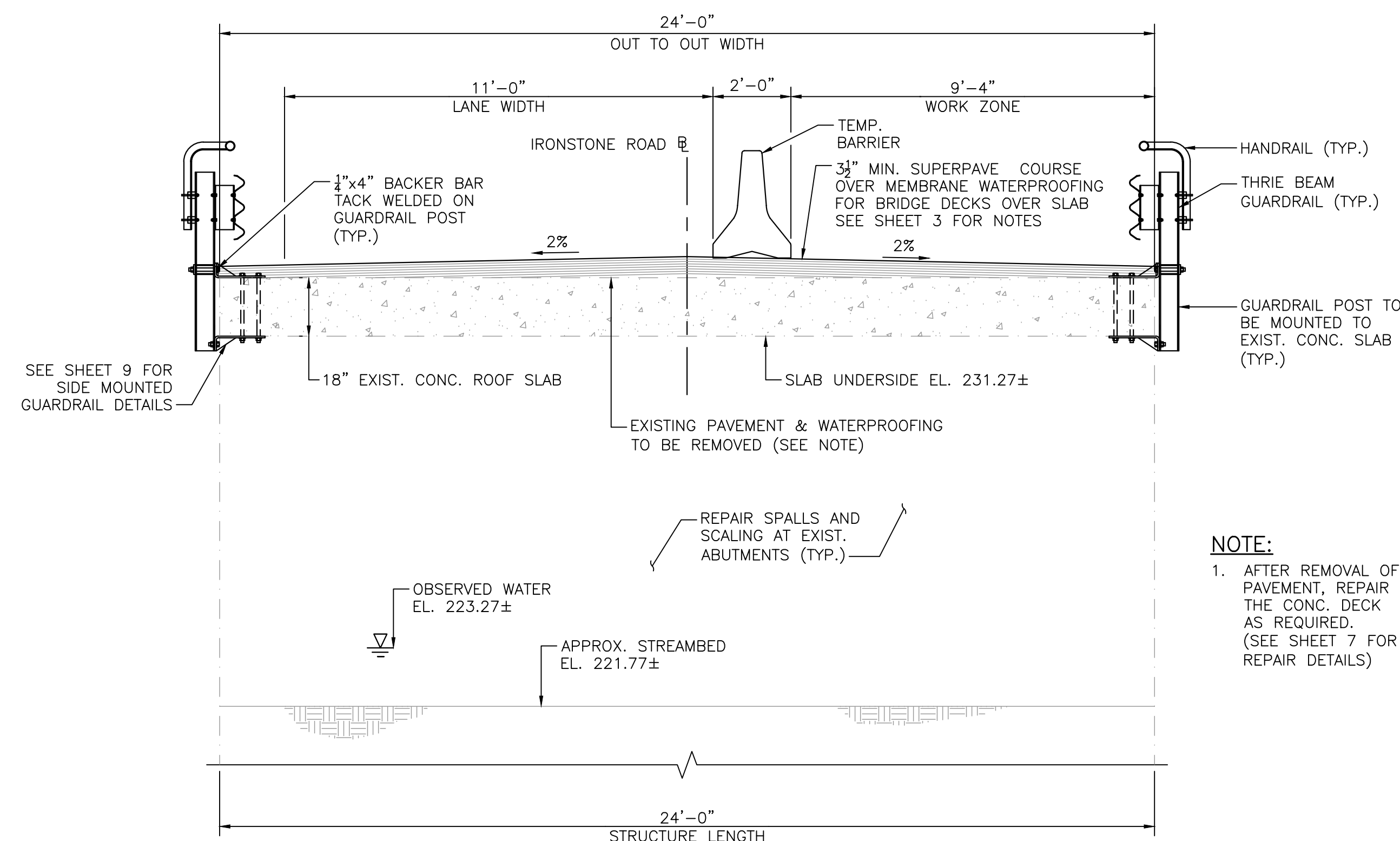
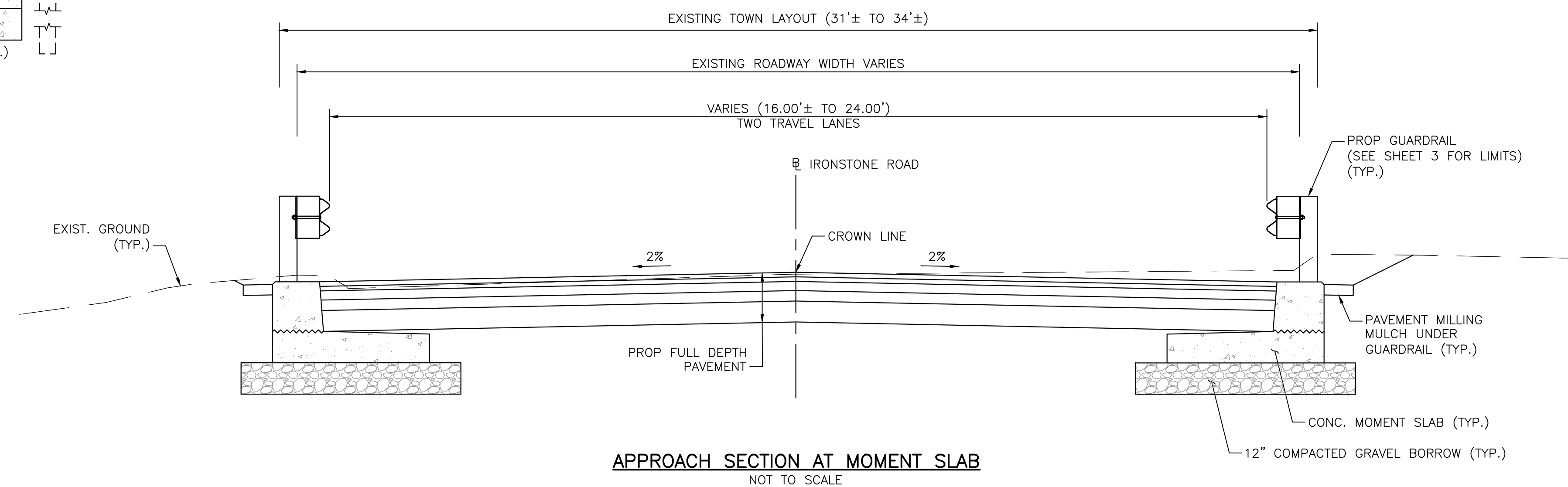
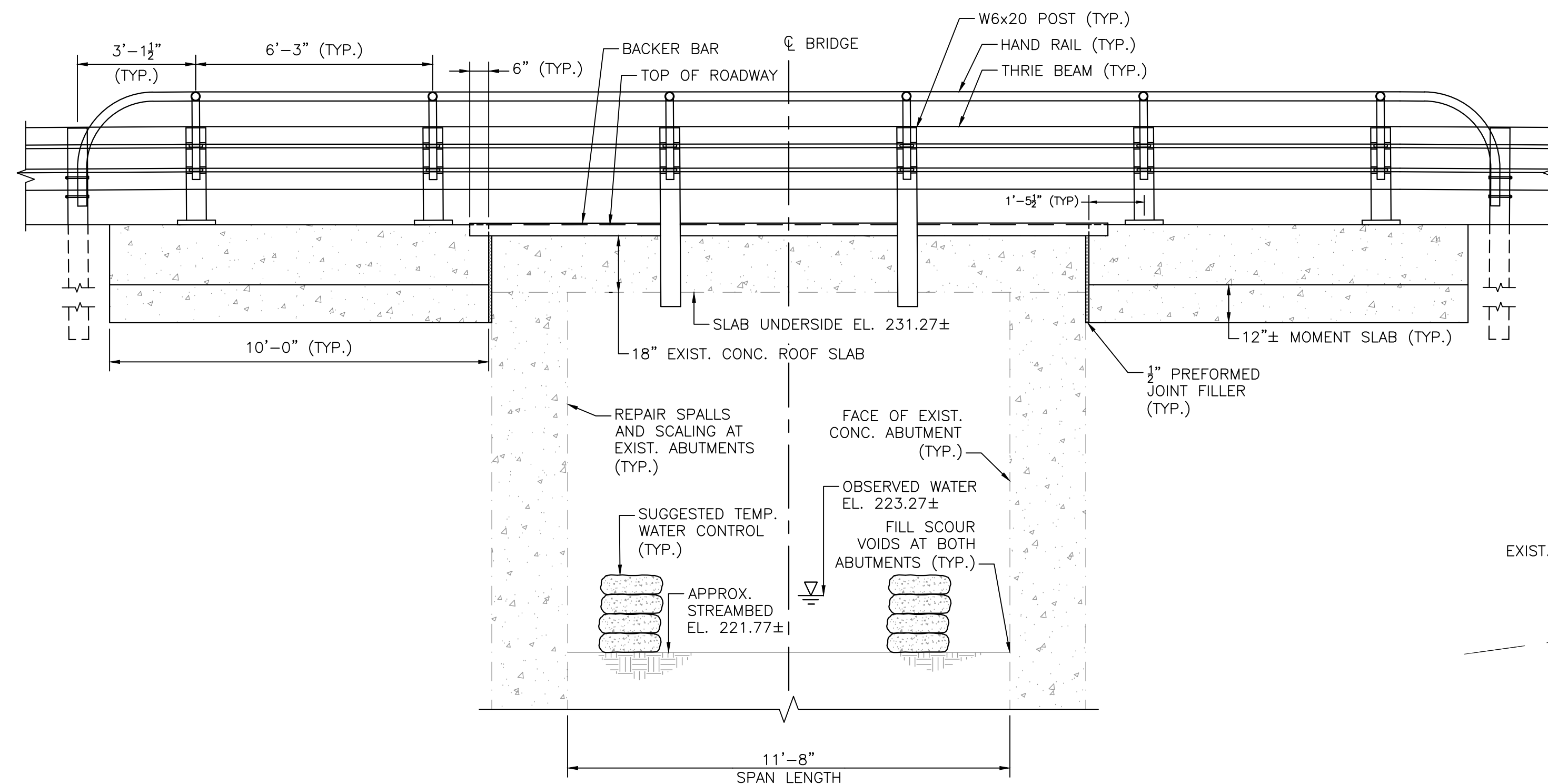
SUBCONSULTANT

SCALE
AS SHOWN
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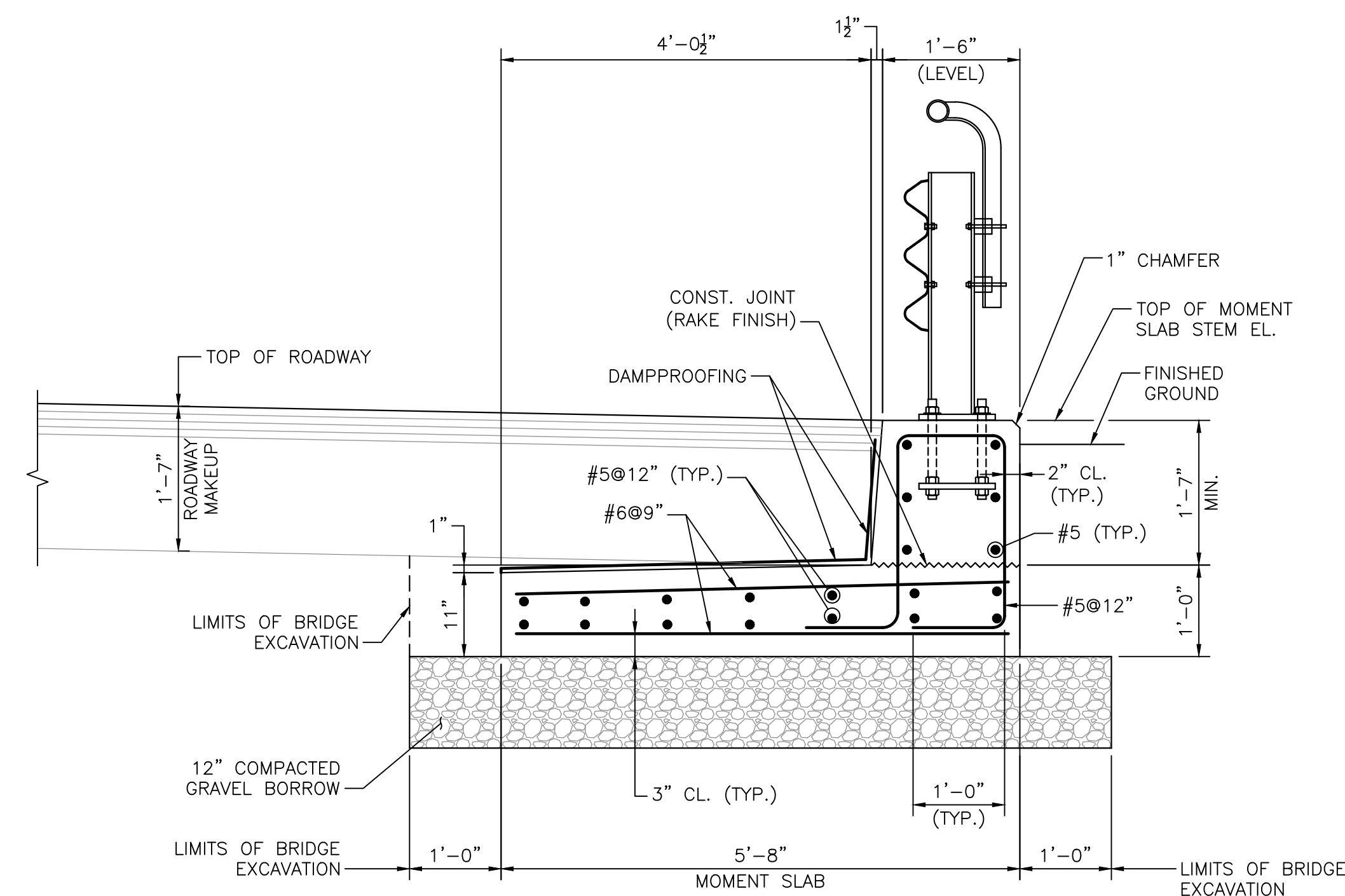
TITLE
Ironstone Road Bridge Improvements
Uxbridge, Massachusetts
BRIDGE COVER SHEET

BRIDGE NO. U-02-069

BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 5



NOTE:
1. AFTER REMOVAL OF PAVEMENT, REPAIR THE CONC. DECK AS REQUIRED.
(SEE SHEET 7 FOR REPAIR DETAILS)




NOTE:
ALL CONCRETE SHALL BE 5000 PSI, $\frac{3}{4}$ IN, 685 HP CEMENT CONCRETE.

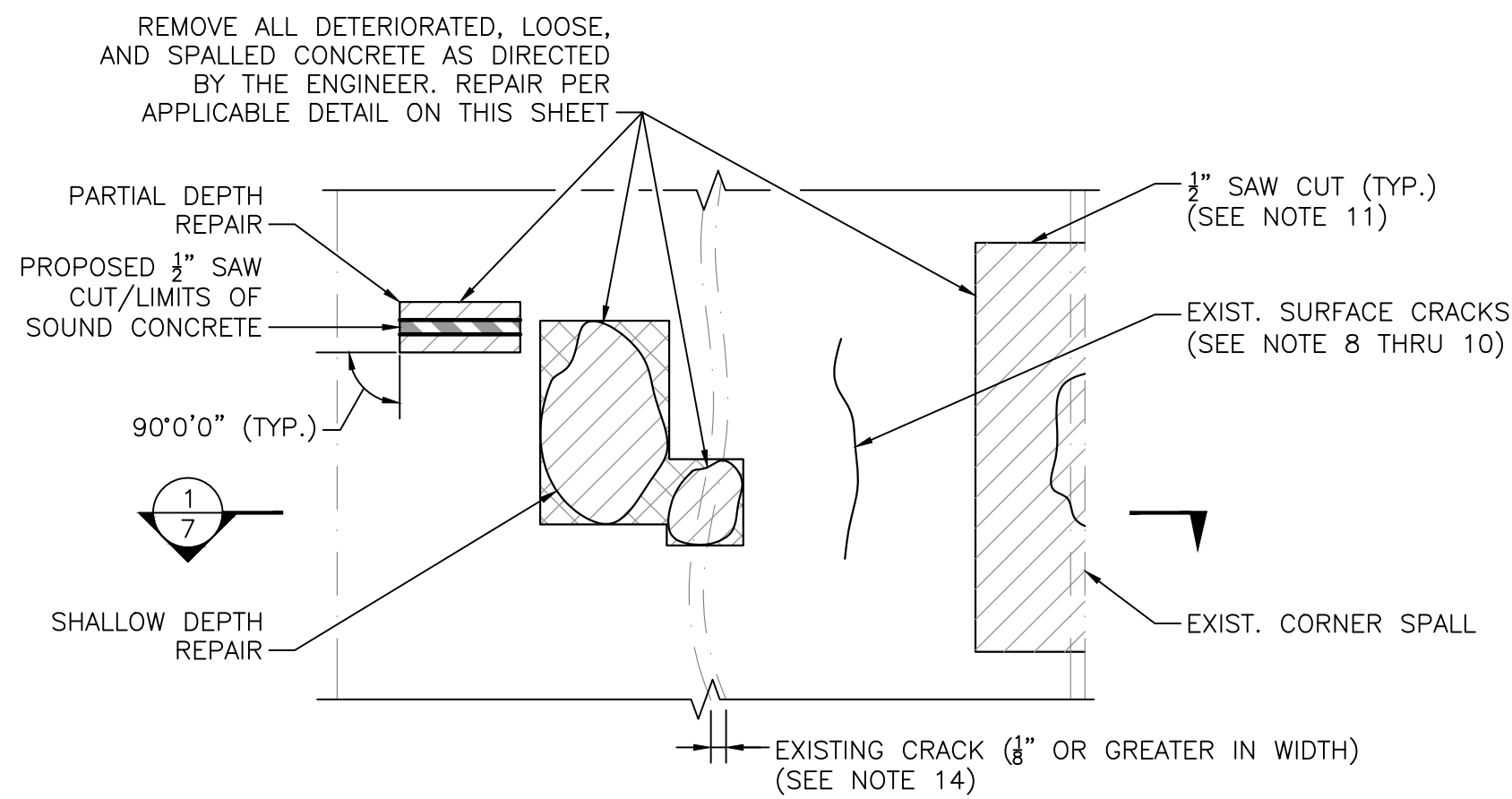
TOP OF MOMENT SLAB STEM ELEVATION		
LOCATION	STATION	ELEVATION
NORTHWEST	0+79.3	233.94
	0+89.8	234.09
NORTHEAST	1+05.6	234.34
	1+15.9	234.62
SOUTHWEST	0+80.2	233.95
	0+89.8	234.09
SOUTHEAST	1+05.6	234.34
	1+15.2	234.60

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

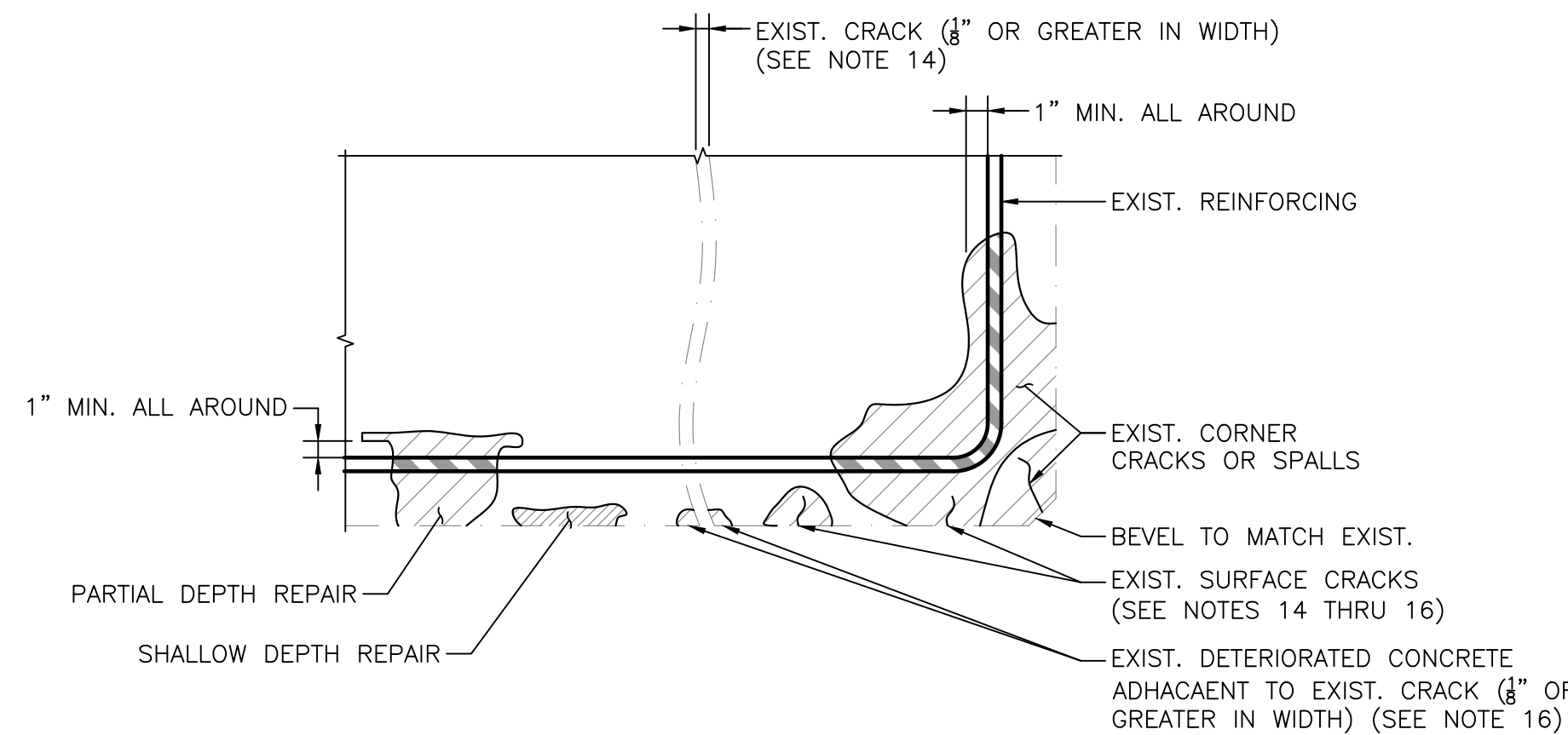
DISTRICT 3 BRIDGE ENGINEER _____ DATE _____

				DRAWN BY: BN	REGISTERED PROFESSIONAL <div style="text-align: center;"> <h1>For Review Only</h1> </div>	PREPARED BY  www.BETA-inc.com	SUBCONSULTANT	SCALE AS SHOWN	TITLE <div style="text-align: center;"> <h2>Ironstone Road Bridge Improvements</h2> <h3>Uxbridge, Massachusetts</h3> <h3>STRUCTURAL DETAILS</h3> </div>	BETA JOB NO. 7545
				DESIGNED BY: TW						ISSUE DATE
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NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS						

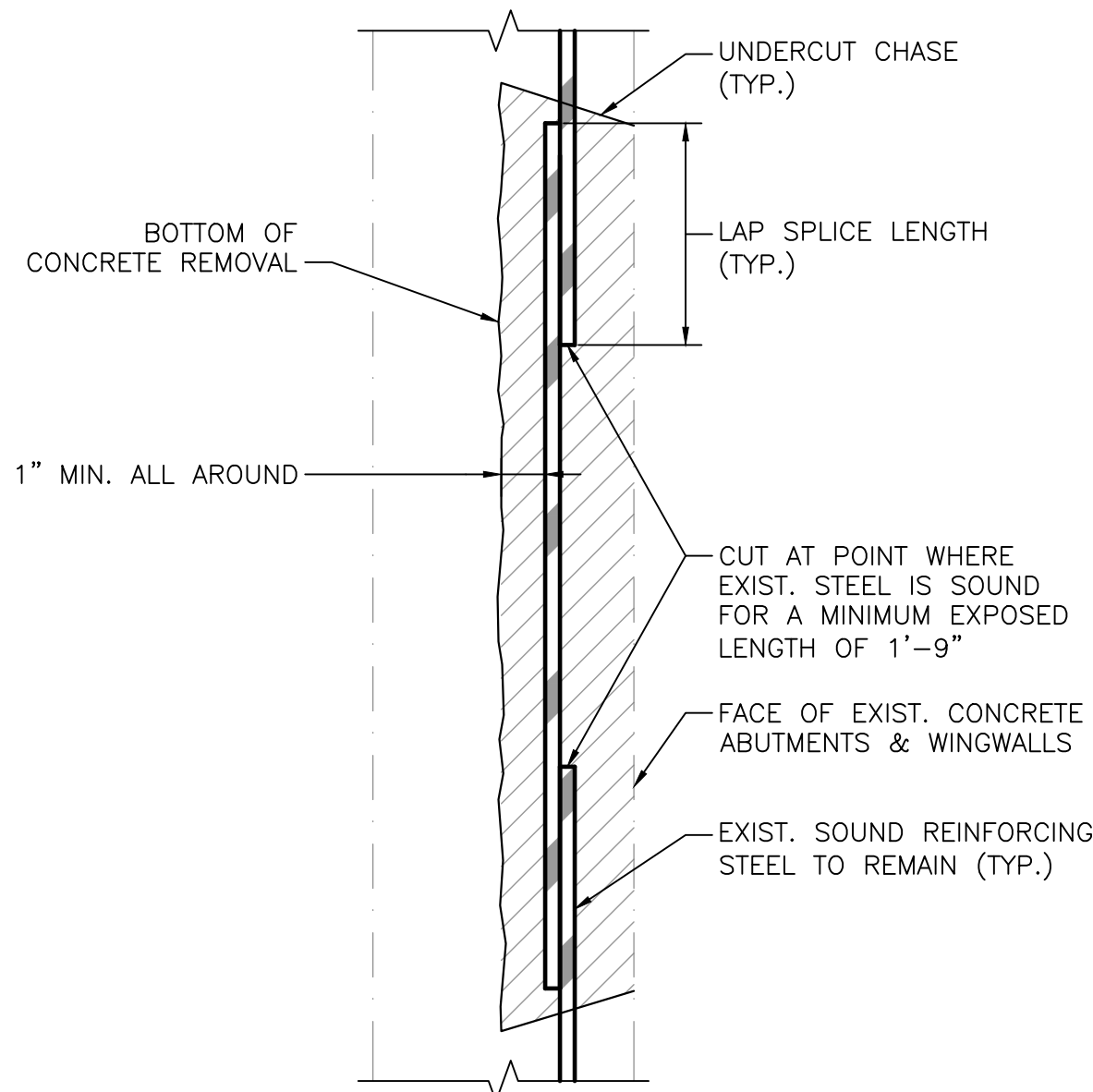
9/19/2022 4:00 PM I:\BETA\INC\COM\TR\TRANS\750S\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\7545_S\CONCRETE\REPAIR\DETAILS.DWG (BETA STB BN STB)



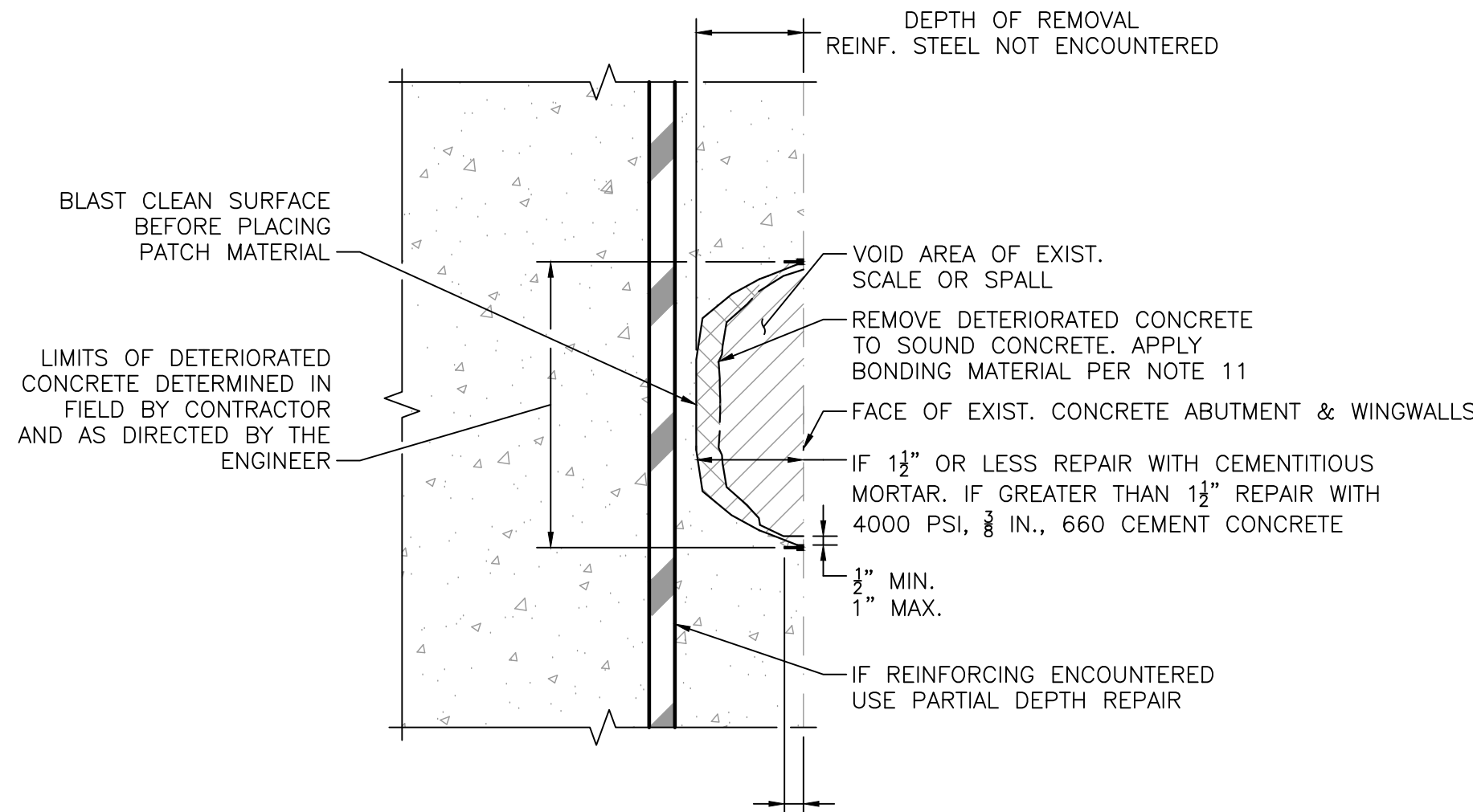
GENERAL ELEVATION
NOT TO SCALE



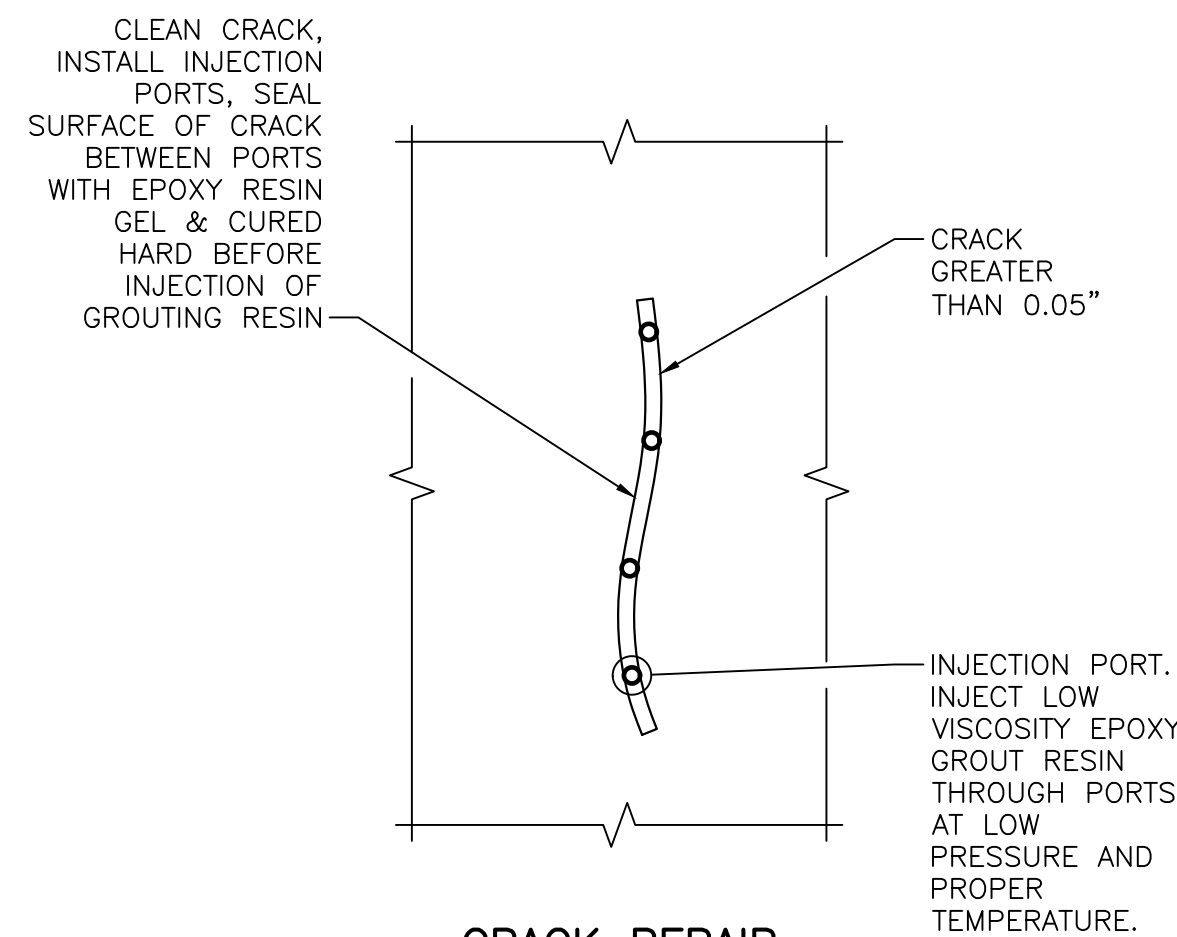
SECTION
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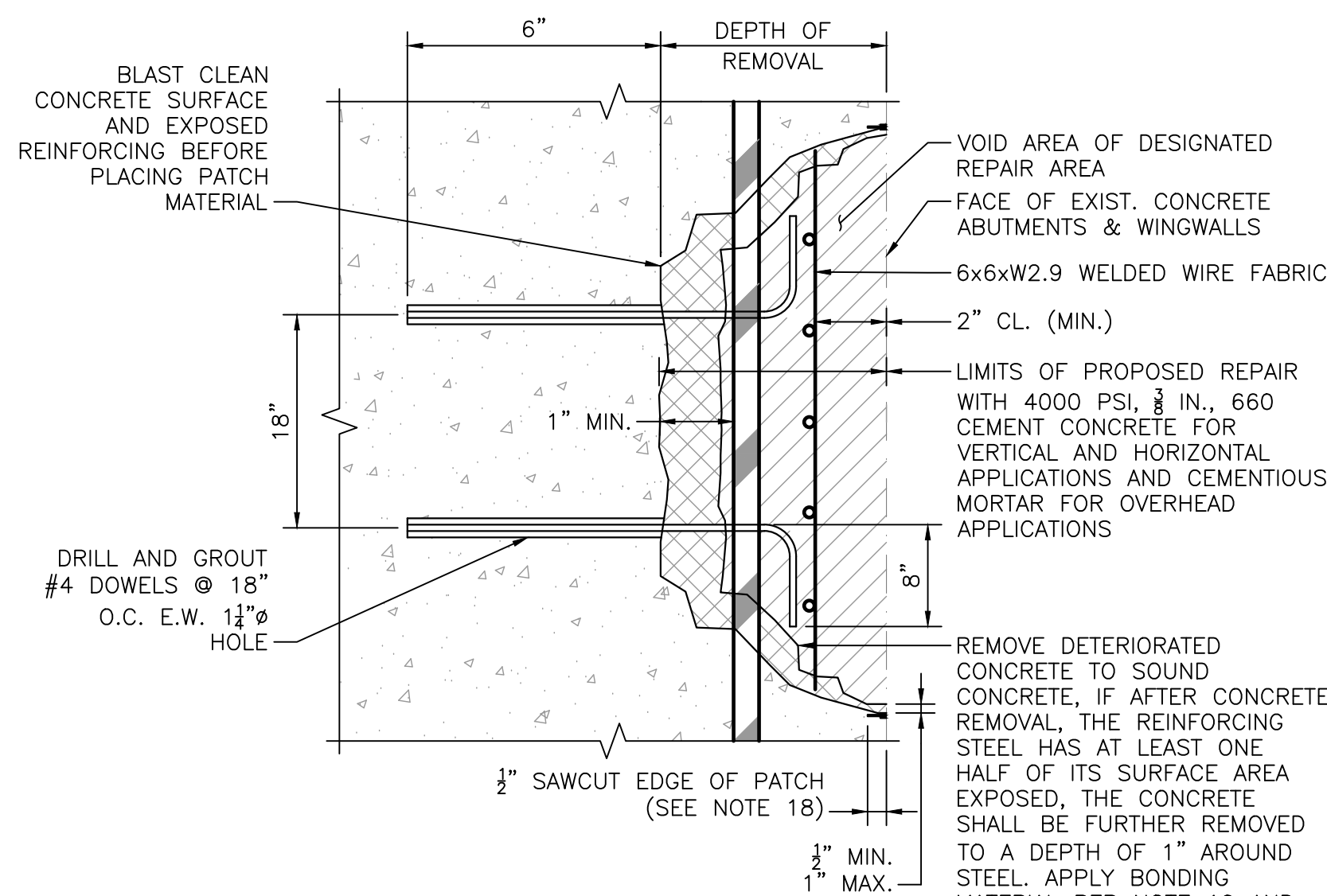
REINFORCING REPLACEMENT DETAIL
NOT TO SCALE



SHALLOW DEPTH REPAIR DETAIL
NOT TO SCALE



CRACK REPAIR
NOT TO SCALE



PARTIAL DEPTH REPAIR DETAIL
NOT TO SCALE

MASONRY REPAIR NOTES:

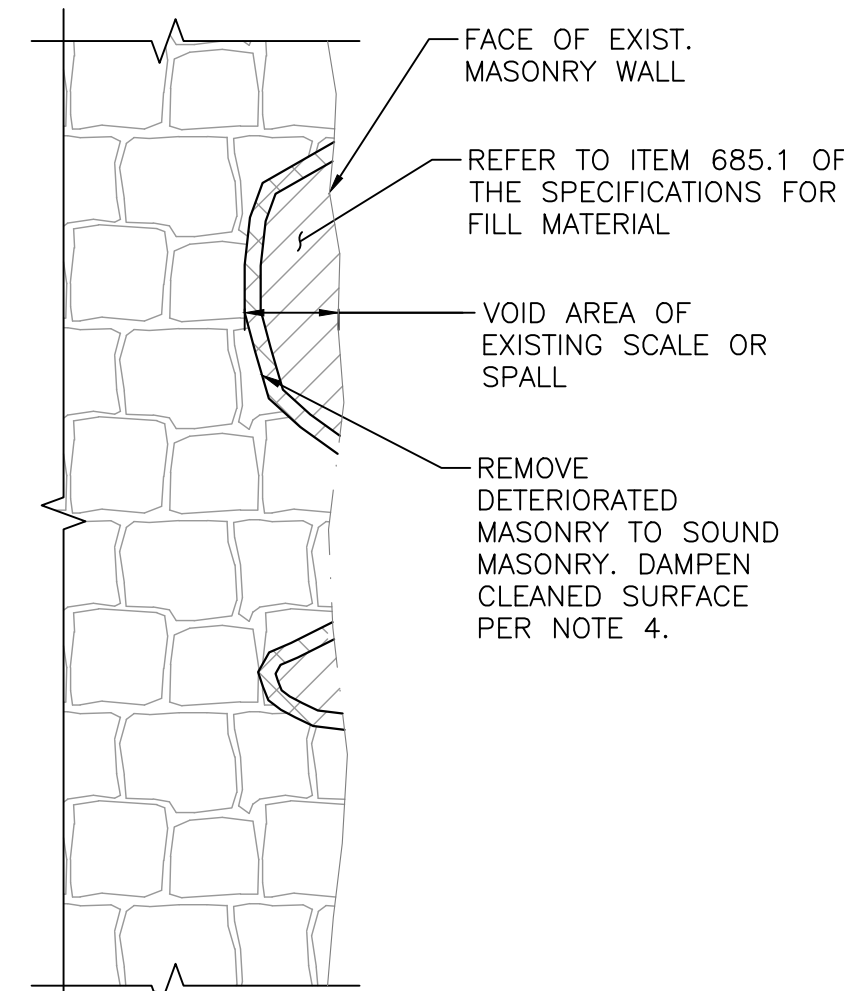
1. ANY OBJECTIONABLE CRACK SHOULD BE ANALYZED TO DETERMINE THE CAUSE AND ANY PREVIOUS CORRECTIVE MEASURES TAKEN TO PREVENT OR ACCOMMODATE THE MOVEMENT BEFORE ADDITIONAL REPAIRS ARE MADE.
2. WHERE CRACKING IS CONFINED PRIMARILY TO MORTAR JOINTS IT CAN BE READILY REPAIRED BY CONVENTIONAL TUCKPOINTING METHODS.
3. REMOVE ALL SPALLED AND UNSOUND MASONRY FROM AREA TO BE REPAIRED.
4. CLEAN SURFACE TO BE FREE OF ALL MATERIALS INCLUDING DUST, OIL, DIRT AND GREASE. DAMPEN WITH CLEAN WATER BEFORE PATCHING AND REMOVE STANDING WATER. REPAIR MORTAR SHALL BE TROWEL APPLIED TO DAMPENED SURFACE. AFTER INITIAL SET, THE MATERIAL SHALL BE TRIMMED AND SHAPED TO MATCH THE CONTOURS OF EXISTING PATCH AREA.
5. COST OF DRILLING AND GROUTING DOWELS SHALL BE CONSIDERED INCIDENTAL TO MASONRY REHABILITATION.
6. EXISTING MASONRY NEAR REPAIR LOCATIONS SHALL BE CLEANED WITH A HYDROCARBON SOLVENT TO REMOVE OIL AND GREASE. THE SURFACE SHALL THEN BE CLEANED WITH A TRISODIUM PHOSPHATE SOLUTION PRIOR TO APPLYING PAINT.
7. THE ACTUAL LOCATIONS AND EXTENT OF VARIOUS TYPES OF CONCRETE REPAIR WILL BE DETERMINED IN THE FIELD. THE CONTRACTOR SHALL REPAIR ALL AREAS DETERMINED NECESSARY AS DIRECTED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT ALL REPAIR AREAS.

CONCRETE REPAIR NOTES:

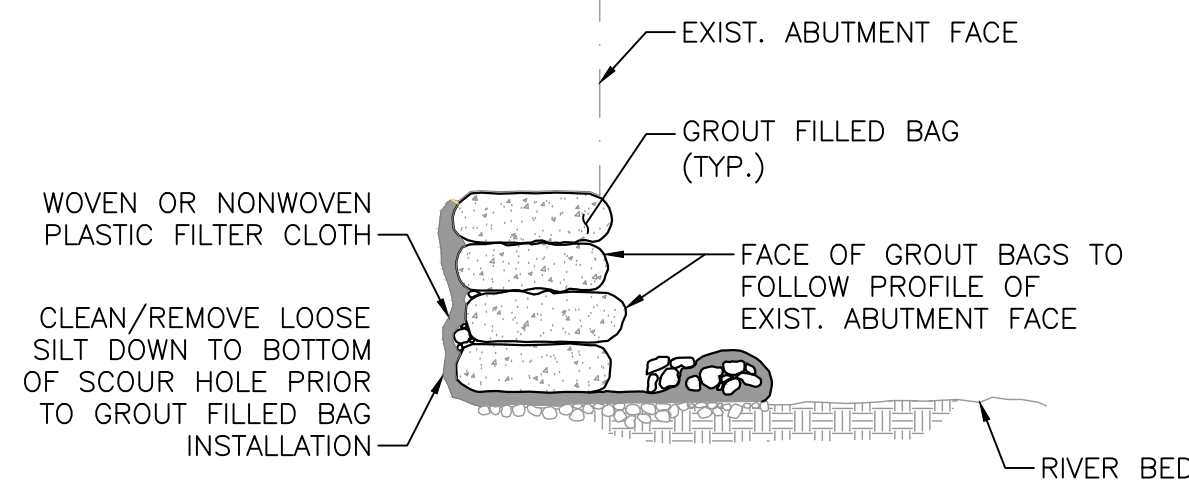
8. AREAS REQUIRING REPAIRS THAT ARE GREATER THAN $\frac{1}{2}$ " DEEP SHALL BE REPAIRED USING 4000 PSI, $\frac{3}{8}$ IN., 660 CEMENT CONCRETE. AREAS LESS THAN $\frac{1}{2}$ " DEEP SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING.
9. IF DURING REMOVAL OF DETERIORATED CONCRETE, THE CONTRACTOR DAMAGES EXISTING REINFORCEMENT TO THE EXTENT REQUIRING REPLACEMENT, ANY ADDITIONAL CONCRETE REMOVAL, PATCHING MATERIAL, CLEANING EXISTING REINFORCING STEEL, AND FURNISHING AND INSTALLING REPLACEMENT REINFORCING STEEL SHALL BE AT THE CONTRACTOR'S EXPENSE, AND INSTALLED ACCORDING TO REINFORCING REPLACEMENT DETAIL ON THIS SHEET.
10. REINFORCEMENT, INCLUDING WELDED WIRE FABRIC, USED TO REPLACE EXISTING DETERIORATED REINFORCING STEEL (SECTION LOSS OF 15% OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER) SHALL BE EPOXY COATED. COST OF REPLACEMENT SHALL BE INCLUDED UNDER ITEM 910.1.
11. IMMEDIATELY PRIOR TO PLACING NEW CONCRETE OR MORTAR AGAINST EXISTING CONCRETE, CLEAN EXISTING SURFACES BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER CONTAINING NO DETERGENTS OR BOND INHIBITING CHEMICALS AND APPLY APPROVED BONDING COMPOUND IMMEDIATELY PRIOR TO PLACING CONCRETE.
12. ALL EXISTING SURFACES THAT WILL HAVE NEW CONCRETE CAST AGAINST IT MUST BE ROUGHENED TO A MINIMUM AMPLITUDE OF $\frac{1}{4}$ INCH.
13. CONCRETE REPAIR WORK INCLUDES REMOVING ALL DETERIORATED, LOOSE, SPALLED, POPCORNERED AND MAP CRACKED CONCRETE. CONCRETE WHICH HAS SPALLED OR OTHERWISE DETERIORATED ADJACENT TO SURFACE CRACK SHALL BE REPAIRED.
14. CRACKS THAT ARE .05" OR GREATER IN WIDTH SHALL BE REPAIRED BY EPOXY INJECTION CRACK REPAIR.
15. CRACKS THAT ARE LESS THAN .05" IN WIDTH SHALL NOT BE REPAIRED UNLESS DIRECTED BY THE ENGINEER.
16. WHERE PATCHING AND EPOXY INJECTION WORK ARE ADJACENT, EPOXY INJECTION SHALL BE PERFORMED BEFORE PATCHING.
17. ALL DETERIORATED AREAS SHALL BE DELINEATED BY A $\frac{1}{2}$ " SAWCUT. THE COST OF SAWCUTTING SHALL BE INCLUDED UNDER ITEM 127.12.
18. ALL EXPOSED STEEL SHALL BE THOROUGHLY BLAST CLEANED TO A WHITE METAL FINISH AND COATED WITH EPOXY IN ACCORDANCE WITH AASHTO M284 (ASTM D3963). BLAST CLEANING AND EPOXY SHALL BE INCLUDED IN THE RESPECTIVE CONCRETE REPAIR ITEM.
19. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH. NO ADDITIONAL MATERIAL SHALL BE ADDED TO CONCRETE.

LEGEND:

- DETERIORATED CONCRETE TO BE REMOVED.
- REINFORCING STEEL.
- ADDITIONAL CONCRETE TO BE REMOVED.



TYPICAL MASONRY WALL REPAIR
NOT TO SCALE



GROUT FILLED BAG REVETMENT DETAIL
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

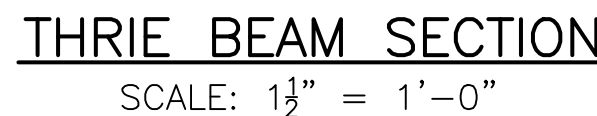
DISTRICT 3 BRIDGE ENGINEER _____ DATE _____

					DRAWN BY: BN	REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT	SCALE AS SHOWN	TITLE Ironstone Road Bridge Improvements Uxbridge, Massachusetts CONCRETE & MASONRY REPAIR DETAILS	BETA JOB NO. 7545
					DESIGNED BY: TW						ISSUE DATE
					CHECKED BY: TW						SHEET NO. 7
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

For
Review
Only



BRIDGE NO. U-02-070

DISTRICT 3 BRIDGE ENGINEER DATE

SCALE: $\frac{3}{8}" = 1'-0"$



SCALE: 3" = 1'-0"



SCALE: $1\frac{1}{2}" = 1'-0"$



SCALE: $1\frac{1}{2}" = 1'-0"$



NOT TO SCALE



SCALE: $1\frac{1}{2}" = 1'-0"$



SCALE: 3" = 1'-0"



DETAIL A

SCALE: $1\frac{1}{2}" = 1'-0"$




SCALE: $1\frac{1}{2}" = 1'-0"$

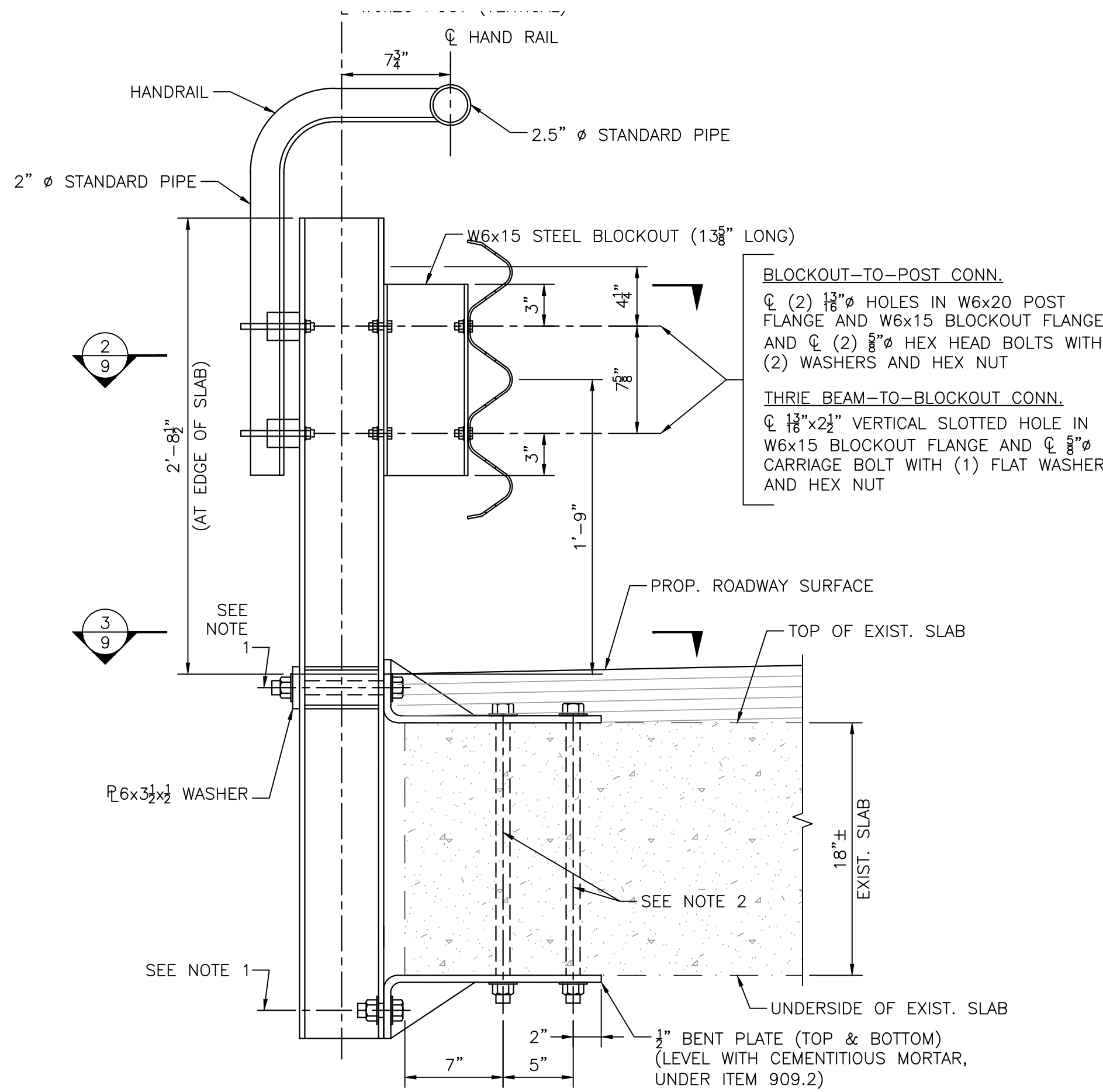


SCALE: 3" = 1'-0"

- BRIDGE NO. U-02-069

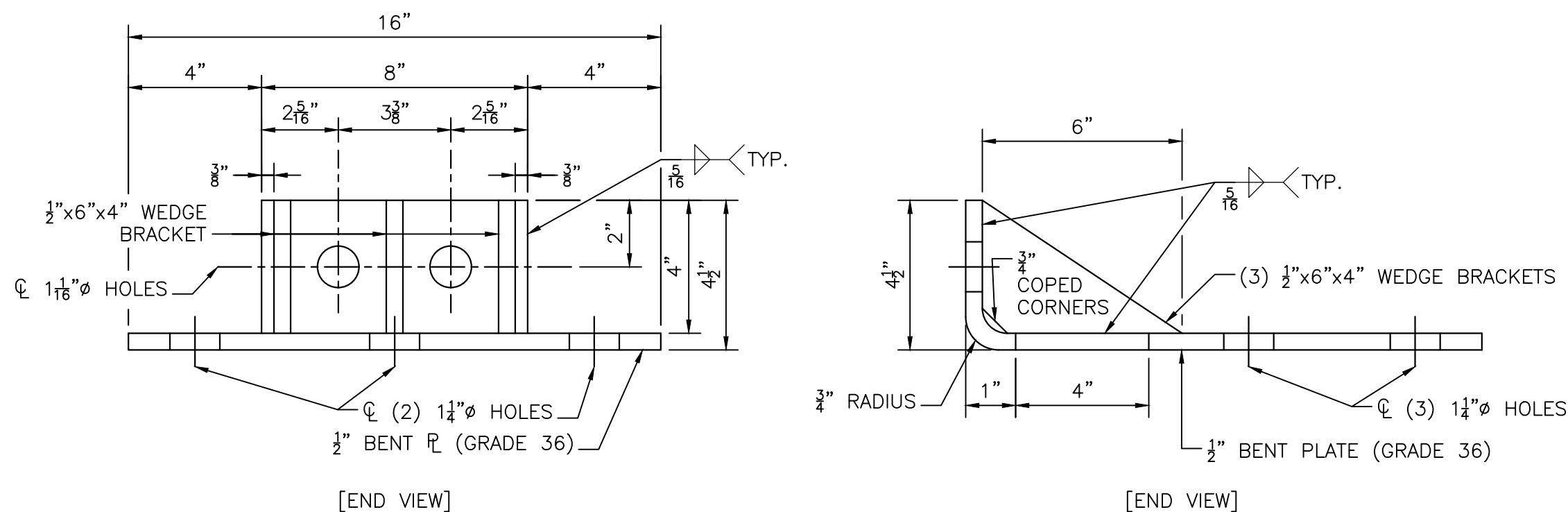
					DRAWN BY: BN DESIGNED BY: TW CHECKED BY: TW	REGISTERED PROFESSIONAL <div style="text-align: center; font-size: 24pt; font-weight: bold;">For Review Only</div>	PREPARED BY:  www.BETA-Inc.com	SUBCONSULTANT	SCALE <div style="text-align: center; font-size: 24pt;">AS SHOWN</div>	TITLE <div style="text-align: center;"> Ironstone Road Bridge Improvements Uxbridge, Massachusetts THRIE BEAM DETAILS (1 OF 2) </div>	BETA JOB NO. 7545 ISSUE DATE SHEET NO. 8
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

3/8/2023 11:19 AM N:\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\7546_SR\THRIEBEAM\DETAILS\202F2) - IRONSTONE.DWG (BETA STB BW STB)

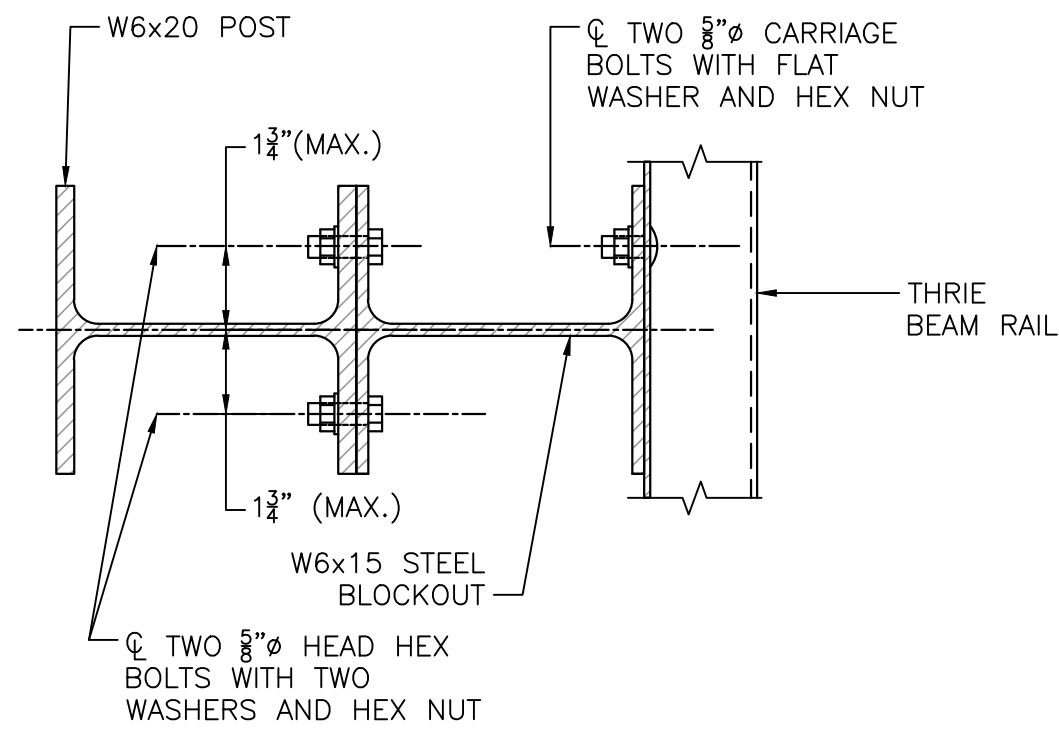


- NOTES:
- POST-TO-BENT PLATE CONNECTION
 - (2) 1" ASTM F3125 GRADE A325 TYPE 1 BOLTS WITH HARDENED WASHERS AND HEX NUTS
 - (2) 1 1/8"x1 1/2" VERTICAL SLOTTED HOLES IN BOTH UPPER POST FLANGES
 - (2) 1 1/8" HOLES IN WASHER PLATE, INSIDE LOWER POST FLANGE AND BOTH BENT PLATES
 - BENT PLATE-TO-DECK CONNECTION
 - (3) 1 1/4" DRILLED HOLES IN SLAB
 - (3) 1" ASTM 307 BOLTS WITH PLATE WASHER, HARDENED LOCKING WASHERS AND HEX NUTS
 - (3) 1 1/4" IN BOTH BENT PLATES

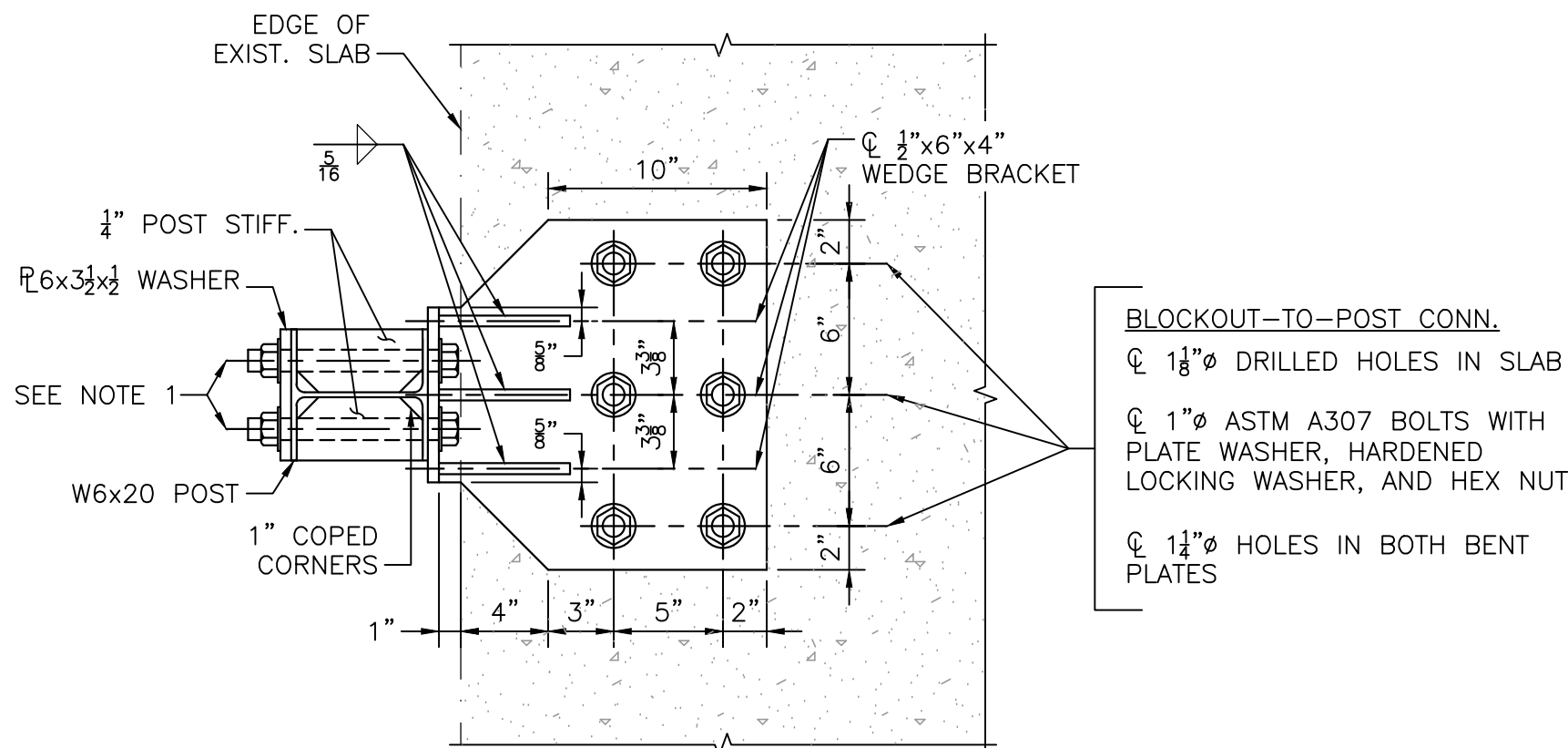
SECTION AT RAIL POST
SCALE: 1 1/2" = 1'-0"



BENT PLATE AND WEDGE BRACKET
SCALE: 3" = 1'-0"



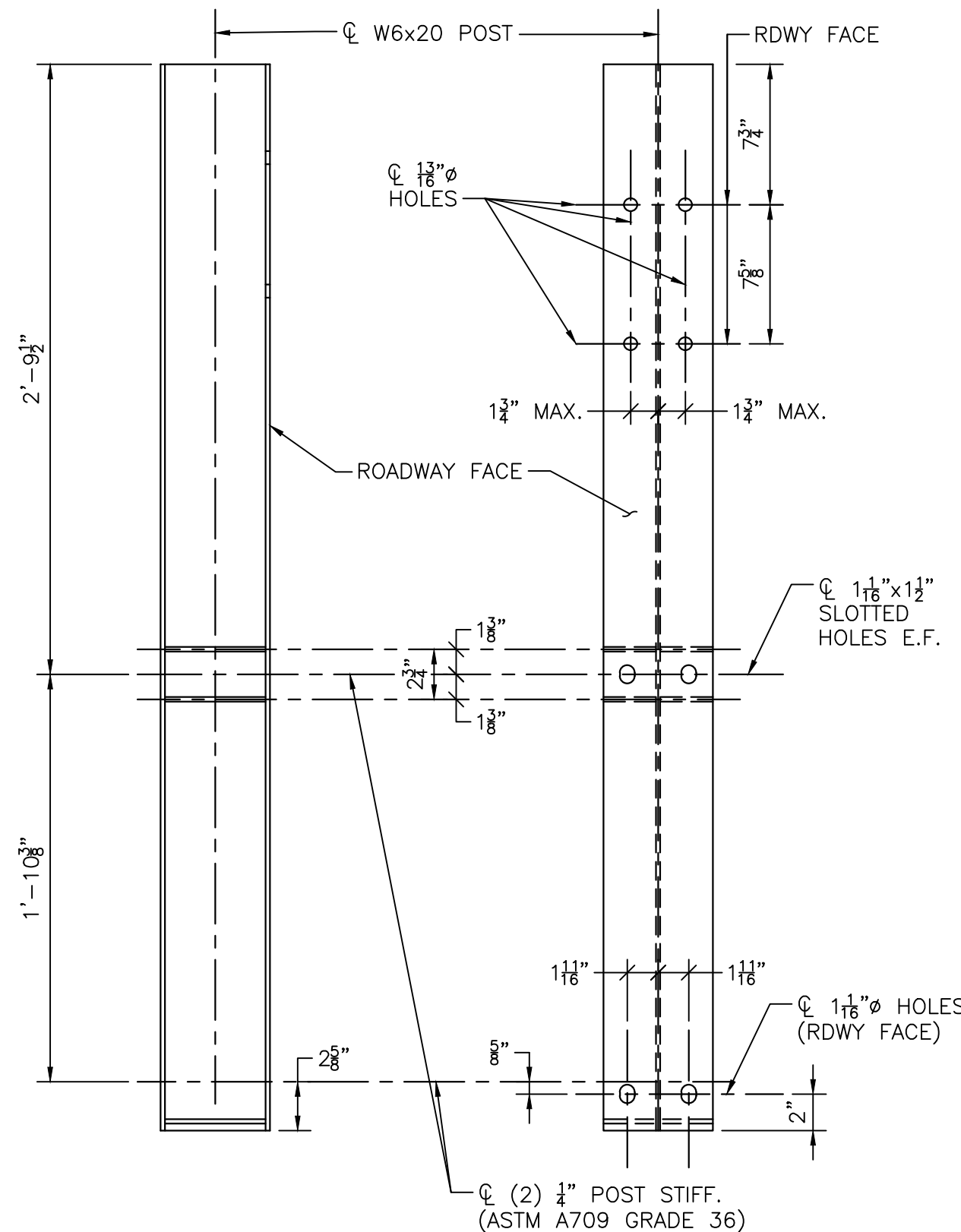
SECTION 2
SCALE: 3" = 1'-0"



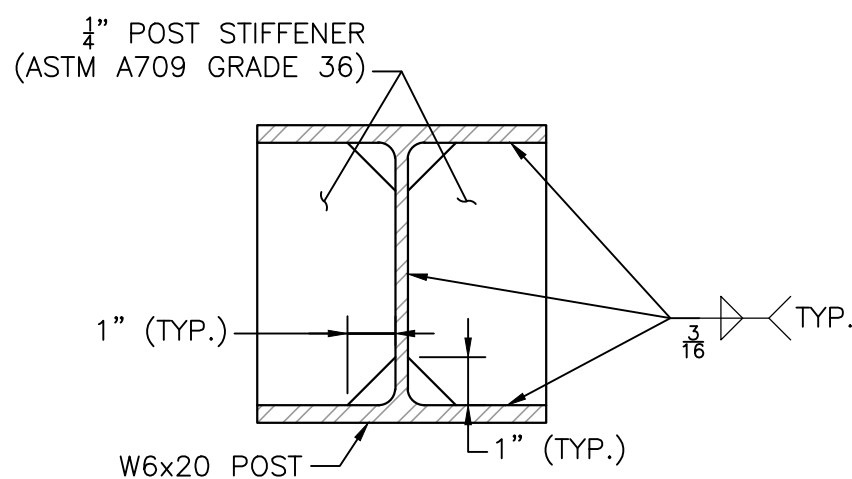
- NOTES:
- POST-TO-BENT PLATE CONNECTION
 - (2) 1" ASTM F3125 GRADE A325 TYPE 1 BOLTS WITH HARDENED WASHERS AND HEX NUTS
 - (2) 1 1/8"x1 1/2" VERTICAL SLOTTED HOLE IN BOTH UPPER POST FLANGES
 - (2) 1 1/8" HOLE IN WASHER PLATE, INSIDE LOWER POST FLANGE, AND BOTH BENT PLATES

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

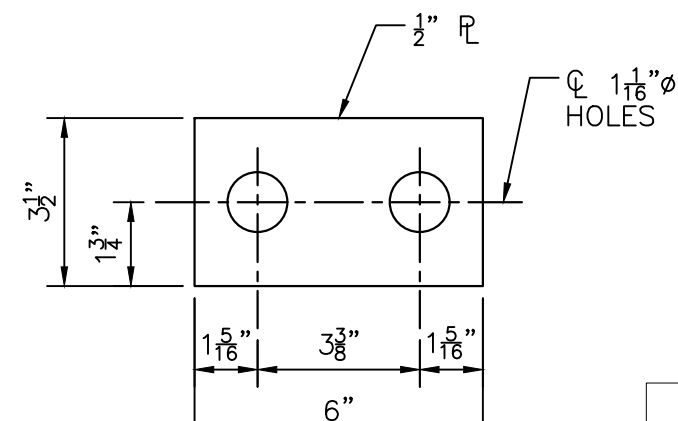
- GENERAL NOTE:
- REFER TO SHEET 8 FOR HAND RAIL DETAILS NOT SHOWN HERE.
 - RAILING SYSTEM IN ACCORDANCE WITH MISSOURI HIGHWAY & TRANSPORTATION COMMISSION (MoDOT) STATE SYSTEM 3 - SIDE MOUNTED STANDARD THRIE BEAM RAIL DETAILS, AND MEETS NCHRP 350 TL-3 BRIDGE RAILING REQUIREMENTS.



DETAILS OF POST
SCALE: 1 1/2" = 1'-0"



POST STIFFENERS
SCALE: 3" = 1'-0"



WASHER PLATE
SCALE: 3" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER DATE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

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CHECKED BY:	TW

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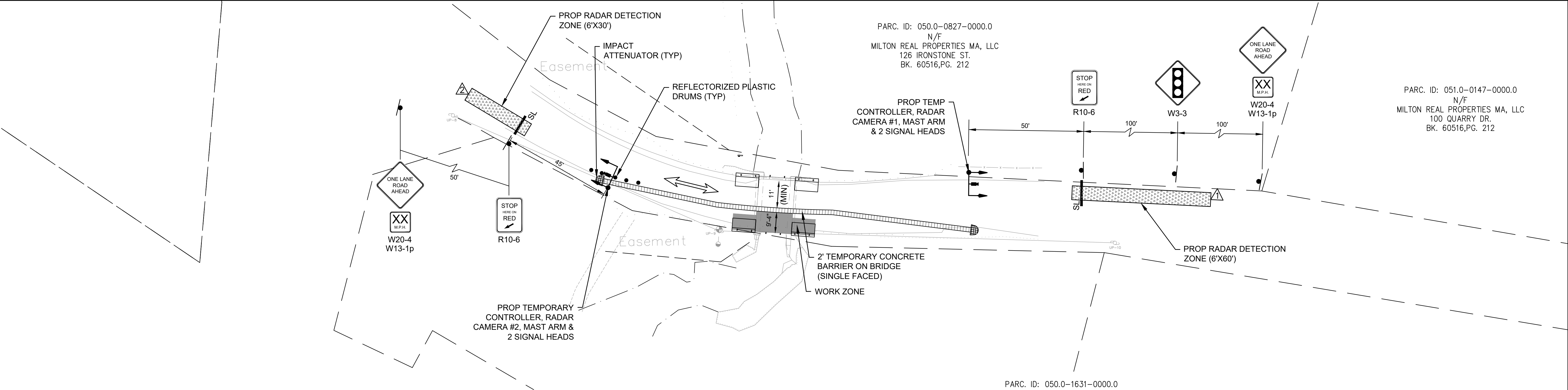
SUBCONSULTANT

SCALE
AS SHOWN

TITLE
Ironstone Road Bridge Improvements
Uxbridge, Massachusetts
THRIE BEAM DETAILS (2 OF 2)
BRIDGE NO. U-02-069

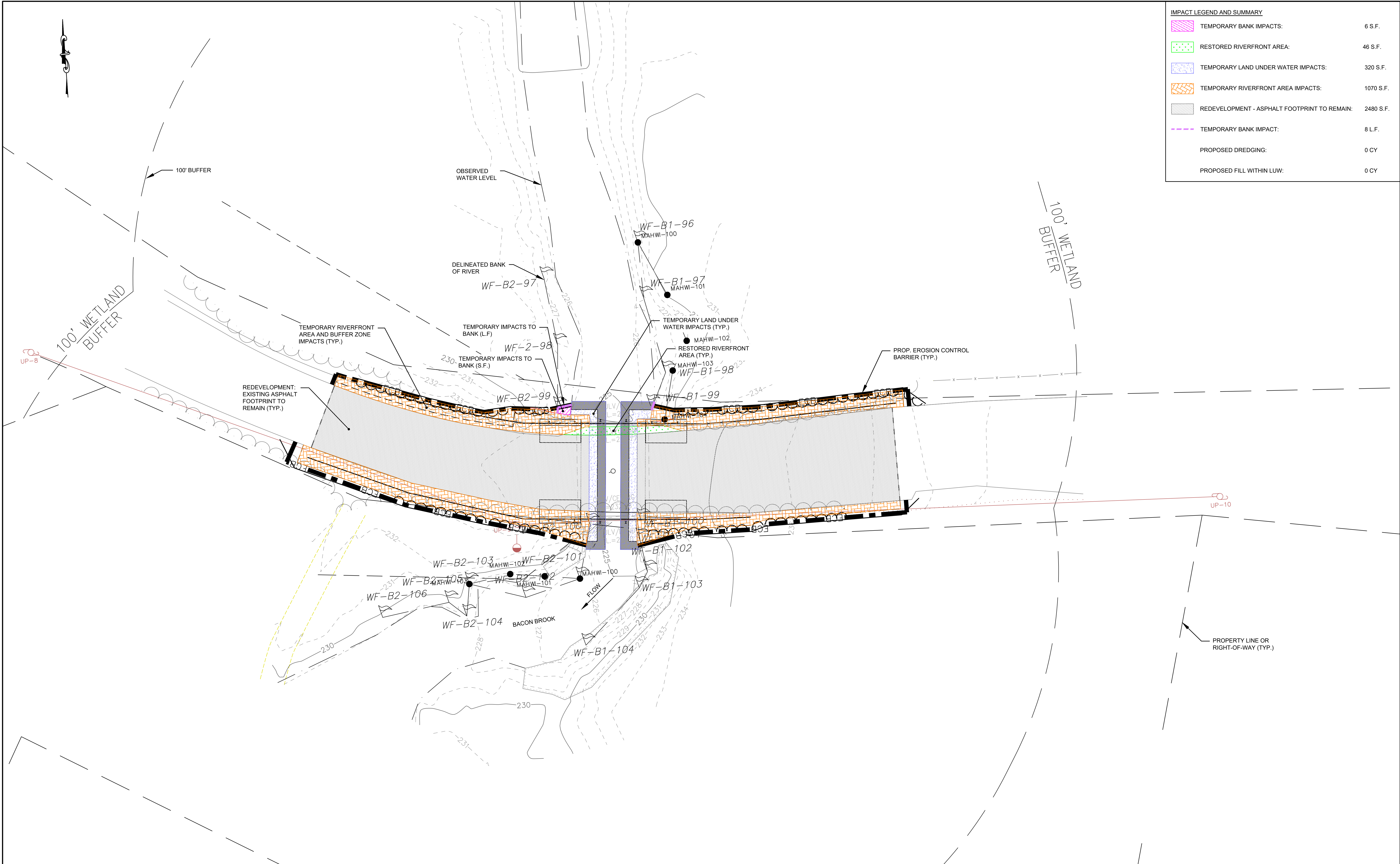
BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 9

9/19/2022 4:02 PM \\BETA-INC.COM\IT\TRANS\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\IRONSTONE\7545_SRD\DETOUTR_IRONSTONE.DWG (BETA STB BW.STB)



SEQUENCE & TIMING FOR FULLY-ACTUATED TRAFFIC SIGNAL CONTROL (TEMPORARY)										
			Ø2			Ø4				
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	FLASH OPER.	
IRONSTONE RD	WB	A,B	R	R	R	G	Y	R	FR	
IRONSTONE RD	EB	C,D	G	Y	R	R	R	R	FR	
TIMING IN SECONDS										
MINIMUM GREEN			10			10				EMERGENCY ONLY
VEHICLE EXTENSION			3			3				
MAXIMUM GREEN (ALL TIMES)			20			20				
CLEARANCE INTERVAL				3	7		3	7		
RECALL			NONE			SOFT				
MEMORY			LOCK			LOCK				

9/19/2022 4:03 PM \\BETA\INC.COM\PROJECTS\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\7545 IMPACT PLAN - IRONSTONE.DWG (BETA STB BW.STB)



IMPACT LEGEND AND SUMMARY		
	TEMPORARY BANK IMPACTS:	6 S.F.
	RESTORED RIVERFRONT AREA:	46 S.F.
	TEMPORARY LAND UNDER WATER IMPACTS:	320 S.F.
	TEMPORARY RIVERFRONT AREA IMPACTS:	1070 S.F.
	REDEVELOPMENT - ASPHALT FOOTPRINT TO REMAIN:	2480 S.F.
	TEMPORARY BANK IMPACT:	8 L.F.
	PROPOSED DREDGING:	0 CY
	PROPOSED FILL WITHIN LUW:	0 CY

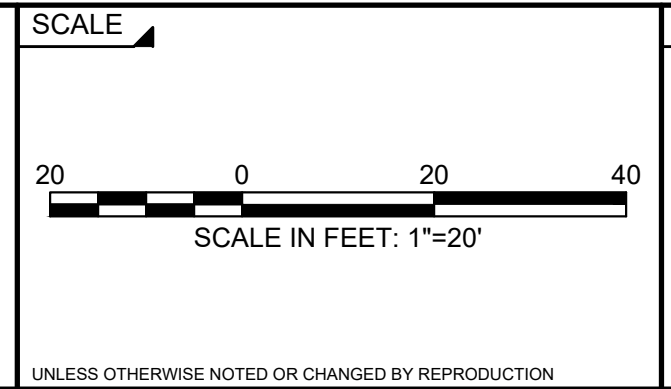
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	MC
DESIGNED BY:	MC
CHECKED BY:	LK

REGISTERED PROFESSIONAL
For Review Only



SUBCONSULTANT



TITLE
**Ironstone Road Bridge Improvements
Uxbridge, Massachusetts**
RESOURCE IMPACTS PLAN
BRIDGE NO. U-02-069

BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 11

TOWN OF UXBRIDGE, MASSACHUSETTS

DEPARTMENT OF PUBLIC WORKS

CARNEY STREET

BRIDGE PRESERVATION

MAY 2022

BOARD OF SELECTMEN

BRIAN BUTLER
JEFF SHAW
STEPHEN MANDILE
SUSAN FRANZ
BRIAN PLASKO

TOWN MANAGER

STEVEN SETTE

DEPARTMENT OF PUBLIC WORKS

BENN S. SHERMAN, PE, DIRECTOR
PAUL HUTNUK, PE, CIVIL ENGINEER



LOCATION MAP
SCALE 1" = 500'

PLAN INDEX

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	CONSTRUCTION PLAN AND PROFILE
4	CONSTRUCTION DETAILS
5	BRIDGE COVER SHEET
6	STRUCTURAL DETAILS
7	CONCRETE REPAIR DETAILS
8	THRIE BEAM DETAILS (1 OF 2)
9	THRIE BEAM DETAILS (2 OF 2)
10-11	DETOUR PLAN
12	RESOURCE IMPACT PLAN

**100%
SUBMISSION**

PREPARED BY:



ISSUE DATE: APRIL 5, 2022

REGISTERED PROFESSIONAL

DATE

9/19/2022 4:06 PM \\BETA-INC.COM\RITTRANS\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET_CARNEY\7545_SRL\LEGEND_1_CARNEY.DWG (BETA STB BW.STB)

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
		CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
		ELECTRIC HANDHOLE (NUMBER AS NOTED)
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		SEWER MANHOLE
		DRAINAGE MANHOLE
		GAS GATE
		WATER GATE
		CURB STOP
		HYDRANT
		FIRE ALARM BOX
		PARKING METER
		STREET LIGHT POLE
		UTILITY POLE
		UTILITY POLE w/ LIGHT
		SIGN
		GUY POLE
		DRAIN PIPE (SIZE AS NOTED)
		SEWER MAIN (SIZE AS NOTED)
		ELECTRIC DUCT
		GAS MAIN (SIZE AS NOTED)
		WATER MAIN (SIZE AS NOTED)
		TELEPHONE DUCT (SIZE AS NOTED)
		OVERHEAD WIRE
		MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
		HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
SHLO (Date of Layout)		STATE HIGHWAY LAYOUT LINE (SHLO)
Boundary Name		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
		CONSTRUCTION BASELINE
<td></td> <td>SURVEY LINE</td>		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		WHEELCHAIR RAMP
		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
		FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND W/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
		SPOT GRADE
		SAW CUT LINE
		TEST PIT
		BORING
		EROSION CONTROL BARRIER/COMPOST FILTER TUBES

ABBREVIATIONS

GENERAL

ABAN	ABANDON
ADJ	ADJUST
ALT	ALTERATION
APPROX	APPROXIMATE
BL	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BD OR BND	BOUND
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
CC	CONCRETE CURB
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
DWY	DRIVEWAY
EP, EOP	EDGE OF PAVEMENT
ELEV	ELEVATION
ESMT	EASEMENT
EXIST	EXISTING
FDN	FOUNDATION
GRAN	GRANITE
GC	GRANITE CURB
HOR	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
OC	ON CENTER
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RR	RAILROAD
RT	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SW	SIDEWALK
SHT	SHEET
SHLD	SHOULDER
STA	STATION
TEMP	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
VAR	VARIABLE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
+FY	FLASHING YELLOW LEFT ARROW
R-	STEADY RED RIGHT ARROW
Y-	STEADY AMBER RIGHT ARROW
G-	STEADY GREEN RIGHT ARROW
+R	STEADY RED LEFT ARROW
+Y	STEADY AMBER LEFT ARROW
+G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

UTILITIES

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
		CONTROLLER PHASE
		MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
		MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8" WIDTH)
SL	STOP LINE - 12" WHITE LINE 4' BEHIND CW (TYP.)
SWEL	SOLID WHITE EDGE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWGL	SOLID WHITE GORE LINE 12" @ 33", (SPACING NOTED)
SWLL	SOLID WHITE LANE LINE - 4"
SWPL	SOLID WHITE PARKING LINE - 4"
BWLL	BROKEN WHITE LANE LINE - 4"
DWLEx	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLEx	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYCL	BROKEN YELLOW CENTERLINE - 4"
DYCL	DOUBLE YELLOW CENTERLINE - 2 - 4" LINES
SYEL	SOLID YELLOW EDGE LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 33", (SPACING NOTED)
SYLL	SOLID YELLOW LANE LINE - 4"
SYCTEL	SOLID YELLOW CYCLE TRACK EDGE LINE - 4"
DYCTCL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
	SCHOOL ZONE - WHITE
	HANDICAP SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE

					DRAWN BY: SD	REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT	SCALE NONE	TITLE Carney Street Bridge Improvements Uxbridge, Massachusetts LEGEND AND ABBREVIATIONS	BETA JOB NO. 7545
					DESIGNED BY: BB	For Review Only					ISSUE DATE
					CHECKED BY: TW						SHEET NO. 2
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

TRAILING ANCHORAGE STA 0+33 TO 0+42.5 LT
GUARDRAIL - TL-2 (SINGLE FACED) 0+42.5 TO 57.5 LT
TRANSITION TO THRIE BEAM STA 0+57.5 TO 0+63.5 LT
BRIDGE THRIE BEAM GUARDRAIL 0+63.5 TO 1+01 LT
TRANSITION TO THRIE BEAM STA 1+01 TO 1+07 LT
GUARDRAIL TANGENT END TREATMENT, TL-3 STA 1+07 TO 1+31 LT

GUARDRAIL TANGENT END TREATMENT, TL-2 STA 0+20.5 TO 0+44 RT
TRANSITION TO THRIE BEAM STA 0+44 TO 0+50 RT
BRIDGE THRIE BEAM GUARDRAIL 0+50 TO 0+88 RT
THRIE BEAM TRAILING ANCHORAGE STA 0+88 TO 0+93 RT

FULL DEPTH PAVEMENT

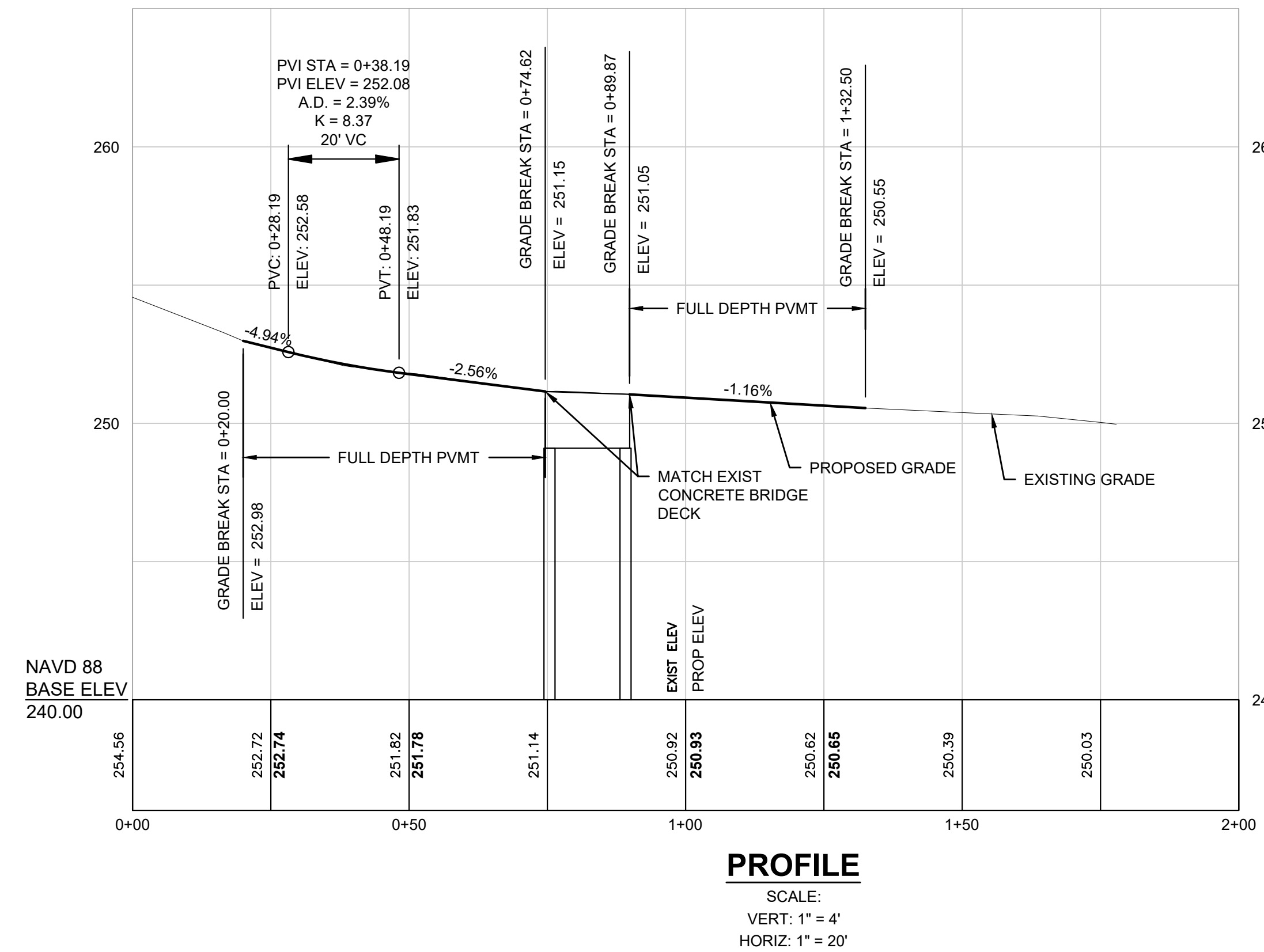
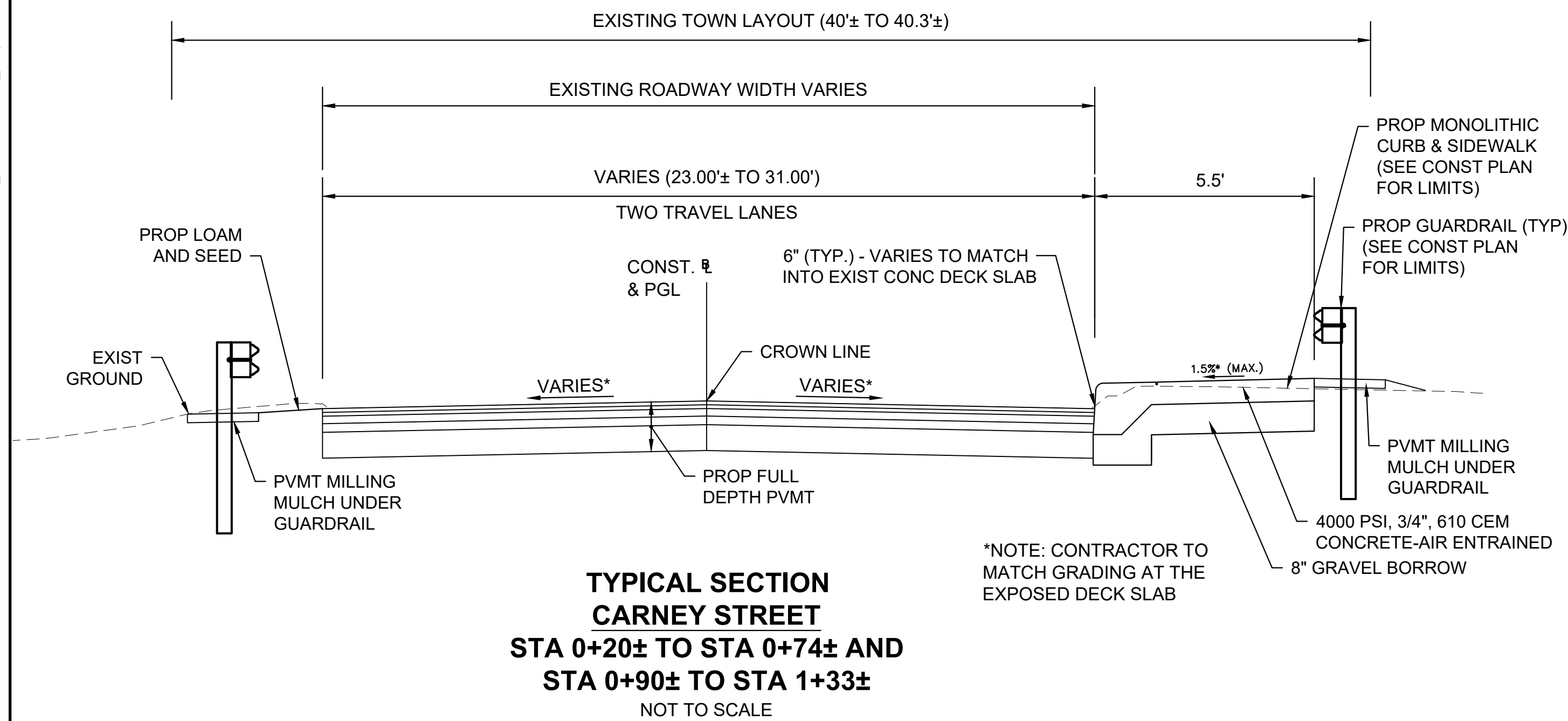
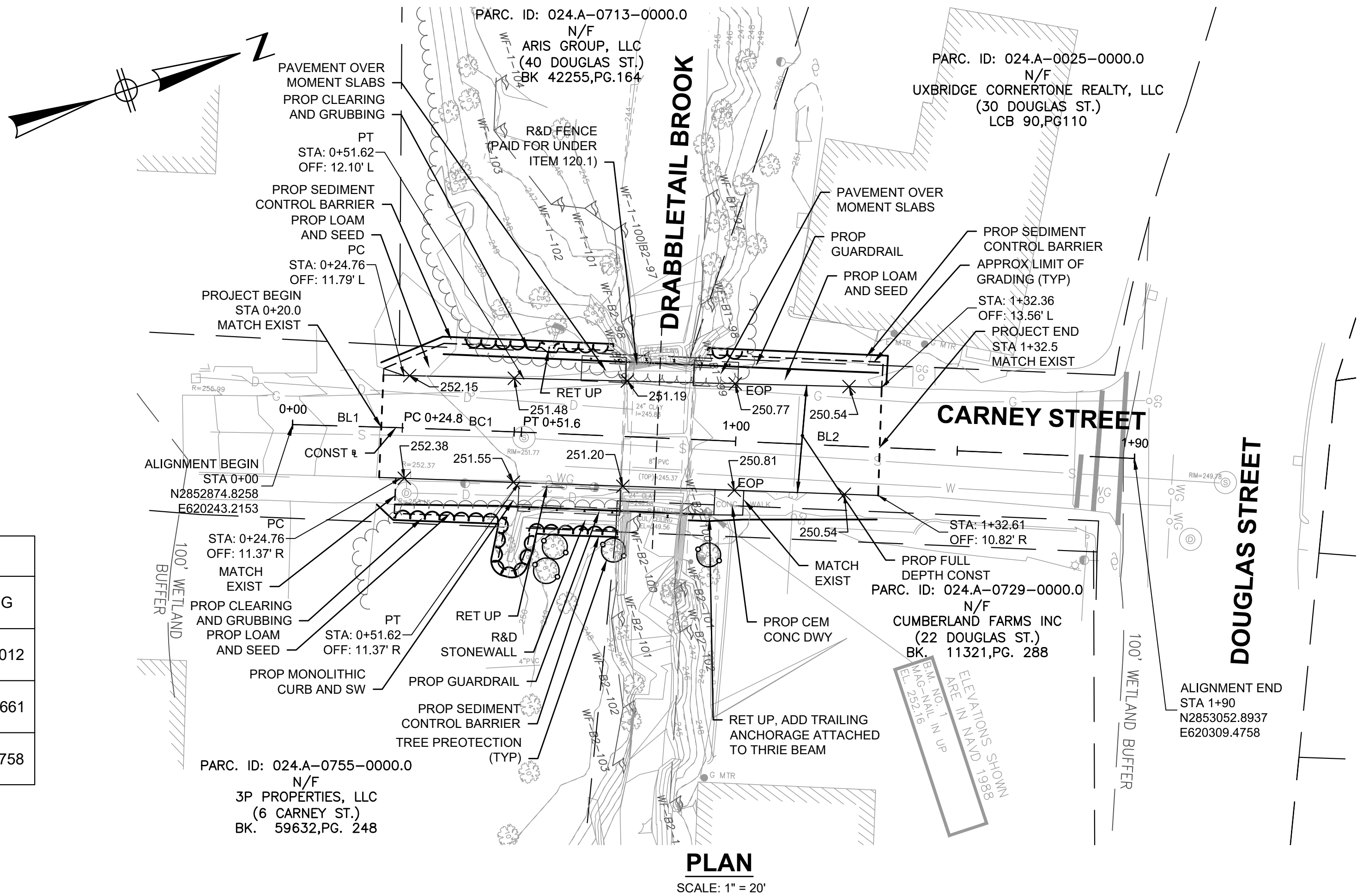
SURFACE COURSE:	1-3/4" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
INTERMEDIATE COURSE:	1-3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER


BASE COURSE: 3-1/2" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER
SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER
8" GRAVEL BORROW TYPE b (M1.03.01)

PROJECT TACK COAT NOTES

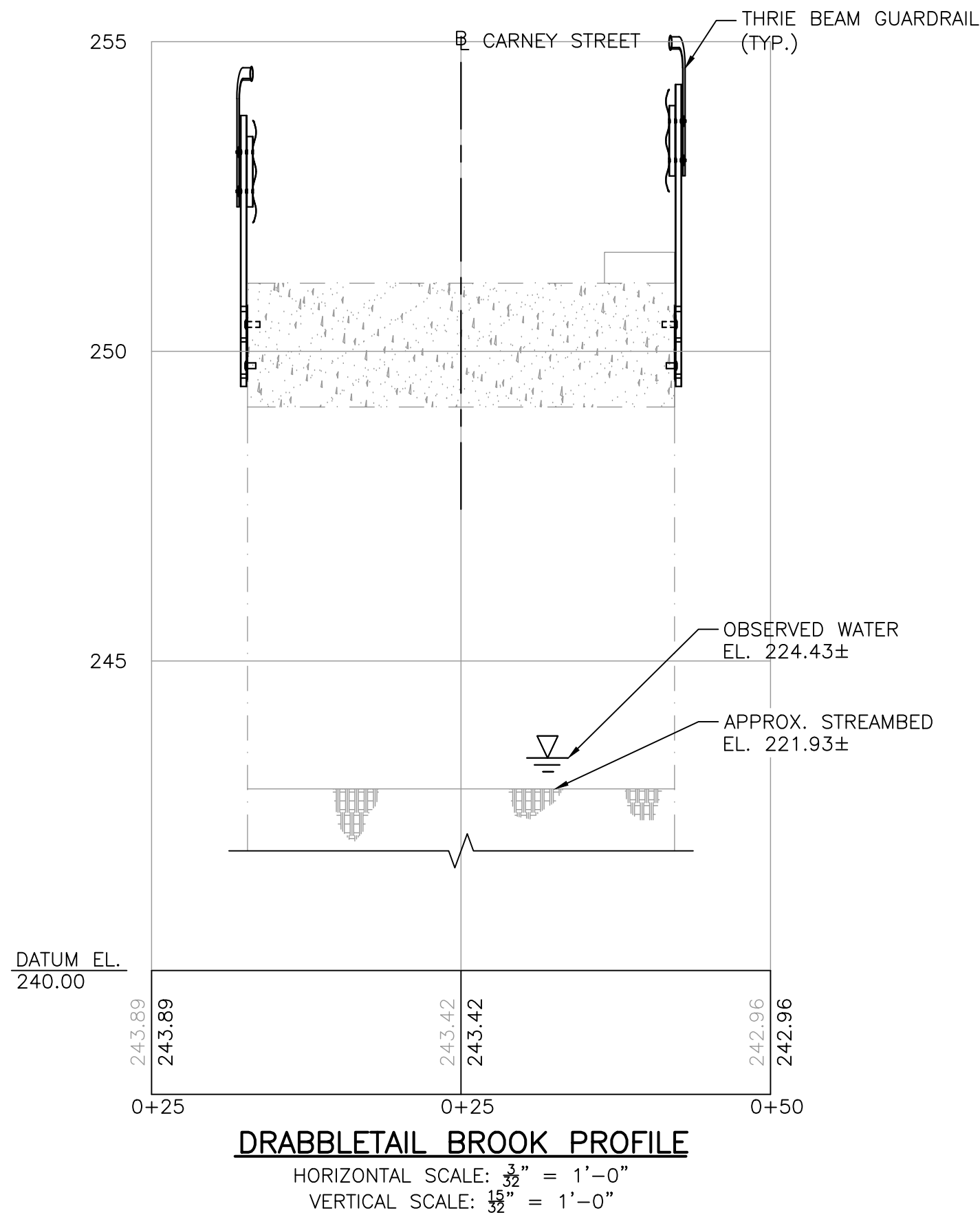
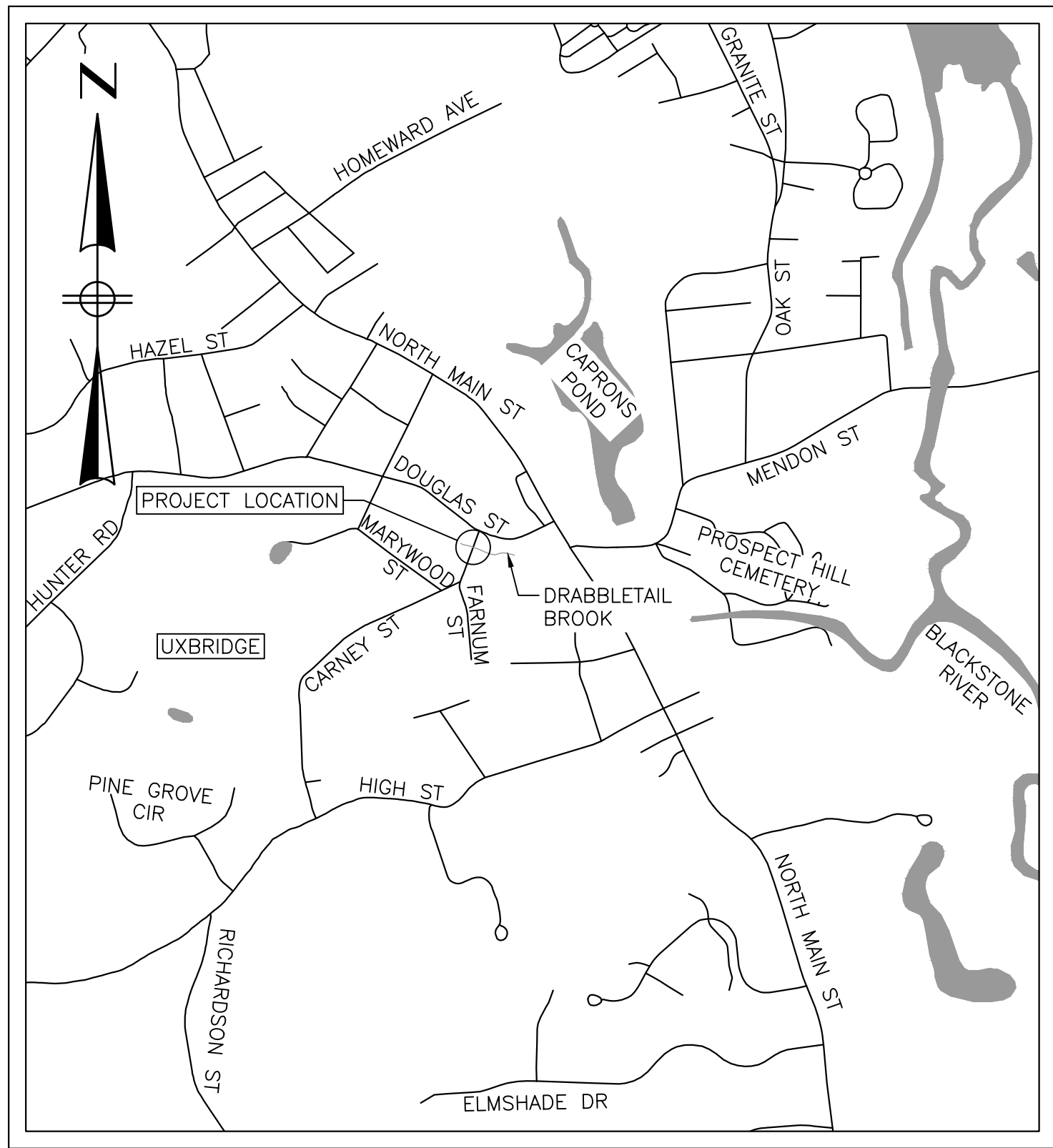
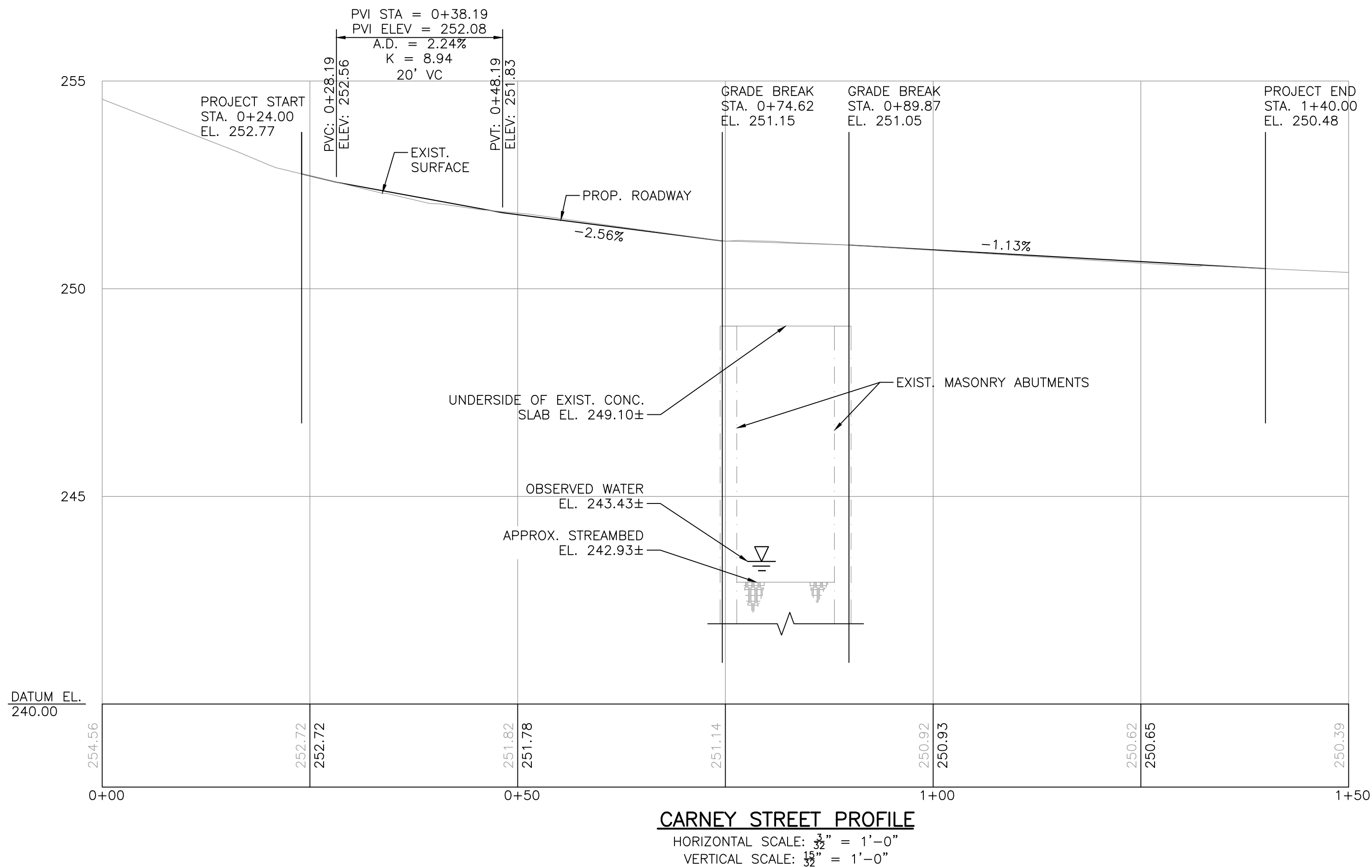
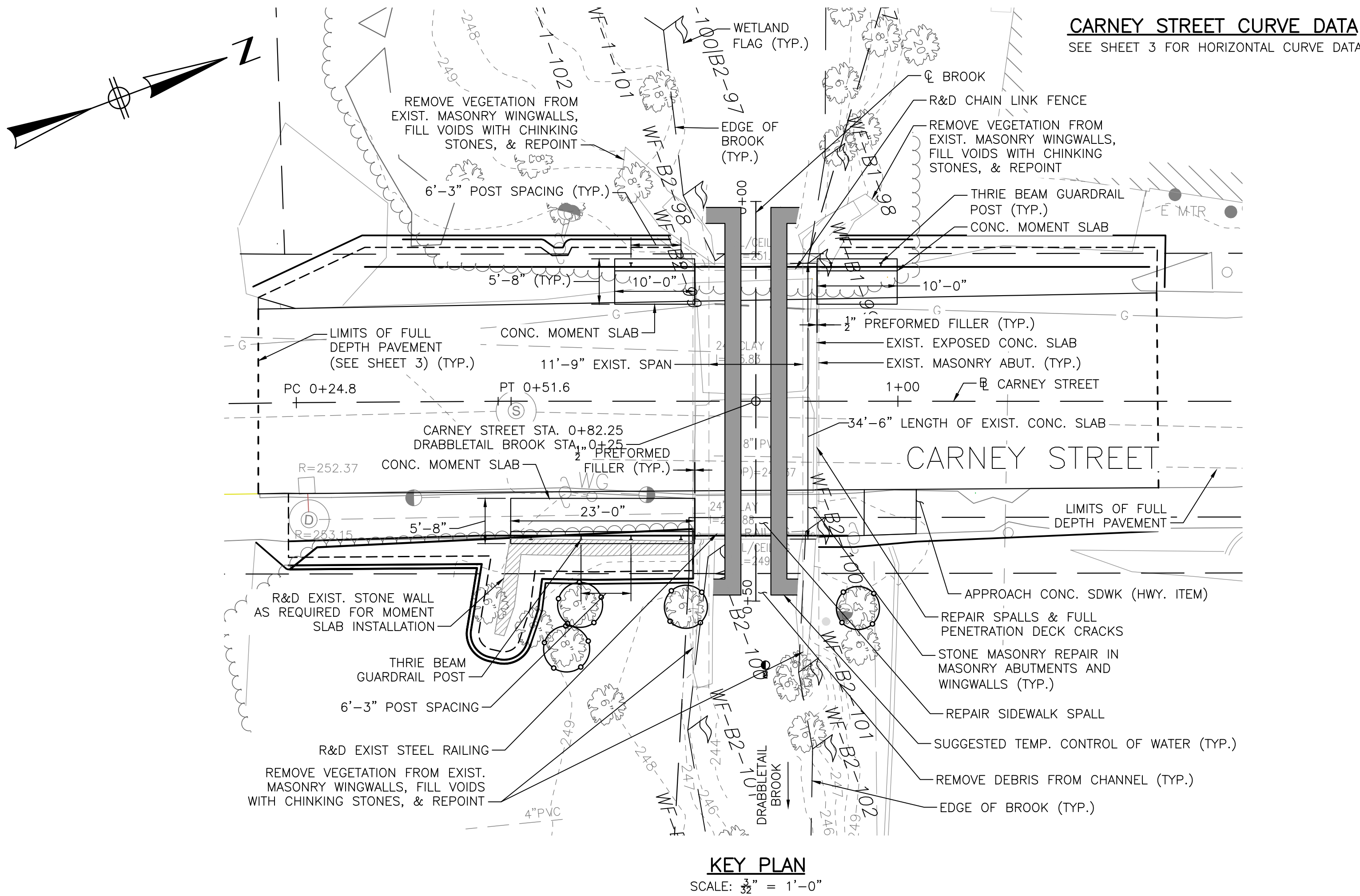
TACK COAT: ASPHALT EMULSION FOR TACK COAT, GRADE RS-1
SHALL BE PLACED AT A RATE OF:
0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES
0.07 GALLONS PER SQUARE YARD OVER CEMENT CONCRETE
BASE COURSE
0.05 GALLONS PER SQUARE YARD OVER SMOOTH TIGHT
PAVEMENTS
PRIOR TO PAVING AN OVERLAY

CARNEY STREET CL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
BL1	0+00.00	2852874.8258	620243.2153		N19°47'45"E 24.76'	0+24.76	2852898.1238	620251.6012
BC1	0+24.76	2852898.1238	620251.6012	R = 2000.00' Δ= 0°46'10" L=26.86' T=13.43'		0+51.62	2852923.3313	620260.8661
BL2	0+51.62	2852923.3313	620260.8661		N20°33'55"E 138.38'	1+90.00	2853052.8937	620309.4758



					DRAWN BY: SD	REGISTERED PROFESSIONAL	PREPARED BY:  www.BETA-Inc.com	SUBCONSULTANT	SCALE AS SHOWN	TITLE Carney Street Bridge Improvements Uxbridge, Massachusetts CONSTRUCTION PLAN AND PROFILE	BETA JOB NO. 7545
					DESIGNED BY: BB						ISSUE DATE
					CHECKED BY: TW						SHEET NO. 3
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS						BRIDGE NO. U-02-070	

9/19/2022 4:08 PM I:\BETA\INC.COM\RITRANS\7545- UXBRIDGE- SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\7545_S\RCOVERSHEET- CARNEY.DWG (BETA STB BW STB)



GENERAL NOTES	
PROJECT FILE NO.:	NA
PROJECT DESCRIPTION:	PROPOSED BRIDGE PRESERVATION
BRIDGE DESIGN LOADING:	N/A
SURVEY:	GOLDSMITH, PREST & RINGWALL, INC.
ELEVATION REFERENCE:	NAVD OF 1988

BENCHMARK: MAG-NAIL
LOCATION: UP
NORTHING: 34235490.76
EASTING: 7443495.33
ELEVATION: 252.16'

HYDRAULIC DESIGN DATA
DRAINAGE AREA: 0.60 SQUARE MILES
DESIGN FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND
DESIGN FLOOD FREQUENCY: UNK YEARS
DESIGN FLOOD VELOCITY: UNK FEET PER SECOND
DESIGN FLOOD ELEVATION: UNK FEET, NAVD

BASE (100-YEAR) FLOOD DATA
BASE FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: UNK FEET, NAVD

DESIGN AND CHECK SCOUR DATA
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY: 25 YEARS
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY: 50 YEARS

FLOOD OF RECORD
DISCHARGE: UNKNOWN CUBIC FEET PER SECOND
FREQUENCY (IF KNOWN): UNKNOWN YEARS
MAXIMUM ELEVATION: UNKNOWN FEET, NAVD
DATE: UNKNOWN MONTH, YEAR

HISTORY OF ICE FLOES: UNKNOWN
EVIDENCE OF SCOUR AND EROSION: UNKNOWN

GENERAL:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING, COORDINATING, AND VERIFYING ALL DIMENSIONS.

THE CONTRACTOR SHALL COORDINATE ALL EXISTING UTILITY LOCATIONS.

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES-2022 EDITION.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER WHEN, IN THE COURSE OF CONSTRUCTION, CONDITIONS ARE UNCOVERED WHICH ARE UNANTICIPATED OR OTHERWISE APPEAR TO PRESENT A DANGEROUS CONDITION.

FOR DIMENSIONS AND DETAILS NOT SHOWN, REFER TO HIGHWAY DRAWINGS.

NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

FOUNDATIONS:
FOOTING SHALL BE FOUNDED ON ONE FOOT OF COMPACTED GRAVEL BORROW. THE ELEVATION OF FOOTING SHALL BE SUCH THAT IT DOES NOT FALL WITHIN A ONE VERTICAL TO TWO HORIZONTAL SLOPE FROM THE BASE OF ANY ADJACENT FOOTING OR UTILITY.

NO BACKFILL SHALL BE PLACED AGAINST WALL OR MOMENT SLAB UNTIL THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TEMPORARY SUPPORT AND DEWATERING AS NECESSARY DURING EXCAVATION TO MAINTAIN THE INTEGRITY OF EXISTING STRUCTURES, ACTIVE UTILITIES, AND STREETS.

REINFORCEMENT:
ALL REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60.

CONCRETE:
UNLESS NOTED OTHERWISE, CONCRETE SHALL BE AS FOLLOWS:

MOMENT SLAB & COPING: 5000 PSI - 3/4" - 685 LB/CY HP
REPAIR CONCRETE: 4000 PSI - 3/8" - 660 LB/CY CEMENT

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER _____ DATE _____

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW

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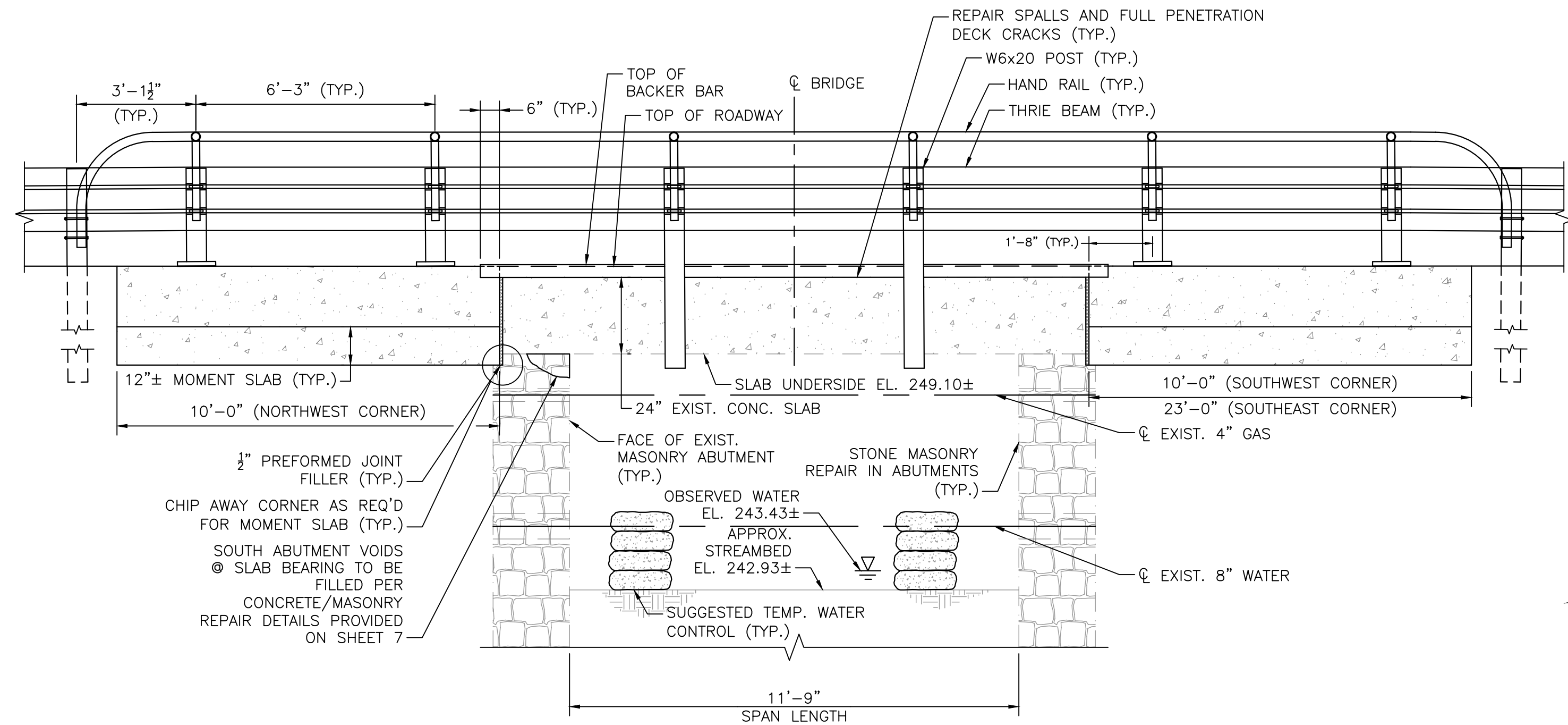


SUBCONSULTANT

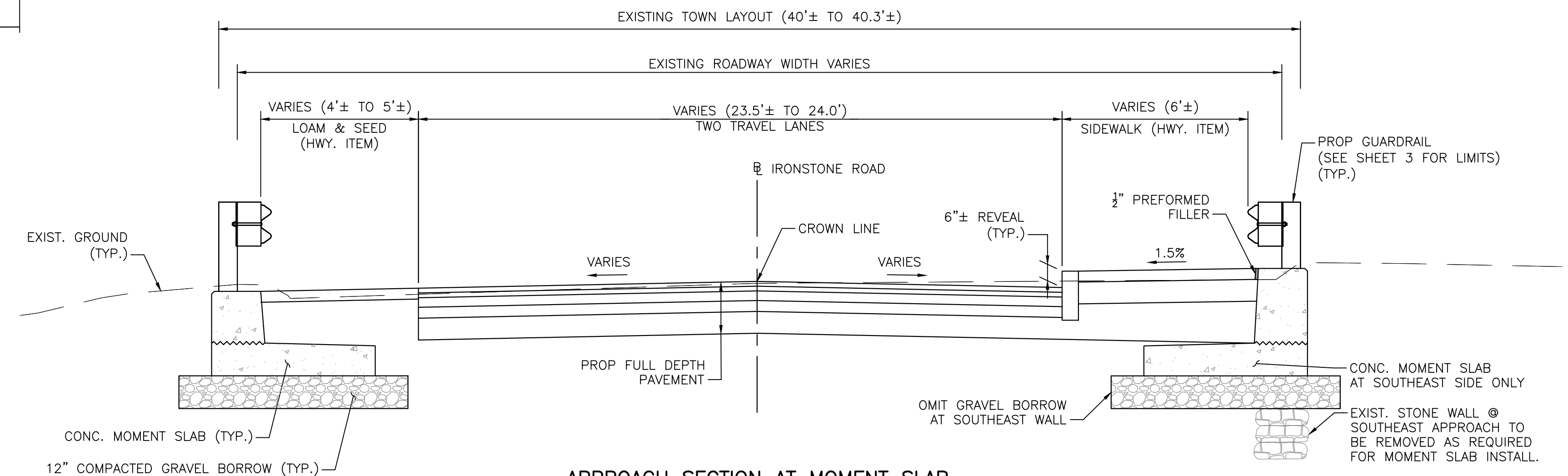
SCALE
AS SHOWN
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TITLE
Carney Street Bridge Improvements
Uxbridge, Massachusetts
BRIDGE COVER SHEET
BRIDGE NO. U-02-070

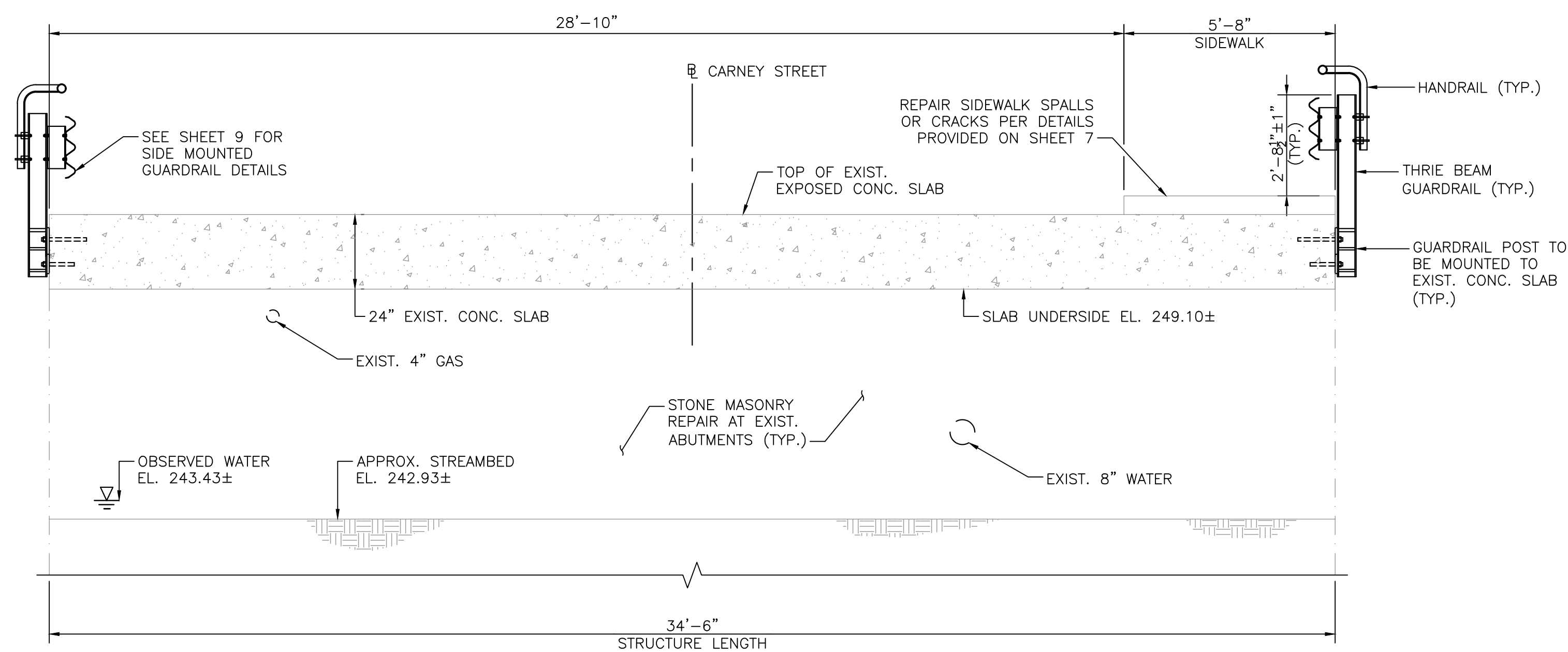
BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 5



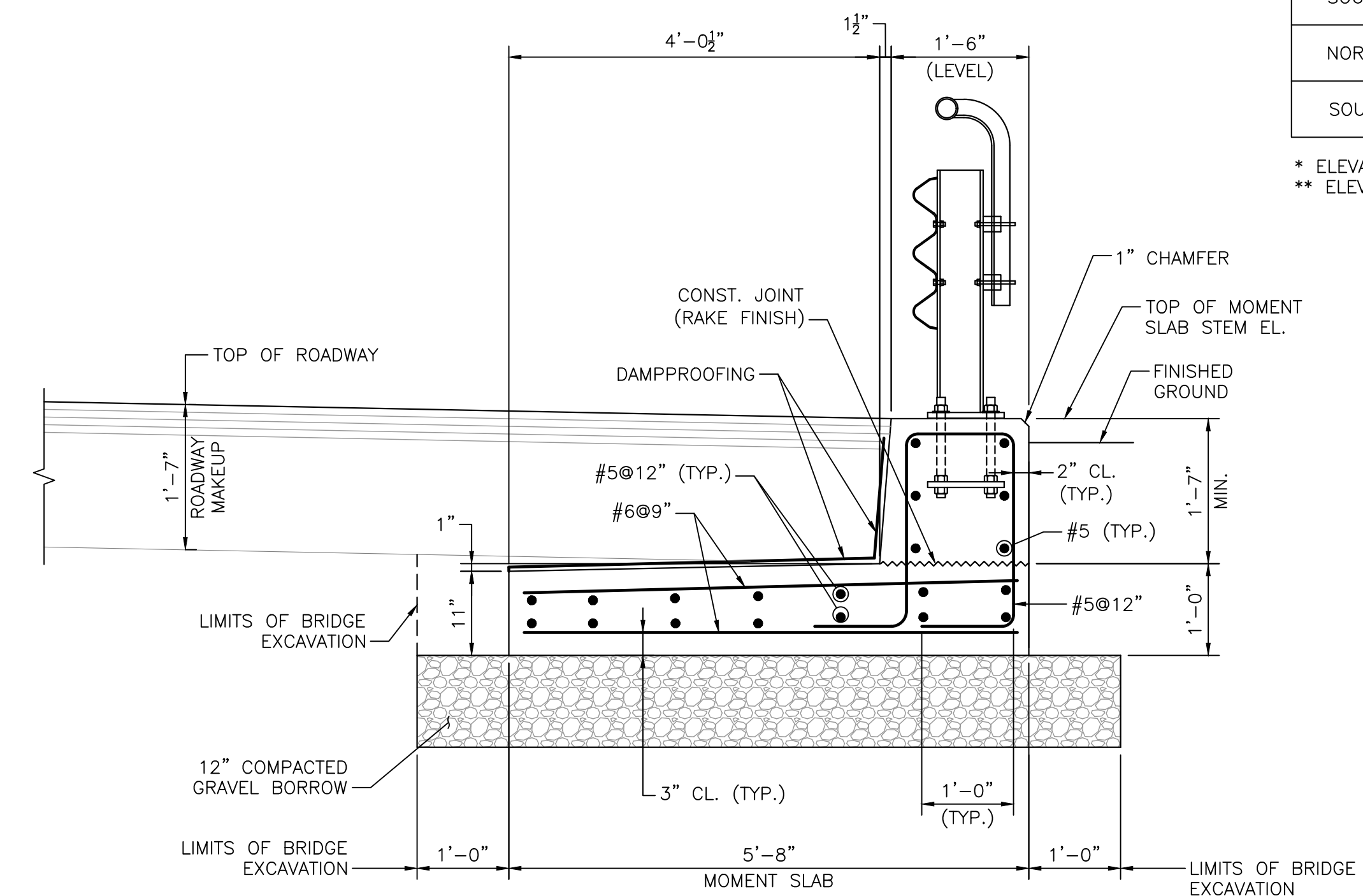
WEST BRIDGE ELEVATION, LOOKING EAST
SCALE: $\frac{3}{8}$ " = 1'-0"



APPROACH SECTION AT MOMENT SLAB
NOT TO SCALE



TRANSVERSE BRIDGE SECTION
SCALE: $\frac{3}{8}" = 1'-0"$



MOMENT SLAB SECTION
SCALE: $\frac{3}{4}'' = 1'-0''$

TOP OF MOMENT SLAB STEM ELEVATION		
LOCATION	STATION	ELEVATION
SOUTHWEST	0+64.6	251.41
	0+74.6	*
NORTHWEST	0+89.9	*
	0+99.9	250.94
SOUTHEAST	0+51.6	252.31
	0+74.6	**


* ELEVATION TO MATCH TOP OF EXISTING CONCRETE BRIDGE DECK
** ELEVATION TO MATCH TOP OF EXISTING BRIDGE SIDEWALK

NOTES:

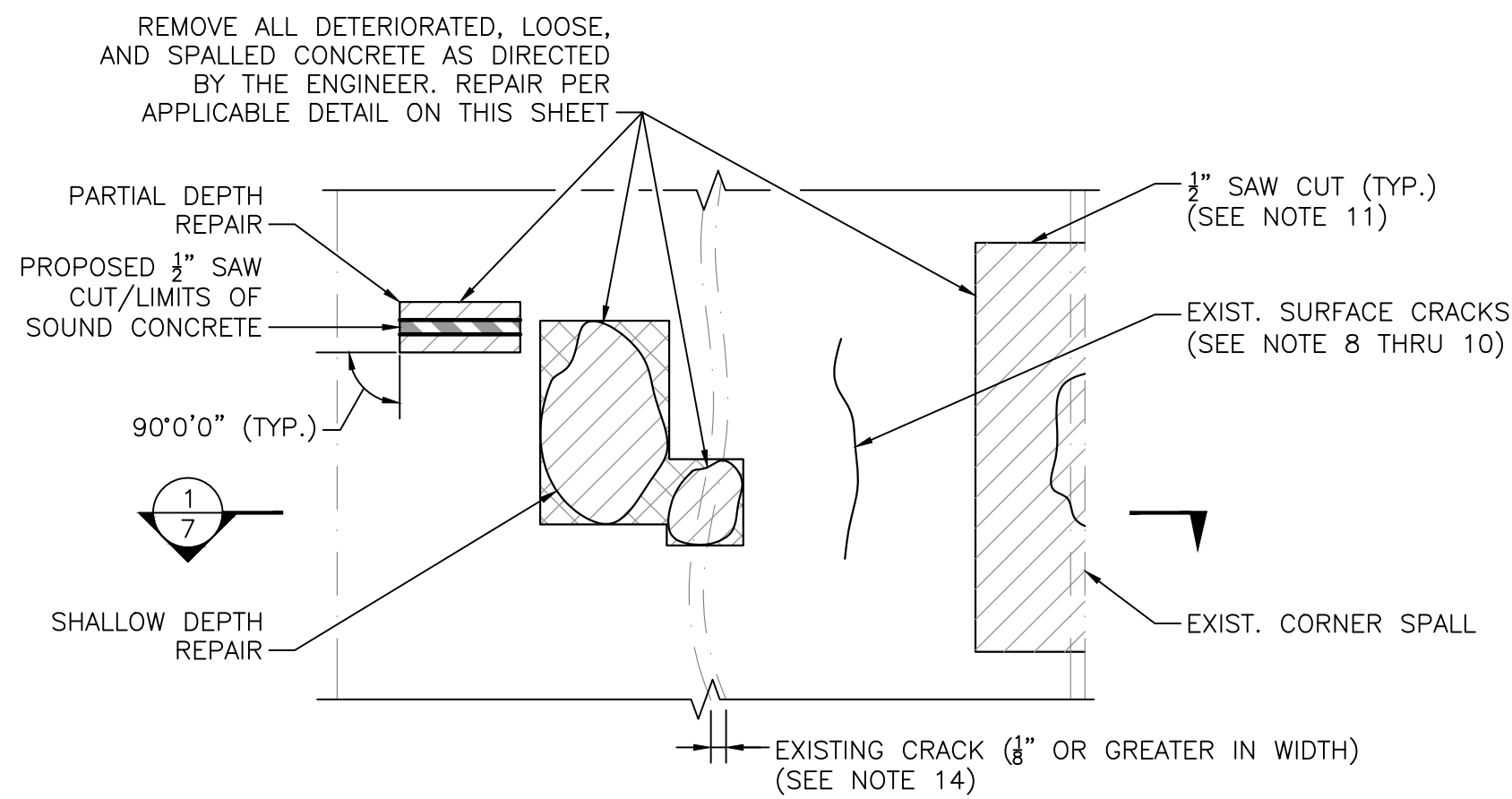
1. ALL CONCRETE SHALL BE 4000 PSI, 1½ IN, 565 CEMENT CONCRETE.
2. MOMENT SLAB SECTION WITHOUT SIDEWALK SHOWN, SECTION WITH SIDEWALK SIMILAR.

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

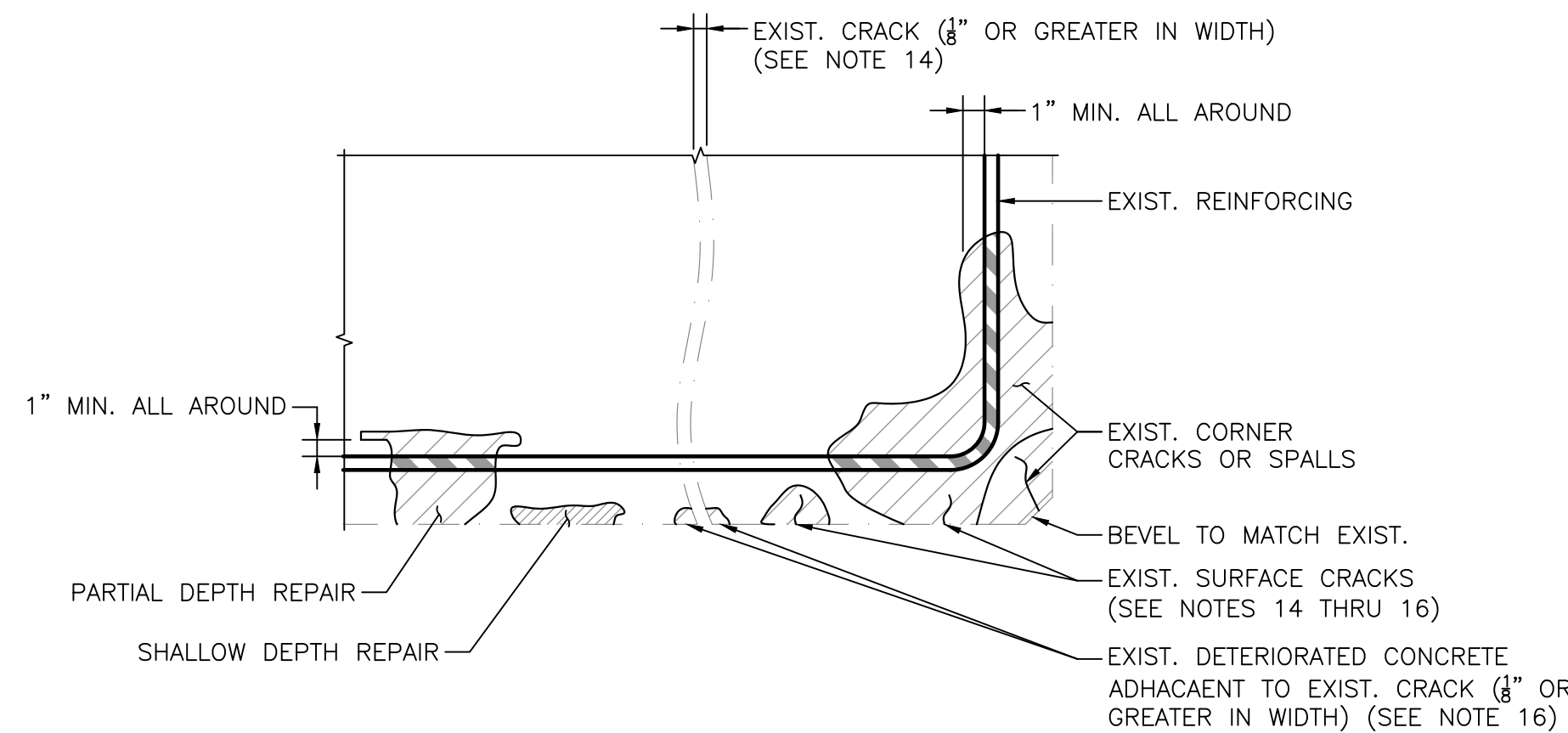
_____ DISTRICT 3 BRIDGE ENGINEER	_____ DATE
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					DRAWN BY: BN	REGISTERED PROFESSIONAL For Review Only	 www.BETA-inc.com	SUBCONSULTANT	SCALE AS SHOWN <small>UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION</small>	TITLE Carney Street Bridge Improvements Uxbridge, Massachusetts STRUCTURAL DETAILS BRIDGE NO. U-02-070	BETA JOB NO. 7545
					DESIGNED BY: TW						ISSUE DATE
					CHECKED BY: TW						SHEET NO. 6
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

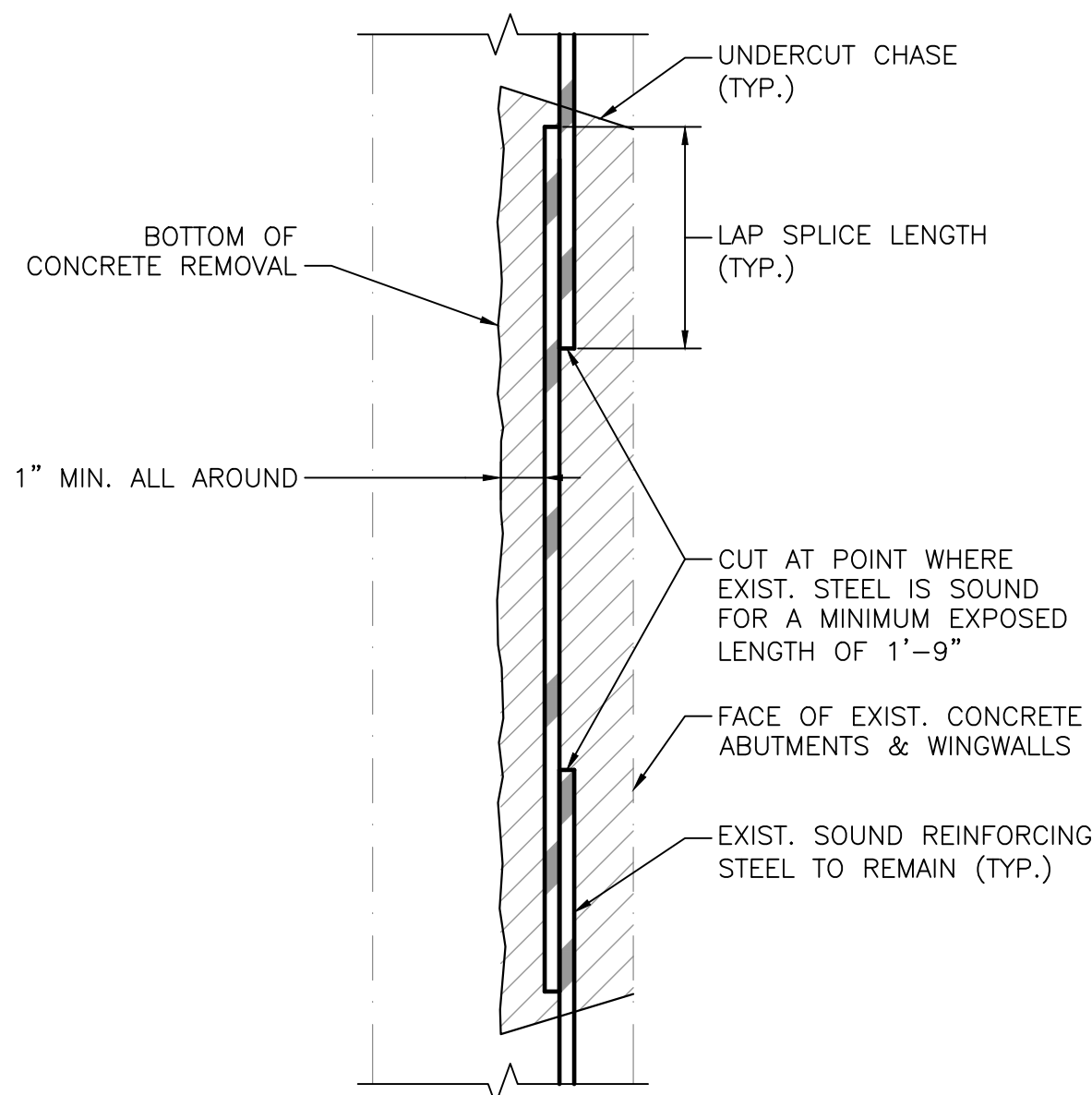
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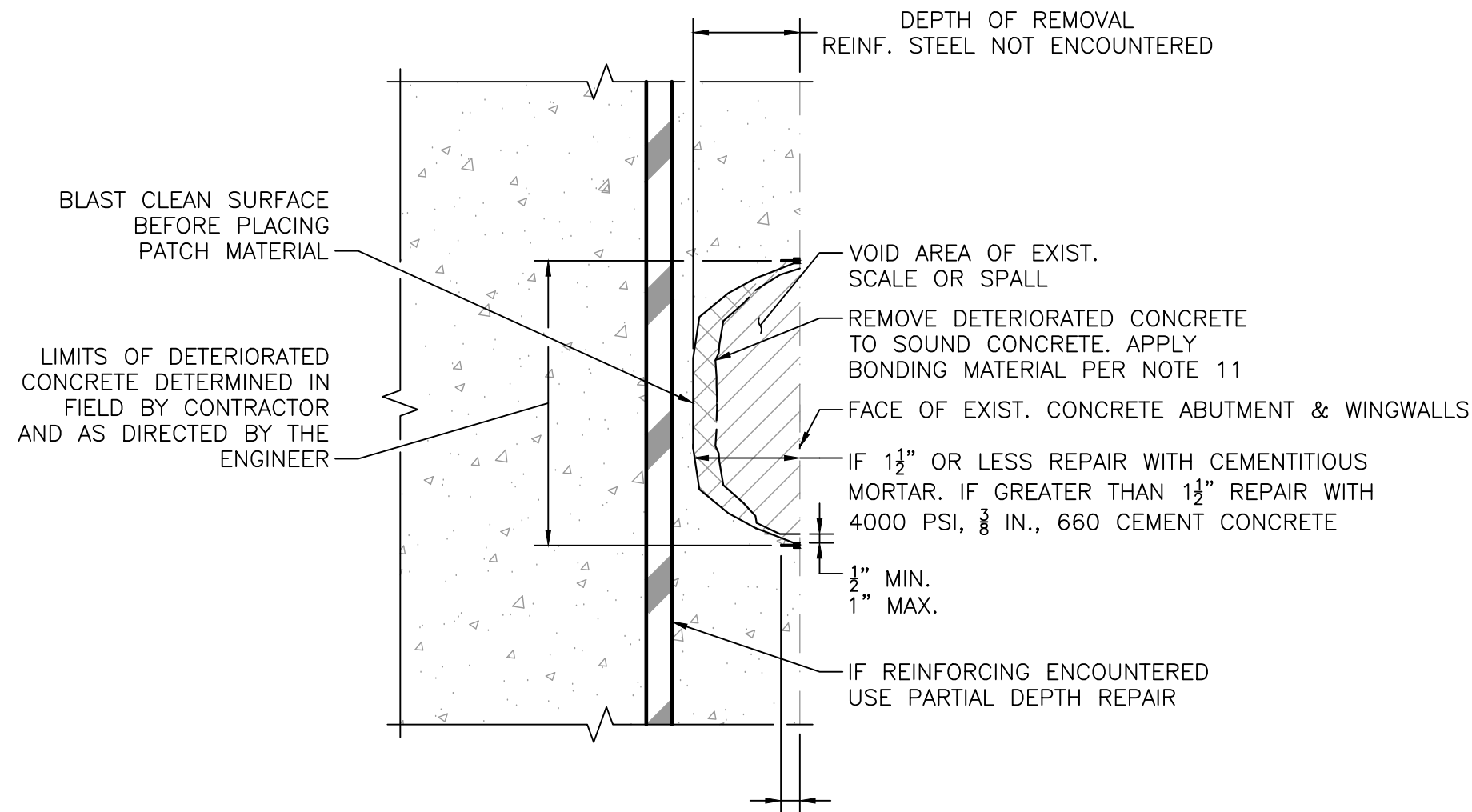
GENERAL ELEVATION
NOT TO SCALE



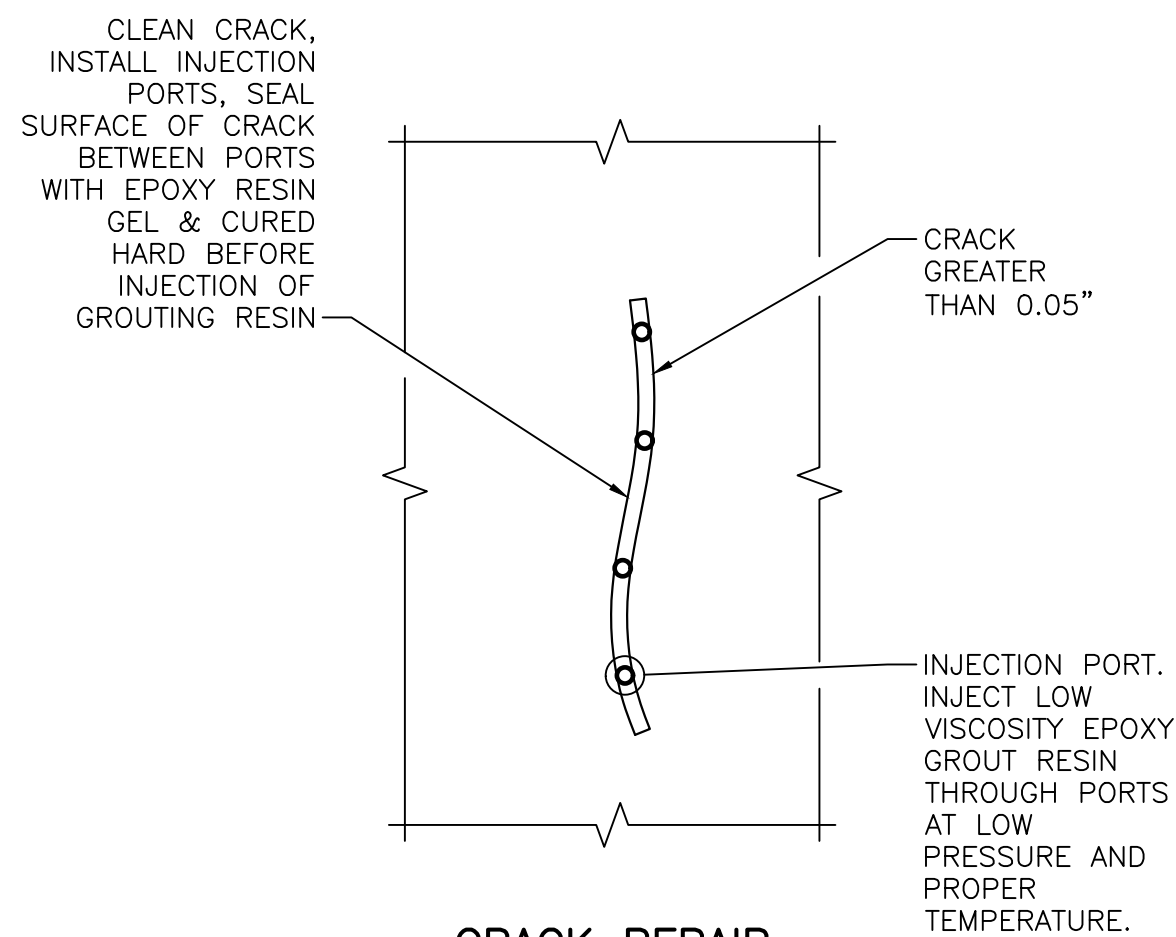
SECTION
NOT TO SCALE



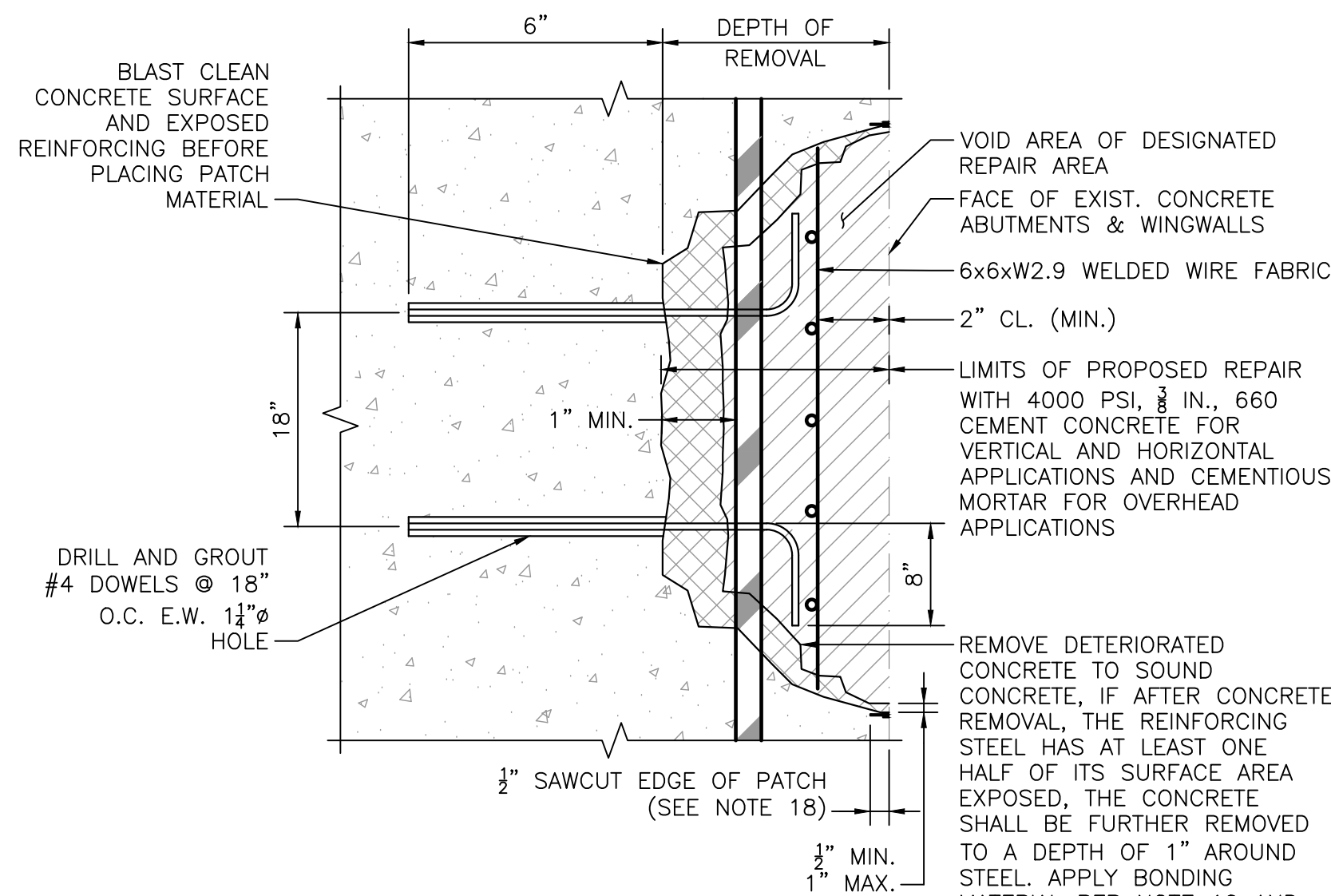
REINFORCING REPLACEMENT DETAIL
NOT TO SCALE



SHALLOW DEPTH REPAIR DETAIL
NOT TO SCALE



CRACK REPAIR
NOT TO SCALE



PARTIAL DEPTH REPAIR DETAIL
NOT TO SCALE

MASONRY REPAIR NOTES:

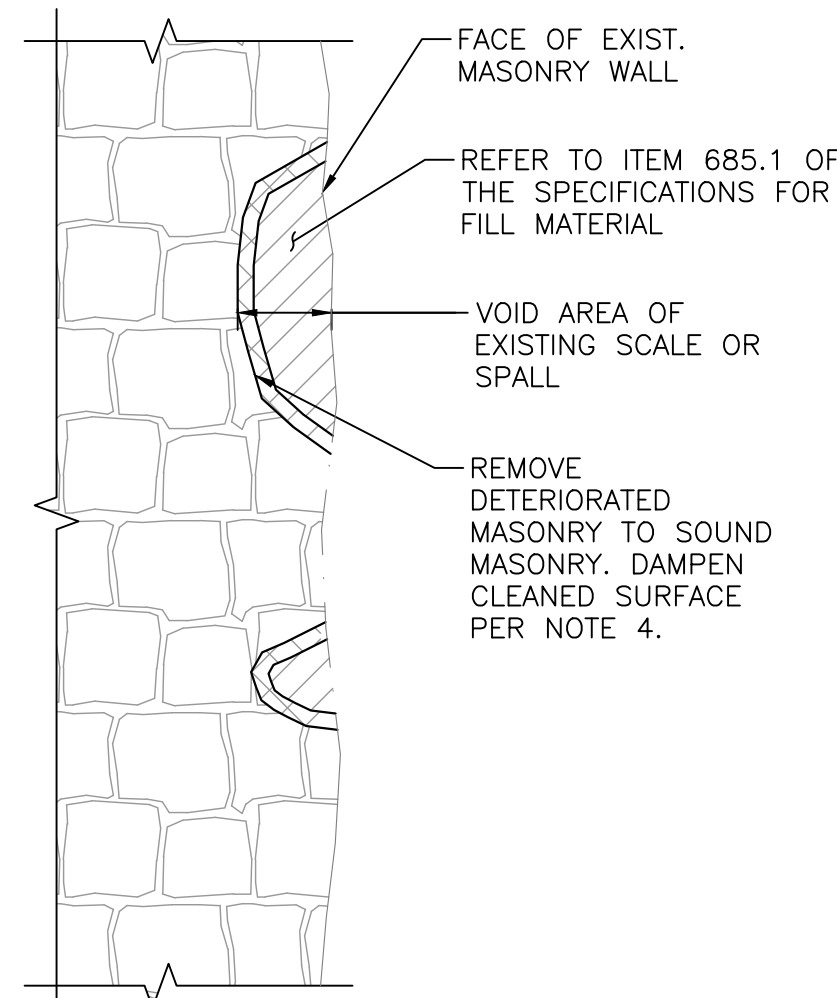
1. ANY OBJECTIONABLE CRACK SHOULD BE ANALYZED TO DETERMINE THE CAUSE AND ANY PREVIOUS CORRECTIVE MEASURES TAKEN TO PREVENT OR ACCOMMODATE THE MOVEMENT BEFORE ADDITIONAL REPAIRS ARE MADE.
2. WHERE CRACKING IS CONFINED PRIMARILY TO MORTAR JOINTS IT CAN BE READILY REPAIRED BY CONVENTIONAL TUCKPOINTING METHODS.
3. REMOVE ALL SPALLED AND UNSOUND MASONRY FROM AREA TO BE REPAIRED.
4. CLEAN SURFACE TO BE FREE OF ALL MATERIALS INCLUDING DUST, OIL, DIRT AND GREASE. DAMPEN WITH CLEAN WATER BEFORE PATCHING AND REMOVE STANDING WATER. REPAIR MORTAR SHALL BE TROWEL APPLIED TO DAMPENED SURFACE. AFTER INITIAL SET, THE MATERIAL SHALL BE TRIMMED AND SHAPED TO MATCH THE CONTOURS OF EXISTING PATCH AREA.
5. COST OF DRILLING AND GROUTING DOWELS SHALL BE CONSIDERED INCIDENTAL TO MASONRY REHABILITATION.
6. EXISTING MASONRY NEAR REPAIR LOCATIONS SHALL BE CLEANED WITH A HYDROCARBON SOLVENT TO REMOVE OIL AND GREASE. THE SURFACE SHALL THEN BE CLEANED WITH A TRISODIUM PHOSPHATE SOLUTION PRIOR TO APPLYING PAINT.
7. THE ACTUAL LOCATIONS AND EXTENT OF VARIOUS TYPES OF CONCRETE REPAIR WILL BE DETERMINED IN THE FIELD. THE CONTRACTOR SHALL REPAIR ALL AREAS DETERMINED NECESSARY AS DIRECTED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT ALL REPAIR AREAS.

CONCRETE REPAIR NOTES:

8. AREAS REQUIRING REPAIRS THAT ARE GREATER THAN 1 1/2" DEEP SHALL BE REPAIRED USING 4000 PSI, 3/8 IN., 660 CEMENT CONCRETE. AREAS LESS THAN 1 1/2" DEEP SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING.
9. IF DURING REMOVAL OF DETERIORATED CONCRETE, THE CONTRACTOR DAMAGES EXISTING REINFORCEMENT TO THE EXTENT REQUIRING REPLACEMENT, ANY ADDITIONAL CONCRETE REMOVAL, PATCHING MATERIAL, CLEANING EXISTING REINFORCING STEEL, AND FURNISHING AND INSTALLING REPLACEMENT REINFORCING STEEL SHALL BE AT THE CONTRACTOR'S EXPENSE, AND INSTALLED ACCORDING TO REINFORCING REPLACEMENT DETAIL ON THIS SHEET.
10. REINFORCEMENT, INCLUDING WELDED WIRE FABRIC, USED TO REPLACE EXISTING DETERIORATED REINFORCING STEEL (SECTION LOSS OF 15% OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER) SHALL BE EPOXY COATED. COST OF REPLACEMENT SHALL BE INCLUDED UNDER ITEM 910.1.
11. IMMEDIATELY PRIOR TO PLACING NEW CONCRETE OR MORTAR AGAINST EXISTING CONCRETE, CLEAN EXISTING SURFACES BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER CONTAINING NO DETERGENTS OR BOND INHIBITING CHEMICALS AND APPLY APPROVED BONDING COMPOUND IMMEDIATELY PRIOR TO PLACING CONCRETE.
12. ALL EXISTING SURFACES THAT WILL HAVE NEW CONCRETE CAST AGAINST IT MUST BE ROUGHENED TO A MINIMUM AMPLITUDE OF 1/4 INCH.
13. CONCRETE REPAIR WORK INCLUDES REMOVING ALL DETERIORATED, LOOSE, SPALLED, POPCORNEDED AND MAP CRACKED CONCRETE. CONCRETE WHICH HAS SPALLED OR OTHERWISE DETERIORATED ADJACENT TO SURFACE CRACK SHALL BE REPAIRED.
14. CRACKS THAT ARE .05" OR GREATER IN WIDTH SHALL BE REPAIRED BY EPOXY INJECTION CRACK REPAIR.
15. CRACKS THAT ARE LESS THAN .05" IN WIDTH SHALL NOT BE REPAIRED UNLESS DIRECTED BY THE ENGINEER.
16. WHERE PATCHING AND EPOXY INJECTION WORK ARE ADJACENT, EPOXY INJECTION SHALL BE PERFORMED BEFORE PATCHING.
17. ALL DETERIORATED AREAS SHALL BE DELINEATED BY A 1/2" SAWCUT. THE COST OF SAWCUTTING SHALL BE INCLUDED UNDER ITEM 127.12.
18. ALL EXPOSED STEEL SHALL BE THOROUGHLY BLAST CLEANED TO A WHITE METAL FINISH AND COATED WITH EPOXY IN ACCORDANCE WITH AASHTO M284 (ASTM D3963). BLAST CLEANING AND EPOXY SHALL BE INCLUDED IN THE RESPECTIVE CONCRETE REPAIR ITEM.
19. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH. NO ADDITIONAL MATERIAL SHALL BE ADDED TO CONCRETE.

LEGEND:

- DETERIORATED CONCRETE TO BE REMOVED.
- REINFORCING STEEL.
- ADDITIONAL CONCRETE TO BE REMOVED.



TYPICAL MASONRY WALL REPAIR
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER _____ DATE _____

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS	

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DESIGNED BY:	TW
CHECKED BY:	TW

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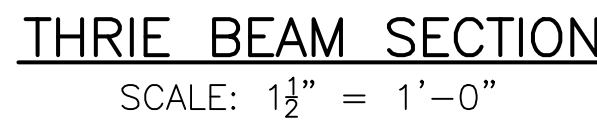
SUBCONSULTANT

SCALE
AS SHOWN
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
Carney Street Bridge Improvements
Uxbridge, Massachusetts
CONCRETE & MASONRY REPAIR DETAILS
BRIDGE NO. U-02-070

BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 7

DISTRICT 3 BRIDGE ENGINEER _____ DATE _____



SCALE: $\frac{3}{8}" = 1'-0"$



SCALE: 3" = 1'-0"



SCALE: $1\frac{1}{2}" = 1'-0"$



SCALE: $1\frac{1}{2}" = 1'-0"$



NOT TO SCALE



SCALE: $1\frac{1}{2}" = 1'-0"$



SCALE: 3" = 1'-0"



DETAIL A

SCALE: $1\frac{1}{2}" = 1'-0"$




ANCHOR PLATE DETAIL


SCALE: $1\frac{1}{2}" = 1'-0"$



SCALE: 3" = 1'-0"

1. ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232. ALL ANCHOR RODS SHALL CONFORM TO F1554 GRADE 105 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
2. RAIL POSTS AND ANCHOR PLATES SHALL BE SEATED ON MOULDED FABRIC BEARING PADS MEETING M9.16.2 AND HAVING THE SAME DIMENSIONS AS THE PLATE. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.
3. RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION, EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEVIATE MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE 3"x1 1/2" AND PLACED BETWEEN THE POST AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.
4. MINIMUM LENGTH OF THE THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.
5. THRIE BEAM GUARD RAIL STEEL SHALL BE GALVANIZED AND CONFORM TO THE AASHTO M180, CLASS B, TYPE IV AND SHALL BE 10 GAGE THICK. USE OF 12 GAGE THICK THRIE BEAM IS EXPRESSLY FORBIDDEN.
6. POSTS, ANCHOR PLATES, BASE PLATES SHALL BE FABRICATED FROM STEEL CONFORMING TO AASHTO M270M GR. 250 STEEL AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
7. SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. (ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)
8. HAND RAIL STEEL SHALL CONFORM TO ASTM A53 GR. B OR A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
9. PLACE A REFLECTORIZED WASHER IN THE UPPER VALLEY OF THRIE BEAM EVERY THIRD POST.
10. HAND RAIL SHALL BE SPLICED OVER JOINTS IN COPING.










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					DESIGNED BY: TW						ISSUE DATE _____
					CHECKED BY: TW						SHEET NO. _____ 8
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

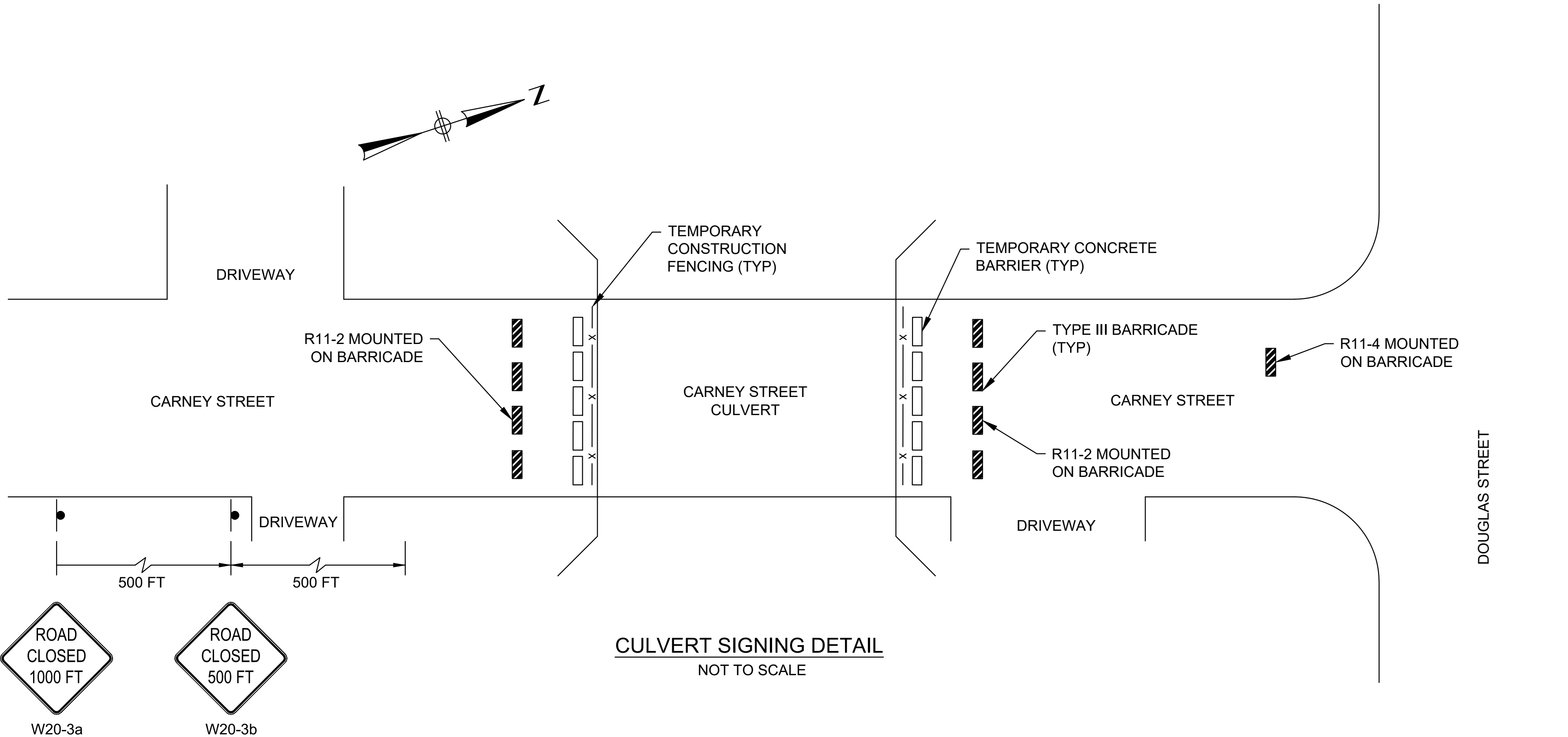
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					DESIGNED BY: TW						ISSUE DATE
					CHECKED BY: TW						SHEET NO. 9
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS	BRIDGE NO. U-02-070						
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CONSTRUCTION SIGN SUMMARY

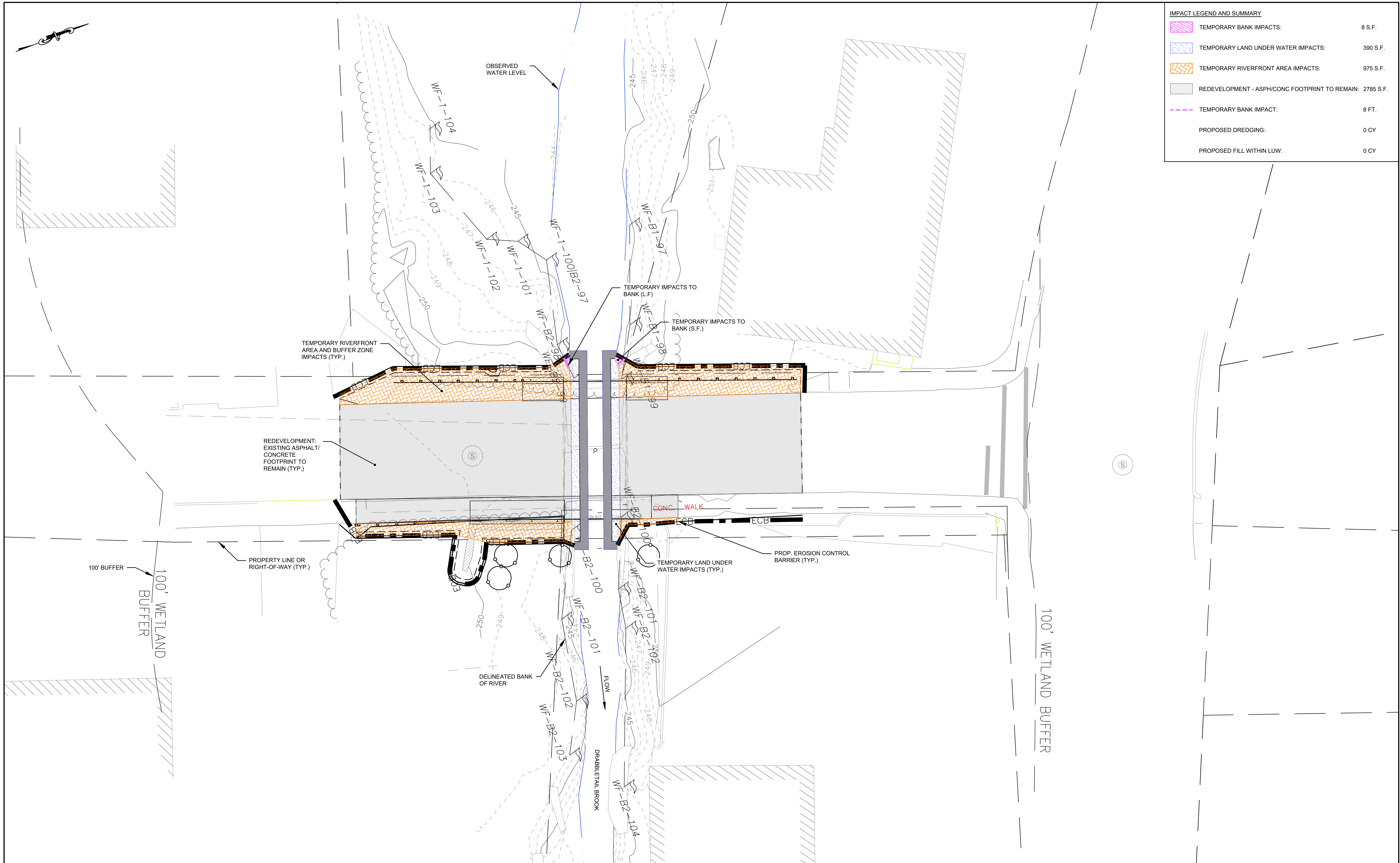
* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY



**** ALL CONSTRUCTION SIGNAGE SHALL HAVE FLUORESCENT ORANGE BACKGROUND**

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACKGROUND	LEGEND	BORDER			
R11-2	48 in	30 in		SEE 2009 MUTCD STANDARDS			2	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	10.0	20.0
R11-4	60 in	30 in					2	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	12.5	25.0
W20-3a	36 in	36 in					1	**ORANGE	BLACK	BLACK	P-5 1	9.0	9.0
W20-3b	36 in	36 in					1	**ORANGE	BLACK	BLACK	P-5 1	9.0	9.0
M4-8a	24 in	18 in					2	**ORANGE	BLACK	BLACK	P-5 2	3.0	6.0
M4-9L	30 in	24 in					3	**ORANGE	BLACK	BLACK	MOUNT 1 W/ MA-D3-1 MOUNT 2 W/MA-D3-2	5.0	15.0
M4-9R	30 in	24 in					3	**ORANGE	BLACK	BLACK	MOUNT 1 W/ MA-D3-1 MOUNT 1 W/MA-D3-2	5.0	15.0
M4-9V	30 in	24 in					1	**ORANGE	BLACK	BLACK	MOUNT W/ MA-D3-2	5.0	5.0
MA-D3-1	42 in	12 in		6/4D	3.25 3.75		9	**ORANGE	BLACK	BLACK	P-5 9	3.5	31.5



					DRAWN BY: SD	REGISTERED PROFESSIONAL <div style="text-align: center;"> For Review Only </div>	PREPARED BY:  www.BETA-inc.com	SUBCONSULTANT	SCALE NONE	TITLE Carney Street Bridge Improvements Uxbridge, Massachusetts DETOUR PLAN BRIDGE NO. U-02-070	BETA JOB NO. <u>7545</u>
					DESIGNED BY: JC						ISSUE DATE _____
					CHECKED BY: TW						SHEET NO. <u>11</u>
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							



					DRAWN BY: MC	REGISTERED PROFESSIONAL	PREPARED BY  www.BETA-Inc.com	SUBCONSULTANT	SCALE  SCALE IN FEET: 1"=20'	TITLE Carney Street Bridge Improvements Uxbridge, Massachusetts RESOURCE IMPACTS PLAN BRIDGE NO. U-02-070	BETA JOB NO. 7545
					DESIGNED BY: MC						ISSUE DATE
					CHECKED BY: LK						SHEET NO. 12
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

TOWN OF UXBRIDGE, MASSACHUSETTS

DEPARTMENT OF PUBLIC WORKS

ALDRICH STREET

BRIDGE PRESERVATION

MAY 2022

BOARD OF SELECTMEN

BRIAN BUTLER
JEFF SHAW
STEPHEN MANDILE
SUSAN FRANZ
BRIAN PLASKO

TOWN MANAGER

STEVEN SETTE

DEPARTMENT OF PUBLIC WORKS

BENN S. SHERMAN, PE, DIRECTOR
PAUL HUTNUK, PE, CIVIL ENGINEER



LOCATION MAP
SCALE 1" = 1000'

PLAN INDEX

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	CONSTRUCTION PLAN AND PROFILE
4	CONSTRUCTION DETAILS
5	BRIDGE COVER SHEET
6	STRUCTURAL DETAILS
7	CONCRETE REPAIR DETAILS
8	THRIE BEAM DETAILS
9-10	DETOUR PLAN
11	RESOURCE IMPACT PLAN

100%
SUBMISSION

PREPARED BY:



www.BETA-Inc.com

ISSUE DATE: APRIL 5, 2022

REGISTERED PROFESSIONAL _____ DATE _____

9/19/2022 3:25 PM \\BETA-INC.COM\RITTRANS\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET_Aldrich\7545_SR\LEGEND_Aldrich.DWG (BETA SITE BW SITE)

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
		CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
		ELECTRIC HANDHOLE (NUMBER AS NOTED)
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		SEWER MANHOLE
		DRAINAGE MANHOLE
		GAS GATE
		WATER GATE
		CURB STOP
		HYDRANT
		FIRE ALARM BOX
		PARKING METER
		STREET LIGHT POLE
		UTILITY POLE
		UTILITY POLE w/ LIGHT
		SIGN
		GUY POLE
		DRAIN PIPE (SIZE AS NOTED)
		SEWER MAIN (SIZE AS NOTED)
		ELECTRIC DUCT
		GAS MAIN (SIZE AS NOTED)
		WATER MAIN (SIZE AS NOTED)
		TELEPHONE DUCT (SIZE AS NOTED)
		OVERHEAD WIRE
		MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
		HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
		STATE HIGHWAY LAYOUT LINE (SHLO)
		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
		CONSTRUCTION BASELINE
		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		WHEELCHAIR RAMP
		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
		FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND w/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
		SPOT GRADE
		SAW CUT LINE
		TEST PIT
		BORING
		EROSION CONTROL BARRIER/COMPOST FILTER TUBES

ABBREVIATIONS

GENERAL

ABAN	ABANDON
ADJ	ADJUST
ALT	ALTERATION
APPROX	APPROXIMATE
	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BD OR BND	BOUND
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
CC	CONCRETE CURB
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
DWY	DRIVEWAY
EP, EOP	EDGE OF PAVEMENT
EL	ELEVATION
ESMT	EASEMENT
EXIST	EXISTING
FDN	FOUNDATION
GRAN	GRANITE
GC	GRANITE CURB
HOR	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
OC	ON CENTER
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RR	RAILROAD
RT	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SW	SIDEWALK
SHT	SHEET
SHLD	SHOULDER
STA	STATION
TEMP	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
VAR	VARIABLE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
+FY	FLASHING YELLOW LEFT ARROW
R-→	STEADY RED RIGHT ARROW
Y-→	STEADY AMBER RIGHT ARROW
G-→	STEADY GREEN RIGHT ARROW
+R	STEADY RED LEFT ARROW
+Y	STEADY AMBER LEFT ARROW
+G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

UTILITIES

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN


TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
		CONTROLLER PHASE
		MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
		MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8" WIDTH)
SL	STOP LINE - 12" WHITE LINE 4" BEHIND CW (TYP.)
SWEL	SOLID WHITE EDGE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWGL	SOLID WHITE GORE LINE 12" @ 33", (SPACING NOTED)
SWLL	SOLID WHITE LANE LINE - 4"
SWPL	SOLID WHITE PARKING LINE - 4"
BWLL	BROKEN WHITE LANE LINE - 4"
DWLeX	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLeX	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYCL	BROKEN YELLOW CENTERLINE - 4"
DYCL	DOUBLE YELLOW CENTERLINE - 2 - 4" LINES
SYEL	SOLID YELLOW EDGE LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 33", (SPACING NOTED)
SYLL	SOLID YELLOW LANE LINE - 4"
SYCTEL	SOLID YELLOW CYCLE TRACK EDGE LINE - 4"
DYCTCL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
	SCHOOL ZONE - WHITE
	HANDICAP SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
	LEGEND "ONLY" - WHITE

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					DESIGNED BY: BB						ISSUE DATE
					CHECKED BY: TW						SHEET NO. 2
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

HIGHWAY GUARD DETAILS

TRANSITION TO NCHRP 350 GUARDRAIL STA 0+38.5 TO 0+72 LT
 TRANSITION TO THRIE BEAM STA 0+72 TO 0+78 LT
 BRIDGE THRIE BEAM GUARDRAIL 0+78 TO 1+17 LT
 TRANSITION TO THRIE BEAM STA 1+17 TO 1+23 LT
 GUARDRAIL - TL-2 (SINGLE FACED) 1+23 TO 1+42.5 LT
 GUARDRAIL TANGENT END TREATMENT, TL-2 STA 1+42.5 TO 1+67.5 LT

GUARDRAIL TANGENT END TREATMENT, TL-2 STA 0+25 TO 0+50 RT
 GUARDRAIL - TL-2 (SINGLE FACED) 0+50 TO 0+73 RT
 TRANSITION TO THRIE BEAM STA 0+73 TO 0+79 RT
 BRIDGE THRIE BEAM GUARDRAIL STA 0+79 TO 1+16 RT
 TRANSITION TO THRIE BEAM STA 1+16 TO 1+22 RT
 TRAILING ANCHORAGE STA 1+22 TO 1+30 RT

PAVEMENT NOTES

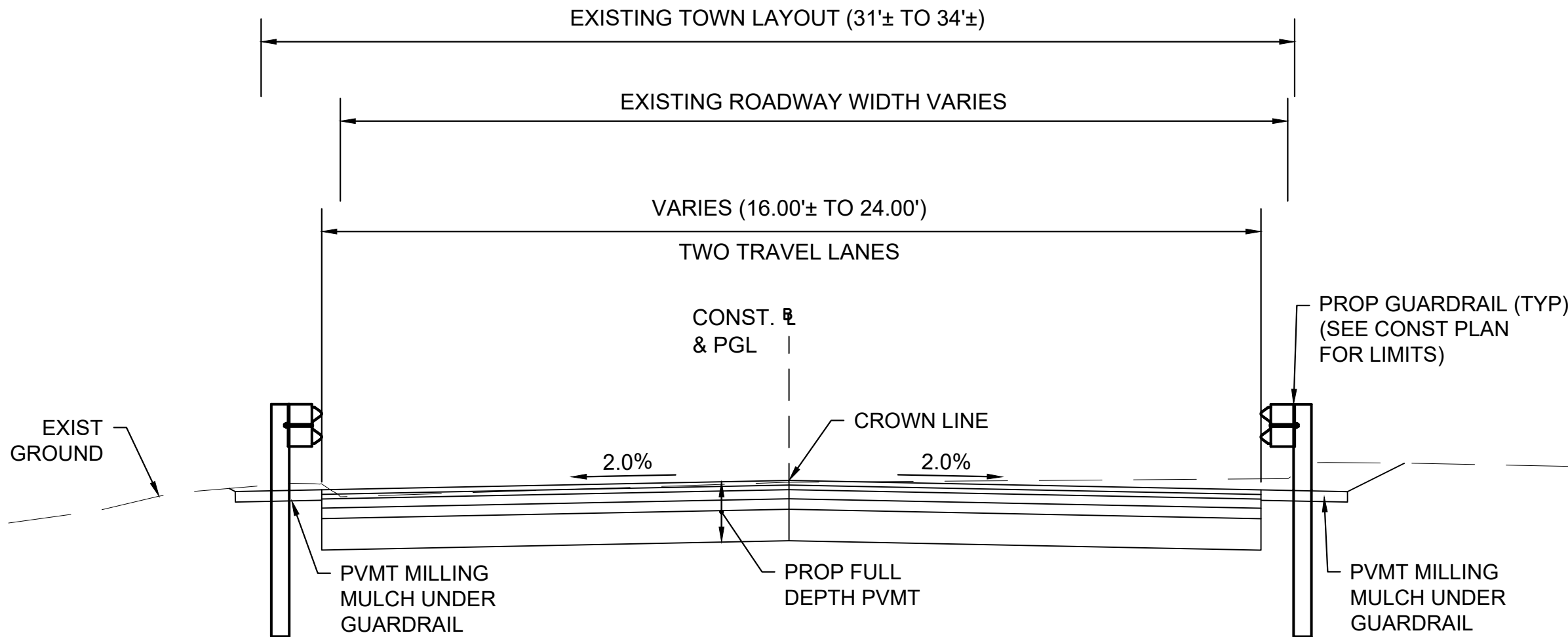
FULL DEPTH PAVEMENT

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
 INTERMEDIATE COURSE: 1-3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
 BASE COURSE: 3-1/2" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER
 SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL BORROW TYPE b (M1.03.01)

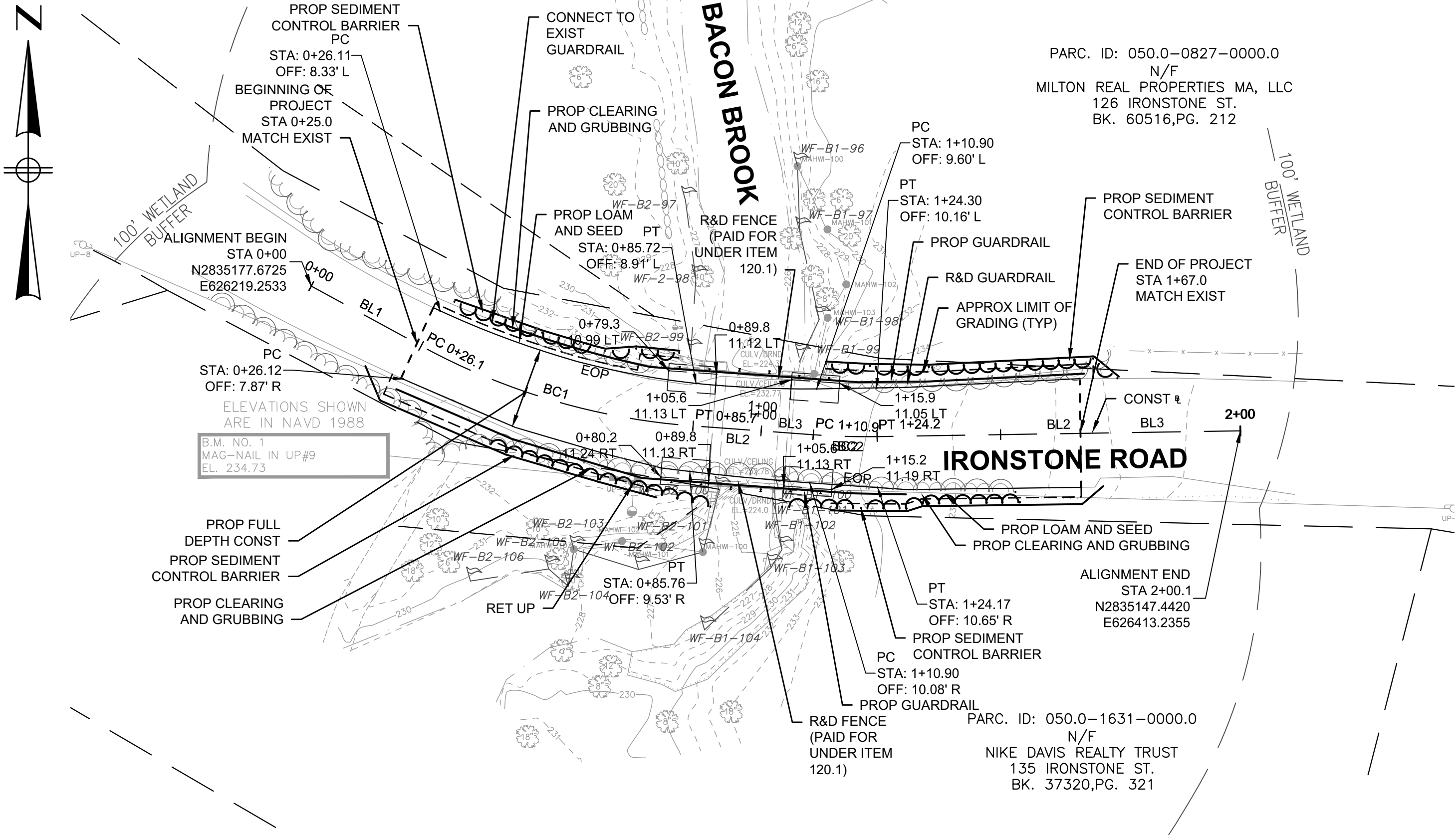
PROJECT TACK COAT NOTES

TACK COAT: ASPHALT EMULSION FOR TACK COAT, GRADE RS-1
 SHALL BE PLACED AT A RATE OF:
 0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES
 0.07 GALLONS PER SQUARE YARD OVER CEMENT CONCRETE
 BASE COURSE
 0.05 GALLONS PER SQUARE YARD OVER SMOOTH TIGHT PAVEMENTS
 PRIOR TO PAVING AN OVERLAY

IRONSTONE ROAD CL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
BL1	0+00.00	2835177.6725	626219.2533		S61°24'17"E 26.11'	0+26.11	2835165.1750	626242.1799
BC1	0+26.11	2835165.1750	626242.1799	R = 140.00' Δ= 24°24'07" L=59.63' T=30.27'		0+85.74	2835148.4728	626298.9494
BL3	0+85.74	2835148.4728	626298.9494		S85°48'24"E 25.16'	1+10.90	2835146.6327	626324.0456
BC2	1+10.90	2835146.6327	626324.0456	R = 150.00' Δ= 5°05'38" L=13.34' T=6.67'		1+24.24	2835146.2497	626337.3715
BL2	1+24.24	2835146.2497	626337.3715		N89°05'58"E 75.87'	2+00.11	2835147.4420	626413.2355

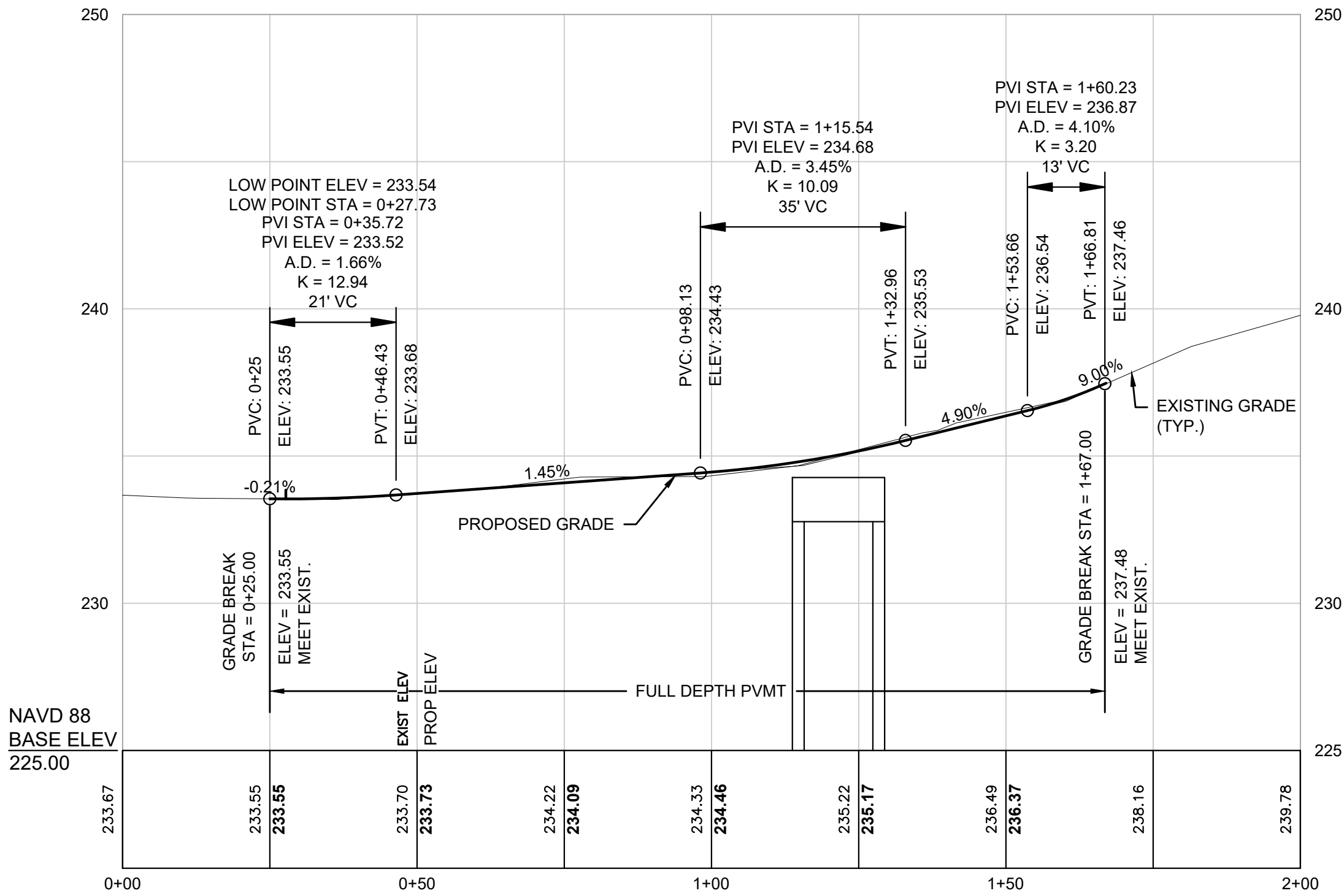


TYPICAL SECTION
 IRONSTONE ROAD
 STA 0+25± TO STA 1+67±
 NOT TO SCALE



PLAN

SCALE: 1" = 20'




PROFILE

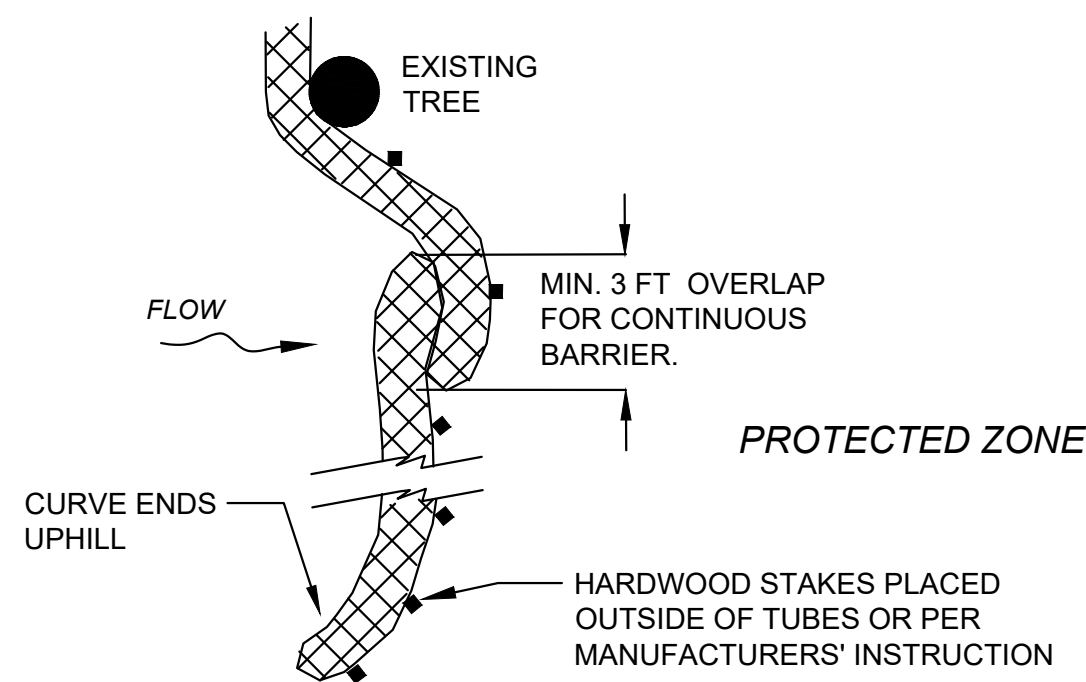
SCALE:

VERT: 1" = 4'

HORIZ: 1" = 20'

				DRAWN BY: SD	REGISTERED PROFESSIONAL For Review Only	PREPARED BY  www.BETA-Inc.com	SUBCONSULTANT	SCALE AS SHOWN	TITLE Ironstone Road Bridge Improvements Uxbridge, Massachusetts CONSTRUCTION PLAN AND PROFILE	BETA JOB NO. 7545
				DESIGNED BY: BB						ISSUE DATE
				CHECKED BY: TW						SHEET NO. 3
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS						BRIDGE NO. U-02-069

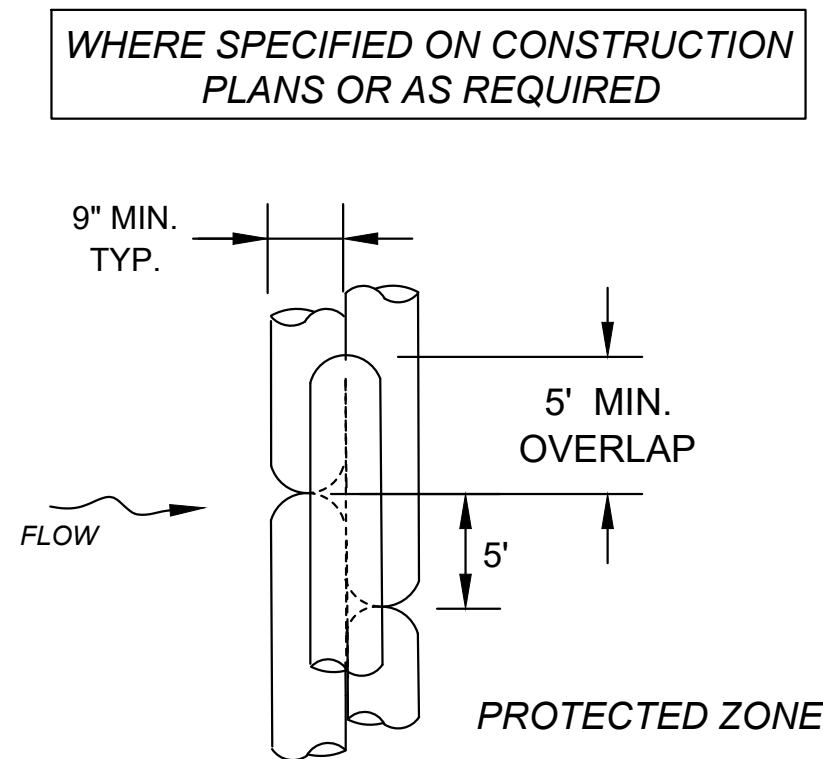
9/19/2022 3:26 PM \\BETA-INC.COM\RITTRANS\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\ALDRICH\7545_SRDETAILS\ALDRICH.DWG (BETA STB BW STB)



PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

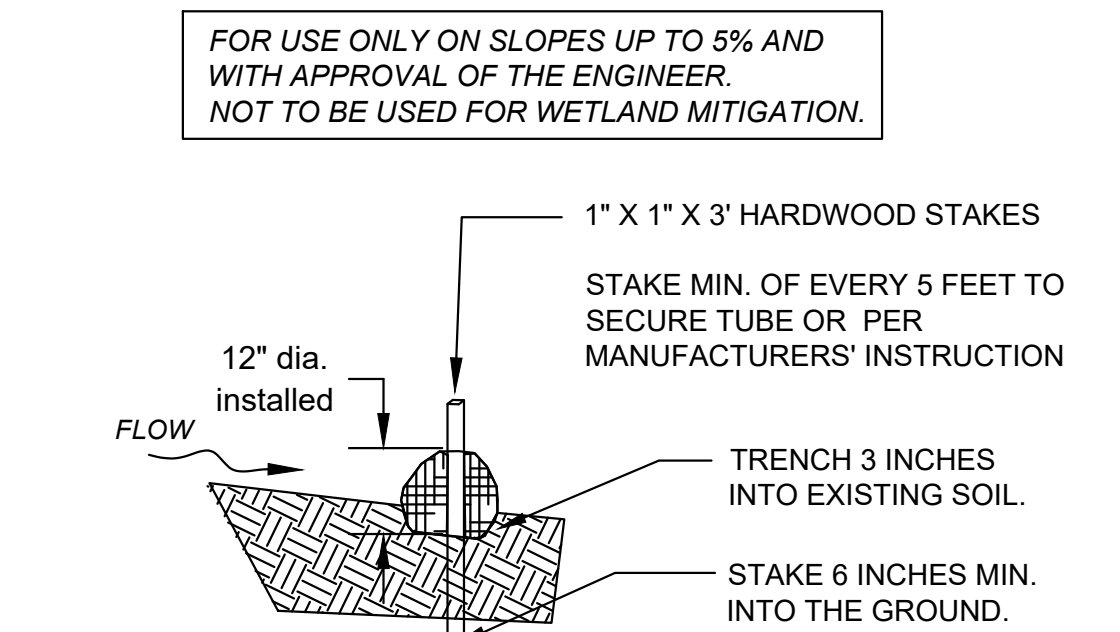
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW



WHERE SPECIFIED ON CONSTRUCTION PLANS OR AS REQUIRED

PLAN VIEW

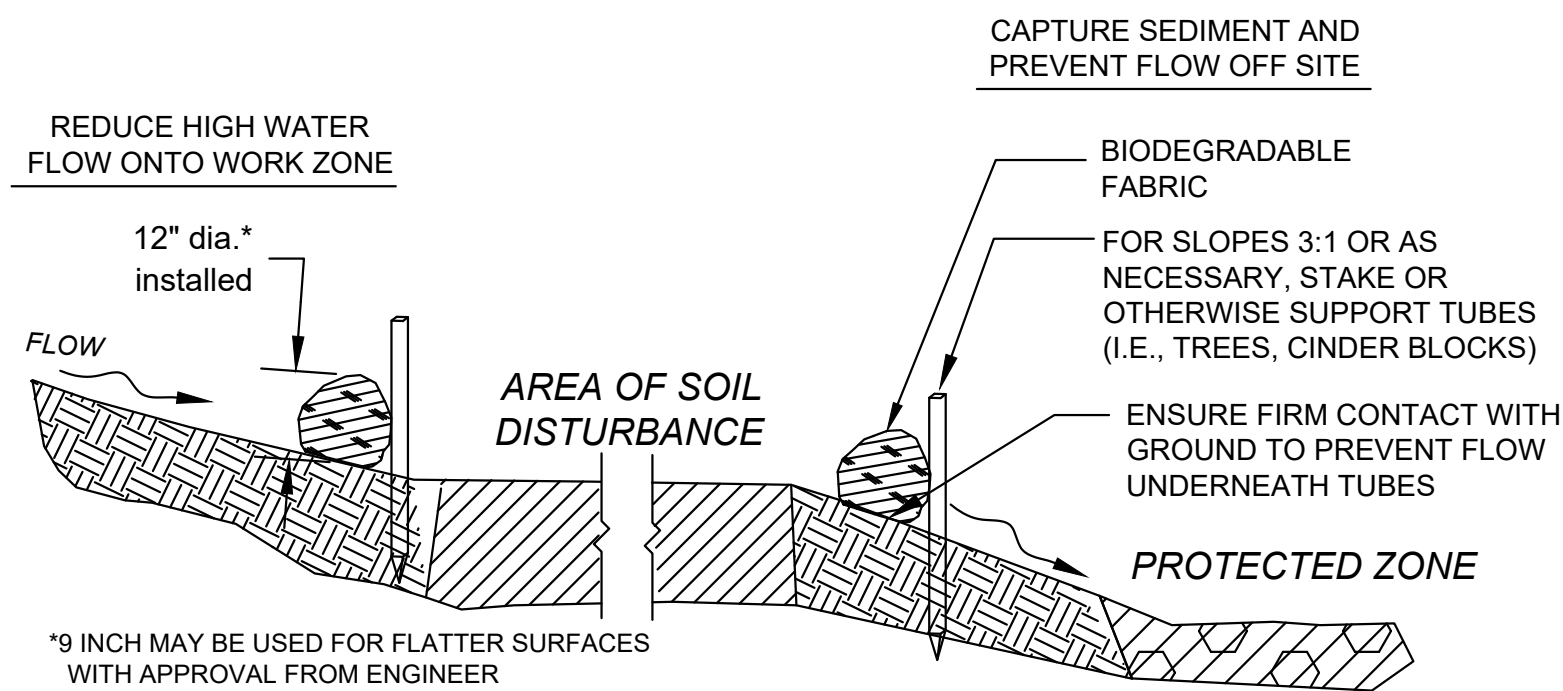


FOR USE ONLY ON SLOPES UP TO 5% AND WITH APPROVAL OF THE ENGINEER. NOT TO BE USED FOR WETLAND MITIGATION.

SECTION

12 INCH STRAW WATTLE

NOT TO SCALE

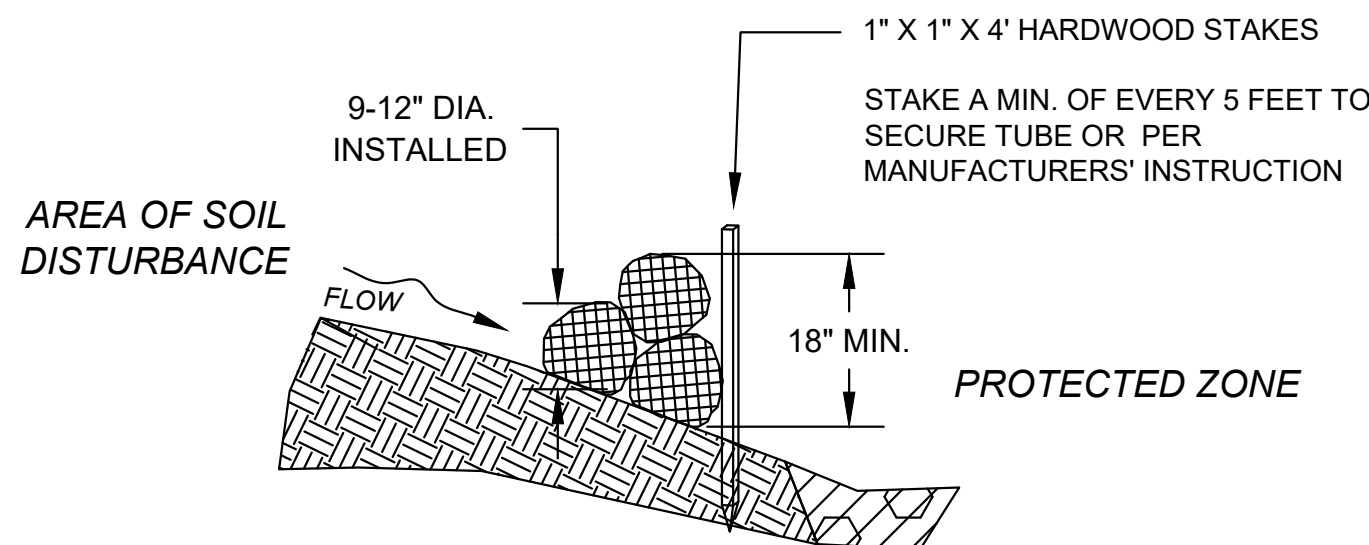


CAPTURE SEDIMENT AND PREVENT FLOW OFF SITE

SECTION

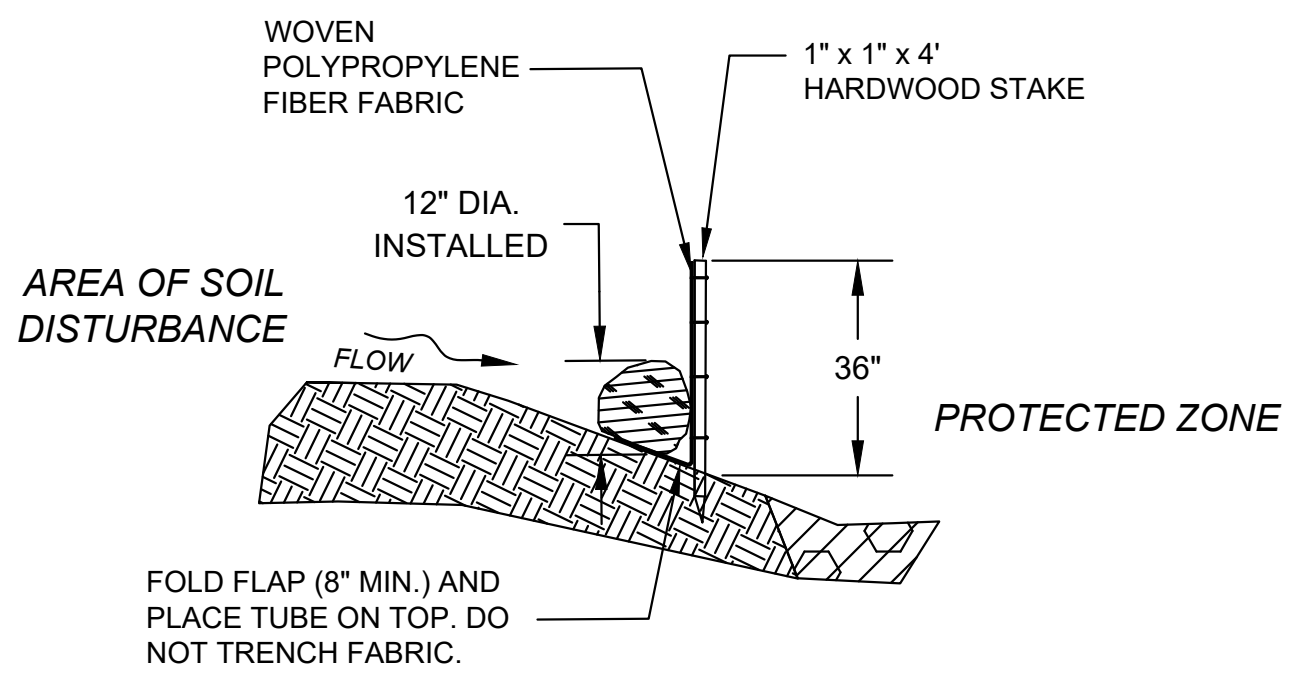
SEDIMENT BARRIER - COMPOST FILTER TUBE

NOT TO SCALE



COMPOST FILTER TUBES STACKED


NOT TO SCALE



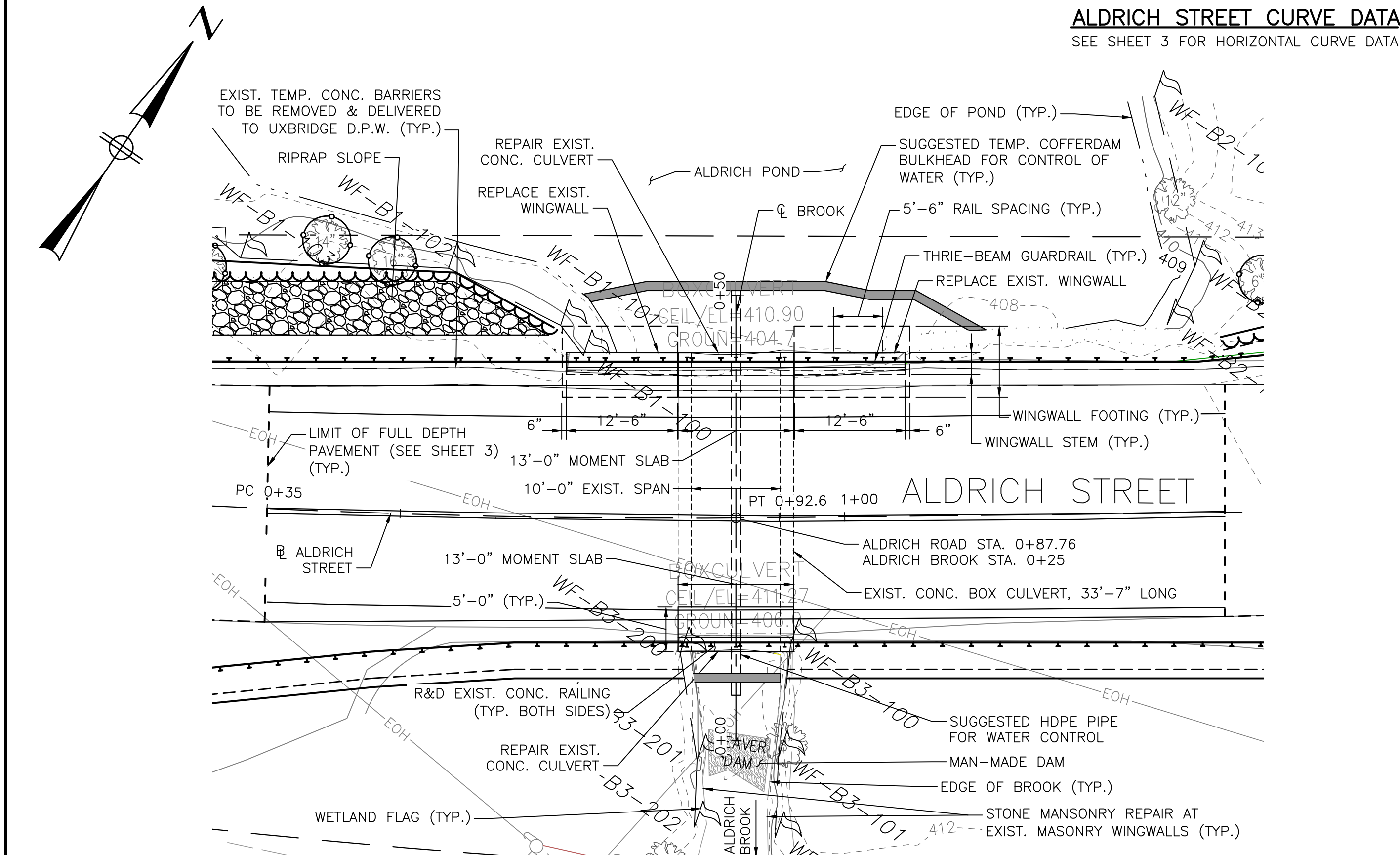
SECTION

COMPOST FILTER TUBE & SILT FENCE

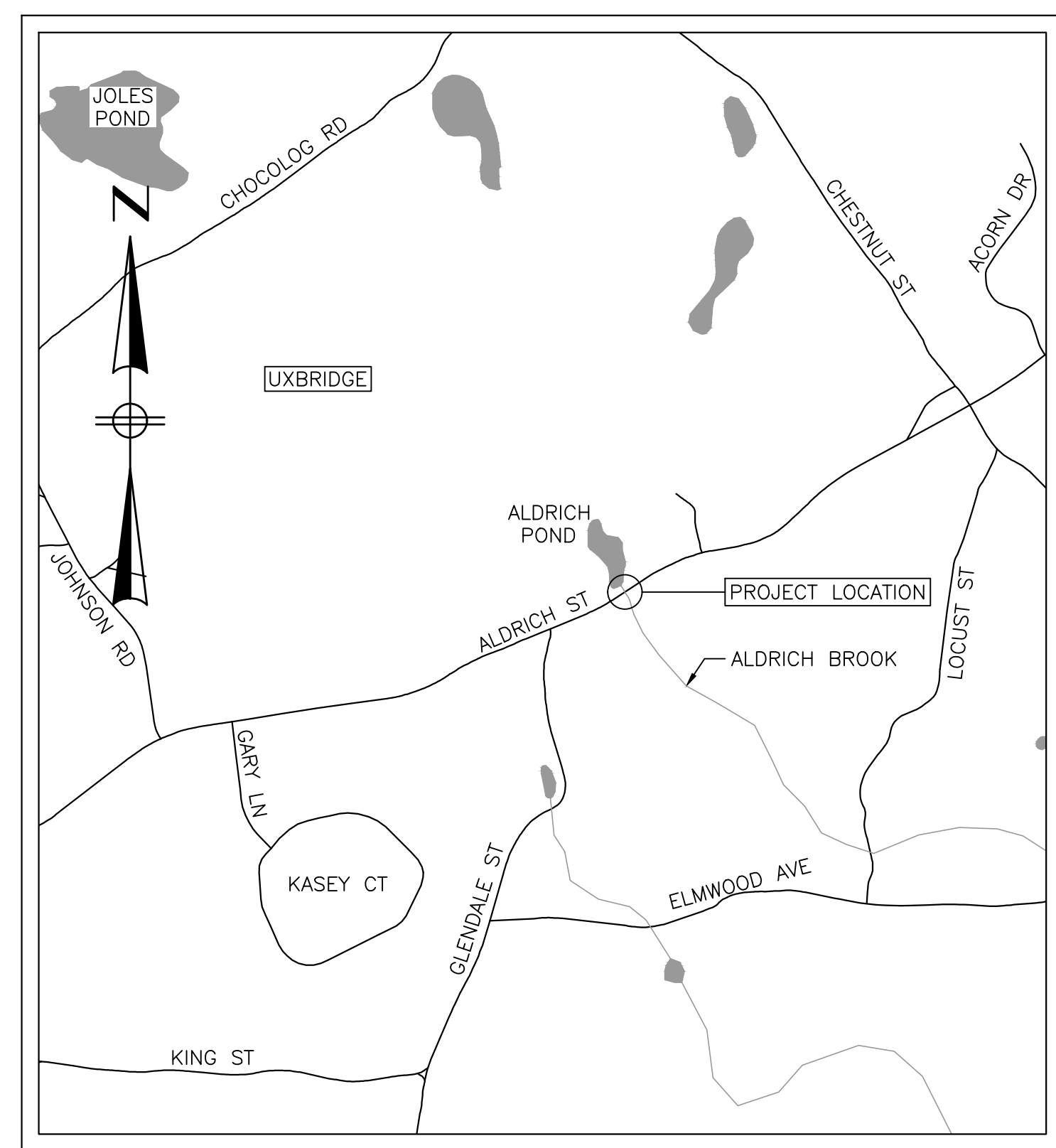
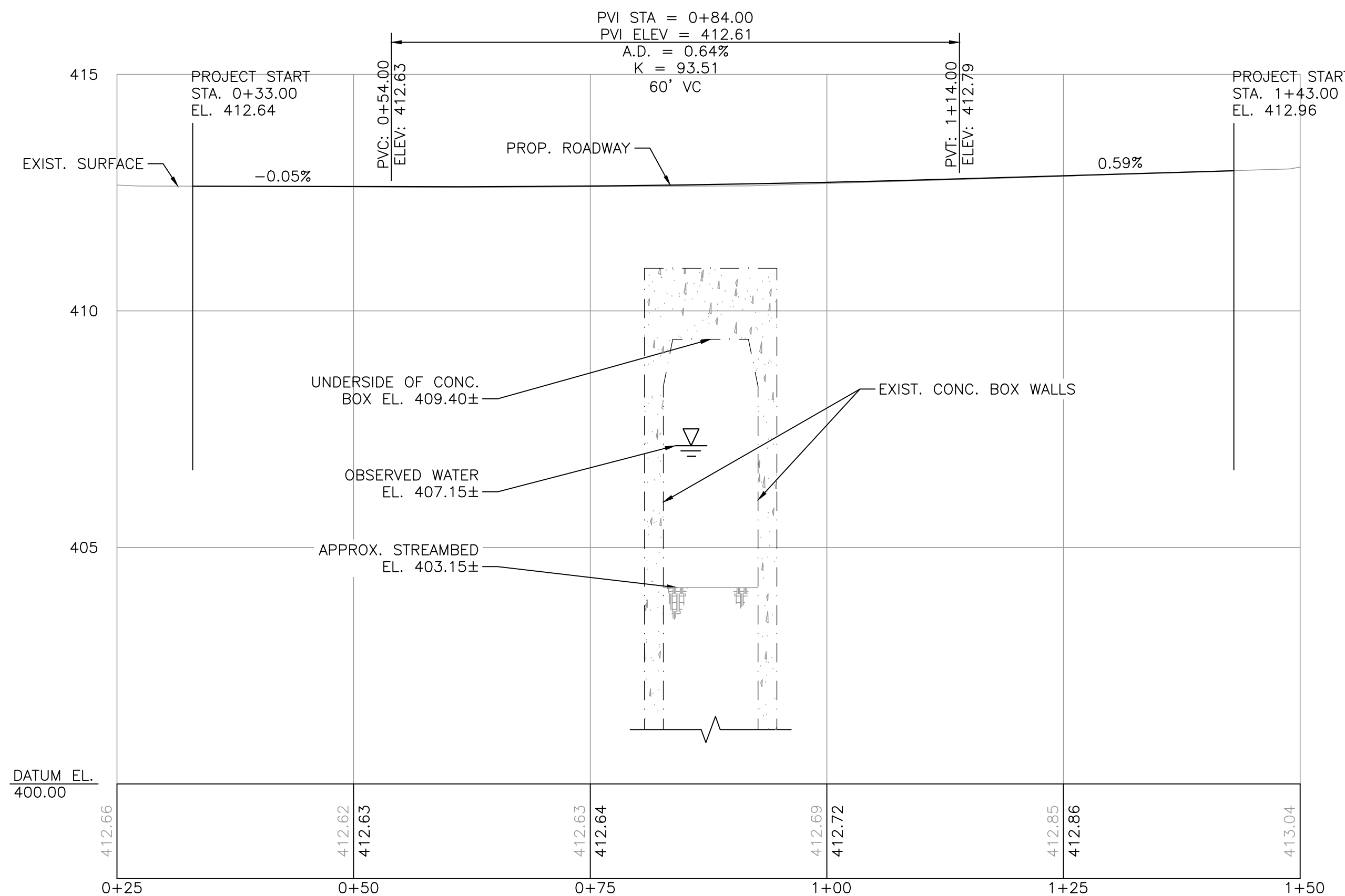
NOT TO SCALE

					DRAWN BY: SD	REGISTERED PROFESSIONAL For Review Only	PREPARED BY:  www.BETA-Inc.com	SUBCONSULTANT	SCALE NONE <small>UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION</small>	TITLE Aldrich Street Bridge Improvements Uxbridge, Massachusetts CONSTRUCTION DETAILS BRIDGE NO. U-02-038	BETA JOB NO. <u>7545</u>
					DESIGNED BY: BB						ISSUE DATE _____
					CHECKED BY: TW						SHEET NO. <u>4</u>
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

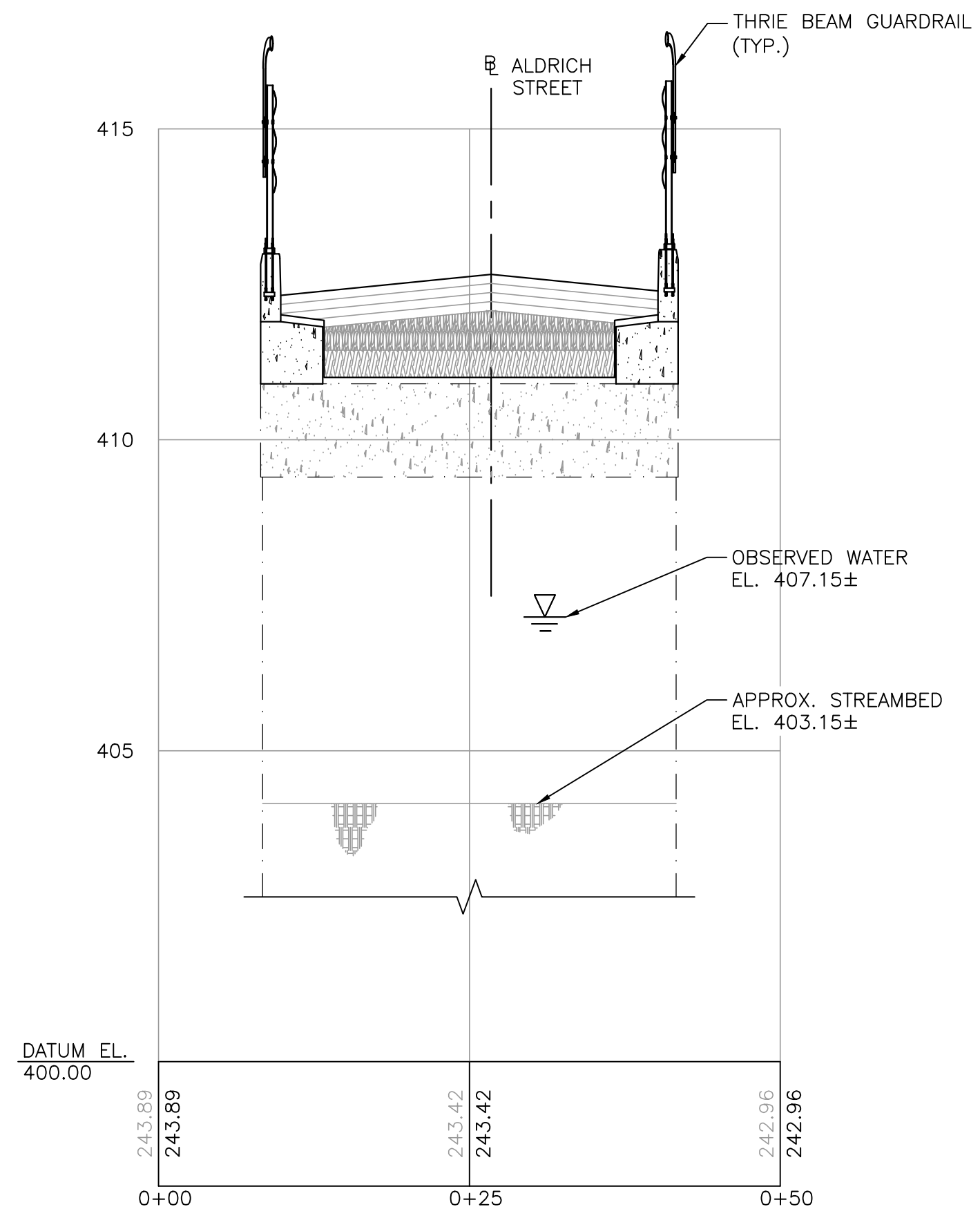
3/8/2023 11:27 AM N:\7545\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\7546_SR(COVERSHEET)-ALDRICH.DWG (BETA STB BW.STB)



KEY PLAN
SCALE: 1/32" = 1'-0"



LOCUS
SCALE: 1" = 1000'



GENERAL NOTES	
PROJECT FILE NO.:	NA
PROJECT DESCRIPTION:	PROPOSED BRIDGE PRESERVATION
BRIDGE DESIGN LOADING:	HL-93
SURVEY:	GOLDSMITH, PREST & RINGWALL, INC.
ELEVATION REFERENCE:	NAVD OF 1988

BENCHMARK: MAG-NAIL
LOCATION: UP #54
NORTHING: 2835131.87
EASTING: 617892.66
ELEVATION: 413.54'

HYDRAULIC DESIGN DATA
DRAINAGE AREA: 0.67 SQUARE MILES
DESIGN FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND
DESIGN FLOOD FREQUENCY: UNK YEARS
DESIGN FLOOD VELOCITY: UNK FEET PER SECOND
DESIGN FLOOD ELEVATION: UNK FEET, NAVD

BASE (100-YEAR) FLOOD DATA
BASE FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: UNK FEET, NAVD

DESIGN AND CHECK SCOUR DATA
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY: 25 YEARS
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY: 50 YEARS
FLOOD OF RECORD
DISCHARGE: UNKNOWN CUBIC FEET PER SECOND
FREQUENCY (IF KNOWN): UNKNOWN YEARS
MAXIMUM ELEVATION: UNKNOWN FEET, NAVD
DATE: UNKNOWN MONTH, YEAR

HISTORY OF ICE FLOES: UNKNOWN
EVIDENCE OF SCOUR AND EROSION: UNKNOWN

GENERAL:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING, COORDINATING, AND VERIFYING ALL DIMENSIONS.

THE CONTRACTOR SHALL COORDINATE ALL EXISTING UTILITY LOCATIONS.

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES-2022 EDITION.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER WHEN, IN THE COURSE OF CONSTRUCTION, CONDITIONS ARE UNCOVERED WHICH ARE UNANTICIPATED OR OTHERWISE APPEAR TO PRESENT A DANGEROUS CONDITION.

FOR DIMENSIONS AND DETAILS NOT SHOWN, REFER TO HIGHWAY DRAWINGS.

NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

FOUNDATIONS:
FOOTING SHALL BE FOUNDED ON ONE FOOT OF COMPACTED GRAVEL BORROW. THE ELEVATION OF FOOTING SHALL BE SUCH THAT IT DOES NOT FALL WITHIN A ONE VERTICAL TO TWO HORIZONTAL SLOPE FROM THE BASE OF ANY ADJACENT FOOTING OR UTILITY.

NO BACKFILL SHALL BE PLACED AGAINST WALL OR MOMENT SLAB UNTIL THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TEMPORARY SUPPORT AND DEWATERING AS NECESSARY DURING EXCAVATION TO MAINTAIN THE INTEGRITY OF EXISTING STRUCTURES, ACTIVE UTILITIES, AND STREETS.

REINFORCEMENT:
ALL REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60.

CONCRETE:
UNLESS NOTED OTHERWISE, CONCRETE SHALL BE AS FOLLOWS:

MOMENT SLAB & COPING: 5000 PSI - 3/4" - 685 LB/CY HP
WALL STEM & FOOTING: 4000 PSI - 1 1/2" - 565 LB/CY HP
REPAIR CONCRETE: 4000 PSI - 3/8" - 660 LB/CY CEMENT

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER _____ DATE _____

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW

REGISTERED PROFESSIONAL
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SUBCONSULTANT

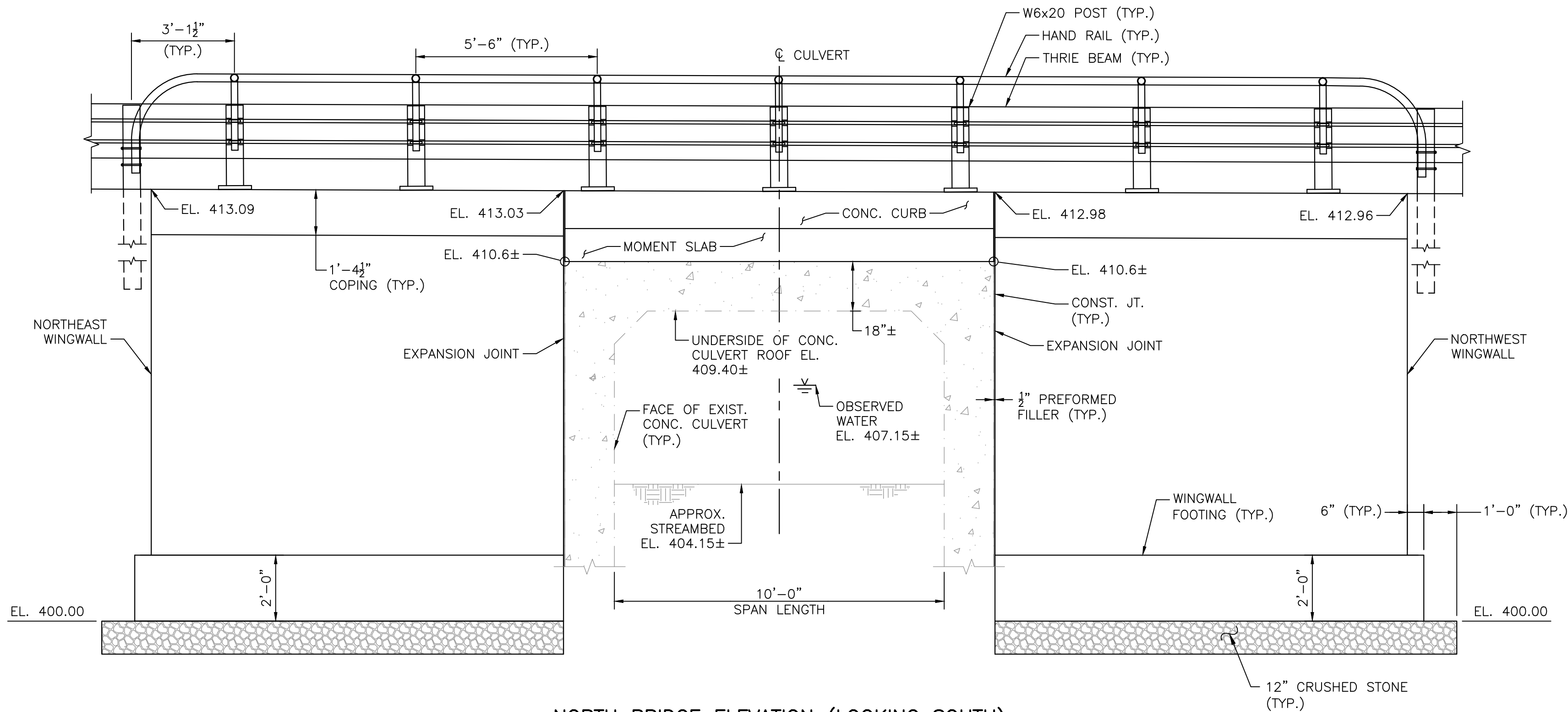
SCALE
AS SHOWN
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
Aldrich Street Bridge Improvements
Uxbridge, Massachusetts
BRIDGE COVER SHEET

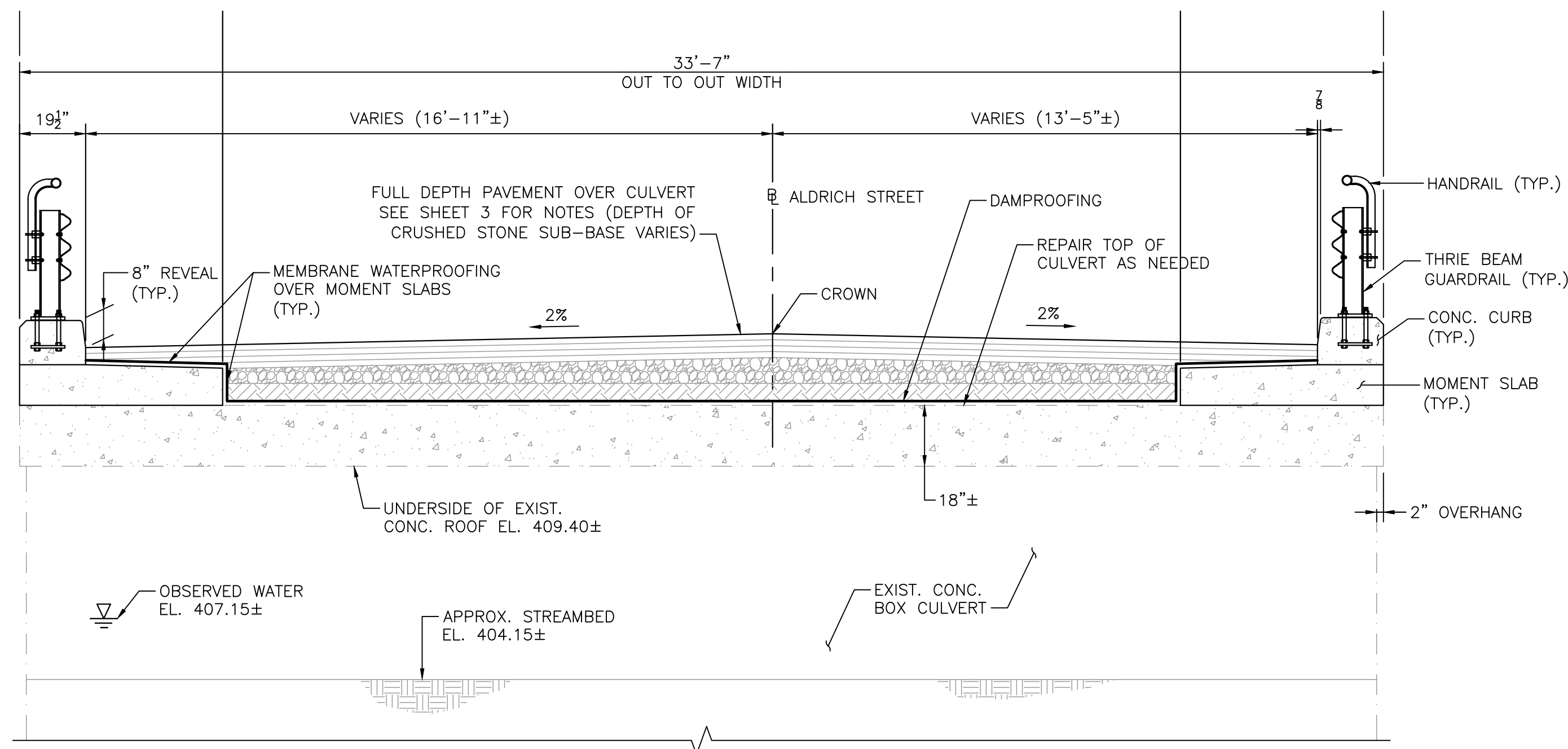
BRIDGE NO. U-02-038

BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 5

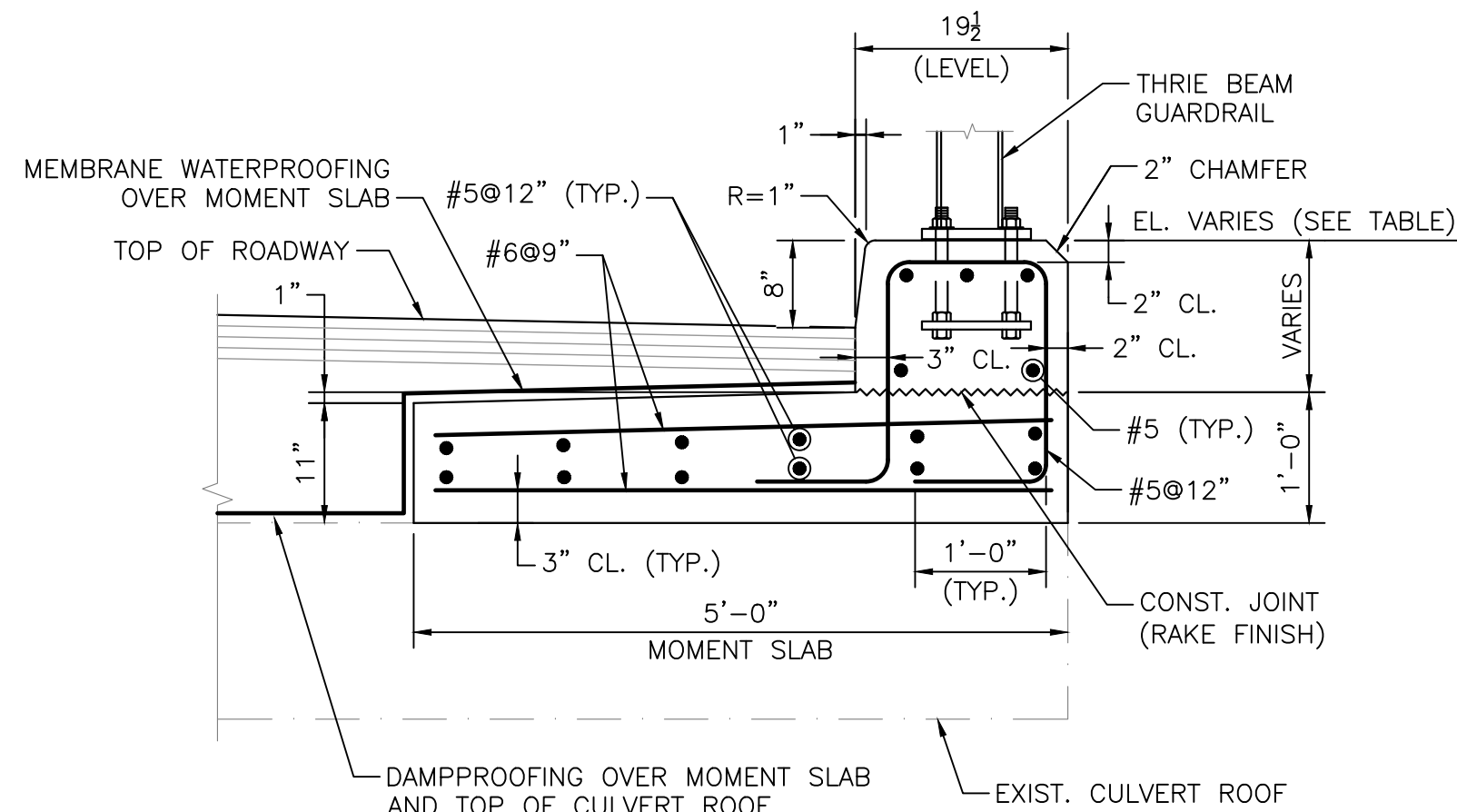
9/19/2022 3:30 PM \\BETA\INC.COM\RITRANS\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\7545_SR\STRUCTURAL\DETAILS\DWG (BETA STB BW STB)



NORTH BRIDGE ELEVATION (LOOKING SOUTH)
SCALE: 3/8" = 1'-0"

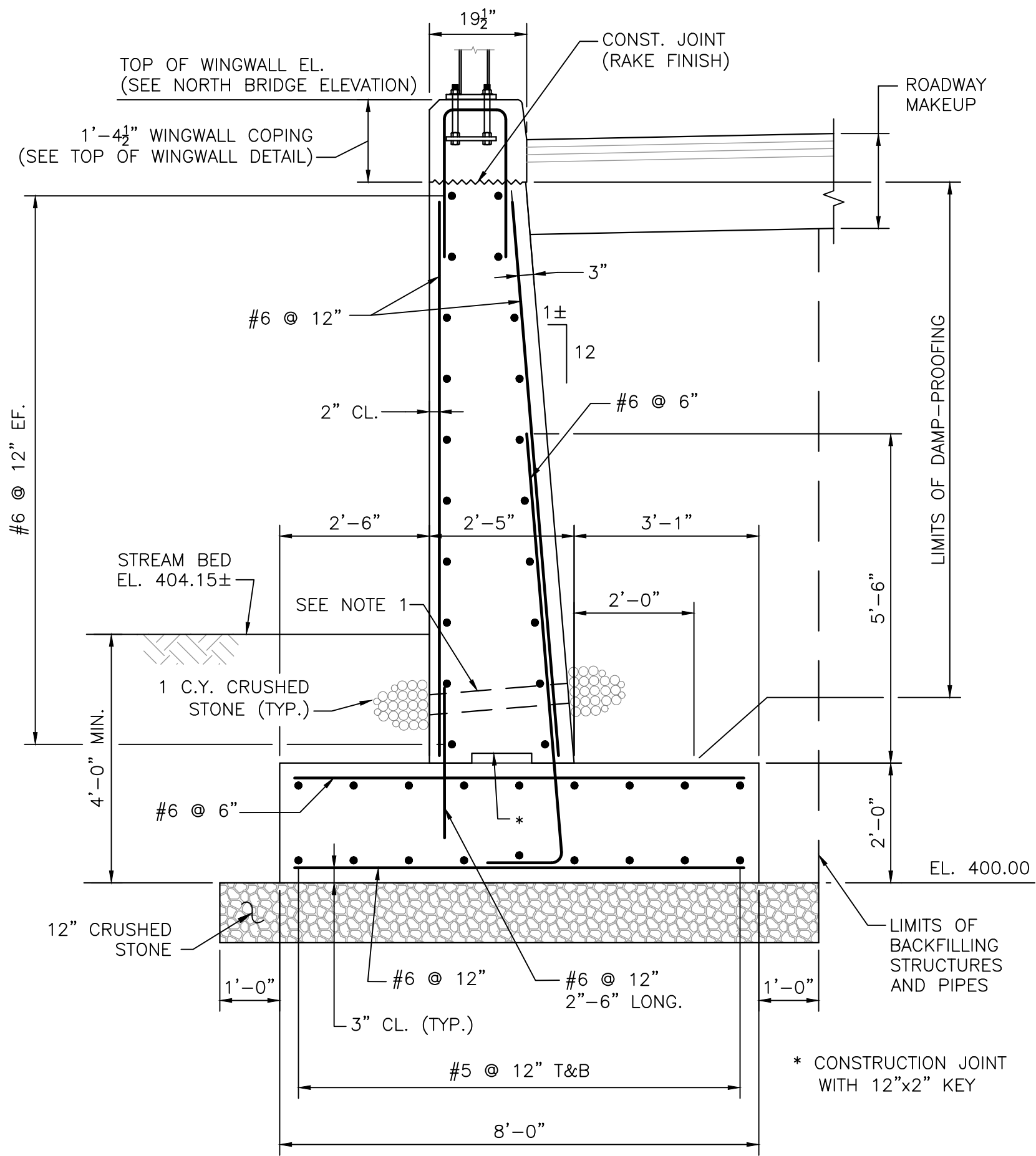


TRANSVERSE BRIDGE SECTION
SCALE: 3/8" = 1'-0"



NOTE:
ALL CONCRETE SHALL BE 5000 PSI, 3/4" IN, 685 HP CEMENT CONCRETE.

MOMENT SLAB SECTION
SCALE: 3/4" = 1'-0"



TYPICAL WINGWALL SECTION
SCALE: 1/2" = 1'-0"

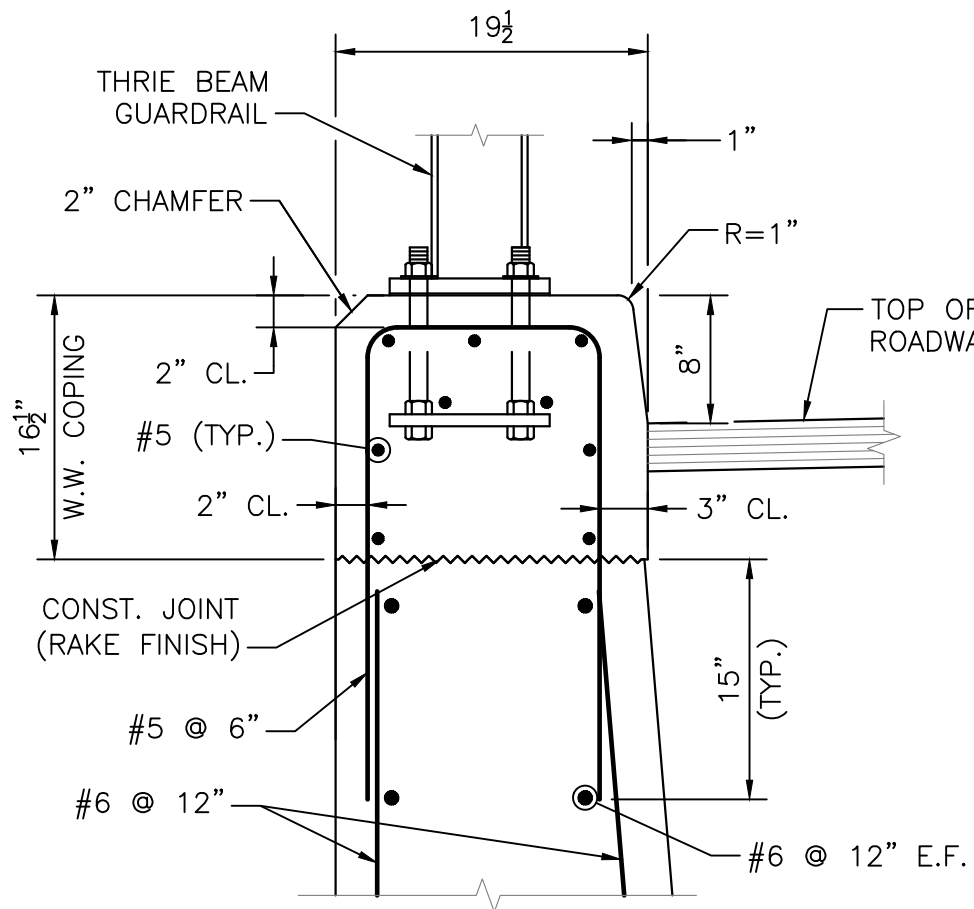
- WINGWALL NOTES:**
- 4" Ø WEEP HOLES 10'-0" O.C. LOCATED 12" ABOVE THE HEEL OF THE FOOTING, SLOPING 1" PER FOOT TOWARDS THE FRONT FACE. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF WEEP HOLE.
 - MOMENT SLAB & WINGWALL COPING CONCRETE SHALL BE 5000 PSI, 3/4" IN, 685 HP CEMENT CONCRETE.

WINGWALL STEM & FOOTING CONCRETE SHALL BE 4000 PSI, 1 1/2" IN, 565 CEMENT CONCRETE.
 - THE FACTORED BEARING PRESSURE = 1.94 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.
 - THE FACTORED BEARING RESISTANCE = 3.53 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

TOP OF MOMENT SLAB STEM ELEVATION		
LOCATION	APPROX. STATION	ELEVATION
NORTH	0+81.2	412.98
	0+94.5	413.03
SOUTH	0+81.3	413.06
	0+94.1	413.09

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MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER _____ DATE _____



TOP OF WINGWALL DETAIL
SCALE: 1" = 1'-0"

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW

REGISTERED PROFESSIONAL
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SUBCONSULTANT

SCALE
AS SHOWN

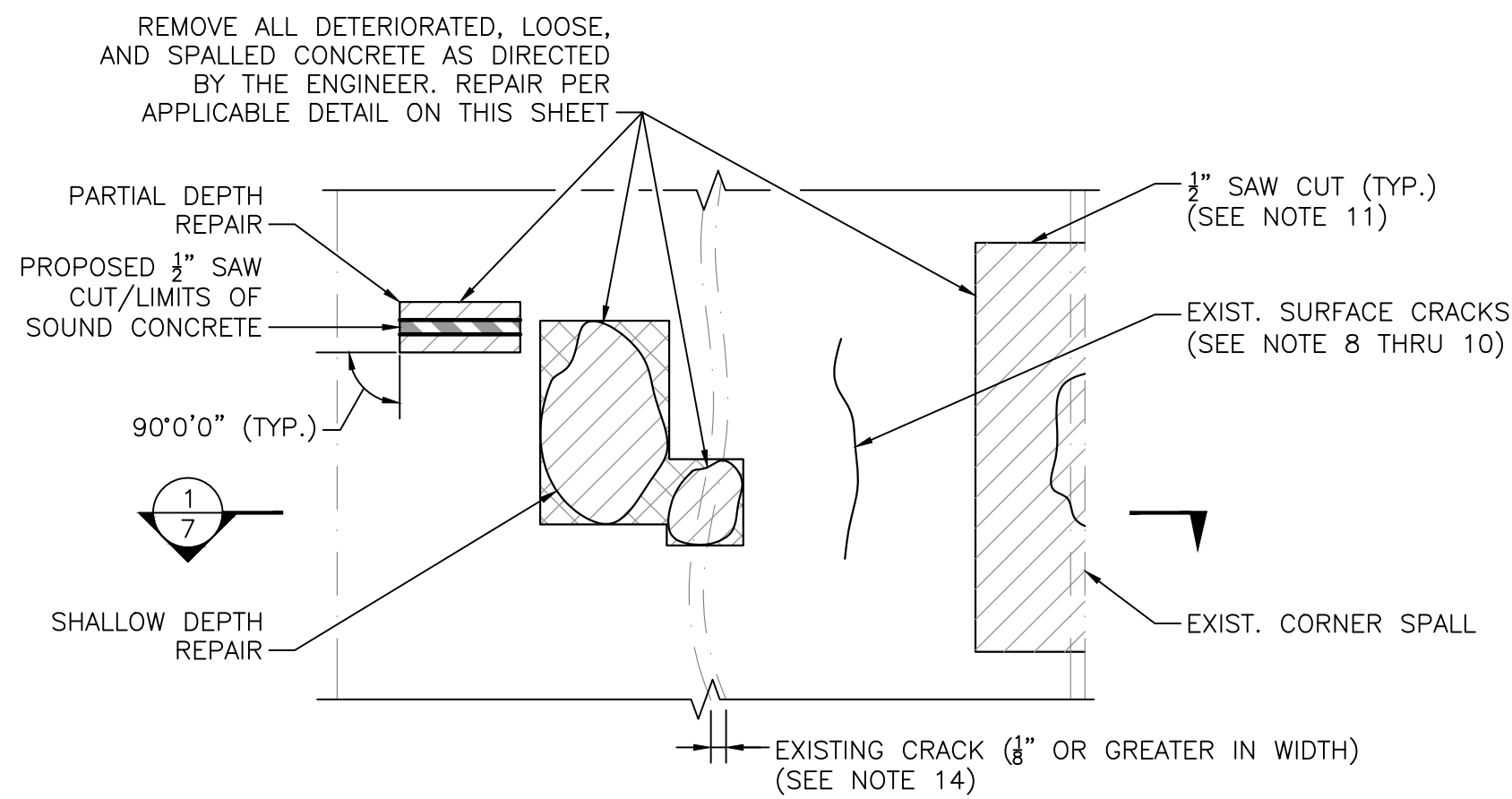
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
Aldrich Street Bridge Improvements
Uxbridge, Massachusetts
STRUCTURAL DETAILS

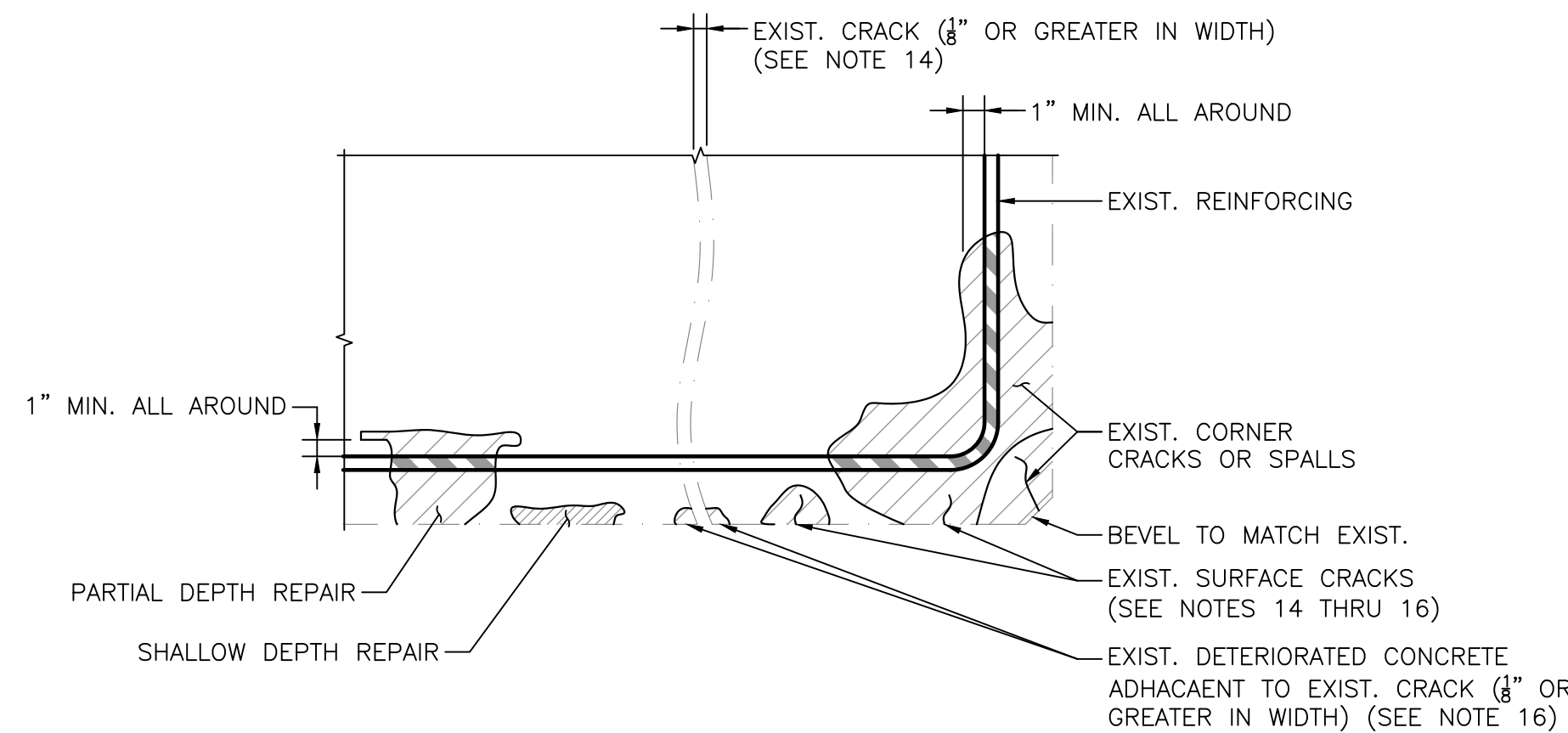
BRIDGE NO. U-02-038

BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 6

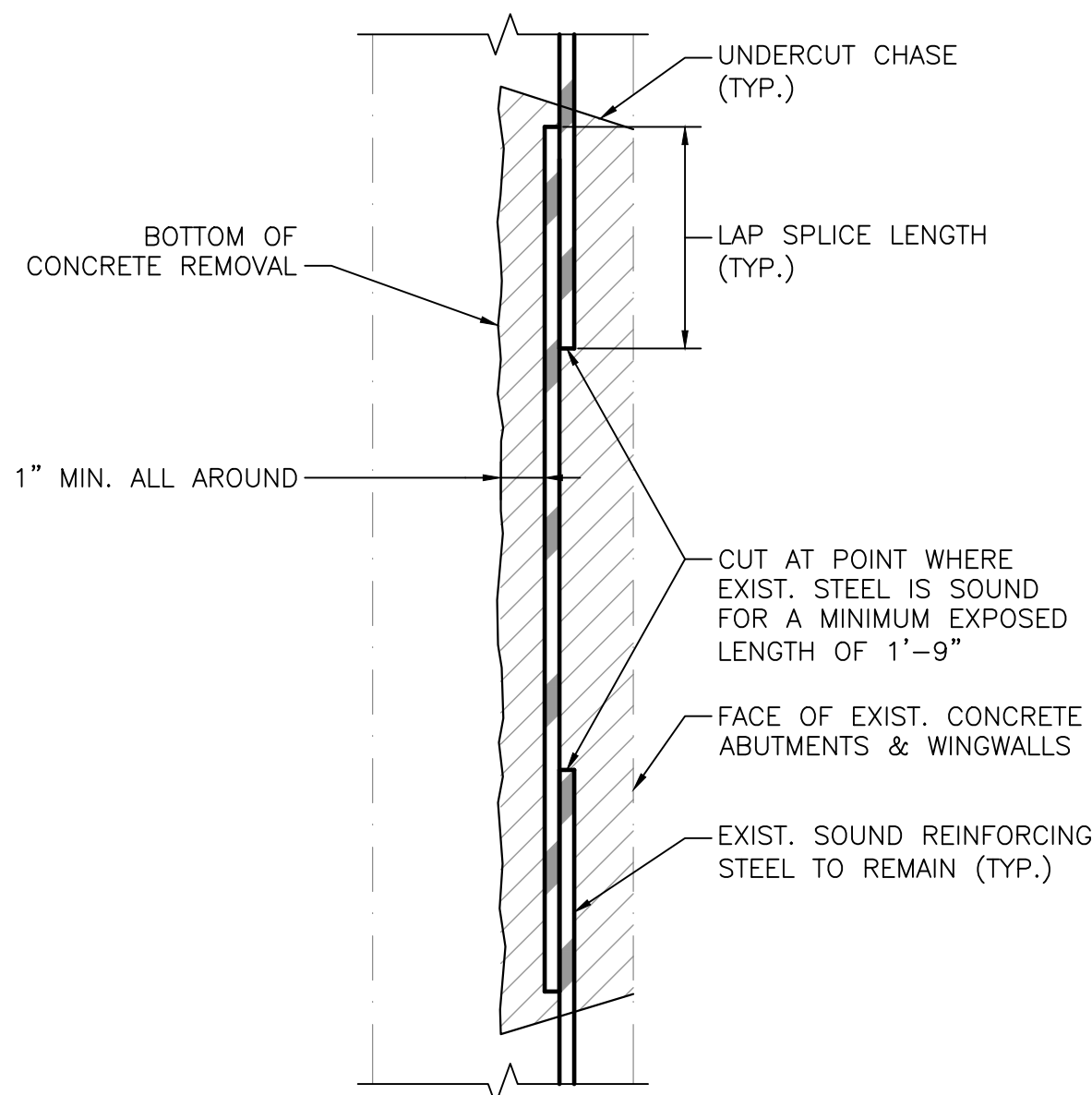
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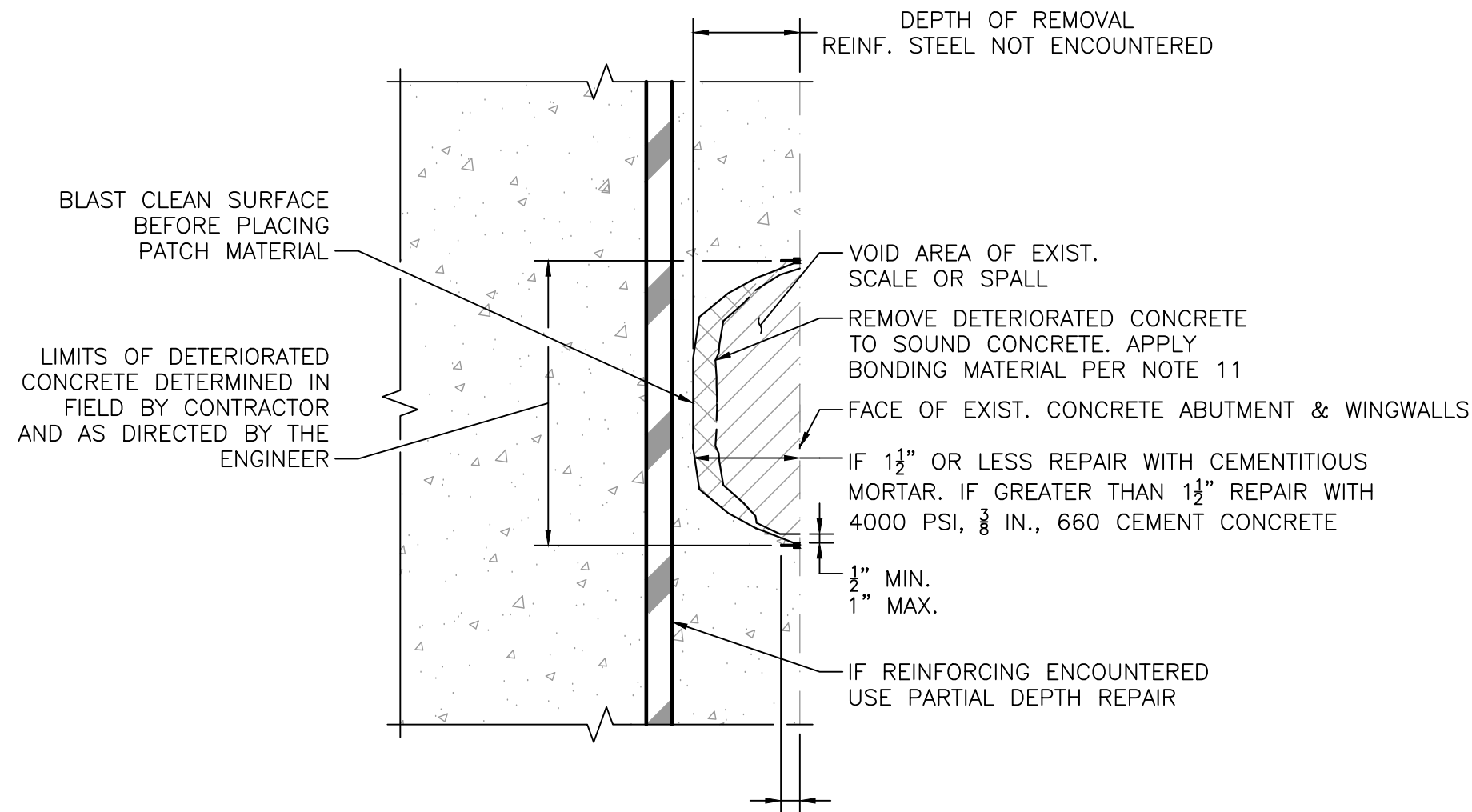
GENERAL ELEVATION
NOT TO SCALE



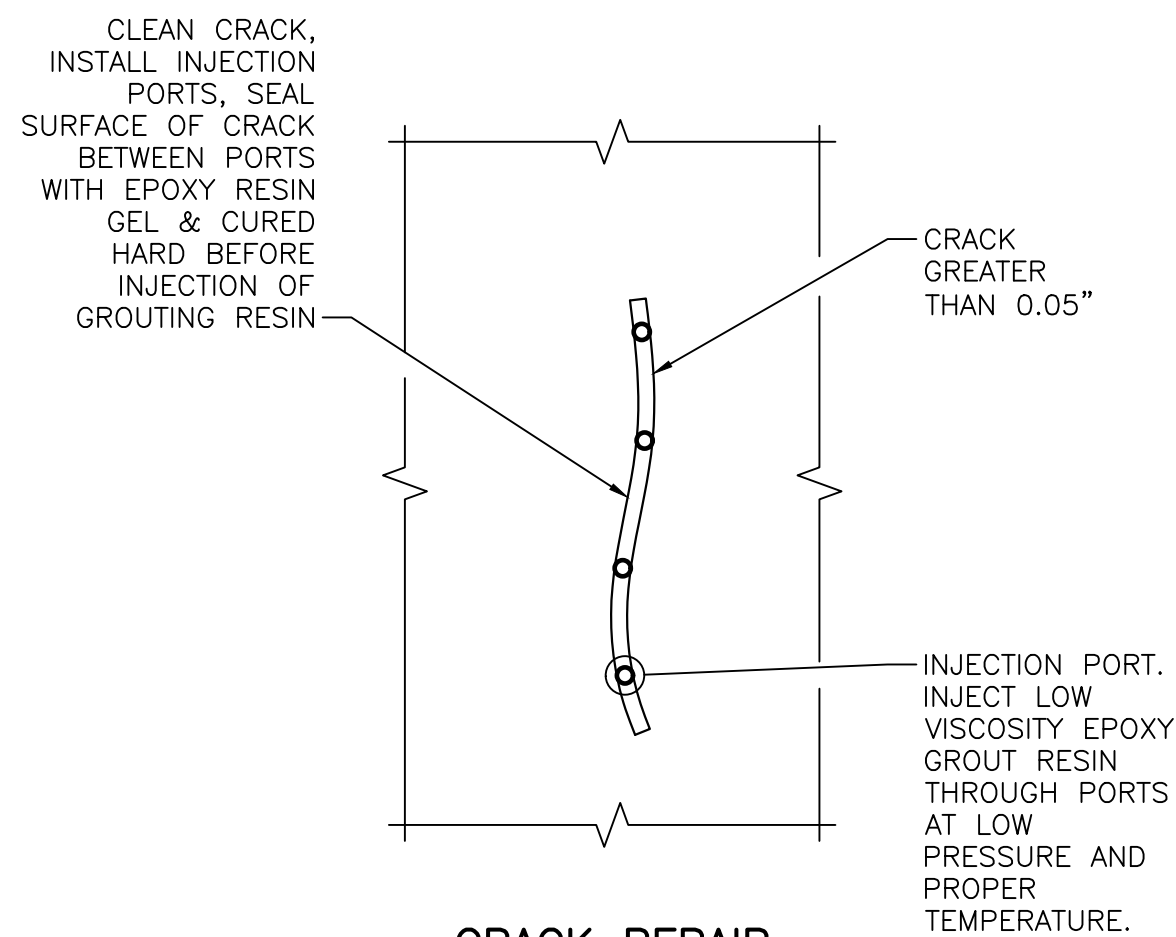
SECTION
NOT TO SCALE



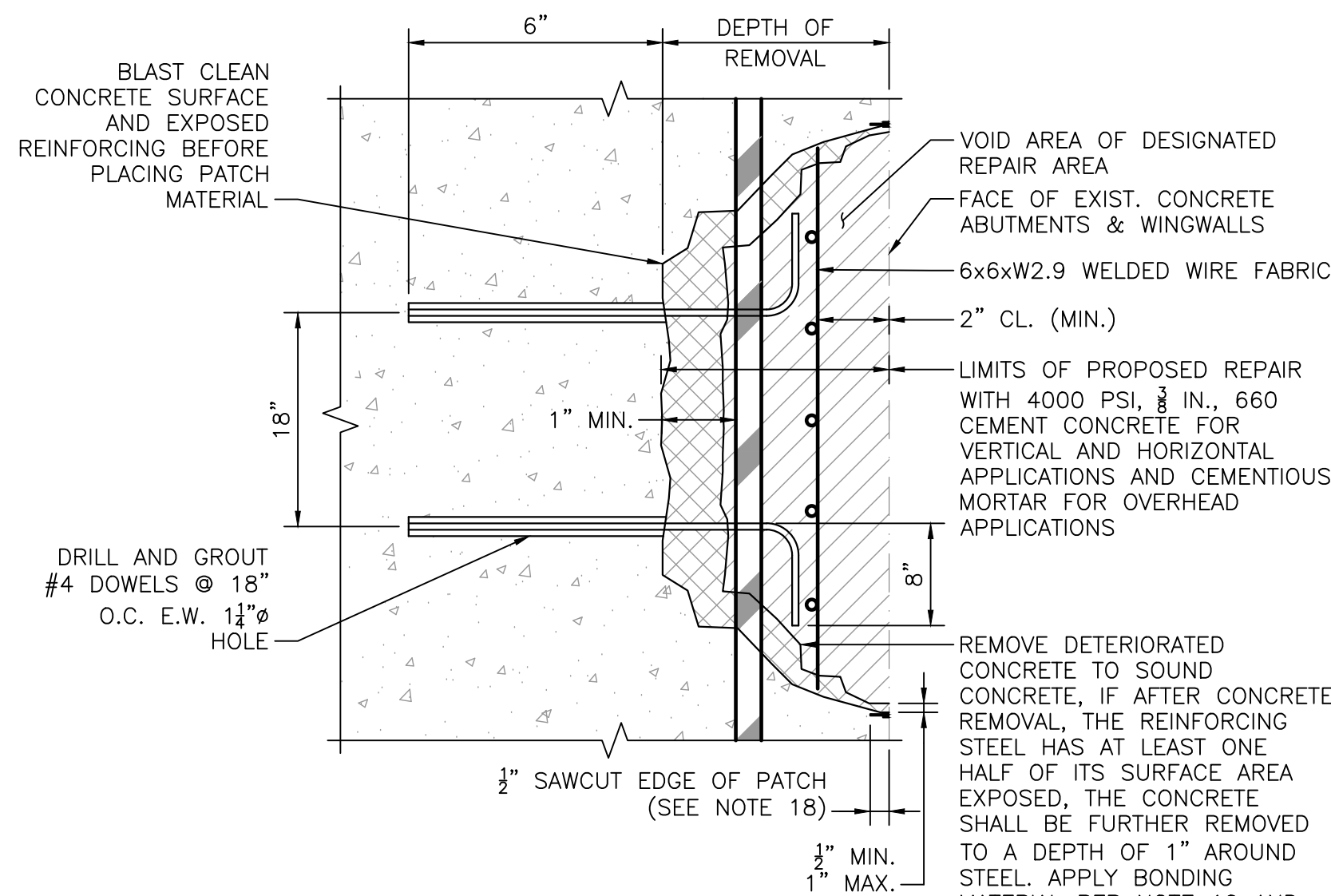
REINFORCING REPLACEMENT DETAIL
NOT TO SCALE



SHALLOW DEPTH REPAIR DETAIL
NOT TO SCALE



CRACK REPAIR
NOT TO SCALE



PARTIAL DEPTH REPAIR DETAIL
NOT TO SCALE

MASONRY REPAIR NOTES:

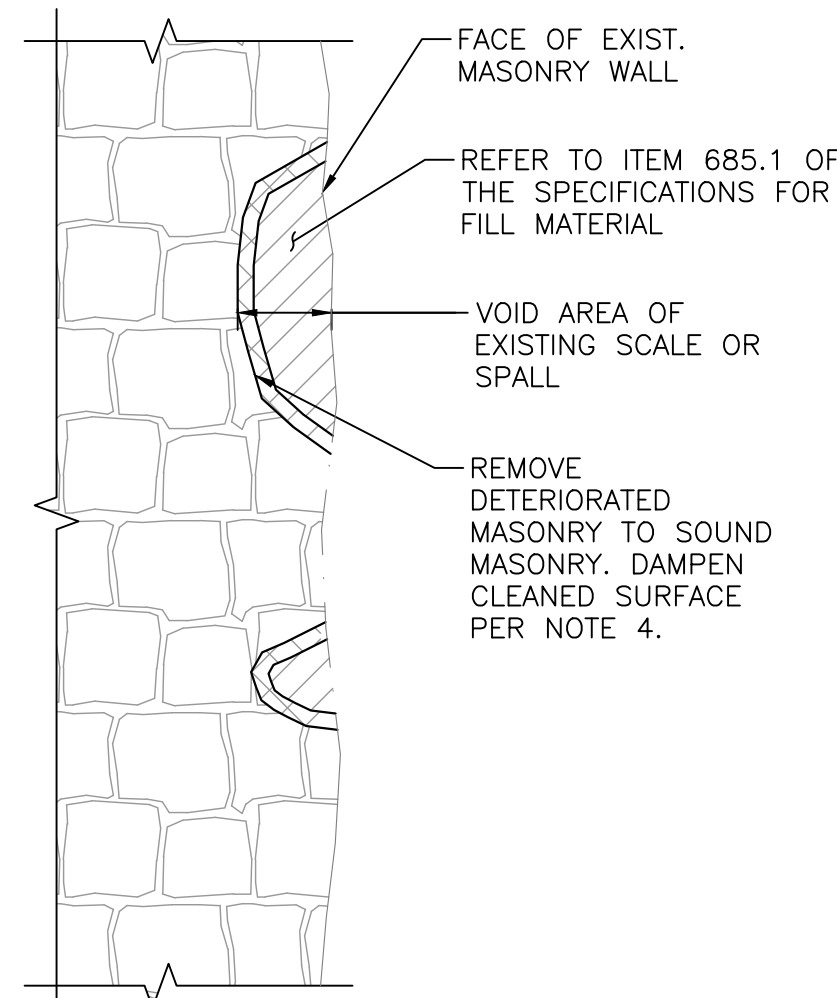
1. ANY OBJECTIONABLE CRACK SHOULD BE ANALYZED TO DETERMINE THE CAUSE AND ANY PREVIOUS CORRECTIVE MEASURES TAKEN TO PREVENT OR ACCOMMODATE THE MOVEMENT BEFORE ADDITIONAL REPAIRS ARE MADE.
2. WHERE CRACKING IS CONFINED PRIMARILY TO MORTAR JOINTS IT CAN BE READILY REPAIRED BY CONVENTIONAL TUCKPOINTING METHODS.
3. REMOVE ALL SPALLED AND UNSOUND MASONRY FROM AREA TO BE REPAIRED.
4. CLEAN SURFACE TO BE FREE OF ALL MATERIALS INCLUDING DUST, OIL, DIRT AND GREASE. DAMPEN WITH CLEAN WATER BEFORE PATCHING AND REMOVE STANDING WATER. REPAIR MORTAR SHALL BE TROWEL APPLIED TO DAMPENED SURFACE. AFTER INITIAL SET, THE MATERIAL SHALL BE TRIMMED AND SHAPED TO MATCH THE CONTOURS OF EXISTING PATCH AREA.
5. COST OF DRILLING AND GROUTING DOWELS SHALL BE CONSIDERED INCIDENTAL TO MASONRY REHABILITATION.
6. EXISTING MASONRY NEAR REPAIR LOCATIONS SHALL BE CLEANED WITH A HYDROCARBON SOLVENT TO REMOVE OIL AND GREASE. THE SURFACE SHALL THEN BE CLEANED WITH A TRISODIUM PHOSPHATE SOLUTION PRIOR TO APPLYING PAINT.
7. THE ACTUAL LOCATIONS AND EXTENT OF VARIOUS TYPES OF CONCRETE REPAIR WILL BE DETERMINED IN THE FIELD. THE CONTRACTOR SHALL REPAIR ALL AREAS DETERMINED NECESSARY AS DIRECTED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT ALL REPAIR AREAS.

CONCRETE REPAIR NOTES:

8. AREAS REQUIRING REPAIRS THAT ARE GREATER THAN 1 1/2" DEEP SHALL BE REPAIRED USING 4000 PSI, 3/8 IN., 660 CEMENT CONCRETE. AREAS LESS THAN 1 1/2" DEEP SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING.
9. IF DURING REMOVAL OF DETERIORATED CONCRETE, THE CONTRACTOR DAMAGES EXISTING REINFORCEMENT TO THE EXTENT REQUIRING REPLACEMENT, ANY ADDITIONAL CONCRETE REMOVAL, PATCHING MATERIAL, CLEANING EXISTING REINFORCING STEEL, AND FURNISHING AND INSTALLING REPLACEMENT REINFORCING STEEL SHALL BE AT THE CONTRACTOR'S EXPENSE, AND INSTALLED ACCORDING TO REINFORCING REPLACEMENT DETAIL ON THIS SHEET.
10. REINFORCEMENT, INCLUDING WELDED WIRE FABRIC, USED TO REPLACE EXISTING DETERIORATED REINFORCING STEEL (SECTION LOSS OF 15% OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER) SHALL BE EPOXY COATED. COST OF REPLACEMENT SHALL BE INCLUDED UNDER ITEM 910.1.
11. IMMEDIATELY PRIOR TO PLACING NEW CONCRETE OR MORTAR AGAINST EXISTING CONCRETE, CLEAN EXISTING SURFACES BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER CONTAINING NO DETERGENTS OR BOND INHIBITING CHEMICALS AND APPLY APPROVED BONDING COMPOUND IMMEDIATELY PRIOR TO PLACING CONCRETE.
12. ALL EXISTING SURFACES THAT WILL HAVE NEW CONCRETE CAST AGAINST IT MUST BE ROUGHENED TO A MINIMUM AMPLITUDE OF 1/4 INCH.
13. CONCRETE REPAIR WORK INCLUDES REMOVING ALL DETERIORATED, LOOSE, SPALLED, POPCORNEDED AND MAP CRACKED CONCRETE. CONCRETE WHICH HAS SPALLED OR OTHERWISE DETERIORATED ADJACENT TO SURFACE CRACK SHALL BE REPAIRED.
14. CRACKS THAT ARE .05" OR GREATER IN WIDTH SHALL BE REPAIRED BY EPOXY INJECTION CRACK REPAIR.
15. CRACKS THAT ARE LESS THAN .05" IN WIDTH SHALL NOT BE REPAIRED UNLESS DIRECTED BY THE ENGINEER.
16. WHERE PATCHING AND EPOXY INJECTION WORK ARE ADJACENT, EPOXY INJECTION SHALL BE PERFORMED BEFORE PATCHING.
17. ALL DETERIORATED AREAS SHALL BE DELINEATED BY A 1/2" SAWCUT. THE COST OF SAWCUTTING SHALL BE INCLUDED UNDER ITEM 127.12.
18. ALL EXPOSED STEEL SHALL BE THOROUGHLY BLAST CLEANED TO A WHITE METAL FINISH AND COATED WITH EPOXY IN ACCORDANCE WITH AASHTO M284 (ASTM D3963). BLAST CLEANING AND EPOXY SHALL BE INCLUDED IN THE RESPECTIVE CONCRETE REPAIR ITEM.
19. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH. NO ADDITIONAL MATERIAL SHALL BE ADDED TO CONCRETE.

LEGEND:

- DETERIORATED CONCRETE TO BE REMOVED.
- REINFORCING STEEL.
- ADDITIONAL CONCRETE TO BE REMOVED.



TYPICAL MASONRY WALL REPAIR
NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER _____ DATE _____

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW

REGISTERED PROFESSIONAL
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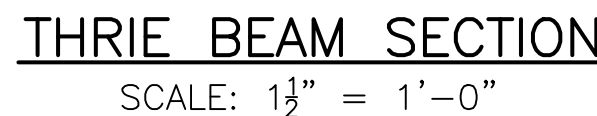


SUBCONSULTANT

SCALE
AS SHOWN

TITLE
Aldrich Street Bridge Improvements
Uxbridge, Massachusetts
CONCRETE & MASONRY REPAIR DETAILS
BRIDGE NO. U-02-038

BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 7

DISTRICT 3 BRIDGE ENGINEER DATE

SCALE: $\frac{3}{8}" = 1'-0"$



SCALE: 3" = 1'-0"



SCALE: $1\frac{1}{2}" = 1'-0"$



SCALE: $1\frac{1}{2}" = 1'-0"$



NOT TO SCALE



SCALE: $1\frac{1}{2}'' = 1'-0''$



SCALE: 3" = 1'-0"



DETAIL A

SCALE: $1\frac{1}{2}" = 1'-0"$




ANCHOR PLATE DETAIL

SCALE: $1\frac{1}{2}" = 1'-0"$



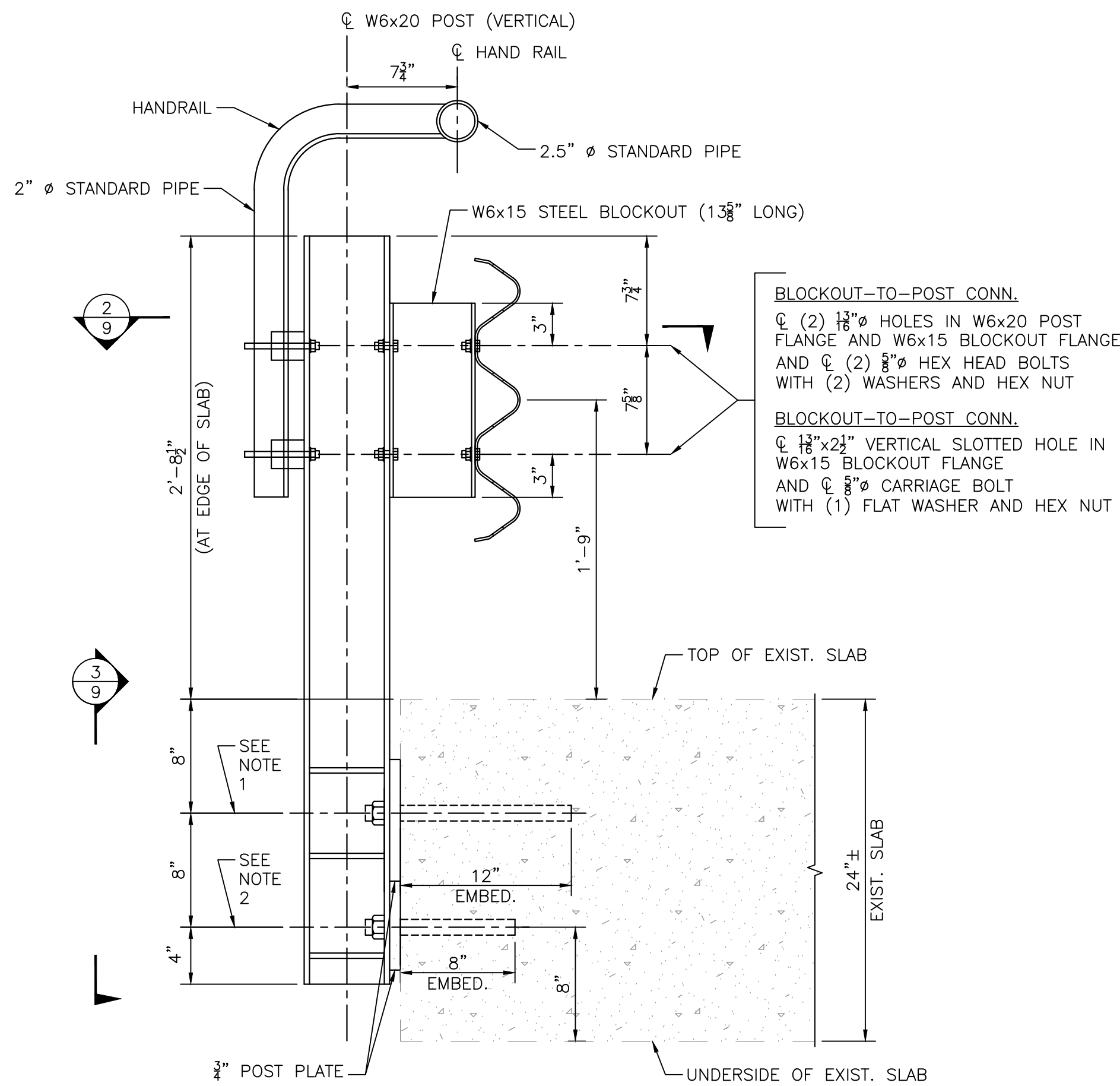
SCALE: 3" = 1'-0"

1. ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232. ALL ANCHOR RODS SHALL CONFORM TO F1554 GRADE 105 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
2. RAIL POSTS AND ANCHOR PLATES SHALL BE SEATED ON MOULDED FABRIC BEARING PADS MEETING M9.16.2 AND HAVING THE SAME DIMENSIONS AS THE PLATE. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.
3. RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION, EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEVIATE MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE $3" \times 1\frac{1}{2}"$ AND PLACED BETWEEN THE POST AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.
4. MINIMUM LENGTH OF THE THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.
5. THRIE BEAM GUARD RAIL STEEL SHALL BE GALVANIZED AND CONFORM TO THE AASHTO M180, CLASS B, TYPE IV AND SHALL BE 10 GAGE THICK. USE OF 12 GAGE THICK THRIE BEAM IS EXPRESSLY FORBIDDEN.
6. POSTS, ANCHOR PLATES, BASE PLATES SHALL BE FABRICATED FROM STEEL CONFORMING TO AASHTO M270M GR. 250 STEEL AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
7. SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. (ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)
8. HAND RAIL STEEL SHALL CONFORM TO ASTM A53 GR. B OR A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
9. PLACE A REFLECTORIZED WASHER IN THE UPPER VALLEY OF THRIE BEAM EVERY THIRD POST.
10. HAND RAIL SHALL BE SPICED OVER JOINTS IN COPING.

					DRAWN BY: BN DESIGNED BY: TW CHECKED BY: TW	REGISTERED PROFESSIONAL <div style="text-align: center;"> For Review Only </div>	PREPARED BY:  www.BETA-Inc.com	SUBCONSULTANT	SCALE <div style="text-align: center;">AS SHOWN</div>	TITLE <div style="text-align: center;"> Carney Street Bridge Improvements Uxbridge, Massachusetts THRIE BEAM DETAILS (1 OF 2) </div>	BETA JOB NO. <u>7545</u> ISSUE DATE _____ SHEET NO. <u>8</u>
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS							

9/19/2022 3:31 PM \\BETA-INC.COM\IT\TRANS\7500\S\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\7545 SR\THIRIEBAMD\T\5\OF2) - CARNEY.DWG (BETA STB BW.STB)

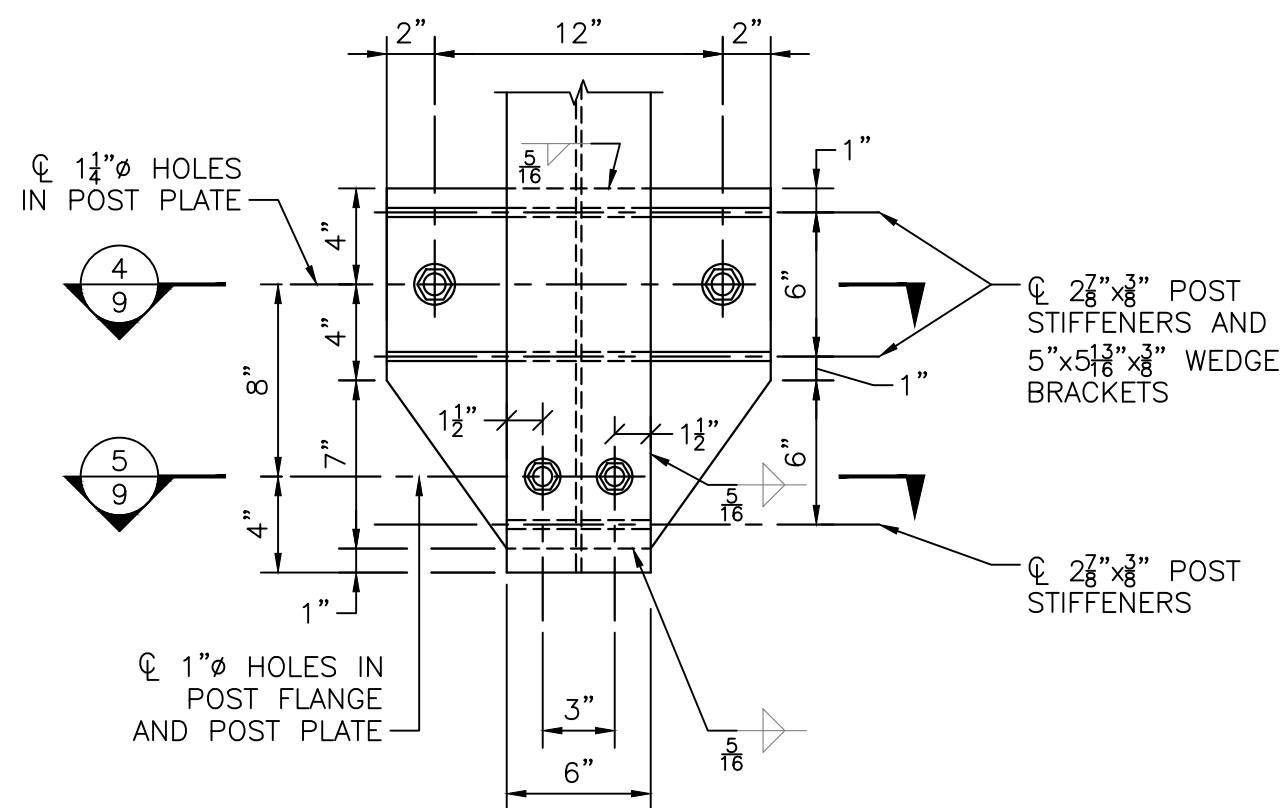
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- NOTES:
1. \varnothing TWO RESIN ANCHOR SYSTEM EACH WITH A MINIMUM ULTIMATE PULLOUT STRENGTH OF 72 KIP AND EACH TO INCLUDE:
 - $1\frac{1}{2}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER
 - $1\frac{1}{2}$ " HOLE IN POST PLATE AND INSIDE POST FLANGE
 - 1" ASTM A449 TYPE 1 THREADED ROD SNUG TIGHT AND EMBEDDED 12" IN SLAB
 - HEX NUT AND $2\frac{1}{2}$ " HARDENED LOCKING WASHER
 2. \varnothing TWO RESIN ANCHOR SYSTEM EACH WITH A MINIMUM ULTIMATE PULLOUT STRENGTH OF 20.4 KIP AND EACH TO INCLUDE:
 - $\frac{3}{4}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER
 - 1" HOLE IN POST PLATE AND INSIDE POST FLANGE
 - $\frac{3}{4}$ " ASTM A449 TYPE 1 THREADED ROD SNUG TIGHT AND EMBEDDED 8" IN SLAB
 - HEX NUT AND HARDENED LOCKING WASHER

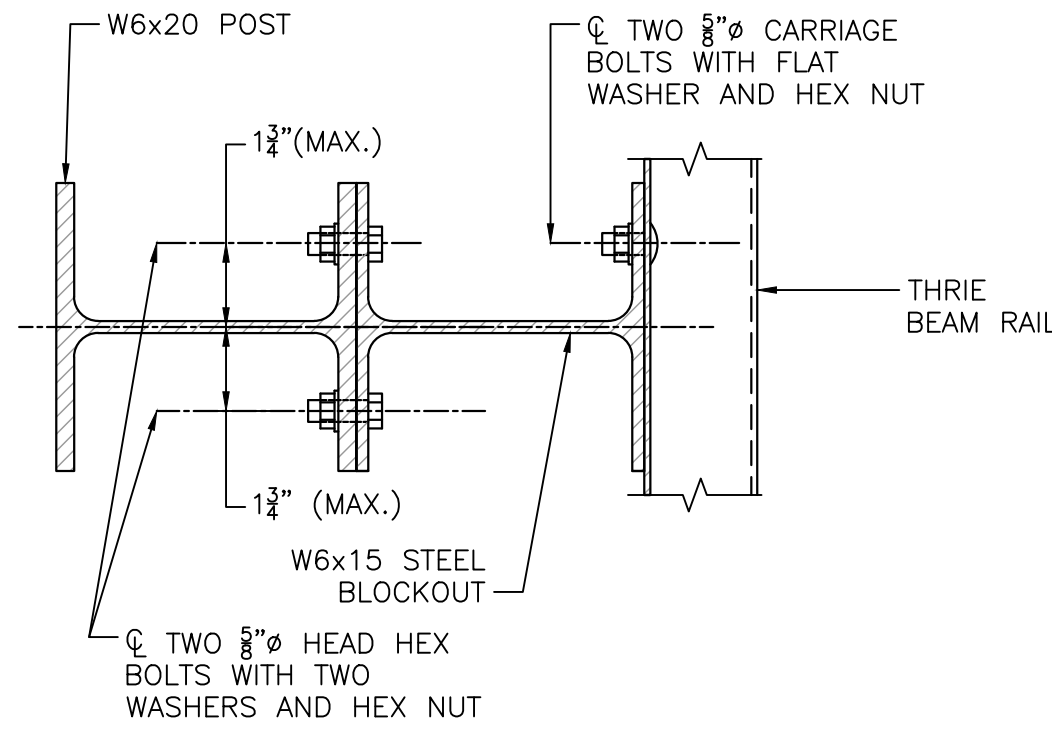
SECTION AT RAIL POST

SCALE: $1\frac{1}{2}$ " = 1'-0"



POST PLATE DETAIL

SCALE: $1\frac{1}{2}$ " = 1'-0"

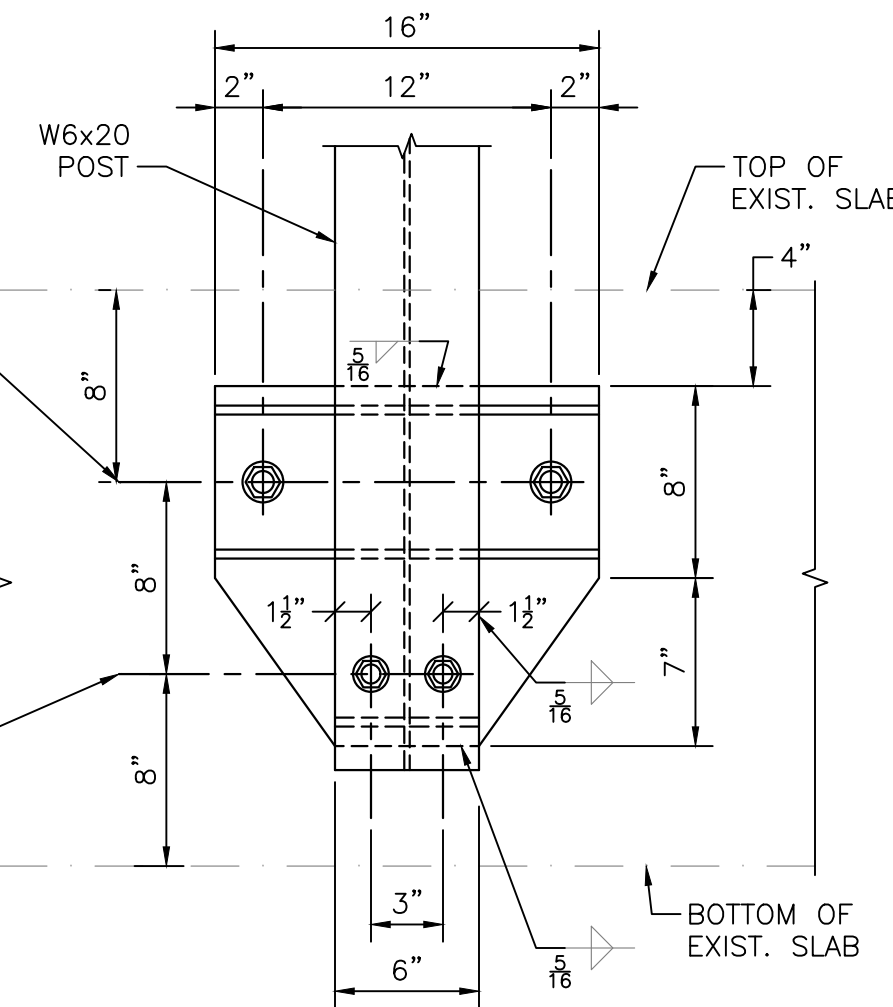


SECTION 2

SCALE: 3" = 1'-0"

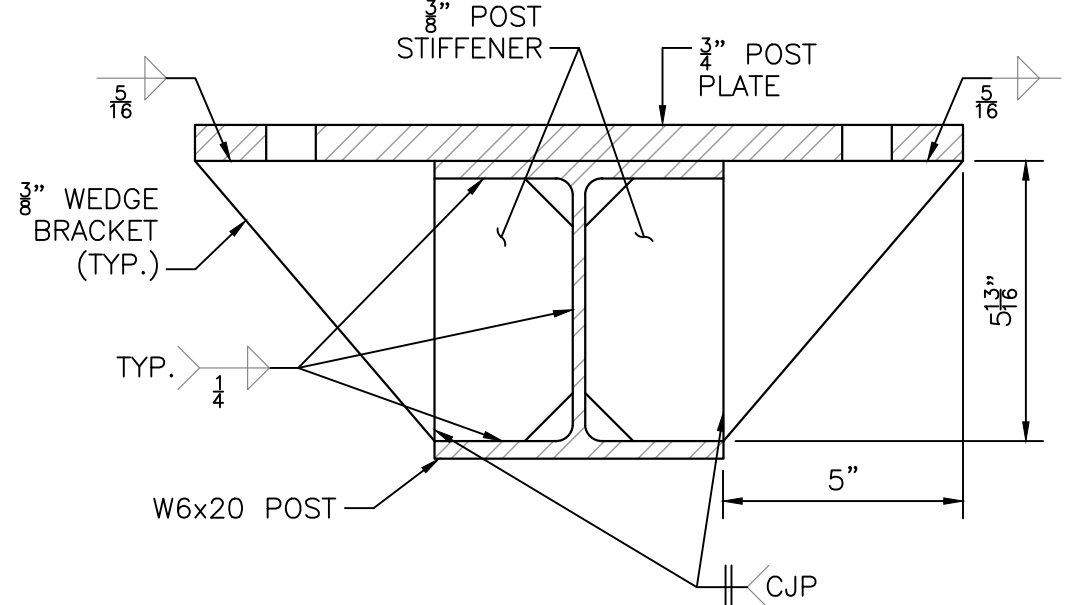
- \varnothing RESIN ANCHOR SYSTEMS:
- $1\frac{1}{2}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER
 - 1" ASTM A449 TYPE 1 THREADED ROD SNUG TIGHT & EMBEDDED 12" IN SLAB
 - $2\frac{1}{2}$ " HARDENED LOCKING WASHER AND HEX NUT

- \varnothing RESIN ANCHOR SYSTEMS:
- $\frac{3}{4}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER
 - $\frac{3}{4}$ " ASTM 449 TYPE 1 THREADED ROD SNUG TIGHT & EMBEDDED 8" IN SLAB
 - HARDENED LOCKING WASHER AND HEX NUT



SECTION 3

SCALE: $1\frac{1}{2}$ " = 1'-0"

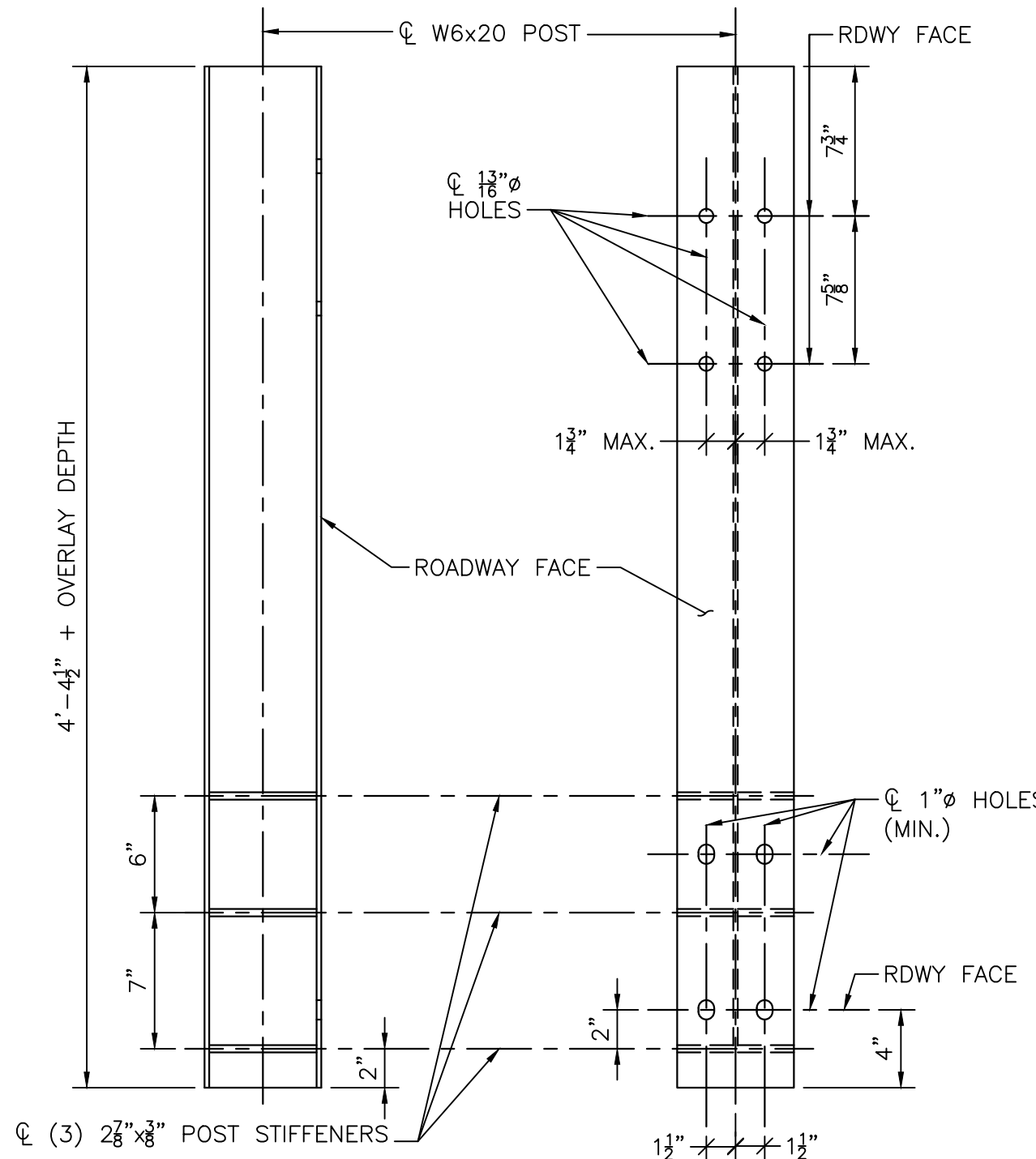


SECTION 4

SCALE: 3" = 1'-0"

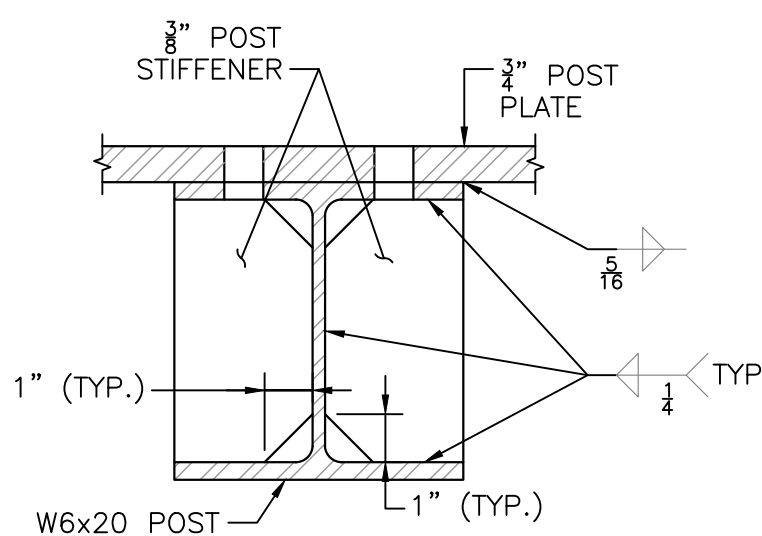
GENERAL NOTE:

1. REFER TO SHEET 8 FOR HAND RAIL DETAILS NOT SHOWN HERE.



DETAILS OF POST

SCALE: $1\frac{1}{2}$ " = 1'-0"



SECTION 5

SCALE: 3" = 1'-0"

COMMONWEALTH OF MASSACHUSETTS
MassDOT, Highway Division
APPROVED UNDER PROVISIONS OF
MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER

DATE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS	

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DESIGNED BY:	TW
CHECKED BY:	TW

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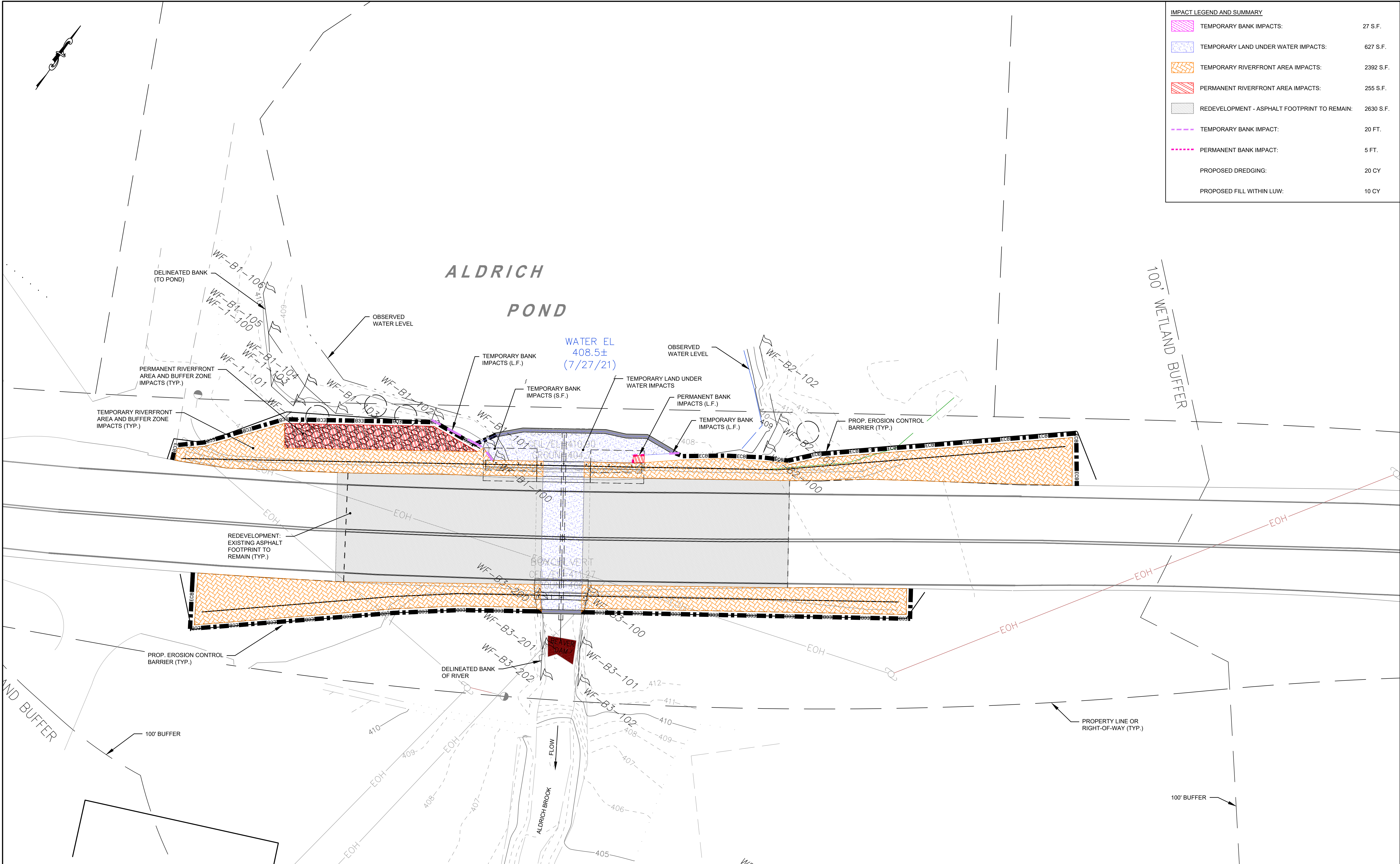
SUBCONSULTANT

SCALE
AS SHOWN

TITLE	Carney Street Bridge Improvements Uxbridge, Massachusetts THRIE BEAM DETAILS (2 OF 2)
BRIDGE NO.	U-02-070

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	9

9/19/2022 3:33 PM \\BETA\INC.COM\PROJECTS\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANSET\7545 IMPACT PLAN - ALDRICH.DWG (BETA STB.BW.STB)



IMPACT LEGEND AND SUMMARY		
	TEMPORARY BANK IMPACTS:	27 S.F.
	TEMPORARY LAND UNDER WATER IMPACTS:	627 S.F.
	TEMPORARY RIVERFRONT AREA IMPACTS:	2392 S.F.
	PERMANENT RIVERFRONT AREA IMPACTS:	255 S.F.
	REDEVELOPMENT - ASPHALT FOOTPRINT TO REMAIN:	2630 S.F.
	TEMPORARY BANK IMPACT:	20 FT.
	PERMANENT BANK IMPACT:	5 FT.
	PROPOSED DREDGING:	20 CY
	PROPOSED FILL WITHIN LUW:	10 CY

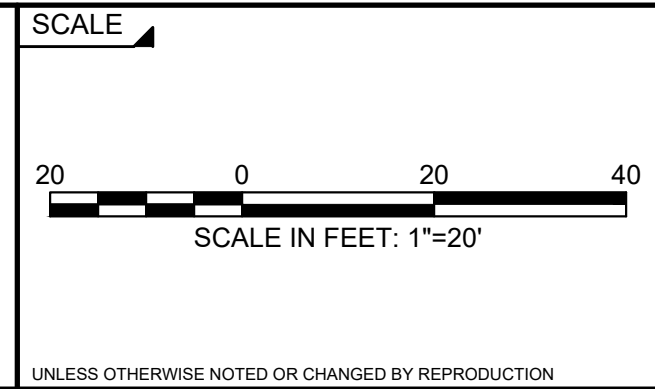
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	MC
DESIGNED BY:	MC
CHECKED BY:	LK

REGISTERED PROFESSIONAL
For Review Only



SUBCONSULTANT



Aldrich Street Bridge Improvements
Uxbridge, Massachusetts
RESOURCE IMPACTS PLAN

BRIDGE NO. U-02-038

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	11