

# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT

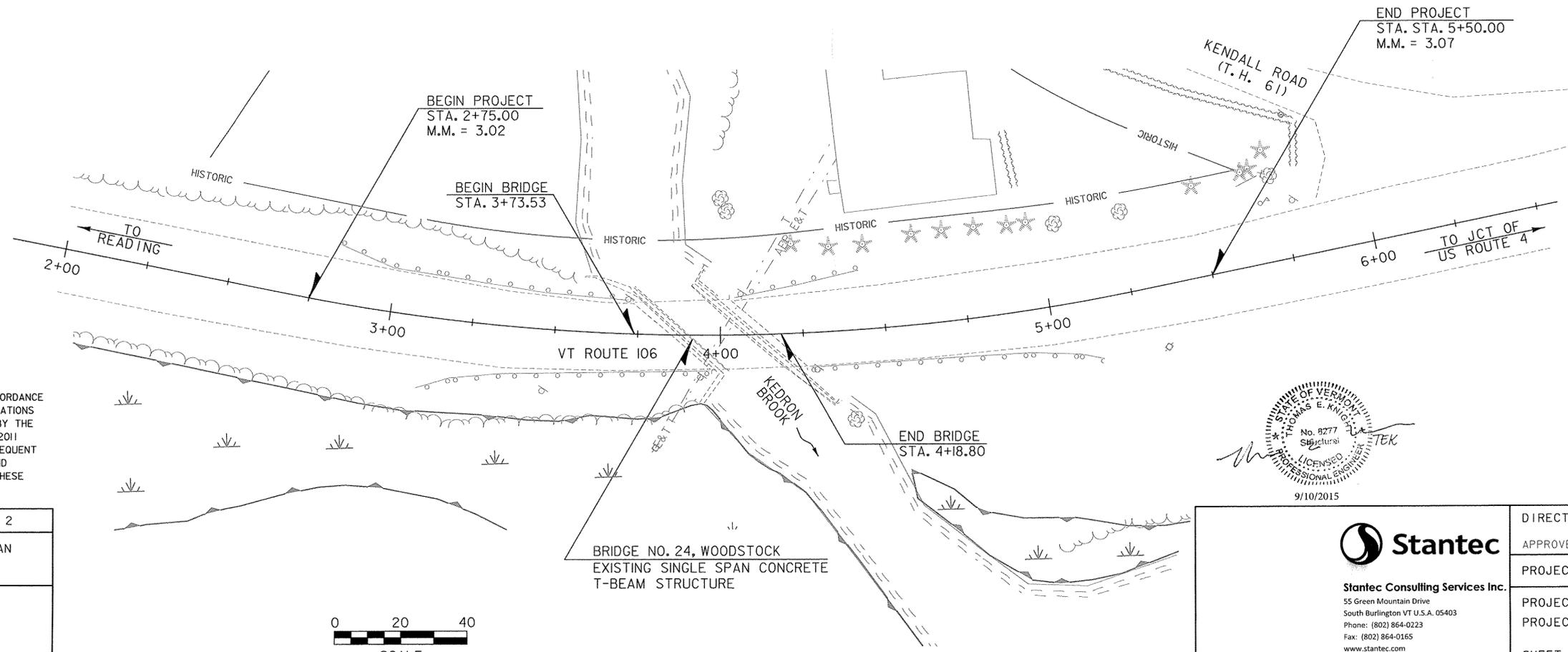
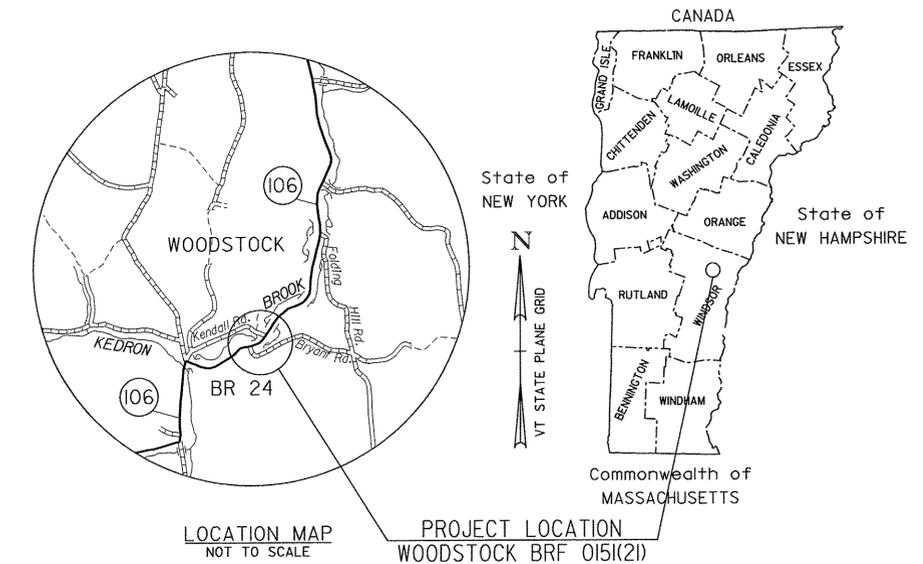
### BRIDGE PROJECT TOWN OF WOODSTOCK COUNTY OF WINDSOR

### VERMONT ROUTE 106 (MAJOR COLLECTOR RURAL) BRIDGE NO. 24

**PROJECT LOCATION:** IN THE TOWN OF WOODSTOCK, VERMONT ROUTE 106 APPROXIMATELY 200 FT SOUTH OF THE INTERSECTION WITH T.H. 61 (KENDALL ROAD) AT MILE MARKER 3.04.

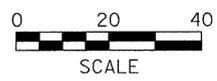
**PROJECT DESCRIPTION:** REPLACEMENT OF EXISTING BRIDGE WITH A PRECAST CONCRETE STRUCTURE ALONG WITH RELATED ROADWAY AND CHANNEL WORK.

LENGTH OF BRIDGE: 45.27 FEET = 0.008 MILES  
 LENGTH OF ROADWAY: 229.73 FEET = 0.044 MILES  
 LENGTH OF PROJECT: 275.00 FEET = 0.052 MILES



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY : VTRANS, R. GILMAN	
SURVEYED DATE : 04/28/2011	
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (92)



STATE OF VERMONT  
THOMAS E. KANE  
No. 8277  
9/10/2015  
LICENSED PROFESSIONAL ENGINEER  
TEK

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DIRECTOR OF PROJECT DELIVERY	
APPROVED <i>[Signature]</i>	DATE 9/10/2015
PROJECT MANAGER : R. YOUNG, P.E.	
PROJECT NAME : WOODSTOCK	
PROJECT NUMBER : BR# 0151 (21)	
SHEET 1 OF 50 SHEETS	

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FINAL HYDRAULIC REPORT

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STANDARDS LIST

E-119	UTILITY WORK ZONE	03-01-2004
E-121	STANDARD PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1BM	BOX BEAM GUARDRAIL	06-13-1997
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	02-10-2014
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS AND CONSTRUCTION APPROACH SIGNING	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

STRUCTURES DETAILS

SD-501.00	CONCRETE DETAILS AND NOTES	02-09-2012
SD-502.00	CONCRETE DETAILS AND NOTES	10-10-2012
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	08-29-2011

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2014	1500	170	66	5.1	90	20 year ESAL for flexible pavement from 2014 to 2034 : 382000
2034	1600	180	66	7.7	150	40 year ESAL for flexible pavement from 2014 to 2054 : 874000
						Design Speed : 40 mph

AS BUILT "REBAR" DETAIL		
LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

HYDROLOGIC DATA

Date: March 2015

DRAINAGE AREA : 8.4 sq. mi.  
 CHARACTER OF TERRAIN : Hilly to mountainous, 80% forested and 20% open  
 STREAM CHARACTERISTICS : Straight to sinuous, steep river. Probably incised and alluvial.  
 NATURE OF STREAMBED : Gravel, cobbles, some boulders and sand

PEAK FLOW DATA

Q 2.33 =	500 cfs	Q 50 =	1700 cfs
Q 10 =	950 cfs	Q 100 =	2075 cfs
Q 25 =	1350 cfs	Q 500 =	3400 cfs

DATE OF FLOOD OF RECORD : Unknown  
 ESTIMATED DISCHARGE : Unknown  
 WATER SURFACE ELEV. : Unknown  
 NATURAL STREAM VELOCITY : @ Q50 = 6.1 fps  
 ICE CONDITIONS : Moderate  
 DEBRIS : Moderate  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes  
 IS ORDINARY RISE RAPID? Yes  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No  
 IF YES, DESCRIBE:

WATERSHED STORAGE: 1% HEADWATERS:  
 UNIFORM: X  
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Concrete T-Beam bridge  
 YEAR BUILT: 1924  
 CLEAR SPAN(NORMAL TO STREAM): 14'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 8' (Ave. low beam elev. 980.6')  
 WATERWAY OF FULL OPENING: 110 sq. ft.  
 DISPOSITION OF STRUCTURE: Remove and replace  
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	978.3'	VELOCITY =	10.9 fps
Q10 =	981.3'	"	15.9 fps
Q25 =	983.6'	"	18.4 fps
Q50 =	985.5'	"	20.2 fps
Q100 =	988.0'	"	20.8 fps

LONG TERM STREAMBED CHANGES: There is a scour hole through the bridge area.  
 The bridge footings have been undermined due to scour and/or channel degradation.

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 983.3'  
 DISCHARGE OVER ROAD @Q100: 0 cfs

UPSTREAM STRUCTURE

TOWN: Woodstock DISTANCE: 3,900'  
 HIGHWAY #: VT 106 STRUCTURE #: 23  
 CLEAR SPAN: 30' CLEAR HEIGHT: 13'  
 YEAR BUILT: 1950 FULL WATERWAY: 260 sq. ft.  
 STRUCTURE TYPE: Concrete rigid frame

DOWNSTREAM STRUCTURE

TOWN: Woodstock DISTANCE: 500'  
 HIGHWAY #: VT 106 STRUCTURE #: 25  
 CLEAR SPAN: 18' CLEAR HEIGHT: 10'  
 YEAR BUILT: 1934 FULL WATERWAY: 180 sq. ft.  
 STRUCTURE TYPE: Concrete slab bridge

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

\* REFER TO MICROPILE FOUNDATION NOTES ON SHEET 5

PROPOSED STRUCTURE

STRUCTURE TYPE: Rigid Frame Bridge  
 CLEAR SPAN(NORMAL TO STREAM): 30'  
 VERTICAL CLEARANCE ABOVE STREAMBED: 9'  
 WATERWAY OF FULL OPENING: 246 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	977.0'	VELOCITY=	8.0 fps
Q10 =	978.7'	"	9.4 fps
Q25 =	980.2'	"	11.4 fps
Q50 =	981.3'	"	11.5 fps
Q100 =	982.5'	"	13.8 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No  
 FREQUENCY: Above Q100  
 RELIEF ELEVATION: 983.3'  
 DISCHARGE OVER ROAD @Q100: 0 cfs

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 982.3'  
 VERTICAL CLEARANCE: @ Q50 = 1.0'

SCOUR: Long term and contraction scour up to Q200 (scour design check flood) = 5'.  
 Piles should be designed to be freestanding to elevation 964.0'.  
 REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 20 cfs DEPTH OR ELEVATION:  
 ORDINARY LOW WATER: 10 cfs Depth = 1'  
 ORDINARY HIGH WATER: 225 cfs Depth = 2'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Temporary bridge not required.  
 CLEAR SPAN (NORMAL TO STREAM):  
 VERTICAL CLEARANCE ABOVE STREAMBED:  
 WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

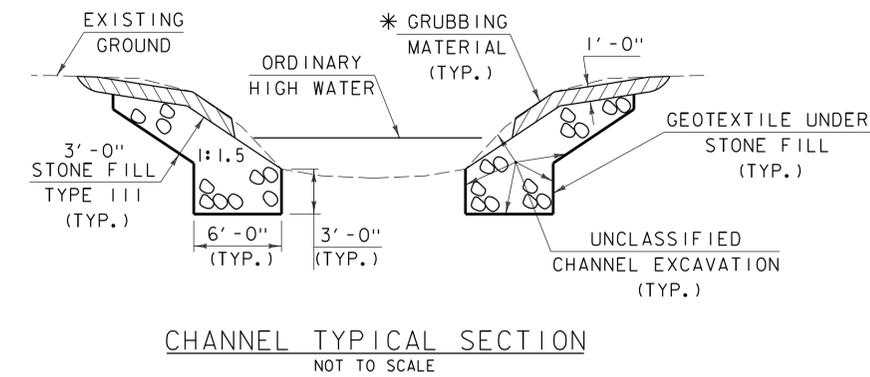
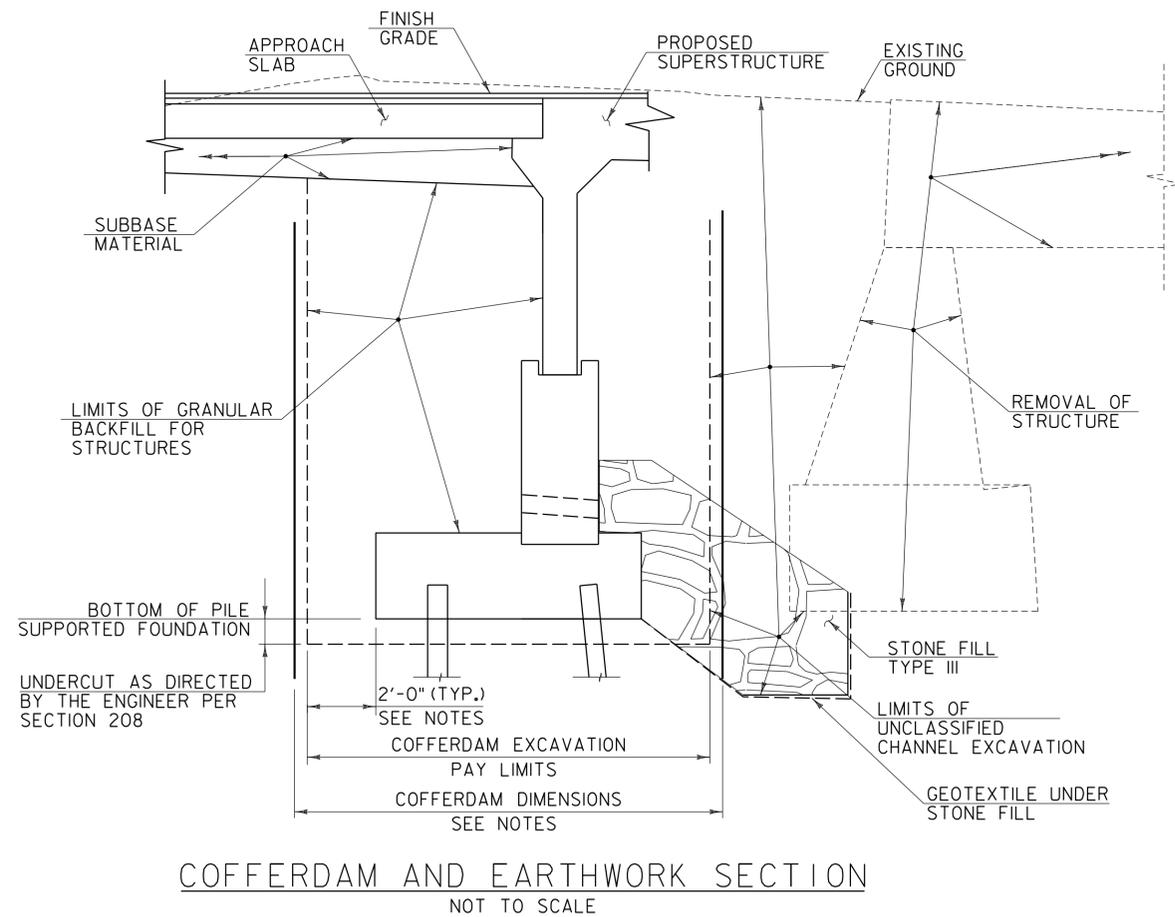
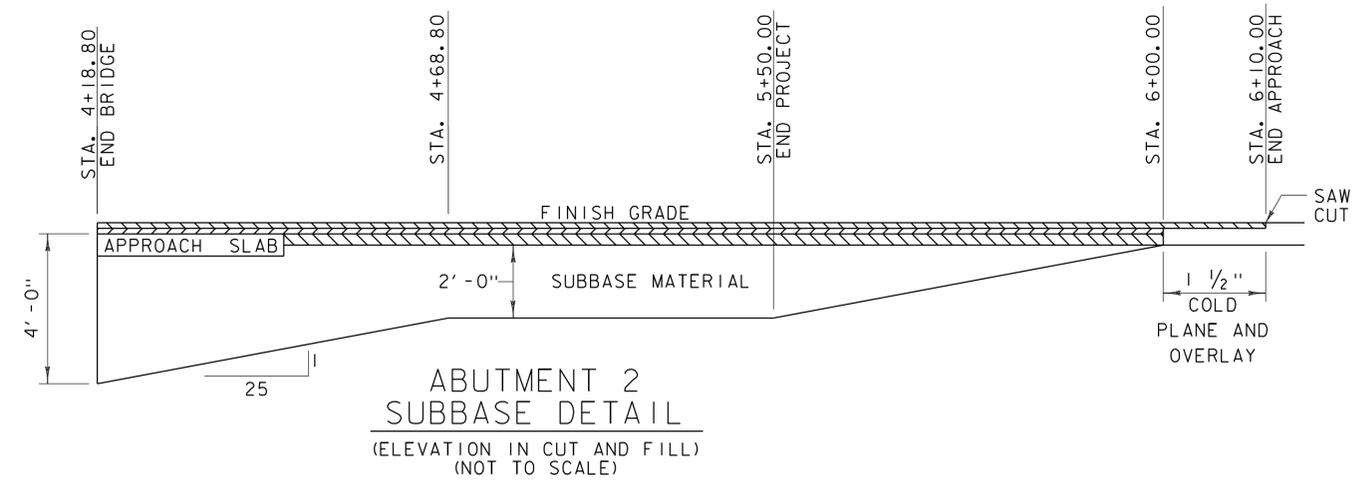
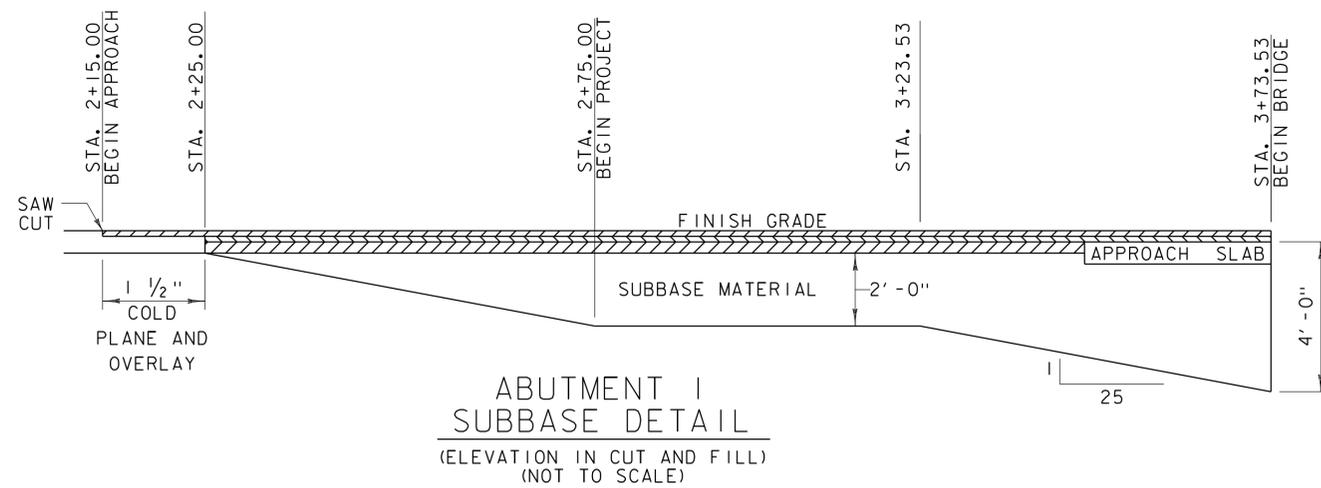
1. MAINTAIN ONE WAY TRAFFIC DURING PHASE I.
2. OFFSITE DETOUR DURING PHASE II.
3. TEMPORARY SIGNALS ARE NOT NECESSARY.
4. SIDEWALKS ARE NOT NECESSARY.

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d <sub>p</sub> : 0.0 INCH
3. DESIGN SPAN	L: 42'-5" FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND	f <sub>y</sub> : ---
6. PRESTRESSED CONCRETE STRENGTH	f' <sub>c</sub> : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' <sub>cr</sub> : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' <sub>c</sub> : 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' <sub>c</sub> : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' <sub>c</sub> : 3.5 KSI
11. CONCRETE, CLASS C	f' <sub>c</sub> : 3.0 KSI
12. REINFORCING STEEL	f <sub>y</sub> : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f <sub>y</sub> : ---
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q <sub>n</sub> : ---
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
17. NOMINAL BEARING RESISTANCE OF ROCK	q <sub>n</sub> : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q <sub>p</sub> : ---
20. PILE YIELD STRENGTH ASTM A572	f <sub>y</sub> : ---
21. PILE SIZE	L <sub>p</sub> : *
22. EST. PILE LENGTH	L <sub>p</sub> : *
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V <sub>3s</sub> : ---
26. MINIMUM GROUND SNOW LOAD	p <sub>g</sub> : ---
27. SEISMIC DATA	PGA: ---

PROJECT NAME: **WOODSTOCK**  
 PROJECT NUMBER: **BRF 0151(21)**  
 FILE NAME: z10c426\_pi.xls PLOT DATE: 3/24/2015  
 PROJECT LEADER: G. BOGUE DRAWN BY: L. BUXTON  
 DESIGNED BY: G. BOGUE CHECKED BY: J. HUNGERFORD  
 PRELIMINARY INFORMATION SHEET SHEET 2 OF 50





- COFFERDAM NOTES**
1. DUE TO THE ANTICIPATED PRESENCE OF LARGE COBBLES AND BOULDERS, THE USE OF A SHALLOW COFFERDAM IS ANTICIPATED. COFFERDAM TYPE AND DIMENSIONS ARE TO BE DETERMINED BY THE CONTRACTOR.
  2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 2'-0" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
  3. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR COFFERDAM EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 2.

\* GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



PROJECT NAME:	WOODSTOCK	FILE NAME:	z10c426typ.dgn	PLOT DATE:	9/24/2015
PROJECT NUMBER:	BRF 0151(21)	PROJECT LEADER:	G. BOGUE	DRAWN BY:	L. BUXTON
		DESIGNED BY:	J. HUNGERFORD	CHECKED BY:	J. HUNGERFORD
		TYPICAL SECTIONS - TYP 2		SHEET	4 OF 50

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS, THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS SEVENTH EDITION, DATED 2014, AND ITS LATEST REVISIONS.
2. THE FOLLOWING WILL BE PAID FOR UNDER ITEM 529.15 "REMOVAL OF STRUCTURE": REMOVAL AND DISPOSAL OF THE EXISTING CONCRETE T-BEAM BRIDGE INCLUDING ABUTMENTS, WINGWALLS, BRIDGE PAVEMENT AND BRIDGE RAILING.
3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.
4. PAYMENT FOR DEWATERING WILL BE INCLUDED TO THE APPROPRIATE ITEM 208.40. A STREAM PHASING SEQUENCE IS SHOWN ON SHEET 48. THIS SEQUENCE OF CONSTRUCTION WAS USED TO DEFINE THE LIMITS OF STREAM DISTURBANCE AND RELOCATION FOR PERMITTING THE PROJECT. THE SEQUENCE REQUIRES THE COFFERDAM FOR ABUTMENT 1 TO BE REMOVED PRIOR TO INSTALLING THE COFFERDAM FOR ABUTMENT 2. IF THE CONTRACTOR PROPOSES A DIFFERENT SEQUENCE OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE APPROPRIATE REGULATORY AGENCIES PRIOR TO PERFORMING THE WORK.
5. ALL PRECAUTIONS SHALL BE TAKEN TO PREVENT SEDIMENT OR POLLUTION FROM ENTERING INTO KEDRON BROOK. ALL WATER PUMPED FROM EXCAVATION AREAS SHALL BE CLARIFIED PRIOR TO BEING ALLOWED TO MIX WITH THE STREAM FLOW. STATE WATER QUALITY STANDARDS SHALL BE MAINTAINED AT ALL TIMES. PAYMENT WILL BE MADE UNDER SPECIAL PROVISION (IN-WATER SEDIMENT ISOLATION DEVICE).
6. ONE TREE AT STATION 4+22 LT SHALL BE REMOVED. ALL REMAINING TREES SHALL BE PROTECTED IN ACCORDANCE WITH SUBSECTION 656.10. SEE SHEET 10.

MICROPILE FOUNDATIONS

7. THE MICROPILES ARE DESIGNED TO SUPPORT A MAXIMUM STRENGTH LIMIT STATE AXIAL LOAD OF 230 KIPS PER PILE IN COMPRESSION. THE REQUIRED NOMINAL AXIAL RESISTANCES ARE 322 KIPS PER PILE (COMPRESSION) AND 168 KIPS PER PILE (TENSION).
8. MINIMUM MICROPILE STEEL CASING THICKNESS = 0.545 INCHES  
MINIMUM OUTSIDE DIAMETER OF MICROPILE CASING = 9.625 INCHES  
MINIMUM UNCASSED DIAMETER = 8.535 INCHES
9. EXTEND CASING A MINIMUM OF 1 (ONE) FOOT BELOW TOP OF COMPETENT LEDGE; EXTEND UNCASSED PORTION OF MICROPILE A MINIMUM OF 6 (SIX) FEET BELOW THE BOTTOM CASING FOR THE FRONT, BATTERED PILES AND 4 (FOUR) FEET FOR THE PLUMB BACK PILES.
10. TOP OF THE PILES SHALL BE CUT OFF AT ELEVATION 971.50'. ESTIMATED IN PLACE CASING LENGTH VARIES 23 FEET TO 28 FEET. ACTUAL LENGTHS MAY VARY SLIGHTLY DEPENDING ON LEDGE ELEVATION.
11. THE CONTRACTOR IS ADVISED THAT DIFFICULT DRILLING CONDITIONS ARE ANTICIPATED. THE CONTRACTOR SHALL MAKE PROVISIONS TO MAINTAIN THE TOLERANCES FOR LOCATION AND BATTER OF THE MICROPILES ESTABLISHED IN THE SPECIAL PROVISIONS AND AS NECESSARY TO ASSURE COMPATIBILITY WITH THE LOCATION OF THE PRECAST FOOTINGS.

PRE-CAST CONCRETE

12. THE MICROPILE FOUNDATION AND PEDESTAL WALLS ARE DESIGNED FOR THE REACTIONS AND BEHAVIOR SUMMARIZED BELOW. IF THE PROPOSED FRAME REACTIONS AND GEOMETRY VARY BEYOND THE LIMITS DEFINED BELOW, THE FABRICATOR SHALL ASSUME DESIGN RESPONSIBILITY OF THE FOUNDATION, DESIGN THE NECESSARY REVISIONS TO THE FOUNDATION AND SUBMIT STRUCTURAL CALCULATIONS FOR THE REVISED DESIGN IN ACCORDANCE WITH SECTION 540.04.
  - A. FRAME STIFFNESS: WHEN MODELING THE STIFFNESS OF THE FRAME FOR PURPOSES OF DESIGNING THE FOUNDATION, THE FRAME LEG WAS ASSUMED TO HAVE A MINIMUM THICKNESS OF 12 INCHES. IF THE FABRICATOR'S PROPOSED FRAME LEG THICKNESS IS LESS THAN 12 INCHES, THE FABRICATOR SHALL ASSUME DESIGN RESPONSIBILITY OF THE FOUNDATION.
  - B. FRAME REACTIONS AT TOP OF PEDESTAL: THE FOUNDATION WAS DESIGNED FOR A MAXIMUM UN-FACTORED REACTIONS OF:
    - DEAD LOAD - 8.6 KIPS PER FOOT OF FRAME
    - LIVE LOAD - 5.5 KIPS PER FOOT OF FRAME
  - C. TOP OF PEDESTAL: THE PEDESTAL IS DESIGNED FOR A MAXIMUM ELEVATION 977.66 FEET. IF THE PROPOSED FABRICATOR'S DESIGN REQUIRES A HIGHER PEDESTAL ELEVATION, THE FABRICATOR SHALL ASSUME DESIGN RESPONSIBILITY OF THE FOUNDATION.
13. THE PRECAST FRAME AND WINGWALLS SHALL BE DESIGNED BY THE PRECAST FABRICATOR, INCLUDING THE ANCHORAGE AND CONNECTIONS BETWEEN ELEMENTS. ALL ELEMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE FABRICATOR'S RECOMMENDATIONS. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS AND CALCULATIONS TO THE ENGINEER IN ACCORDANCE WITH SECTION 105.

DESIGN CRITERIA:

- LIVE LOAD = HL-93
- UNIT WEIGHT OF BACKFILL = 140 LBS/CF
- ACTIVE EARTH PRESSURE COEFFICIENT FOR BACKFILL  $K_a = 0.27$
- AT REST EARTH PRESSURE COEFFICIENT FOR BACKFILL  $K_0 = 0.43$
- PASSIVE EARTH PRESSURE COEFFICIENT FOR BACKFILL  $K_p = 3.69$   
(DIRECTION TOWARD THE BACKFILL)
- LATERAL STIFFNESS OF PILE SUPPORTED FOUNDATION  $K_{fnd} = 8$  KIPS/INCH PER FOOT OF FRAME (HORIZONTAL DIRECTION AWAY FROM BACKFILL)

14. THE FABRICATOR SHALL BE RESPONSIBLE FOR SUPPLYING THE STATE WITH THE LRFR LOAD RATING FACTOR FOR THE FRAME TO COMPLETE THE CHART SHOWN ON THE PRELIMINARY INFORMATION SHEET.
15. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1".
16. CLEAR COVER ON REINFORCING STEEL SHALL BE PER THE FOLLOWING TABLE UNLESS NOTED OTHERWISE.

LOCATION	CLEAR COVER (INCHES)
UNDERSIDE OF FRAME ROOF	1.5
EXPOSED TO EARTH OR WEATHER	2
TOP OF FRAME AND APPROACH SLABS	2.5
DIRECT EXPOSURE TO DEICING SALTS (RAILING SEAT AND FRAME FASCIA)	3
CAST AGAINST EARTH	3

17. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
  - SPACING: +/- 1 INCH
  - CLEARANCE: +/- 1/4 INCH
18. THE LUMP SUM COST FOR ITEM 540.10 "PRECAST CONCRETE STRUCTURE" (SUPERSTRUCTURE FRAME AND WINGWALLS) SHALL INCLUDE THE PRECAST RIGID FRAME, WINGWALLS AND MECHANICAL CONNECTIONS.
19. PRECAST TOLERANCES SHALL BE SHOWN ON THE FABRICATION PLANS AND SHALL BE IN ACCORDANCE WITH PCI MANUAL 135-00.
20. ALL REINFORCING STEEL IN THE PRECAST PEDESTAL WALLS AND FOUNDATION SHALL BE LEVEL 1. REINFORCING IN THE JOINT AND BLOCKOUTS OF THE FOUNDATION AND PEDESTAL WALLS WILL BE PAID UNDER ITEM 507.11, REINFORCING STEEL, LEVEL 1 (FPQ).
21. ALL REINFORCING STEEL IN THE PRECAST RIGID FRAME, APPROACH SLABS AND WINGWALLS SHALL BE LEVEL 11. REINFORCING IN THE JOINTS BETWEEN THE PRECAST RIGID FRAME SECTIONS AND THE JOINTS BETWEEN THE PRECAST APPROACH SLAB SECTIONS WILL BE PAID UNDER ITEM 507.12, REINFORCING STEEL, LEVEL 11 (FPQ).
22. THE PRECAST STRUCTURE DETAILS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS AND CONFIGURATION WILL BE DEPENDENT ON THE FABRICATOR. THE INSIDE CLEAR DIMENSION OF THE FRAME SHALL BE 30'-0" AND THE THICKNESS OF THE ROOF SLAB SHALL BE NO MORE THAN 1'-6" THICK.
23. NO HOLES SHALL BE DRILLED IN THE RIGID FRAME WITHOUT THE APPROVAL OF THE FABRICATOR AND THE AGENCY, UNLESS NOTED OTHERWISE.
24. THE USE OF EQUIPMENT AND THE METHOD OF BACKFILLING AROUND THE BURIED STRUCTURE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. CARE SHALL BE TAKEN WHEN BACKFILLING AGAINST JOINT SEALING MATERIALS.
25. JOINTS BETWEEN ALL ABUTTING PRECAST UNITS SHALL BE WATERTIGHT AND MECHANICALLY CONNECTED.
26. WATER REPELLENT SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT FOR THE INTERIOR OF THE NEW STRUCTURE AND WILL BE PAID UNDER CONTRACT ITEM 514.10, WATER REPELLENT, SILANE.

TRAFFIC CONTROL

27. THE INCLUDED TRAFFIC CONTROL PLANS AND DETAILS ARE SCHEMATIC ONLY AND SHOULD BE USED AS A REFERENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL PHASES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED PRIOR TO, DURING AND AFTER THE CLOSURE PERIOD FOR THE DETOUR. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
28. IF ALTERNATING 1-WAY TRAFFIC IS INCLUDED IN THE TRAFFIC CONTROL PLAN, LANE WIDTH MUST BE A MINIMUM OF 11'. SEE SPECIAL PROVISION 12b.
29. ALL TRAFFIC SIGNS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

HIGH PERFORMANCE CONCRETE, RAPID SET

30. HIGH PERFORMANCE CONCRETE, RAPID SET SHALL BE WET-CURED UNTIL IT HAS OBTAINED THE FOLLOWING COMPRESSIVE STRENGTH AS VERIFIED BY TESTING OF FIELD CYLINDERS.

LOCATION	MINIMUM COMPRESSIVE STRENGTH
BLOCKOUTS IN PRECAST FOOTINGS	3,000 PSI
GAPS BETWEEN FRAME SECTIONS	4,000 PSI

PROJECT NAME: WOODSTOCK

PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426gen notes.dgn

PROJECT LEADER: G. BOGUE

DESIGNED BY: T. KNIGHT

PROJECT NOTES

PLOT DATE: 9/24/2015

DRAWN BY: L. BUXTON

CHECKED BY: G. BOGUE

SHEET 5 OF 50



# QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				<b>FILL REQUIRED</b>
							1050				1050		CY	COMMON EXCAVATION	203.15				8 CY MEASURED AREA FILL [= A]
							55				55		CY	SOLID ROCK EXCAVATION	203.16				CY LESS FACTORED SOLID ROCK EXCAVATION [= B1]
									250		250		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				CY COFFERDAM EXCAVATION OF ROCK [= B2]
							1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				8 CY NET MEASURED AREA FILL [A+B1+B2 = D]
									580		580		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				9 CY 1.15 X NET MEASURED AREA FILL = FACTORED FILL [1.15 X D = E]
									985		985		CY	COFFERDAM EXCAVATION, EARTH	208.30				<b>MEASURED AREA MATERIAL AVAILABLE FOR FILL</b>
									55		55		CY	COFFERDAM EXCAVATION, ROCK	208.35				1050 CY 1.0 X EARTH EXCAVATION [= F]
									1		1		LS	COFFERDAM (ABUTMENT #1 PEDESTAL WALL)	208.40				75 CY 0.3 X UNCLASSIFIED CHANNEL EXCAVATION [= G]
									1		1		LS	COFFERDAM (ABUTMENT #2 PEDESTAL WALL)	208.40				296 CY 0.3 X COFFERDAM EXCAVATION [= H]
							65				65		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				1421 CY TOTAL MATERIAL AVAILABLE FOR FILL [F+G+H = I]
							800				800		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
							7				7		CY	AGGREGATE SHOULDERS, IN PLACE	402.10				
							1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									870		870		LB	REINFORCING STEEL, LEVEL I (FPQ)	507.11				
									2220		2220		LB	REINFORCING STEEL, LEVEL II (FPQ)	507.12				
									15		15		GAL	WATER REPELLENT, SILANE	514.10				
									85		85		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									142		142		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10				
									85		85		LF	JOINT SEALER, HOT POURED	524.11				
									96		96		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335				
									1		1		EACH	REMOVAL OF STRUCTURE (725 SF-EST.)	529.15				
									1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #1 PEDESTAL WALL)	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #2 PEDESTAL WALL)	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #1)	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #2)	540.10				
									1		1		LS	PRECAST CONCRETE STRUCTURE (SUPERSTRUCTURE FRAME AND WINGWALLS)	540.10				
							20				20		MGAL	DUST CONTROL WITH WATER	609.10				
									400		400		CY	STONE FILL, TYPE III	613.12				
							44				44		LF	BOX BEAM GUARDRAIL	621.30				
							2				2		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51				
									4		4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	621.725				
							310				310		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	5			
							500				500		HR	FLAGGERS	630.15				
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16				
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
							1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
							780				780		LF	DURABLE 4 INCH WHITE LINE, POLYUREA	646.404	12			

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 15I(2I)

FILE NAME: z10c426frm.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: E. ALLING  
QUANTITY SHEET 1

PLOT DATE: 9/25/2015  
DRAWN BY: E. ALLING  
CHECKED BY: G. BOGUE  
SHEET 6 OF 50



# QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						800				800		LF	DURABLE 4 INCH YELLOW LINE, POLYUREA	646.414	17			
								370		370		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							15			15		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515				
							10			10		LB	SEED	651.15				
							10			10		LB	SEED, WINTER RYE	651.17				
							50			50		LB	FERTILIZER	651.18				
							0.3			0.3		TON	AGRICULTURAL LIMESTONE	651.20				
							0.3			0.3		TON	HAY MULCH	651.25				
							50			50		CY	TOPSOIL	651.35				
						190		60		250		SY	GRUBBING MATERIAL	651.40				
							1			1		LS	EPSC PLAN	652.10				
							80			80		HR	MONITORING EPSC PLAN	652.20				
							1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							390			390		SY	TEMPORARY EROSION MATTING	653.20				
							40			40		CY	VEHICLE TRACKING PAD	653.35				
							2			2		EACH	FILTER BAG	653.45				
							230			230		LF	BARRIER FENCE	653.50				
							310			310		LF	PROJECT DEMARCATION FENCE	653.55				
							1			1		LS	TREE PROTECTION	656.85				
						46				46		SF	TRAFFIC SIGNS, TYPE A	675.20				
						170				170		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						9				9		EACH	REMOVING SIGNS	675.50				
								82		82		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
								2		2		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620				
								10		10		HR	SPECIAL PROVISION (UNEXPECTED OBSTRUCTION DRILLING)	900.630				
								850		850		LF	SPECIAL PROVISION (MICROPILE, CASED)(9.625 IN)	900.640				
								160		160		LF	SPECIAL PROVISION (MICROPILE, UNCASED)(8.535 IN)	900.640				
								1		1		LS	SPECIAL PROVISION (FURNISHING EQUIPMENT FOR INSTALLING MICROPILES)	900.645				
								1		1		LS	SPECIAL PROVISION (IN-WATER SEDIMENT ISOLATION DEVICE)	900.645				
								1		1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
								1		1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.650				
								1		1		LU	SPECIAL PROVISION (MAT DENSITY PAYADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
								1		1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
						335		55		390		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
						8		2		10		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H)	900.683				

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 151(21)

FILE NAME: z10c426frm.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: E. ALLING  
QUANTITY SHEET 2

PLOT DATE: 9/25/2015  
DRAWN BY: E. ALLING  
CHECKED BY: G. BOGUE  
SHEET 7 OF 50



**GENERAL INFORMATION**

**SYMBOLGY LEGEND NOTE**

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

**R. O. W. ABBREVIATIONS (CODES) & SYMBOLS**

POINT CODE	DESCRIPTION
CH	CHANNEL EASEMENT
CONST	CONSTRUCTION EASEMENT
CUL	CULVERT EASEMENT
D&C	DISCONNECT & CONNECT
DIT	DITCH EASEMENT
DR	DRAINAGE EASEMENT
DRIVE	DRIVEWAY EASEMENT
EC	EROSION CONTROL
HWY	HIGHWAY EASEMENT
I&M	INSTALL & MAINTAIN EASEMENT
LAND	LANDSCAPE EASEMENT
R&RES	REMOVE & RESET
R&REP	REMOVE & REPLACE
SR	SLOPE RIGHT
UE	UTILITY EASEMENT
(P)	PERMANENT EASEMENT
(T)	TEMPORARY EASEMENT
■	BNDNS BOUND SET
□	BNDNS BOUND TO BE SET
●	IPNS IRON PIN SET
⊙	IPNS IRON PIN TO BE SET
⊠	CALC EXISTING ROW POINT
○	PROW PROPOSED ROW POINT
[LENGTH]	LENGTH CARRIED ON NEXT SHEET

**COMMON TOPOGRAPHIC POINT SYMBOLS**

POINT CODE	DESCRIPTION
⊕	APL BOUND APPARENT LOCATION
□	BM BENCH MARK
□	BND BOUND
⊕	CB CATCH BASIN
⊕	COMB COMBINATION POLE
⊕	DITHR DROP INLET THROATED DNC
⊕	EL ELECTRIC POWER POLE
○	FPOLE FLAGPOLE
○	GASFIL GAS FILLER
○	GP GUIDE POST
×	GSO GAS SHUT OFF
○	GUY GUY POLE
○	GUYW GUY WIRE
×	GV GATE VALUE
⊕	H TREE HARDWOOD
△	HCTRL CONTROL HORIZONTAL
△	HVCTRL CONTROL HORIZ. & VERTICAL
⊕	HYD HYDRANT
○	IP IRON PIN
○	IPIPE IRON PIPE
⊕	LI LIGHT - STREET OR YARD
⊕	MB MAILBOX
○	MH MANHOLE (MH)
□	MM MILE MARKER
○	PM PARKING METER
□	PMK PROJECT MARKER
POST	POST STONE/WOOD
RRSIG	RAILROAD SIGNAL
RRSL	RAILROAD SWITCH LEVER
S	TREE SOFTWOOD
SAT	SATELLITE DISH
⊕	SHRUB SHRUB
⊕	SIGN SIGN
⊕	STUMP STUMP
TEL	TELEPHONE POLE
TIE	TIE
TSIGN	SIGN W/DOUBLE POST
VCTRL	CONTROL VERTICAL
WELL	WELL
WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

**PROPOSED GEOMETRY CODES**

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

**UTILITY SYMBOLGY**

UNDERGROUND UTILITIES	
— UT —	TELEPHONE
— UE —	ELECTRIC
— UC —	CABLE (TV)
— UEC —	ELECTRIC+CABLE
— UET —	ELECTRIC+TELEPHONE
— UCT —	CABLE+TELEPHONE
— UECT —	ELECTRIC+CABLE+TELEP.
— G —	GAS LINE
— W —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)

**ABOVE GROUND UTILITIES (AERIAL)**

— T —	TELEPHONE
— E —	ELECTRIC
— C —	CABLE (TV)
— EC —	ELECTRIC+CABLE
— ET —	ELECTRIC+TELEPHONE
— AER E&T —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEP.
—	UTILITY POLE GUY WIRE

**PROJECT CONSTRUCTION SYMBOLGY**

PROJECT DESIGN & LAYOUT SYMBOLGY	
—	CLEAR ZONE
—	PLAN LAYOUT MATCHLINE

**PROJECT CONSTRUCTION FEATURES**

△	TOP OF CUT SLOPE
○	TOE OF FILL SLOPE
⊗	STONE FILL
---	BOTTOM OF DITCH L
---	CULVERT PROPOSED
---	STRUCTURE SUBSURFACE
PDF	PROJECT DEMARCATION FENCE
BF	BARRIER FENCE
XXXXXX	TREE PROTECTION ZONE (TPZ)
////	STRIPING LINE REMOVAL
~~~~	SHEET PILES

**CONVENTIONAL BOUNDARY SYMBOLGY**

BOUNDARY LINES	
— TOWN LINE —	TOWN BOUNDARY LINE
— COUNTY LINE —	COUNTY BOUNDARY LINE
— STATE LINE —	STATE BOUNDARY LINE
---	PROPOSED STATE R.O.W. (LIMITED ACCESS)
---	PROPOSED STATE R.O.W.
---	STATE ROW (LIMITED ACCESS)
---	STATE ROW
---	TOWN ROW
---	PERMANENT EASEMENT LINE (P)
---	TEMPORARY EASEMENT LINE (T)
+	SURVEY LINE
+	PROPERTY LINE (P/L)
SR	SLOPE RIGHTS
6f	6F PROPERTY BOUNDARY
4f	4F PROPERTY BOUNDARY
HAZ	HAZARDOUS WASTE

**EPSC LAYOUT PLAN SYMBOLGY**

EPSC MEASURES	
ONNOONNOONNO	FILTER CURTAIN
—	SILT FENCE
—	SILT FENCE WOVEN WIRE
—	CHECK DAM
■	DISTURBED AREAS REQUIRING RE-VEGETATION
⊗	EROSION MATTING

**ENVIRONMENTAL RESOURCES**

—	WETLAND BOUNDARY
---	RIPARIAN BUFFER ZONE
---	WETLAND BUFFER ZONE
---	SOIL TYPE BOUNDARY
---	THREATENED & ENDANGERED SPECIES
HAZ	HAZARDOUS WASTE AREA
---	AGRICULTURAL LAND
---	FISH & WILDLIFE HABITAT
---	FLOOD PLAIN
---	ORDINARY HIGH WATER (OHW)
---	STORM WATER
---	USDA FOREST SERVICE LANDS
---	WILDLIFE HABITAT SUIT/CONN

**ARCHEOLOGICAL & HISTORIC**

---	ARCHEOLOGICAL BOUNDARY
---	HISTORIC DISTRICT BOUNDARY
---	HISTORIC AREA
Ⓜ	HISTORIC STRUCTURE

**CONVENTIONAL TOPOGRAPHIC SYMBOLGY**

EXISTING FEATURES	
---	ROAD EDGE PAVEMENT
---	ROAD EDGE GRAVEL
---	DRIVEWAY EDGE
---	DITCH
---	FOUNDATION
×	FENCE (EXISTING)
□	FENCE WOOD POST
○	FENCE STEEL POST
---	GARDEN
---	ROAD GUARDRAIL
---	RAILROAD TRACKS
---	CULVERT (EXISTING)
---	STONE WALL
---	WALL
---	WOOD LINE
---	BRUSH LINE
---	HEDGE
---	BODY OF WATER EDGE
---	LEDGE EXPOSED

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426frm.dgn PLOT DATE: 9/2/2015  
PROJECT LEADER: G. BOGUE DRAWN BY: VTRANS  
DESIGNED BY: VTRANS CHECKED BY: VTRANS  
CONVENTIONAL SYMBOLGY LEGEND SHEET SHEET 8 OF 50



GPS CONTROL POINTS

HVCTRL #1

KEDRON AZ MK

NORTH = 392626.055  
 EAST = 1636526.218  
 ELEV. = 855.969

HVCTRL #2

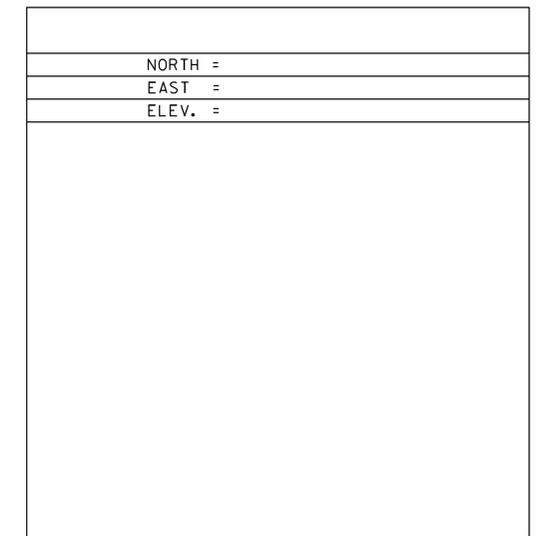
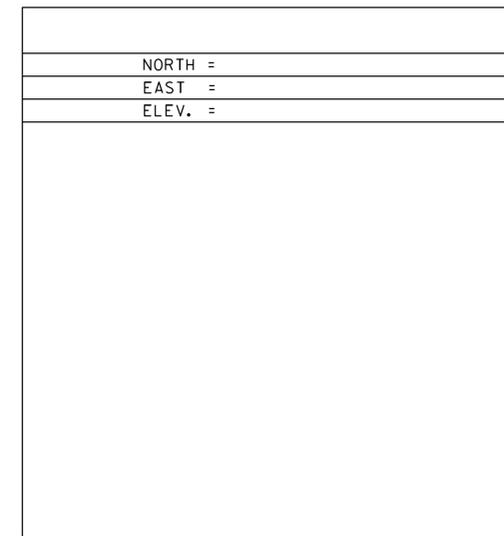
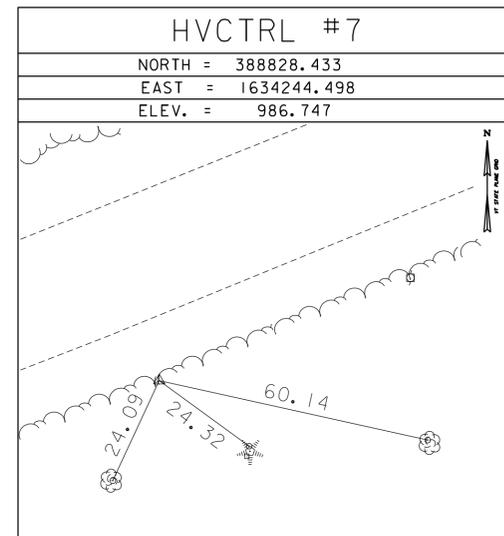
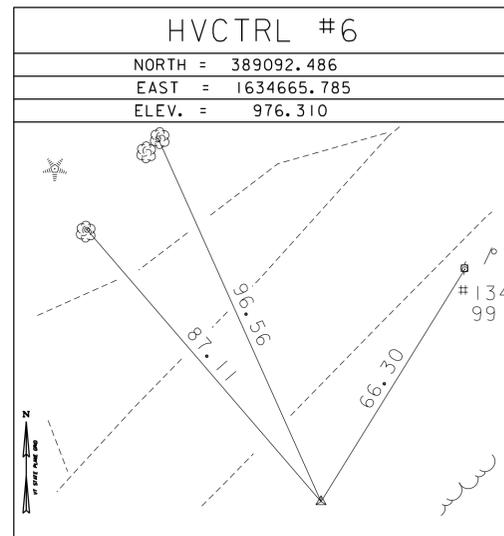
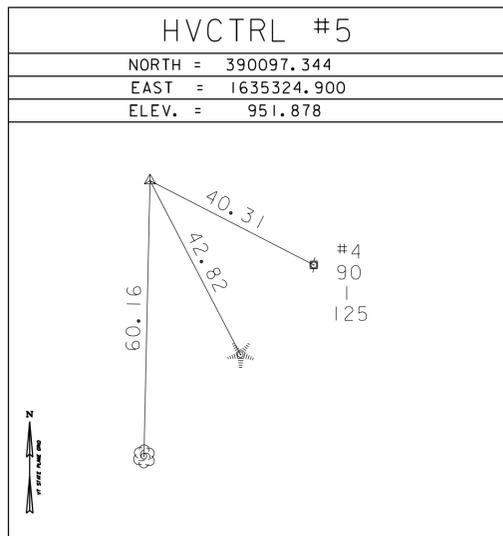
KEDRON

NORTH = 390970.727  
 EAST = 1636074.631  
 ELEV. = 902.557

GENERAL LOCATION, WOODSTOCK, VT. TO REACH FROM THE INTERSECTION OF VT ROUTE 106 AND U.S. ROUTE 4 IN WOODSTOCK, GO SOUTH ALONG ROUTE 106 FOR 3.35 MILES (5.39 KM) TO THE MARK ON THE LEFT, SET IN THE TOP OF THE COCRETE ABUTMENT AT THE SOUTHEAST CORNER OF THE BRIDGE OVER THE KEDRON BROOK. THE MARK IS 5.55 M (18.21 FT) EAST OF THE CENTERLINE OF ROUTE 106, 3.5 M (11.5 FT) SOUTHWEST OF THE END OF THE WINGWALL, 0.45 M (1.48 FT) NORTHWEST OF THE SOUTHEAST FACE OF THE ABUTMENT, 0.2 M (0.7 FT) SOUTHEAST OF THE NORTHWEST FACE OF THE ABUTMENT, AND 0.85 M (2.79 FT) NORTH OF A FIBERGLASS WITNESS POST.

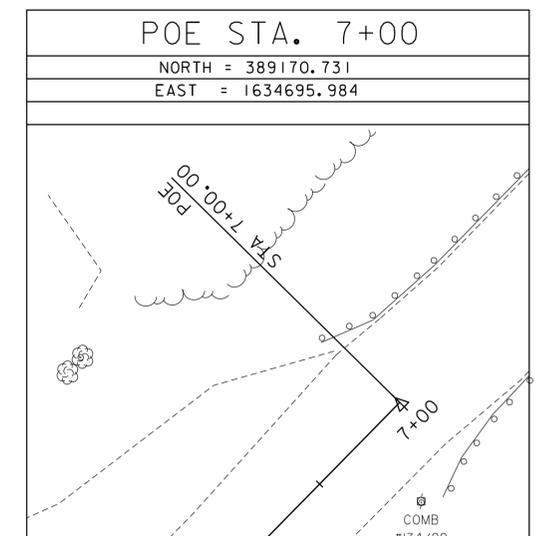
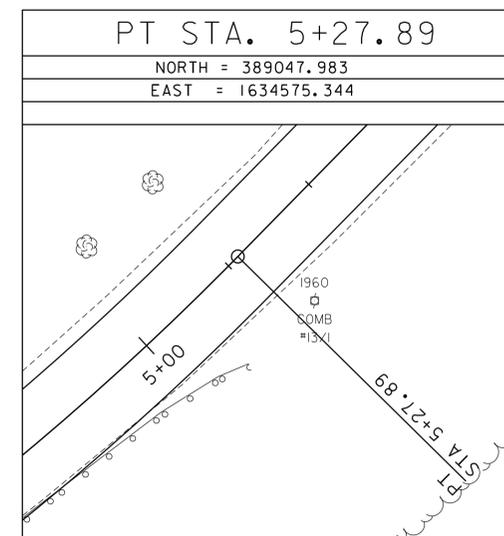
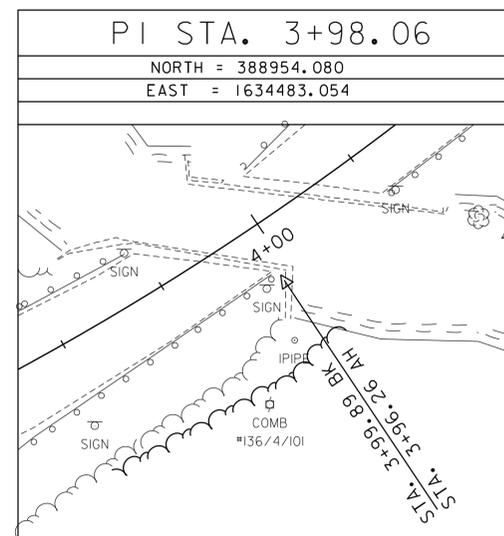
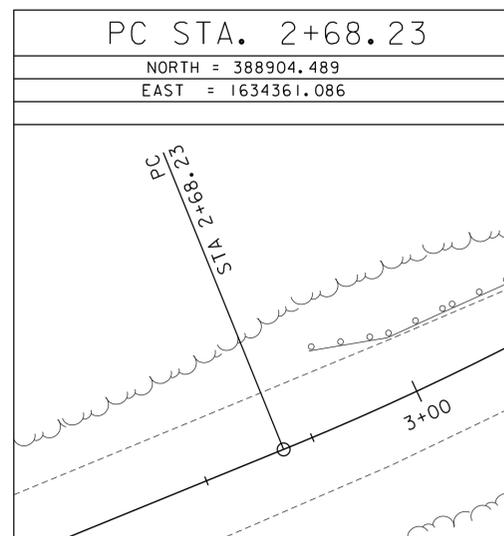
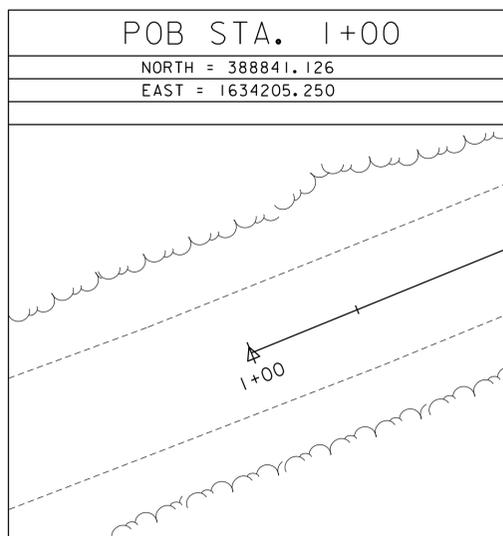
GENERAL LOCATION, WOODSTOCK, VT. TO REACH FROM THE INTERSECTION OF VT ROUTE 106 AND U.S. ROUTE 4 IN WOODSTOCK, GO SOUTH ALONG ROUTE 106 FOR 3.6 MILES (5.8 KM) TO THE MARK ON THE RIGHT. THE MARK IS A FENO MONUMENT SET FLUSH WITH GROUND SURFACE. IT IS 37.8 M (124.0 FT) SOUTH OF POLE NO. 81/116, 15.3 M (50.2 FT) NORTH OF POLE NO. 117/82, 0.8 M (2.6 FT) WEST OF AND ABOUT 0.4 M (1.3 FT) LOWER THAN THE WEST EDGE OF PAVEMENT OF ROUTE 106, AND 0.6 M (2.0 FT) EAST OF THE NORTHEAST CORNER OF A CONCRETE HEADWALL AND A FIBERGLASS WITNESS POST.

TRAVERSE TIES



\* MAIN TRAVERSE COMPLETED 12/30/1998 BY R. GILMAN P.C. & T. COMPANION

ALIGNMENT TIES



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (92)
ADJUSTMENT	COMPASS

PROJECT NAME: WOODSTOCK	
PROJECT NUMBER: BRF 0151(21)	
FILE NAME: z10c426tie.dgn	PLOT DATE: 9/2/2015
PROJECT LEADER: G. BOGUE	DRAWN BY: VTRANS
DESIGNED BY: VTRANS	CHECKED BY: VTRANS
SURVEY CONTROL AND TIES	SHEET 9 OF 50



HVCTRL #1  
389174.4977 N  
1634481.8006 E  
ELEV: 1005.44'

HVCTRL #2  
388828.4329 N  
1634244.4975 E  
ELEV: 986.75'

HVCTRL #3  
388900.4009 N  
1634403.6064 E  
ELEV: 986.32'

HVCTRL #4  
388963.9474 N  
1634531.8644 E  
ELEV: 974.44'

HVCTRL #5  
389092.4860 N  
1634665.7851 E  
ELEV: 976.31'

ITEM 656.85 - TREE PROTECTION  
STA. 4+26 LT. - 5+40, LT.

ITEM 621.51 - MANUFACTURED TERMINAL  
SECTION, TANGENT (BEAT)

STA. 3+27 - 3+41, RT.  
STA. 4+55 - 4+69, LT.

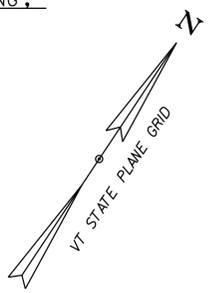
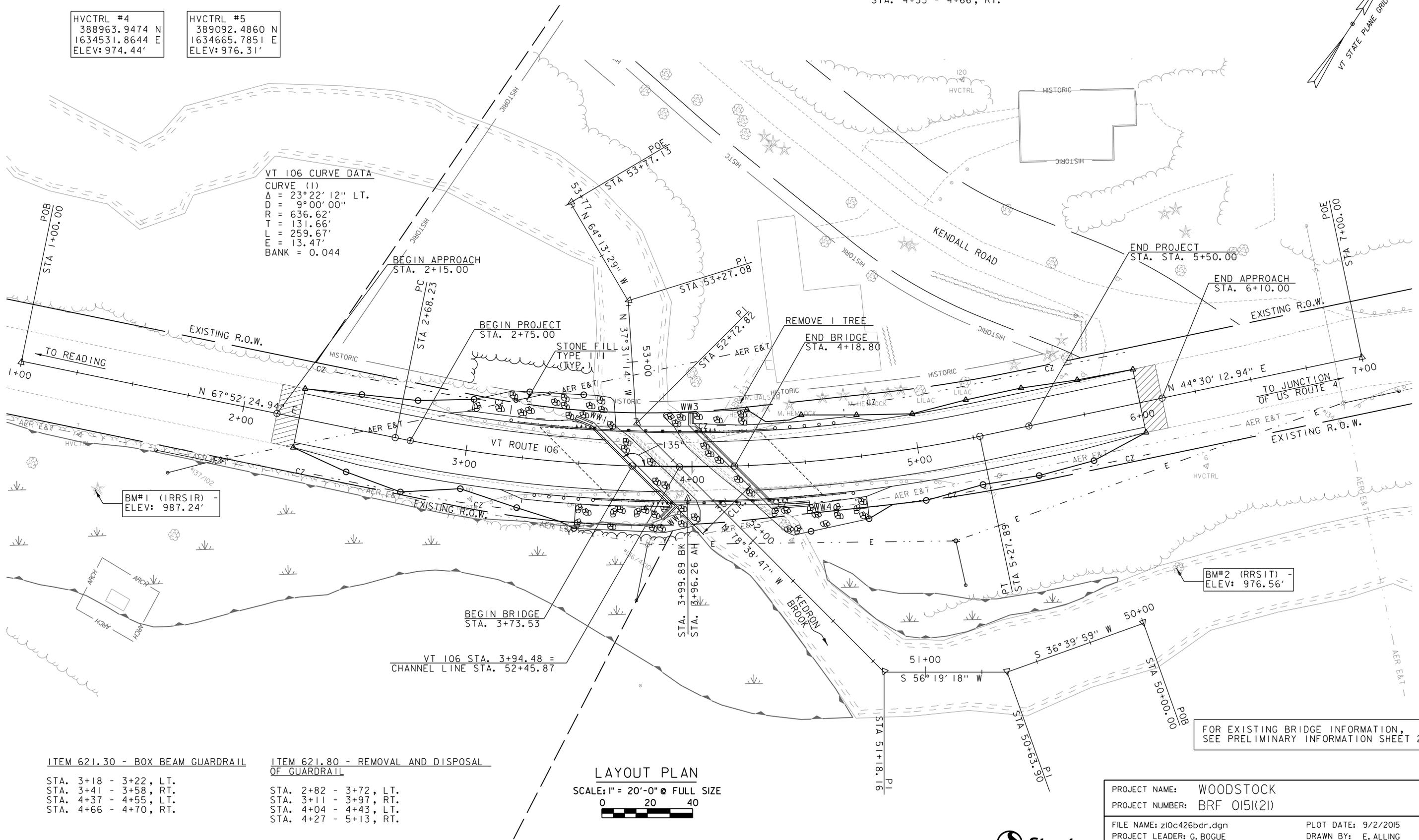
ITEM 621.725 - GUARDRAIL APPROACH  
SECTION, GALVANIZED 3 RAIL BOX BEAM

STA. 3+22 - 3+54, LT.  
STA. 3+58 - 3+89, RT.  
STA. 4+04 - 4+37, LT.  
STA. 4+35 - 4+66, RT.

ITEM 210.10 - COLD PLANING,  
BITUMINOUS PAVEMENT

STA. 2+15 - 2+25  
STA. 6+00 - 6+10

VT 106 CURVE DATA  
CURVE (1)  
Δ = 23° 22' 12" LT.  
D = 9° 00' 00"  
R = 636.62'  
T = 131.66'  
L = 259.67'  
E = 13.47'  
BANK = 0.044



BM#1 (IRRSIR) -  
ELEV: 987.24'

BM#2 (RRSIT) -  
ELEV: 976.56'

FOR EXISTING BRIDGE INFORMATION,  
SEE PRELIMINARY INFORMATION SHEET 2

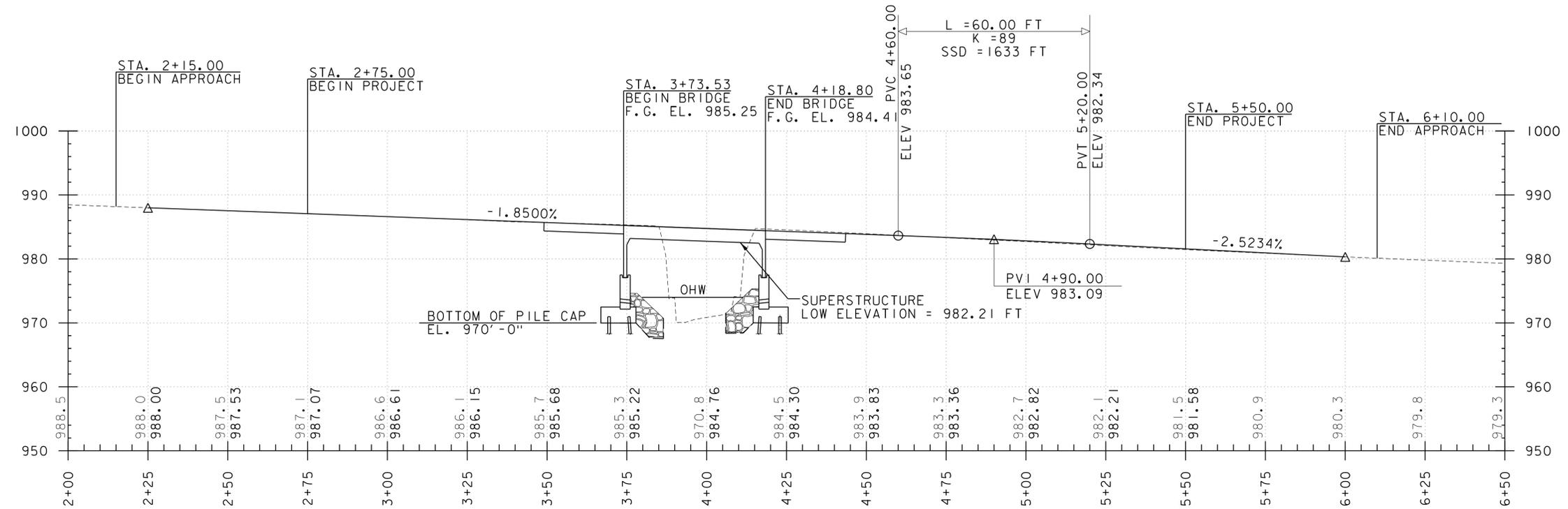
ITEM 621.30 - BOX BEAM GUARDRAIL  
STA. 3+18 - 3+22, LT.  
STA. 3+41 - 3+58, RT.  
STA. 4+37 - 4+55, LT.  
STA. 4+66 - 4+70, RT.

ITEM 621.80 - REMOVAL AND DISPOSAL  
OF GUARDRAIL  
STA. 2+82 - 3+72, LT.  
STA. 3+11 - 3+97, RT.  
STA. 4+04 - 4+43, LT.  
STA. 4+27 - 5+13, RT.

LAYOUT PLAN  
SCALE: 1" = 20'-0" @ FULL SIZE  
0 20 40

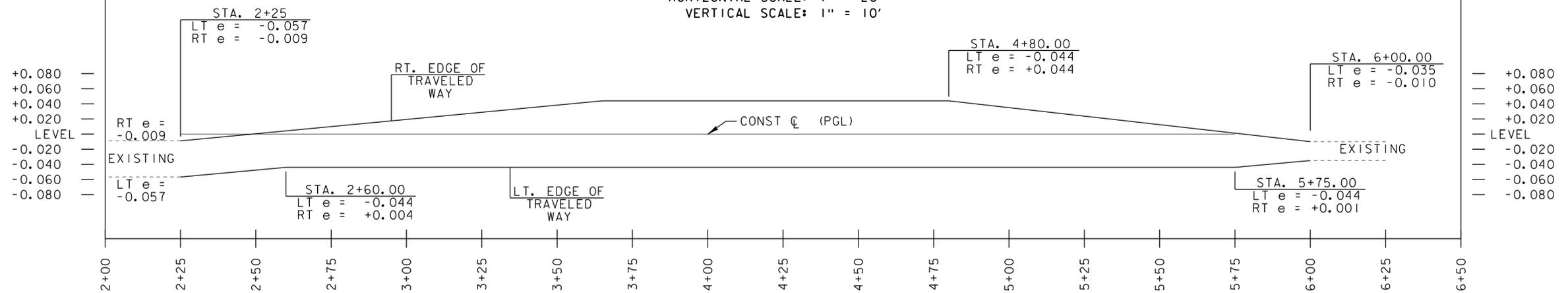
PROJECT NAME:	WOODSTOCK	FILE NAME:	z10c426bdr.dgn	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	PROJECT LEADER:	G. BOGUE	DRAWN BY:	E. ALLING
		DESIGNED BY:	J. HUNGERFORD	CHECKED BY:	I. MAYNARD
		LAYOUT PLAN - LPI			SHEET 10 OF 50





VERMONT ROUTE 106  
PROPOSED PROFILE

HORIZONTAL SCALE: 1' = 20'  
VERTICAL SCALE: 1" = 10'



VERMONT ROUTE 106  
BANKING DIAGRAM

HORIZONTAL SCALE: 1' = 20'  
VERTICAL SCALE: N. T. S.

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

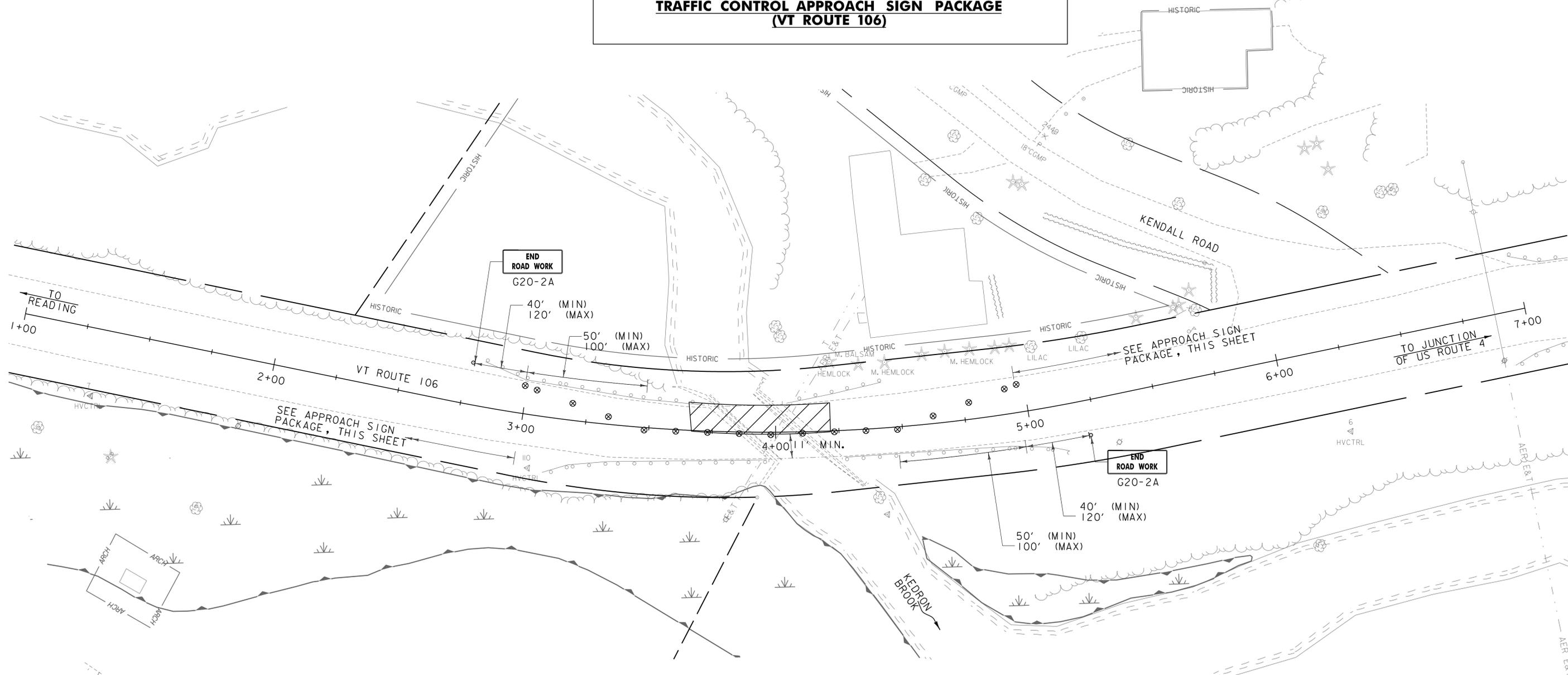
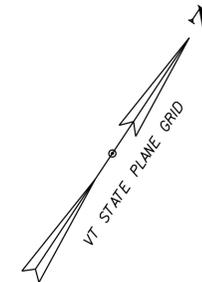
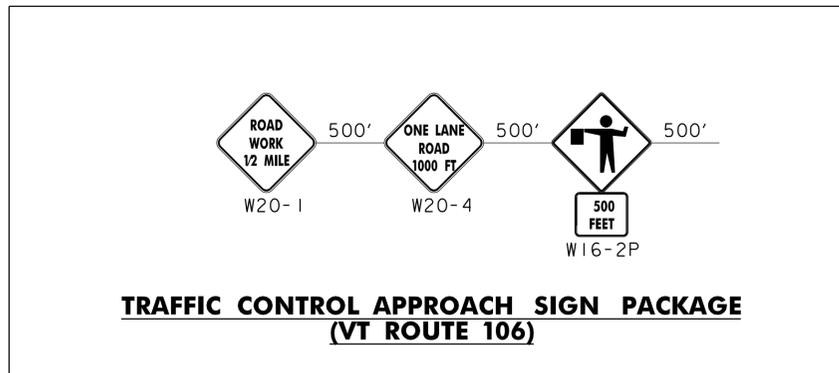
FILE NAME: z10c426xs.dgn  
 PROJECT LEADER: G. BOGUE  
 DESIGNED BY: J. HUNGERFORD  
 PROFILE SHEET & BANKING DIAGRAM - RP I

PLOT DATE: 9/2/2015  
 DRAWN BY: E. ALLING  
 CHECKED BY: I. MAYNARD  
 SHEET II OF 50



NOTES:

1. SEE GENERAL NOTES SHEET FOR ADDITIONAL TRAFFIC CONTROL NOTES.
2. CHANNELIZING DEVICE SPACING:  
TANGENT SECTIONS: 60 FT.  
TAPER SECTIONS: 30 FT.
3. ACCESS TO ALL EXISTING SIDE ROADS, DRIVES, AND PARKING AREAS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
4. SEE STANDARD DRAWING T-10 FOR SIDE ROAD SIGNING LAYOUT.
5. ALL TRAFFIC CONTROL SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

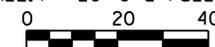


PHASE 1 TRAFFIC CONTROL PLAN - ALTERNATING ONE WAY TRAFFIC, LEFT LANE CLOSED (RIGHT LANE CLOSURE SIMILAR)

LEGEND	
⊗	RETROREFLECTIVE PLASTIC DRUM
⊘	TEMPORARY CONSTRUCTION SIGN
▨	WORK ZONE

TRAFFIC CONTROL PLAN

SCALE: 1" = 20'-0" @ FULL SIZE

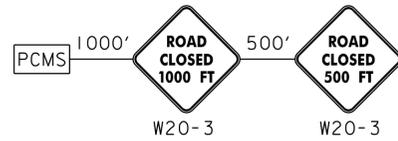


PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 015(21)

FILE NAME: z10c426bdr\_tcplan.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: T. MANAHAN  
TRAFFIC CONTROL PLAN - TC 1

PLOT DATE: 9/2/2015  
DRAWN BY: T. MANAHAN  
CHECKED BY: E. ALLING  
SHEET 12 OF 50

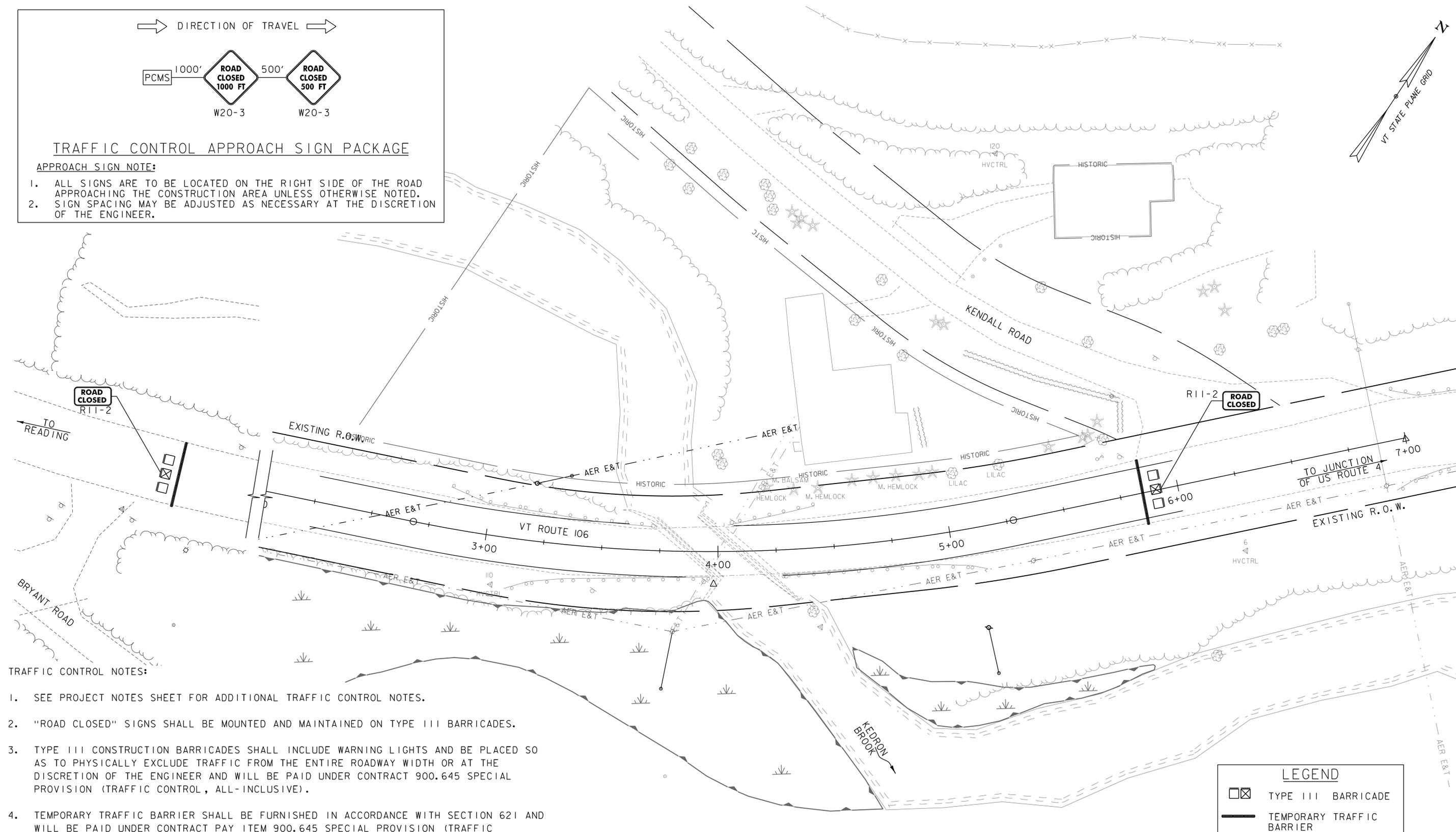
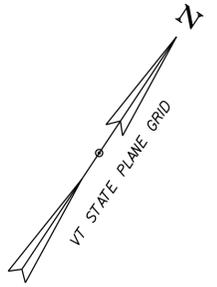
→ DIRECTION OF TRAVEL →



**TRAFFIC CONTROL APPROACH SIGN PACKAGE**

**APPROACH SIGN NOTE:**

1. ALL SIGNS ARE TO BE LOCATED ON THE RIGHT SIDE OF THE ROAD APPROACHING THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED.
2. SIGN SPACING MAY BE ADJUSTED AS NECESSARY AT THE DISCRETION OF THE ENGINEER.



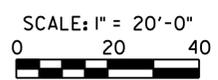
**TRAFFIC CONTROL NOTES:**

1. SEE PROJECT NOTES SHEET FOR ADDITIONAL TRAFFIC CONTROL NOTES.
2. "ROAD CLOSED" SIGNS SHALL BE MOUNTED AND MAINTAINED ON TYPE III BARRICADES.
3. TYPE III CONSTRUCTION BARRICADES SHALL INCLUDE WARNING LIGHTS AND BE PLACED SO AS TO PHYSICALLY EXCLUDE TRAFFIC FROM THE ENTIRE ROADWAY WIDTH OR AT THE DISCRETION OF THE ENGINEER AND WILL BE PAID UNDER CONTRACT 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
4. TEMPORARY TRAFFIC BARRIER SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621 AND WILL BE PAID UNDER CONTRACT PAY ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

**LEGEND**

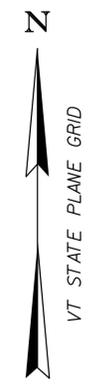
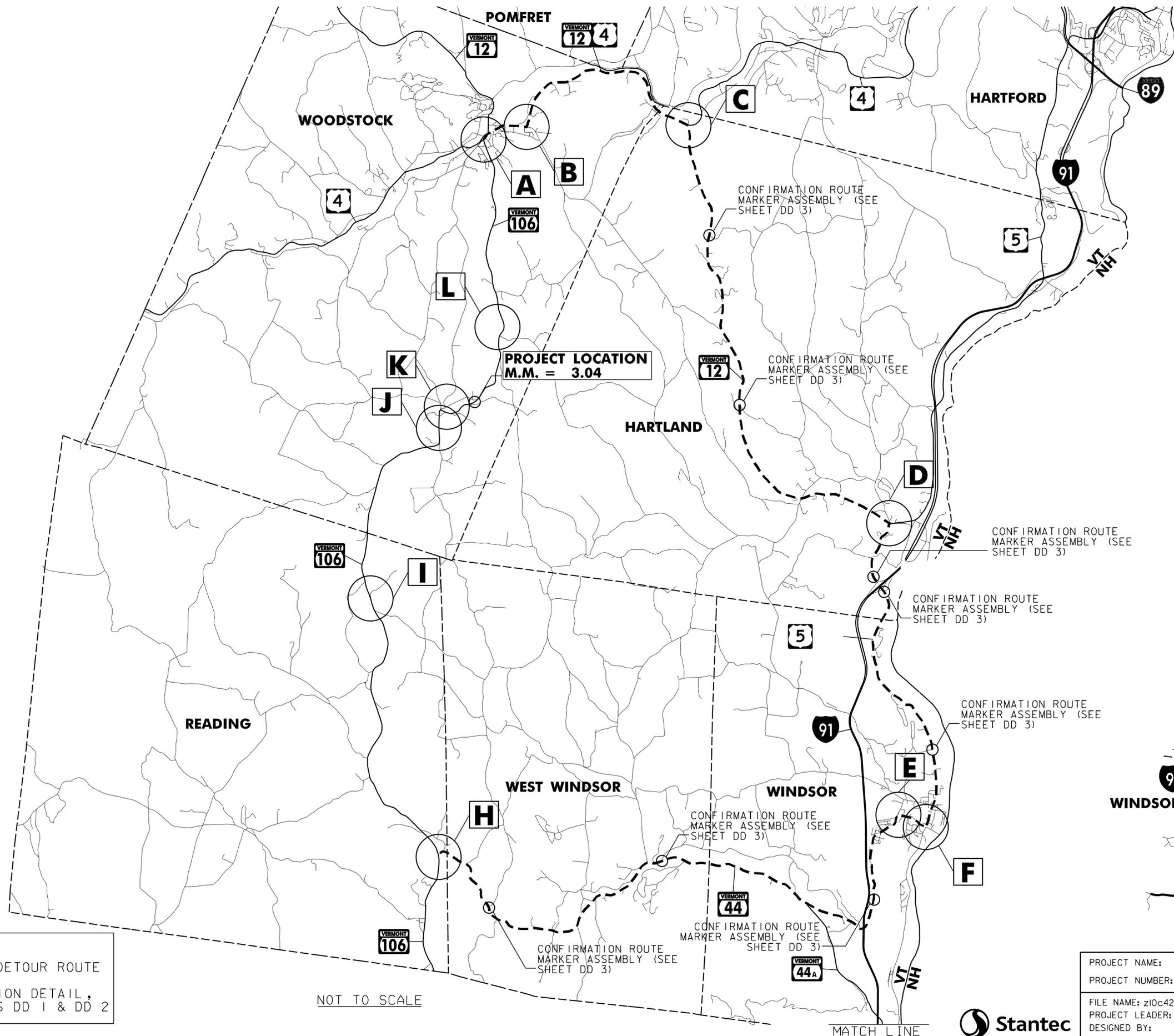
- TYPE III BARRICADE
- TEMPORARY TRAFFIC BARRIER

**PHASE 2 TRAFFIC CONTROL PLAN - BRIDGE CLOSED**



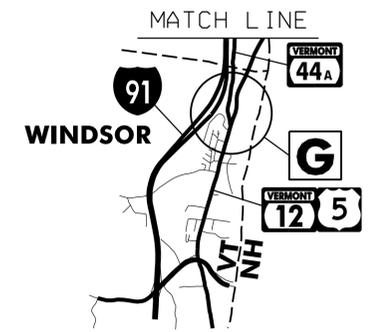
PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/25/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	E. ALLING
FILE NAME:	z10c426bdr_ttc.dgn	CHECKED BY:	I. MAYNARD
PROJECT LEADER:	G. BOGUE	TRAFFIC CONTROL PLAN - TC 2	SHEET 13 OF 50
DESIGNED BY:	E. ALLING		





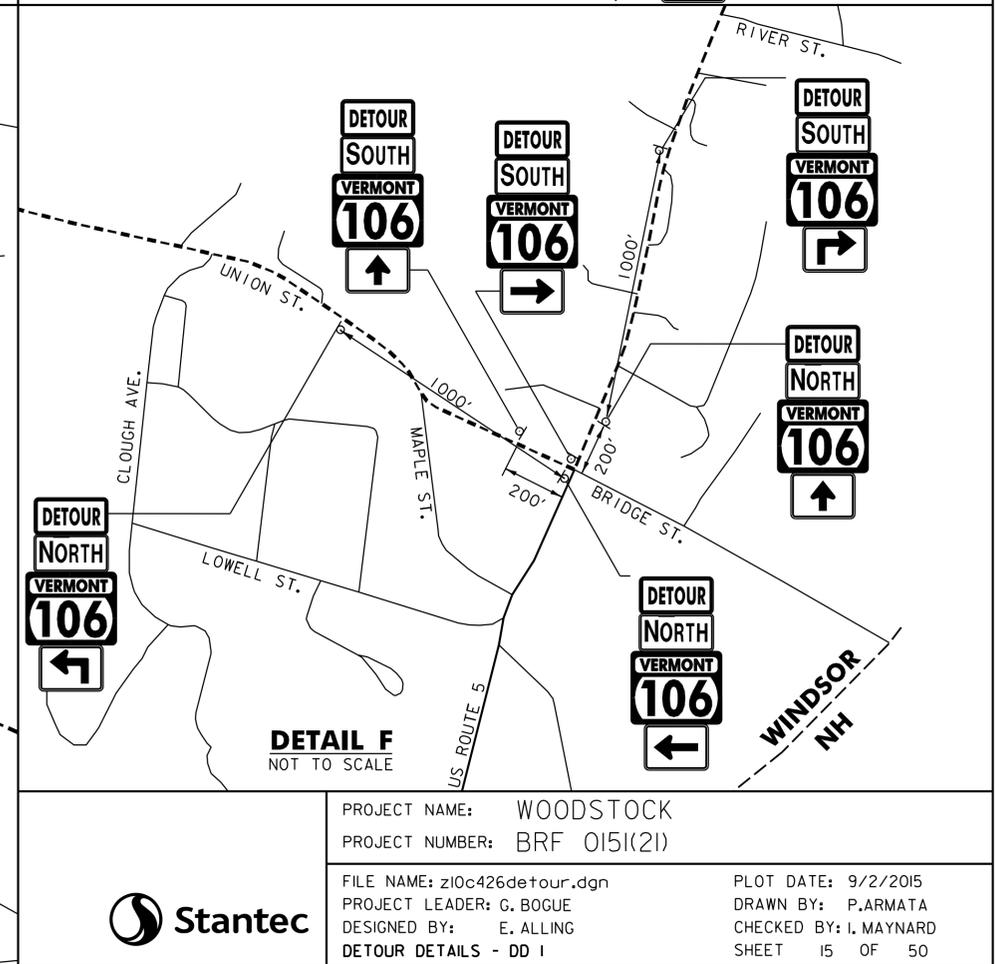
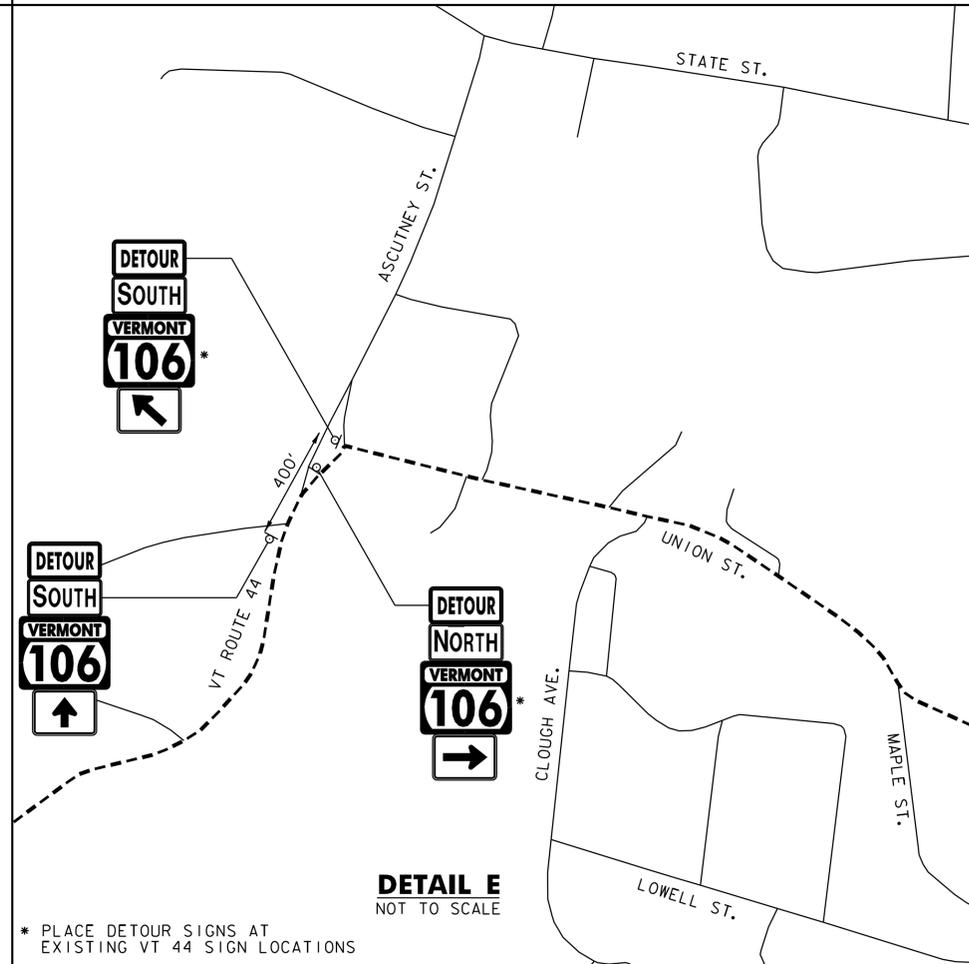
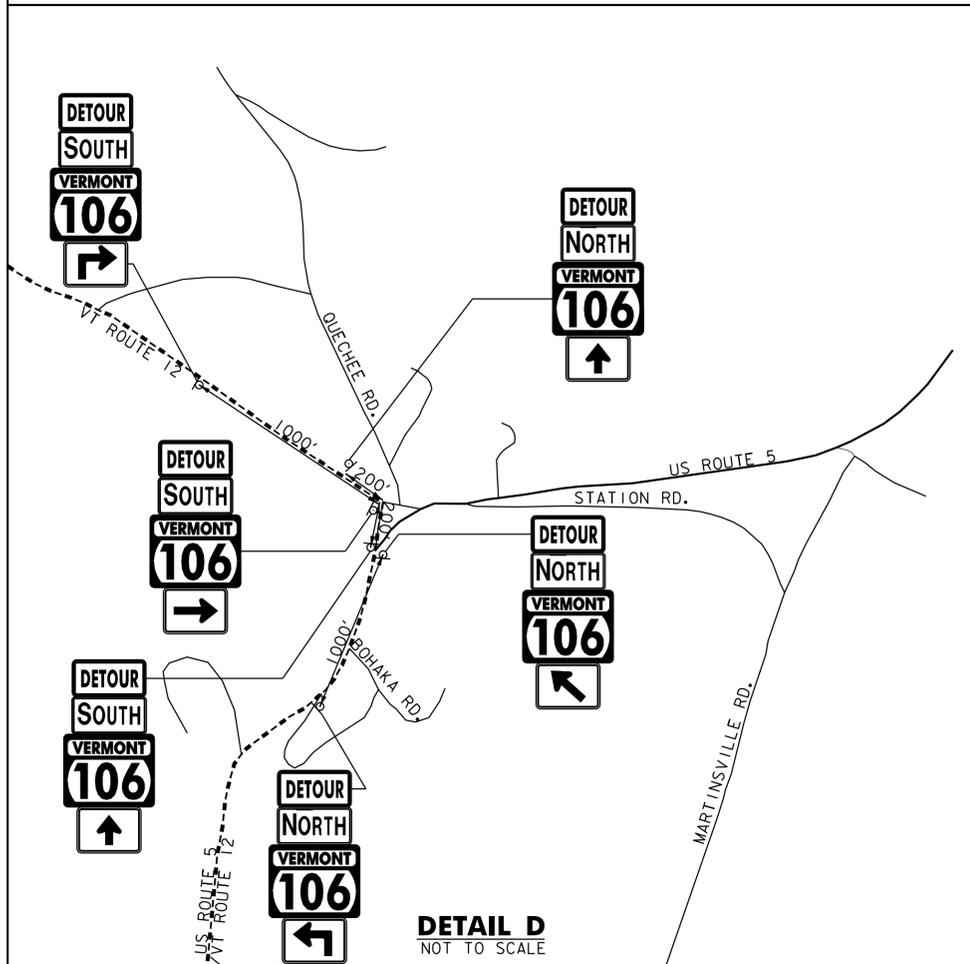
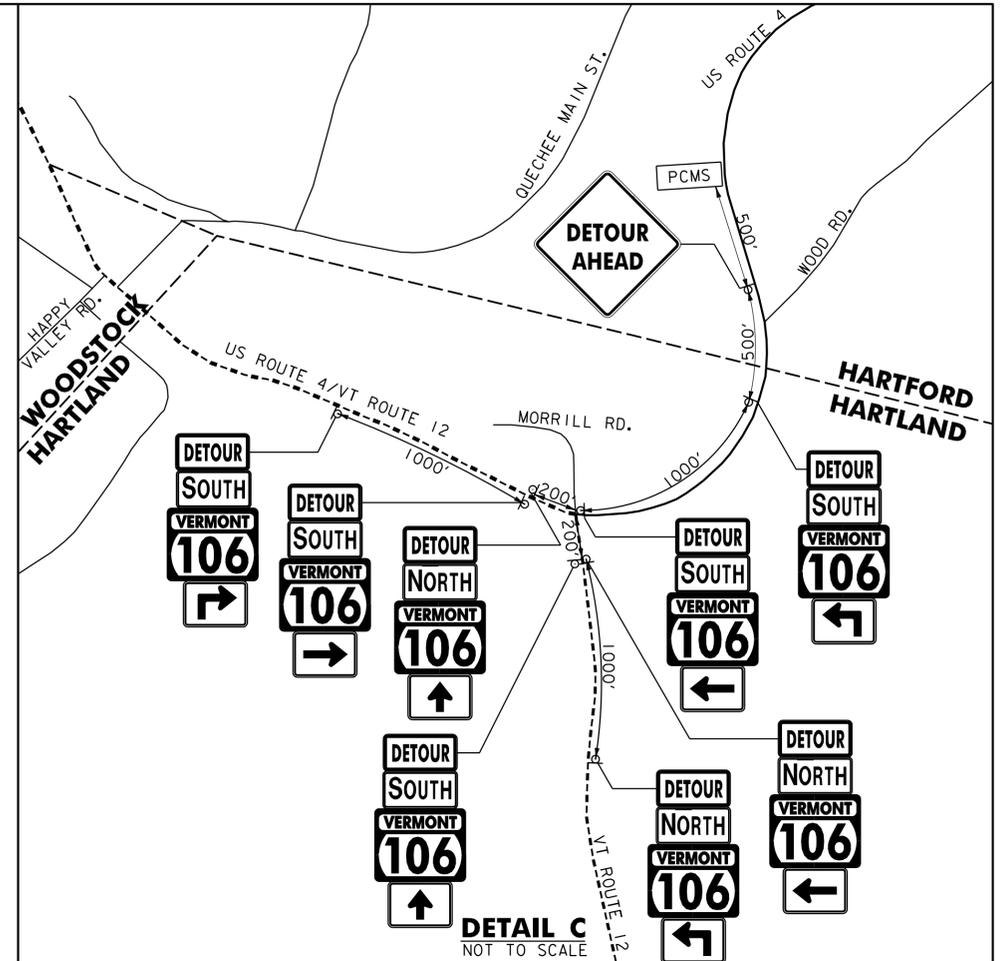
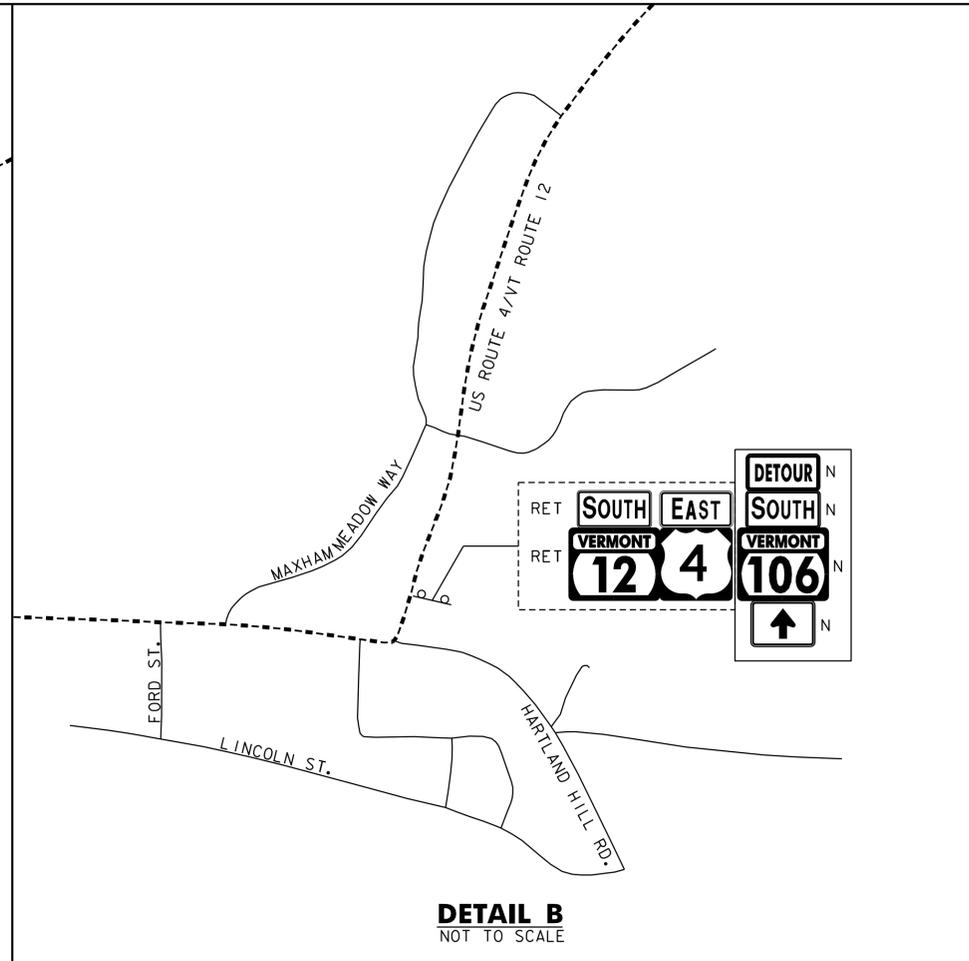
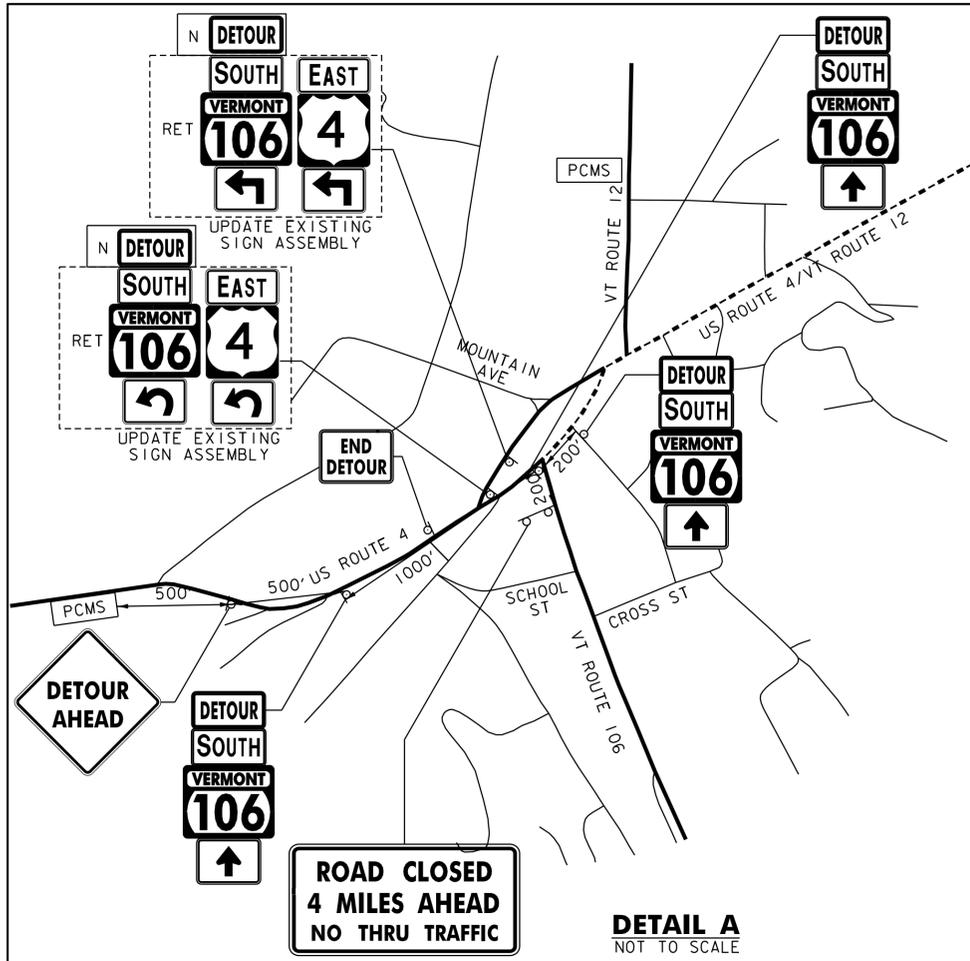
**LEGEND:**  
 - - - PROPOSED DETOUR ROUTE  
**A** INTERSECTION DETAIL, SEE SHEETS DD 1 & DD 2

NOT TO SCALE



PROJECT NAME: WOODSTOCK	PLOT DATE: 9/2/2015
PROJECT NUMBER: BRF 0151(21)	DRAWN BY: E. ALLING
FILE NAME: z10c426detour.dgn	CHECKED BY: I. MAYNARD
PROJECT LEADER: G. BOGUE	SHEET 14 OF 50
DESIGNED BY: E. ALLING	
DETOUR PLAN - DP 1	



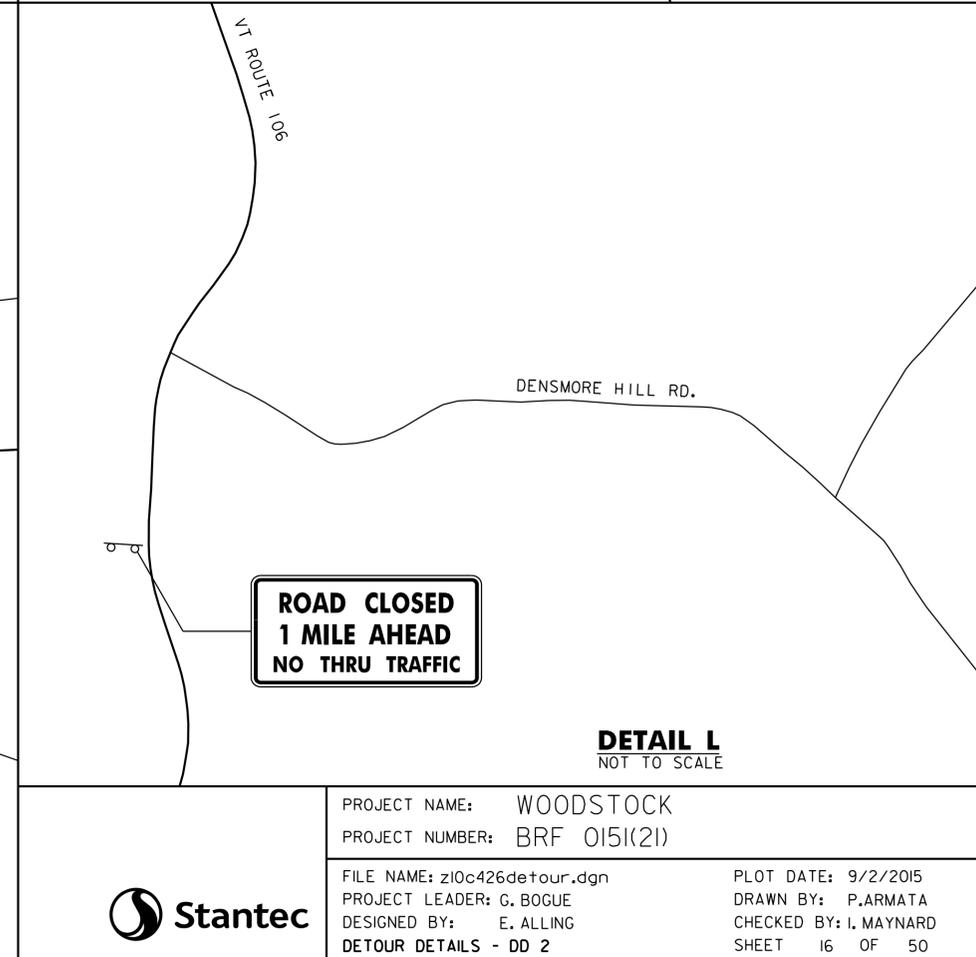
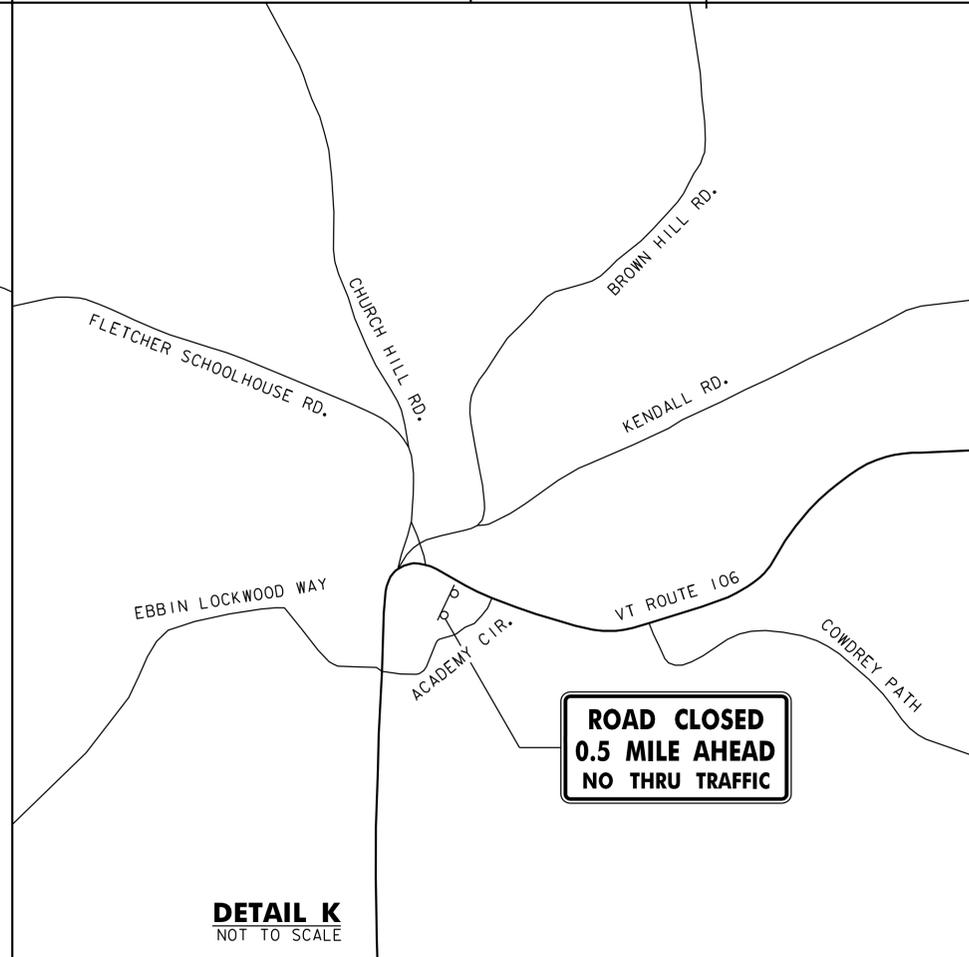
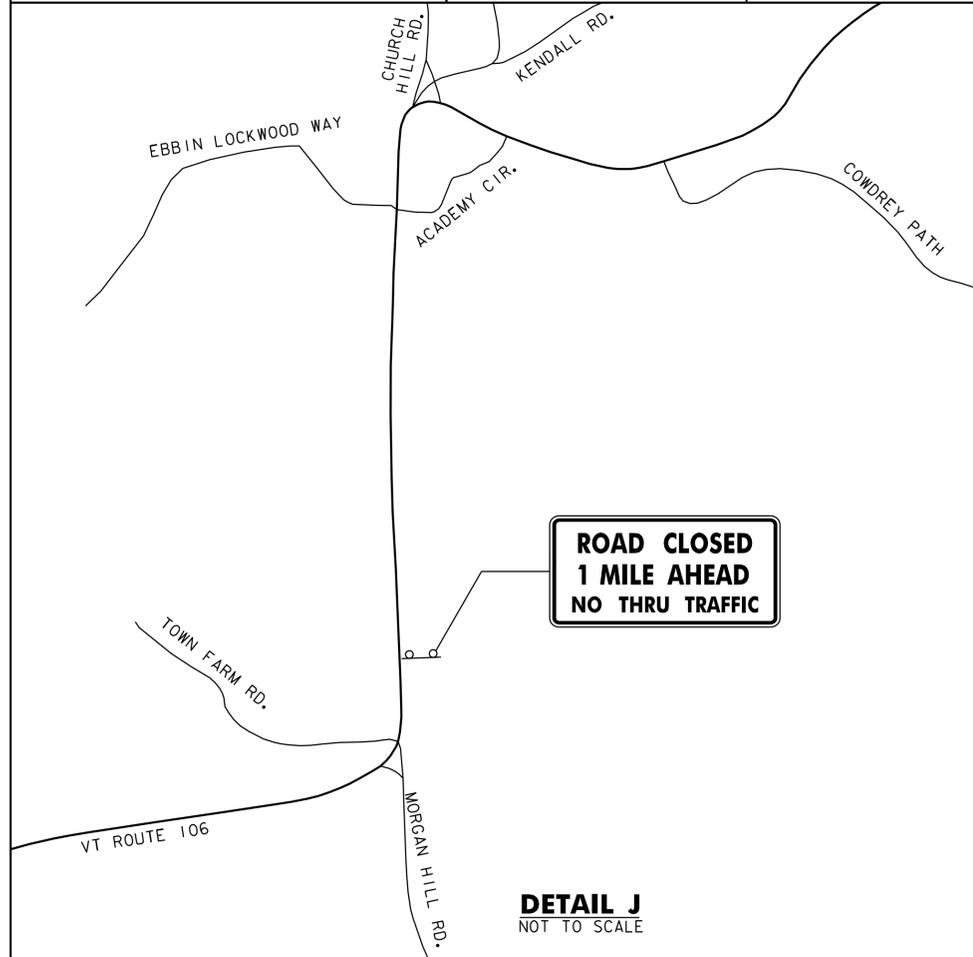
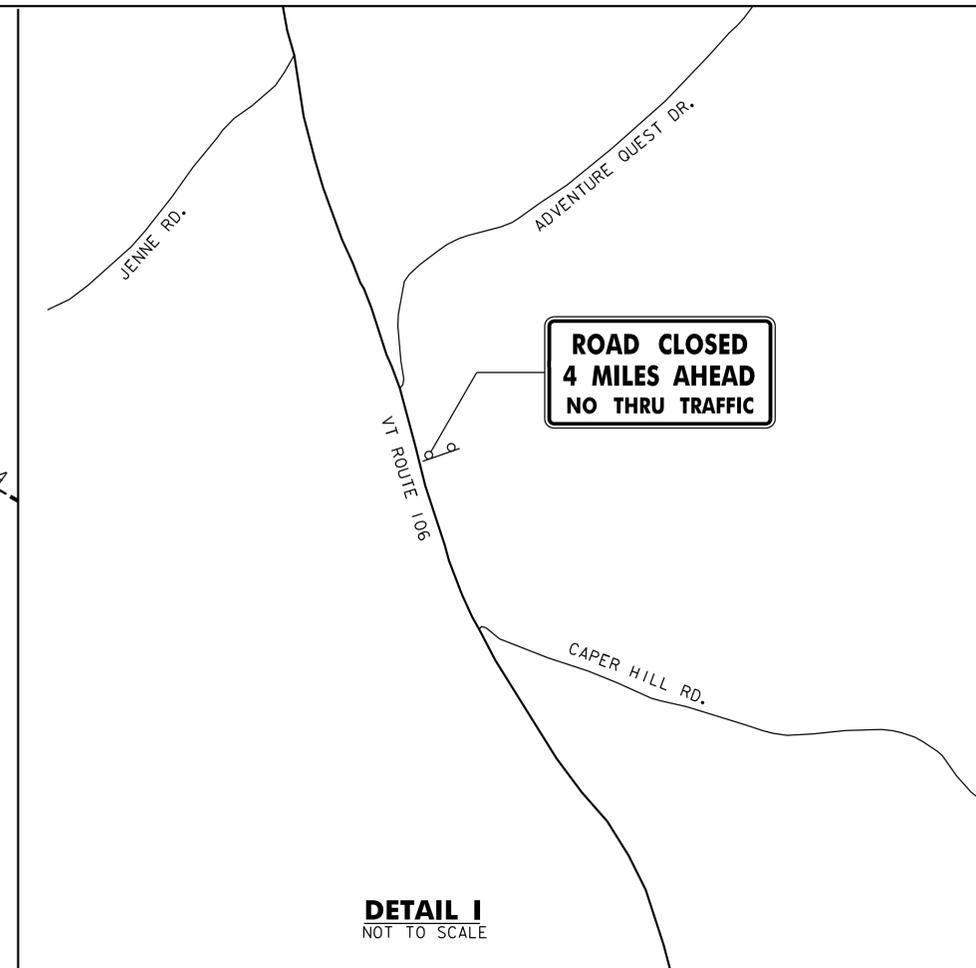
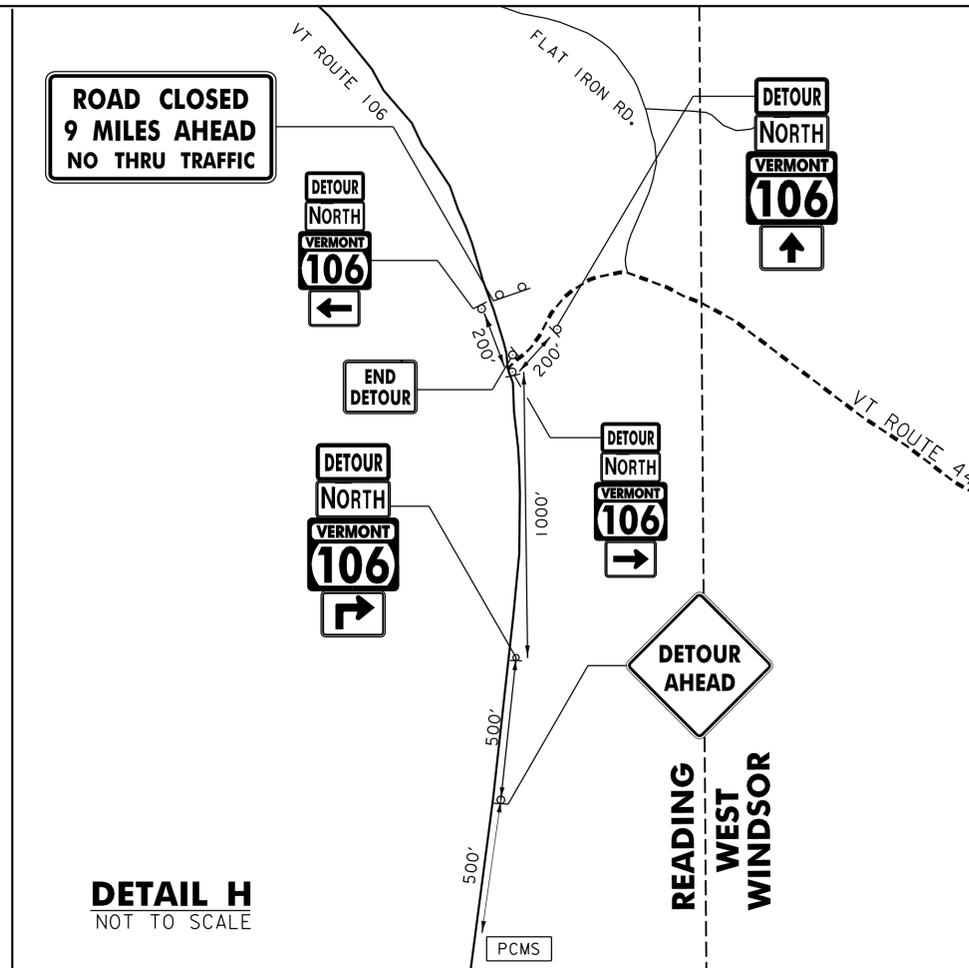
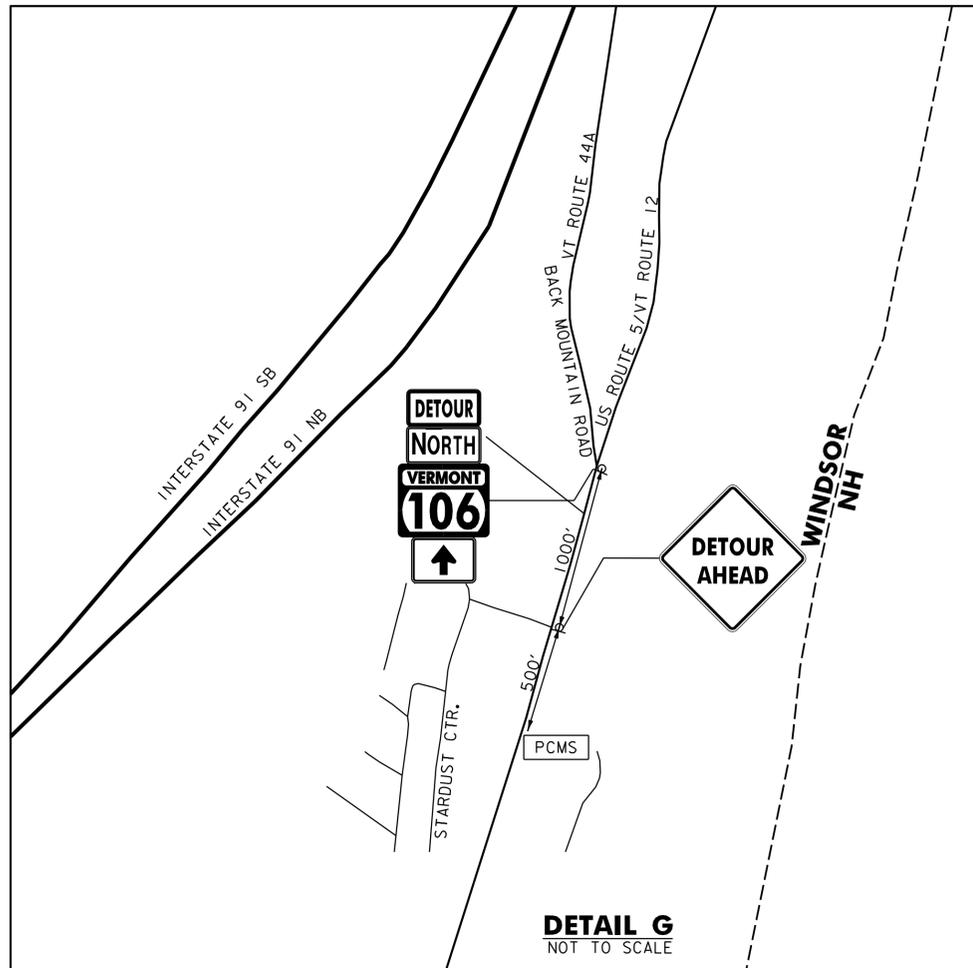


\* PLACE DETOUR SIGNS AT EXISTING VT 44 SIGN LOCATIONS



PROJECT NAME: WOODSTOCK  
 PROJECT NUMBER: BRF 0151(21)  
 FILE NAME: z10c426detour.dgn  
 PROJECT LEADER: G. BOGUE  
 DESIGNED BY: E. ALLING  
 DETOUR DETAILS - DD 1

PLOT DATE: 9/2/2015  
 DRAWN BY: P. ARMATA  
 CHECKED BY: I. MAYNARD  
 SHEET 15 OF 50



PROJECT NAME: WOODSTOCK	
PROJECT NUMBER: BRF 0151(21)	
FILE NAME: z10c426detour.dgn	PLOT DATE: 9/2/2015
PROJECT LEADER: G. BOGUE	DRAWN BY: P.ARMATA
DESIGNED BY: E. ALLING	CHECKED BY: I. MAYNARD
DETOUR DETAILS - DD 2	SHEET 16 OF 50

MESSAGES FOR PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) - REGIONAL DETOUR

STARTING 2 WEEKS PRIOR TO CLOSURE

(ROUTE) **	MESSAGE 1	MESSAGE 3***	(DATE) *
	<b>VT 106</b>	<b>MMMM DD</b>	
	<b>ROAD CLOSED</b>	<b>TO</b>	
		<b>MMMM DD</b>	(DATE) *

DURING CLOSURE

(ROUTE) **	MESSAGE 1	MESSAGE 2	***
	<b>VT 106</b>	<b>WOODSTOCK</b>	
	<b>ROAD CLOSED AT KENDALL RD</b>		

DURING CLOSURE - DETAIL G PCMS (ADVANCE NOTICE NOT NECESSARY AT THIS LOCATION)

MESSAGE 1	MESSAGE 2
<b>VT 106 N CLOSED</b>	<b>USE ROUTES 5 &amp; 12</b>
<b>AT S WOODSTOCK</b>	<b>FOR WOODSTOCK</b>

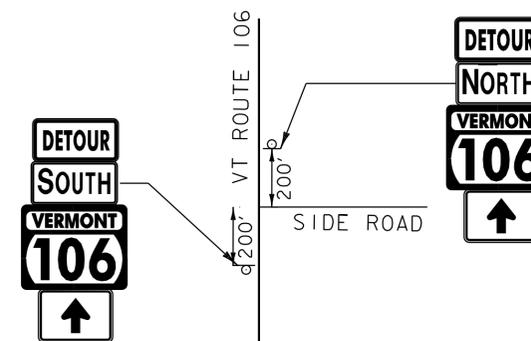
- \* - DATE SHALL BE SPELLED OUT (I.E. JUNE 10 NOT 6/10)
- \*\* - ROUTE 106 SHALL SPECIFY N (NORTH) OR S (SOUTH) AS APPROPRIATE FOR THE DETOUR.
- \*\*\* - DISPLAY 'BRYANT RD' FOR NORTHBOUND DETOUR APPROACHES
- \*\*\*\* - PCMS WILL DISPLAY THAT THE ROAD HAS REOPENED UPON COMPLETION OF THE PROJECT

PCMS = PORTABLE CHANGEABLE MESSAGE SIGN

ID NUMBER	SIGN TEXT	SIZE OF SIGN		NUMBER OF SIGNS REQ'D.	AREA OF EACH SIGN (SF)	COLOR	REMARKS
		WIDTH	HEIGHT				
W20-2		48"	48"	4	16.00	B/F0	INSTALL ON 2 POSTS
M6-3		21"	15"	27*	2.19	B/F0	MOUNT BELOW MI-6A
M6-1R		21"	15"	5	2.19	B/F0	MOUNT BELOW MI-6A
M6-1L		21"	15"	4	2.19	B/F0	MOUNT BELOW MI-6A
M5-1L		21"	15"	4	2.19	B/F0	MOUNT BELOW MI-6A
M5-1R		21"	15"	4	2.19	B/F0	MOUNT BELOW MI-6A
M6-2L		21"	15"	2	2.19	B/F0	MOUNT BELOW MI-6A
M4-8		24'	12"	47*	2.00	B/F0	MOUNT ABOVE M3-1 OR M3-3
M4-8a		24'	18"	2	3.00	B/F0	MOUNT ABOVE M3-1 OR M3-3
M3-1		24'	12"	22*	2.00	W/G	MOUNT ABOVE MI-6A
M3-3		24'	12"	24*	2.00	W/G	MOUNT ABOVE MI-6A
		30'	24"	46*	5.00	W/G	SEE DETAIL E-136B
R11-3B		60"	30"	6	12.50	B/W	INSTALL ON 2 POSTS

B/F0 = BLACK ON RETROREFLECTIVE ORANGE BACKGROUND  
W/G = RETROREFLECTIVE WHITE ON RETROREFLECTIVE GREEN BACKGROUND  
B/W = BLACK ON RETROREFLECTIVE WHITE BACKGROUND

\* ACTUAL NUMBER MAY BE GREATER BASED ON EXISTING ROUTE MARKER ASSEMBLIES, SEE NOTE 4 ON THIS SHEET.



CONFIRMATION ROUTE MARKER ASSEMBLY

NOT TO SCALE

NOTES:

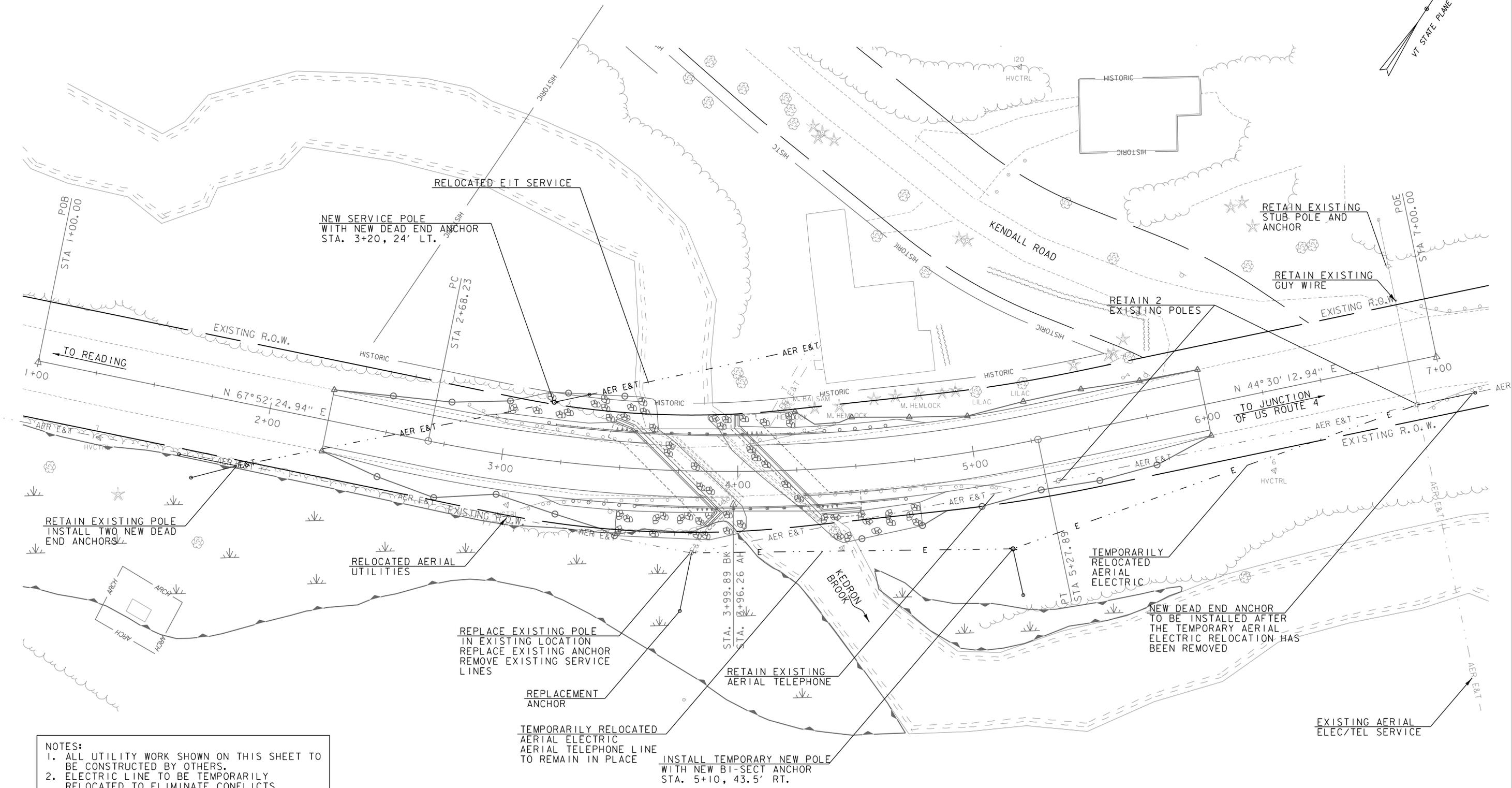
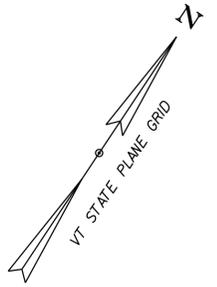
1. THE PORTABLE CHANGEABLE MESSAGE SIGN SHALL BE FULLY OPERATIONAL A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE OF VT 106.
2. PCMS'S SHALL HAVE MESSAGES CONFORMING TO THE LATEST EDITION OF THE MUTCD AND SHALL BE PLACED IN HIGHLY VISABLE LOCATIONS AS APPROVED BY THE ENGINEER.
3. DETOUR SIGNS SHALL BE LOCATED ADJACENT TO EXISTING INTERSECTION ROUTE MARKER ASSEMBLIES WHERE APPLICABLE.
4. COVER ANY CONFLICTING EXISTING SIGNS AS DIRECTED BY THE ENGINEER.
5. CONFIRMATION ROUTE MARKER ASSEMBLIES (SEE DETAIL, THIS SHEET) SHALL BE INSTALLED AT ALL LOCATIONS SHOWN ON THE DETOUR PLAN AND DETOUR DETAILS AND AT ALL LOCATIONS ALONG DETOUR WHERE ROUTE MARKERS EXIST FOR THE PARENT ROUTE.
6. SIGN SPACING IS FOR REFERENCE ONLY. FIELD ADJUSTMENTS WILL LIKELY BE NECESSARY, AS APPROVED BY THE ENGINEER.
7. DETOUR SIGNING IS THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES FOR IMPLEMENTING THE DETOUR, INCLUDING BUT NOT LIMITED TO SIGNS, BARRICADES AND MESSAGE BOARDS, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 015(21)

FILE NAME: z10c426detour.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: E. ALLING  
DETOUR DETAILS - DD 3

PLOT DATE: 9/2/2015  
DRAWN BY: P.ARMATA  
CHECKED BY: I. MAYNARD  
SHEET 17 OF 50





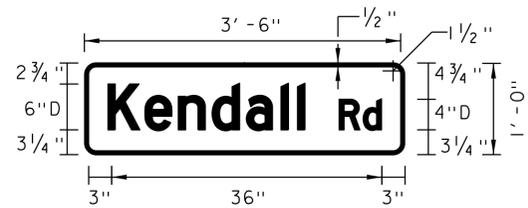
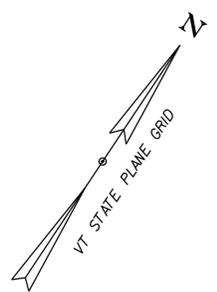
**NOTES:**  
 1. ALL UTILITY WORK SHOWN ON THIS SHEET TO BE CONSTRUCTED BY OTHERS.  
 2. ELECTRIC LINE TO BE TEMPORARILY RELOCATED TO ELIMINATE CONFLICTS BETWEEN CONSTRUCTION EQUIPMENT AND ENERGIZED ELECTRIC LINES. CONTRACTOR SHALL OBTAIN RELOCATION SCHEDULE DIRECTLY FROM UTILITY COMPANY AND ACCOUNT FOR RELOCATION SCHEDULE IN THE OVERALL PROJECT SCHEDULE.

**UTILITY LAYOUT SHEET**

SCALE: 1" = 20'-0" @ FULL SIZE  
 0 20 40

PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	L. BUXTON
FILE NAME:	z10c426bdr_util.dgn	DESIGNED BY:	VTRANS
PROJECT LEADER:	G. BOGUE	CHECKED BY:	E. ALLING
UTILITY LAYOUT SHEET - UTL 1			SHEET 18 OF 50





LOCATION: STA. 5+78, LT.

COLOR: WHITE BORDER AND TEXT (RETROREFLECTIVE)  
GREEN BACKGROUND (RETROREFLECTIVE)

MATERIAL: 0.100" THICKNESS

ITEM 646.404 - DURABLE 4 INCH  
WHITE LINE, POLYUREA

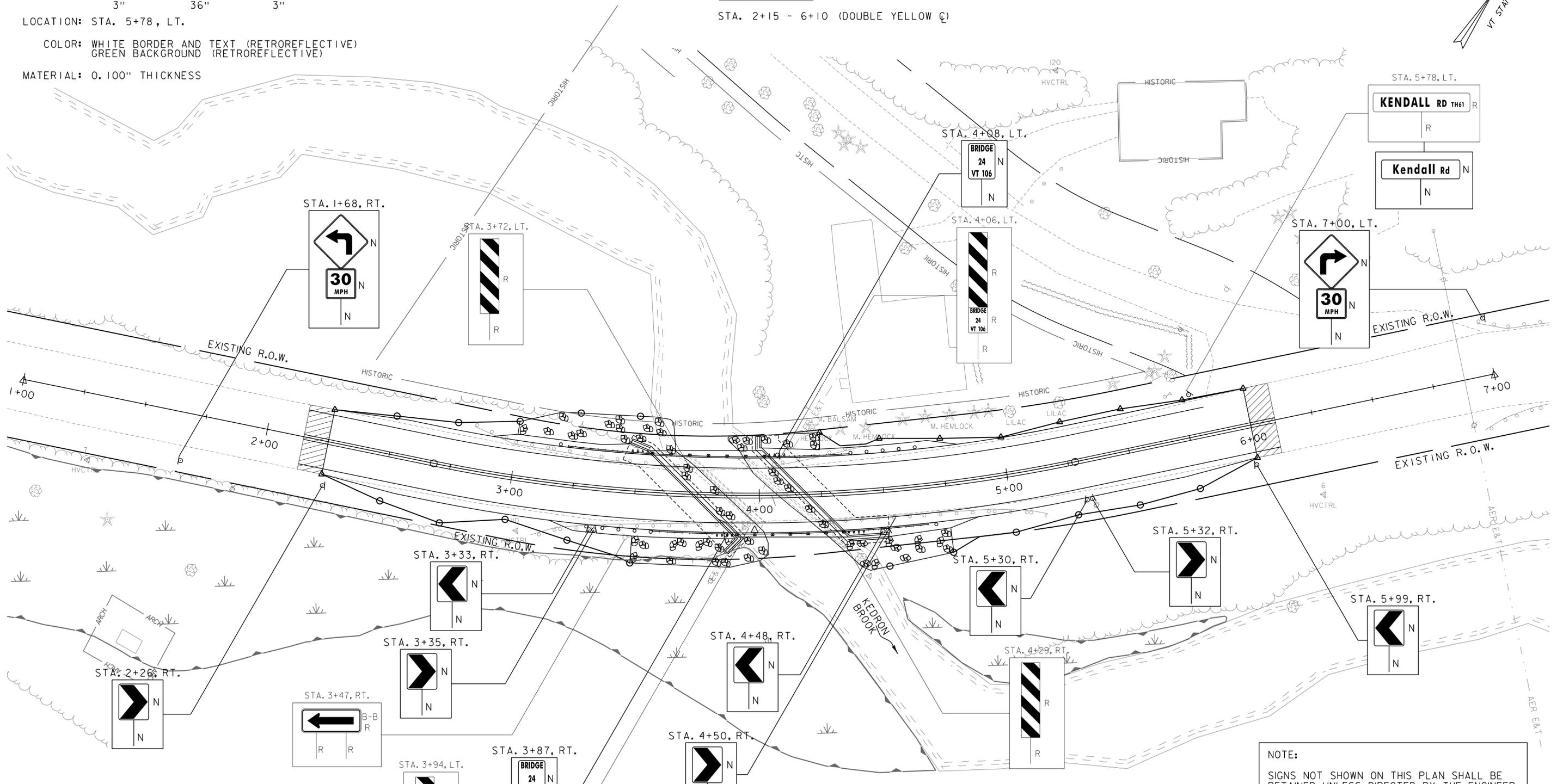
STA. 2+15 - 5+83, LT.  
STA. 2+15 - 6+10, RT.

ITEM 646.414 - DURABLE 4 INCH YELLOW  
LINE, POLYUREA

STA. 2+15 - 6+10 (DOUBLE YELLOW C)

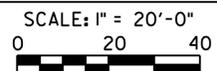
ITEM 675.50 - REMOVING SIGNS

AS SHOWN - 9



SIGN LEGEND	
N	= NEW
R	= REMOVE
R&S	= REMOVE & SALVAGE
S	= SALVAGE SIGN
RET	= RETAIN
B-B	= BACK TO BACK

TRAFFIC SIGNS AND LINES LAYOUT



PROJECT NAME:	WOODSTOCK
PROJECT NUMBER:	BRF 0151(21)
FILE NAME:	z10c426bdr_spm.dgn
PROJECT LEADER:	G. BOGUE
DESIGNED BY:	E. ALLING
TRAFFIC SIGNS AND LINES LAYOUT - TSL 1	SHEET 19 OF 50
PLOT DATE:	9/2/2015
DRAWN BY:	E. ALLING
CHECKED BY:	I. MAYNARD





**SOIL CLASSIFICATION**

AASHTO

A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

**ROCK QUALITY DESIGNATION**

R.O.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

**SHEAR STRENGTH**

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

**CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY**

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

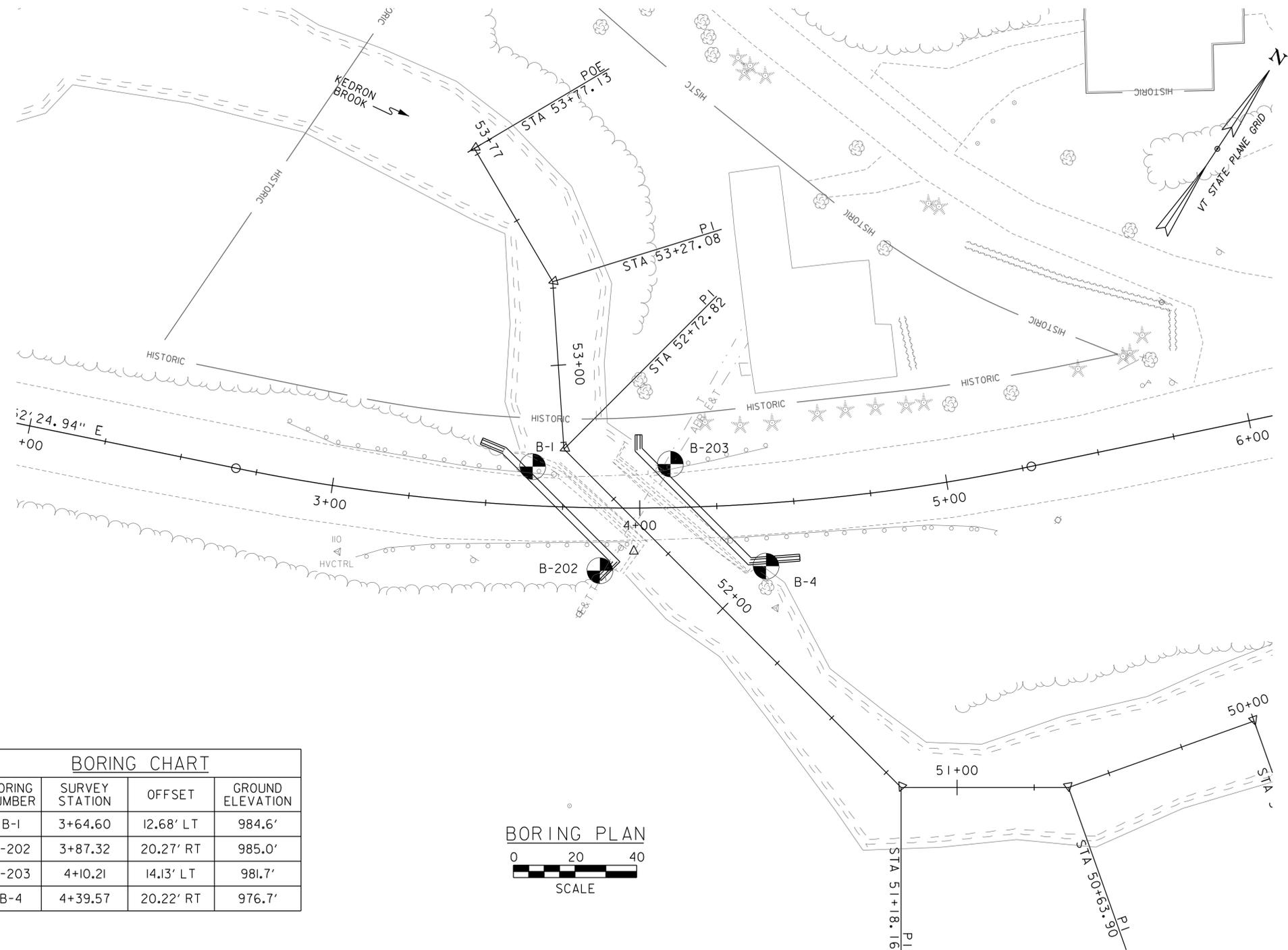
**COMMONLY USED SYMBOLS**

- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊕ Auger Boring
- ⊕ Rod Sounding
- ⊕ Sample
- N Standard Penetration Test
- Blow Count Per Foot For:  
2" O.D. Sampler  
1 3/8" I.D. Sampler  
Hammer Weight Of 140 Lbs.  
Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 5/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- SI Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB To Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- 1/2 Rec. Percent Recovery
- RQD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)

COLOR			
blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

**DEFINITIONS (AASHTO)**

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).
- SILT** - Soil < 0.0025" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED** - Alternate layers of silt and clay.
- HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.
- MUCK** - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT** - Weight of water divided by dry weight of soil.
- FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP** - Inclination of bed with a horizontal plane.



**GENERAL NOTES**

- The subsurface explorations shown herein were made in July 1986, and Nov-Dec 2004 by VTRANS.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
- Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

**LEGEND:**



PROJECT NAME: WOODSTOCK  
 PROJECT NUMBER: BRF 0151(21)  
 FILE NAME: z10c426bdr\_bor.pl.dgn  
 PROJECT LEADER: G. BOGUE  
 DESIGNED BY: J. HUNGERFORD  
 BORING PLAN

PLOT DATE: 9/2/2015  
 DRAWN BY: L. BUXTON  
 CHECKED BY: J. HUNGERFORD  
 SHEET 21 OF 50



STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-1 SHEET 1 of 1 DATE STARTED: 7/18/86 DATE COMPLETED:					
PROJECT NAME: WOODSTOCK SITE NAME: BR 24 STATION: 3+64.60 OFFSET: 12.68' LT		PROJECT NUMBER: BRS 0151(8)S SITE NUMBER: VT 106 GROUND ELEVATION: 984.61 ft GROUNDWATER DEPTH:					
BORING CREW CREW CHIEF: WILLIS DRILLER: WILLIS LOGGER: UNKNOWN		BORING RIG: UNKNOWN BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: CAA					
DEPTH ft	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER foot	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		No Sample, 5 ft- 6.9 ft					
10		A-2-4, SiSa, brn, Moist	R				
		A-4, Si HP, gry, Moist	R	8.7			
20		A-4, SaSi, gry, Moist	R	8.7			
		A-4, SaSi, gry, Moist	R	10.6			
30		A-4, SaSi, gry, Moist	R	10.1			
		Hole stopped @ 30.8 ft					
		DRILLER'S NOTES: Hole stopped in Sandy Silt, HP.					

LOC. OF BORING WOODSTOCK BRS0151(8)S(BP) VT ADT.BAT 2/16/05

BOTTOM OF FOOTING  
EL. 970.0

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-202 SHEET 1 of 1 DATE STARTED: 11/23/04 DATE COMPLETED: 11/30/04					
PROJECT NAME: WOODSTOCK SITE NAME: BR 24 STATION: 3+87.32 OFFSET: 20.27' RT		PROJECT NUMBER: BRS 0151(8)S SITE NUMBER: VT 106 GROUND ELEVATION: 985.01 ft GROUNDWATER DEPTH:					
BORING CREW CREW CHIEF: GARROW DRILLER: GARROW LOGGER: PUALWAN		BORING RIG: SMALL SKID RIG BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: CAA					
DEPTH ft	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER foot	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		A-2-4, SiSa, Dk/brn, Moist, Rec. = .7 ft	3	22.7	15.8	51.5	32.7
10		A-4, SaSi, gry-brn, Moist, Rec. = .3'	19	13.3	17.1	36.6	46.3
		A-1-b, SaGr, gry-brn, Moist, Rec. = .8 ft		22.0	48.3	41.9	9.8
		13.8 ft - 16.3 ft, BXDC, Boulder, Cleaned out casing.					
		16.4 ft - 19.5 ft, BXMDC, Boulder, Cored ahead & advanced casing.					
20		A-4, GrSaSi HP, gry, Moist, Rec. = .8 ft	R	8.6	27.8	31.6	40.6
		A-4, SaSi HP, gry, Moist, Rec. = .9 ft	R	9.3	16.5	32.4	51.1
30		A-2-4, SaSiGr, gry, Moist, Rec. = .5 ft	R	8.1	45.3	24.2	32.5
		A-1-b, SiSaGr, gry, Moist, Rec. = .4 ft	R	10.9	44.8	31.0	24.2
		Gray, Quartz-biotite schist, Competent, RQD value may be affected by mechanical breakage during drilling., Moderately hard, Unweathered, BXDC, 37 ft - 39.5 ft, Rec. = 2.1 ft	1	86	0	10	
		Gray, Quartz-biotite schist, Competent., Moderately hard, Unweathered, BXMDC, 39.5 ft - 44.4 ft, Rec. = 5 ft	2	100	80	10	
		Gray, Quartz-biotite schist, Competent., Moderately hard, Unweathered, BXMDC, 44.4 ft - 47.5 ft, Rec. = 3.1 ft	3	100	80	10	
		Hole stopped @ 47.5 ft					
		DRILLER'S NOTES: No Groundwater Depth. Hole caved in @ 11.8 ft					

LOC. OF BORING WOODSTOCK BRS0151(8)S(BP) VT ADT.BAT 2/16/05

APPROX. BOTTOM OF CASING  
EL. 947.0

APPROX. BOTTOM OF PILE  
EL. 943.0 PLUMB PILE  
EL. 941.0 BATTERED PILE

1'-0"

4' - PLUMB PILES  
6' - BATTERED PILES

PROJECT NAME: WOODSTOCK	PLOT DATE: 9/2/2015
PROJECT NUMBER: BRF 0151(21)	DRAWN BY: L. BUXTON
FILE NAME: z10c426bor_log.dgn	CHECKED BY: J. HUNGERFORD
PROJECT LEADER: G. BOGUE	SHEET 22 OF 50
DESIGNED BY: VTRANS	
BORING LOG 1	



STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-203 SHEET 1 of 1 DATE STARTED: 12/07/04 DATE COMPLETED: 12/13/04					
PROJECT NAME: WOODSTOCK SITE NAME: BR 24 STATION: 4+10.21 OFFSET: 14.13' LT		PROJECT NUMBER: BRS 0151(8)S SITE NUMBER: VT 106 GROUND ELEVATION: 981.66 ft GROUNDWATER DEPTH:					
BORING CREW CREW CHIEF: GARROW DRILLER: GARROW LOGGER: PUALWAN		BORING RIG: SMALL SKID RIG BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: CAA					
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER foot	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	ROD (%)	Dip (deg)	Drill Rate (min/1 ft)
		A-2-4, SiSa, gry-brn, Moist, Rec. = .5 ft	16	17.7	17.7	54.8	27.5
		6.9 ft - 10 ft, BXDC, Cleaned out casing					
		A-2-4, SiSaGr HP, gry, Moist, Rec. = .4 ft	R	7.2	36.8	33.8	29.4
		13.5 ft - 14.8 ft, BXDC, Cleaned out casing					
		A-4, GrSaSi HP, gry, Moist, Rec. = 1 ft	R	8.6	24.6	30.5	44.9
		18.7 ft - 19.7 ft, BXDC, Cleaned out casing					
		A-4, SaSi HP, gry, Moist, Rec. = 1.4 ft	R	9.6	16.4	39.9	43.7
		23.4 ft - 24.6 ft, BXDC, Cleaned out casing					
		A-4, SaSi HP, gry, Moist, Rec. = 1.8 ft	R	9.3	14.3	34.4	51.3
		28.3 ft - 29.5 ft, BXDC, Cleaned out casing					
		A-4, SaSi HP, gry, Moist, Rec. = .5 ft	R	9.4	14.5	35.9	49.6
		33.2 ft - 34.5 ft, BXDC, Cored ahead & broke through					
		A-4, SaSi HP, gry, Moist, Rec. = 1.5 ft	R	9.3	12.3	35.2	52.5
		Top of Bedrock @ 38.5 ft					
		Gray, Phyllitic quartz-biotite schist, Competency fair, Moderately hard, Slightly weathered, BXDC, 38.5 ft - 40.4 ft, Rec. = 1.1 ft	1	55	0	20	12 13
		Gray, Phyllitic quartz-biotite schist, Competent., Moderately hard, Unweathered, BXMDC, 40.4 ft - 45.4 ft, Rec. = 4.6 ft	2	94	46	20	5 6 9 7 8
		Gray, Phyllitic quartz-biotite schist, Competent., Moderately hard, Unweathered, BXMDC, 45.4 ft - 49.4 ft, Rec. = 3 ft	3	73	69	20	12 11 15 22
		Hole stopped @ 49.4 ft					
		DRILLER'S NOTES: Hole was moved 11.5 ft left, because of power pole obstruction. No Groundwater Depth. Hole caved in.					

BOTTOM OF FOOTING  
EL. 970.0

APPROX. BOTTOM  
OF CASING  
EL. 942.2

APPROX. BOTTOM  
OF PILE  
EL. 938.2 PLUMB PILE  
EL. 936.2 BATTERED PILE

LOG OF BORING WOODSTOCK BR50151(8)S.GPJ, VT, AOT, AOT, 2/16/05  
4' - PLUMB PILES  
6' - BATTERED PILES

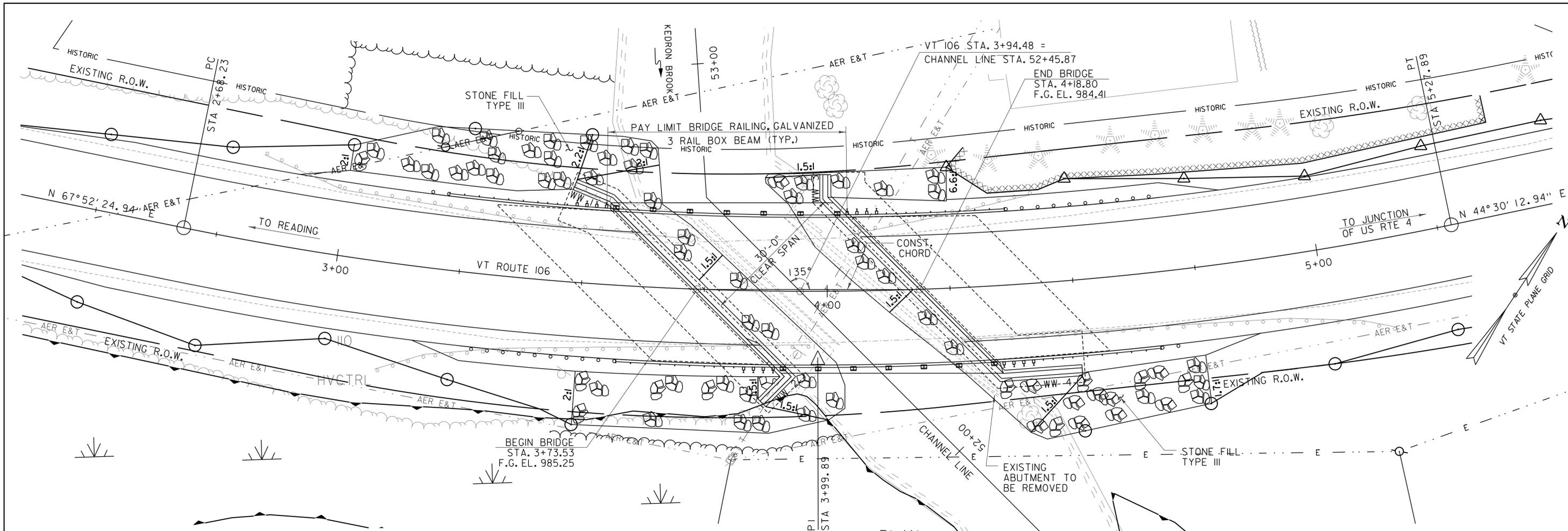
STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING NUMBER: B-4 SHEET 1 of 1 DATE STARTED: 7/16/86 DATE COMPLETED:					
PROJECT NAME: WOODSTOCK SITE NAME: BR 24 STATION: 4+39.57 OFFSET: 20.22' RT		PROJECT NUMBER: BRS 0151(8)S SITE NUMBER: VT 106 GROUND ELEVATION: 976.71 ft GROUNDWATER DEPTH:					
BORING CREW CREW CHIEF: WILLIS DRILLER: WILLIS LOGGER: UNKNOWN		BORING RIG: UNKNOWN BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL CHECKED BY: CAA					
DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER foot	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	ROD (%)	Dip (deg)	Drill Rate (min/1 ft)
		A-2-4, SiGr HP, gry, Moist	R	11.1			
		10					
		A-4, SaSi HP, gry, Moist, Hit Boulder	R	10.2			
		AXMDC, HP & Boulder, 12.5 ft - 17.4 ft					
		20					
		A-4, SaSi HP, gry, Moist BX, Boulder, 20.3 ft - 21.3 ft AXMDC, HP & Boulder, 21.3 ft - 26.2 ft	R	5.7			
		Hole stopped @ 26.2 ft					
		DRILLER'S NOTES: Hole stopped in HP & Boulders.					
		30					

BOTTOM OF FOOTING  
EL. 970.0

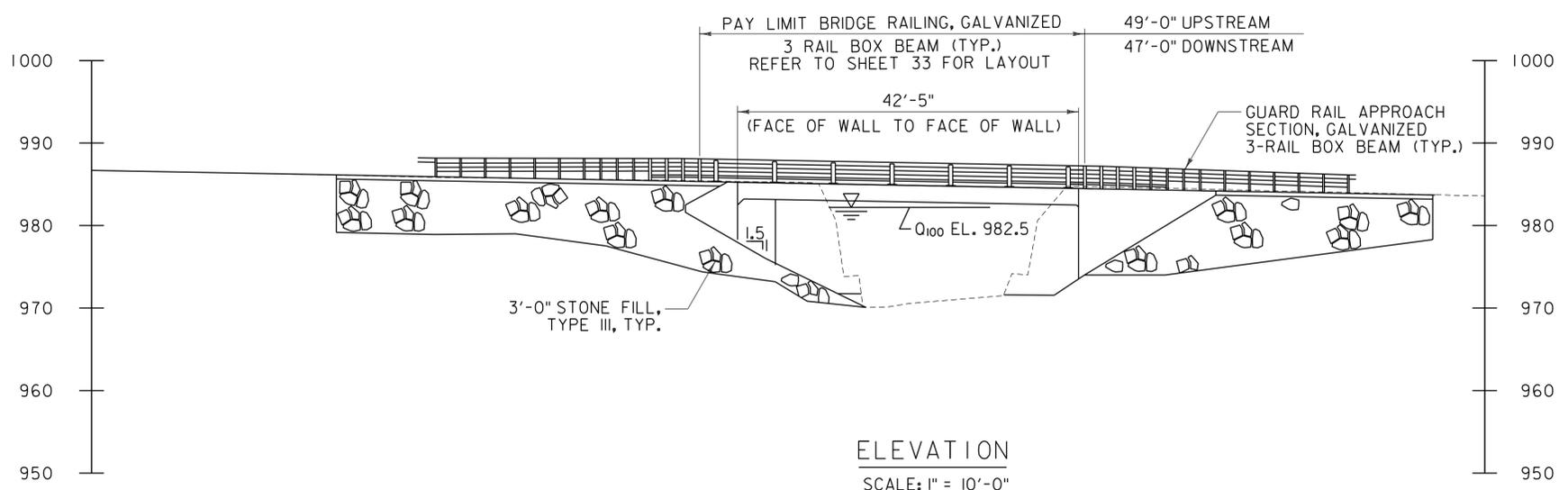
LOG OF BORING WOODSTOCK BR50151(8)S.GPJ, VT, AOT, AOT, 2/16/05

PROJECT NAME: WOODSTOCK	PLOT DATE: 9/2/2015
PROJECT NUMBER: BRF 0151(21)	DRAWN BY: L. BUXTON
FILE NAME: z10c426bor_log.dgn	CHECKED BY: J. HUNGERFORD
PROJECT LEADER: G. BOGUE	SHEET 23 OF 50
DESIGNED BY: VTRANS	
BORING LOG 2	





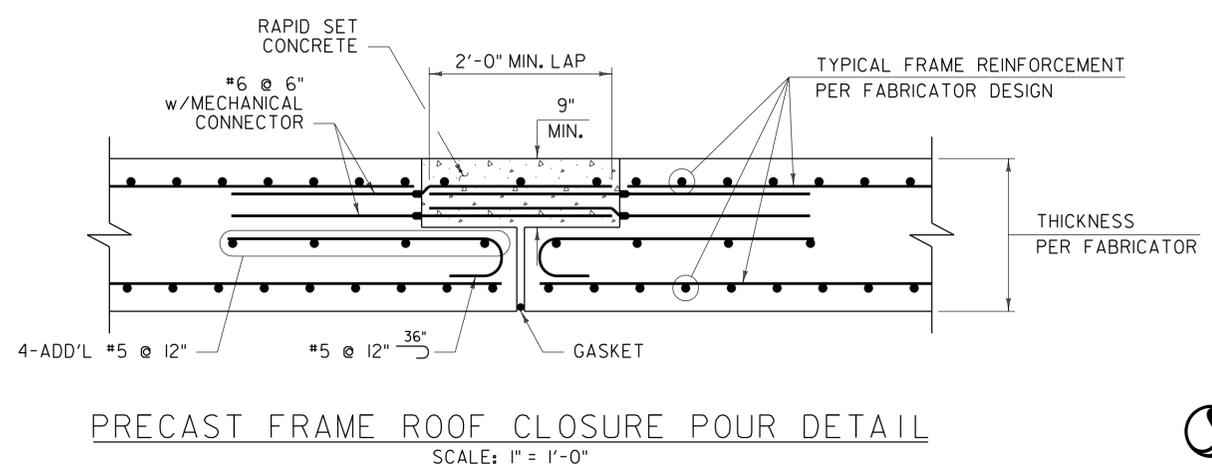
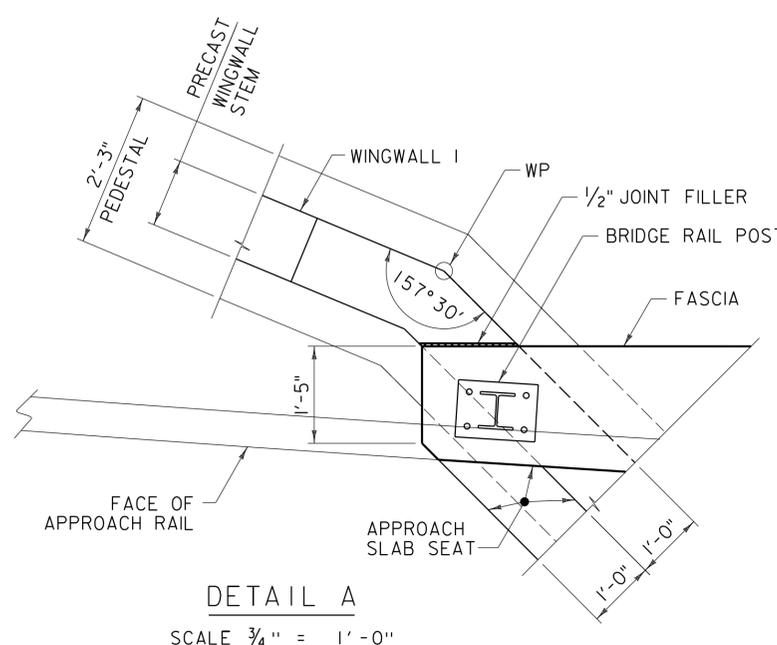
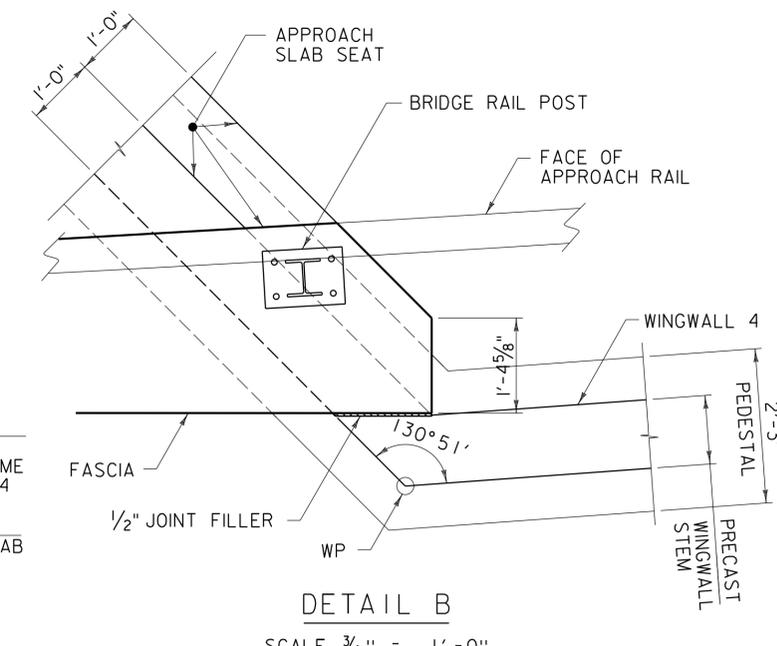
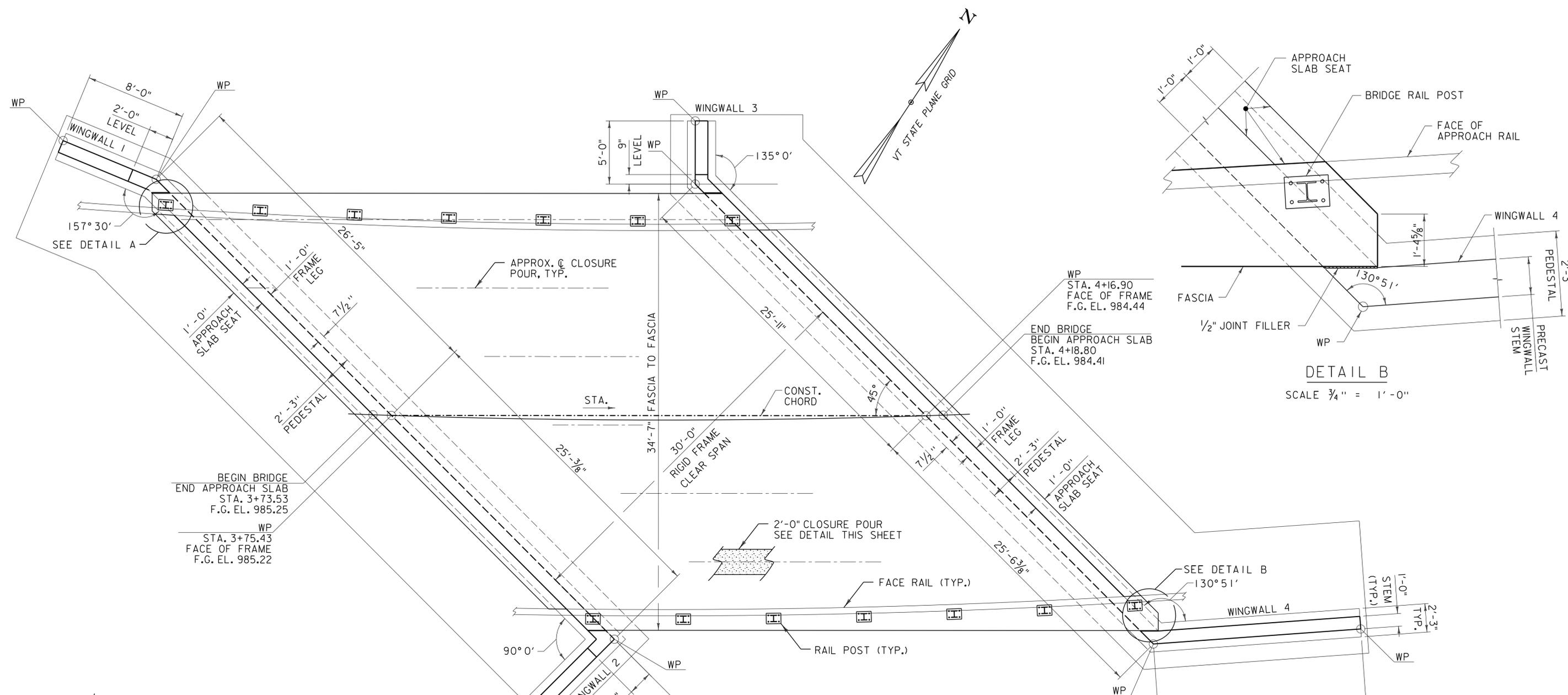
PLAN  
SCALE: 1" = 10'-0"  
0 10 20



ELEVATION  
SCALE: 1" = 10'-0"  
0 10 20

PROJECT NAME:	WOODSTOCK	FILE NAME:	z10c426bdr_pe.dgn	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	PROJECT LEADER:	G. BOGUE	DRAWN BY:	L. BUXTON
		DESIGNED BY:	T. KNIGHT	CHECKED BY:	J. HUNGERFORD
		PLAN AND ELEVATION			SHEET 24 OF 50





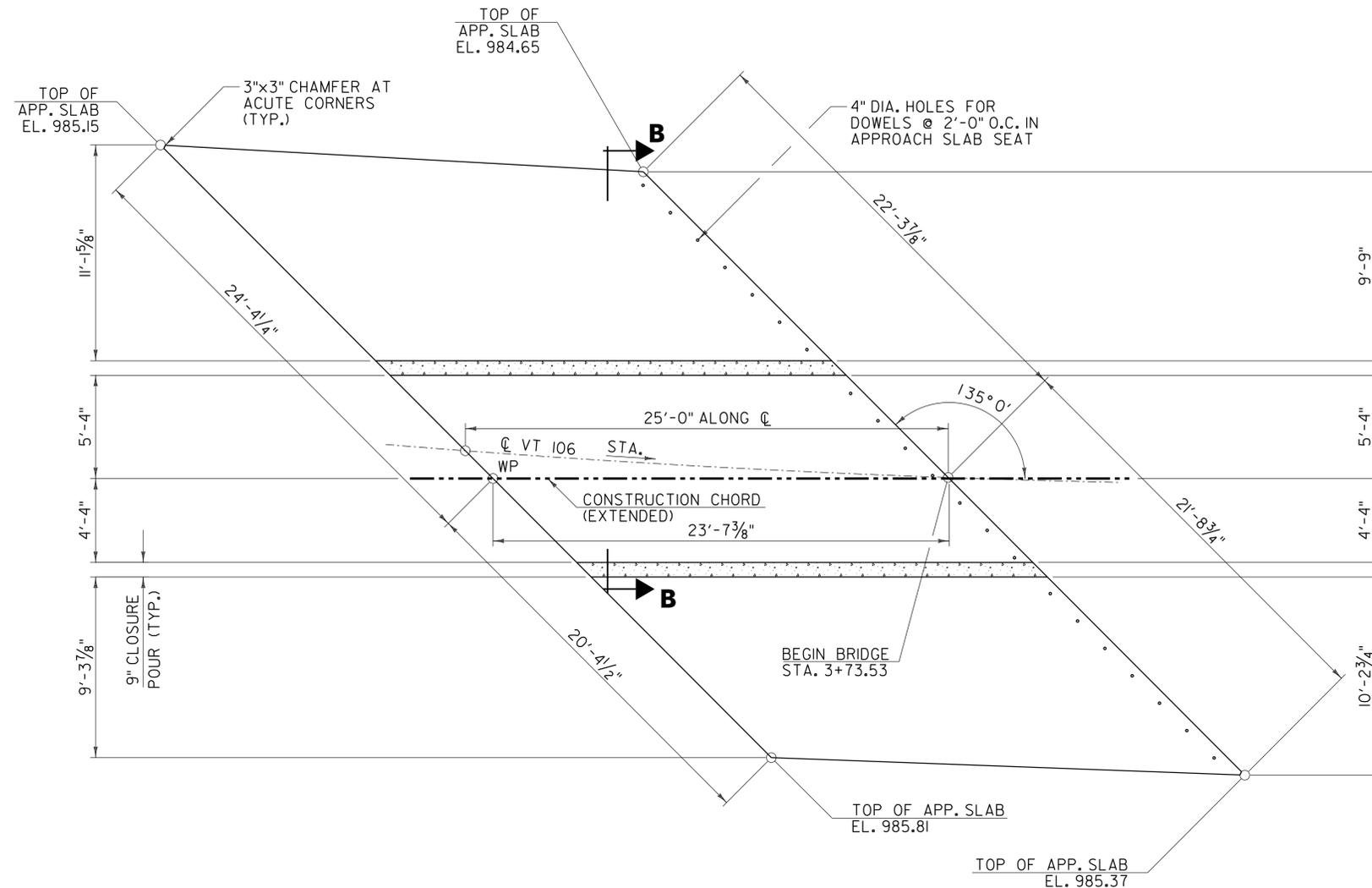
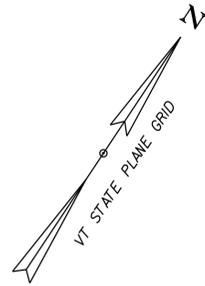
NOTE:  
REINFORCING IN THE CLOSURE  
POUR WILL BE PAID UNDER  
ITEM 507J2, REINFORCING STEEL,  
LEVEL II (FPO).

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

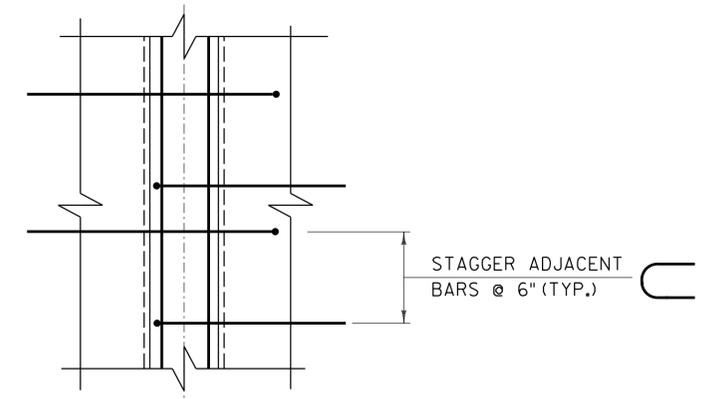
FILE NAME: z10c426struct.pl.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: N. TIRK  
STRUCTURAL PLAN

PLOT DATE: 9/24/2015  
DRAWN BY: L. BUXTON  
CHECKED BY: T. KNIGHT  
SHEET 25 OF 50

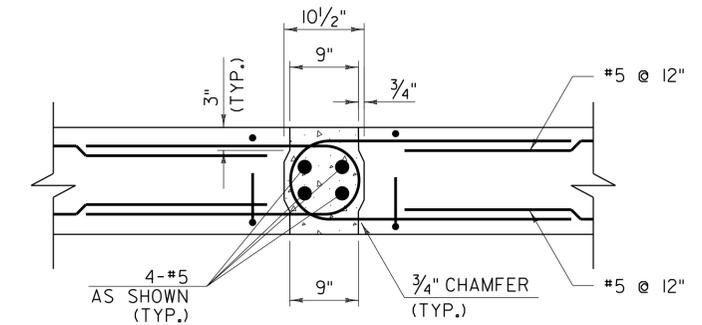




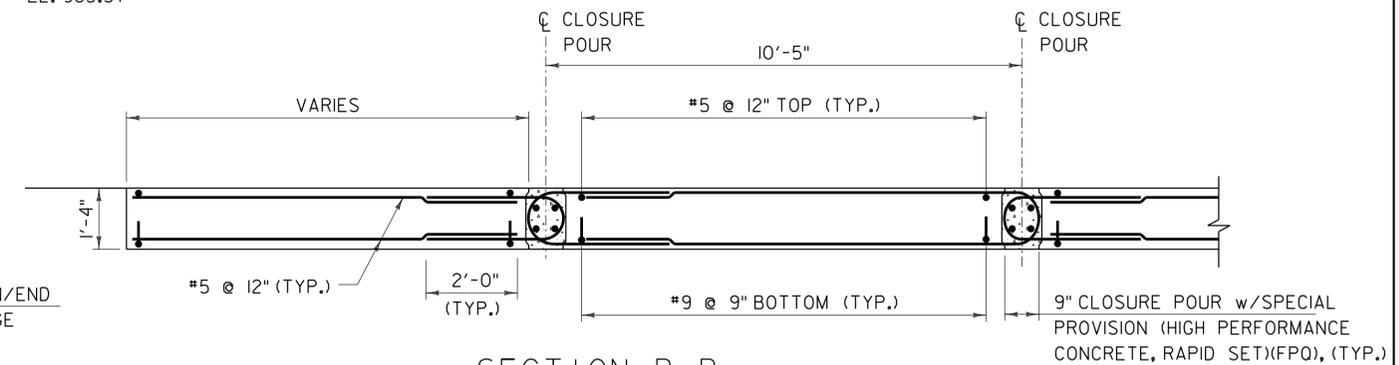
APPROACH SLAB I - PLAN  
SCALE: 1/4" = 1'-0"



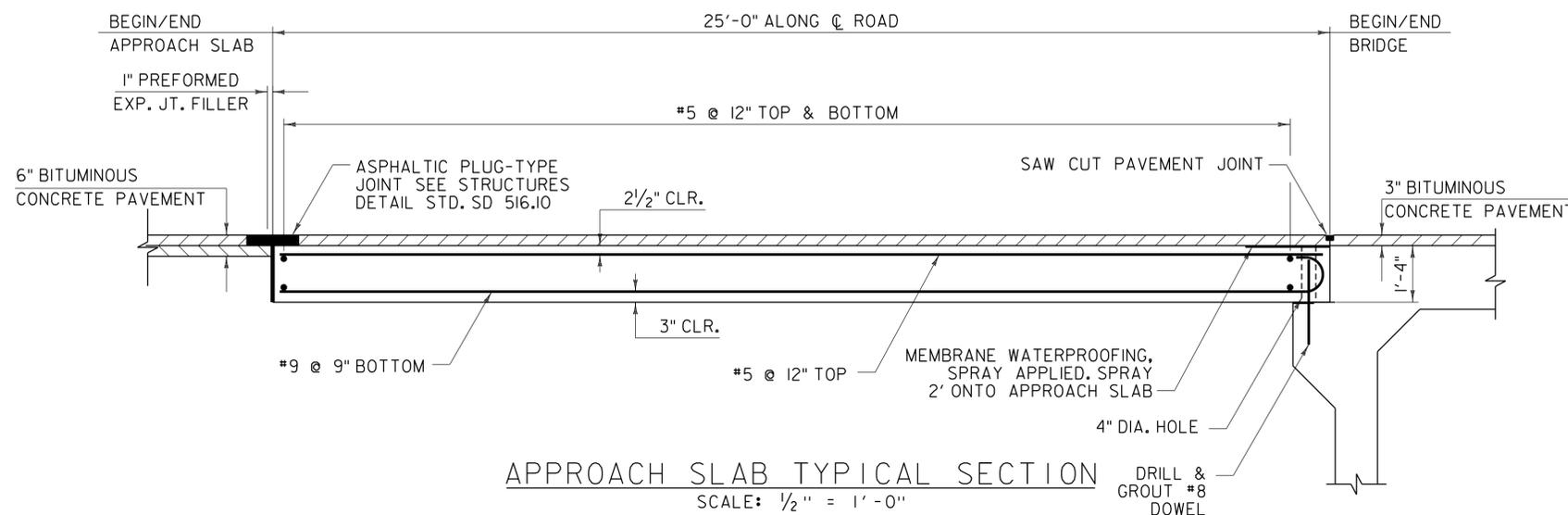
CONNECTION DETAIL PLAN  
SCALE: 1" = 1'-0"



CONNECTION DETAIL SECTION  
SCALE: 1" = 1'-0"



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



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

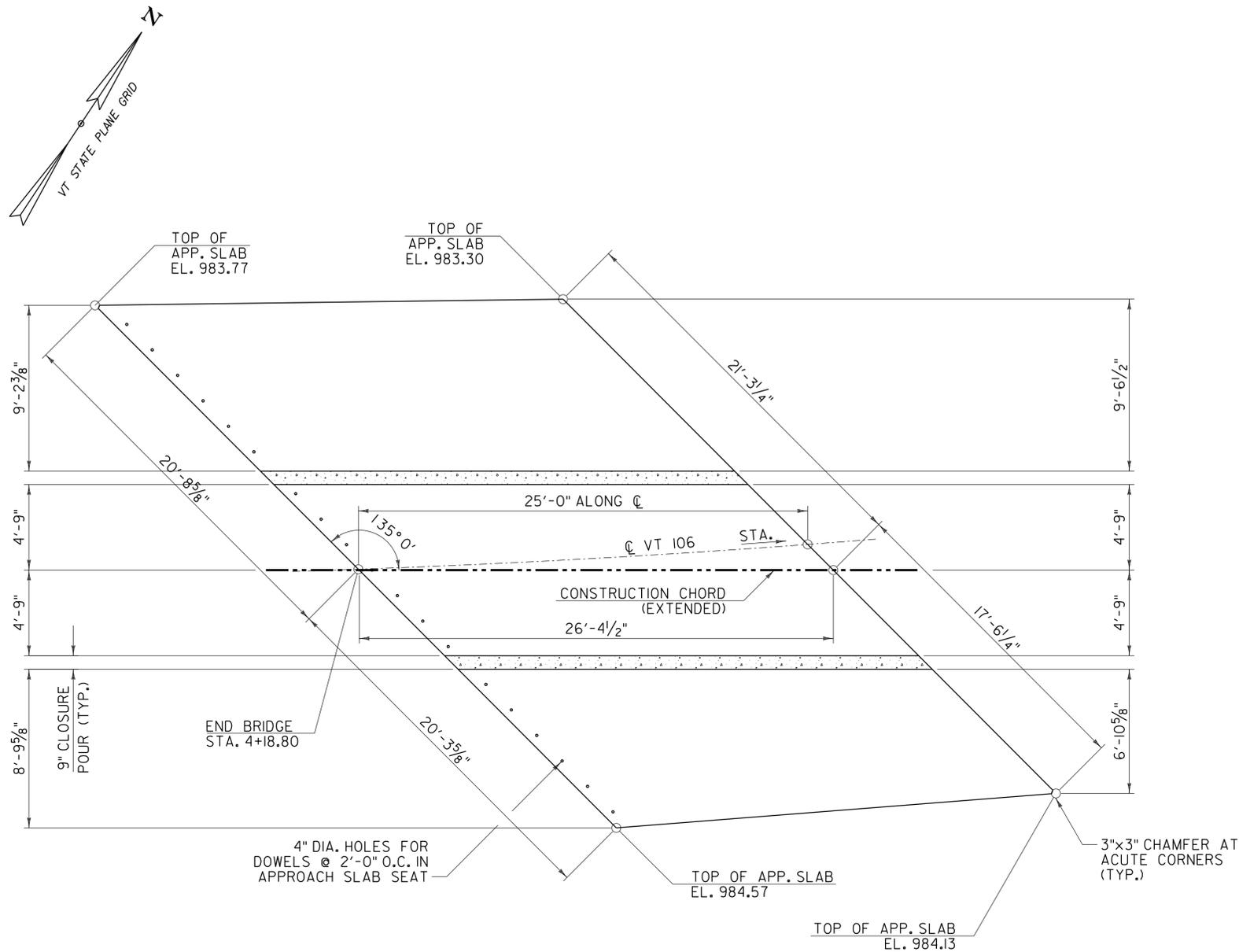
NOTE:  
ALL REINFORCING IN CLOSURE POURS WILL BE PAID UNDER ITEM 507.12, REINFORCING STEEL, LEVEL II(FPO).

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

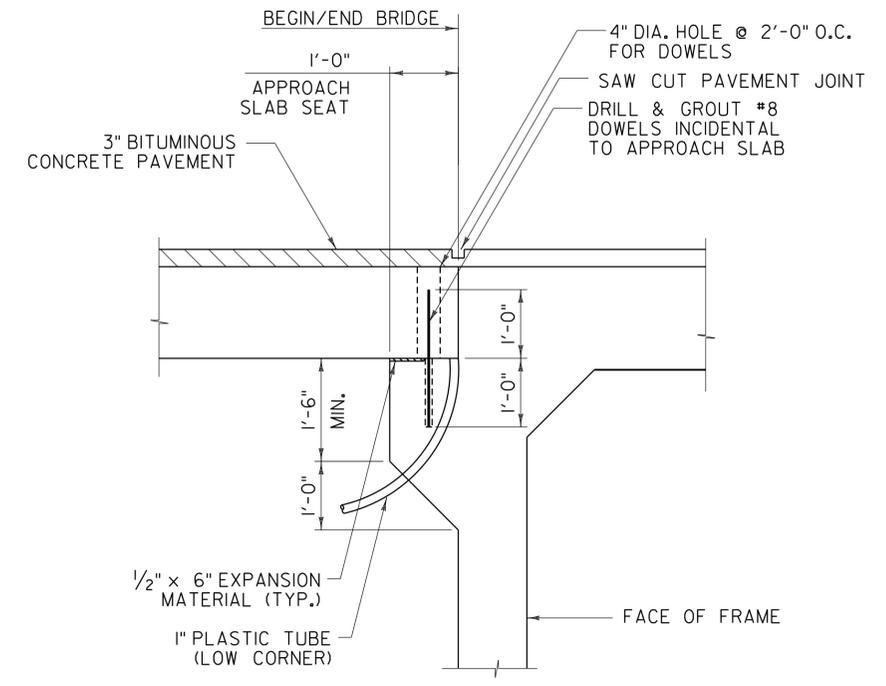
FILE NAME: z10c426appslab.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: N. TIRK  
APPROACH SLAB DETAILS I

PLOT DATE: 9/24/2015  
DRAWN BY: J. SOTER  
CHECKED BY: T. KNIGHT  
SHEET 26 OF 50





APPROACH SLAB 2 - PLAN  
SCALE: 1/4" = 1'-0"



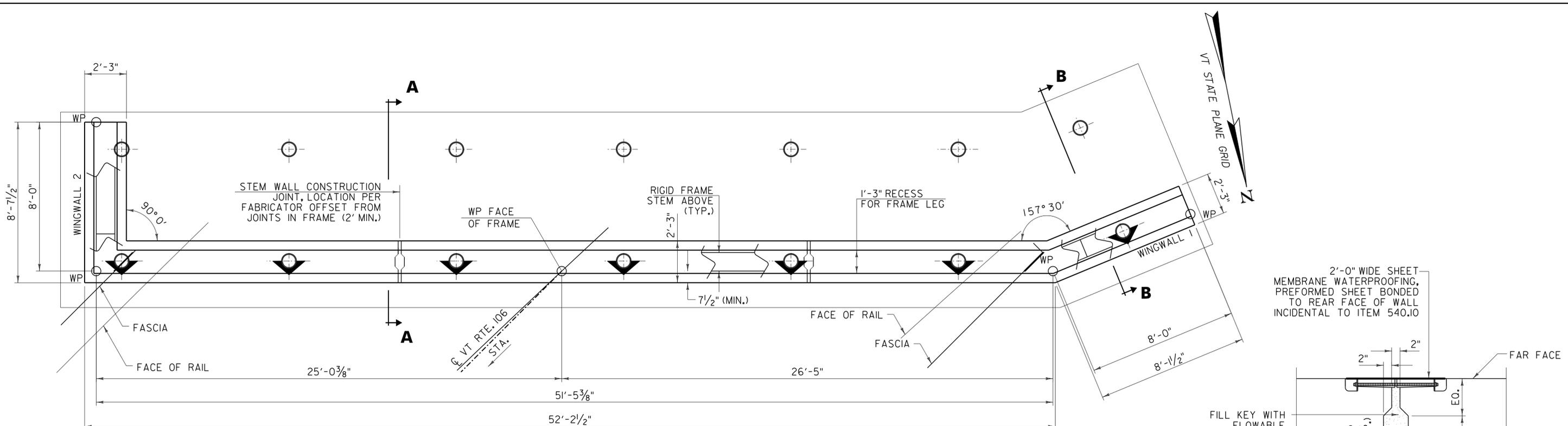
REINFORCEMENT NOT SHOWN

BRIDGE END DETAIL

SCALE 3/4" = 1'-0"

PROJECT NAME:	WOODSTOCK	FILE NAME:	z10c426appslab.dgn	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	PROJECT LEADER:	G. BOGUE	DRAWN BY:	J. SOTER
		DESIGNED BY:	N. TIRK	CHECKED BY:	T. KNIGHT
		APPROACH SLAB DETAILS 2		SHEET	27 OF 50





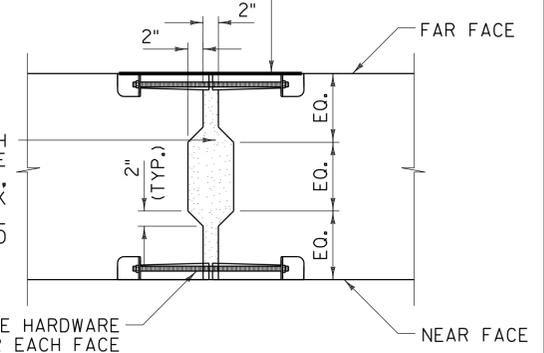
**PEDESTAL I PLAN**  
SCALE 3/8" = 1'-0"

- LEGEND**
- VERTICAL MICROPILE
  - ⊙ MICROPILE BATTERED 1 HORIZ. TO 10 VERT.

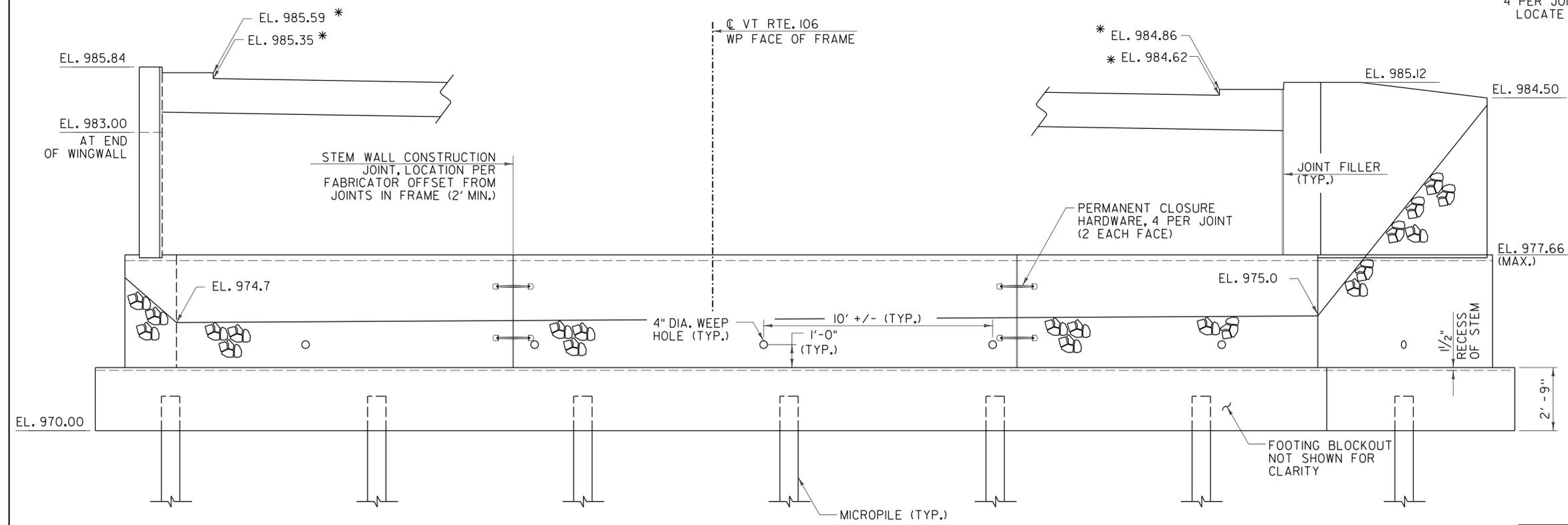
2'-0" WIDE SHEET MEMBRANE WATERPROOFING, PREFORMED SHEET BONDED TO REAR FACE OF WALL INCIDENTAL TO ITEM 540.10

FILL KEY WITH FLOWABLE HIGH STRENGTH, NON-SHRINK GROUT INCIDENTAL TO ITEM 540.10

PERMANENT CLOSURE HARDWARE 4 PER JOINT, 2 EACH FACE LOCATE PER FABRICATOR

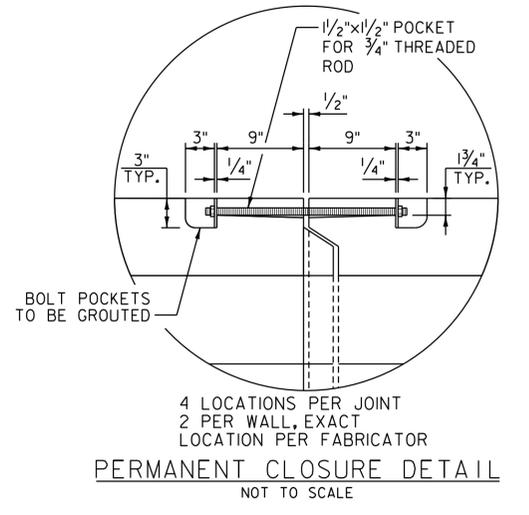


**STEM WALL CONSTRUCTION JOINT DETAIL**  
SCALE 1" = 1'-0"



**PEDESTAL I ELEVATION**  
SCALE 3/8" = 1'-0"

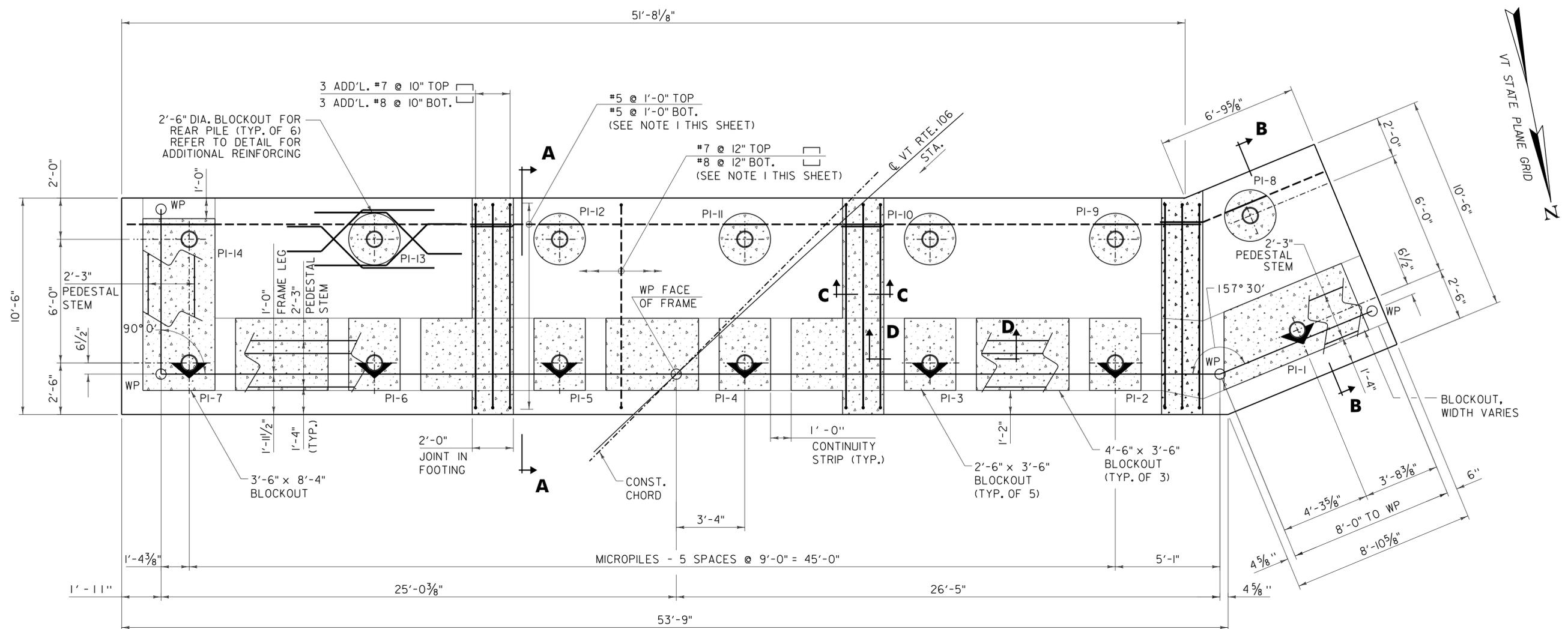
- NOTES:**
1. \* ELEVATION AT FACE OF FRAME LEG.
  2. FOR SECTIONS A-A, B-B AND STEM WALL CONSTRUCTION JOINT DETAIL REFER TO SHEET 32.



**PERMANENT CLOSURE DETAIL**  
NOT TO SCALE

PROJECT NAME:	WOODSTOCK	FILE NAME:	z10c426obut_1.pl.elev.dgn	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	PROJECT LEADER:	G. BOGUE	DRAWN BY:	L. BUXTON
		DESIGNED BY:	N. TIRK	CHECKED BY:	T. KNIGHT
		PEDESTAL FRAME I PLAN AND ELEVATION			SHEET 28 OF 50



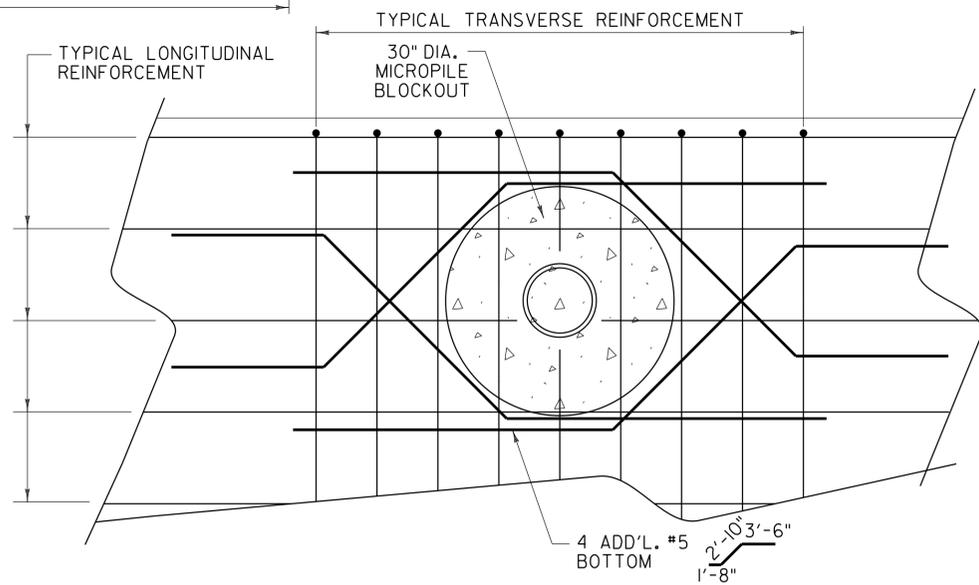
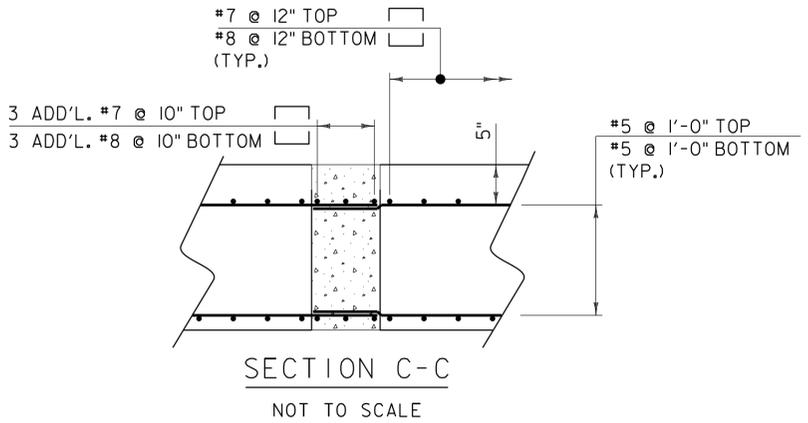


PEDESTAL I FOUNDATION PLAN & PILE LAYOUT

SCALE 3/8" = 1'-0"

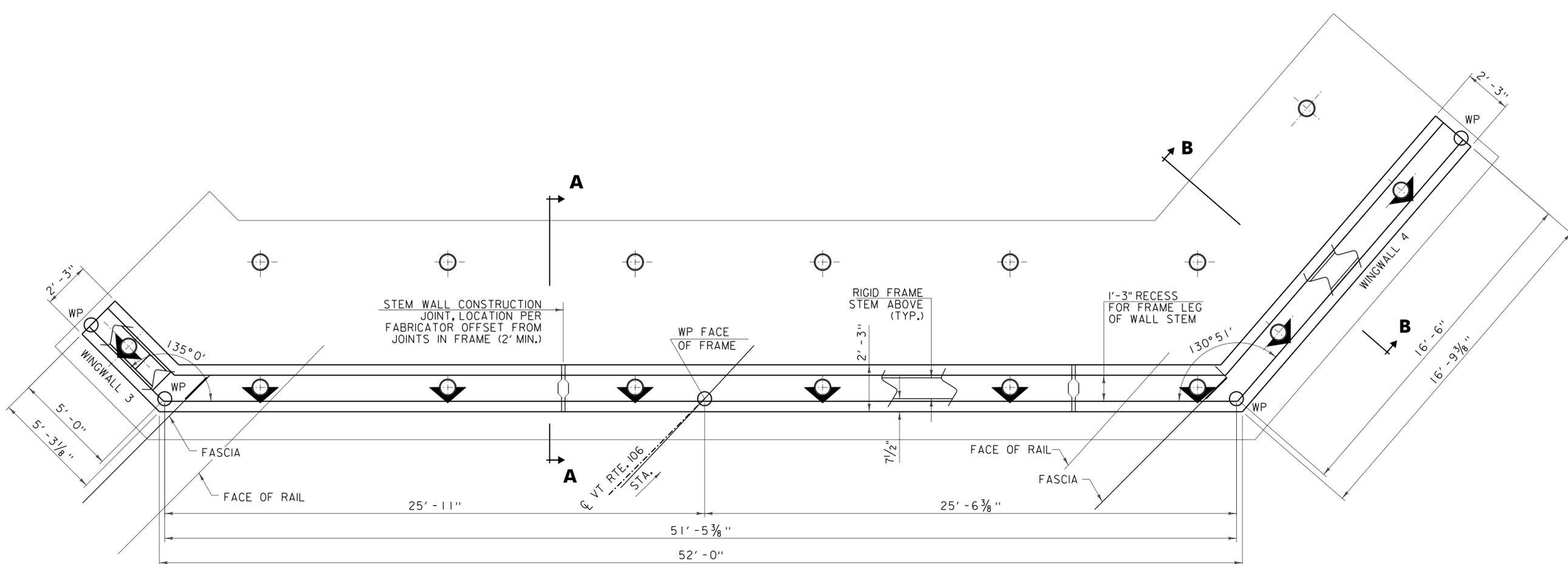
- LEGEND
- PI-XX VERTICAL MICROPILE
  - ◐ PI-XX MICROPILE BATTERED I HORIZ. TO 10 VERT.
  - ▨ SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPO)

- NOTES:
1. REINFORCEMENT IS TO BE CONTINUOUS THROUGH THE BLOCKOUTS. THE DESIGN ALLOWS FOR ONE BAR IN EACH DIRECTION OF THE BOTTOM MAT OF REINFORCEMENT TO BE CUT IN THE FIELD IF THE BAR INTERFERES WITH THE PILE HEAD.
  2. CENTER OF PILES GIVEN AT BOTTOM OF FOOTING.
  3. ALL REINFORCEMENT IN CLOSURE POURS WILL BE PAID UNDER ITEM 507.II, REINFORCING STEEL, LEVEL I(FPO).
  4. FOR SECTIONS A-A AND B-B & D-D REFER TO SHEET 32.



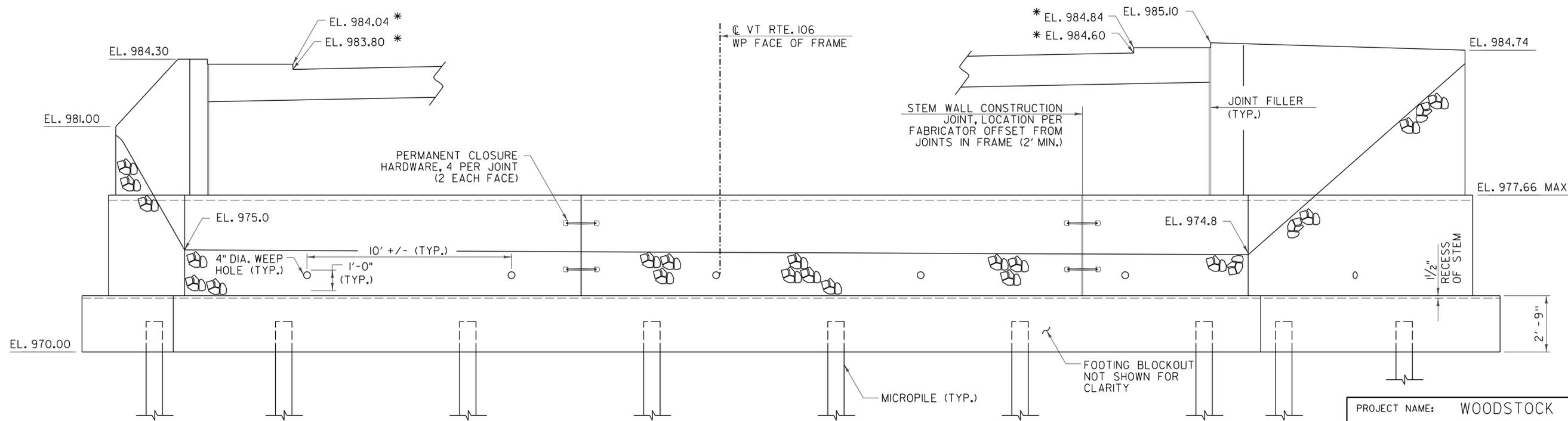
PROJECT NAME:	WOODSTOCK	FILE NAME:	z10c426pedl.ftg pl.dgn	PLOT DATE:	9/24/2015
PROJECT NUMBER:	BRF 0151(21)	PROJECT LEADER:	G. BOGUE	DRAWN BY:	L. BUXTON
		DESIGNED BY:	N. TIRK	CHECKED BY:	T. KNIGHT
		PEDESTAL I FOOTING PLAN & PILE LAYOUT		SHEET	29 OF 50





PEDESTAL 2 PLAN  
SCALE 3/8" = 1'-0"

LEGEND  
 ○ VERTICAL MICROPILE  
 ◐ MICROPILE BATTERED 10 HORIZ. TO 10 VERT.

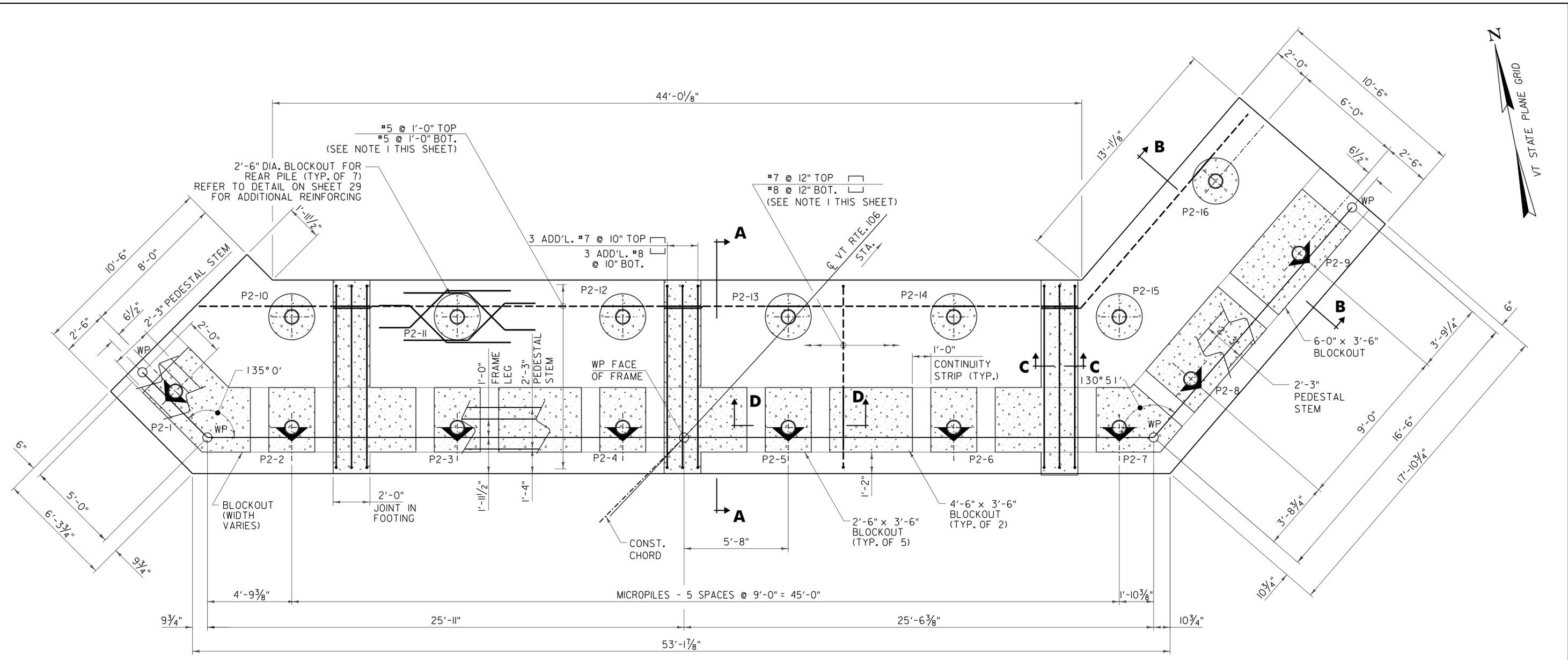


PEDESTAL 2 ELEVATION  
SCALE 3/8" = 1'-0"

NOTES:  
 1. \* ELEVATION AT FACE OF FRAME LEG.  
 2. FOR SECTIONS A-A, B-B AND STEM WALL CONSTRUCTION JOINT DETAIL REFER TO SHEET 32.

PROJECT NAME:	WOODSTOCK
PROJECT NUMBER:	BRF 0151(21)
FILE NAME:	z10c426abut_2.pl.elev.dgn
PROJECT LEADER:	G. BOGUE
DESIGNED BY:	N. TIRK
PEDESTAL FRAME 2 PLAN AND ELEVATION	
PLOT DATE:	9/2/2015
DRAWN BY:	L. BUXTON
CHECKED BY:	T. KNIGHT
SHEET	30 OF 50





PEDESTAL 2 FOUNDATION PLAN & PILE LAYOUT

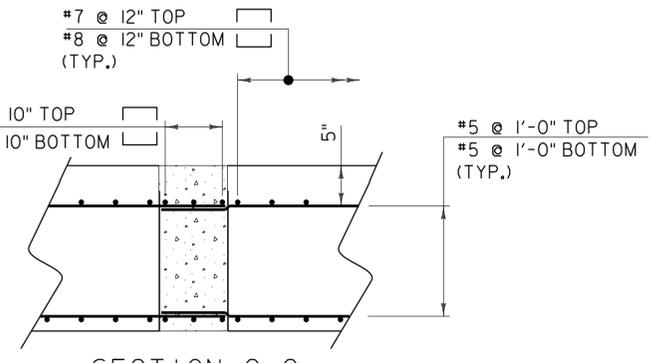
SCALE 3/8" = 1' - 0"

LEGEND

- P2-XX VERTICAL MICROPILE
- ◐ P2-XX MICROPILE BATTERED 1 HORIZ. TO 10 VERT.
- ▨ SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPO)

NOTES:

1. REINFORCEMENT IS TO BE CONTINUOUS THROUGH THE BLOCKOUTS. THE DESIGN ALLOWS FOR ONE BAR IN EACH DIRECTION OF THE BOTTOM MAT OF REINFORCEMENT TO BE CUT IN THE FIELD IF THE BAR INTERFERES WITH THE PILE HEAD.
2. CENTER OF PILES GIVEN AT BOTTOM OF FOOTING.
3. REINFORCEMENT IN CLOSURE POURS BETWEEN PRECAST UNITS WILL BE PAID UNDER ITEM 507.11, REINFORCING STEEL, LEVEL 1(FPO).
4. FOR SECTIONS A-A AND B-B & D-D REFER TO SHEET 32.



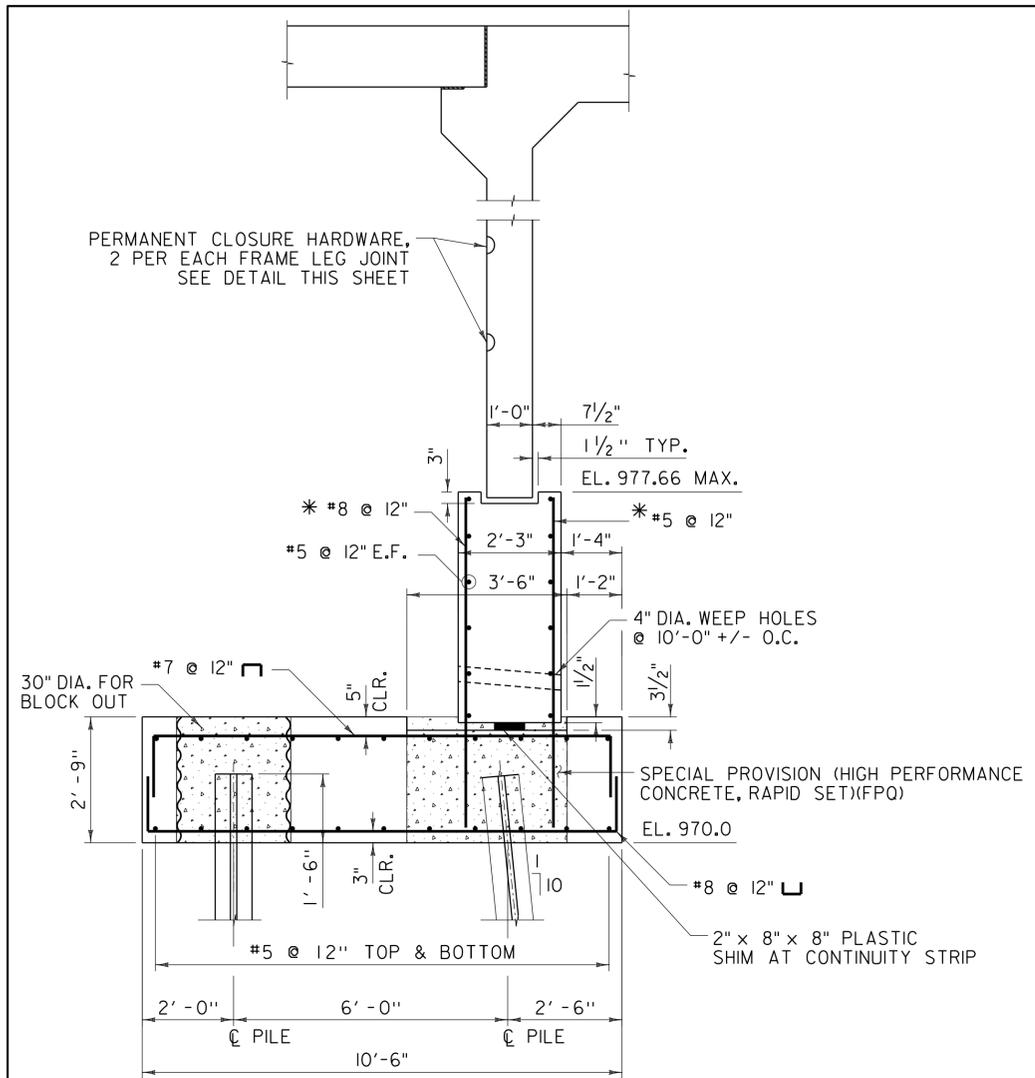
SECTION C-C

NOT TO SCALE

\* SEE NOTE 3, THIS SHEET.

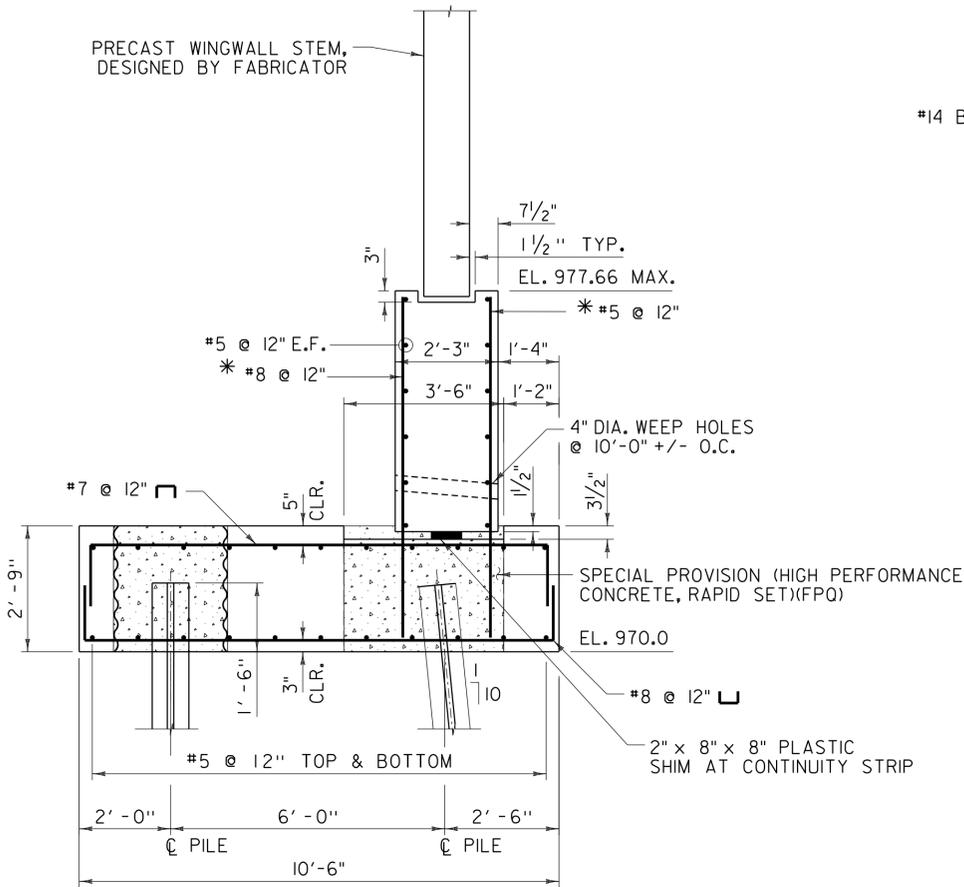
PROJECT NAME:	WOODSTOCK
PROJECT NUMBER:	BRF 0151(21)
FILE NAME:	z10c426ped2.ftg pl.dgn
PROJECT LEADER:	G. BOGUE
DESIGNED BY:	N. TIRK
PEDESTAL 2 FOOTING PLAN & PILE LAYOUT	SHEET 31 OF 50
PLOT DATE:	9/25/2015
DRAWN BY:	L. BUXTON
CHECKED BY:	T. KNIGHT





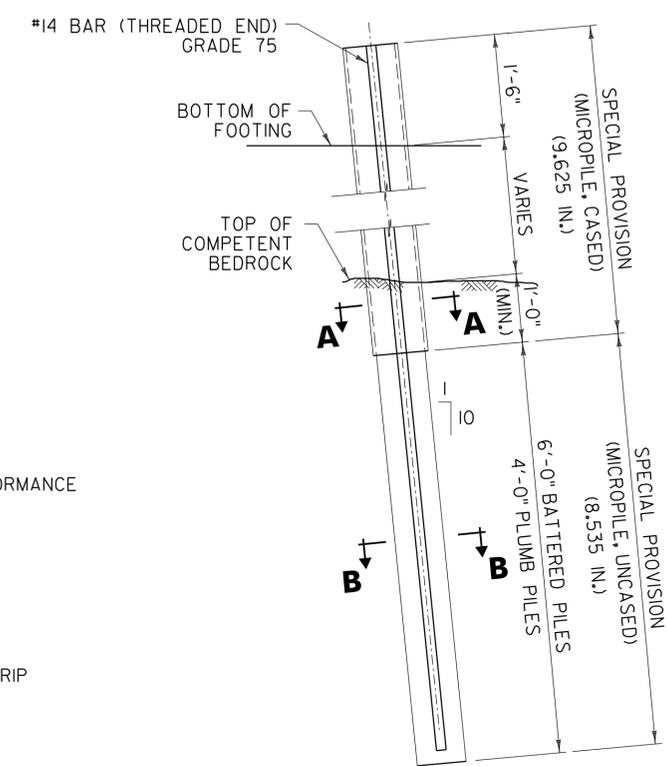
**SECTION A-A**  
SCALE: 1/2" = 1'-0"  
PEDESTAL WALL AT FRAME

\* OMIT BAR AT CONTINUITY STRIP



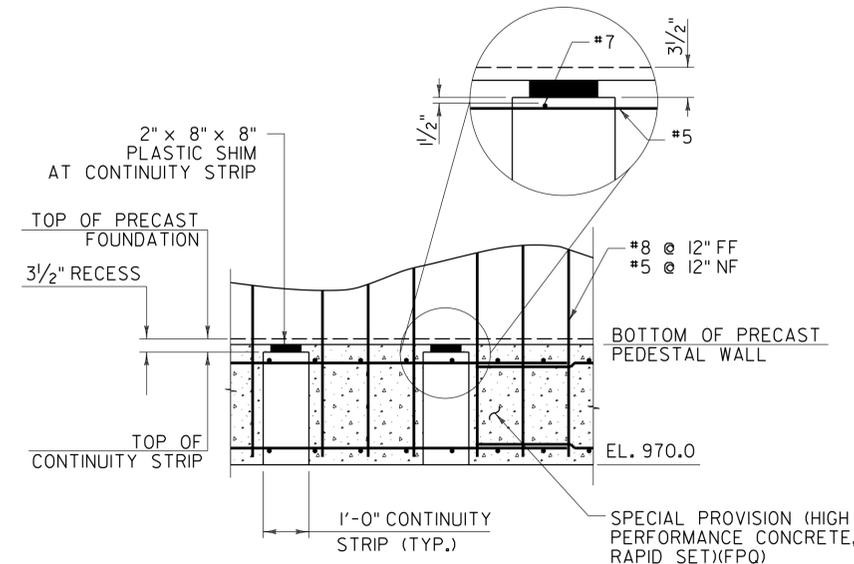
**SECTION B-B**  
SCALE: 1/2" = 1'-0"  
PEDESTAL WALL AT WINGWALL

\* OMIT BAR AT CONTINUITY STRIP

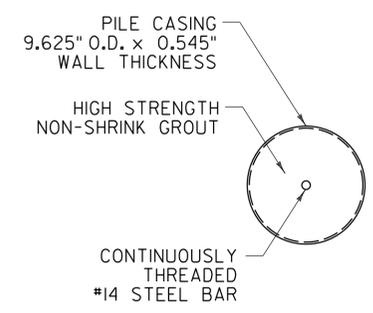


NOTE: BATTERED PILE SHOWN, PLUMB PILE SIMILAR.

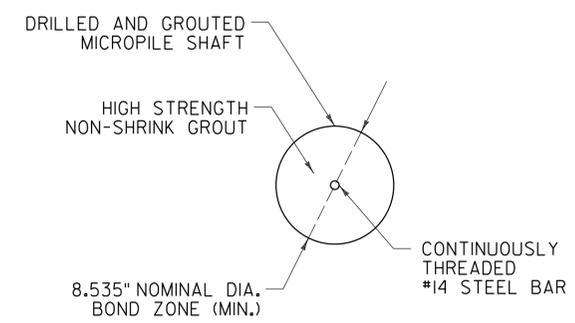
**MICROPILE DETAIL AND PAY LIMITS**  
NOT TO SCALE



**SECTION D-D**  
SCALE: 1/2" = 1'-0"  
PEDESTAL WALL AT FRAME  
MICROPILE NOT SHOWN



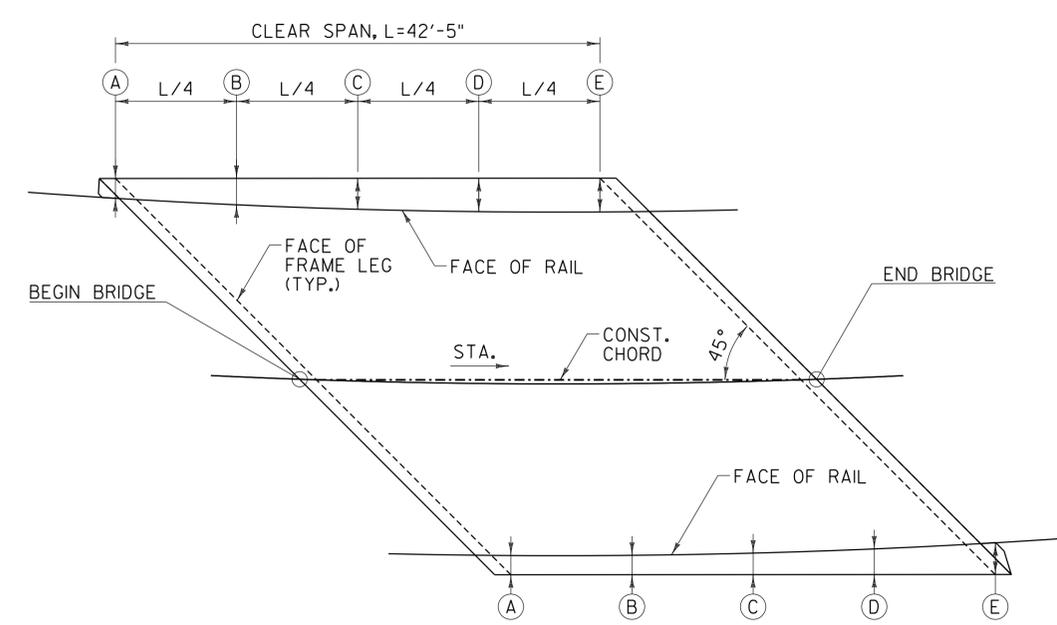
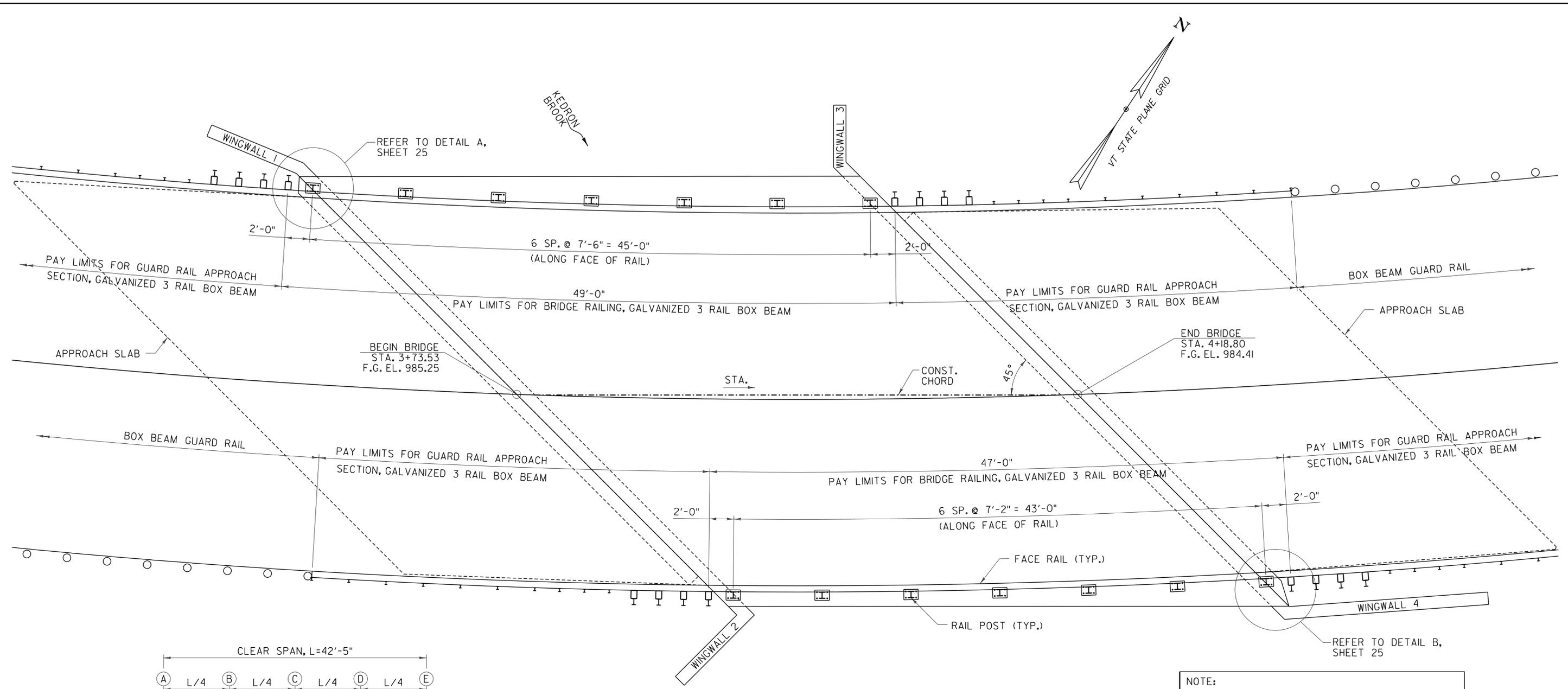
**CASED MICROPILE SECTION A**  
NOT TO SCALE



**UNCASED MICROPILE SECTION B**  
NOT TO SCALE

PROJECT NAME:	WOODSTOCK
PROJECT NUMBER:	BRF 015I(2I)
FILE NAME:	z10c426struct.pl.dgn
PROJECT LEADER:	G. BOGUE
DESIGNED BY:	N. TIRK
STRUCTURE DETAILS	
PLOT DATE:	9/2/2015
DRAWN BY:	L. BUXTON
CHECKED BY:	T. KNIGHT
SHEET	32 OF 50





**BRIDGE RAIL LAYOUT**  
SCALE: 1/4" = 1'-0"

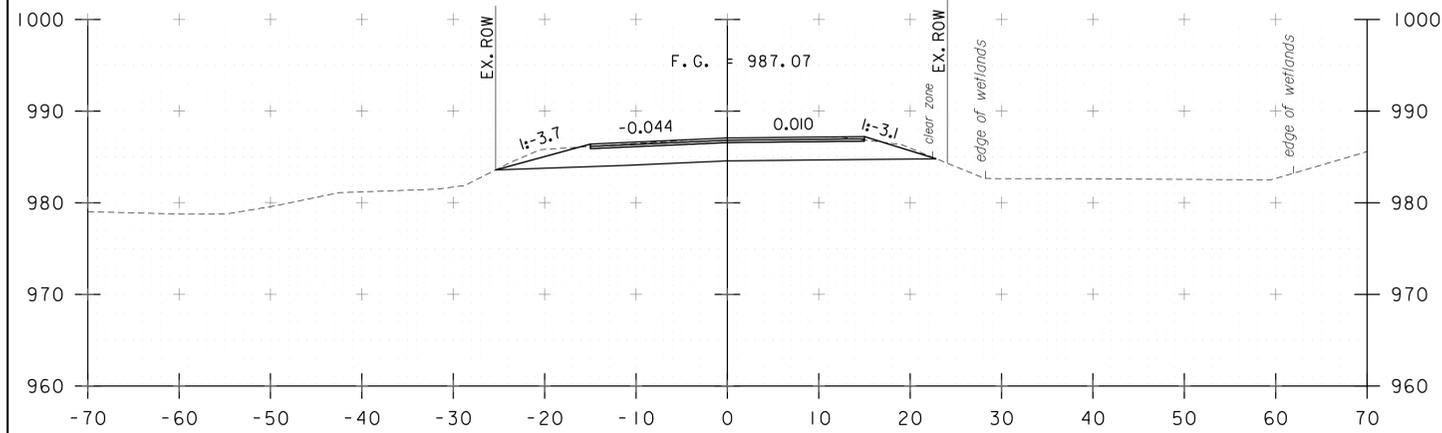
**NOTE:**  
RAIL POST SPACING IS BASED ON ASSUMED FRAME LEG THICKNESS OF 1'-0". THE FABRICATOR SHALL ADJUST DIMENSIONS AS NECESSARY BASED ON ACTUAL FRAME LEG THICKNESS USED.

TABLE OF OFFSETS FROM FACE OF RAIL TO FASCIA		
POINT	OFFSET TO LEFT FASCIA (FT)	OFFSET TO RIGHT FASCIA (FT)
A	1.73	1.68
B	2.31	1.69
C	2.7	1.88
D	2.92	2.23
E	2.96	2.76

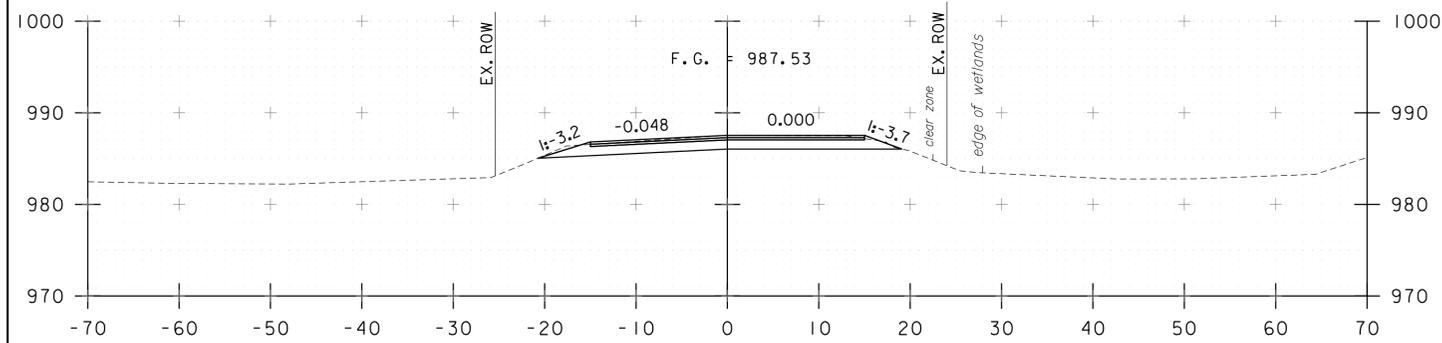
**FACE OF RAIL TO FASCIA OFFSET**  
NOT TO SCALE



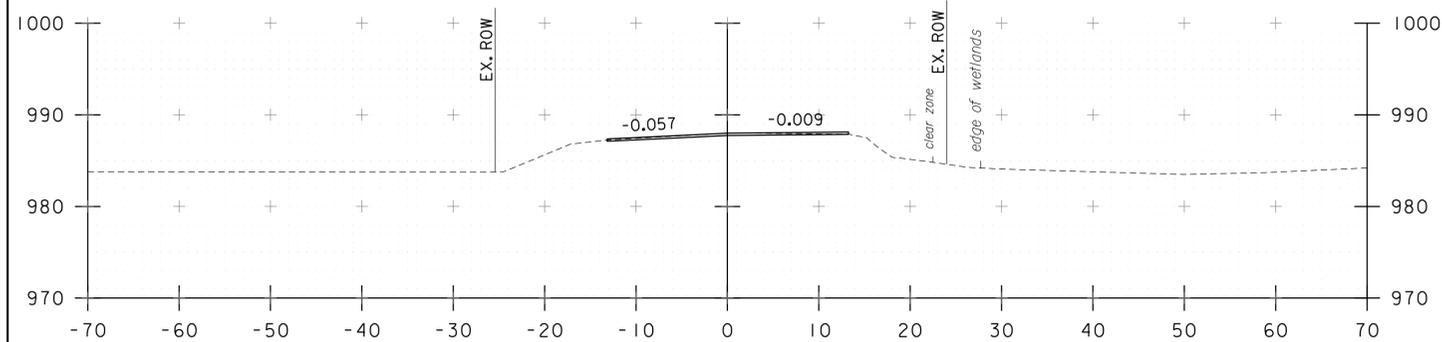
PROJECT NAME: WOODSTOCK  
 PROJECT NUMBER: BRF 0151(21)  
 FILE NAME: z10c426brail.dgn  
 PROJECT LEADER: G. BOGUE  
 DESIGNED BY: N. TIRK  
 BRIDGE RAIL LAYOUT  
 PLOT DATE: 9/2/2015  
 DRAWN BY: J. SOTER  
 CHECKED BY: T. KNIGHT  
 SHEET 33 OF 50



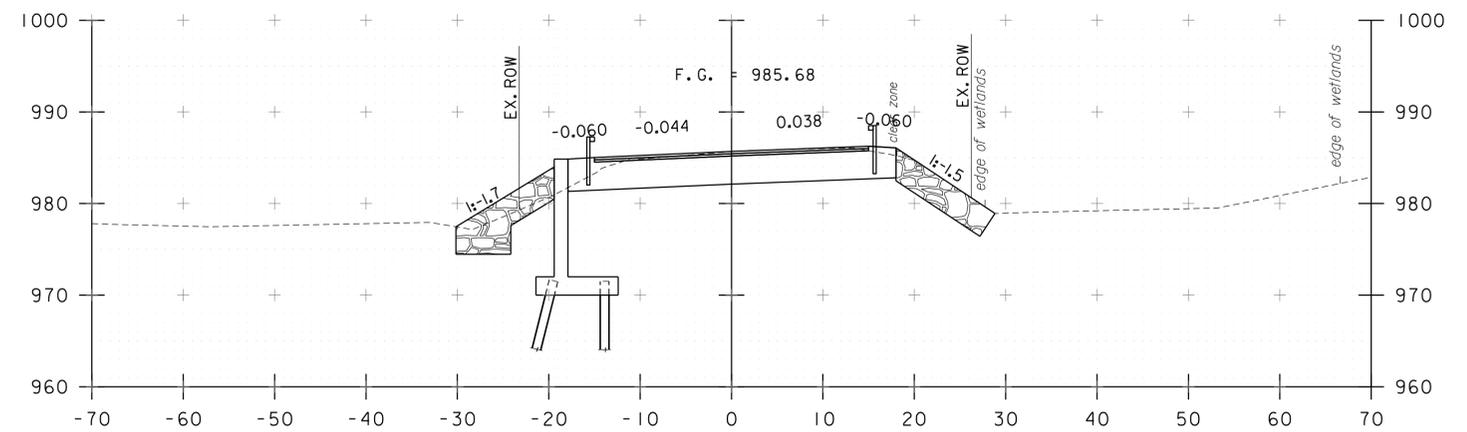
2+75  
BEGIN PROJECT



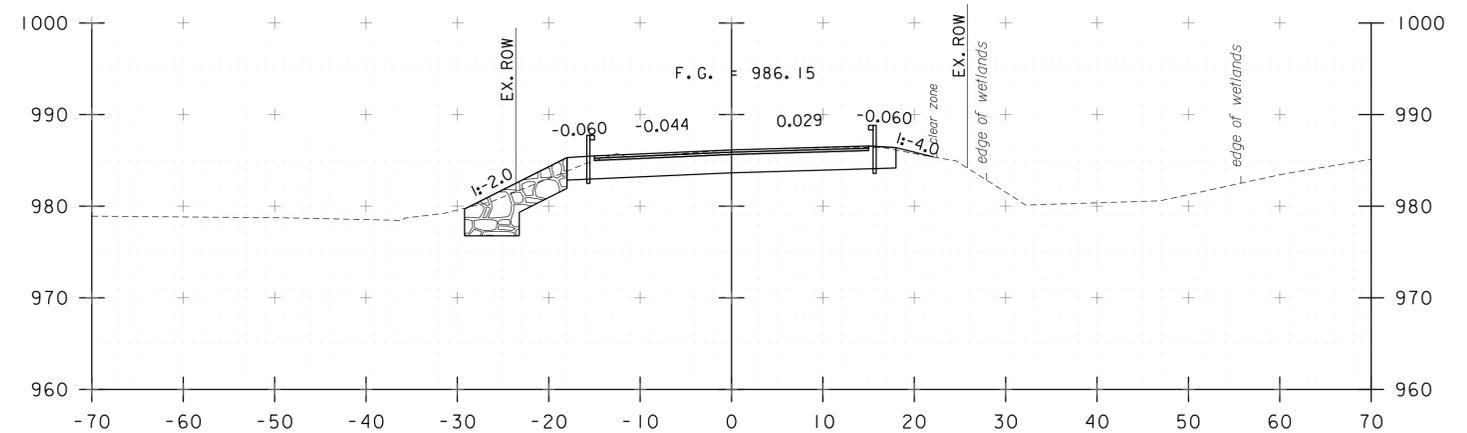
2+50



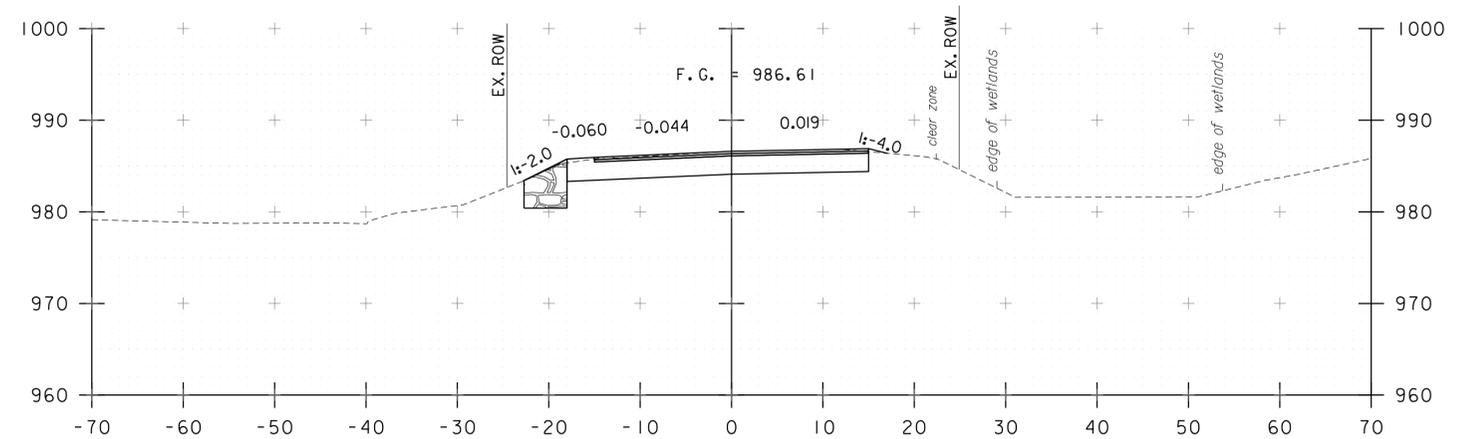
2+25  
2+15  
BEGIN APPROACH



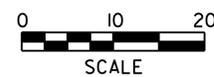
3+50



3+25



3+00



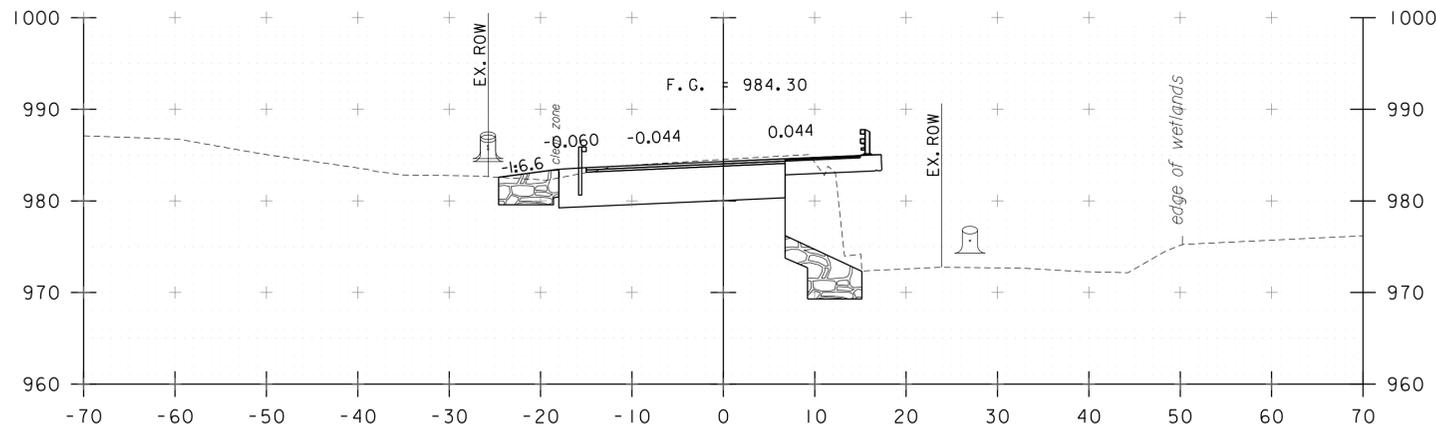
STA. 2+25 TO STA. 3+50



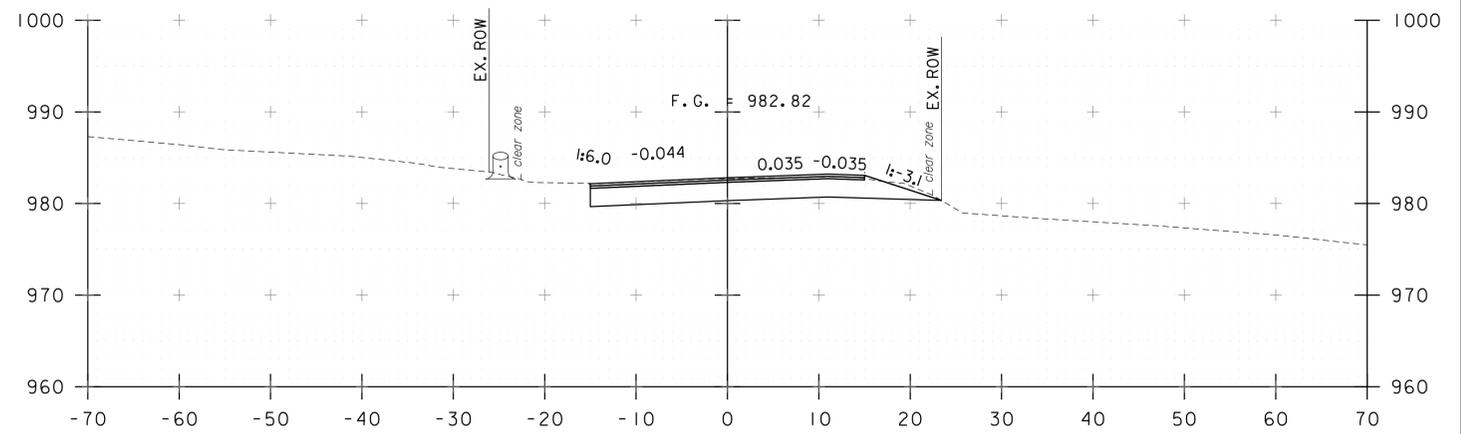
PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426xs.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: E. ALLING  
ROADWAY CROSS SECTIONS - RXS 1

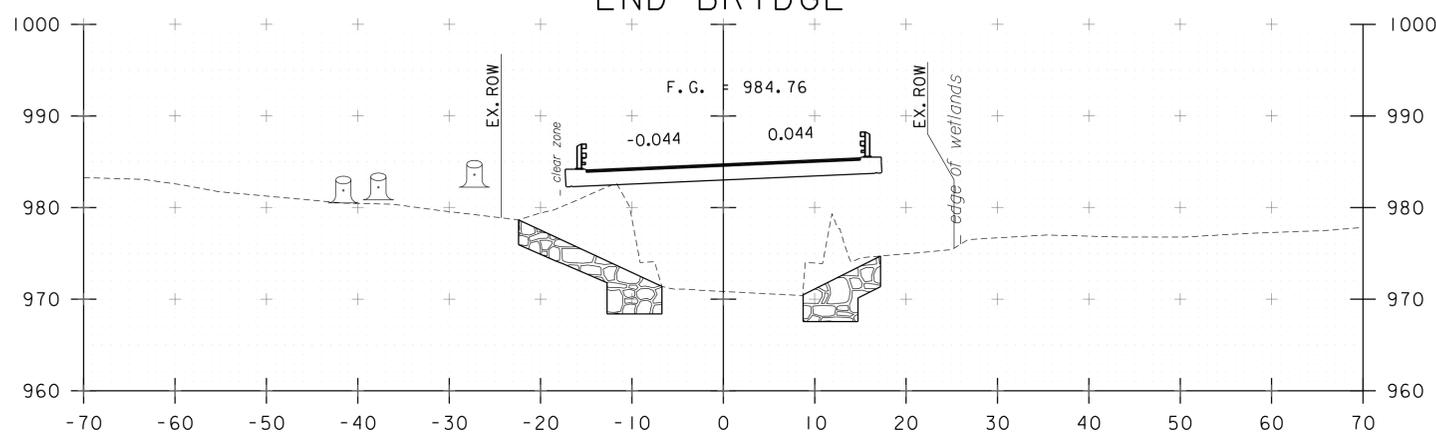
PLOT DATE: 9/2/2015  
DRAWN BY: E. ALLING  
CHECKED BY: I. MAYNARD  
SHEET 34 OF 50



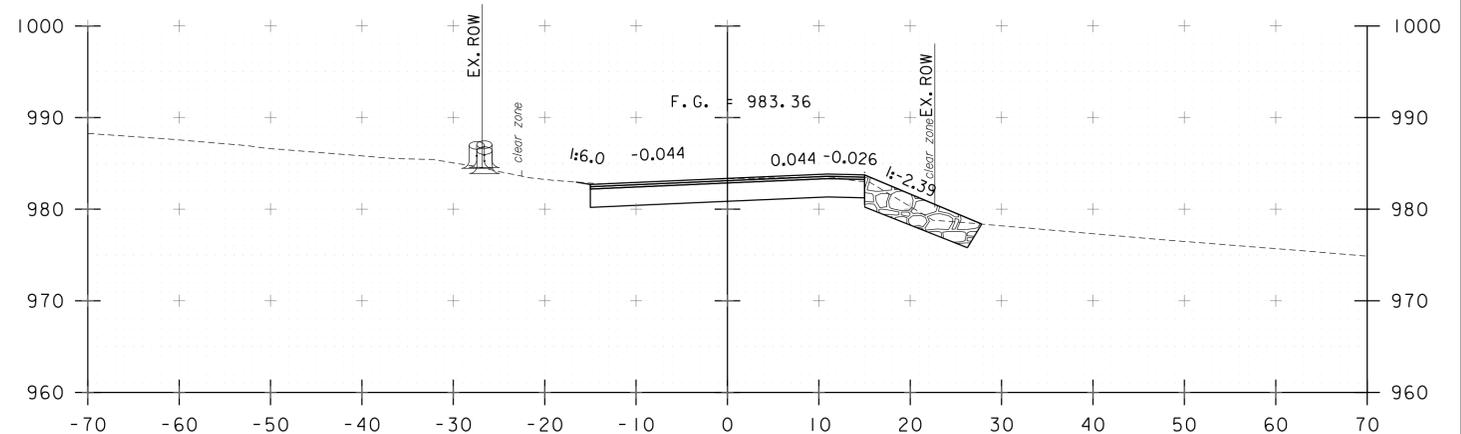
4+25  
4+18.80  
END BRIDGE



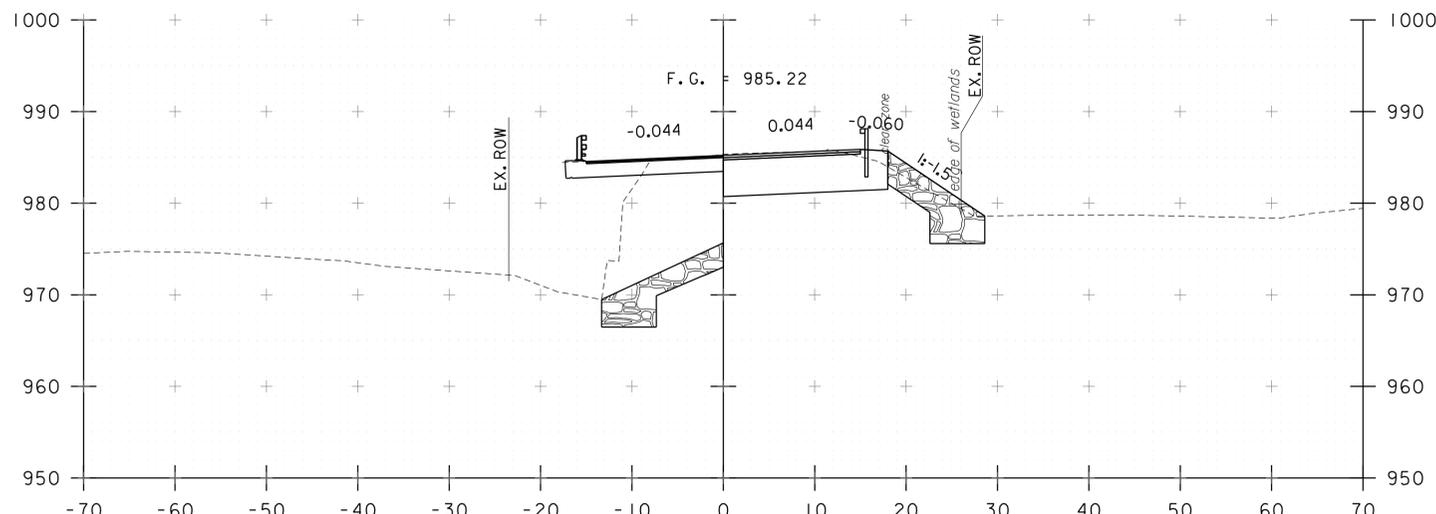
5+00



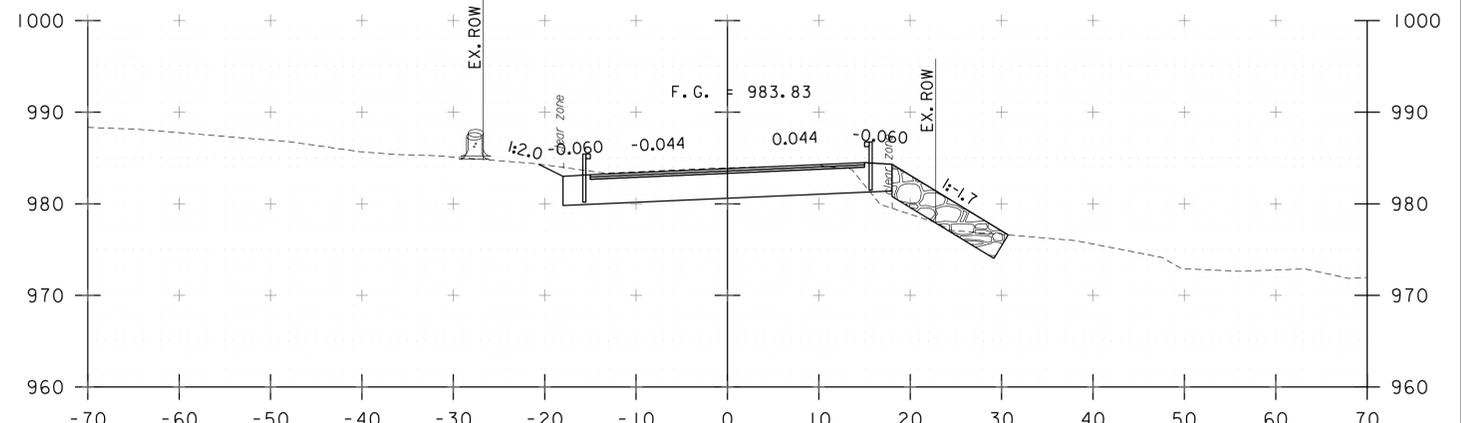
4+00



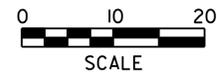
4+75



3+75  
3+73.53  
BEGIN BRIDGE



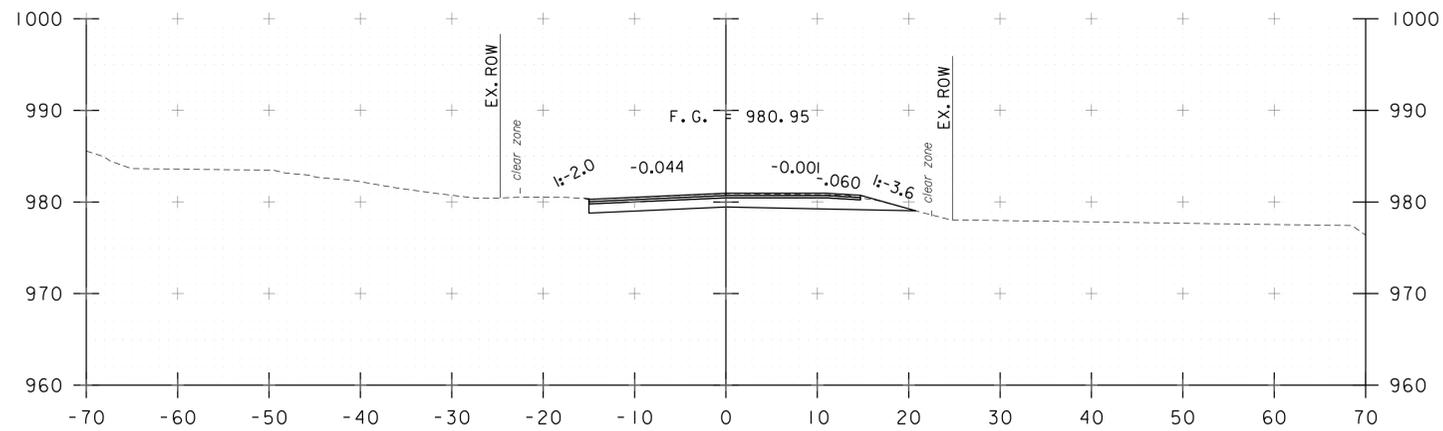
4+50



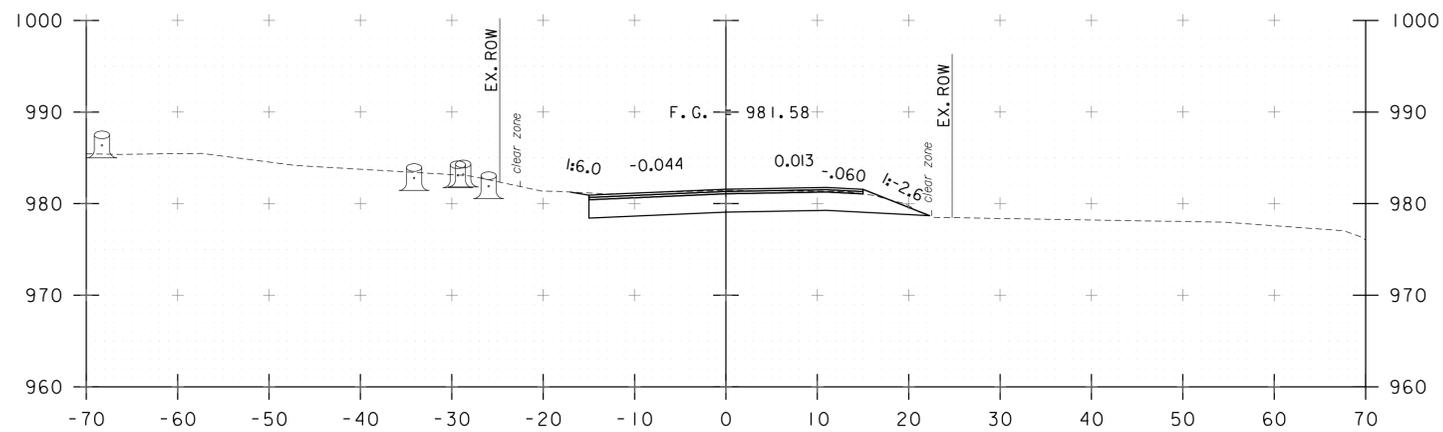
STA. 3+75 TO STA. 5+00

PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	E. ALLING
FILE NAME:	z10c426xs.dgn	CHECKED BY:	I. MAYNARD
PROJECT LEADER:	G. BOGUE	SHEET	35 OF 50
DESIGNED BY:	E. ALLING		
ROADWAY CROSS SECTIONS - RXS 2			

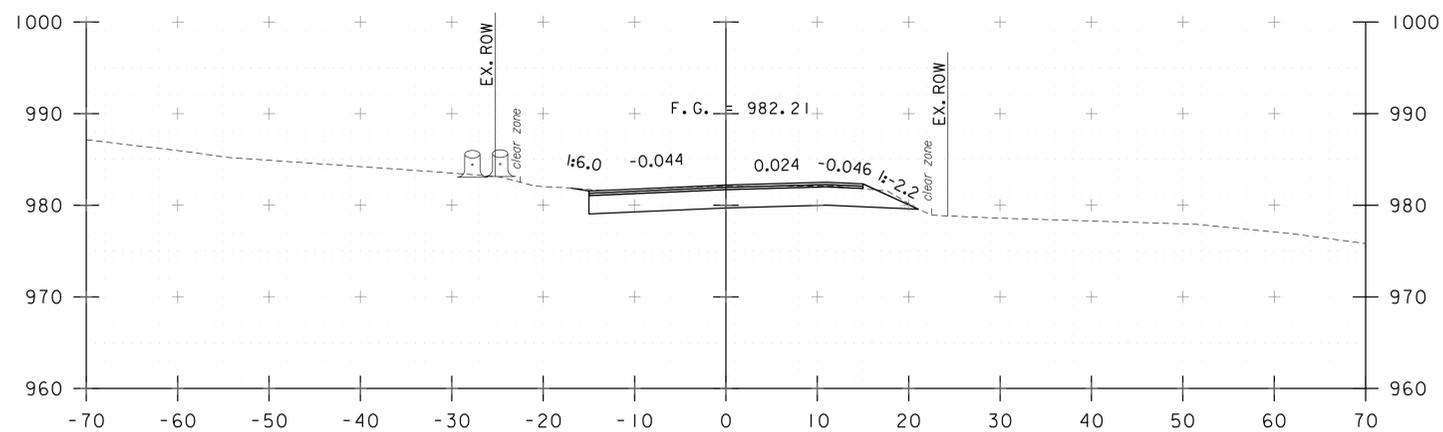




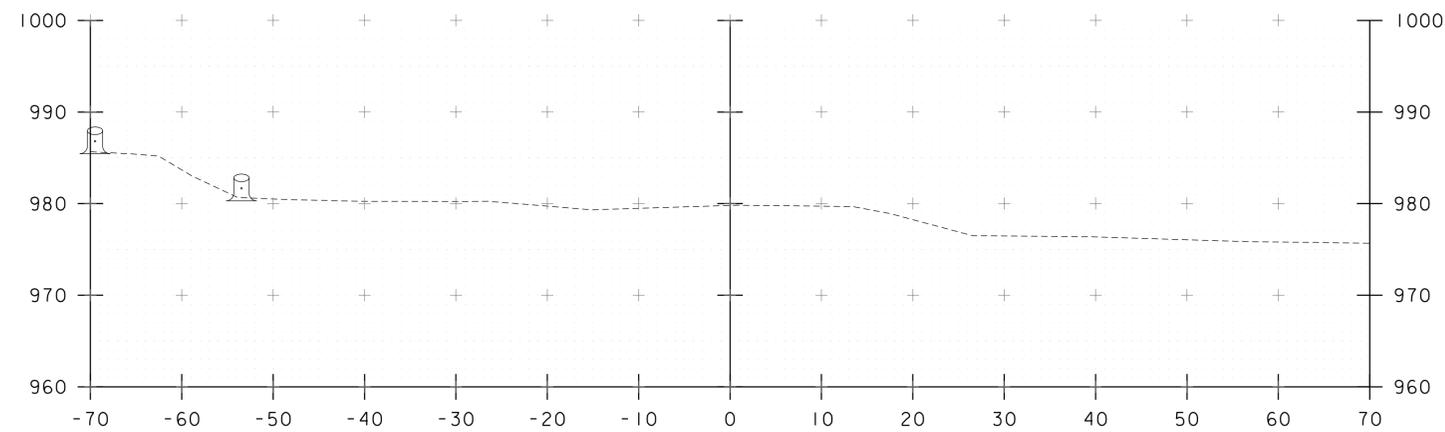
5+75



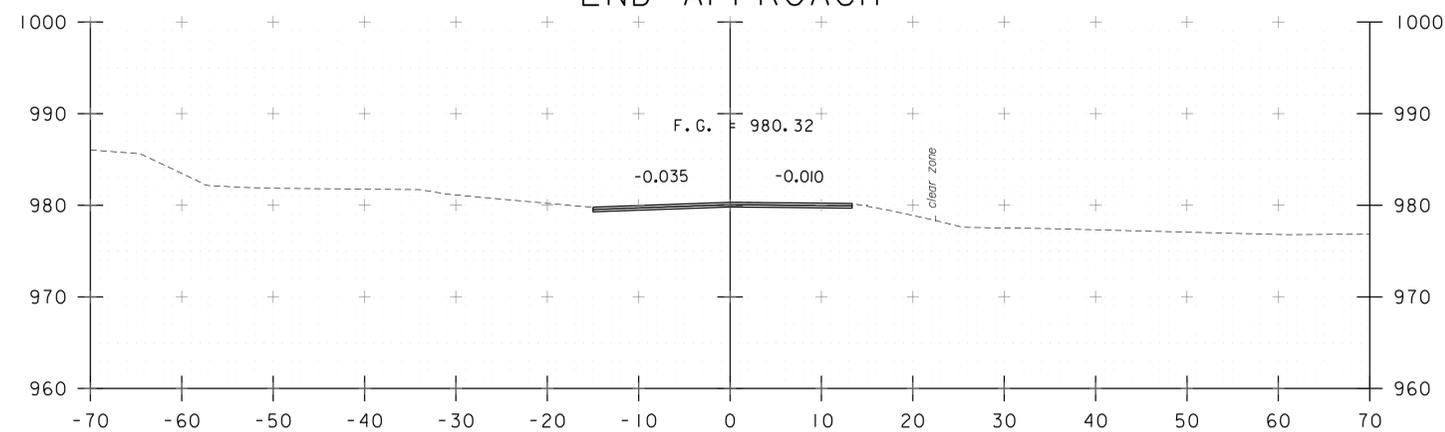
5+50  
END PROJECT



5+25

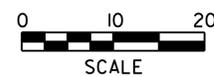


6+25  
6+10  
END APPROACH

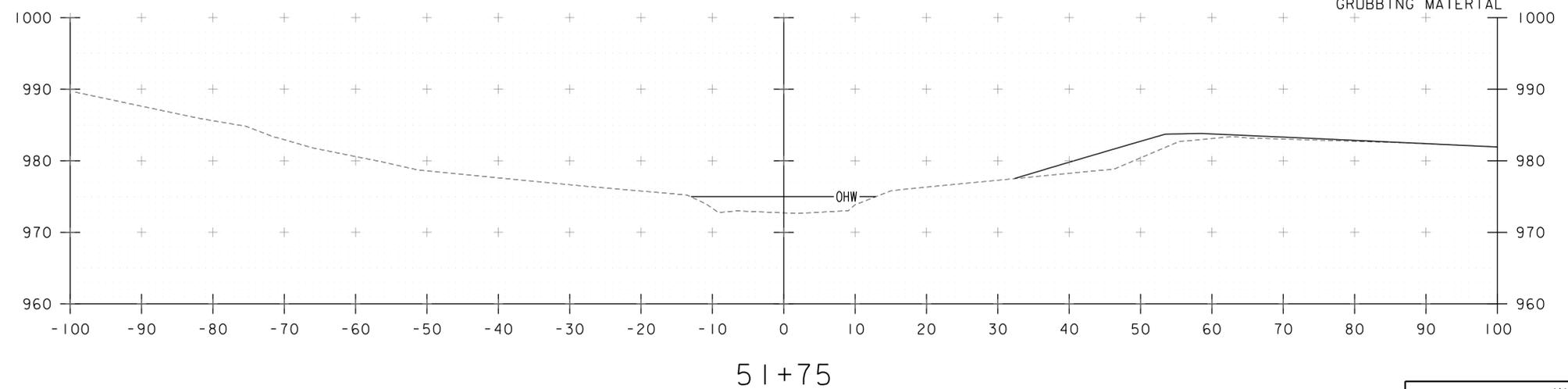
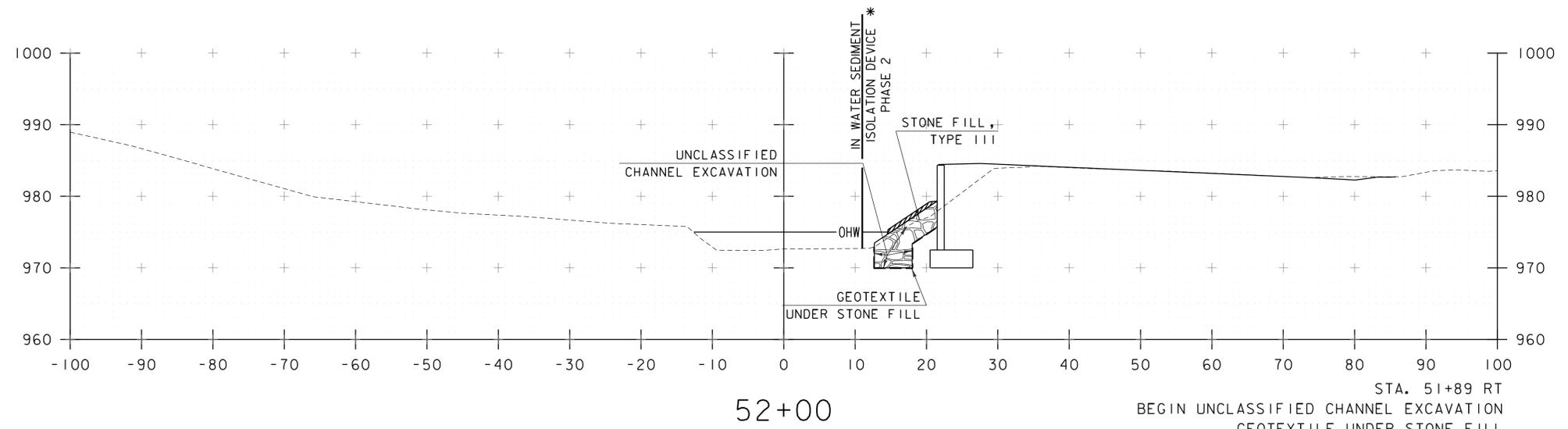
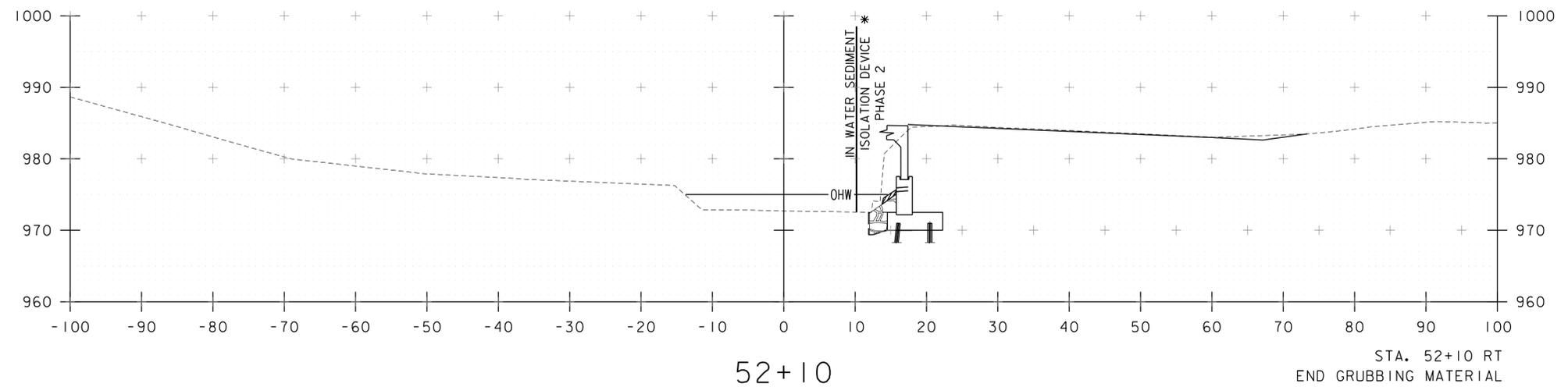


6+00

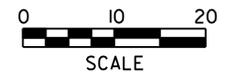
STA. 5+25 TO STA. 6+25



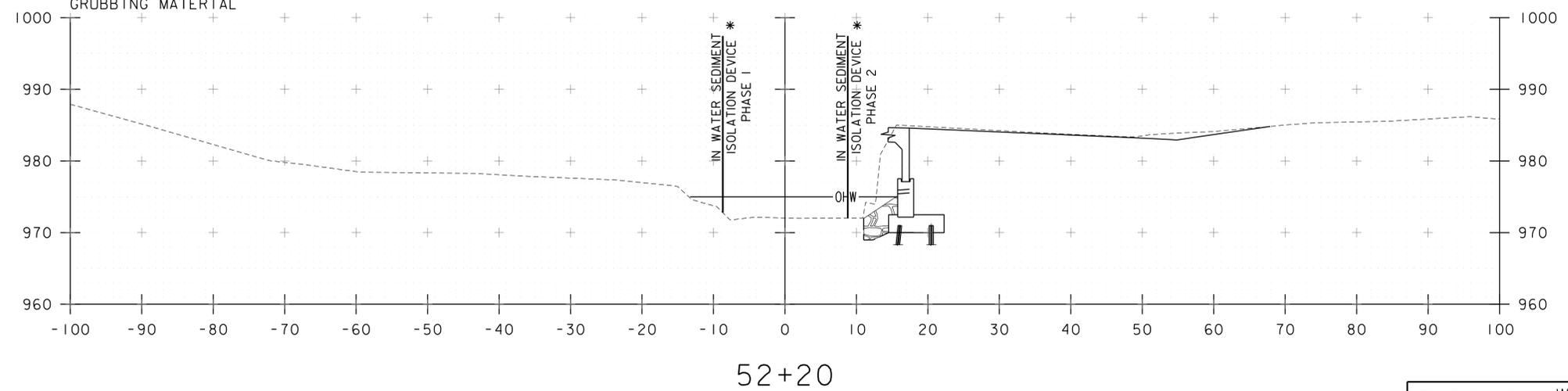
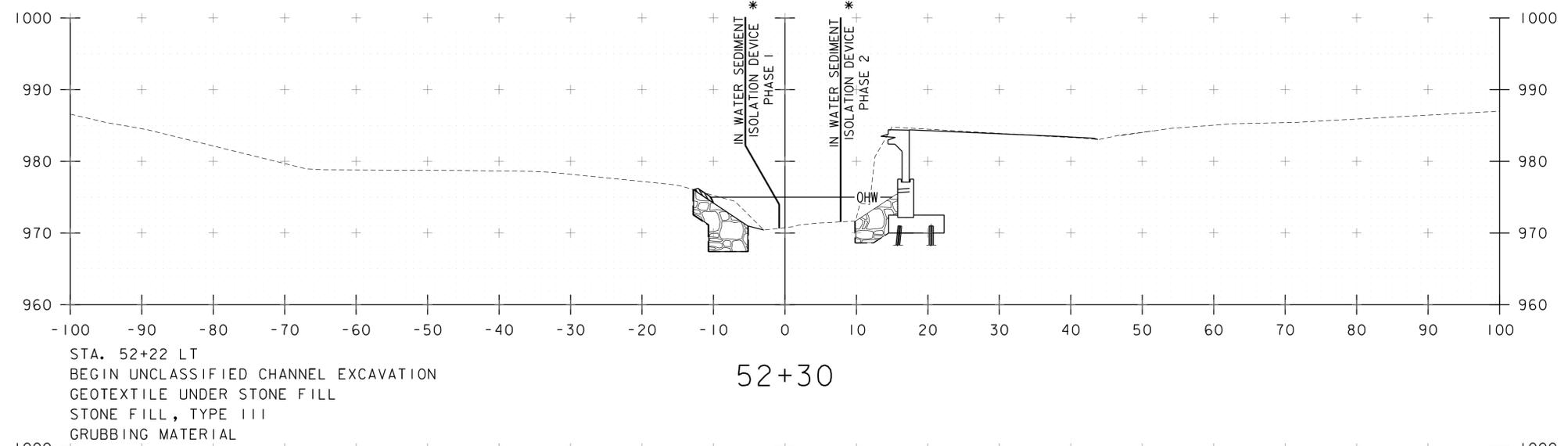
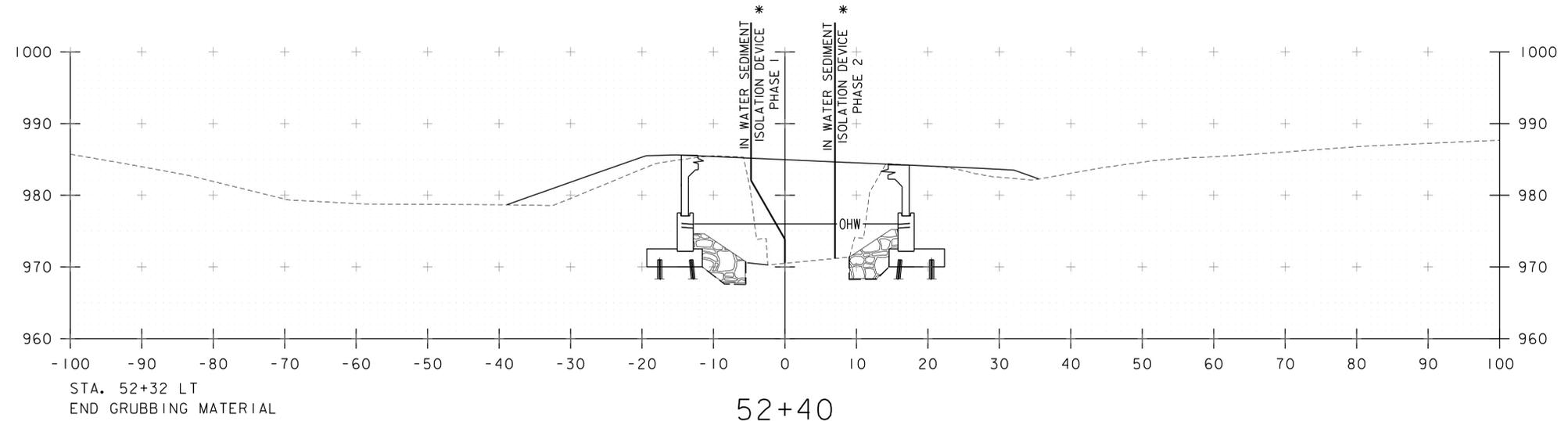
PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	E. ALLING
FILE NAME:	z10c426xs.dgn	CHECKED BY:	I. MAYNARD
PROJECT LEADER:	G. BOGUE	ROADWAY CROSS SECTIONS - RXS 3	SHEET 36 OF 50
DESIGNED BY:	E. ALLING		



\* SEE NOTE 2 ON SHEET 48 FOR STREAM PHASING REQUIREMENTS



PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	L. BUXTON
FILE NAME:	z10c426xs.dgn	DESIGNED BY:	T. KNIGHT
PROJECT LEADER:	G. BOGUE	CHECKED BY:	J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS 1		SHEET	37 OF 50

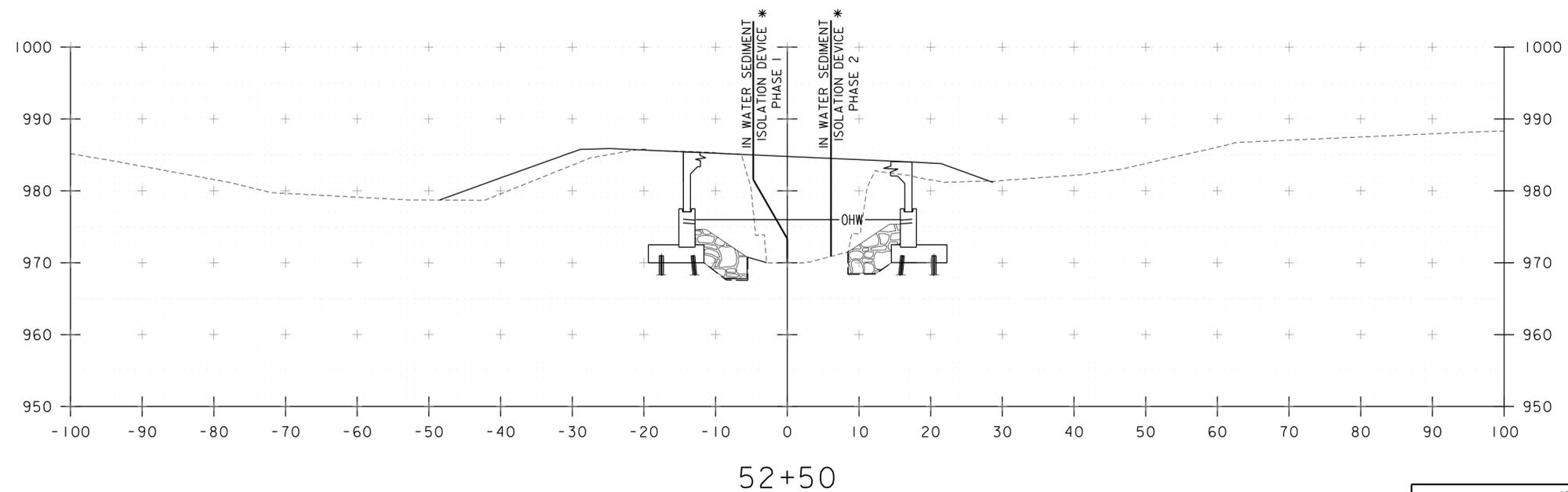
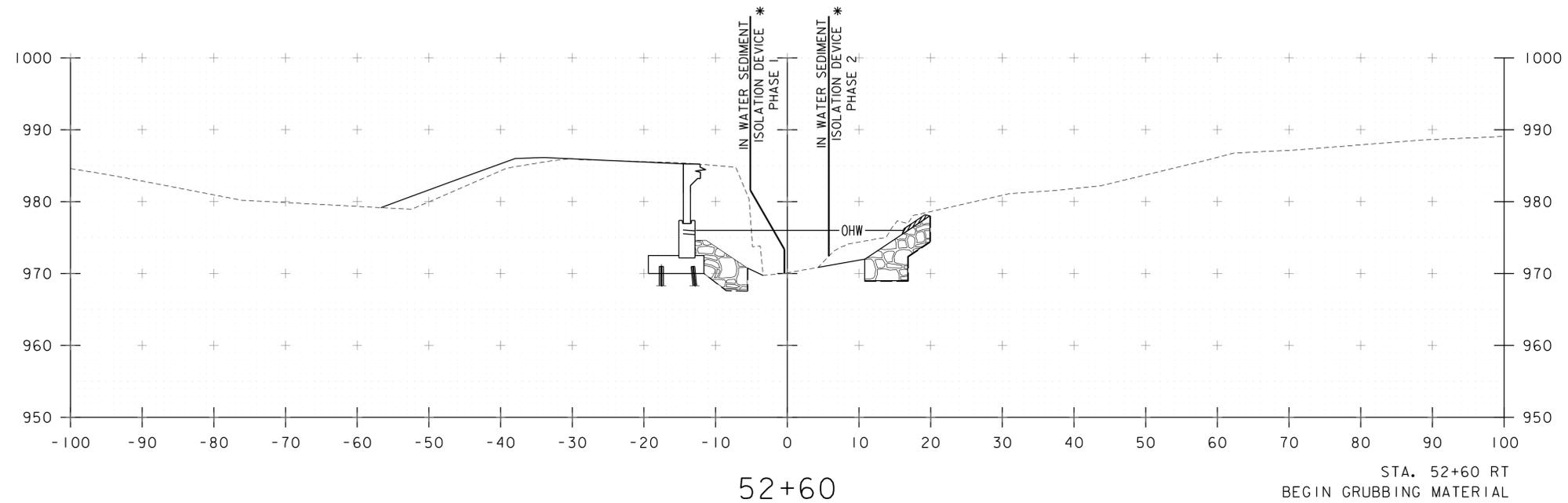


\* SEE NOTE 2 ON SHEET 48  
FOR STREAM PHASING REQUIREMENTS

STA. 52+20 TO STA. 52+40

PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	L. BUXTON
FILE NAME:	z10c426xs.dgn	DESIGNED BY:	T. KNIGHT
PROJECT LEADER:	G. BOGUE	CHECKED BY:	J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS 2		SHEET	38 OF 50





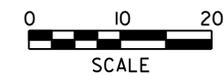
\* SEE NOTE 2 ON SHEET 48  
FOR STREAM PHASING REQUIREMENTS

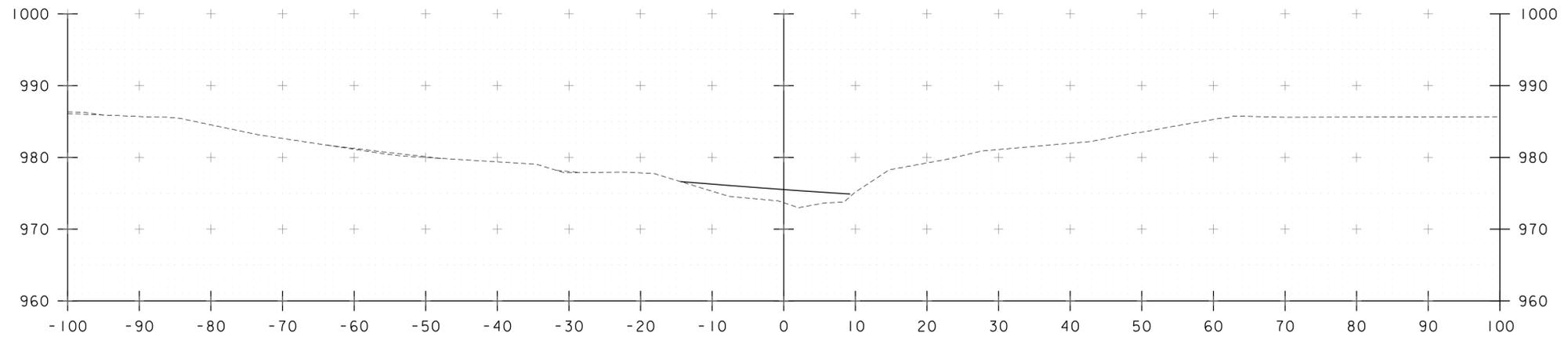
STA. 52+50 TO STA. 52+60

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426xs.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: T. KNIGHT  
CHANNEL CROSS SECTIONS - CXS 3

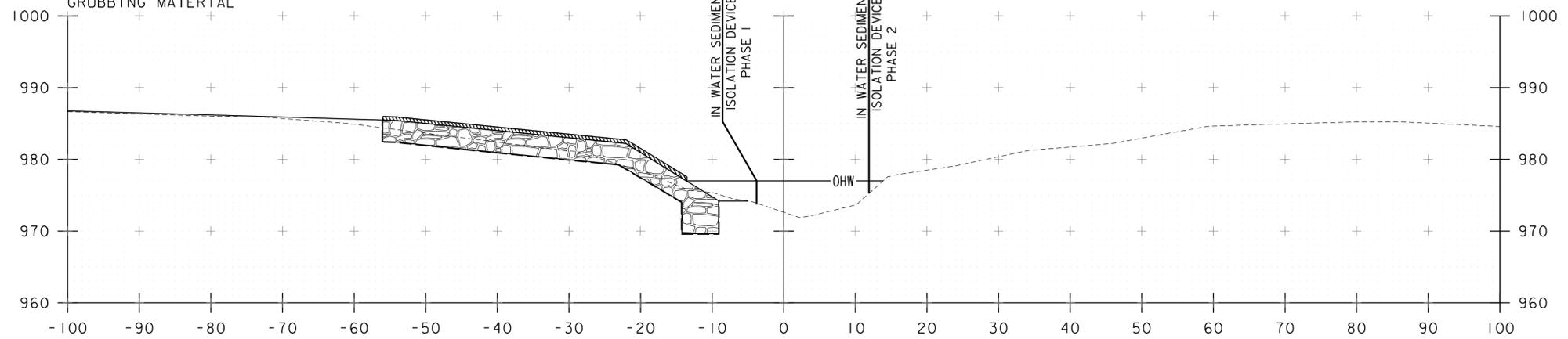
PLOT DATE: 9/2/2015  
DRAWN BY: L. BUXTON  
CHECKED BY: J. HUNGERFORD  
SHEET 39 OF 50





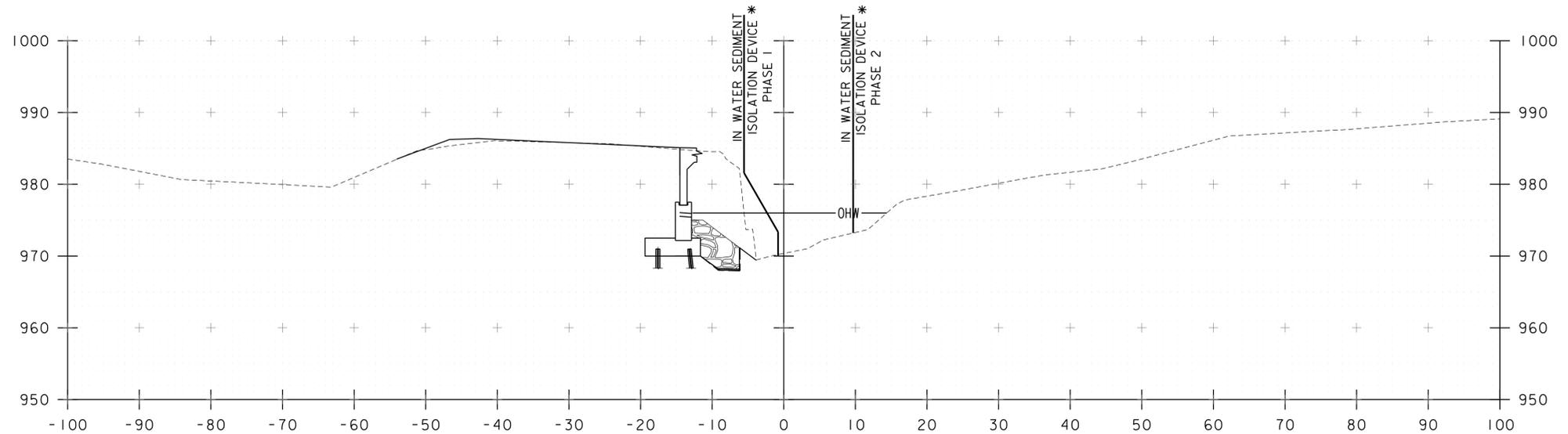
STA. 52+85 LT  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 GEOTEXTILE UNDER STONE FILL  
 STONE FILL, TYPE III  
 GRUBBING MATERIAL

52+90



STA. 52+74 LT  
 BEGIN GRUBBING MATERIAL

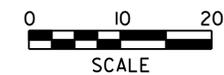
52+80



STA. 52+68 RT  
 END UNCLASSIFIED CHANNEL EXCAVATION  
 GEOTEXTILE UNDER STONE FILL  
 STONE FILL, TYPE III  
 GRUBBING MATERIAL

52+70

\* SEE NOTE 2 ON SHEET 48  
 FOR STREAM PHASING REQUIREMENTS



PROJECT NAME: WOODSTOCK  
 PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426xs.dgn  
 PROJECT LEADER: G. BOGUE  
 DESIGNED BY: T. KNIGHT  
 CHANNEL CROSS SECTIONS - CXS 4

PLOT DATE: 9/2/2015  
 DRAWN BY: L. BUXTON  
 CHECKED BY: J. HUNGERFORD  
 SHEET 40 OF 50

STA. 52+70 TO STA. 52+90

## EPSC PLAN NARRATIVE

### 1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF BRIDGE 24 AND ITS ABUTMENTS. BRIDGE 24 WILL BE REPLACED WITH A PRECAST 3 SIDED FRAME SPANNING 45.27 FEET WITH A 45° SKEW OVER KEDRON BROOK, ON NEW PILES ALONG THE SAME ALIGNMENT. BRIDGE 24 IS LOCATED IN THE TOWN OF WOODSTOCK, ON VT ROUTE 106, APPROXIMATELY AT THE INTERSECTIONS OF VT ROUTE 106, BRYANT ROAD AND KENDALL ROAD.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.40 ACRES. IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

### 1.2 SITE INVENTORY

#### 1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A STREAM VALLEY THAT IS MOSTLY WELL ESTABLISHED FOREST WITH OCCASIONAL OPEN AREAS. VT ROUTE 106 AND KENDALL ROAD (TH 61) ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE NORTHWEST QUADRANT OF THE PROJECT.

#### 1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

KEDRON BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS HILLY TO MOUNTAINOUS, STRAIGHT TO SINUOUS, STEEP RIVER. THE STREAM BED CONSISTS OF GRAVEL, COBBLES, BOULDERS AND SAND. THE TRIBUTARY AREA AT THE CULVERT CROSSING IS 8.4 MILES<sup>2</sup>. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

#### 1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD AND DECIDUOUS TREES, LAWN AREAS, WETLAND AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

#### 1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WINDSOR, VERMONT. SOILS ON THE PROJECT SITE ARE NINIGRET FINE SANDY LOAM, 0 TO 8% SLOPES, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED MODERATELY ERODIBLE DUE TO K-VALUE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:

0.0-0.23 = LOW EROSION POTENTIAL

0.24-0.36 = MODERATE EROSION POTENTIAL

0.37 AND HIGHER = HIGH EROSION POTENTIAL

#### 1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO

HISTORICAL OR ARCHEOLOGICAL AREAS: HISTORIC HOUSE AND TREES IN NORTHWEST PROJECT QUADRANT.

PRIME AGRICULTURAL LAND: NO

THREATENED AND ENDANGERED SPECIES: NO

WATER RESOURCE: KEDRON BROOK

WETLANDS: SEVERAL CLASS III WETLANDS SURROUND THE PROJECT SITE

### 1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

### 1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

#### 1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

BECAUSE OF THE SITE'S PROXIMITY TO CLASS III WETLANDS, BARRIER FENCING SHALL BE USED AT THE LOCATIONS SHOWN ON THE PLANS TO PHYSICALLY MARK SITE BOUNDARIES.

#### 1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

#### 1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

#### 1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. GIVEN THE PROJECT'S PROXIMITY TO CLASS III WETLANDS AND KEDRON BROOK, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE.

SEDIMENT ISOLATION DEVICE WILL BE INSTALLED OUTSIDE OF THE COFFERDAMS. SEE SPECIAL PROVISIONS FOR SEDIMENT ISOLATION DEVICE CONSTRUCTION AND MAINTENANCE REQUIREMENTS.

A STREAM PHASING SEQUENCE IS SHOWN ON SHEET 48. THIS SEQUENCE OF CONSTRUCTION WAS USED TO DEFINE THE LIMITS OF STREAM DISTURBANCE AND RELOCATION FOR PERMITTING THE PROJECT. THE SEQUENCE REQUIRES THE COFFERDAM FOR ABUTMENT 1 TO BE REMOVED PRIOR TO INSTALLING THE COFFERDAM FOR ABUTMENT 2. IF THE CONTRACTOR PROPOSES A DIFFERENT SEQUENCE OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE APPROPRIATE REGULATORY AGENCIES PRIOR TO PERFORMING THE WORK.

DUE TO STREAM VELOCITIES EXCEEDING THE MAXIMUM ALLOWABLE, FILTER CURTAINS SHALL NOT BE USED.

#### 1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

#### 1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

IT IS NOT ANTICIPATED THAT STONE CHECK DAMS WILL BE NECESSARY.

#### 1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES ARE NOT NECESSARY AS PART OF THIS PROJECT.

#### 1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE.

BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

#### 1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

IT IS NOT ANTICIPATED THAT THIS PROJECT WILL BE UNDER CONSTRUCTION FROM OCTOBER 15 THROUGH APRIL 15.

#### 1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

#### 1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. A LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

#### 1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

### 1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

#### 1.5.1 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

#### 1.5.2 UPDATES

PROJECT NAME: WOODSTOCK

PROJECT NUMBER: BRF 15I(2I)

FILE NAME: z10c426frm.dgn

PROJECT LEADER: G. BOGUE

DESIGNED BY: E. ALLING

EROSION CONTROL NARRATIVE - ECN I

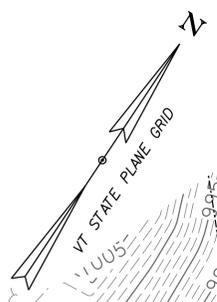
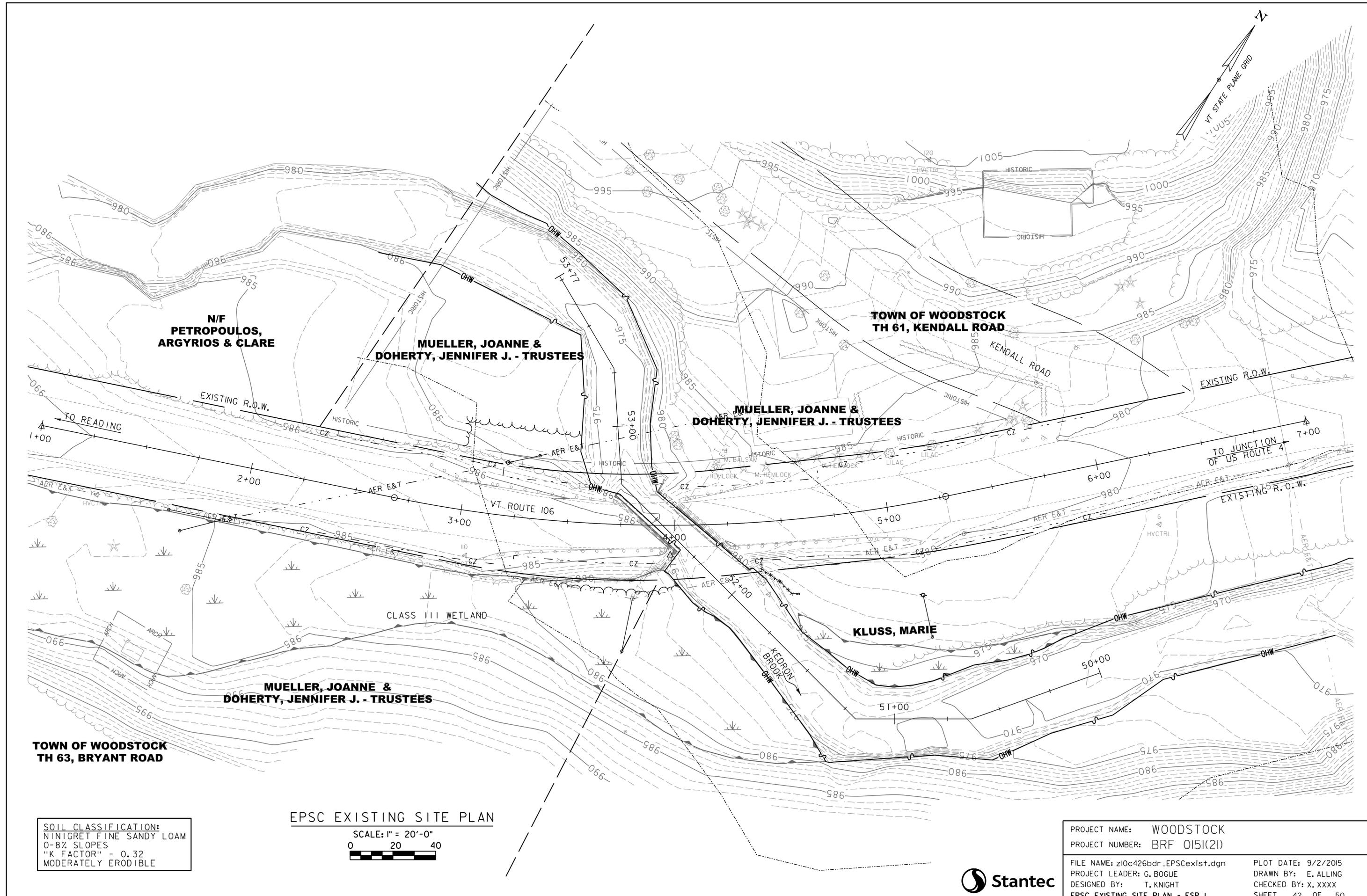
PLOT DATE: 9/25/2015

DRAWN BY: E. ALLING

CHECKED BY: I. MAYNARD

SHEET 41 OF 50





**N/F  
PETROPOULOS,  
ARGYRIOS & CLARE**

**MUELLER, JOANNE &  
DOHERTY, JENNIFER J. - TRUSTEES**

**TOWN OF WOODSTOCK  
TH 61, KENDALL ROAD**

**MUELLER, JOANNE &  
DOHERTY, JENNIFER J. - TRUSTEES**

**KLUSS, MARIE**

**MUELLER, JOANNE &  
DOHERTY, JENNIFER J. - TRUSTEES**

**TOWN OF WOODSTOCK  
TH 63, BRYANT ROAD**

SOIL CLASSIFICATION:  
NINIGRET FINE SANDY LOAM  
0-8% SLOPES  
"K FACTOR" - 0.32  
MODERATELY ERODIBLE

EPSC EXISTING SITE PLAN  
SCALE: 1" = 20'-0"  
0 20 40

PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	E. ALLING
FILE NAME:	z10c426bdr_EPSCexist.dgn	DESIGNED BY:	T. KNIGHT
PROJECT LEADER:	G. BOGUE	CHECKED BY:	X. XXXX
EPSC EXISTING SITE PLAN - ESP I		SHEET	42 OF 50

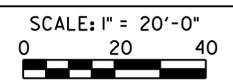




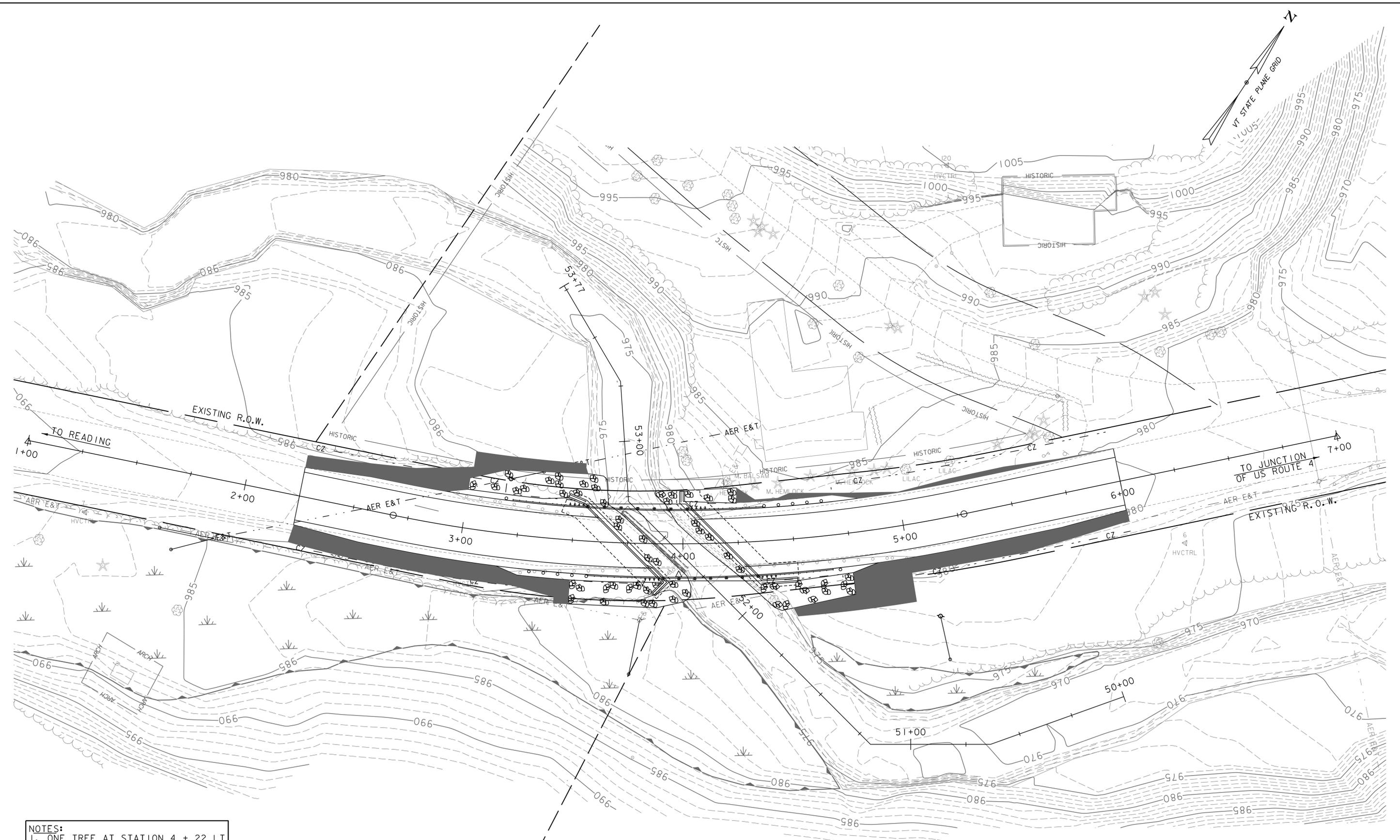
LEGEND	
	VEHICLE TRACKING PAD
	FILTER BAG
	IN WATER SEDIMENT ISOLATION DEVICE
	TREE PROTECTION ZONE

- NOTES:**
- ONE TREE AT STATION 4+22 LT SHALL BE REMOVED. ALL REMAINING TREES SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 656.10.
  - TREE PROTECTION ZONE SHALL EXTEND A MINIMUM OF 7 FEET FROM THE TREES AT STATIONS 4+34 & 4+45.
  - SEE STREAM PHASING SUMMARY SHEET FOR STREAM PHASING REQUIREMENTS.

**EPSC CONSTRUCTION SITE PLAN**

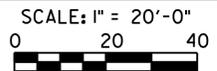


PROJECT NAME: WOODSTOCK	PLOT DATE: 9/2/2015
PROJECT NUMBER: BRF 0151(21)	DRAWN BY: E. ALLING
FILE NAME: z10c426bdr_EPSCconst.dgn	CHECKED BY: I. MAYNARD
PROJECT LEADER: G. BOGUE	SHEET 43 OF 50
DESIGNED BY: E. ALLING	
EPSC CONSTRUCTION SITE PLAN - CSP 2	



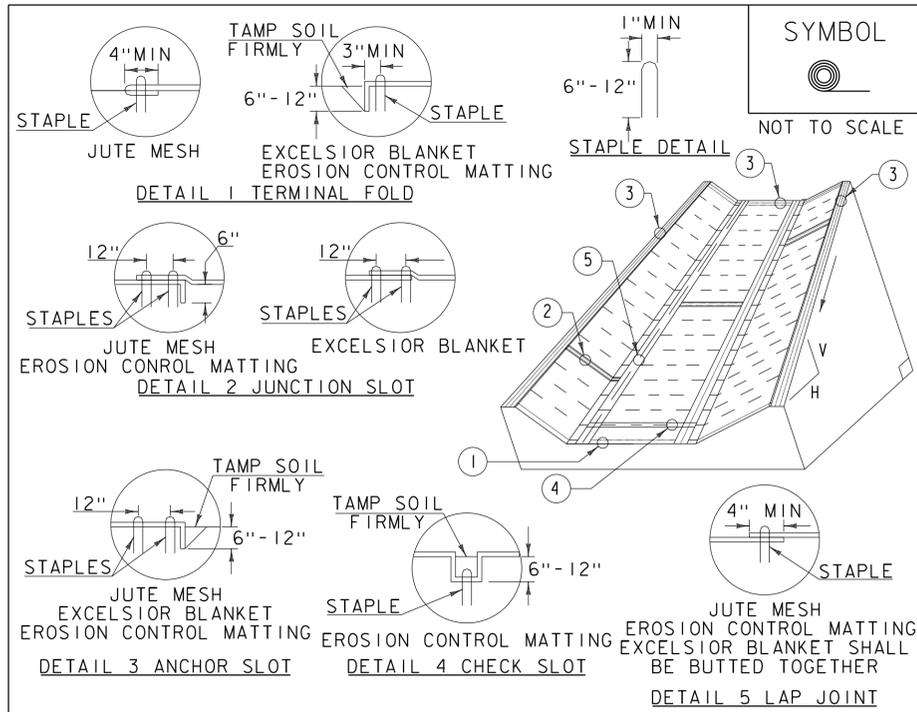
**NOTES:**  
 1. ONE TREE AT STATION 4 + 22 LT SHALL BE REMOVED. ALL REMAINING TREES SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 656.10.  
 2. REFER TO CROSS SECTIONS FOR FINAL GRADE.

**EPSC FINAL CONDITIONS PLAN**



PROJECT NAME:	WOODSTOCK	PLOT DATE:	9/2/2015
PROJECT NUMBER:	BRF 0151(21)	DRAWN BY:	E. ALLING
FILE NAME:	z10c426bdr_EPSCfinal.dgn	CHECKED BY:	I. MAYNARD
PROJECT LEADER:	G. BOGUE	SHEET	44 OF 50
DESIGNED BY:	E. ALLING		
EPSC FINAL CONDITIONS PLAN - FCP 1			





**CONSTRUCTION SPECIFICATIONS**

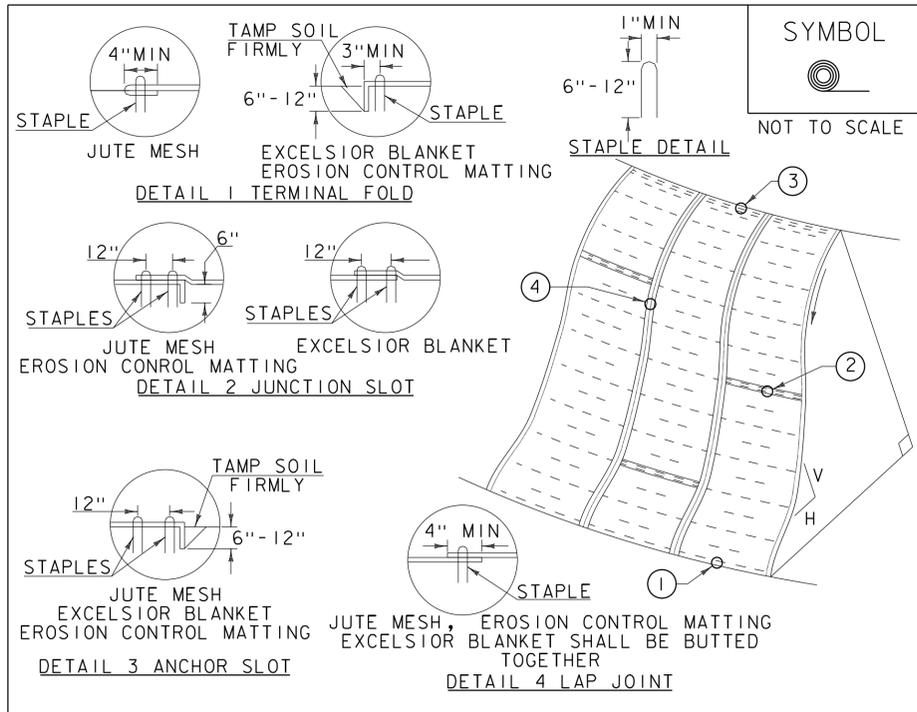
1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**ROLLED EROSION CONTROL PRODUCT (RECP) DITCH**

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS		
MARCH 8, 2007	JMF	
APRIL 16, 2007	WHF	
JANUARY 13, 2009	WHF	



**CONSTRUCTION SPECIFICATIONS**

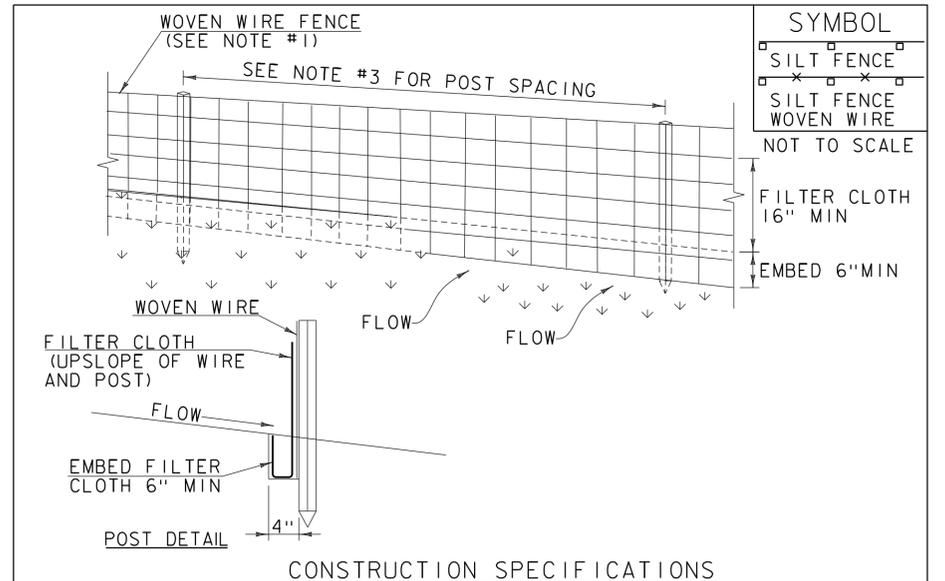
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE**

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS		
APRIL 16, 2007	JMF	
JANUARY 13, 2009	WHF	



**CONSTRUCTION SPECIFICATIONS**

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**SILT FENCE**

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS		
MARCH 21, 2008	WHF	
DECEMBER 11, 2008	WHF	
JANUARY 13, 2009	WHF	

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426frm.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: VTRANS  
EROSION CONTROL DETAILS - ECD 1

PLOT DATE: 9/2/2015  
DRAWN BY: VTRANS  
CHECKED BY: VTRANS  
SHEET 45 OF 50

VAOT RURAL AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
37.5%	22.5	45	CREeping RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	WHITE CLOVER	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
42.5%	34	68	CREeping RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE			
FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	FOLLOW	PELLETIZED	FOLLOW
500 LBS/AC	MANUFACTURER	2 TONS/AC	MANUFACTURER

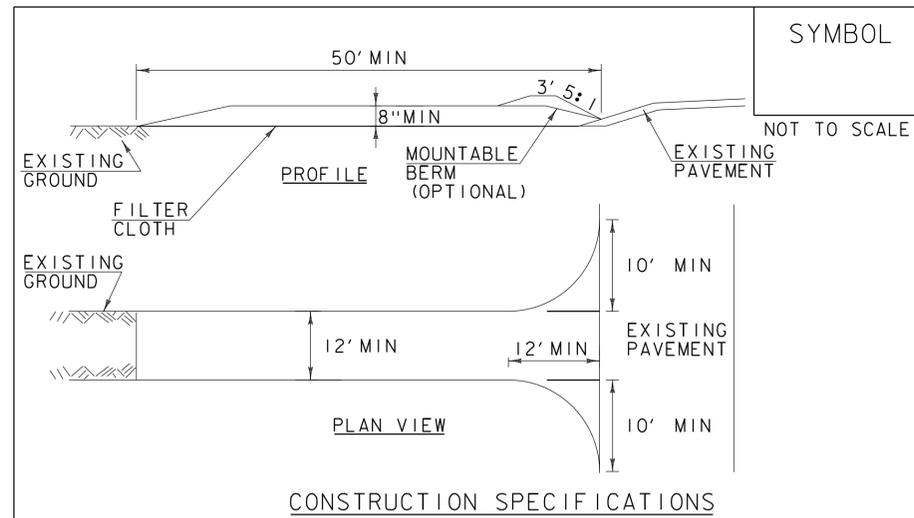
**CONSTRUCTION GUIDANCE**

- RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
- TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

**TURF ESTABLISHMENT**

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF



**CONSTRUCTION SPECIFICATIONS**

- STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
- THICKNESS- NOT LESS THAN 8".
- WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
- GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**STABILIZED CONSTRUCTION ENTRANCE**

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

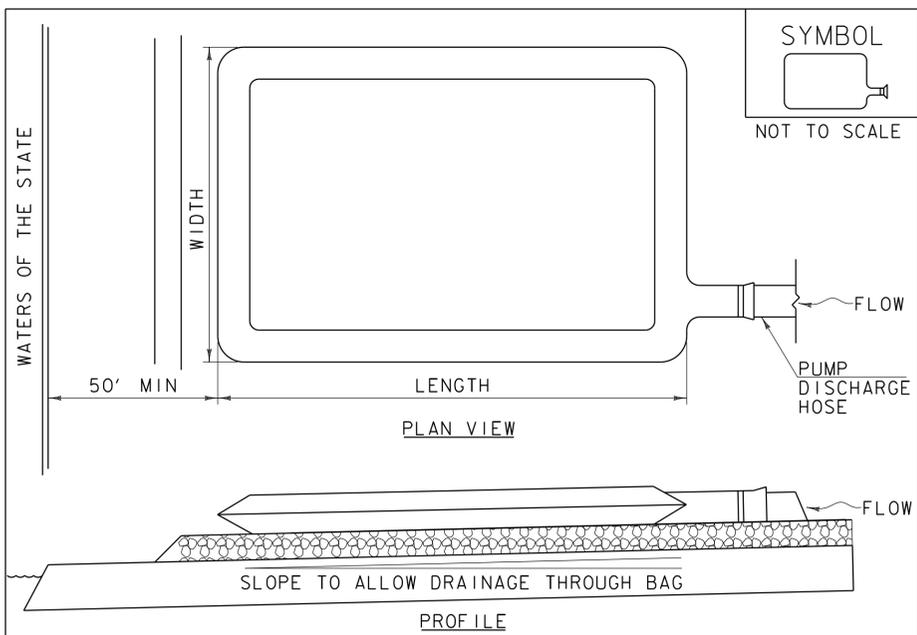
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: WOODSTOCK  
PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426frm.dgn  
PROJECT LEADER: G. BOGUE  
DESIGNED BY: VTRANS  
EROSION CONTROL DETAILS - ECD 2

PLOT DATE: 9/2/2015  
DRAWN BY: VTRANS  
CHECKED BY: VTRANS  
SHEET 46 OF 50



CONSTRUCTION SPECIFICATIONS

1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

PROJECT NAME: WOODSTOCK	PLOT DATE: 9/2/2015
PROJECT NUMBER: BRF 0151(21)	DRAWN BY: VTRANS
FILE NAME: z10c426frm.dgn	CHECKED BY: VTRANS
PROJECT LEADER: G. BOGUE	SHEET 47 OF 50
DESIGNED BY: VTRANS	EROSION CONTROL DETAILS - ECD 3

## TEMPORARY STREAM DIVERSION PHASING

1. KEDRON BROOK IN THE VICINITY OF THE PROJECT IS CONSIDERED A SIGNIFICANT FISH HABITAT. IN ORDER TO LIMIT THE IMPACTS TO THE HABITAT, A MINIMUM 9 FOOT WIDE OPEN CHANNEL SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
2. THE FOLLOWING SEQUENCE OF CONSTRUCTION WAS USED FOR DEVELOPING THE ANTICIPATED LIMITS OF STREAM DISTURBANCE AND RELOCATION FOR PERMITTING. THE SEQUENCE ASSUMES THE COFFERDAM FOR CONSTRUCTION OF ABUTMENT 1 IS TO BE REMOVED PRIOR TO INSTALLING THE COFFERDAM FOR CONSTRUCTION OF ABUTMENT 2. IF THE CONTRACTOR PROPOSES TO PERFORM THE WORK DIFFERENTLY THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE APPROPRIATE REGULATING ENTITIES PRIOR TO PERFORMING THE WORK.

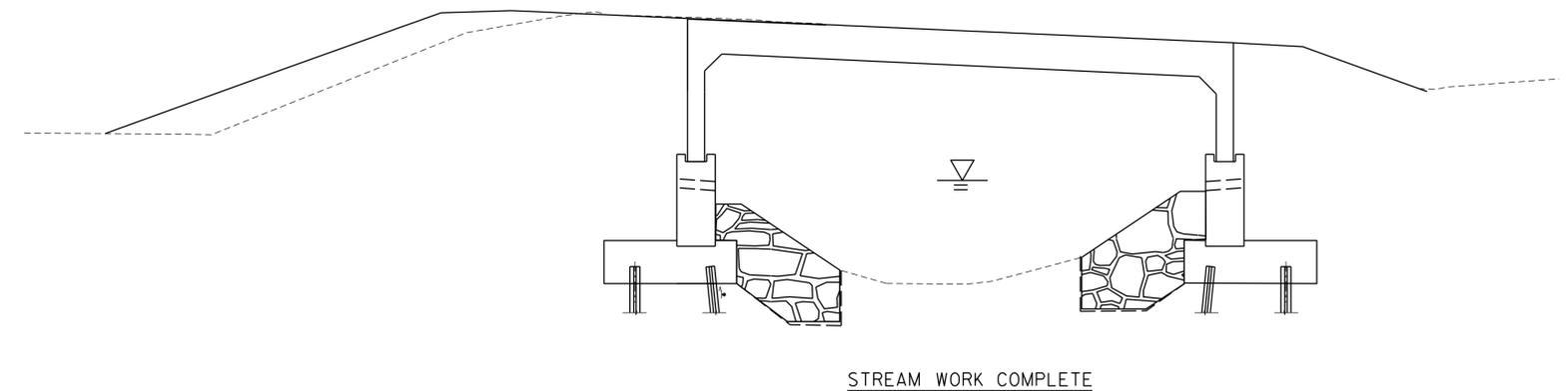
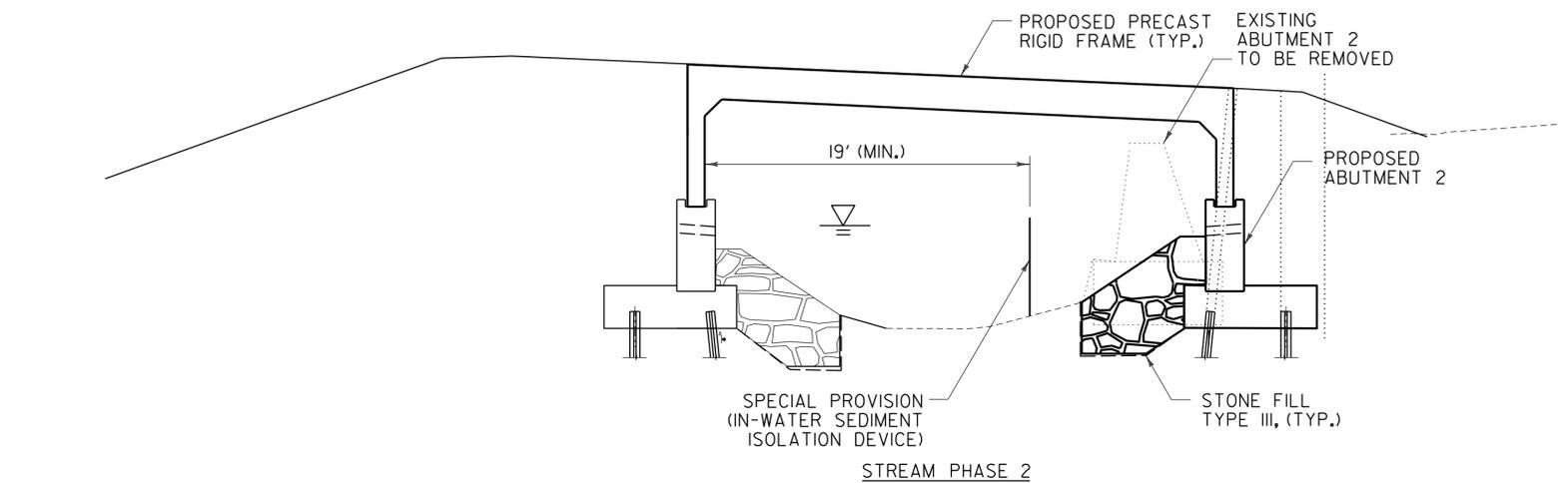
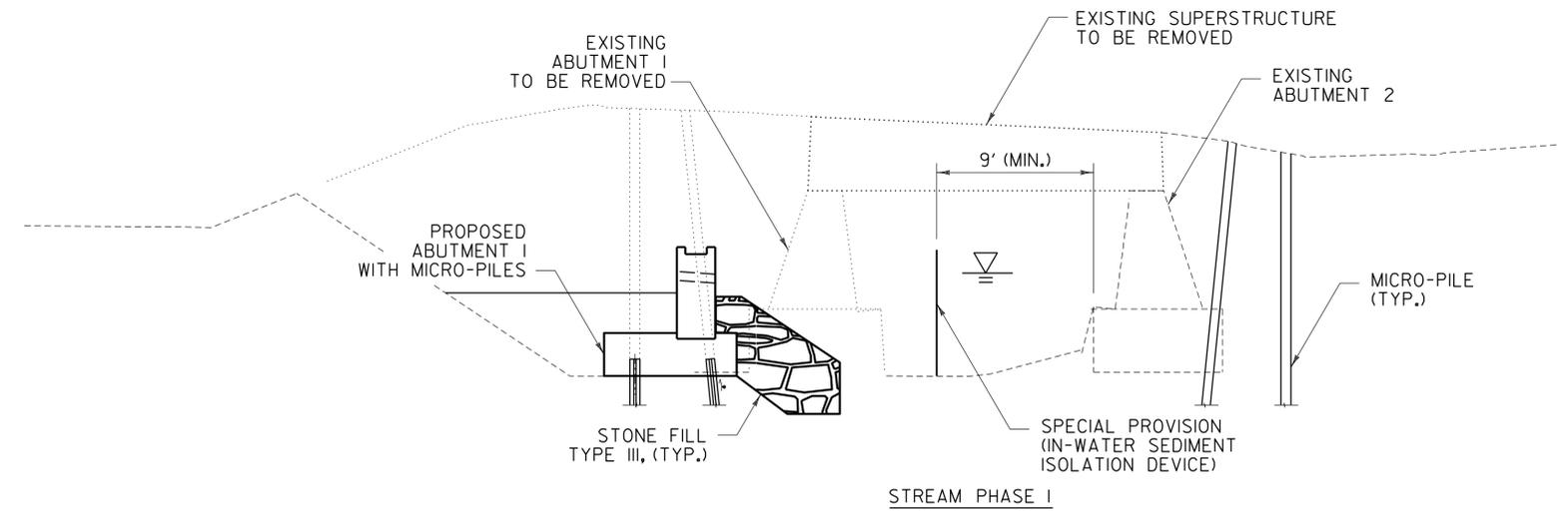
## SUMMARY OF STREAM PHASING SEQUENCE

### PHASE 1:

- A. INSTALL SEDIMENT ISOLATION DEVICE AND COFFERDAM AT ABUTMENT 1.
- B. REMOVE STRUCTURE REMOVE EXISTING ABUTMENT 1 AND EXCAVATE FOR ABUTMENT 1 FOUNDATION, CUT OFF PILES, INSTALL PRECAST FOOTING UNITS AND STEM WALLS, PLACE SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ) IN FOOTING BLOCKOUTS.
- C. REMOVE COFFERDAM IN FRONT OF ABUTMENT 1, RETAIN COFFERDAM IN FRONT OF PROPOSED WINGWALLS, REALIGN AS NECESSARY TO MAINTAIN MINIMUM CHANNEL WIDTH.
- D. INSTALL STONE FILL AT ABUTMENT 1 (BEHIND SEDIMENT ISOLATION DEVICE).

### PHASE 2:

- A. INSTALL SEDIMENT ISOLATION DEVICE AT ABUTMENT 2.
- B. INSTALL ABUTMENT 2 COFFERDAM (DIVERT STREAM TOWARDS NEW ABUTMENT 1).
- C. EXCAVATE FOR ABUTMENT 2 FOUNDATION AND REMOVE EXISTING ABUTMENT 2, CUT OFF PILES, INSTALL PRECAST FOOTING UNITS AND STEM WALLS, PLACE SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ) IN FOOTING BLOCKOUTS.
- D. REMOVE COFFERDAM AT ABUTMENT 2 (RETAIN IN FRONT OF PROPOSED WINGWALLS).
- E. INSTALL STONE FILL AT ABUTMENT 2 (BEHIND SEDIMENT ISOLATION DEVICE).
- F. SET FRAME/GROUT AND CURE FRAME JOINTS, MEMBRANE VERTICAL JOINTS, BACKFILL FRAME LEGS. SET WINGWALLS AND BACKFILL.
- G. REMOVE COFFERDAM IN FRONT OF WINGS.
- H. INSTALL STONE FILL IN FRONT OF WINGWALL (BEHIND SEDIMENT ISOLATION DEVICE).
- I. INSTALL GRUBBING.
- J. REMOVE SEDIMENT ISOLATION DEVICE.



## STREAM PHASING SEQUENCE

SCALE  $\frac{3}{16}$ " = 1'-0"

PROJECT NAME: WOODSTOCK

PROJECT NUMBER: BRF 0151(21)

FILE NAME: z10c426stream\_phasing.dgn

PROJECT LEADER: G. BOGUE

DESIGNED BY: T. KNIGHT

STREAM PHASING SUMMARY

PLOT DATE: 9/25/2015

DRAWN BY: L. BUXTON

CHECKED BY: X. XXXX

SHEET 48 OF 50





HVCTRL #1  
389174.4977 N  
1634481.8006 E  
ELEV: 1005.44'

HVCTRL #2  
388828.4329 N  
1634244.4975 E  
ELEV: 986.75'

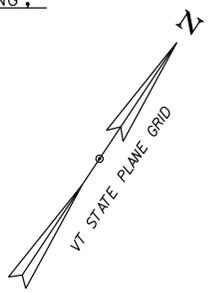
HVCTRL #3  
388900.4009 N  
1634403.6064 E  
ELEV: 986.32'

ITEM 621.30 - BOX BEAM GUARDRAIL  
STA. 2+99 - 3+22, LT.  
STA. 3+32 - 3+58, RT.  
STA. 4+37 - 4+62, LT.  
STA. 4+66 - 4+75, RT.

ITEM 621.51 - MANUFACTURED TERMINAL SECTION, TANGENT (BOX BEAM)  
STA. 3+18 - 3+32, RT.  
STA. 4+62 - 4+76, LT.

ITEM 621.725 - GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM  
STA. 3+22 - 3+54, LT.  
STA. 3+58 - 3+89, RT.  
STA. 4+04 - 4+37, LT.  
STA. 4+35 - 4+66, RT.

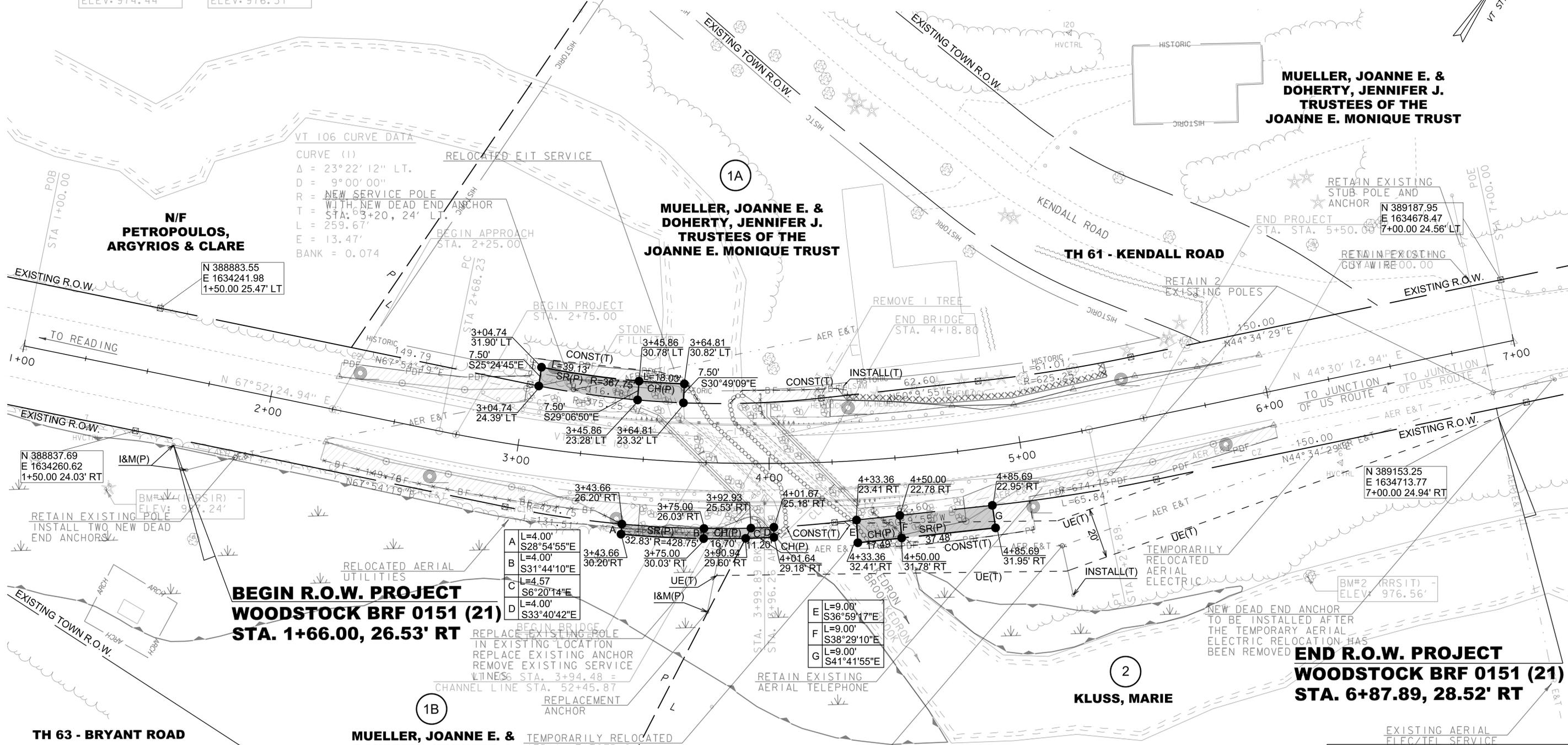
ITEM 210.10 - COLD PLANING, BITUMINOUS PAVEMENT  
STA. 2+15 - 2+25  
STA. 6+00 - 6+10



HVCTRL #4  
388963.9474 N  
1634531.8644 E  
ELEV: 974.44'

HVCTRL #5  
389092.4860 N  
1634665.7851 E  
ELEV: 976.31'

ITEM 656.85 - TREE PROTECTION  
STA. 4+26 LT. - 5+40, LT.



VT 106 CURVE DATA  
CURVE (1)  
Δ = 23°22'12" LT.  
D = 9°00'00"  
R = NEW SERVICE POLE WITH NEW DEAD END ANCHOR  
T = STA. 2+20, 24' LT.  
L = 259.67'  
E = 13.47'  
BANK = 0.074

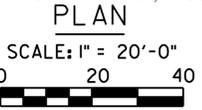
A L=4.00' S28°54'55"E  
B L=4.00' S31°44'10"E  
C L=4.57' S6°20'14"E  
D L=4.00' S33°40'42"E

E L=9.00' S36°59'17"E  
F L=9.00' S38°29'10"E  
G L=9.00' S41°41'55"E

**BEGIN R.O.W. PROJECT**  
**WOODSTOCK BR# 0151 (21)**  
**STA. 1+66.00, 26.53' RT**

**END R.O.W. PROJECT**  
**WOODSTOCK BR# 0151 (21)**  
**STA. 6+87.89, 28.52' RT**

INSTALL TEMPORARY NEW POLE WITH NEW BI-SECT ANCHOR  
STA. 5+10, 43.5' RT.



**FOR R.O.W. USE ONLY**

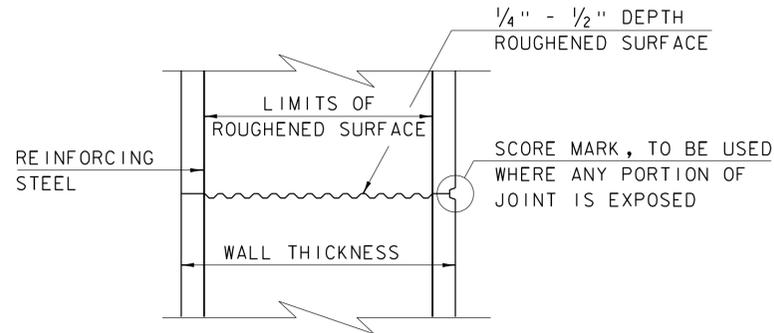
LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

PROJECT NAME: WOODSTOCK	PLOT DATE: 08-OCT-2014
PROJECT NUMBER: BR# 0151(21)	DRAWN BY: A. EGZI
FILE NAME: r10c426lay.dgn	CHECKED BY: R. CLOUTIER
PROJECT LEADER: R. YOUNG	SHEET 50 OF 50
DESIGNED BY: STANTEC	
R.O.W. LAYOUT SHEET 1 OF 1	

FOR EXISTING BRIDGE INFORMATION, SEE PRELIMINARY INFORMATION SHEET 2

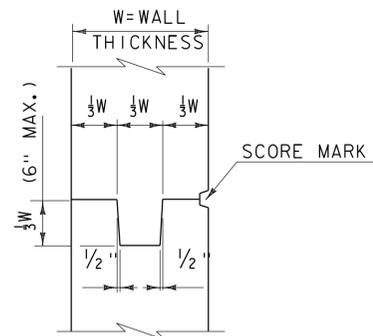
**CONCRETE GENERAL NOTES**

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

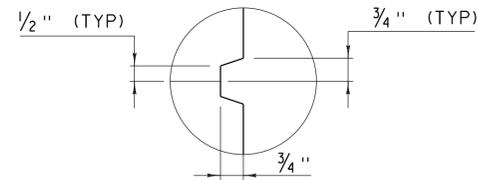


**TYPICAL HORIZONTAL CONSTRUCTION JOINT**  
(NOT TO SCALE)

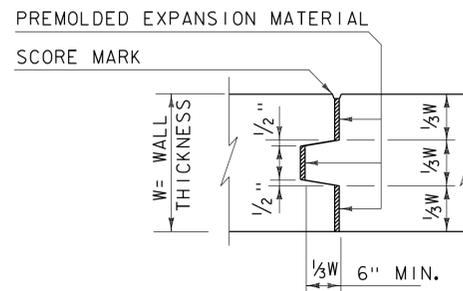
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



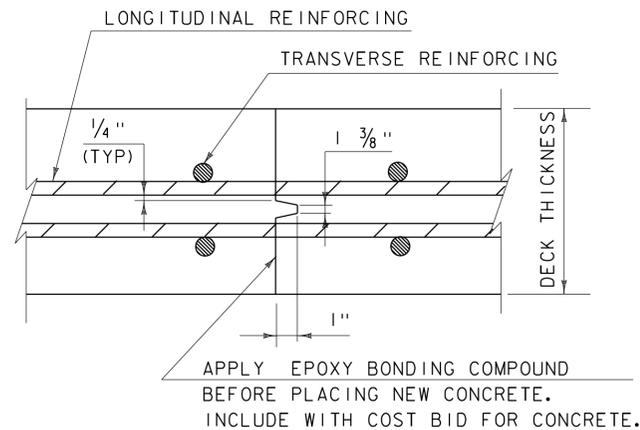
**TYPICAL CONCRETE CONSTRUCTION JOINT**  
(NOT TO SCALE)



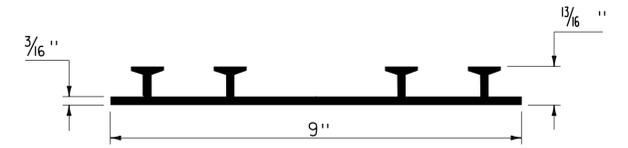
**SCORE MARK DETAIL**  
(NOT TO SCALE)



**TYPICAL CONCRETE EXPANSION JOINT**  
(NOT TO SCALE)



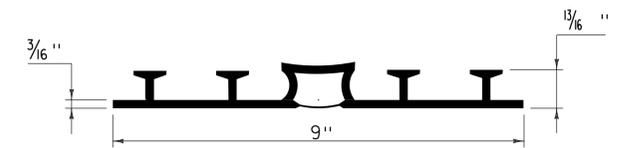
**TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS**  
(NOT TO SCALE)



**P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS**  
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

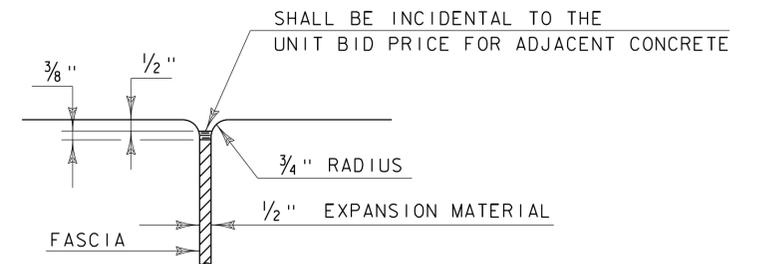
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



**P.V.C. WATERSTOP FOR EXPANSION JOINTS**  
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



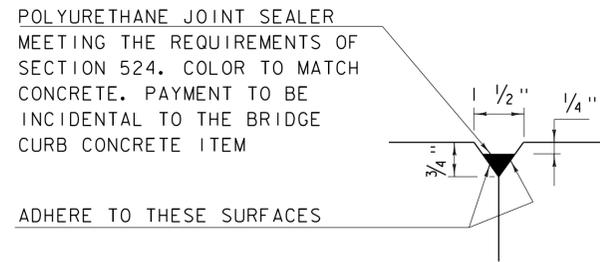
**JOINT BETWEEN FASCIA AND WINGWALL**  
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

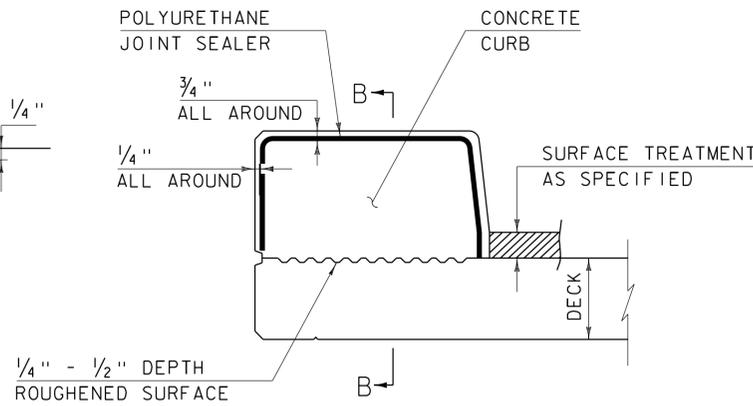
**CONCRETE  
DETAILS AND NOTES**



**STRUCTURES  
DETAIL  
SD-501.00**

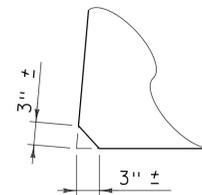
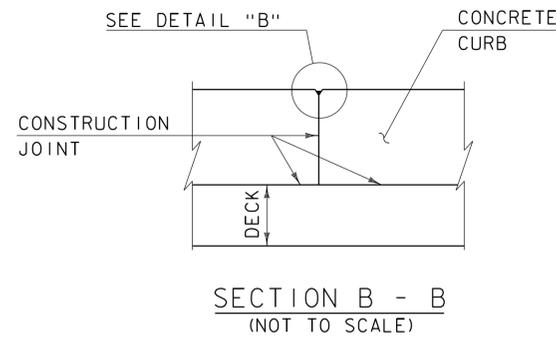


DETAIL "B"  
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION  
(NOT TO SCALE)

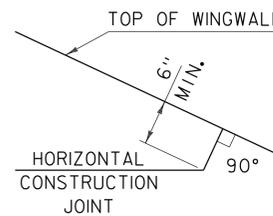
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



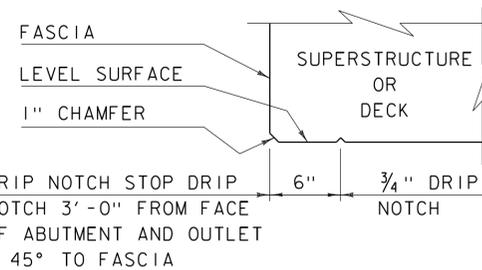
ACUTE ANGLE  
CLIP DETAIL  
(NOT TO SCALE)

CONCRETE CURB JOINT NOTES

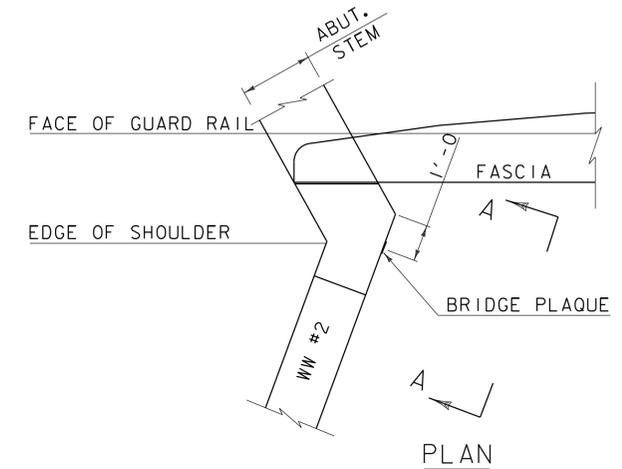
1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



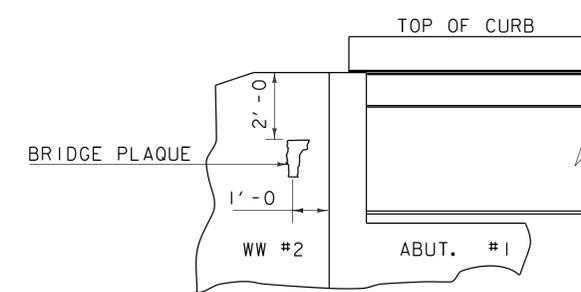
HORIZONTAL WINGWALL  
CONSTRUCTION JOINT  
(NOT TO SCALE)



DRIP NOTCH DETAIL  
(NOT TO SCALE)



PLAN



VIEW "A - A"

BRIDGE PLAQUE  
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS

MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE  
DETAILS AND NOTES



STRUCTURES  
DETAIL  
SD-502.00

ASPHALTIC PLUG JOINT NOTES

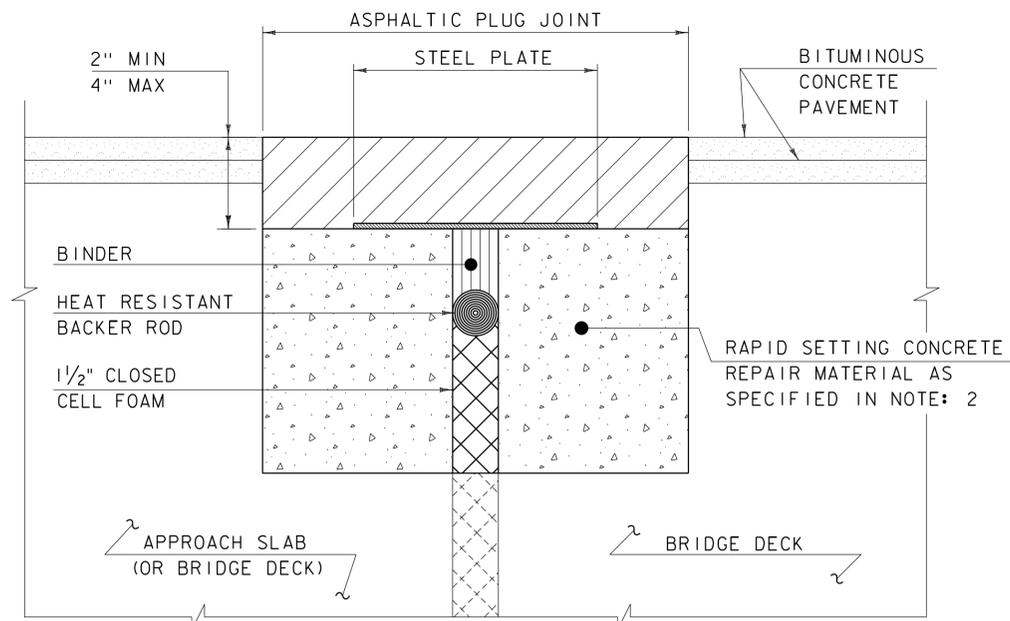
INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

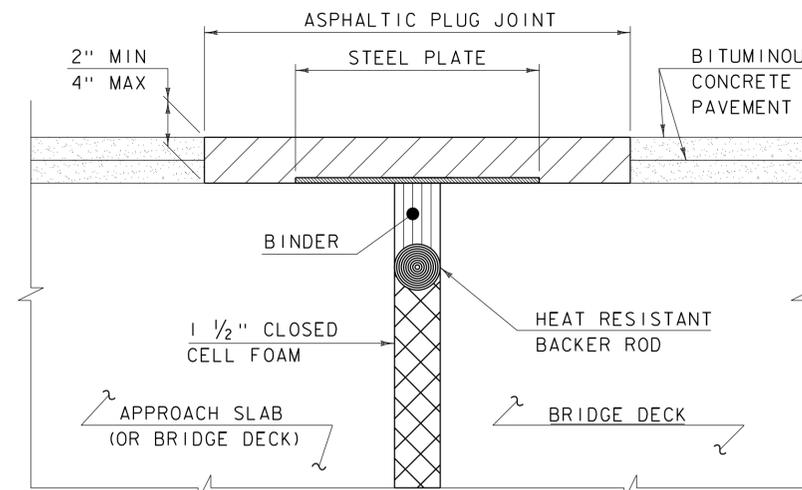
1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



ASPHALTIC PLUG JOINT DETAIL - REHAB

NOTES:

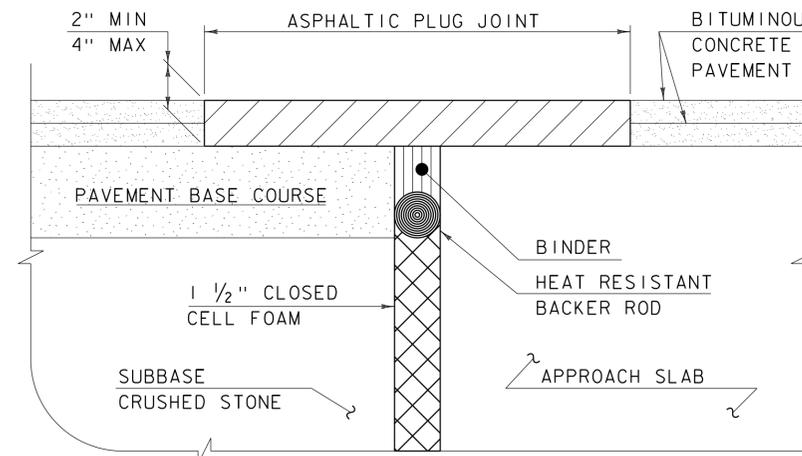
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.
2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.
4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:

PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

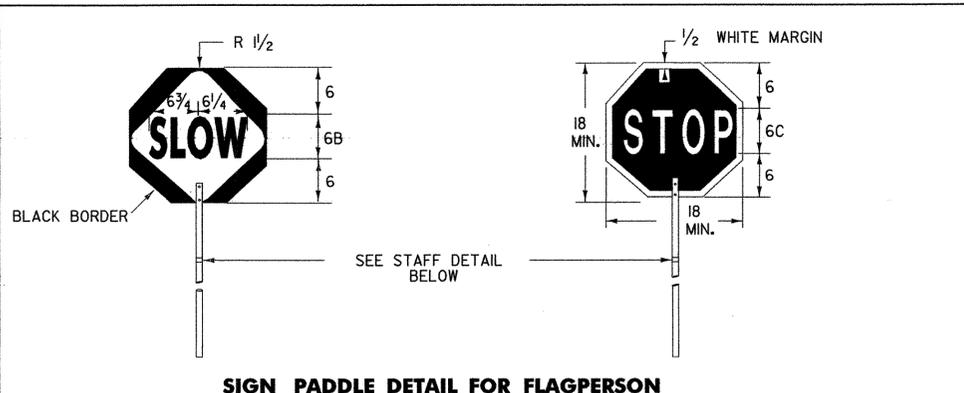
DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

BRIDGE JOINT  
ASPHALTIC PLUG



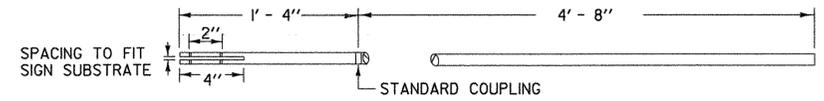
STRUCTURES  
DETAIL  
SD-516.10



**SIGN PADDLE DETAIL FOR FLAGPERSON**

**COLORS**  
ORANGE ASTM TYPE VIII  
RETROREFLECTORIZED DIAMOND  
WITH BLACK TEXT AND BORDER

**COLORS**  
RED ASTM TYPE III OR TYPE VIII  
RETROREFLECTORIZED OCTAGON  
WITH WHITE ASTM TYPE III OR TYPE VIII  
RETROREFLECTORIZED TEXT AND BORDER



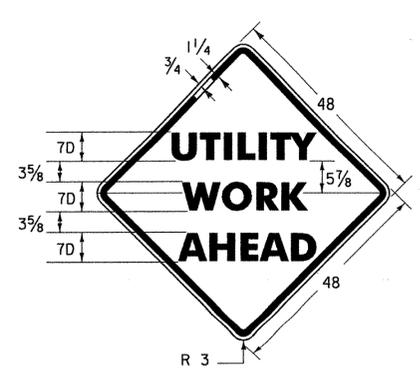
**STAFF DETAIL**

**MATERIALS**

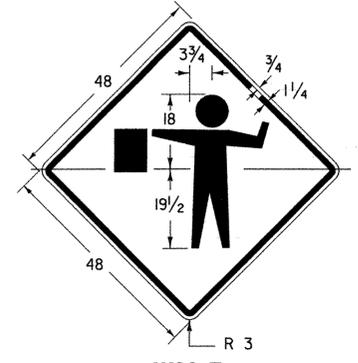
THE SIGN MATERIALS SHALL BE ALUMINUM, ABS PLASTIC OR EQUIVALENT, WITH COLORS AS INDICATED ON DETAILS. RETROREFLECTIVE SHEETING SHALL BE ASTM TYPE III OR TYPE VIII. THE STAFF MAY BE RIGID ALUMINUM TUBING, ABS PLASTIC OR WOOD.

**MOUNTING**

THE SIGN SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.



**W21-7 OR W20-1**



**W20-7a**

**NOTES**

**DESIGN**

LETTERS, DIGITS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAYS SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA).

**MATERIALS**

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING WITH MINIMUM THICKNESS AS NOTED.  
FLAT SHEET ALUMINUM - 0.125 INCHES  
HIGH DENSITY OVERLAYED PLYWOOD - 5/8 INCHES  
ROLL-UP SIGN MATERIAL ASTM TYPE VI

**REFLECTORIZATION**

ALL RETROREFLECTORIZED MATERIAL SHALL CONSIST OF ASTM TYPE III, TYPE VI OR TYPE VIII RETROREFLECTIVE SHEETING. THE TEXT AND BORDERS MAY BE SILK SCREENED OR LETTERING FILM.

**COLORS**

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT BORDER AND SYMBOLS ON A RETROREFLECTORIZED FLUORESCENT ORANGE BACKGROUND THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

**INSTALLATION**

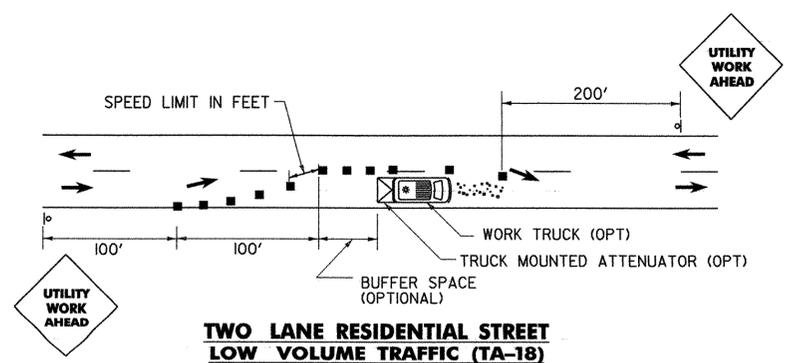
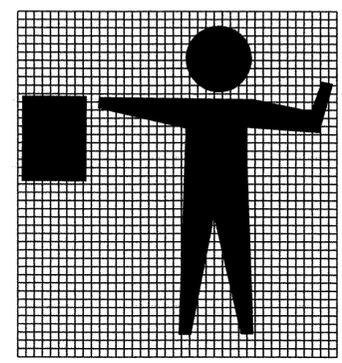
THE SIGNS SHALL BE IN-PLACE AT THE TIME THE PROJECT COMMENCES, AND WHERE APPLICABLE EACH POST MOUNTED SIGN SHALL BE ERECTED IN A NEAT AND PROFESSIONAL MANNER ON METAL POSTS SET SECURELY IN THE GROUND, UNLESS OTHERWISE NOTED ON THIS SHEET. THE BOTTOM OF A SIGN, UNLESS OTHERWISE NOTED SHALL BE AT LEAST 7 FEET ABOVE EDGE OF THE TRAVELED WAY, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL OR 2 FEET OUTSIDE CURBING OR SIDEWALK. SIGNS MOUNTED ON BARRICADES OR TEMPORARY SUPPORTS SHALL BE POSITIONED SUCH THAT THE BOTTOM OF THE SIGN IS NOT LESS THAN ONE FOOT ABOVE THE PAVEMENT ELEVATION. ALL SIGN INSTALLATIONS SHALL BE NCHRP 350 COMPLIANT FOR THE SIGN SUBSTRATE MATERIAL BEING USED. FOR MOBILE OPERATIONS REFER TO THE MUTCD PART VI (TA-17)

**SPECIFICATIONS**

WARNING SIGNS SHALL MEET THE VERMONT STATE STANDARD SPECIFICATIONS FOR CONSTRUCTION "TRAFFIC SIGNS".

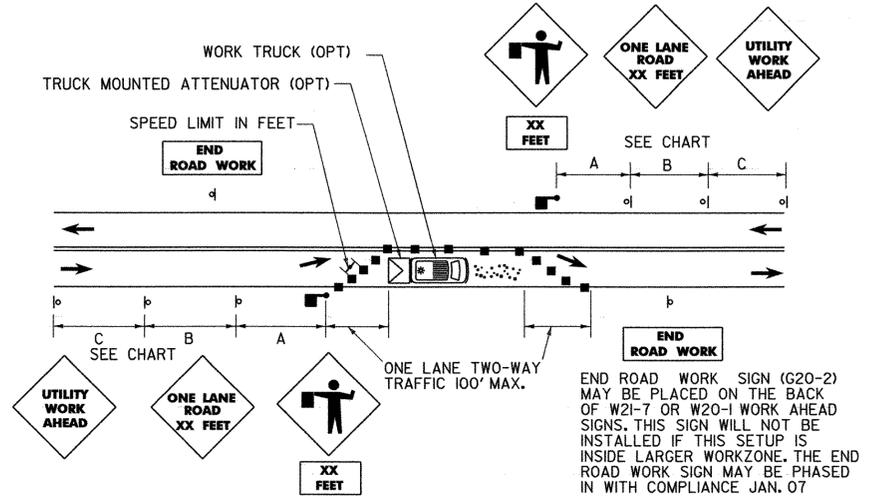
**LEGEND**

- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- WORK AREA
- SIGN & POSTS
- FLAGPERSON
- CHANNELIZING DEVICES (CONES OR DRUMS)



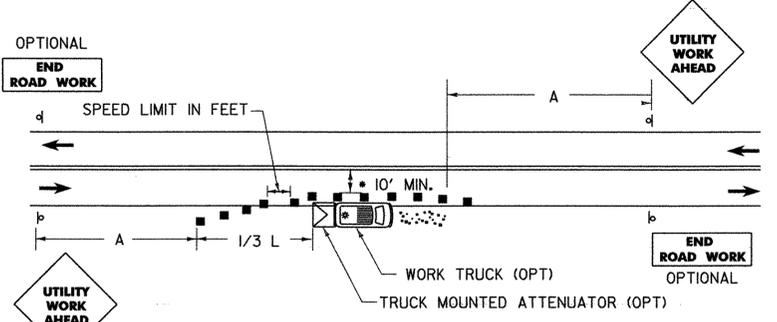
**TWO LANE RESIDENTIAL STREET LOW VOLUME TRAFFIC (TA-18)**

THIS LAYOUT SHALL ONLY BE USED ON ROADS WITH SPEED LIMITS LESS THAN 30 MPH AND WHERE SIGHT DISTANCE MEETS MINIMUM STOPPING SIGHT DISTANCES REQUIREMENTS FOR BOTH DIRECTIONS OF APPROACHING TRAFFIC.



**TWO LANE ROAD REQUIRING LANE CLOSURE (TA-10)**

SINGLE FLAGGER OPERATION MAY BE USED IF SIGHT DISTANCE IS AVAILABLE ON LOW VOLUME ROADS



**TWO LANE ROAD SHOULDER WORK AREA (TA-6)**

$L = \frac{WS^2}{60}$   
\* IF LESS THAN 10' USE THE FLAGGING OPERATION AS SHOWN ABOVE  $L = WS \geq 45$  MPH

**WORK DURATION**

WORK DURATION IS A MAJOR FACTOR IN DETERMINING THE NUMBER AND TYPES OF DEVICES USED IN UTILITY TRAFFIC CONTROL ZONES. THE DURATION OF A TEMPORARY TRAFFIC CONTROL ZONE IS DEFINED RELATIVE TO THE LENGTH OF TIME A WORK OPERATION OCCUPIES A SPOT LOCATION.

SHORT DURATION IS WORK THAT OCCUPIES A LOCATION UP TO 1 HOUR. SIMPLIFIED CONTROL PROCEDURES MAY BE WARRANTED FOR SHORT-DURATION WORK. ALL WORK VEHICLES SHALL BE EQUIPPED AND OPERATING ROTATING OR STROBE LIGHTS DURING SHORT-DURATION WORK. THE SUPERVISOR WILL DETERMINE IF ADDITIONAL SIGNS AND TRAFFIC CONTROL IS NECESSARY. SAFETY IN SHORT-DURATION WORK ZONES SHOULD NOT BE COMPROMISED BY USING FEWER DEVICES SIMPLY BECAUSE THE OPERATION WILL FREQUENTLY CHANGE LOCATIONS.

SHORT-TERM STATIONARY IS DAYTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR BUT LESS THAN 12 HOURS (MOST MAINTENANCE AND UTILITY OPERATIONS ARE SHORT-TERM STATIONARY WORK). ADVANCE WARNING SIGNS SHALL BE PLACED TO WARN TRAVELING PUBLIC THAT WORK IS TAKING PLACE. THE NUMBER AND SPACING OF THESE WARNING DEVICES WILL DEPEND ON THE LOCATION OF THE WORKZONE.

**SIGN SPACING**

WHERE HIGHWAY CONDITIONS PERMIT, WARNING SIGNS SHOULD BE PLACED A VARYING DISTANCE IN ADVANCE OF THE WORK AREA, DEPENDING ON THE ROADWAY TYPE, CONDITION, AND SPEED. WHERE A SERIES OF TWO OR MORE WARNING SIGNS IS USED, THE CLOSEST SIGN TO THE WORK AREA SHOULD BE PLACED APPROXIMATELY 100 FT AWAY FOR LOW-SPEED URBAN STREETS 1,000 FT AWAY OR MORE FOR EXPRESSWAYS AND FREEWAYS. SEE TABLE BELOW.

ROAD TYPE	DISTANCE BETWEEN SIGNS (FT)		
	A	B	C
URBAN (LOW SPEED)	100	100	100
URBAN (HIGH SPEED)	350	350	350
RURAL	500	500	500
EXPRESSWAY/FREEWAY	1,000	1,500	2,640

**SIGN SPACING NOTES**

**REVISIONS AND CORRECTIONS**

AUG 08, 1995 - SUPERSEDES STD E-9 AND UPDATED TO NEW CHAPTER VI OF MUTCD  
APRIL 18, 2002 - CHANGED REFLECTIVE SHEETING TO TYPE III  
MARCH 01, 2004 - UPDATED SIGN PACKAGES TO MEET MUTCD

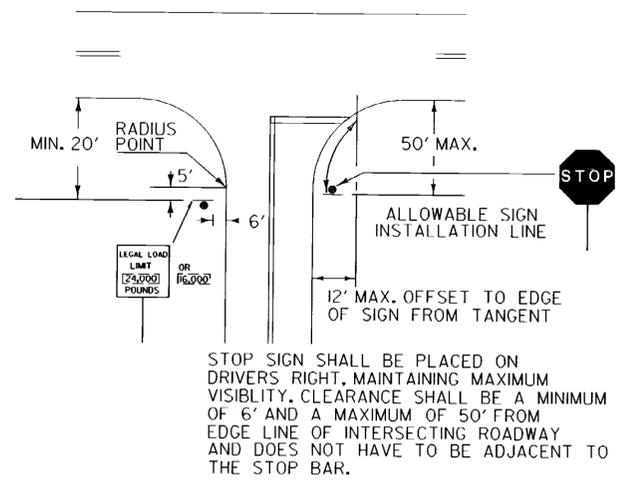
**APPROVED**

*[Signature]*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*[Signature]*  
TRAFFIC OPERATIONS ENGINEER  
*[Signature]*  
FEDERAL HIGHWAY ADMINISTRATION

**UTILITY WORK ZONE**

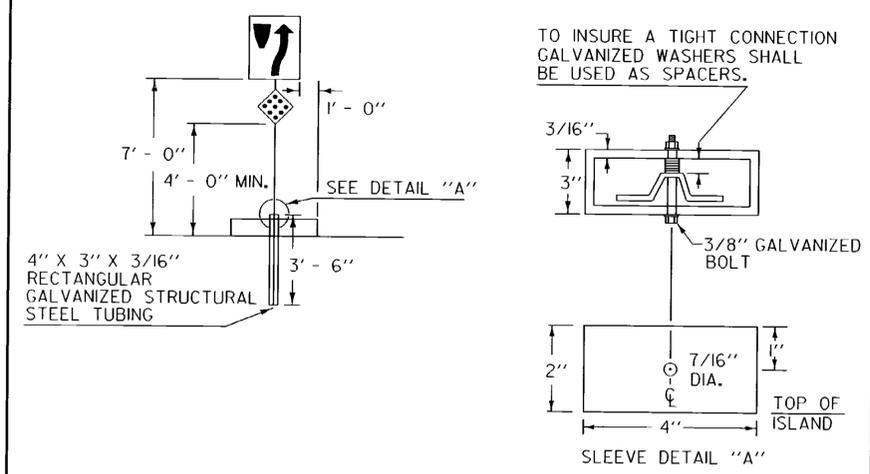


**STANDARD E-119**



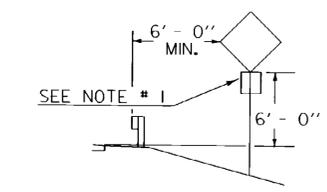
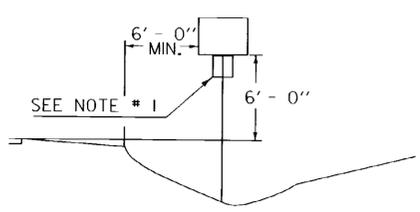
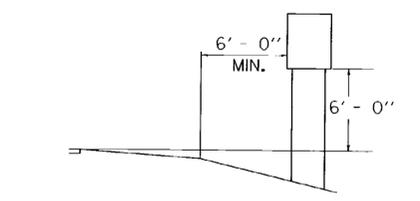
**LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS**

STOP SIGN SHALL BE PLACED ON DRIVERS RIGHT, MAINTAINING MAXIMUM VISIBILITY. CLEARANCE SHALL BE A MINIMUM OF 6' AND A MAXIMUM OF 50' FROM EDGE LINE OF INTERSECTING ROADWAY AND DOES NOT HAVE TO BE ADJACENT TO THE STOP BAR.

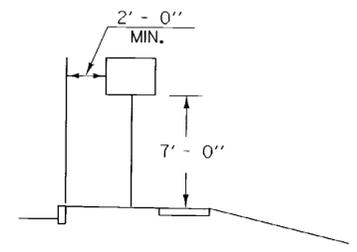
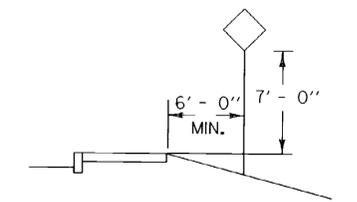


**SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC**

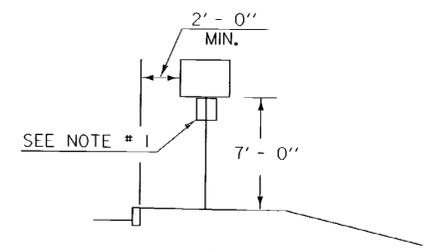
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY



**RURAL**



IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..



**URBAN**

**NOTES:**

1. IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

POST REFERENCE:  
REFER TO THE DETAILS ON THE APPROPRIATE STANDARD DRAWING FOR INFORMATION CONCERNING THE PROPER MOUNTING OF SIGNS ON APPROPRIATE POSTS.

**OTHER STDS. REQUIRED:** E-160 E-161 E-162 E-163 E-164

REVISIONS AND CORRECTIONS  
JAN. 23, 1995 - DATE OF ORIGINAL ISSUE  
AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

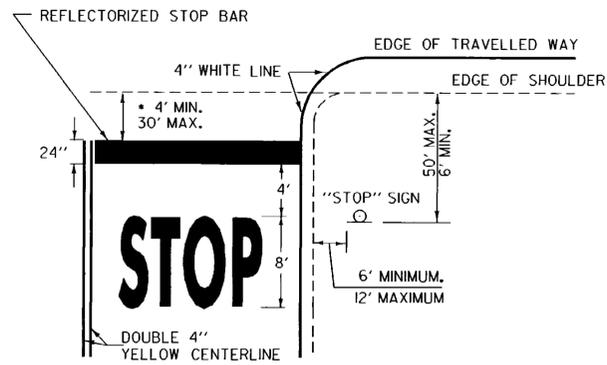
APPROVED  
*Stephen D. MacArthur*  
DIRECTOR OF ENGINEERING  
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

**STANDARD SIGN PLACEMENT  
CONVENTIONAL ROAD**



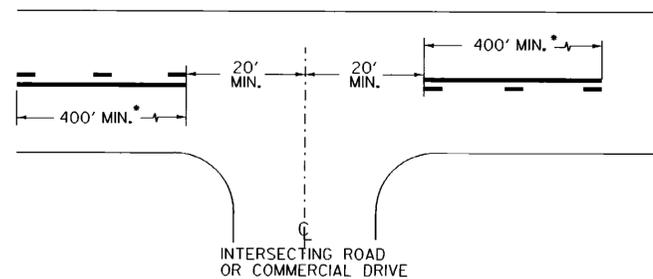
**STANDARD  
E-121**

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.



\* THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC.

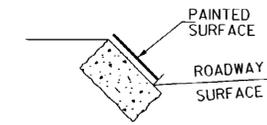
**STOP BAR LAYOUT**



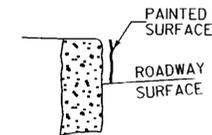
\* THE SOLID LINE SHALL BE PAIRED WITH EITHER A SOLID OR DASHED LINE DEPENDING ON SIGHT DISTANCE AVAILABILITY IN THE OPPOSING DIRECTION. ADJUSTMENTS TO THE 40 FOOT CENTERLINE OPENING MAY BE MADE TO ACCOMMODATE SKEWED INTERSECTIONS.

- CENTERLINE BREAKS:
- AT ALL STATE HIGHWAYS AND TOWN HIGHWAYS, INCLUDING CLASS 4 TH'S, THAT HAVE STOP AND LEGAL LOAD LIMIT SIGNS INSTALLED
  - COMMERCIAL DRIVES:
    - WHERE A SEPERATE TURN LANE EXISTS ON THE MAIN LINE (LT. OR RT.)
    - SIGNIFICANT TRAFFIC VOLUMES EXISTS.
    - IF MOTORISTS NEED ASSISTANCE TO DEFINE ENTRANCE POINTS.

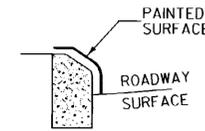
**CENTERLINE LAYOUT**



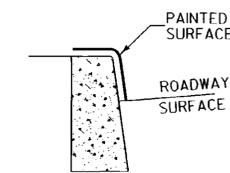
**GRANITE SLOPE EDGING**



**VERTICAL GRANITE CURB**

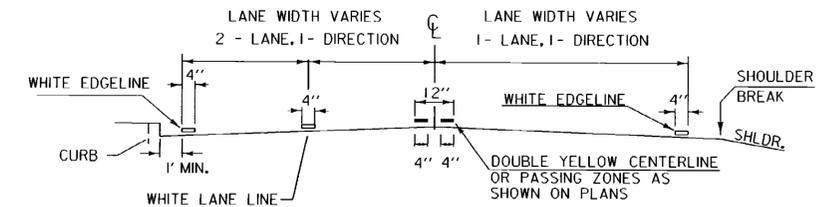


**TYPE A (CONCRETE)**

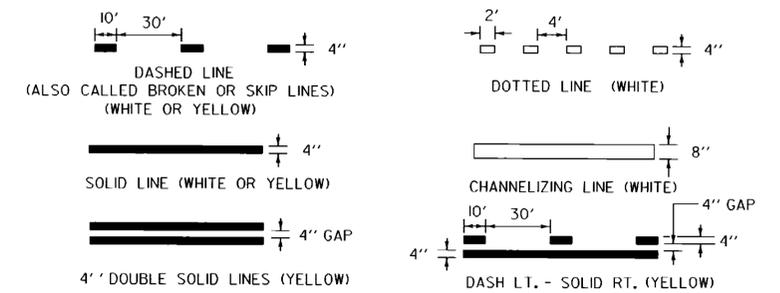


**TYPE B (CONCRETE)**

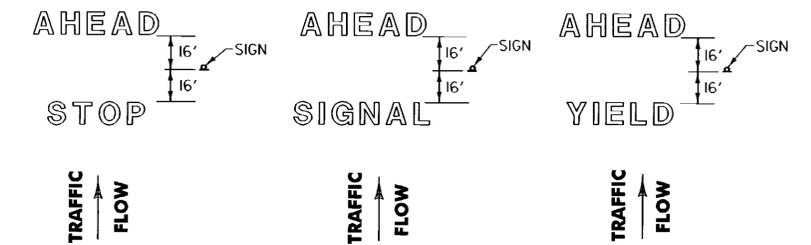
**PAINTED CURB**



**PAVEMENT MARKING PLACEMENT DETAIL**

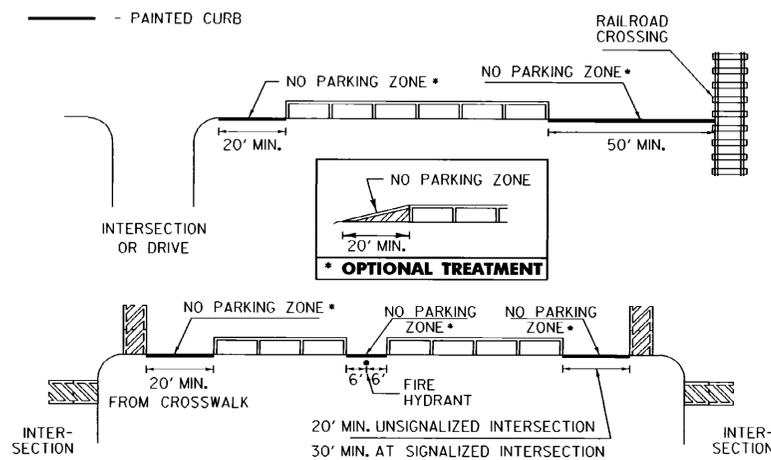


**PAVEMENT MARKING LINE DETAILS**

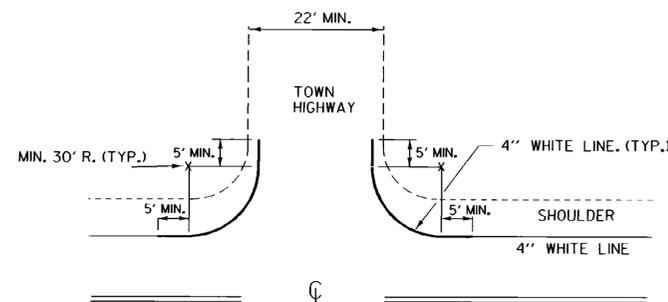


**LETTER IN WORD MARKING SPACING DETAIL**

NOTE: SINGLE WORDS CENTERED ON SIGN ie: SCHOOL OR YIELD



**NO PARKING LAYOUT DETAILS**

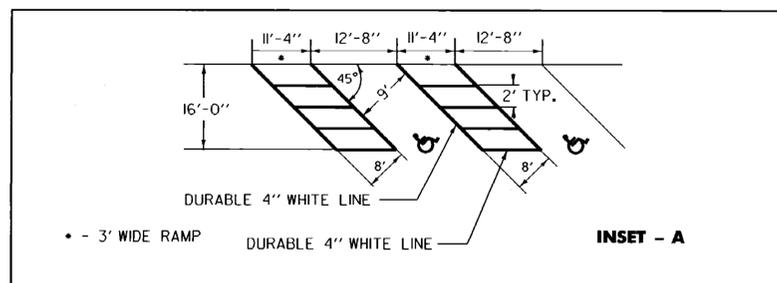


EDGE LINES SHALL BE APPLIED TO ALL STATE HIGHWAYS AND SHOULD BE MAINTAINED AT A CONSTANT DISTANCE FROM THE CENTERLINE UNLESS PAVEMENT WIDTH INCREASES TO ALLOW WIDER LANES.

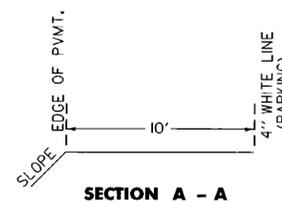
APPLY EDGE LINE AS DETAILED ON ALL PAVED CLASS 1 & CLASS 2 TOWN HIGHWAYS AND ANY CLASS 3 TOWN HIGHWAY 22 FEET OR MORE IN WIDTH.

IF MIN. 30 FOOT RADIUS CANNOT BE OBTAINED, OR THE TOWN HIGHWAY IS NOT PAVED, BREAK THE EDGE LINE USING AN 80 FOOT GAP AT INTERSECTION.

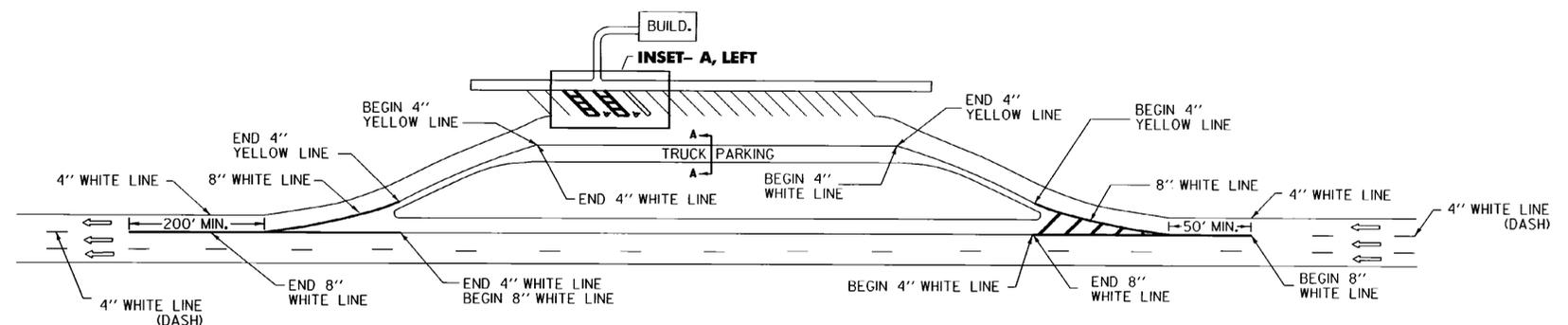
**EDGE LINE LAYOUTS**



NOTE: SEE STANDARD SHEET E-191 FOR HANDICAP SYMBOL POSITIONING AND DETAIL.



**TRUCK PARKING DETAIL**



**REST AREA PARKING DETAILS**

THIS SHEET IS NOT TO SCALE

OTHER STDS. E - 191, E - 192 REQUIRED

**REVISIONS AND CORRECTIONS**

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

**APPROVED**

*Sandra S. McCutchen*  
DIRECTOR OF ENGINEERING

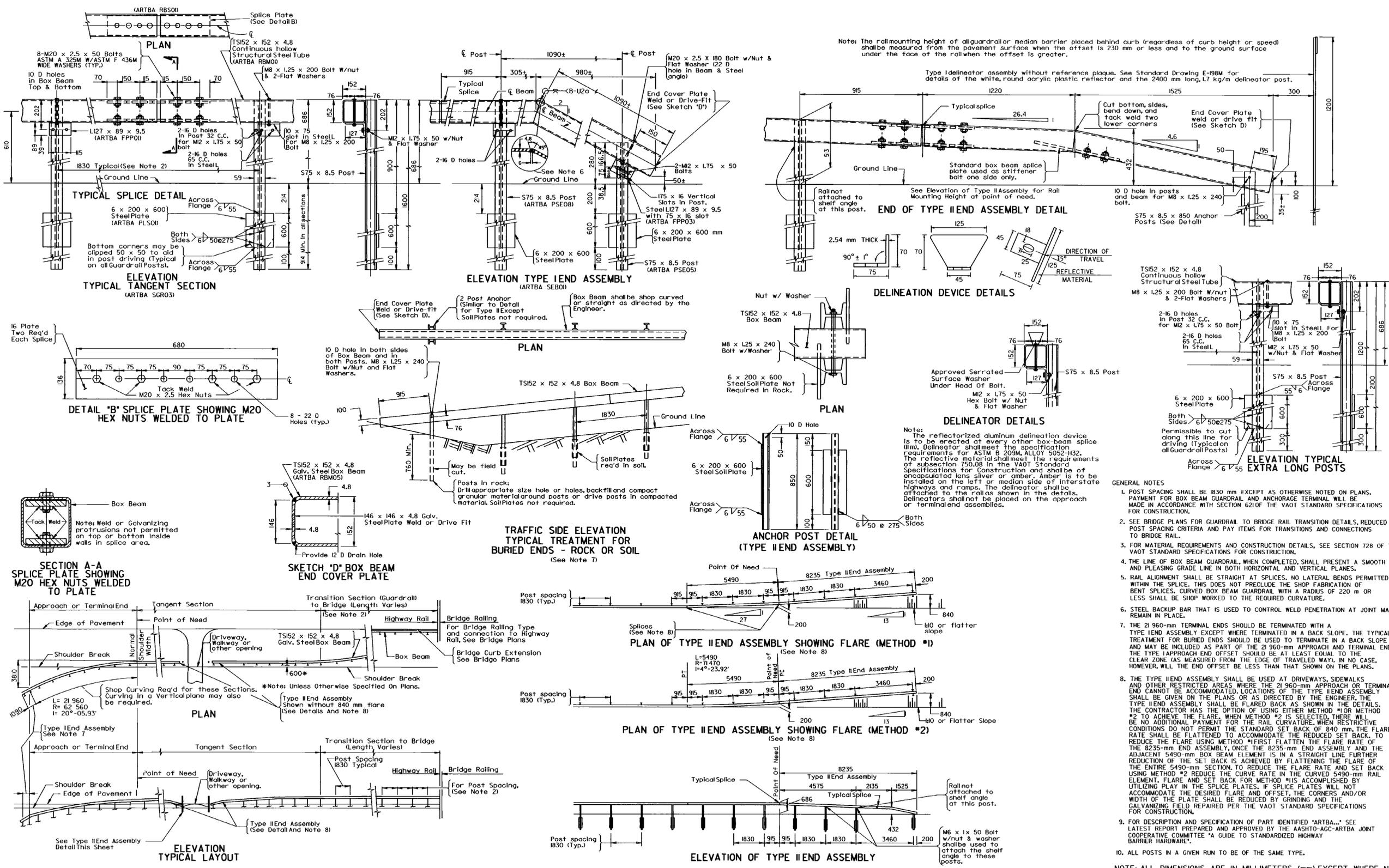
*David A. Ross*  
TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

**PAVEMENT MARKING DETAILS**



**STANDARD E-193**



Note: The rail mounting height of all guardrail or median barrier placed behind curb (regardless of curb height or speed) shall be measured from the pavement surface when the offset is 230 mm or less and to the ground surface under the face of the rail when the offset is greater.

Type I delineator assembly without reference plaque. See Standard Drawing E-198M for details of the white, round acrylic plastic reflector and the 2400 mm long, 1.7 kg/m delineator post.

END OF TYPE II END ASSEMBLY DETAIL

DELINEATOR DETAILS

ANCHOR POST DETAIL (TYPE II END ASSEMBLY)

DELINEATOR DETAILS

PLAN OF TYPE II END ASSEMBLY SHOWING FLARE (METHOD #1)

PLAN OF TYPE II END ASSEMBLY SHOWING FLARE (METHOD #2)

ELEVATION OF TYPE II END ASSEMBLY

- GENERAL NOTES
1. POST SPACING SHALL BE 1830 mm EXCEPT AS OTHERWISE NOTED ON PLANS. PAYMENT FOR BOX BEAM GUARDRAIL AND ANCHORAGE TERMINAL WILL BE MADE IN ACCORDANCE WITH SECTION 621 OF THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
  2. SEE BRIDGE PLANS FOR GUARDRAIL TO BRIDGE RAIL TRANSITION DETAILS, REDUCED POST SPACING CRITERIA AND PAY ITEMS FOR TRANSITIONS AND CONNECTIONS TO BRIDGE RAIL.
  3. FOR MATERIAL REQUIREMENTS AND CONSTRUCTION DETAILS, SEE SECTION 728 OF THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
  4. THE LINE OF BOX BEAM GUARDRAIL, WHEN COMPLETED, SHALL PRESENT A SMOOTH AND PLEASING GRADE LINE IN BOTH HORIZONTAL AND VERTICAL PLANES.
  5. RAIL ALIGNMENT SHALL BE STRAIGHT AT SPLICES. NO LATERAL BENDS PERMITTED WITHIN THE SPLICE. THIS DOES NOT PRECLUDE THE SHOP FABRICATION OF BENT SPLICES. CURVED BOX BEAM GUARDRAIL WITH A RADIUS OF 220 m OR LESS SHALL BE SHOP WORKED TO THE REQUIRED CURVATURE.
  6. STEEL BACKUP BAR THAT IS USED TO CONTROL WELD PENETRATION AT JOINT MAY REMAIN IN PLACE.
  7. THE 21960-mm TERMINAL ENDS SHOULD BE TERMINATED WITH A TYPE II END ASSEMBLY EXCEPT WHERE TERMINATED IN A BACK SLOPE. THE TYPICAL TREATMENT FOR BURIED ENDS SHOULD BE USED TO TERMINATE IN A BACK SLOPE AND MAY BE INCLUDED AS PART OF THE 21960-mm APPROACH AND TERMINAL ENDS. THE TYPE I APPROACH END OFFSET SHOULD BE AT LEAST EQUAL TO THE CLEAR ZONE (AS MEASURED FROM THE EDGE OF TRAVELED WAY). IN NO CASE, HOWEVER, WILL THE END OFFSET BE LESS THAN THAT SHOWN ON THE PLANS.
  8. THE TYPE II END ASSEMBLY SHALL BE USED AT DRIVEWAYS, SIDEWALKS AND OTHER RESTRICTED AREAS WHERE THE 21960-mm APPROACH OR TERMINAL END CANNOT BE ACCOMMODATED. LOCATIONS OF THE TYPE II END ASSEMBLY SHALL BE GIVEN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE TYPE II END ASSEMBLY SHALL BE FLARED BACK AS SHOWN IN THE DETAILS. THE CONTRACTOR HAS THE OPTION OF USING EITHER METHOD #1 OR METHOD #2 TO ACHIEVE THE FLARE. WHEN METHOD #2 IS SELECTED, THERE WILL BE NO ADDITIONAL PAYMENT FOR THE RAIL CURVATURE. WHEN RESTRICTIVE CONDITIONS DO NOT PERMIT THE STANDARD SET BACK OF 840 mm, THE FLARE RATE SHALL BE FLATTENED TO ACCOMMODATE THE REDUCED SET BACK. TO REDUCE THE FLARE USING METHOD #1 FIRST FLATTEN THE FLARE RATE OF THE 8235-mm END ASSEMBLY, ONCE THE 8235-mm END ASSEMBLY AND THE ADJACENT 5490-mm BOX BEAM ELEMENT IS IN A STRAIGHT LINE FURTHER REDUCTION OF THE SET BACK IS ACHIEVED BY FLATTENING THE FLARE OF THE ENTIRE 5490-mm SECTION TO REDUCE THE FLARE RATE AND SET BACK USING METHOD #2 REDUCE THE CURVE RATE IN THE CURVED 5490-mm RAIL ELEMENT. FLARE AND SET BACK FOR METHOD #1 IS ACCOMPLISHED BY UTILIZING PLAY IN THE SPLICE PLATES. IF SPLICE PLATES WILL NOT ACCOMMODATE THE DESIRED FLARE AND OFFSET, THE CORNERS AND/OR WIDTH OF THE PLATE SHALL BE REDUCED BY GRINDING AND THE GALVANIZING FIELD REPAIRED PER THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
  9. FOR DESCRIPTION AND SPECIFICATION OF PART IDENTIFIED "ARTBA..." SEE LATEST REPORT PREPARED AND APPROVED BY THE ASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
  10. ALL POSTS IN A GIVEN RUN TO BE OF THE SAME TYPE.
- NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

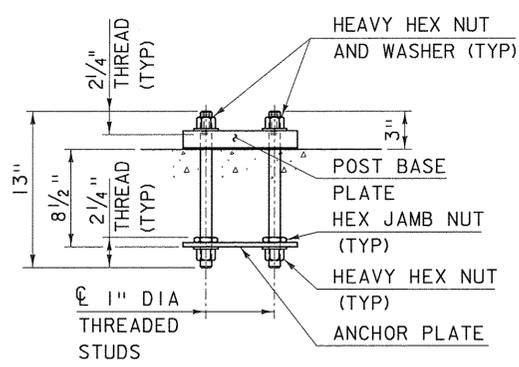
REVISIONS AND CORRECTIONS  
JUNE 13, 1997 - ORIGINAL APPROVAL DATE

APPROVED  
*[Signature]*  
DIRECTOR OF ENGINEERING  
*[Signature]*  
DESIGN ENGINEER

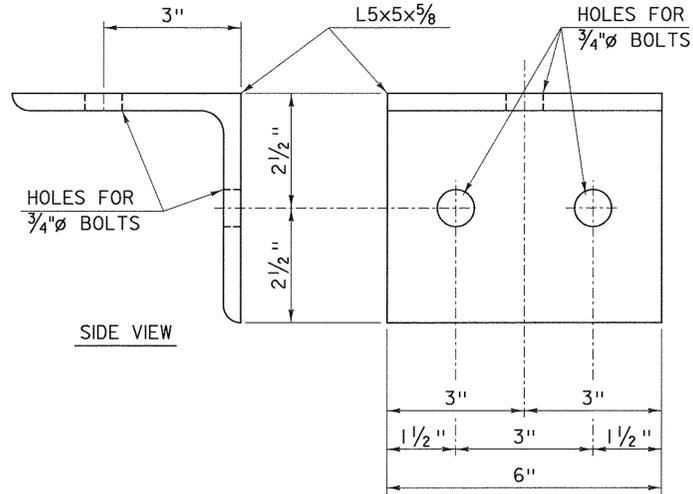
# BOX BEAM GUARD RAIL



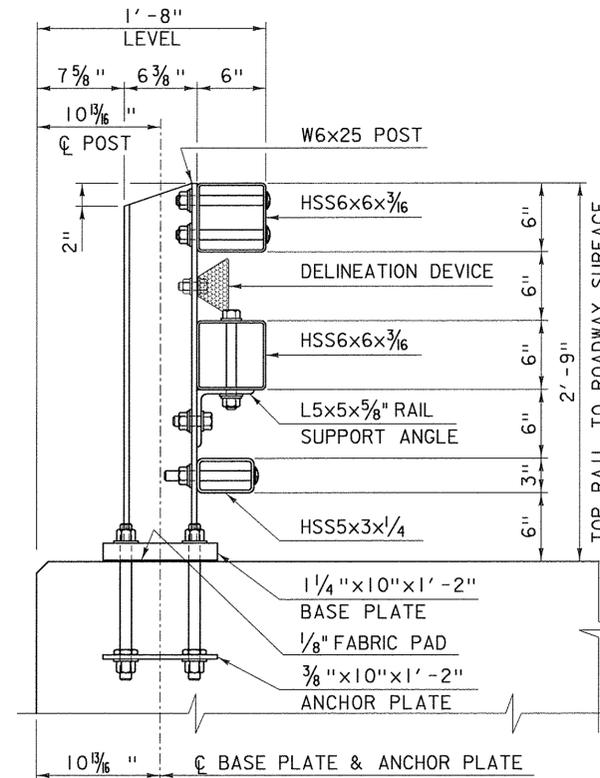
**Metric**  
STANDARD  
G-1bM



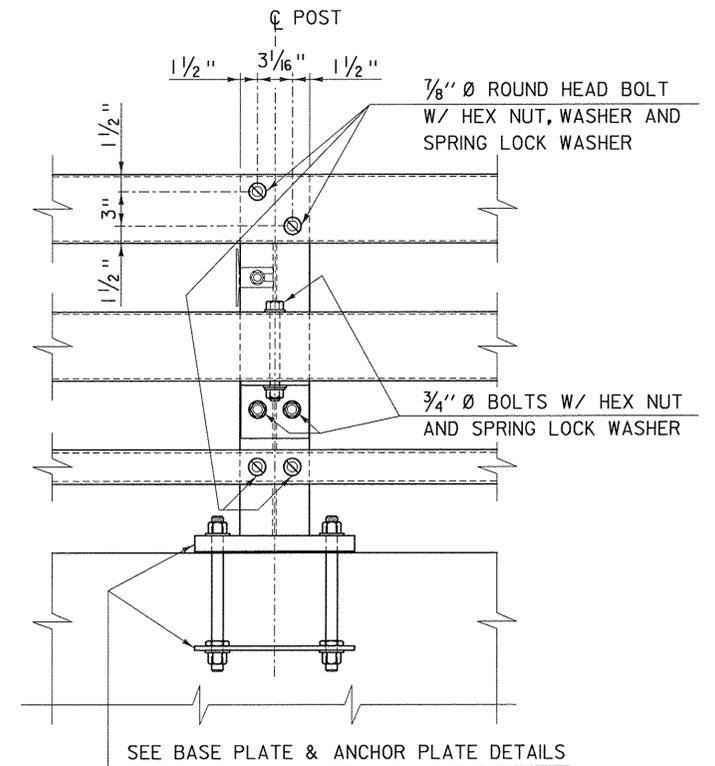
RAILING POST ANCHORAGE



ELEVATION VIEW  
RAILING ANGLE DETAILS

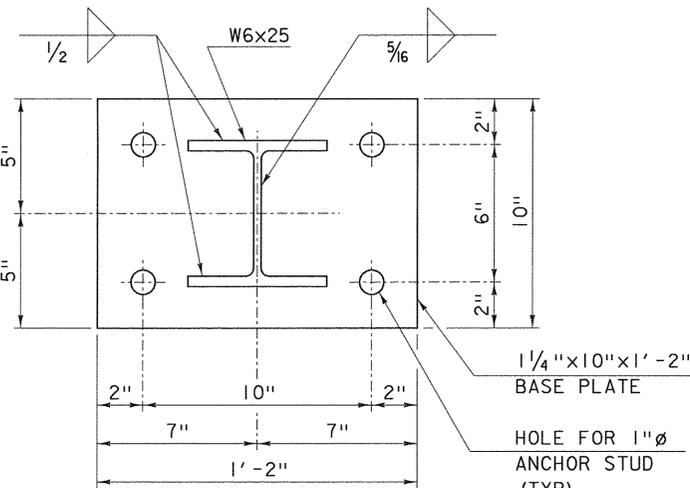


RAILING SECTION

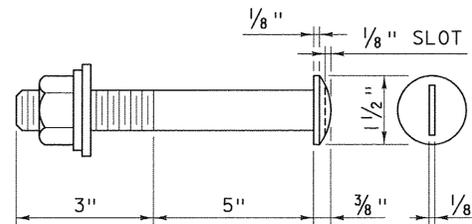


RAILING ELEVATION

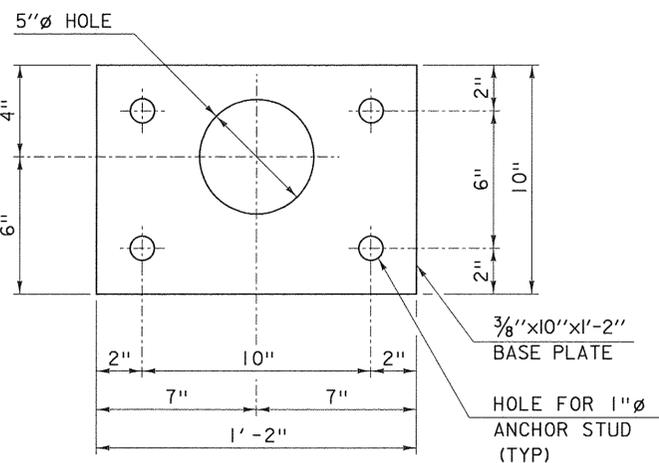
- NOTES:
1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
  2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
  3. ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
  4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
  5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
  6. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
  7. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
  8. SEE STANDARD DRAWING G-1B FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
  9. ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
  10. THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
  11. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.



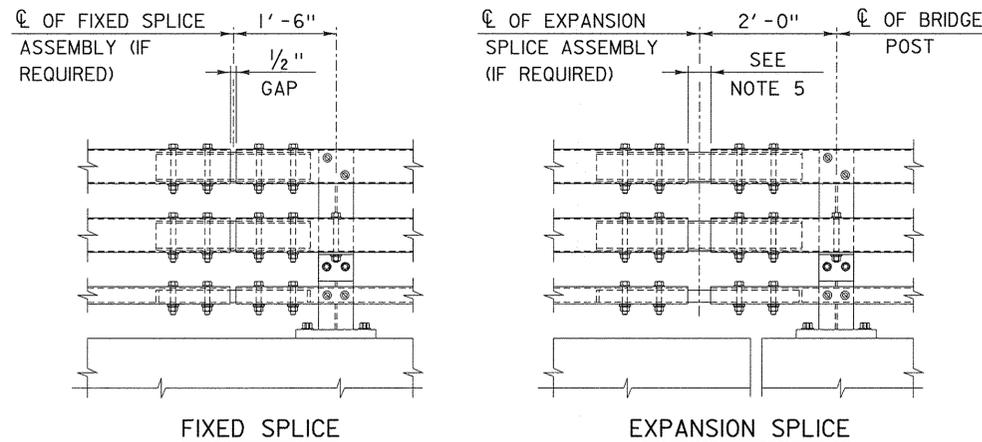
BASE PLATE DETAIL



ROUND HEAD BOLT DETAIL  
A449 (TYPE 1)



ANCHOR PLATE DETAIL



RAILING SPLICE DETAIL ELEVATION

A RAILING EXPANSION SPLICE IS REQUIRED IN ANY POST SPACING THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT

REVISIONS AND CORRECTIONS  
AUGUST 9, 2010 - ORIGINAL APPROVAL  
APRIL 23, 2012 - GENERAL UPDATE 2012

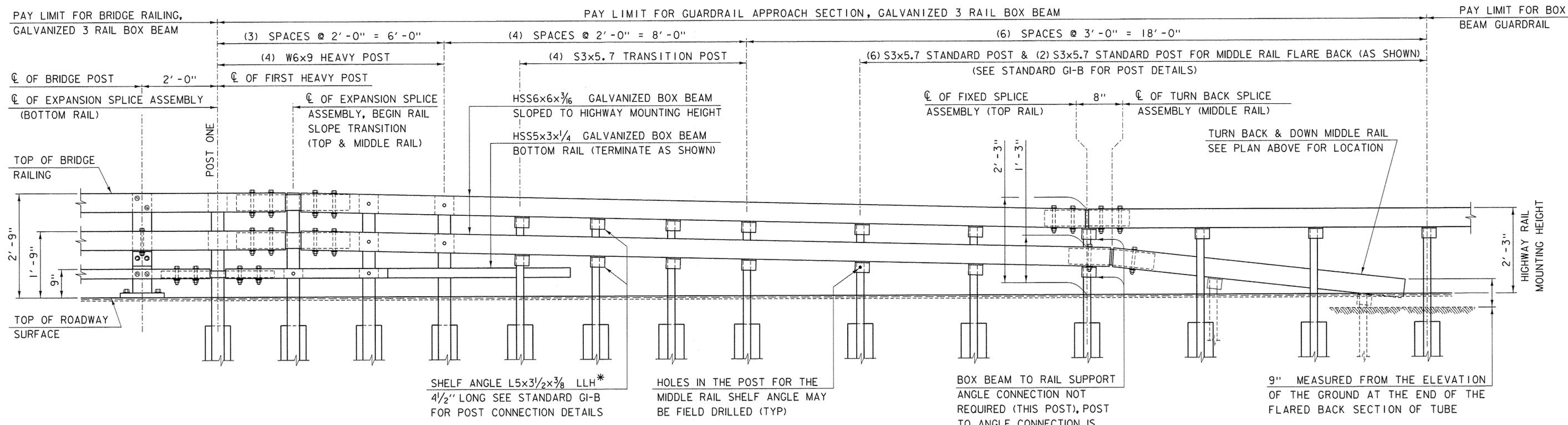
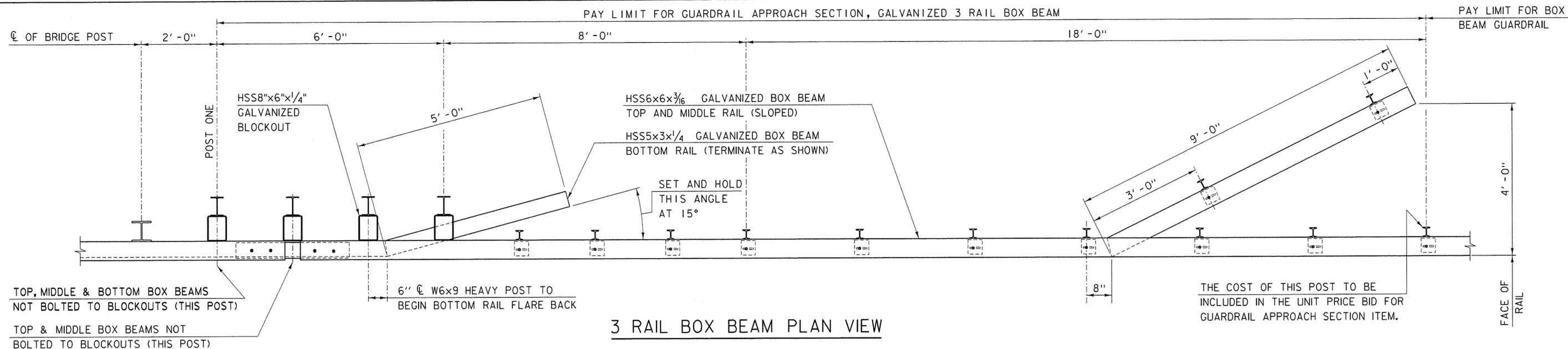
APPROVED  
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*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

# BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM

OTHER STDS. REQUIRED: **G-1B, S-364C**



# STANDARD S-364A



**3 RAIL BOX BEAM ELEVATION**

\* LONG LEG HORIZONTAL

**NOTES:**

1. BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.

**OTHER STDS. REQUIRED: G-1B, S-364A**

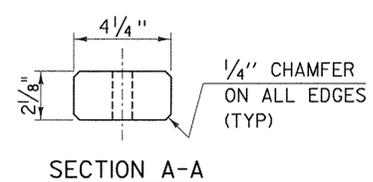
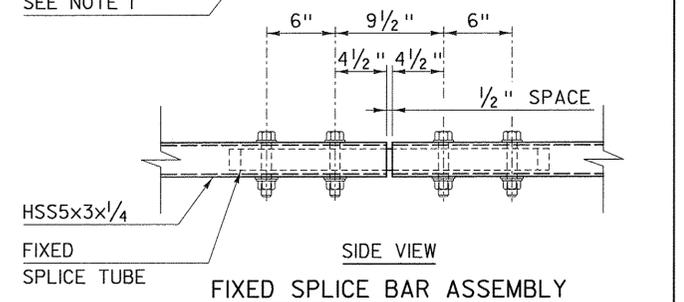
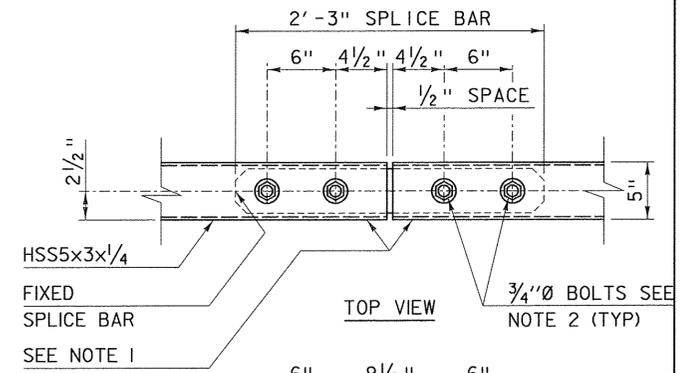
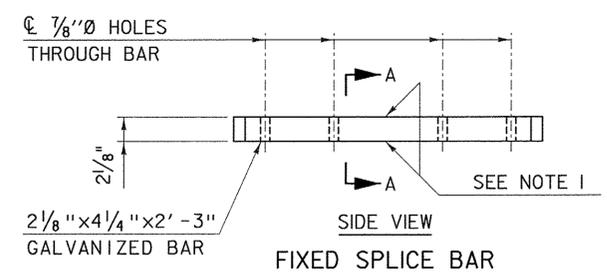
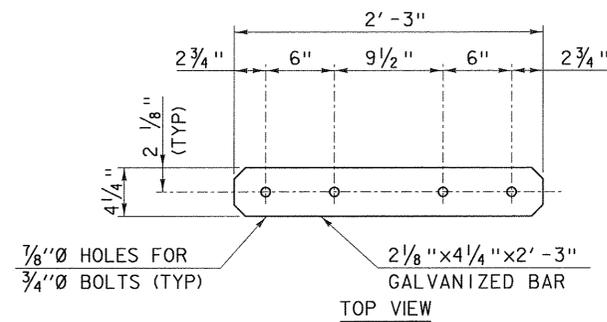
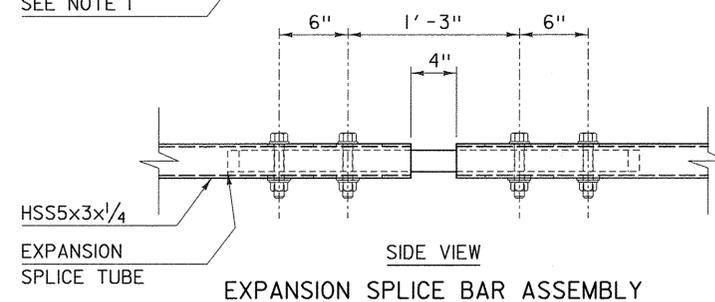
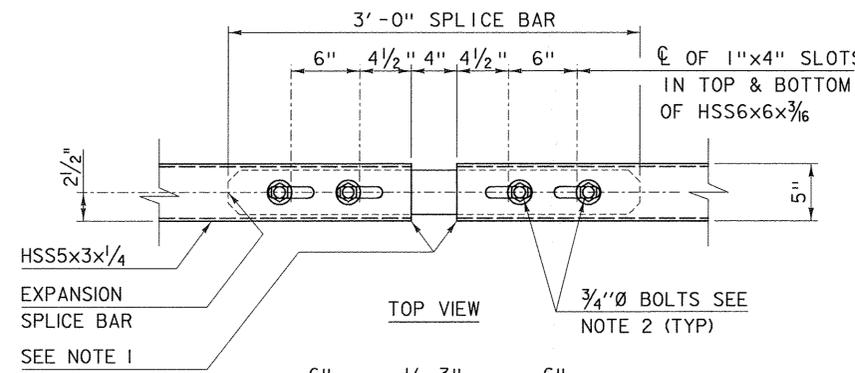
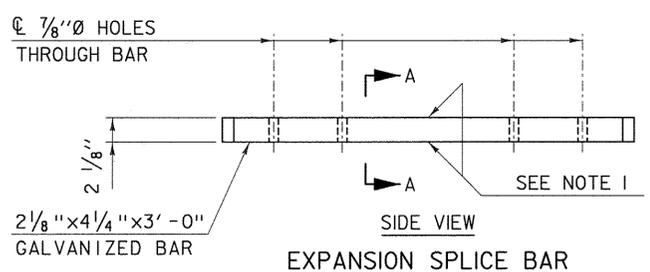
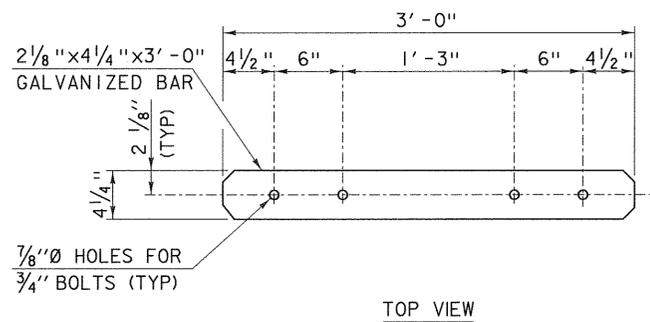
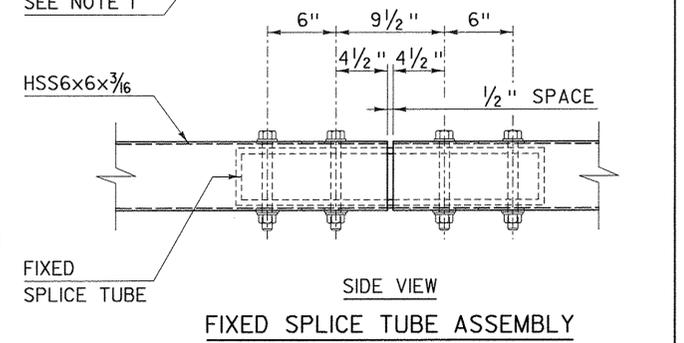
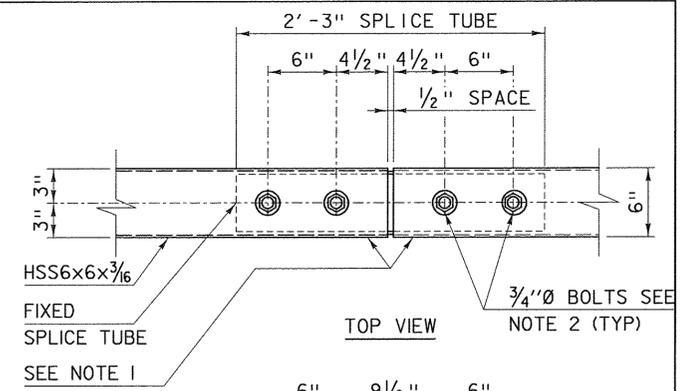
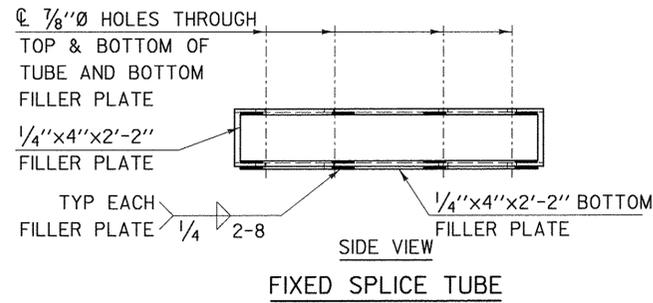
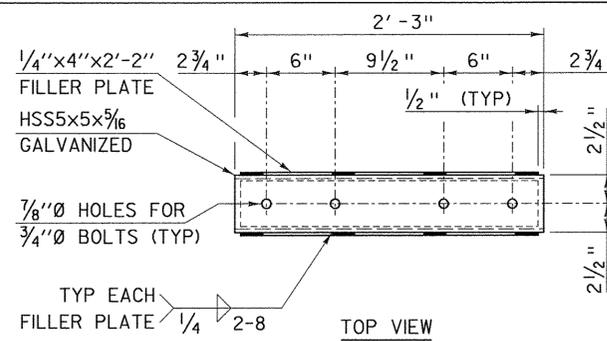
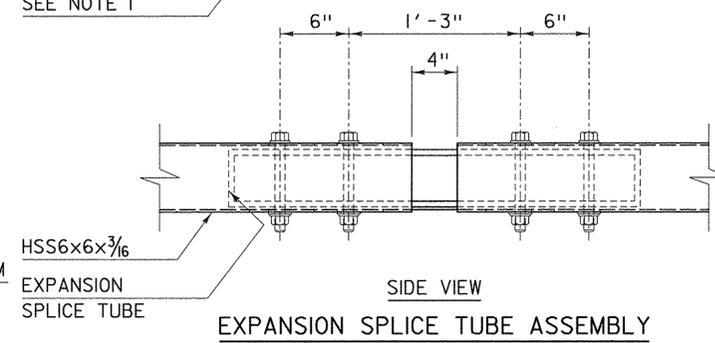
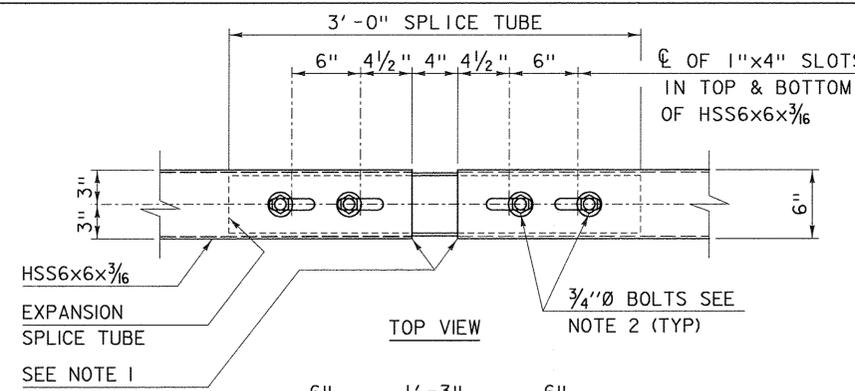
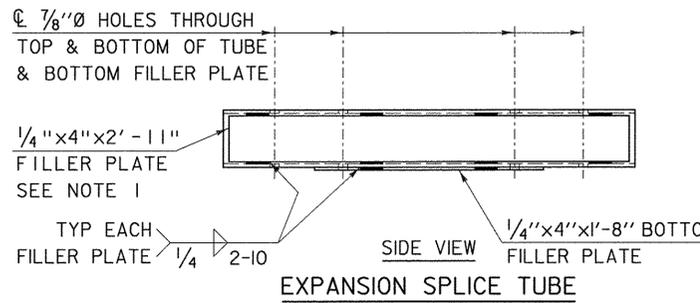
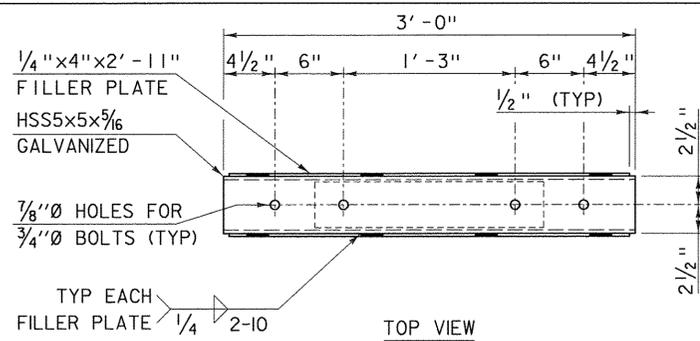
REVISIONS AND CORRECTIONS  
 AUGUST 9, 2010 - ORIGINAL APPROVAL  
 APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED  
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*Mark D. Richter*  
 FEDERAL HIGHWAY ADMINISTRATION

# GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM



# STANDARD S-364B



NOTES:

1. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
2. FOUR (4) 3/4" DIAMETER FULLY THREADED BOLTS, 7 1/2" LONG WITH TWO (2) WASHERS AND A HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT TO BE BURRED TO PREVENT DISLODGING. FOUR (4) BOLTS AT EACH SPLICE.

REVISIONS AND CORRECTIONS  
AUGUST 9, 2010 - ORIGINAL APPROVAL  
APRIL 23, 2012 - GENERAL UPDATE 2012

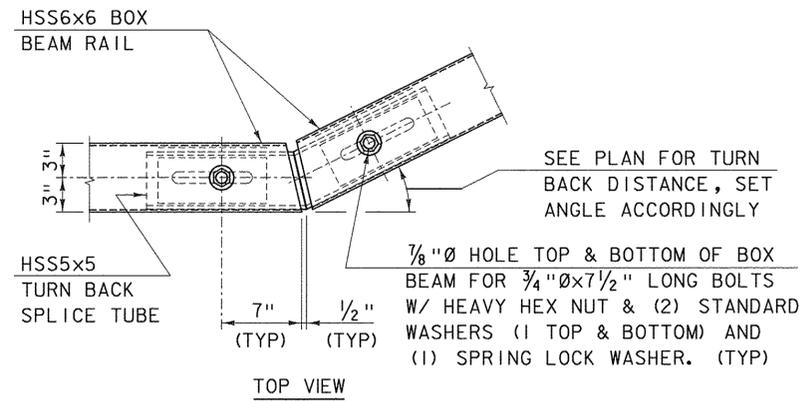
APPROVED  
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# GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM

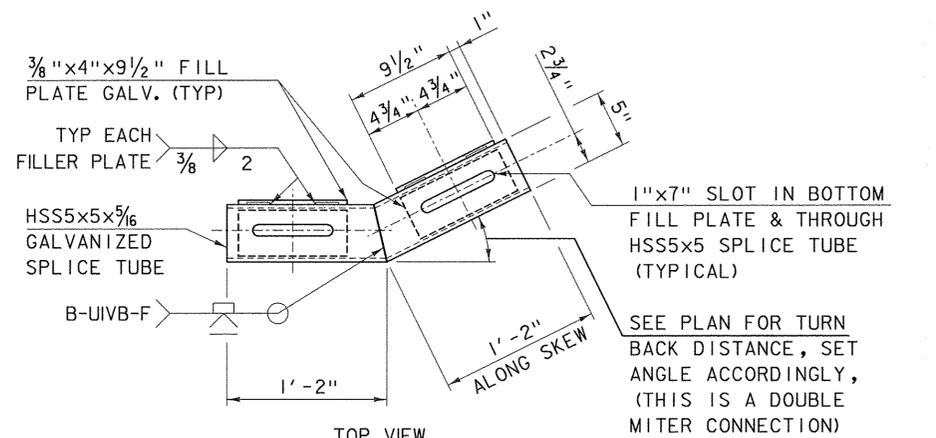
OTHER STDS. REQUIRED:



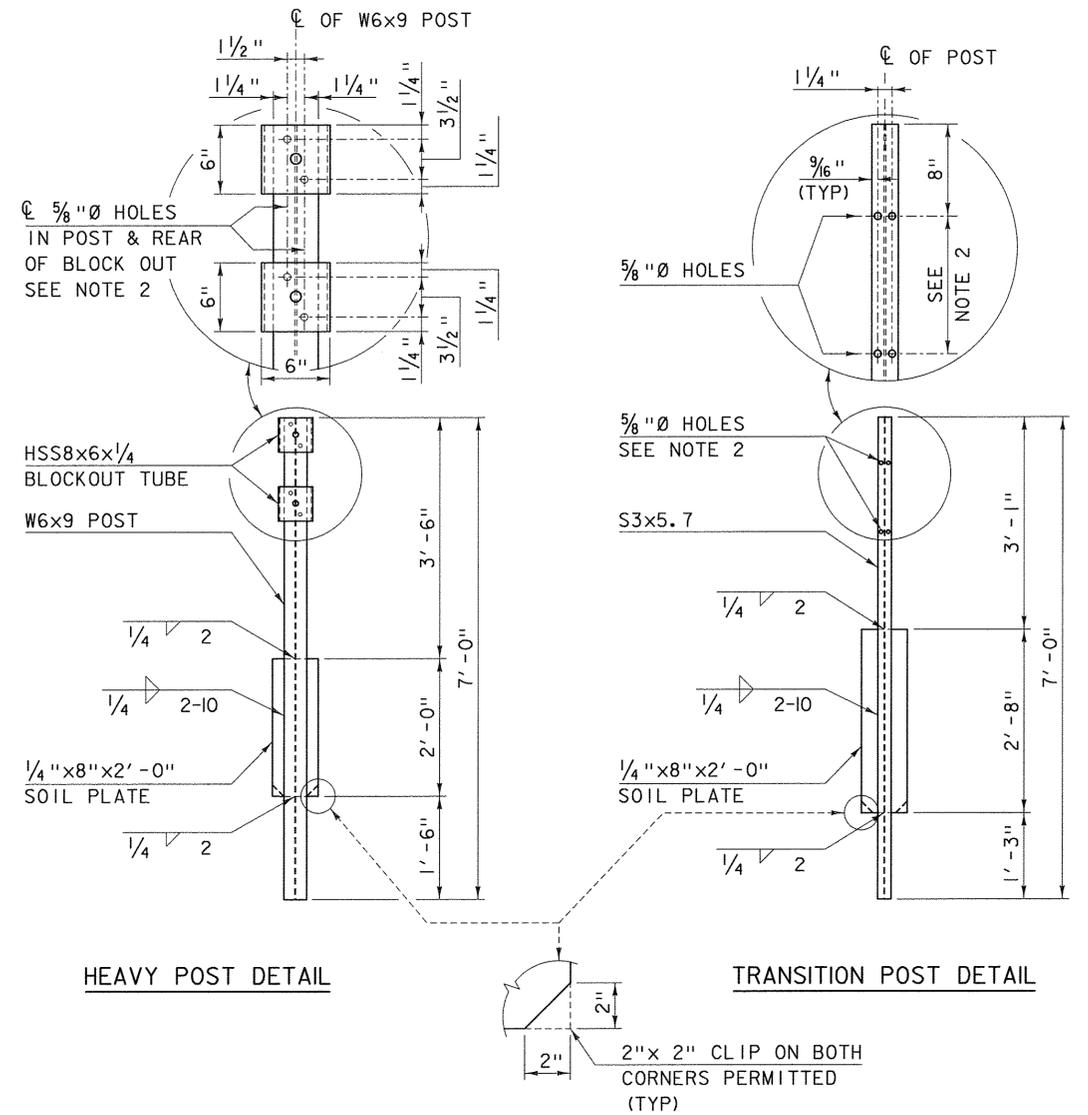
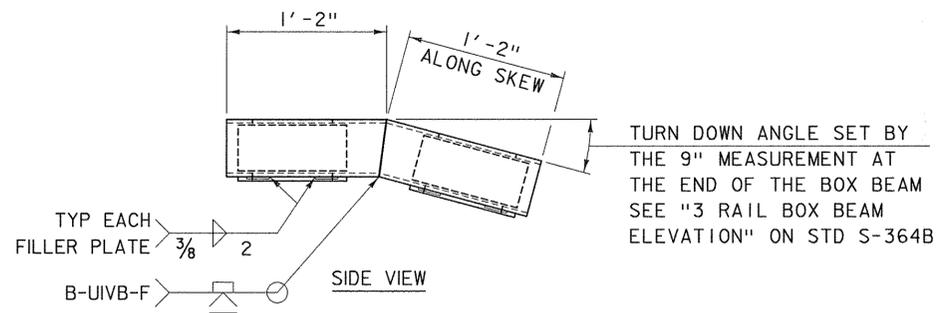
# STANDARD S-364C



TURN BACK SPLICE TUBE ASSEMBLY



TURN BACK SPLICE TUBE DETAIL  
TURN BACK & TURN DOWN TUBE JOINT



NOTES:

1. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
2. HOLES IN THE POST FOR THE LOWER RAIL MAY BE LOCATED AND DRILLED IN THE FIELD. IF SO, THE GALVANIZING SHALL BE REPAIRED IN ACCORDANCE WITH SPECIFICATION SECTION 525.

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS  
AUGUST 9, 2010 - ORIGINAL APPROVAL  
APRIL 23, 2012 - GENERAL UPDATE 2012

APPROVED

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GUARDRAIL APPROACH  
SECTION, GALVANIZED  
3 RAIL BOX BEAM



STANDARD  
S - 364D

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) "STANDARD DRAWINGS" OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
2. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.
3. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.
4. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.
5. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO POSTS.
6. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.
7. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
8. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
9. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.
10. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.
11. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
12. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.
13. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS, AT THE DISCRETION OF THE ENGINEER.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

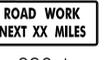
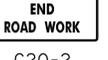
APPROVED  
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*Mark D. Richter*  
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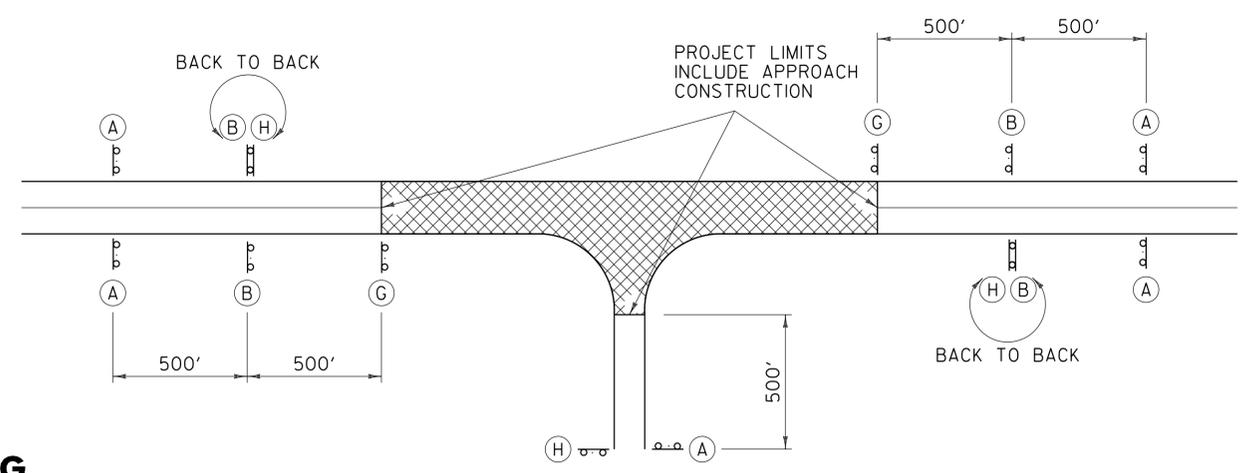
## TRAFFIC CONTROL GENERAL NOTES



# STANDARD T-1

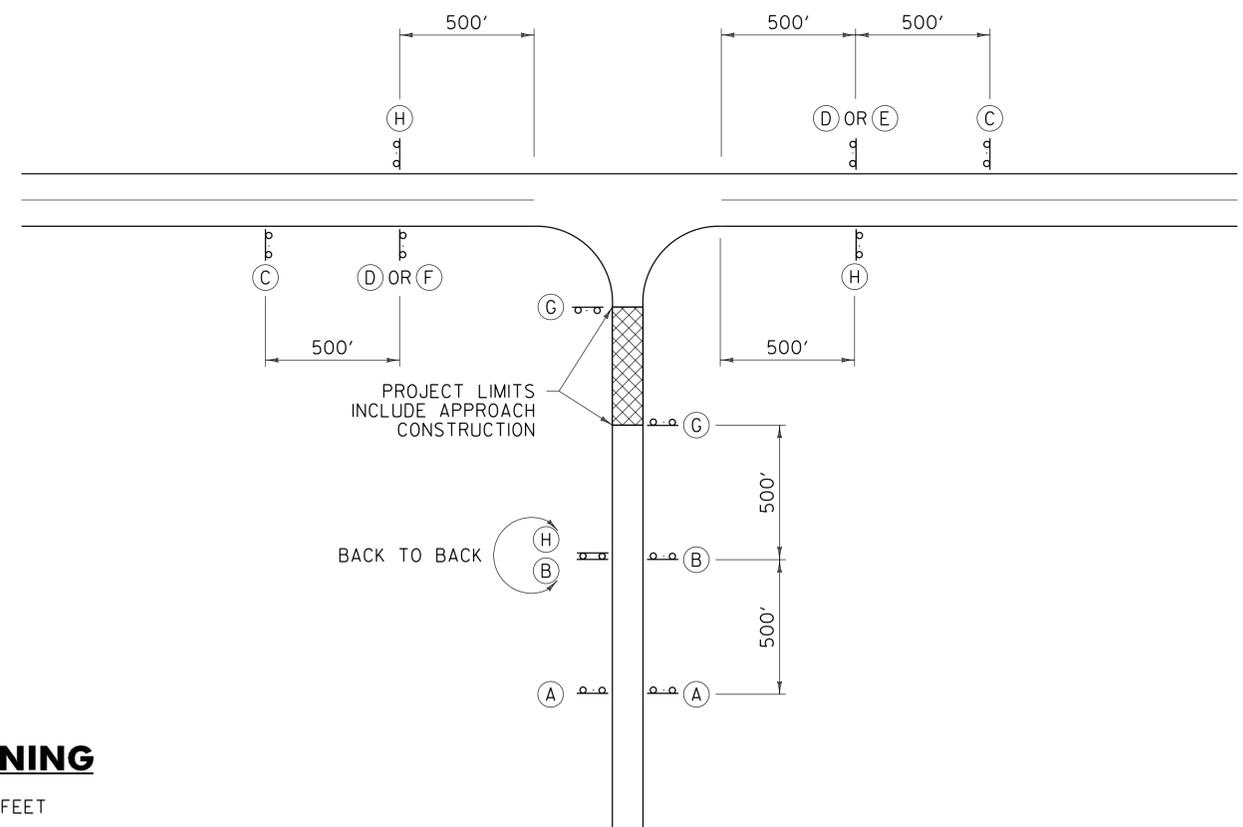
**LEGEND**

- (A)  ROAD WORK AHEAD  
W20-1
- (B)  ROAD WORK 500 FT  
W20-1
- (C)  SIDE ROAD WORK AHEAD  
VC-869
- (D)  SIDE ROAD WORK 500 FT  
VC-869
- (E)  SIDE ROAD WORK LEFT  
VC-869
- (F)  SIDE ROAD WORK RIGHT  
VC-869
- (G)  ROAD WORK NEXT XX MILES  
G20-1
- (H)  END ROAD WORK  
G20-2



**TYPICAL APPROACH SIGNING**

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



**SIDE ROAD APPROACH SIGNING**

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.

**GENERAL NOTES:**

1. SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.
2. THE "ROAD WORK NEXT XX MILES" SIGN (G20-1) SHALL BE INSTALLED IN ADVANCE OF TEMPORARY TRAFFIC CONTROL ZONES THAT ARE MORE THAN TWO MILES IN LENGTH OR AS DIRECTED BY THE ENGINEER. DISTANCES SHALL BE STATED TO THE NEAREST WHOLE MILE.
3. SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

**OTHER STDS. REQUIRED: T-1, T-28**

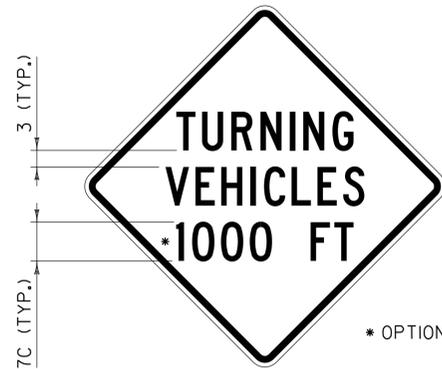
REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

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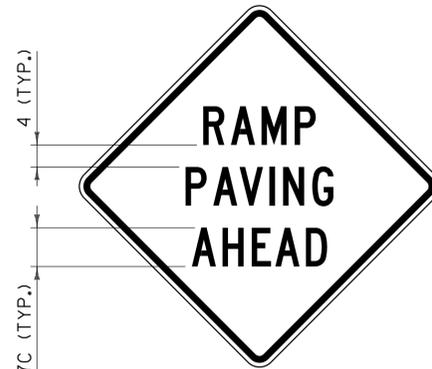
**CONVENTIONAL ROADS  
CONSTRUCTION APPROACH  
SIGNING**



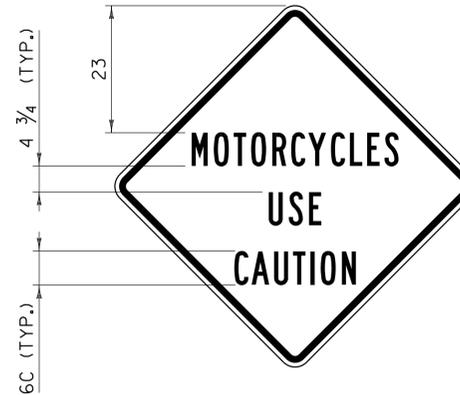
STANDARD  
T-10



**VC-001**



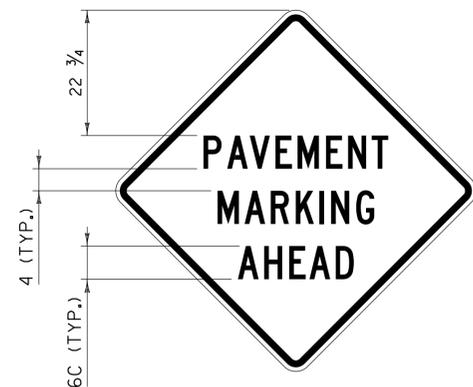
**VC-003**



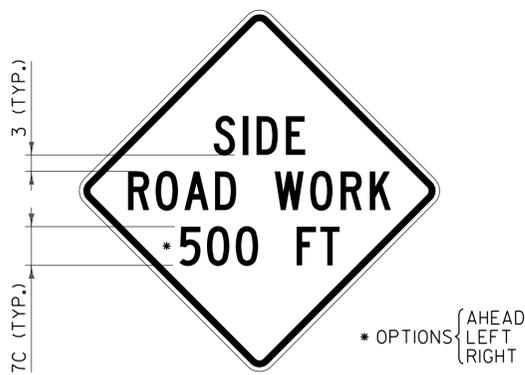
**VC-004**



**VC-008**



**VC-813**



**VC-869**



**VC-874**

**GENERAL NOTES:**

1. COLORS FOR SIGNS SHALL BE BLACK LEGEND AND BORDER ON FLUORESCENT ORANGE BACKGROUND.
2. CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH. IF SOLID SUBSTRATE SIGNS ARE USED, SIGNS SHALL HAVE CORNERS ROUNDED TO A THREE INCH RADIUS.
3. SIGNS SHALL HAVE 1 1/4 INCH WIDE BORDERS THAT ARE INDENTED 3/4 INCH FROM THE EDGE OF THE SIGN.
4. SIGNS SHALL HAVE THE LEGEND CENTERED HORIZONTALLY AND VERTICALLY ON THE SIGN UNLESS OTHERWISE INDICATED.
5. ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS. REQUIRED: T-1**

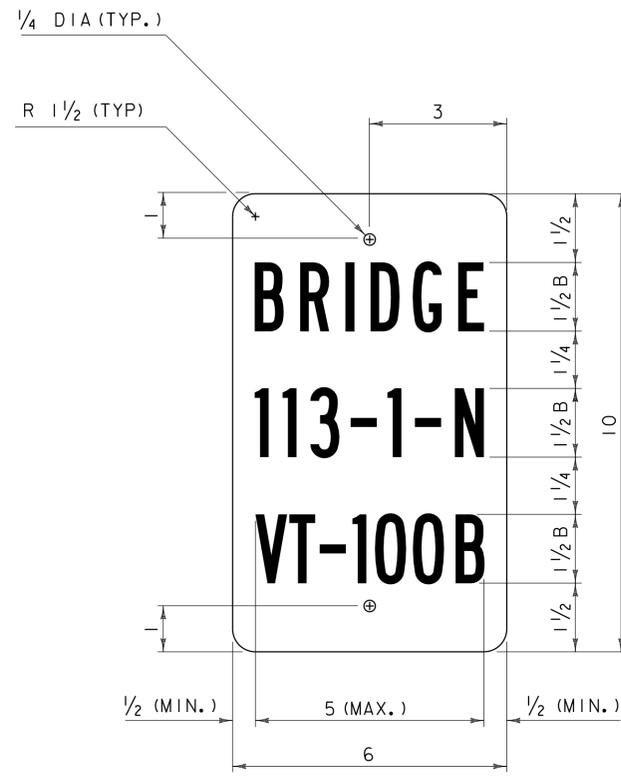
REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

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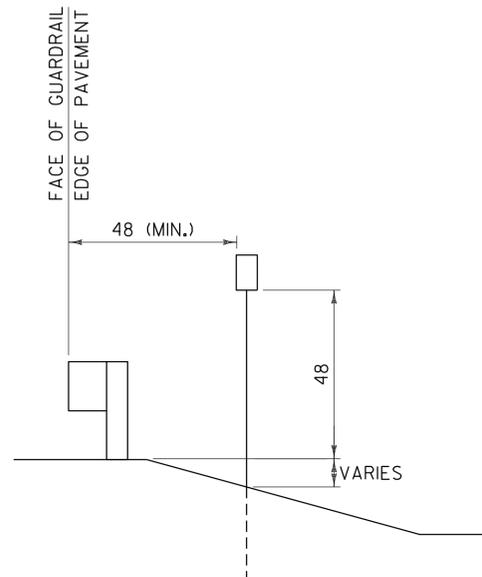
CONSTRUCTION SIGN  
DETAILS



STANDARD  
T-28



**VD-701**



**VD-701 INSTALLATION DETAIL**

**GENERAL NOTES:**

1. BRIDGE NUMBER PLAQUES ARE TO BE INSTALLED ALONG THE FEDERAL AID HIGHWAY SYSTEM INCLUDING ALL STATE HIGHWAYS AND TOWN HIGHWAYS ON THE FEDERAL AID HIGHWAY SYSTEM.
2. BRIDGE NUMBER PLAQUES SHALL BE LOCATED ON BOTH BRIDGE APPROACHES AT THE NEAREST VISIBLE LOCATION.
3. THE SIGN BASE MATERIAL SHALL BE 0.063 INCH FLAT SHEET ALUMINUM.
4. THE SIGN SHALL BE WHITE RETROREFLECTIVE LEGEND ON A GREEN RETROREFLECTIVE BACKGROUND, BOTH SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE III.
5. THE SECOND LINE OF TEXT INDICATES THE BRIDGE NUMBER. THE BRIDGE NUMBER CAN BE OBTAINED USING THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ROUTE LOGS OR BY CONSULTING WITH THE VAOT STRUCTURES SECTION.
6. THE THIRD LINE OF TEXT INDICATES THE STATE ROUTE NUMBER. IN ALL CASES THIS WILL BE DEPICTED USING THE LETTER ABBREVIATION, FOLLOWED BY A HYPHEN, FOLLOWED BY THE ROUTE NUMBER. FOR EXAMPLE US ROUTE 2 WOULD BE IDENTIFIED USING US-2.
7. THE SECOND AND THIRD LINES OF TEXT SHALL BE CENTERED HORIZONTALLY AND SHALL BE AS DEFINED IN THE PLANS.
8. A SINGLE 14 GAGE, 1.75 INCH SQUARE STEEL POST AND 12 GAGE, TWO INCH SQUARE ANCHOR SHALL BE USED FOR INSTALLATION. THE ANCHOR SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
9. ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS. REQUIRED: T-45**

REVISIONS AND CORRECTIONS  
APRIL 9, 2014 - ORIGINAL APPROVAL DATE

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**BRIDGE NUMBER PLAQUE**



STANDARD  
T-42

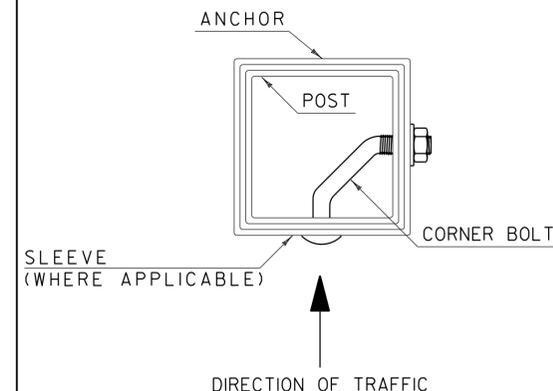
## POST AND ANCHOR SELECTION CHART

POST SIZE (IN.)	POST THICKNESS (IN.)	POST WEIGHT (LBS./FT.)	POST GAGE	SECTION MODULUS (IN. <sup>3</sup> )	ONE POST SV	TWO POST SV	THREE POST SV	POSTS PERMITTED IN 8' PATH	ANCHOR SIZE (IN.)	ANCHOR GAGE	MINIMUM ANCHOR LENGTH
1.75	.083	1.88	14	0.222	45	90	135	TWO	2.00	12	30
2.00	.109	2.42	12	0.393	80	160	240	TWO	2.25	12	48
2.50	.109	3.35	12	0.673	137	274	411	ONE	3.00	7	48

### NOTES:

- ALL SIGN POSTS SHALL HAVE  $\frac{7}{16}$  INCH HOLES EVERY ONE INCH ON CENTER (ALL FOUR SIDES).
- THE NUMBER OF SIGN POSTS PERMITTED WITHIN AN EIGHT FOOT PATH ASSUMES THAT THE SIGN ASSEMBLY IS NOT PROTECTED BY GUARDRAIL OR IS LOCATED WITHIN A GUARDRAIL'S DEFLECTION DISTANCE DETERMINED PER THE CURRENT "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) ROADSIDE DESIGN GUIDE. ADDITIONAL POSTS MAY BE INSTALLED USING SLIP BASES THAT MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION.
- TO USE THE SELECTION VALUE (SV) COLUMNS IN THE TABLE ABOVE, MULTIPLY A SIGN'S SURFACE AREA IN SQUARE FEET ( $H \times L$ ) BY THE SIGN'S HEIGHT IN FEET MEASURED FROM THE GROUND TO THE CENTROID OF THE SIGN ASSEMBLY ( $h$ ). THIS RESULT MUST BE LESS THAN OR EQUAL TO THE CORRESPONDING SELECTION VALUE. NOTE THAT FOR SIGNS WITH MULTIPLE POSTS, THE LARGEST HEIGHT DIMENSION SHALL BE USED TO CALCULATE THE POST SELECTION VALUE.
- THE DESIGN CRITERIA UTILIZED IN SIGN POST AND ANCHOR SELECTION IS AS FOLLOWS: WIND SPEED OF 70 MPH (10 YEAR MEAN RECURRENCE INTERVAL), WIND PRESSURE OF 19 PSF, STEEL MINIMUM YIELD OF 55,000 PSI, AND AN ALLOWABLE STRESS OF 1.4 (0.60 FY).

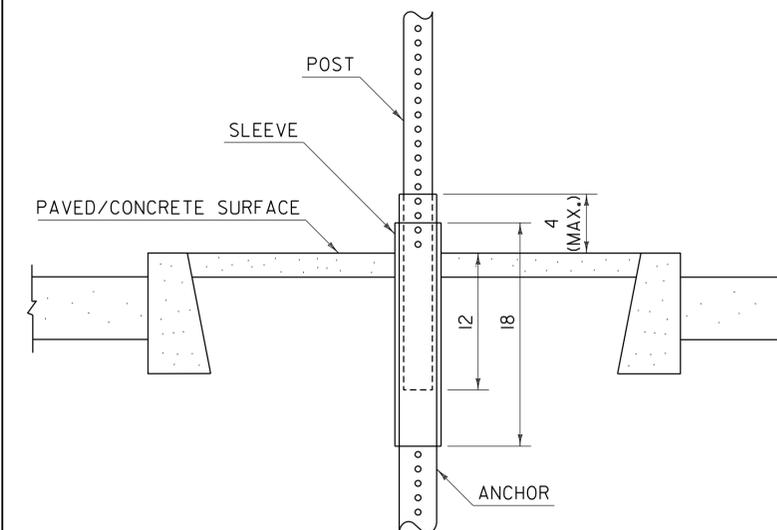
### CORNER BOLT INSTALLATION DETAIL



### NOTES:

- CORNER BOLTS SHALL BE  $\frac{5}{16}$  INCH DIAMETER WITH 18 THREADS PER INCH AND DIMENSIONS SHALL BE DETERMINED BASED ON THE OUTERMOST DIMENSION OF THE SLEEVE, ANCHOR OR POST. THREAD EXPOSURE MUST EXCEED THE CORRESPONDING NUT WIDTH. THE CORNER BOLT AND CORRESPONDING HARDWARE SHALL BE ZINC PLATED, MEETING OR EXCEEDING THE REQUIREMENTS OF THE "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) A307.

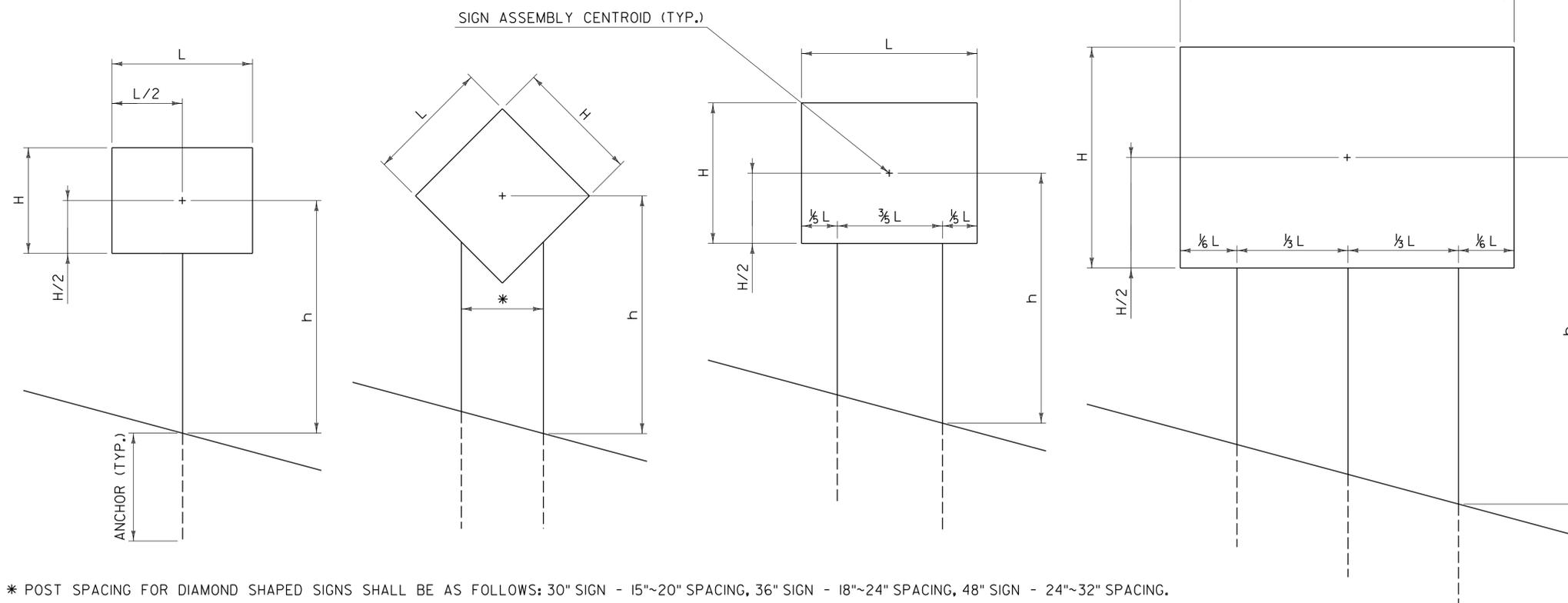
### SLEEVE /ANCHOR INSTALLATION DETAIL



### NOTES:

- A SLEEVE SHALL BE INSTALLED FOR SIGN INSTALLATIONS IN CONCRETE OR PAVEMENT.
- THE SLEEVE SHALL BE 18 INCHES MINIMUM IN LENGTH.
- THREE INCH SLEEVES THAT DO NOT HAVE HOLES WILL REQUIRE THAT  $\frac{7}{16}$  INCH HOLES ARE DRILLED TO FACILITATE CONNECTIONS.
- REFER TO CURRENT EDITION OF THE "VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION" FOR MATERIAL REQUIREMENTS.

### POST SPACING DETAILS



### GENERAL NOTES:

- ALL SQUARE TUBE STEEL POSTS AND ANCHORS SHALL BE FORMED INTO A SIZE AND SHAPE IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.
- ANCHORS MAY BE DRIVEN OR SET INTO A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION METHOD SHALL BE UTILIZED IN AREAS WITH POOR SOIL CONDITIONS OR AS DIRECTED BY THE ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE ENGINEER.
- THE TOPS OF SIGN POSTS SHALL BE AT OR NEAR THE TOP OF SIGN. THE POST SHALL NOT EXTEND ABOVE THE TOP OF SIGN.
- SIGN POSTS SHALL BE INSTALLED A MINIMUM OF ONE FOOT BELOW GROUND, INSIDE THE ANCHOR. THE LENGTH OF ANCHOR EXPOSED ABOVE GROUND SHALL NOT EXCEED FOUR INCHES.
- ALL DIMENSIONS SHOWN IN INCHES.

**OTHER STDS. REQUIRED: NONE**

REVISIONS AND CORRECTIONS  
JAN. 2, 2013 - ORIGINAL APPROVAL DATE

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## SQUARE TUBE SIGN POST AND ANCHOR



# STANDARD T-45