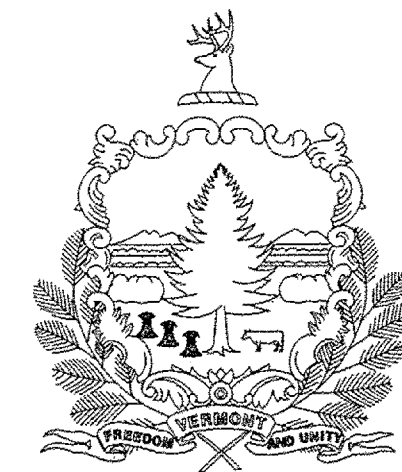


SEE SHEET 2 FOR INDEX OF SHEETS
AND LIST OF STANDARDS

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

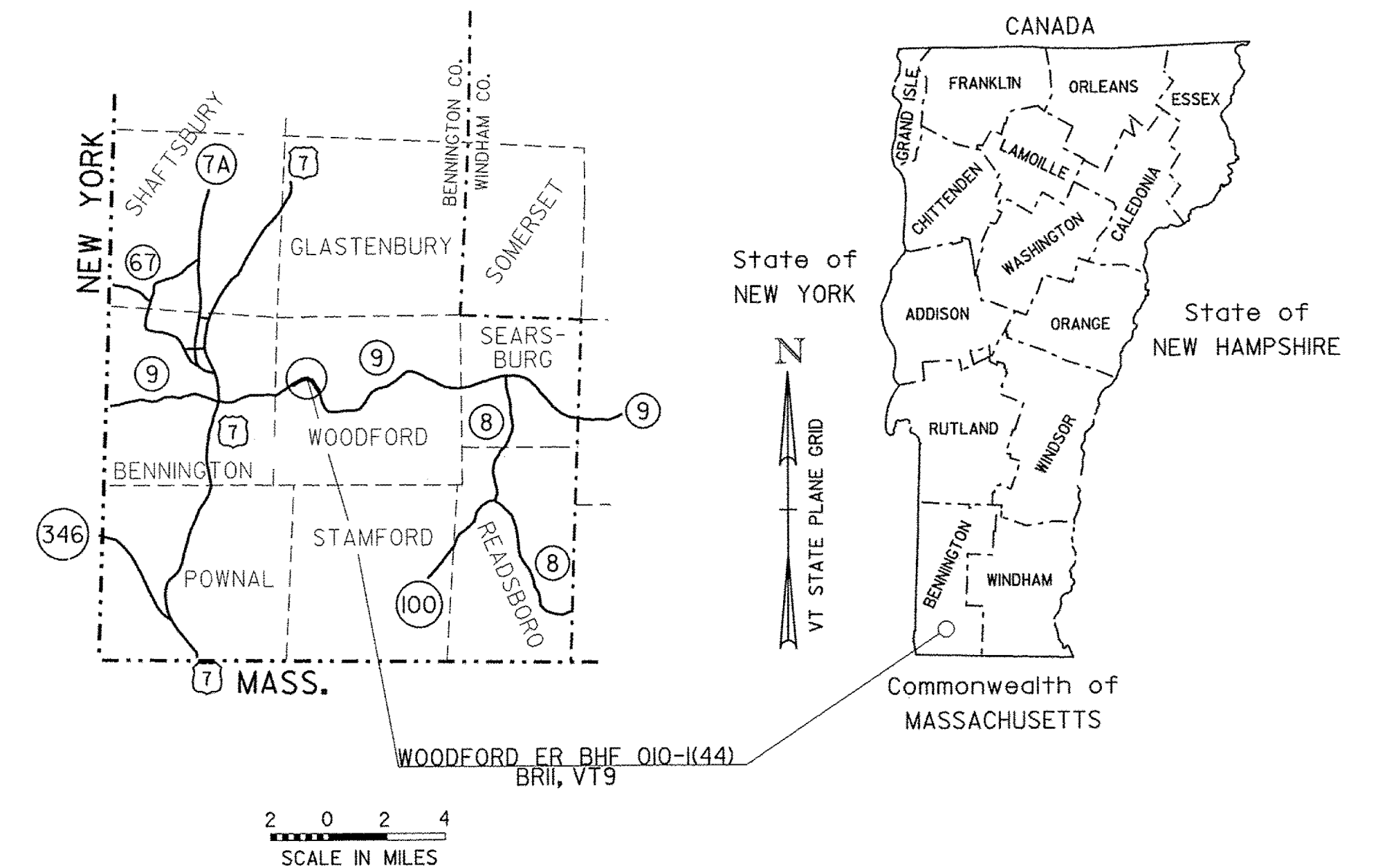
TOWN OF WOODFORD
COUNTY OF BENNINGTON

ROUTE NO : VT RT 9, PRINCIPAL ARTERIAL BRIDGE NO : 11

PROJECT LOCATION : BEGINNING AT A POINT 1.206 MILES EAST OF THE BENNINGTON - WOODFORD TOWN
LINE AND EXTENDING EASTERLY 0.038 MILES.

PROJECT DESCRIPTION : WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPAIR OF FLOOD DAMAGED BRIDGE NO. 11 WHICH IS
OVER THE ROARING BRANCH OF THE WALLOOMSAC RIVER. REPLACEMENT OF STRUCTURAL STEEL, CONCRETE DECK, MUNICIPAL WATERLINE,
ALONG WITH ASSOCIATED CHANNEL WORK AND NECESSARY APPROACH WORK, SUBBASE AND PAVEMENT, ALONG EXISTING ALIGNMENT.

LENGTH OF ROADWAY = 90.93 FEET = 0.017 MI
LENGTH OF BRIDGE = 109.57 FEET = 0.021 MI
LENGTH OF PROJECT = 200.50 FEET = 0.038 MI



RECORD PLANS	
CONTRACTOR:	T. BUCK CONSTRUCTION, INC. - AUBURN, ME
RESIDENT ENGINEER:	RON LEMAIRE
CONSTRUCTION BEGAN:	JUNE 4, 2012
CONSTRUCTION COMPLETE:	JULY 18, 2013
RECORD PLANS BY:	RON LEMAIRE & JENNA HYDE
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY:	RESIDENT ENGINEER
DATE: 01/14/15	
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.	

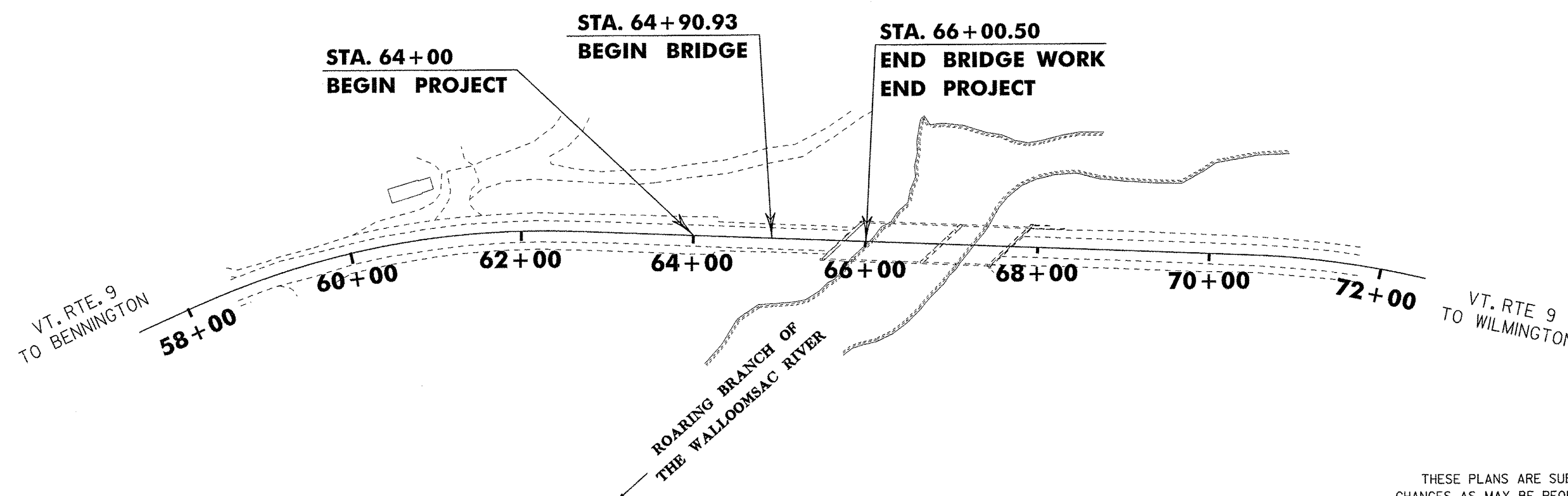
QUALITY ASSURANCE PROGRAM: LEVEL 1

CONVENTIONAL SYMBOLS

COUNTY LINE	
TOWN LINE	
LIMITS OF ACCESS	
POINT OF ACCESS	
FENCE LINE	
STONE WALL	
TRAVELED WAY	
GUARD RAIL	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : L. ORVIS
SURVEYED DATE : 11/6/2011

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83 (2007)



0 100 200
SCALE IN FEET

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING
CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY
ADMINISTRATION OR THE DIRECTOR OF PROGRAM
DEVELOPMENT.
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.
23-MAR-2012

DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED:	DATE: 3/24/12
PROJECT MANAGER : CAROLYN CARLSON	
PROJECT NAME : WOODFORD	
PROJECT NUMBER : ER BHF 010-1(44)	
SHEET 1 OF 58 SHEETS	

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 11.06.15

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06-04-2010

SD-602.00

STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES

05-02-2011

TRAFFIC DATA

YEAR

ADT

DHV

% D

% T

ADTT

20 year ESAL for flexible pavement from 2012 to 2032 : 4789000

40 year ESAL for flexible pavement from 2012 to 2052 : 10386000

Design Speed : 50 mph

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 1140.00 FT

150.00 FT (MIN)

12.00 (MIN)

OPENING 1315.00 FT* (MIN)

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Dec 2011

DRAINAGE AREA : 37.7 SQ MI

CHARACTER OF TERRAIN : HILLY TO MOUNTAINOUS, MOSTLY FORESTED

STREAM CHARACTERISTICS :

NATURE OF STREAMBED : WELL ARMORED - MEDIUM TO LARGE COBBLES & BOULDER

PEAK FLOW DATA

Q 2.33 = 2400 CFS

Q 50 = 6000 CFS

Q 10 = 4000 CFS

Q 100 = 7000 CFS

Q 25 = 5000 CFS

Q 500 =

DATE OF FLOOD OF RECORD N/A

ESTIMATED DISCHARGE: N/A

WATER SURFACE ELEV.: N/A

NATURAL STREAM VELOCITY : @ Q50 = 12.9 fps

ICE CONDITIONS : LIGHT

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: THREE SPAN CONTINOUS PLATE GIRDER BRIDGE

YEAR BUILT: 2005

CLEAR SPAN(NORMAL TO STREAM): 183 FT

VERTICAL CLEARANCE ABOVE STREAMBED: 10 FT

WATERWAY OF FULL OPENING: 2200 SQ FT

DISPOSITION OF STRUCTURE: REPAIR

TYPE OF MATERIAL UNDER SUBSTRUCTURE:

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1132.4 FT

VELOCITY = 10.4 FPS

Q10 = 1133.7 FT

" 10.6 FPS

Q25 = 1134.1 FT

" 11.4 FPS

Q50 = 1134.5 FT

" 12.1 FPS

Q100 = 1134.9 FT

" 12.7 FPS

LONG TERM STREAMBED CHANGES: Channel is highly unstable and subject to lateral shifting

IS THE ROADWAY OVERTOPPED BELOW Q100: NO

FREQUENCY: N/A

RELIEF ELEVATION: N/A

DISCHARGE OVER ROAD @Q100: N/A

UPSTREAM STRUCTURE

TOWN: N/A

DISTANCE:

HIGHWAY #:

STRUCTURE #:

CLEAR SPAN:

CLEAR HEIGHT:

YEAR BUILT:

FULL WATERWAY:

STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Bennington

DISTANCE: 1.7 MI

HIGHWAY #: VT 9

STRUCTURE #: 9

CLEAR SPAN: 209 FT

CLEAR HEIGHT: 17'

YEAR BUILT:

FULL WATERWAY:

STRUCTURE TYPE:

LFD LOAD RATING (TONS)

STRESS LEVELS

H

HS

3S2

6 AXLE

3A STR

4A STR

5A SEMI

INVENTORY

46

52

POSTING

52

73

85

67

69

79

OPERATING

87

101

116

COMMENTS:

PROPOSED STRUCTURE

STRUCTURE TYPE: THREE SPAN PLATE GIRDER BRIDGE

CLEAR SPAN(NORMAL TO STREAM): 53' + 77' + 53' = 183 FT TOTAL

VERTICAL CLEARANCE ABOVE STREAMBED: 10 FT

WATERWAY OF FULL OPENING: 2200 SQ FT

WATER SURFACE ELEVATIONS AT:

Q2.33 = 1132.4 FT

VELOCITY= 10.4 FPS

Q10 = 1133.7 FT

" 10.6 FPS

Q25 = 1134.1 FT

" 11.4 FPS

Q50 = 1134.5 FT

" 12.1 FPS

Q100 = 1134.9 FT

" 12.7 FPS

IS THE ROADWAY OVERTOPPED BELOW Q100: NO

FREQUENCY: N/A

RELIEF ELEVATION: N/A

DISCHARGE OVER ROAD @Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 1139.1 FT

VERTICAL CLEARANCE: @ Q100 = 4.2 FT

SCOUR: 1 FT

REQUIRED CHANNEL PROTECTION: STONE FILL, TYPE IV

PERMIT INFORMATION

AVERAGE DAILY FLOW: 80 CFS DEPTH OR ELEVATION:

ORDINARY LOW WATER: 40 CFS DEPTH = 0.5 FT

ORDINARY HIGH WATER: 1150 CFS DEPTH = 3.0 FT

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single span structure

CLEAR SPAN (NORMAL TO STREAM): 131' minimum clear span (normal to channel)

VERTICAL CLEARANCE ABOVE STREAMBED: Minimum low beam elev. 1140'

WATERWAY AREA OF FULL OPENING: 1315 SQ FT

ADDITIONAL INFORMATION

HYDROLOGIC AND HYDRAULIC INFORMATION TAKEN FROM 2005 PLANS.

2011 SURVEY SHOWED SOME CHANGES IN CHANNEL, BUT LITTLE EFFECT ON NET CROSS SECTIONAL AREA.

2011 SURVEY DOES NOT REPRESENT A LONG TERM CONDITION OF THE CHANNEL.

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE.

2. TRAFFIC SIGNALS ARE NOT NECESSARY.

3. SIDEWALKS ARE NOT NECESSARY

4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD

HS-25

2. FUTURE PAVEMENT

d_p: 0.0 INCH

3. ABUTMENT BEARING TO BEARING LENGTH (THREE SPANS)

L: 272.00 FT

(79.00 - 114.00 - 79.00) FT

4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)

Δ: ---

5. PRESTRESSING STRAND

f_y: ---

6. PRESTRESSED CONCRETE STRENGTH

f'_c: ---

7. PRESTRESSED CONCRETE RELEASE STRENGTH

f'_{cr}: ---

8. CONCRETE, HIGH PERFORMANCE CLASS AA

f'_c: ---

9. CONCRETE, HIGH PERFORMANCE CLASS A

f'_c: 4.0 KSI

10. CONCRETE, HIGH PERFORMANCE CLASS B

f'_c: 3.5 KSI

11. CONCRETE, CLASS C

f'_c: ---

12. REINFORCING STEEL

f_y: 60 KSI

13. STRUCTURAL STEEL AASHTO M270 (WEATHERING)

f_y: 50 KSI

14. SOIL UNIT WEIGHT

γ: 0.140 KCF

15. NOMINAL BEARING RESISTANCE OF SOIL

q_n: 4.0 KSF

16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)

φ: ---

17. NOMINAL BEARING RESISTANCE OF ROCK

q_n: ---

18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)

φ: ---

19. NOMINAL AXIAL PILE RESISTANCE

q_p: ---

20. PILE YIELD STRENGTH ASTM A572

f_y: ---

21. PILE SIZE

22. EST. PILE LENGTH

L_p: ---

23. PILE RESISTANCE FACTOR

φ: ---

24. LATERAL PILE DEFLECTION

Δ: ---

25. BASIC WIND SPEED

V_{3s}: ---

26. MINIMUM GROUND SNOW LOAD

p_g: ---

27. SEISMIC DATA

PGA: ---

S_s: ---

S₁: ---

PROJECT NAME: WOODFORD

PROJECT NUMBER: ER BHF 010-1(44)

FILE NAME: s11b214pi.dgn PLOT DATE: 3/23/2012

PROJECT LEADER: C. CARLSON DRAWN BY: G. ROY

DESIGNED BY: M. EVANS-MONGEON CHECKED BY: M. EVANS-MONG

PRELIMINARY INFORMATION SHEET SHEET 2 OF 58

GENERAL

- 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, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SIXTEENTH EDITION, AND ITS LATEST REVISIONS.
- 2. THE BRIDGE IS DESIGNED FOR HS 25 LIVE LOAD WITH NO ALLOWANCE FOR ADDITIONAL FUTURE PAVEMENT.
- 3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT UNLESS NOTED OTHERWISE.
- 4. THE CONTRACTOR SHALL USE EXTREME CARE WHILE WORKING AROUND THE EXISTING WATER LINE WHICH IS BURIED AT THE WEST END OF THE BRIDGE AND IN THE AREA UPSTREAM OF THE PORTION OF THE BRIDGE THAT IS TO BE REHABILITATED. ANY DAMAGE THAT IS INCURRED WILL BE REPAIRED OR REPLACED AT THE CONTRACTOR’S EXPENSE.
- 5. THE DETAILS AND DIMENSIONS ON THE PROJECT SPECIFIC PLAN AND DETAIL SHEETS SHALL TAKE PRECEDENCE OVER THE MORE GENERAL “STRUCTURES DETAIL SHEETS” PROVIDED IN THE PLAN SET.
- 6. TACK COAT: EMULSIFIED ASPHALT SHALL BE APPLIED AT A RATE OF 0.04 GAL/SY ON ALL COLD PLANED SURFACES AND BETWEEN SUCCESSIVE COURSES OF PAVEMENT, BOTH ON THE BRIDGE AND IN THE ROADWAY SECTION.
- 7. THE BRIDGE PLAQUE SHALL BE FURNISHED BY THE AGENCY OF TRANSPORTATION AND INSTALLED BY THE CONTRACTOR AS SHOWN ON SHEET SD-502.00. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 501.34, CONCRETE, HIGH PERFORMANCE CLASS B.
- 8. ITEM 529.20 PARTIAL REMOVAL OF STRUCTURE IS FOR THE REMOVAL AND DISPOSAL OF A PORTION OF THE DECK AS SHOWN ON THE DECK PLAN SHEET AND ON THE FRAMING PLAN. THE PRICE BID SHALL INCLUDE THE COST FOR SALVAGING 3’-0” OF THE DECK REINFORCING, ALONG WITH CLEANING AND REPAIRING OF THAT STEEL AS NEEDED, IN ORDER TO SPLICE THAT REINFORCING STEEL TO THE NEW DECK REINFORCING STEEL.
- 9. THE REMOVAL OF THE BITUMINOUS CONCRETE PAVEMENT ON THE BRIDGE, IN THE AREA WHERE THE DECK IS TO BE REMOVED, SHALL BE PAID FOR UNDER ITEM 529.10, REMOVAL OF BRIDGE PAVEMENT.
- 10. HEIGHT OF FILL BEHIND THE ABUTMENT WILL BE LIMITED TO THE BRIDGE SEAT ELEVATION UNTIL THE DECK HAS BEEN PLACED AND THE CURING PERIOD IS COMPLETE.

TRAFFIC MAINTENANCE DURING CONSTRUCTION

- 11. TRAFFIC WILL BE MAINTAINED ON A TWO-WAY TEMPORARY BRIDGE TO BE PLACED UPSTREAM IF THE EXISTING BRIDGE.
- 12. THE DETOUR ALIGNMENT SHALL BE DESIGNED FOR A MINIMUM DESIGN SPEED OF 25 MPH. THE TEMPORARY DETOUR SHALL BE PAVED. ALL WORK ASSOCIATED WITH THE INSTALLATION AND REMOVAL OF THE TEMPORARY BRIDGE AND ITS APPROACHES, INCLUDING TEMPORARY TRAFFIC BARRIER, PAVEMENT, PAVEMENT MARKINGS, AND REMOVING AND RESETTING THE EXISTING GUARDRAIL (SEE PLAN SHEET (2) AND PLAN SHEET (3)) WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 528.11, “TWO-WAY TEMPORARY BRIDGE”.
- 13. SIX TREES NEED TO BE REMOVED IN ORDER TO INSTALL THE TEMPORARY DETOUR (SEE PLAN SHEET (1)). PAYMENT FOR THE REMOVAL OF THESE TREES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 201.10, CLEARING AND GRUBBING INCLUDING INDIVIDUAL TREES AND STUMPS.
- 14. ADVISORY SIGNS SHALL BE POSTED IN ACCORDANCE WITH VAOT STANDARD E-107. PAYMENT FOR ALL AND OFF PROJECT SIGNING AND TRAFFIC CONTROL DEVICES, INCLUDING DRUMS AND BARRICADES, WILL BE PAID FOR UNDER CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).
- 15. LIMITS OF THE TEMPORARY DETOUR MUST BE WITHIN THE RIGHT-OF-WAY. SEE ROW SHEETS.
- 16. THE AREA DISTURBED BY THE TEMPORARY DETOUR SHALL BE SEEDED AND MULCHED AFTER ALL THE FILL IS REMOVED TO THE FINAL GROUND ELEVATION. THE COST OF THE SEED, FERTILIZER AND MULCH WILL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS. ANY DAMAGE TO THE EXISTING PAVEMENT AS A RESULT OF THE TEMPORARY DETOUR SHALL BE REPAIRED TO THE ORIGINAL CONDITION AT THE CONTRACTOR’S EXPENSE.

CONCRETE

- 17. DEWATERING OF THE EXCAVATED AREA FOR THE SUBSTRUCTURE IS ANTICIPATED, PAYMENT FOR DESIGNING, CONSTRUCTING AND MAINTAINING A DEWATERING AREA SHALL BE CONSIDERED INCIDENTAL TO CONTRACT ITEM 204.25, STRUCTURE EXCAVATION.
- 18. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH BY 1 INCH.
- 19. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- 20. REINFORCING PLACEMENT TOLERANCES SHALL BE:

SPACING

± 1 INCH

CLEARANCE

± ¼ INCH
- 21. THE DECK, CURBS ON THE BRIDGE, AND THE PORTIONS OF ABUTMENT # 1 ABOVE THE CONSTRUCTION JOINT IN THE BACKWALL (SEE EXPANSION JOINT DETAILS), SHALL BE CONCRETE, HIGH PERFORMANCE CLASS A. ALL OTHER CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B.
- 22. FOR BRIDGE DECK PLACEMENT, THE MAXIMUM TIME LIMIT FOR ANY COMBINATION OF PLACEMENTS DONE IN ANY ONE DAY SHALL BE EIGHT HOURS. THERE SHALL BE A MINIMUM OF 96 HOURS BETWEEN THE COMPLETION OF ONE DAY’S PLACEMENT AND THE BEGINNING OF OTHER ADJACENT PLACEMENT. ALL INDIVIDUAL DECK PLACEMENTS SHALL START FROM THE LOW END OF THE SECTION BEING PLACED.
- 23. NO CONCRETE IN THE ABUTMENTS OR WINGWALLS SHALL BE PLACED ABOVE THE BRIDGE SEAT CONSTRUCTION JOINT UNTIL THE GIRDERS HAVE BEEN PROFILED AND THE FINISHED GRADE OF THE DECK HAS BEEN DETERMINED.
- 24. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. ALL OTHER AREAS OF THE BRIDGE SEATS SHALL BE SLOPED AWAY FROM THE BEARING DEVICES AT A RATE OF 0.04 FT/FT. THE ENTIRE BRIDGE SEAT SURFACE SHALL BE GIVEN A MAGNESIUM FLOAT FINISH.
- 25. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP NOTCHES.
- 26. FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4’-0” ALONG THE FASCIA GIRDERS. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB DEPTH.
- 27. ALL REINFORCING IN THE DECK, BRIDGE CURBS AND IN THE BACKWALL SHALL BE EPOXY COATED. EPOXY COATED REINFORCING STEEL IS DENOTED IN THE REINFORCING STEEL SCHEDULE WITH A PREFIX OF “E”. ALL OTHER REINFORCING SHALL BE PLAIN REINFORCING.
- 28. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE PROCEDURES AND TOLERANCES IN APPLICABLE PUBLICATIONS OF THE “CONCRETE REINFORCING STEEL INSTITUTE”.
- 29. ALL EPOXY REINFORCING STEEL TO BE CUT IN THE FIELD SHALL BE SAW CUT AND THE EXPOSED ENDS TREATED WITH AN APPROVED TWO-PART EPOXY REPAIR MATERIAL.
- 30. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

ALONG BACK FACES OF WALLS AGAINST EARTH:	2 INCHES
ALONG TOP SURFACE OF DECK SLAB:	2.5 INCHES
ALONG BOTTOM SURFACE OF DECK SLAB:	1.5 INCHES
ELSEWHERE UNLESS OTHERWISE INDICATED:	3 INCHES

STRUCTURAL STEEL

- 31. THE COST FOR CUTTING THE EXISTING STEEL AND FIELD DRILLING THE HOLES IN THE EXISTING STEEL, FOR THE NEW FIELD SPLICE WILL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID FOR CONTRACT ITEM 506.55, STRUCTURAL STEEL PLATE GIRDER. THE COST FOR FIELD DRILLING THE HOLES NEEDED TO ATTACH THE WATER MAIN SUPPORTS TO INTERMEDIATE CROSS FRAMES AND TO THE INTERMEDIATE WATER LINE SUPPORTS SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID FOR ITEM 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE) (16”) (CL 52).
- 32. UNLESS OTHERWISE NOTED, ALL NEW STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270M/M270 GRADE 50W AND SHALL BE PAID FOR UNDER ITEM 506.55, STRUCTURAL STEEL, PLATE GIRDER. THE STRUCTURAL STEEL FOR THE DOWNSPOUT AND HARDWARE SHALL BE AS SPECIFIED ON DOWNSPOUT DETAILS SHEET AND SHALL ALSO BE PAID FOR UNDER ITEM 506.55, STRUCTURAL STEEL, PLATE GIRDER.
- 33. CHARPY V-NOTCH TEST: TEST STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS IN ACCORDANCE WITH SUBSECTION 714.01.

- 34. THE WESTERN ENDS OF ALL SIX GIRDERS SHALL BE PAINTED FOR A DISTANCE OF 10 FEET FROM THE CENTERLINE OF BEARING AT ABUTMENT 1. ALL CROSS-FRAMES, DIAPHRAGMS AND CONNECTION OR STIFFENER PLATES IN THIS AREA SHALL ALSO BE PAINTED. THE FINAL COLOR SHALL BE BROWN IN CONFORMANCE WITH SUBSECTION 708.03 OF THE STANDARD SPECIFICATIONS. BROWN GREASE, CONFORMING TO SUBSECTION 708.04 SHALL BE APPLIED TO ALL PAINTED AREAS. PAYMENT WILL BE MADE UNDER ITEM 900.645 SPECIAL PROVISION (QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS).
- 35. THE ENDS OF THE GIRDERS SHALL BE VERTICAL UNDER FULL DEAD LOAD.
- 36. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
- 37. ANY HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED WILL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS, WHICH SHALL BE TIGHTENED AS PER SUBSECTION 506.19.
- 38. ALL FIELD CONNECTIONS SHALL BE MADE USING 7/8” DIAMETER, AASHTO M164M/M164 BOLTS IN 15/16” HOLES UNLESS OTHERWISE NOTED.
- 39. AFTER THE GIRDERS HAVE BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOPS OF THE GIRDERS, AS DIRECTED BY THE ENGINEER, FOR USE IN DETERMINING THE FINAL GRADE.

STONE FILL

- 40. THE STONE FILL, TYPE IV SHALL BE PLACED IN FRONT OF THE ABUTMENT AND AROUND PIER 1 BEFORE THE STRUCTURAL STEEL HAS BEEN SET.

WATER LINE

- 41. ANY DAMAGE TO THE EXISTING ROADWAY INCURRED DURING THE RELOCATION OF THE EXISTING WATER MAIN SHALL BE REPAIRED TO THE ORIGINAL CONDITION. THIS WORK SHALL BE INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE)(16”) (CL52).
- 42. THE DESIGN AND INSTALLATION OF A TEMPORARY WATER MAIN SYSTEM WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DONE IN ACCORDANCE TO THE PLANS AND TO SECTION 629. THE SYSTEM SHALL MAINTAIN THE SAME DESIGN FLOWS AS THE EXISTING SYSTEM. PAYMENT FOR THE TEMPORARY WATER MAIN AND ANY PIPES, FITTINGS, ATTACHMENTS, TESTING AND EXCAVATION REQUIRED TO BUILD A COMPLETE, FUNCTIONAL SYSTEM TO THE SATISFACTION OF THE ENGINEER SHALL BE INCLUDED IN THE COST FOR CONTRACT ITEM 900.645 SPECIAL PROVISION (MAINTENANCE OF EXISTING FLOWS).
- 43. THE WATER MAIN THAT IS CURRENTLY IN USE, WHICH CONNECTS TO THE WATER MAIN ON THE BRIDGE AT APPROXIMATELY STA. 66+24 AND IS BURIED BETWEEN STA. 64+65 AND 66+10, SHALL REMAIN IN PLACE UNTIL SOME OTHER METHOD OF MAINTAINING THE WATER FLOW HAS BEEN ESTABLISHED. WHEN THIS MAIN IS NO LONGER NECESSARY, IT SHALL BE REMOVED. THE REMOVED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE) (16”) (CL 52).

PROJECT NAME: WOODFORD

PROJECT NUMBER: ER BHF 010-1 (44)

FILE NAME: sl1b214gennote.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: M.EVANS-MONGE
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY: C.CARLSON
PROJECT NOTES	SHEET 3 OF 58

STATE OF VERMONT AGENCY OF TRANSPORTATION														QUANTITY SHEET 1											
SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS						DETAILED SUMMARY OF QUANTITIES					
								ROADWAY	EROSION CONTROL	UTIL. (NON- PARTIC.)	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				EARTHWORKS SUMMARY				
								1170					1170		CY	COMMON EXCAVATION	203.15	6.26	0	CY	FILL REQUIRED				
								830			7730		8560		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	9.95			FILL AVAILABLE:				
								1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		1164	CY	COMMON EXCAVATION: 1164 X 1.0				
											2020		2020		CY	STRUCTURE EXCAVATION	204.25	1.4	8850	CY	UNCLASSIFIED CHANNEL EXCAVATION: 8850 X 1.0				
											1300		1300		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	2.96	2019	CY	STRUCTURE EXCAVATION: 2019 X 1.0				
								476			121		597		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	1.4	12033	CY	SUBTOTAL				
								830					830		CY	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25	7.28	7	CY	ROUNDING				
								2.3			1.7		4		CWT	EMULSIFIED ASPHALT	404.65	0.14	12040	CY	TOTAL				
								1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50								
											159		159		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	1.08							
											553		553		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	1.61							
											114010		114010		LB	STRUCTURAL STEEL, PLATE GIRDER	506.55	8.16							
											82170		82170		LB	REINFORCING STEEL, LEVEL I	507.11	1.64							
											1		1		LS	SHEAR CONNECTORS (1400 - 7/8" X 7")	508.15								
											20		20		GAL	WATER REPELLENT, SILANE	514.10	2.79							
											67		67		LF	BRIDGE EXPANSION JOINT, VERMONT	516.11								
											528		528		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20	0.34							
											240		240		LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33								
								1					1		LS	TWO-WAY TEMPORARY BRIDGE (3600 SF - EST.)	528.11								
											150		150		SY	REMOVAL OF BRIDGE PAVEMENT	529.10	7.34							
											1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20								
											6		6		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17								
								590			2660		3250		CY	STONE FILL, TYPE IV	613.13	0.23							
								80					80		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28								
								75					75		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	1.8							
								1					1		EACH	MANUFACTURED TERMINAL SECTION, FLARED	621.50								
								2					2		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	621.72								
								1600					1600		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								
												800	800		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26								
								1					1		LS	MOBILIZATION/DEMObILIZATION	635.11								
								811					811		LF	4 INCH WHITE LINE	646.20								
								811					811		LF	4 INCH YELLOW LINE	646.21								
								530			2070		2600		SY	GEOTEXTILE UNDER STONE FILL	649.31	2.69							
									100				100		SY	GEOTEXTILE FOR SILT FENCE	649.51	9.9							
									210				210		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	5.8							
									220				220		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61	1							
																			PROJECT NAME: WOODFORD						
																			PROJECT NUMBER: ER BHF 010 -1 (44)						
																			FILE NAME: s11b214_qs.xls						
																			PLOT DATE: 03/23/2012						
																			PROJECT LEADER: C. CARLSON						
																			DRAWN BY: G. ROY						
																			DESIGNED BY: EVANS-MONGEON						
																			CHECKED BY: EVANS-MONGEON						
																			QUANTITY SHEET #1						
																			SHEET 4 OF 58						

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

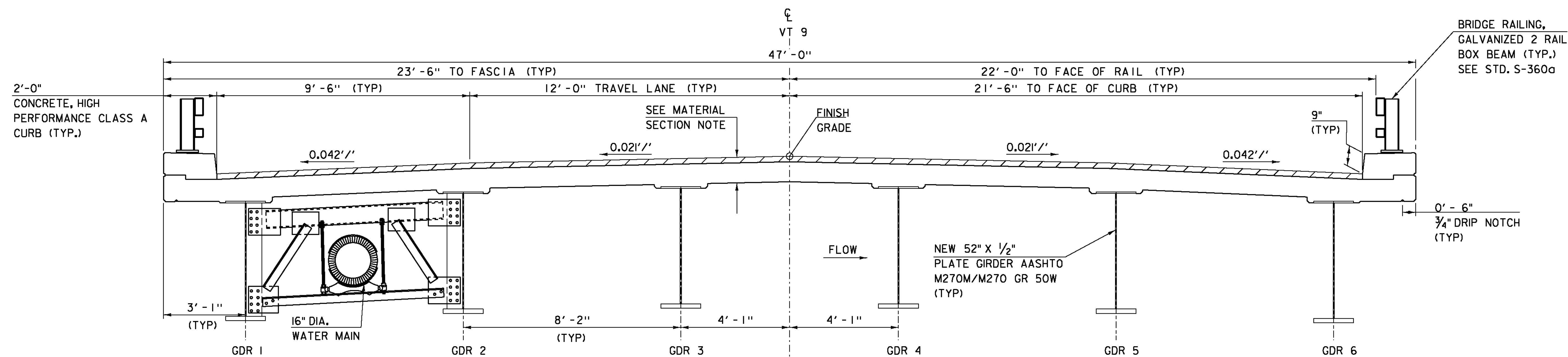
QUANTITY SHEET 2

[illegible]

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

BRIDGE QUANTITY SHEET 1

[illegible]



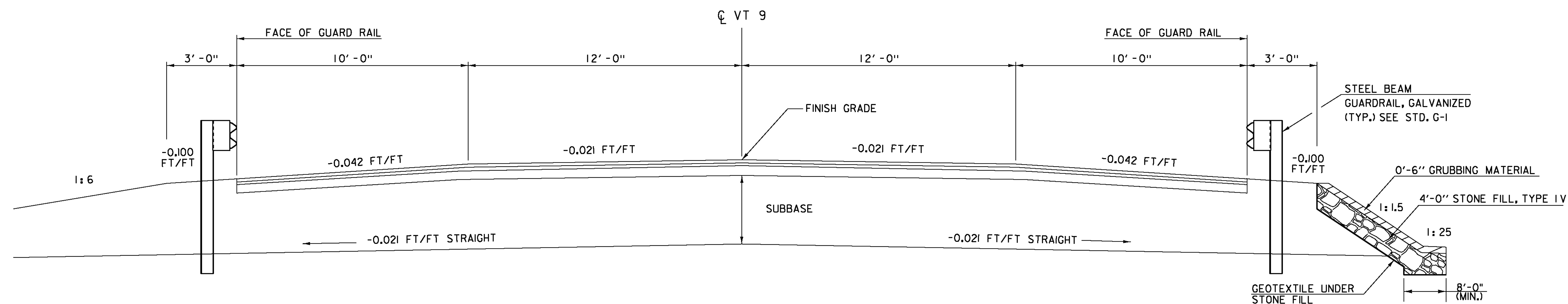
NEW BRIDGE TYPICAL SECTION

SCALE 1/2" = 1'-0"

MATERIAL SECTION

1 1/2" TYPE IVS SPECIAL PROVISION, (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
 1 1/4" TYPE IVS SPECIAL PROVISION, (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
 SHEET MEMBRANE WATERPROOFING, TORCH APPLIED
 8 1/2" DECK CONCRETE, HIGH PERFORMANCE CLASS A

TACK COAT: EMULSIFIED ASPHALT SHALL BE APPLIED AT THE RATE OF 0.040 GAL / SY BETWEEN SUCCESSIVE COARSE OF PAVEMENT AS DIRECTED BY THE ENGINEER.



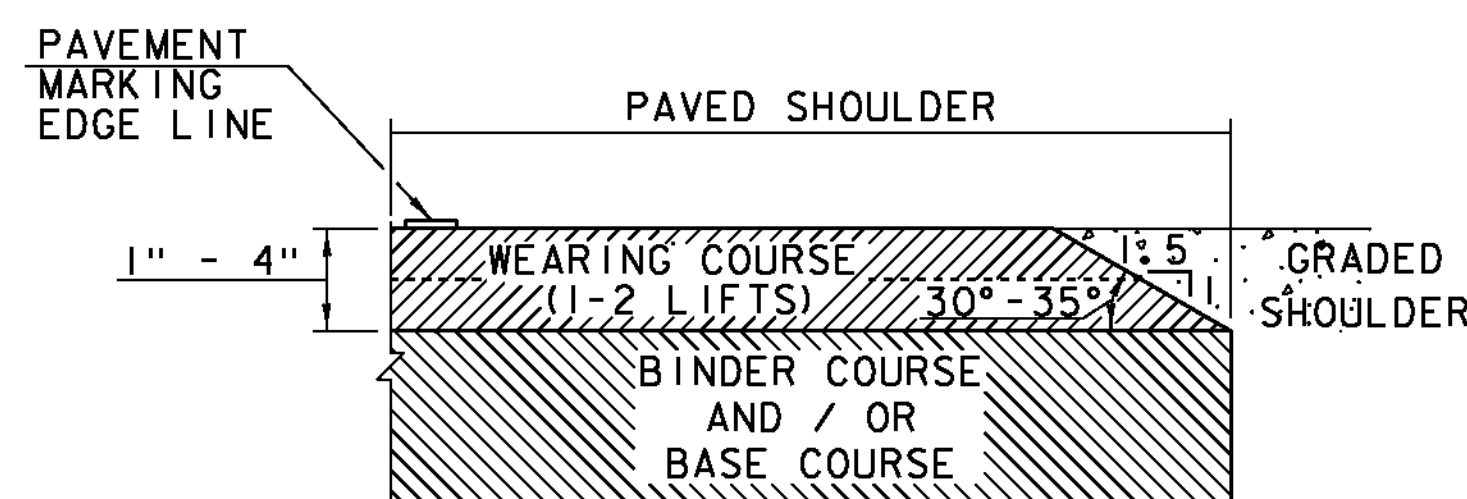
ROADWAY NORMAL SECTION WITH GUARD RAIL

NTS

1 1/2" SPECIAL PROVISION, (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY), TYPE IVS
 1 1/4" SPECIAL PROVISION, (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY), TYPE IVS
 5" SPECIAL PROVISION, (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY), TYPE IIS (TWO LIFTS OF 2 1/2")
 36" SUBBASE OF CRUSHED GRAVEL, COARSE GRADED

TACK COAT: EMULSIFIED ASPHALT SHALL BE APPLIED AT THE RATE OF 0.040 GAL / SY BETWEEN SUCCESSIVE COARSE OF PAVEMENT AS DIRECTED BY THE ENGINEER.

MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT (TOTAL DEPTH)	± 1/4"
SUBBASE	± 1"

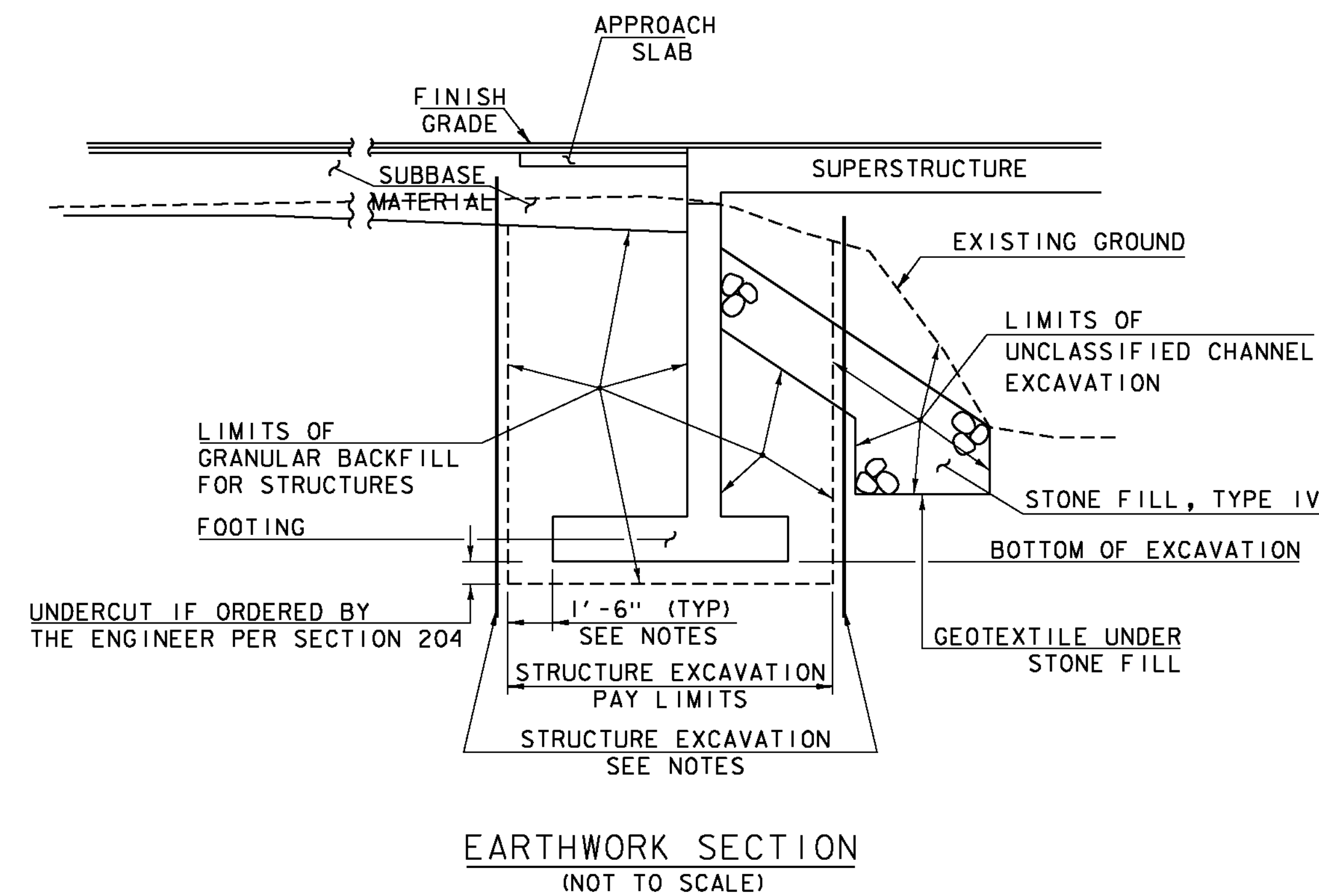


SAFETY EDGE DETAIL

NOT TO SCALE

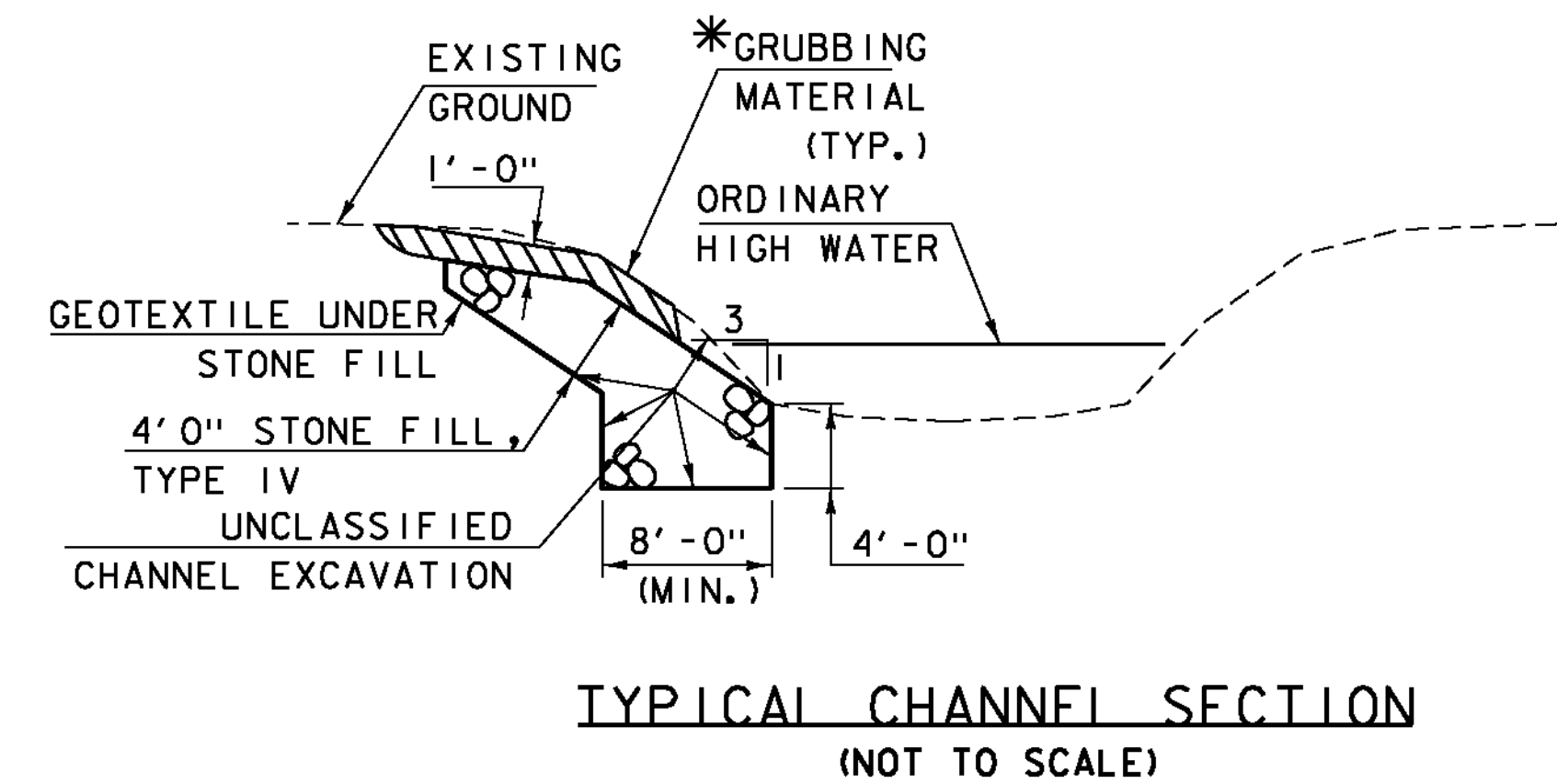
NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.

PROJECT NAME:	WOODFORD
PROJECT NUMBER:	ER BHF 010-1(44)
FILE NAME:	slb214typ.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	M. EVANS-MONGEON
PROJECT TYPICAL SECTIONS	
PLOT DATE:	23-MAR-2012
DRAWN BY:	C. MOONEY
CHECKED BY:	EVANS-MONGEON
SHEET	7 OF 58



STRUCTURE EXCAVATION NOTES

1. THE PAY LIMITS OF "STRUCTURE EXCAVATION" SHALL BE 1'-6" OUTSIDE THE PERIMETER OF THE FOOTING AND FROM BOTTOM OF EXCAVATION UP TO THE EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
2. IF AN EXCAVATION IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED STRUCTURE EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE EXCAVATION BUT OUTSIDE THE STRUCTURE EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION. NO MEASUREMENT AND PAYMENT WILL BE MADE FOR STRUCTURE EXCAVATION AND GRANULAR BACKFILL FOR STRUCTURES OUTSIDE THE PAY LIMITS DEFINED IN NOTE 1.



*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: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: s11b2141typ.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: EVANS-MONGEON
EARTHWORK SECTIONS	SHEET 8 OF 58

GPS CONTROL POINTS

HVCTRL #1

B95011
NORTH = 141197.186
EAST = 1467159.125
ELEV. = 1020.450

GENERAL LOCATION, WOODFORD, VT. , ABOUT 2.5 MI (4.0 KM) EAST OF BENNINGTON, VT. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 7 AND VT ROUTE 9 IN BENNINGTON GO EAST ALONG VT ROUTE 9 FOR 2.7 MI (4.3 KM) TO THE MOST NORTHEASTERLY GRAVEL DRIVE LEFT TO THE AVALON MOTEL AND MINI MART AND THE MARK ON THE LEFT. THE MARK IS SET 10 CM BELOW GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT POURED TO A DEPTH OF 1.4 M (4.6 FT) . IT IS 9.3 M (30.5 FT) NORTHWEST OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 9, 4.9 M (16.1 FT) SOUTHWEST OF THE CENTERLINE OF THE GRAVEL DRIVE TO THE MOTEL, 7.3 M (24.0 FT) EAST OF THE SOUTHWEST END OF A METAL CULVERT, 18.4 M (60.4 FT) SOUTH OF A 20 CM PINE, AND 1.1 M (3.6 FT) SOUTHEAST OF A FIBERGLASS WITNESS POST. NOTE, THIS MARK IS INTERVISIBLE WITH B95012.

HVCTRL #2

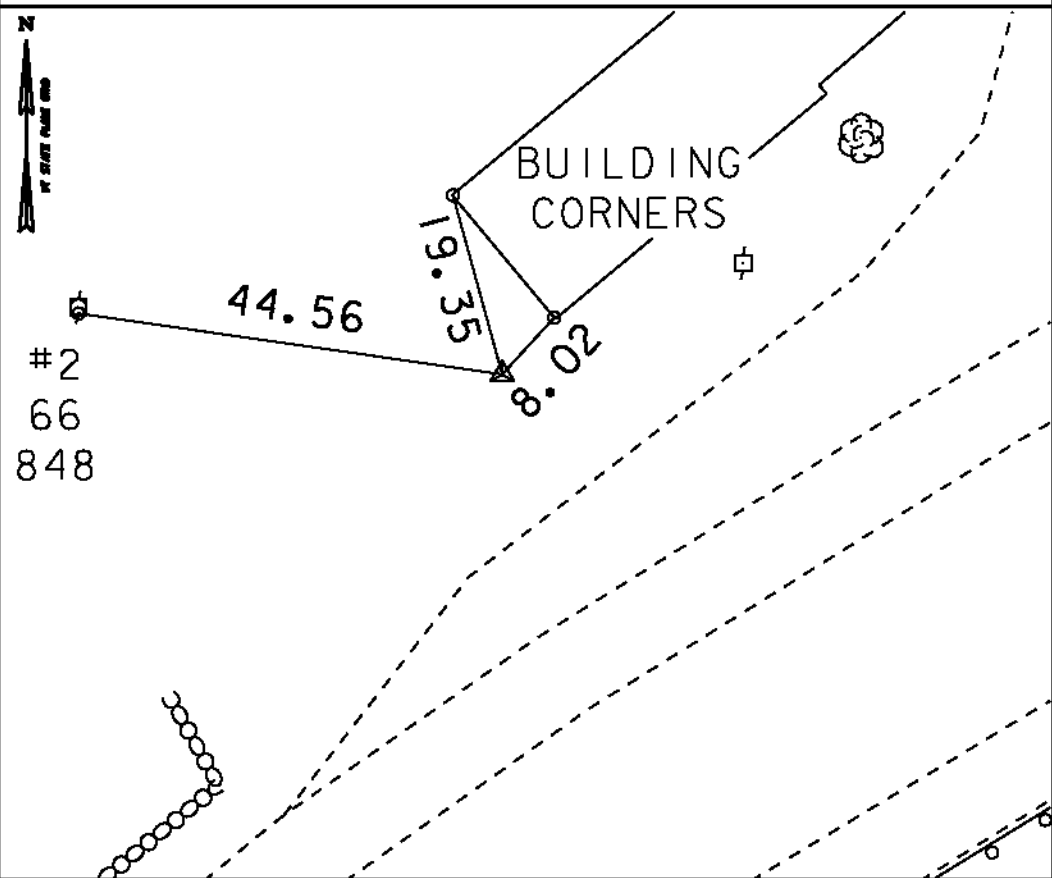
B95012
NORTH = 142071.296
EAST = 1468110.302
ELEV. = 1047.270

GENERAL LOCATION, WOODFORD, VT. , ABOUT 3 MI (4.8 KM) EAST OF BENNINGTON, VT. TO REACH FROM THE INTERSECTION OF U.S. ROUTE 7 AND VT ROUTE 9 IN BENNINGTON GO EAST ALONG VT ROUTE 9 FOR 3.0 MI (4.8 KM) TO A POWERLINE CROSSING AND THE MARK ON THE RIGHT. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 30 CM DIAMETER CONCRETE MONUMENT POURED TO A DEPTH OF 1.4 M (4.6 FT) . IT IS 10.6 M (34.8 FT) SOUTH OF AND ABOUT 0.5 M (1.6 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 9, 8.4 M (27.6 FT) NORTHEAST OF POWER POLE NO. 18, 25.3 M (83.0 FT) SOUTH OF POLE NO. 52/864, 23.7 M (77.8 FT) WEST OF THE SOUTHWEST END OF A 70-CM DIAMETER METAL CULVERT, AND 0.7 M (2.3 FT) NORTH OF A FIBERGLASS WITNESS POST. NOTE, THIS MARK IS INTERVISIBLE WITH B95011.

TRAVERSE TIES

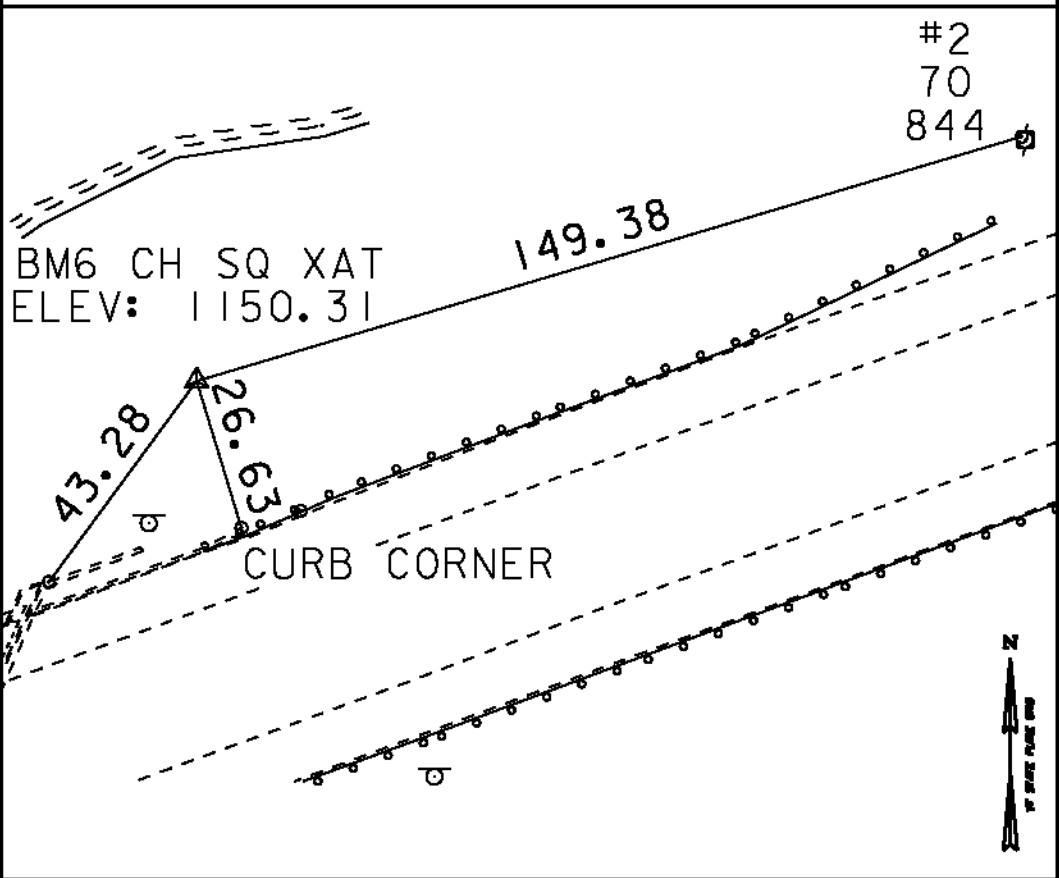
HVCTRL #5

NORTH = 144728.843
EAST = 1470294.263
ELEV. = 1127.679



HVCTRL 36

NORTH = 145028.487
EAST = 1471026.661
ELEV. = 1148.960



* MAIN TRAVERSE COMPLETED 11/06/2011 BY L.ORVIS P.C. & G.HITCHCOCK

ALIGNMENT TIES

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (07)

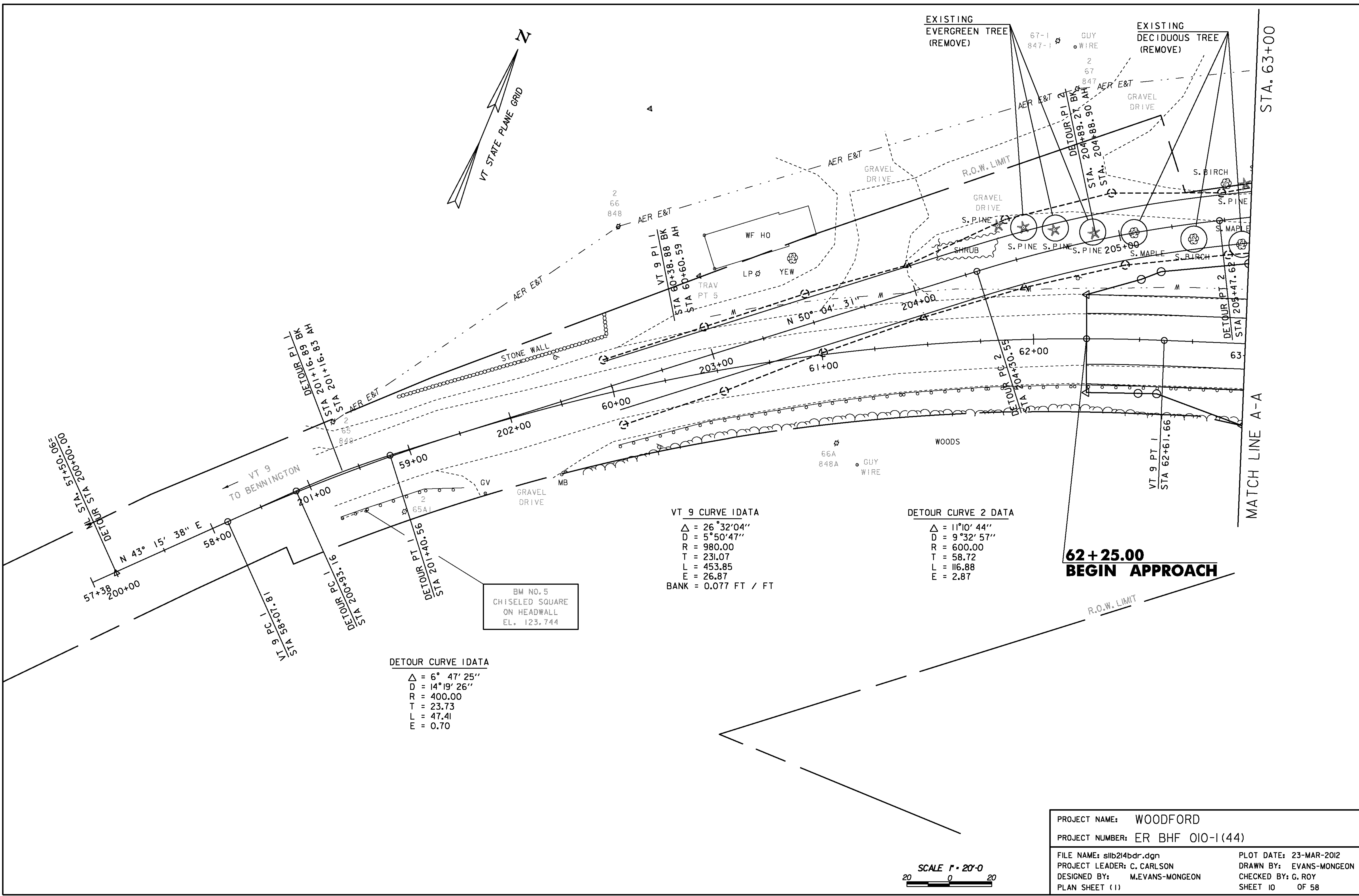
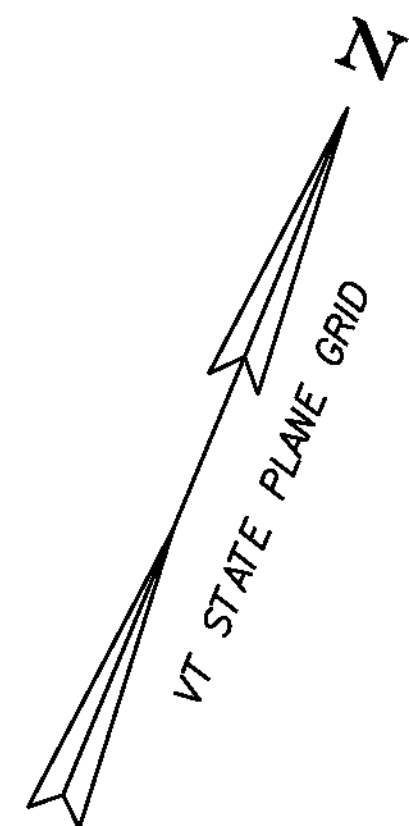
ADJUSTMENT COMPASS

PROJECT NAME: WOODFORD

PROJECT NUMBER: ER-BHF 010-1 (44)

FILE NAME: survey\11b21411.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY:
TIE SHEET

PLOT DATE: 23-MAR-2012
DRAWN BY: R. BULLOCK
CHECKED BY:
SHEET 9 OF 58



DETOUR CURVE 1 DATA
 $\Delta = 6^\circ 47' 25''$
 $D = 14^\circ 19' 26''$
 $R = 400.00$
 $T = 23.73$
 $L = 47.41$
 $E = 0.70$

VT 9 CURVE 1 DATA
 $\Delta = 26^\circ 32' 04''$
 $D = 5^\circ 50' 47''$
 $R = 980.00$
 $T = 231.07$
 $L = 453.85$
 $E = 26.87$
BANK = 0.077 FT / FT

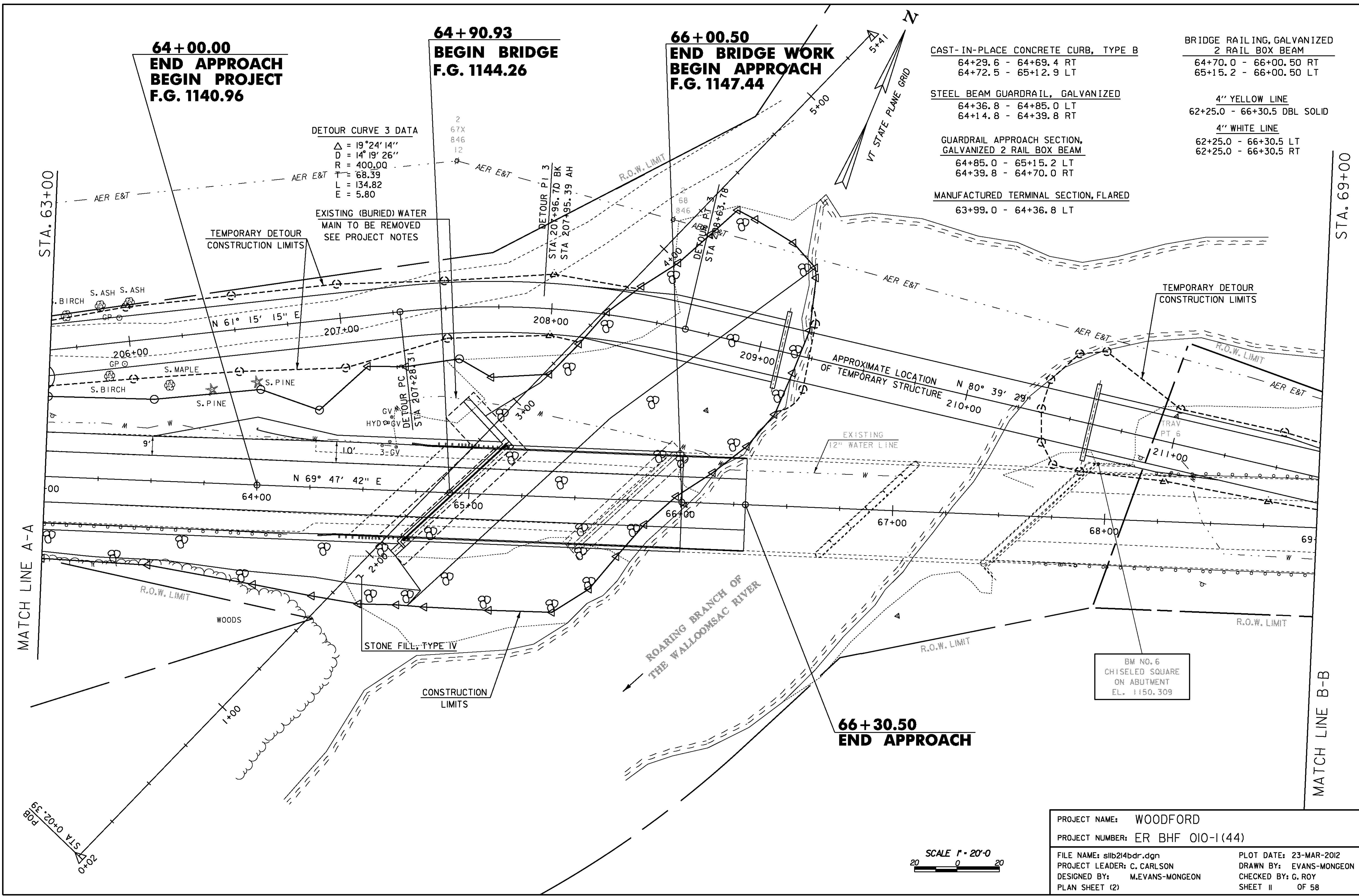
DETOUR CURVE 2 DATA
 $\Delta = 11^\circ 10' 44''$
 $D = 9^\circ 32' 57''$
 $R = 600.00$
 $T = 58.72$
 $L = 116.88$
 $E = 2.87$

BM NO. 5
CHISELED SQUARE
ON HEADWALL
EL. 123.744

**62+25.00
BEGIN APPROACH**

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214bdr.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: G. ROY
PLAN SHEET (1)	SHEET 10 OF 58



CAST-IN-PLACE CONCRETE CURB, TYPE B
64+29.6 - 64+69.4 RT
64+72.5 - 65+12.9 LT

STEEL BEAM GUARDRAIL, GALVANIZED
64+36.8 - 64+85.0 LT
64+14.8 - 64+39.8 RT

GUARDRAIL APPROACH SECTION,
GALVANIZED 2 RAIL BOX BEAM
64+85.0 - 65+15.2 LT
64+39.8 - 64+70.0 RT

MANUFACTURED TERMINAL SECTION, FLARED
63+99.0 - 64+36.8 LT

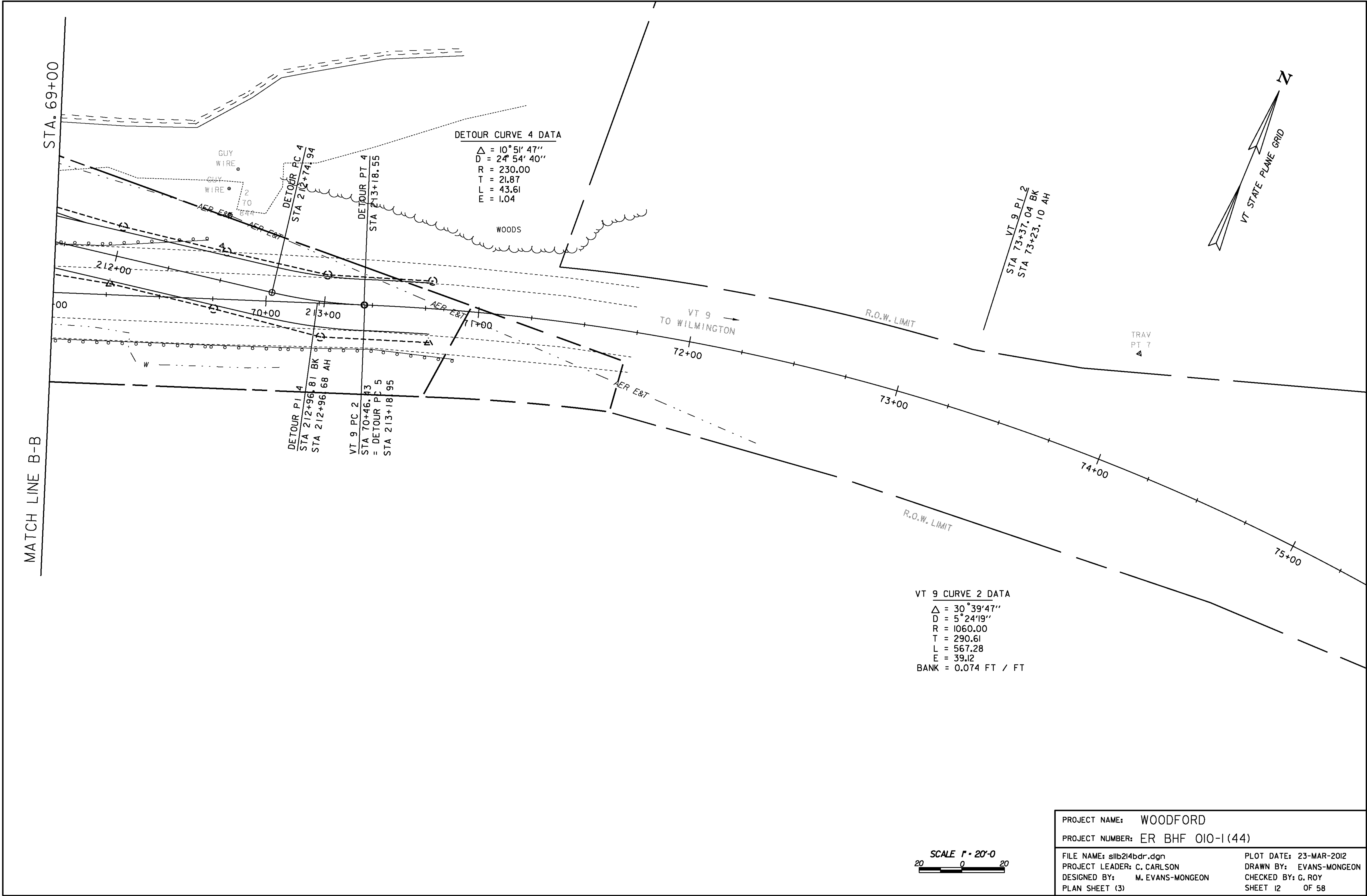
BRIDGE RAILING, GALVANIZED
2 RAIL BOX BEAM
64+70.0 - 66+00.50 RT
65+15.2 - 66+00.50 LT

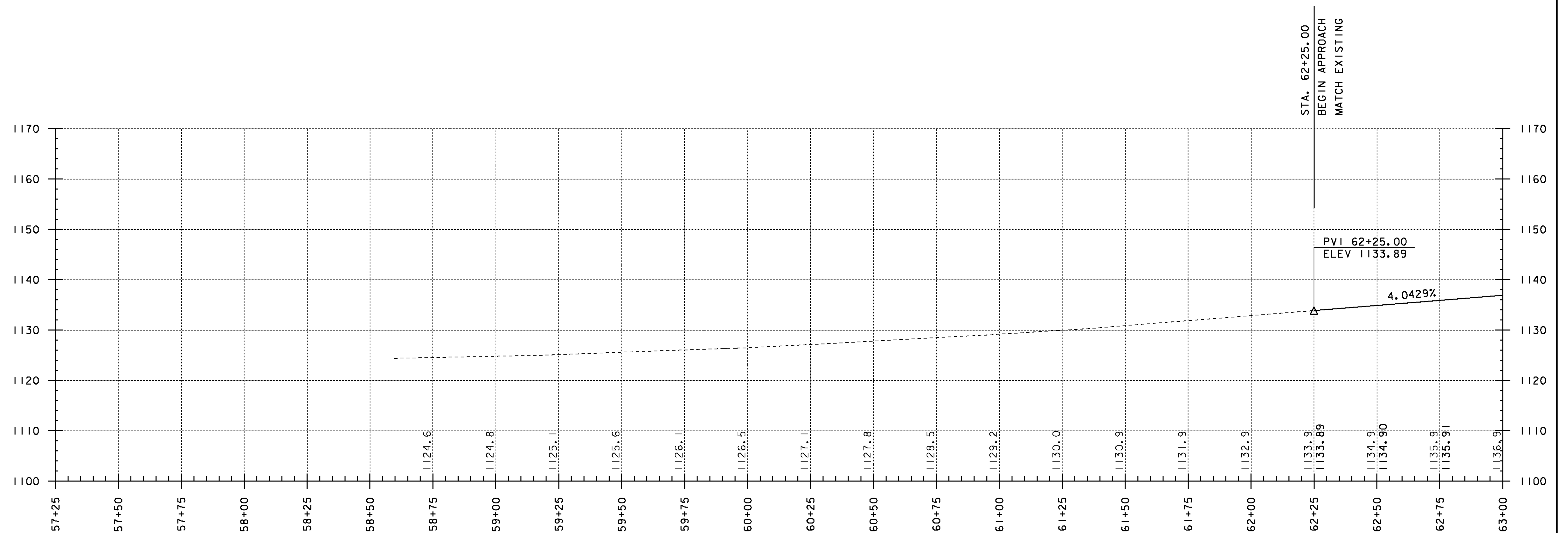
4" YELLOW LINE
62+25.0 - 66+30.5 DBL SOLID

4" WHITE LINE
62+25.0 - 66+30.5 LT
62+25.0 - 66+30.5 RT

PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214bdr.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: G. ROY
PLAN SHEET (2)	SHEET II OF 58







NOTE:

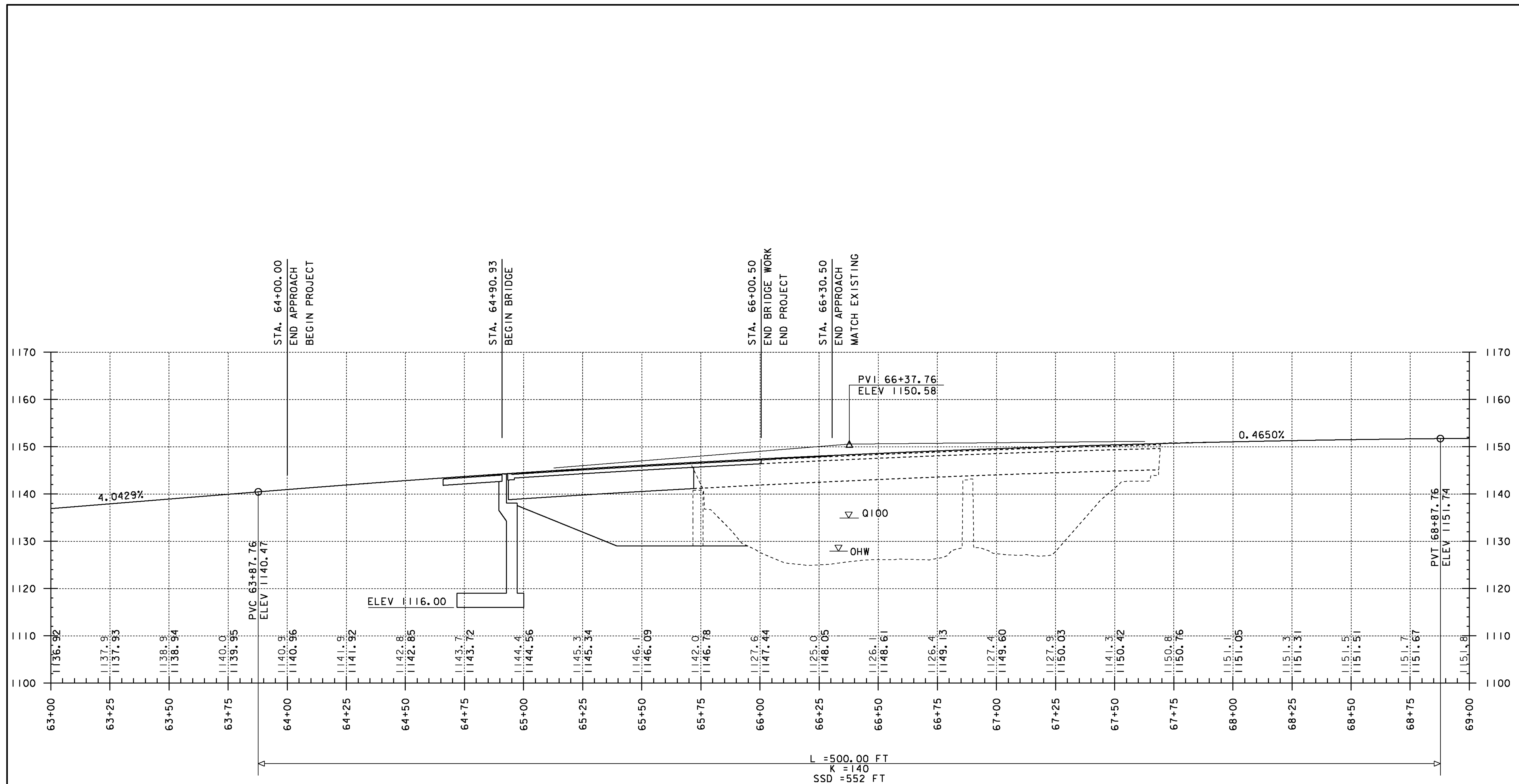
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE
EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE
FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 9

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
PROFILE SHEET (1)	SHEET 13 OF 58



NOTE:

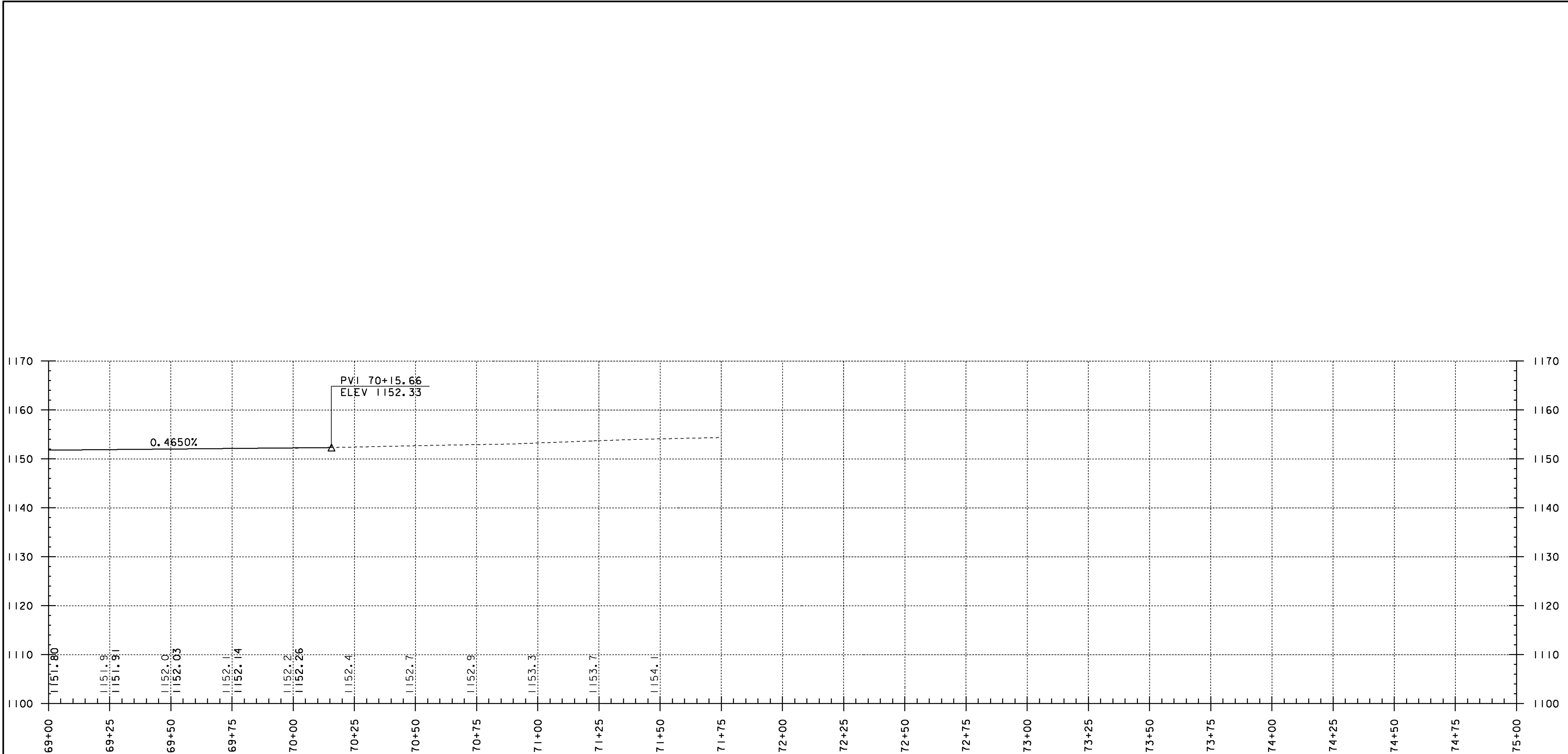
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE
EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE
FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 9

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: s11b214xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
PROFILE SHEET (2)	SHEET 14 OF 58



NOTE:

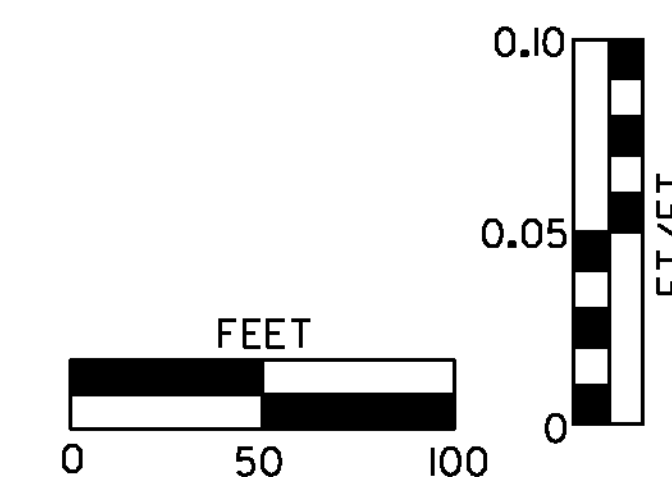
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE
EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE
FINISH GRADES ALONG PROPOSED CENTERLINE.

PROFILE ALONG VT 9

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

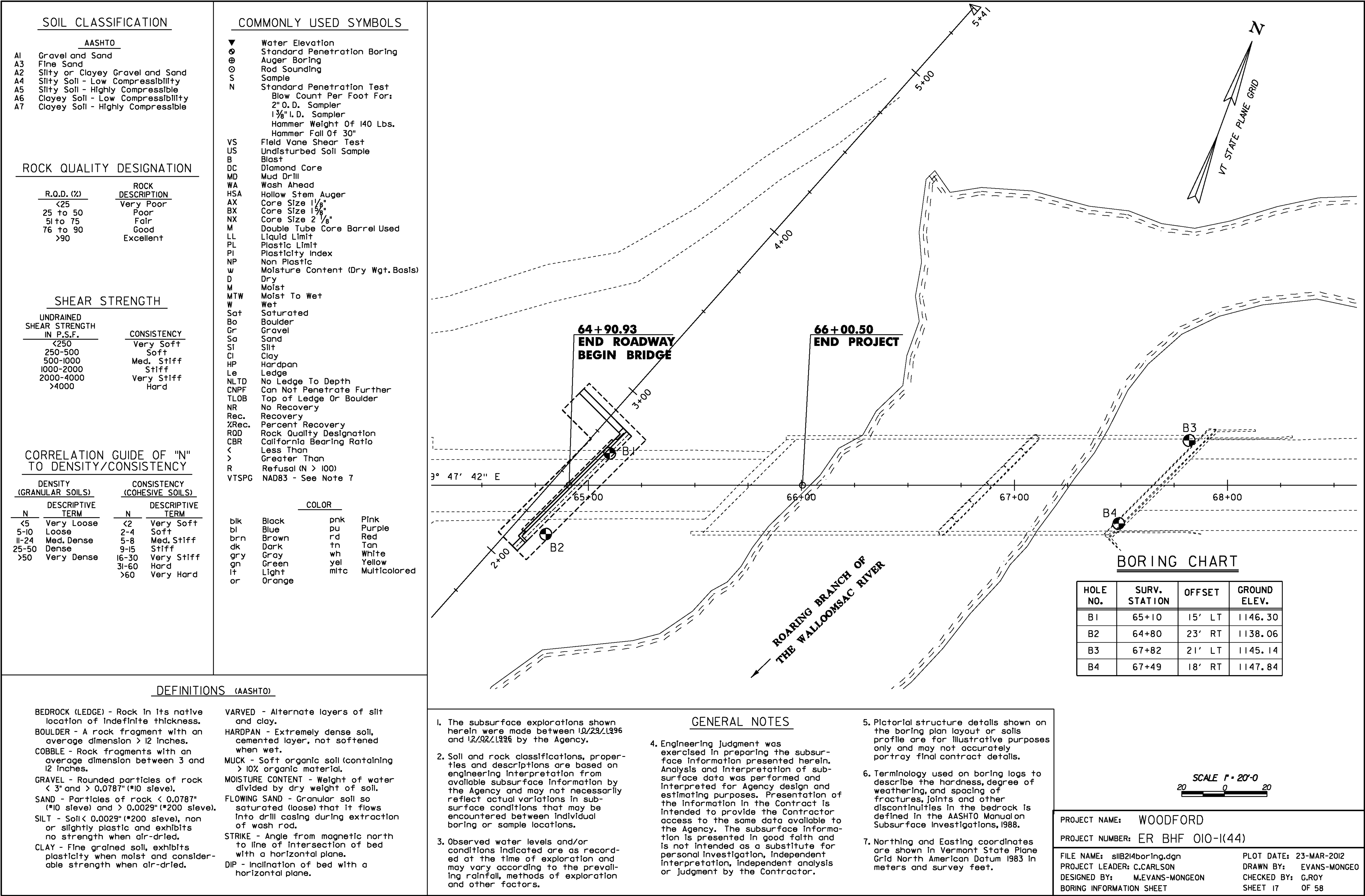
PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
PROFILE SHEET (3)	SHEET 15 OF 58



A number line from 0 to 100 with a midpoint at 50. The top bar is black from 0 to 50 and white from 50 to 100. The bottom bar is white from 0 to 50 and black from 50 to 100.



FILE NAME: slib214banking.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: EVANS-MONGEON
BANKING DIAGRAM & MATERIAL TRANSITION	SHEET 16 OF 58



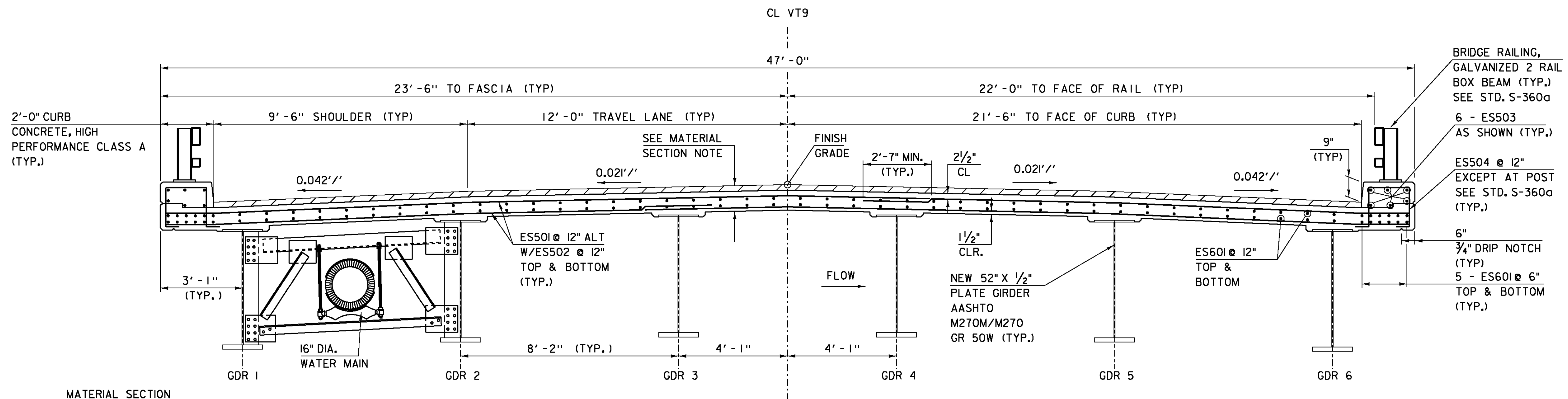
STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH DIVISION SUBSURFACE INFORMATION					HOLE NO.: B-1 SHEET 1 OF 1 DATE STARTED: 12/2/96 DATE COMPLETED: 0/0/0				
PROJECT NAME: WOODFORD SITE NAME: BRIDGE #II STATION: 65+10.00 GROUND EL.: 1146.30					PROJECT NUMBER: BHF 010-K29 SITE NO.: ROUTE 9 OFFSET: -15.00 G.W. DEPTH:				
BORING CREW CREW CHIEF: MCGLYNN DRILLER: CHABOT E J LOGGER:					BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL				
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
5		No Rec. , Boulders							
		BXDC , 7.0' -10.0' , Rec. = 2.1'							
10		No Rec.	46						
		BXDC , 12.0' -15.0' , Rec. = 1.6'							
15		No Rec.	46						
		BXDC , 17.0' -20.0' , Rec. = 3.0' , Boulders							
20		A-1-b, GrSa, br, MTW, Rec. = 0.4'	R	13.2	40.6	50	9.4		
		BXDC , 21.0' -25.0' , Rec. = 1.5'							
25		A-1-b, GrSa, br, MTW, Rec. = 1.0'	R	11.3	35.8	56.8	7.4		
		BXDC , 26.5' -30.0' , Rec. = 1.5'							
30		A-1-b, GrSa, br, MTW, Rec. = 0.9'	R	12.2	35.7	56.2	8.1		
		BXDC , 31.5' -35.0' , Rec. = 1.6'							
35		A-1-b, GrSa, br, MTW, Rec. = 1.7'	R	12.4	45.8	46.6	7.6		
40									
45									
			Hole stopped @ 37.0' in SaGr + Bo						

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH DIVISION SUBSURFACE INFORMATION					HOLE NO.: B-2 SHEET 1 OF 1 DATE STARTED: 11/14/96 DATE COMPLETED: 11/21/96				
PROJECT NAME: WOODFORD SITE NAME: BRIDGE #II STATION: 64+80.00 GROUND EL.: 1138.06					PROJECT NUMBER: BHF 010-K29 SITE NO.: ROUTE 9 OFFSET: 23.00 G.W. DEPTH:				
BORING CREW CREW CHIEF: MCGLYNN DRILLER: CHABOT E J LOGGER:					BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL				
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
5		BXDC , 0.0' -5.0' , Rec. = 4.1'							
		BXDC , 5.0' -10.0' , Rec. = 3.2'							
10		No Rec. , Boulders	R						
		BXDC , 11.5' -14.0' , Rec. = 2.1'							
15		No Rec. , Boulders	R						
		BXDC , 16.0' -20.0' , Rec. = 1.6'							
20		A-1-a, SaGr, br, MTW, Rec. = 0.4'	R	11.6	51.7	39.8	8.5		
		BXDC , 21.5' -25.0' , Rec. = 1.5'							
25		A-1-a, SaGr, br, MTW, Rec. = 0.5'	R	16.3	67.5	24.4	8.1		
		BXDC , 27.0' -30.0' , Rec. = 3.0'							
30		A-1-a, SaGr, br, MTW, Rec. = 0.5'	R	12.5	60.8	29.8	9.4		
		BXDC , 31.0' -35.0' , Rec. = 1.7'							
35		A-1-b, SaGr, br, MTW, Rec. = 0.5'	R	9.3	49.4	34.9	15.7		
40									
45									
			Hole stopped @ 37.0' in Gr, HP+ Bo						

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH DIVISION SUBSURFACE INFORMATION					HOLE NO.: B-3 SHEET 1 OF 1 DATE STARTED: 0/0/0 DATE COMPLETED: 0/0/0				
PROJECT NAME: WOODFORD SITE NAME: BRIDGE #II STATION: 67+82.00 GROUND EL.: 1145.14					PROJECT NUMBER: BHF 010-K29 SITE NO.: ROUTE 9 OFFSET: -21.00 G.W. DEPTH:				
BORING CREW CREW CHIEF: MCGLYNN DRILLER: CHABOT E J LOGGER:					BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL				
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
5		BXDC , 3.0' -6.0' , No Rec. , Boulders							
10		No Rec. , Gravelly Material with Boulders	41						
		BXDC , 12.0' -14.0' , Boulders							
15		A-1-a, SaGr, br, Wet, Rec. = 0.4'	39	15.9	71.7	23.7	4.6		
		BXDC , 18.0' -20.0' , Rec. = 1.4' , Boulders							
20		A-1-a, SaGr, br, MTW, Rec. = 1.1'	29	11.7	56.6	33.3	10.1		
		BXDC , 22.0' -24.0' , Rec. = 1.5' , Boulders							
25		A-1-a, SaGr, br, MTW, Rec. = 0.5'	R	10.8	55	37.1	7.9		
		BXDC , 27.0' -29.0' , Rec. = 1.6' , Boulders							
30		A-1-a, SaGr, br, MTW, Rec. = 0.5'	R	12.6	53.3	38.3	8.4		
		BXDC , 32.0' -33.5' , Rec. = 1.1' , Boulders							
35		A-1-a, SaGr, br, MTW, Rec. = 0.4'	R	14.7	59.3	33.3	7.4		
40									
45									
			Hole stopped @ 37.0' in Sa, Gr +Bo						

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH DIVISION SUBSURFACE INFORMATION					HOLE NO.: B-4 SHEET 1 OF 1 DATE STARTED: 10/29/96 DATE COMPLETED: 11/1/96				
PROJECT NAME: WOODFORD SITE NAME: BRIDGE #II STATION: 67+49.00 GROUND EL.: 1147.84					PROJECT NUMBER: BHF 010-K29 SITE NO.: ROUTE 9 OFFSET: 18.00 G.W. DEPTH:				
BORING CREW CREW CHIEF: MCGLYNN DRILLER: CHABOT E J LOGGER:					BORING RIG: TRUCK BORING TYPE: WASH BORE SAMPLE TYPE: SPLIT BARREL				
DEPTH	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. %	GRAVEL %	SAND %	FINES %	LL	PI
5		No Rec. , On Boulder							
		BXDC , 5.2' -7.4' , Boulders							
10		A-1-a, SaGr, br, Moist, Rec. = 0.5'	22	16.7	73.1	20.4	6.5		
15		A-1-a, Gr, br, Moist, Rec. = 0.2'	R	N/A	87.2	10.2	2.6		
		No Rec. , Boulders							
20		A-1-b, SaGr, br, Wet, Rec. = 0.8'	49	12.8	46.9	37.2	15.9		
25		A-1-a, SaGr, br, MTW, Rec. = 1.2'	39	11.6	52	33.5	14.5		
30		A-1-a, SaGr, br, Moist, Rec. = 1.4'	72	10.4	53.9	31.6	14.5		
35		A-1-a, SaGr, br, Moist, Rec. = 0.6'	R	9.6	51.2	38	10.8		
40		No Rec. , Boulders							
		BXDC , 40.4' -43.0' , Boulders							
45									
			Hole stopped @ 43.0'						

SURVEYED BY	J. TOUCHETTE	DATE	04/97
DRAWN BY	C.C. BENDA		
SQUAD LEADER			
DESIGN FILE NO.	/matres/84e039/me039bor.dgn		
IPARM FILE	BORING LOGS	DATE PLOTTED	23-MAR-2012
PROJ. NAME	WOODFORD		
PROJ. NO.	ER BHF 010-I(44)		
SHEET 18	OF 58	SHEETS	

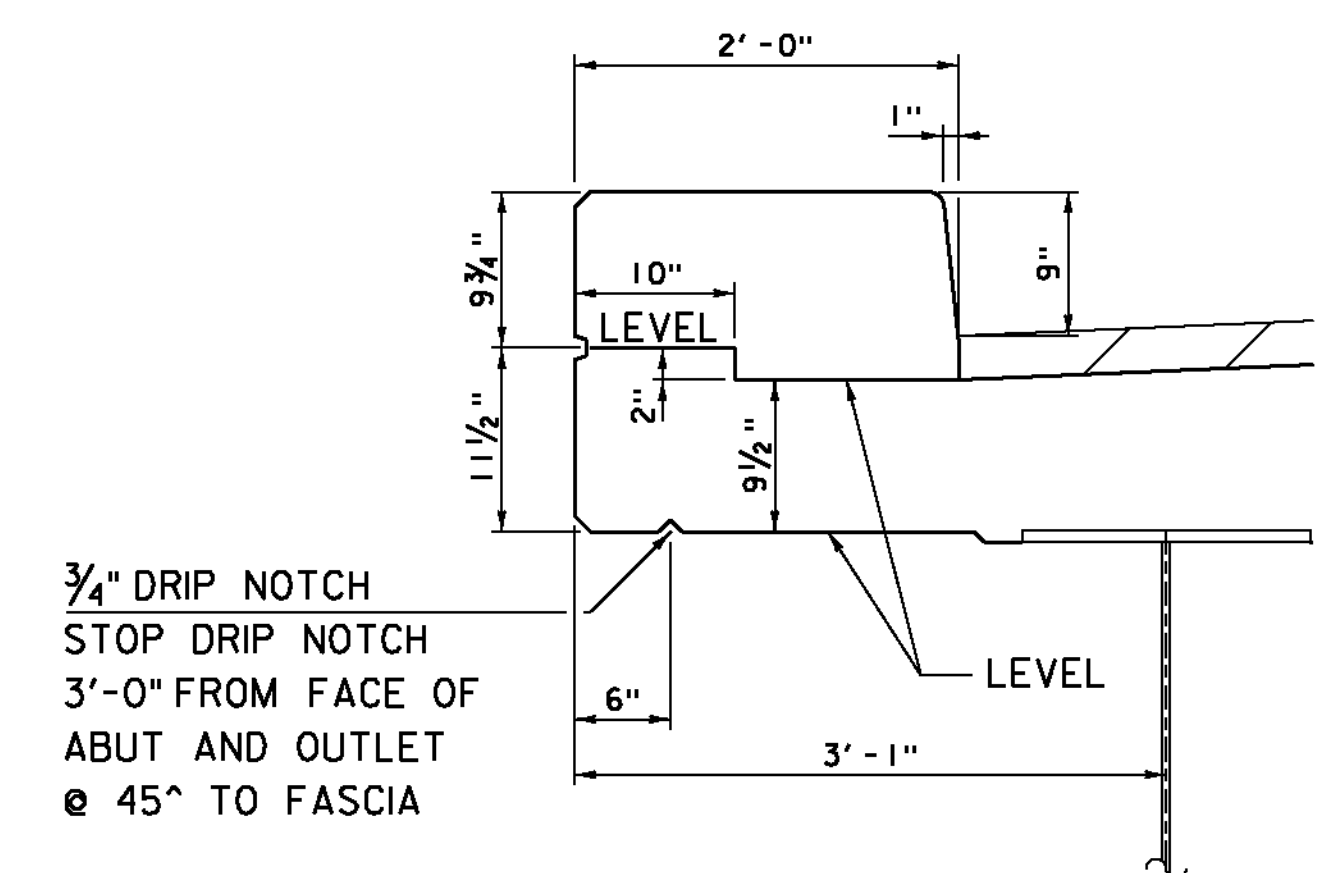


MATERIAL SECTION
1 1/2" BITUMINOUS CONCRETE PAVEMENT TYPE IVS
1 1/4" BITUMINOUS CONCRETE PAVEMENT TYPE IVS
SHEET MEMBRANE WATERPROOFING, TORCH APPLIED
8 1/2" DECK CONCRETE, HIGH PERFORMANCE CLASS A

BITUMINOUS CONCRETE PAVEMENT SHALL BE PAID FOR UNDER
ITEM 900.680 SPECIAL PROVISION (BITUMINOUS CONCRETE
PAVEMENT, SMALL QUANTITY).

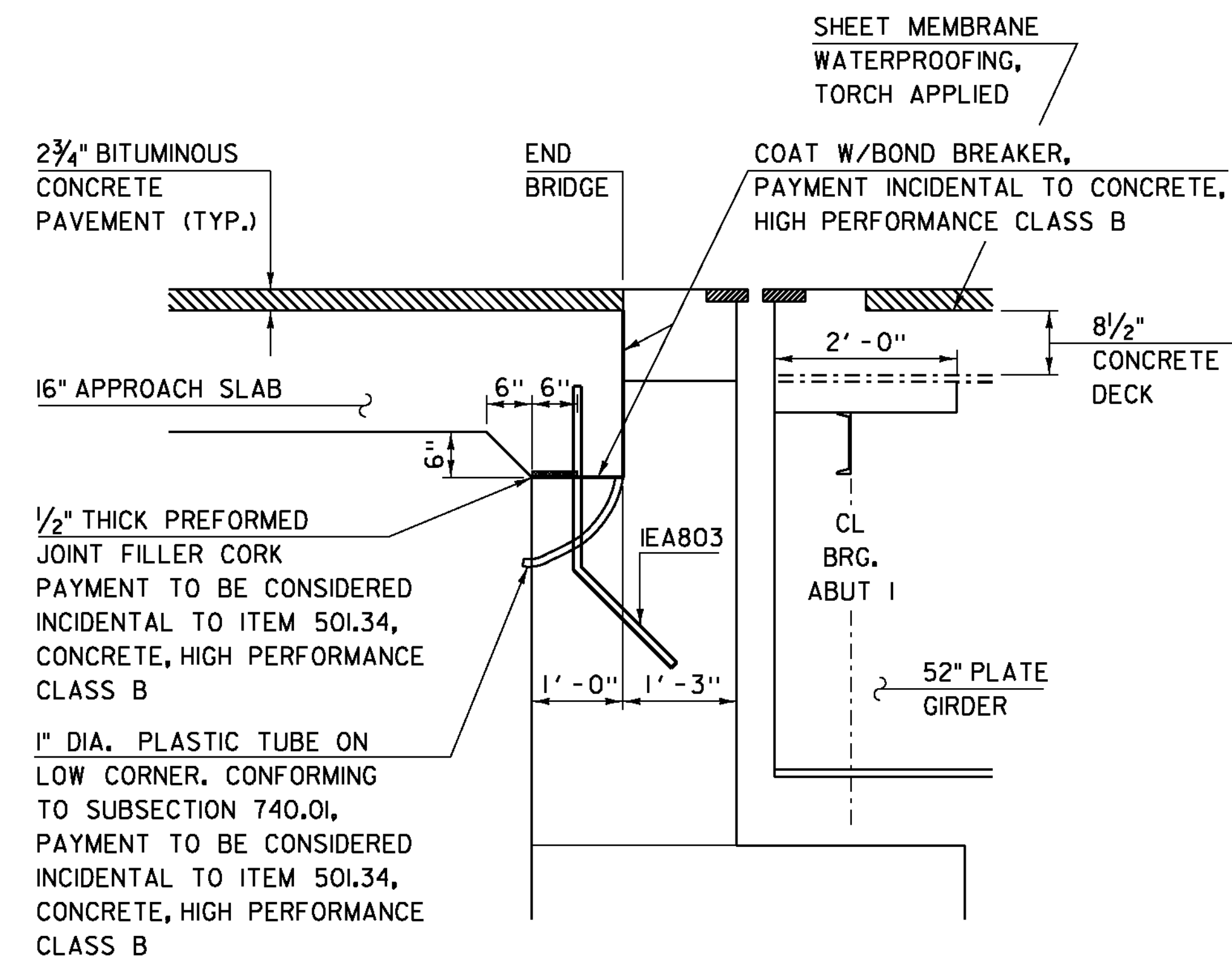
EMULSIFIED ASPHALT SHALL BE APPLIED AT A RATE OF
0.040 GAL / SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT
AS DIRECTED BY THE ENGINEER.

NEW BRIDGE TYPICAL SECTION
SCALE 1/2" = 1'-0"

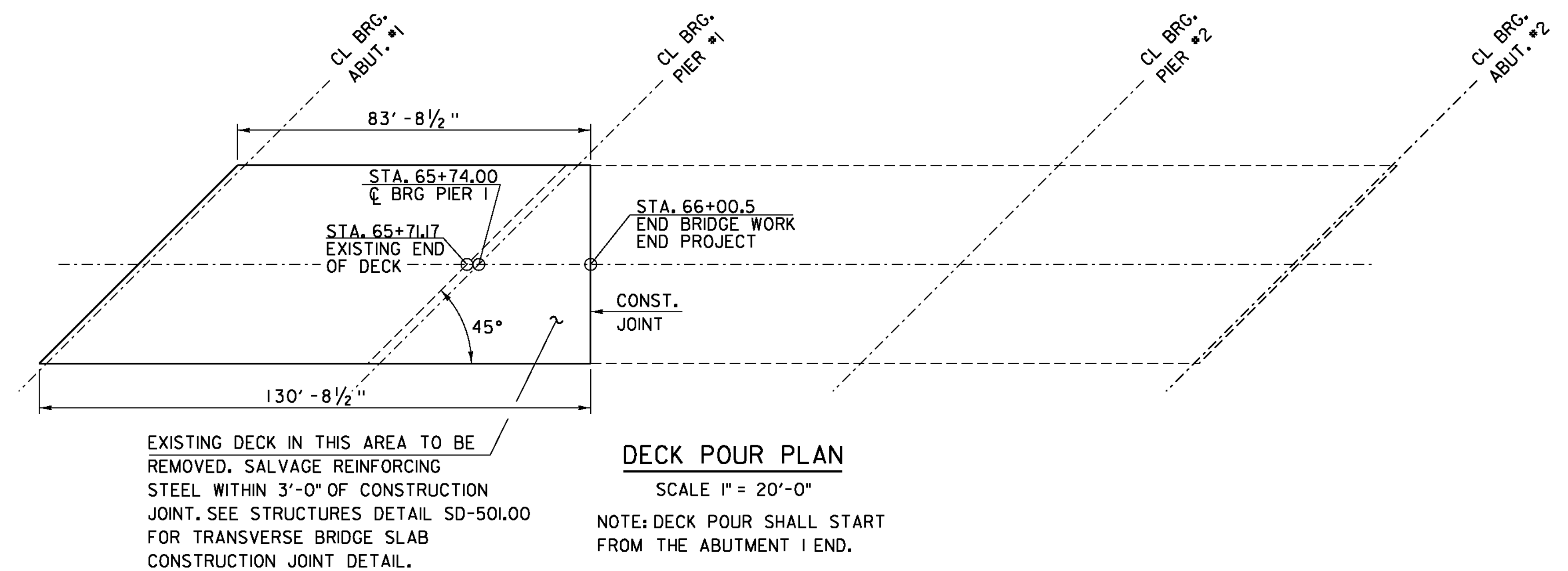


CURB TYPICAL SECTION
SCALE 1" = 1'-0"

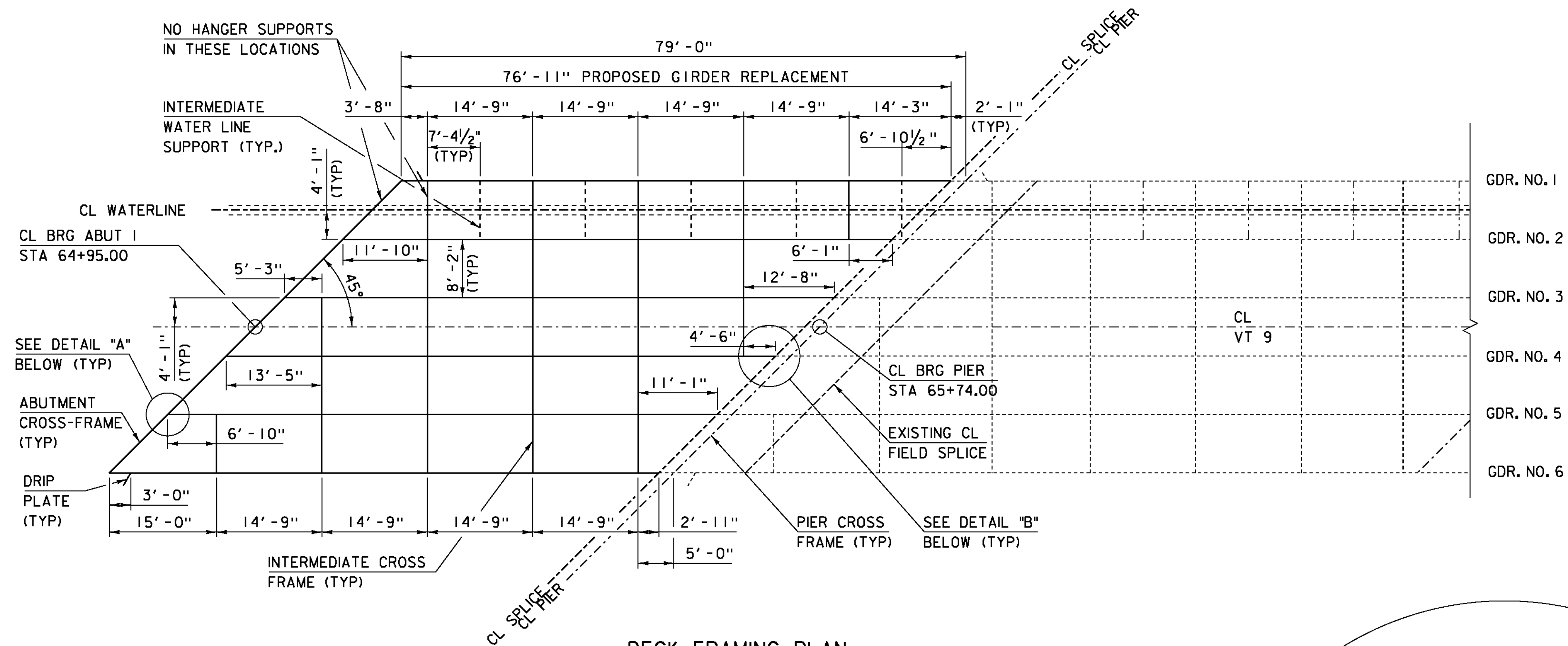
PROJECT NAME:	WOODFORD
PROJECT NUMBER:	ER BHF 010-1(44)
FILE NAME:	slb214sup.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	M. EVANS-MONGEON
DECK TYPICAL SECTION	
PLOT DATE:	23-MAR-2012
DRAWN BY:	C. MOONEY
CHECKED BY:	M. EVANS-MONGEON
SHEET	19 OF 58



(NORMAL TO CL)
SCALE $\frac{3}{4}" = 1'-0"$

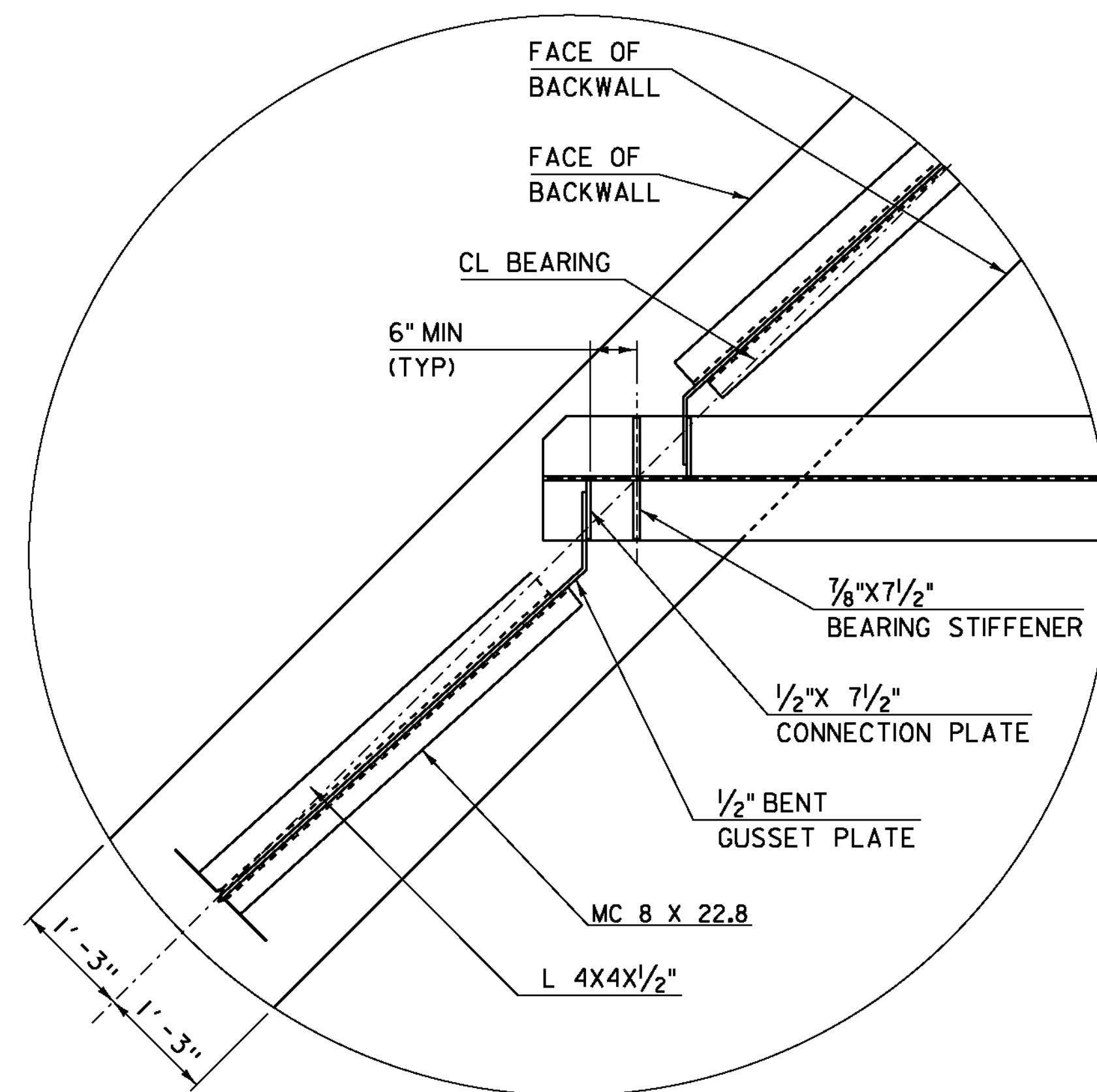


PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF OIO-1(44)	
FILE NAME: slib214sup.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. EVANS-MONGEON
DECK PLAN	SHEET 20 OF 58



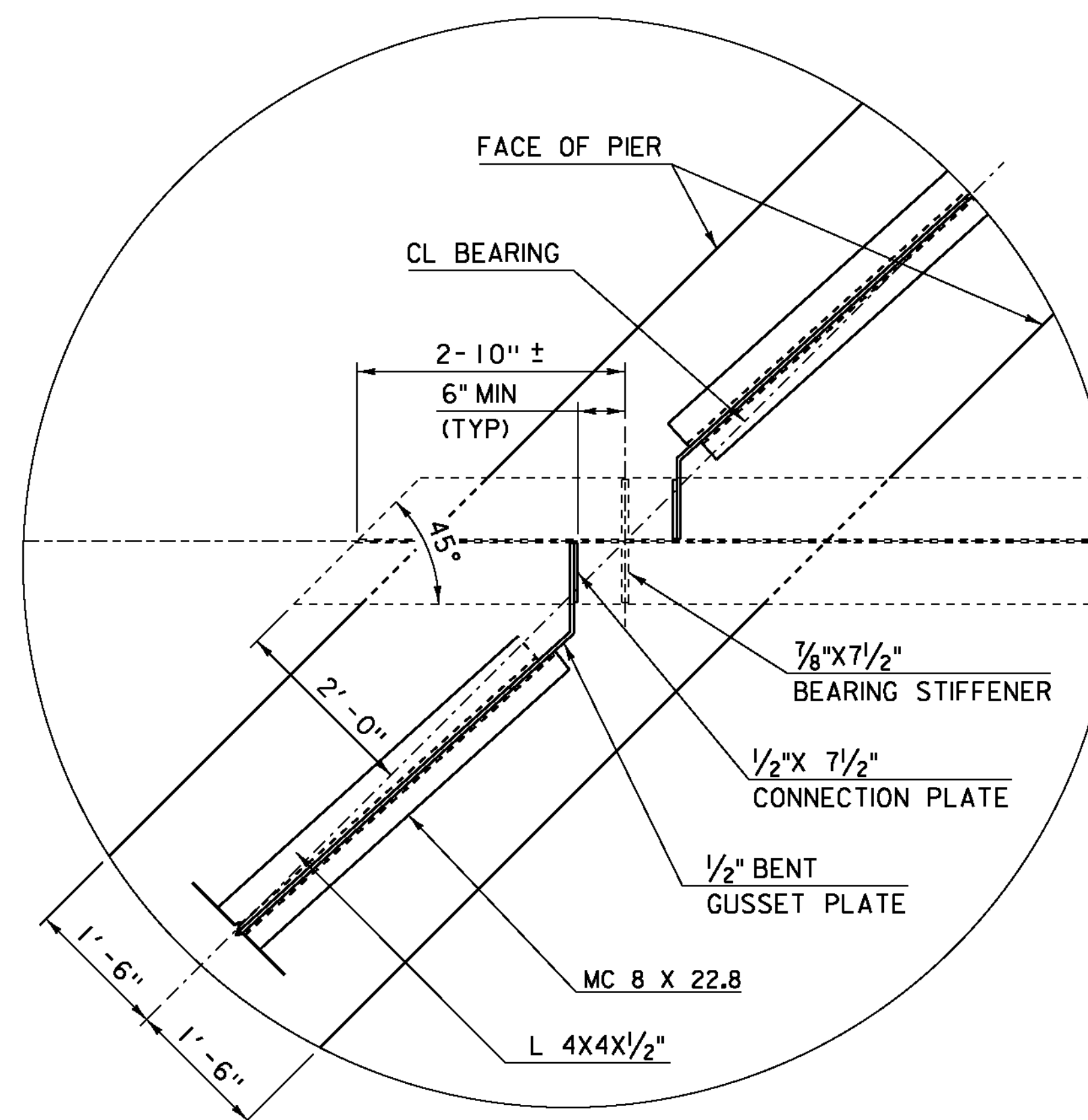
DECK FRAMING PLAN

SCALE 1" = 10'-0"



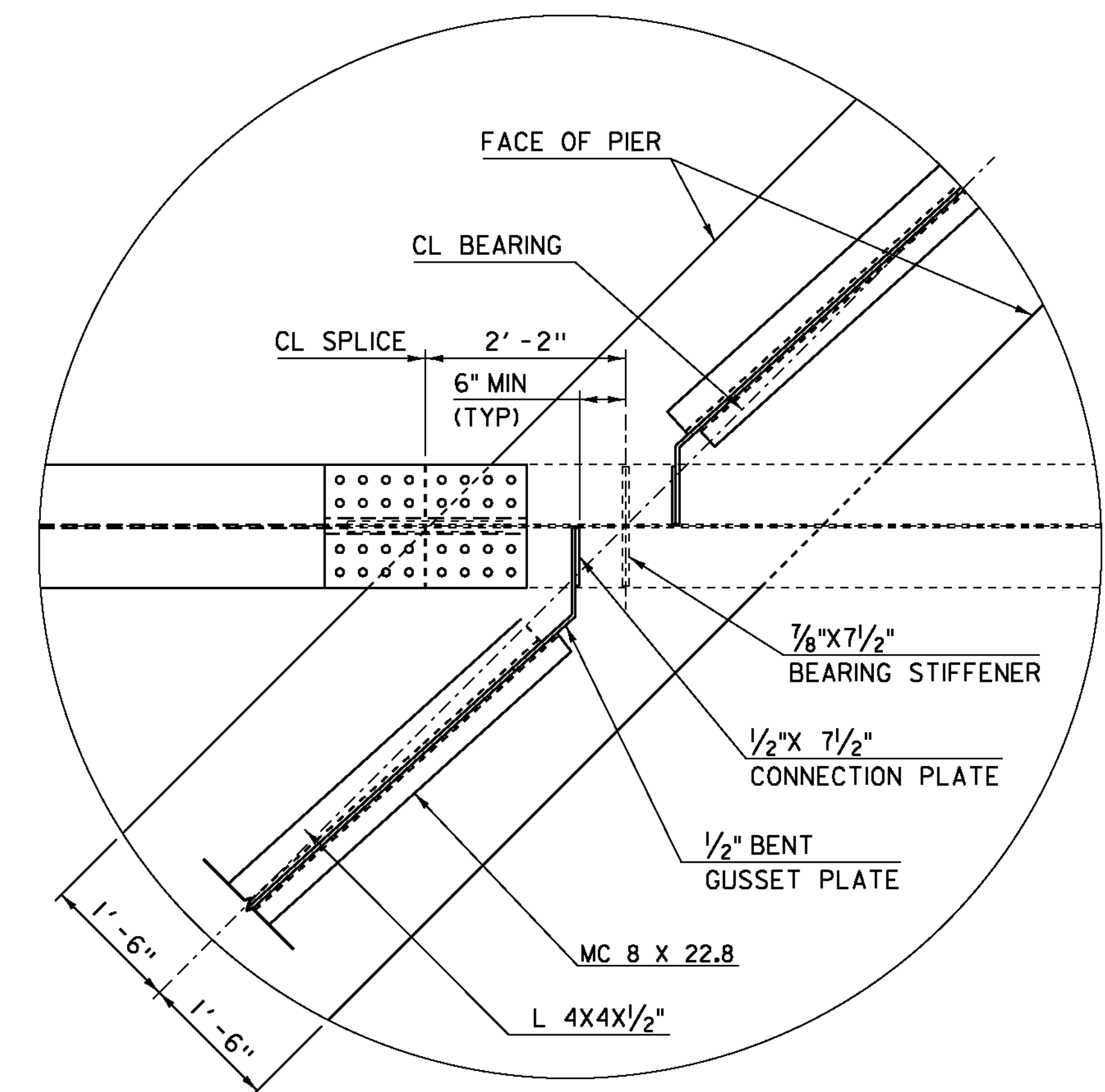
DETAIL "A"

SCALE 3/4" = 1'-0"



DETAIL "B" EXISTING CONDITION

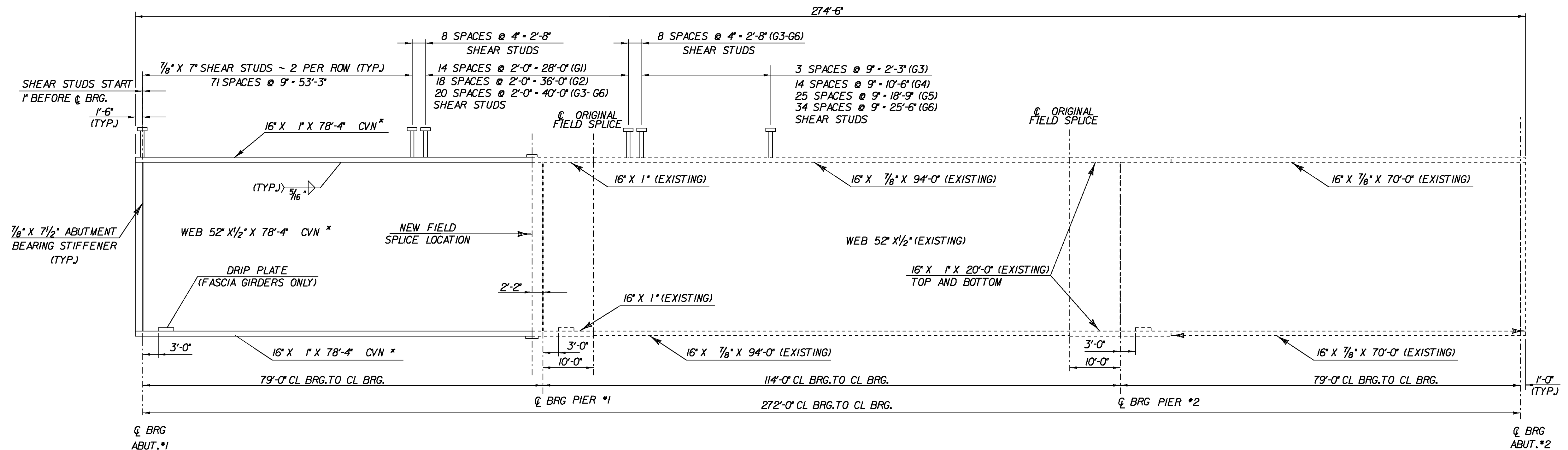
SCALE 3/4" = 1'-0"



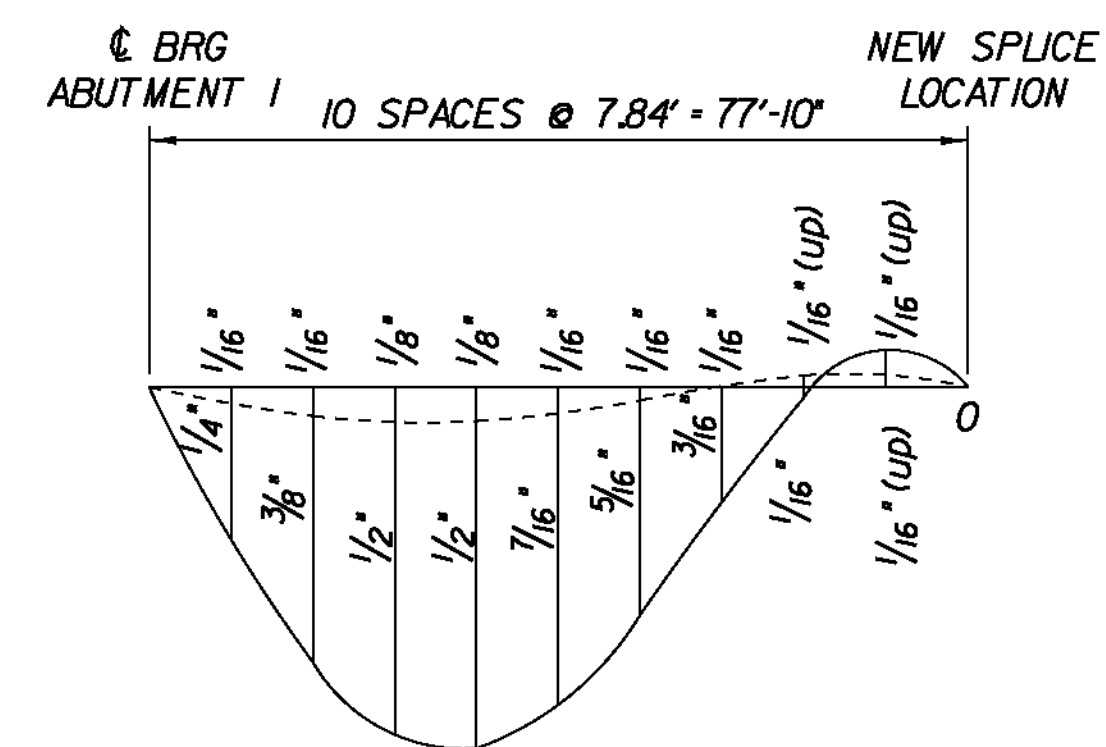
DETAIL "B" FINAL CONDITION

SCALE 3/4" = 1'-0"

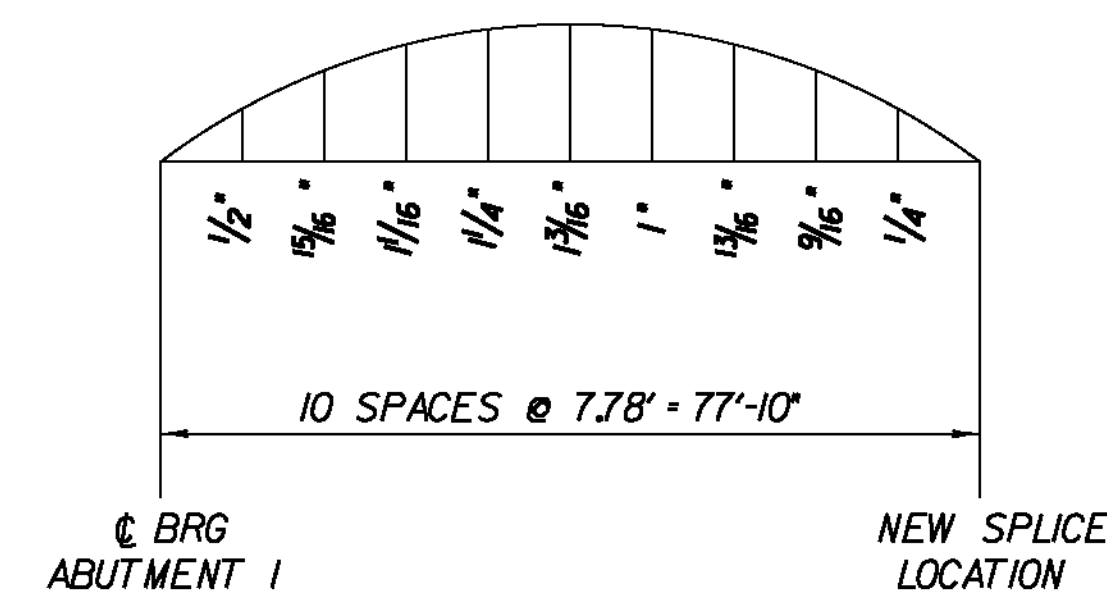
PROJECT NAME:	WOODFORD
PROJECT NUMBER:	ER BHF 010-1(44)
FILE NAME:	slb214sup.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	M. EVANS-MONGEON
DECK FRAMING PLAN	
PLOT DATE:	23-MAR-2012
DRAWN BY:	C. MOONEY
CHECKED BY:	M. EVANS-MONGEON
SHEET	21 OF 58



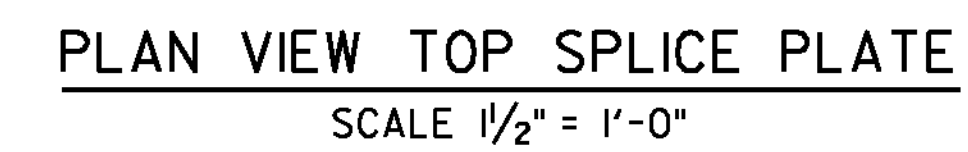
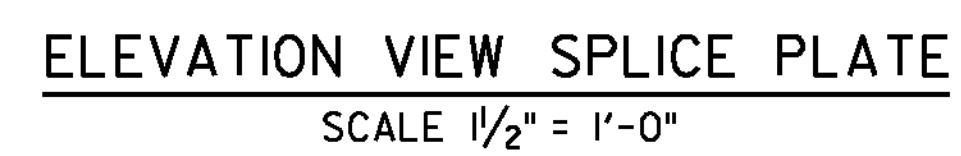
* DENOTES THAT CHARPY V-NOTCH (CVN) TEST IS REQUIRED



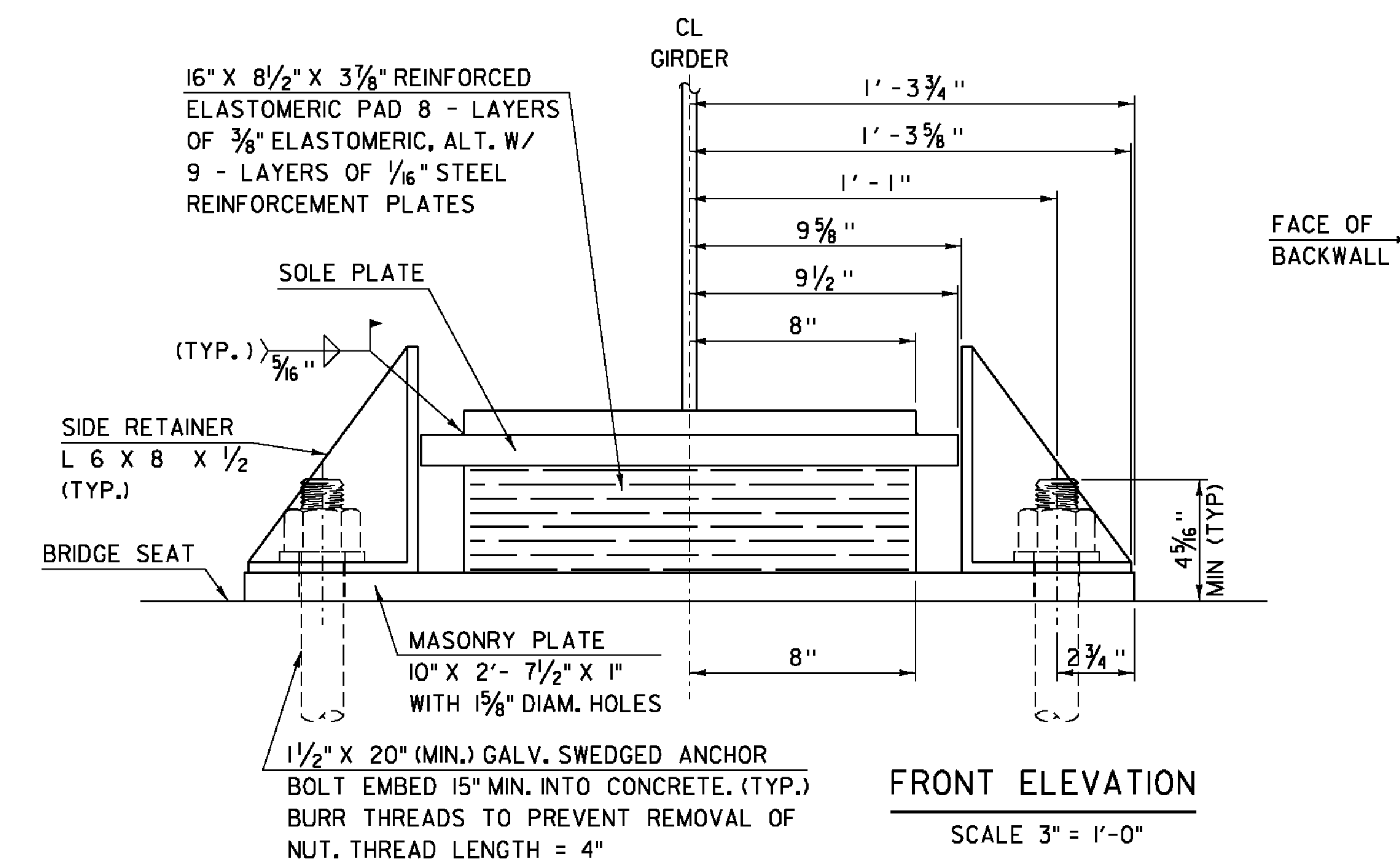
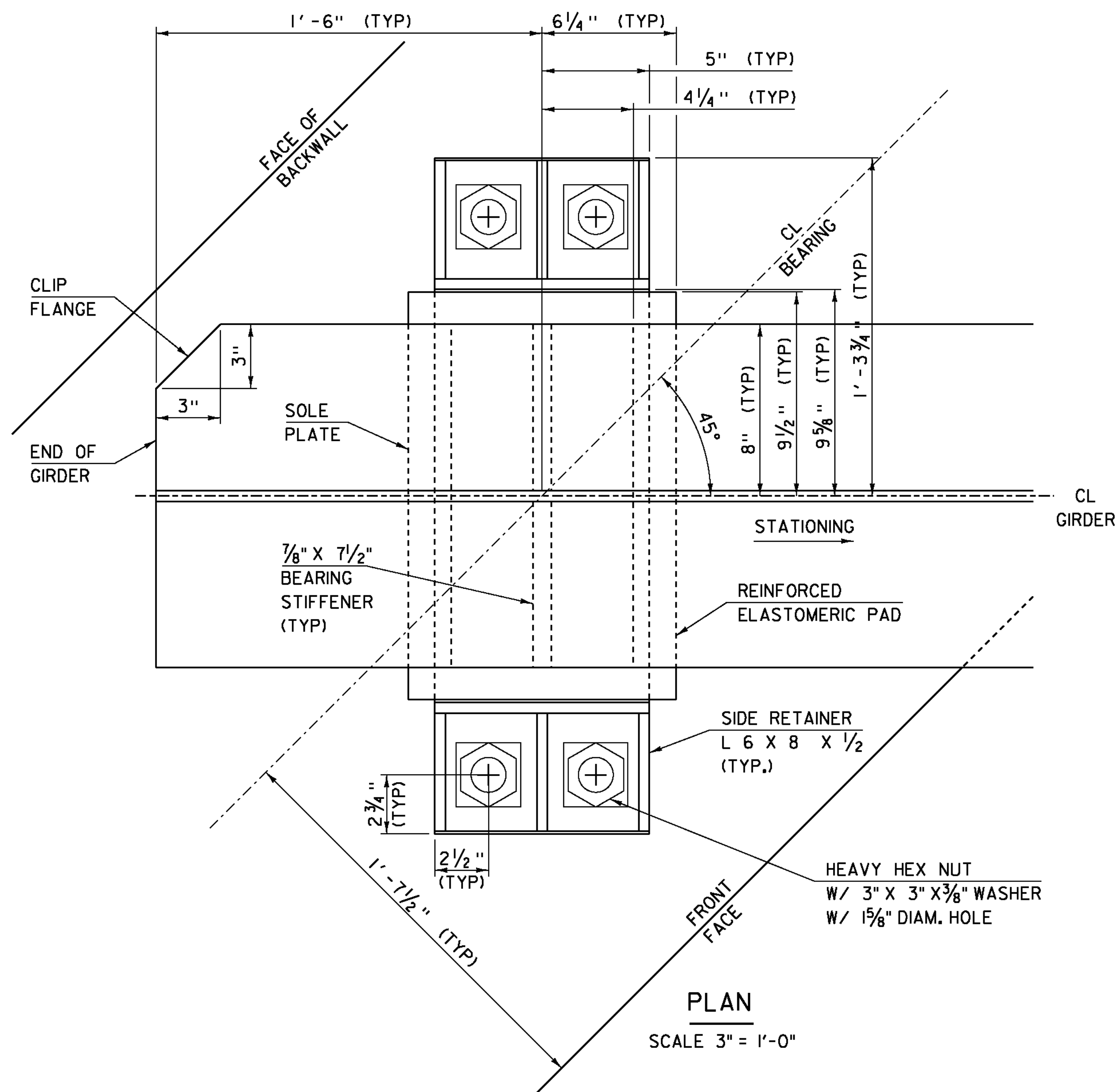
Numbers Above Line - Dead Load Deflection (Steel Only)
 Numbers Below Line - Total Dead Load Deflection



PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF OIO -1(44)	
FILE NAME: s11B214girder.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: M.EVANS-MONGE
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY: H.SALLS
GIRDER DETAILS	SHEET 22 OF 58

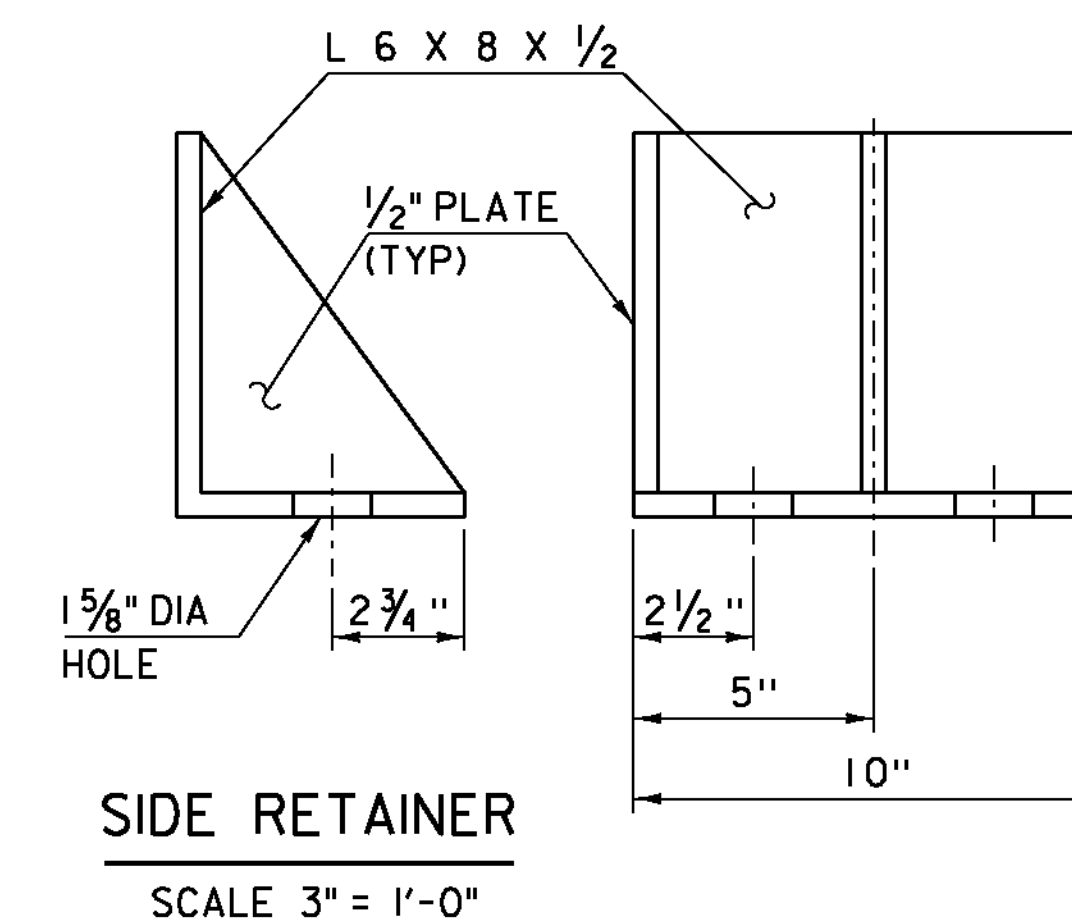
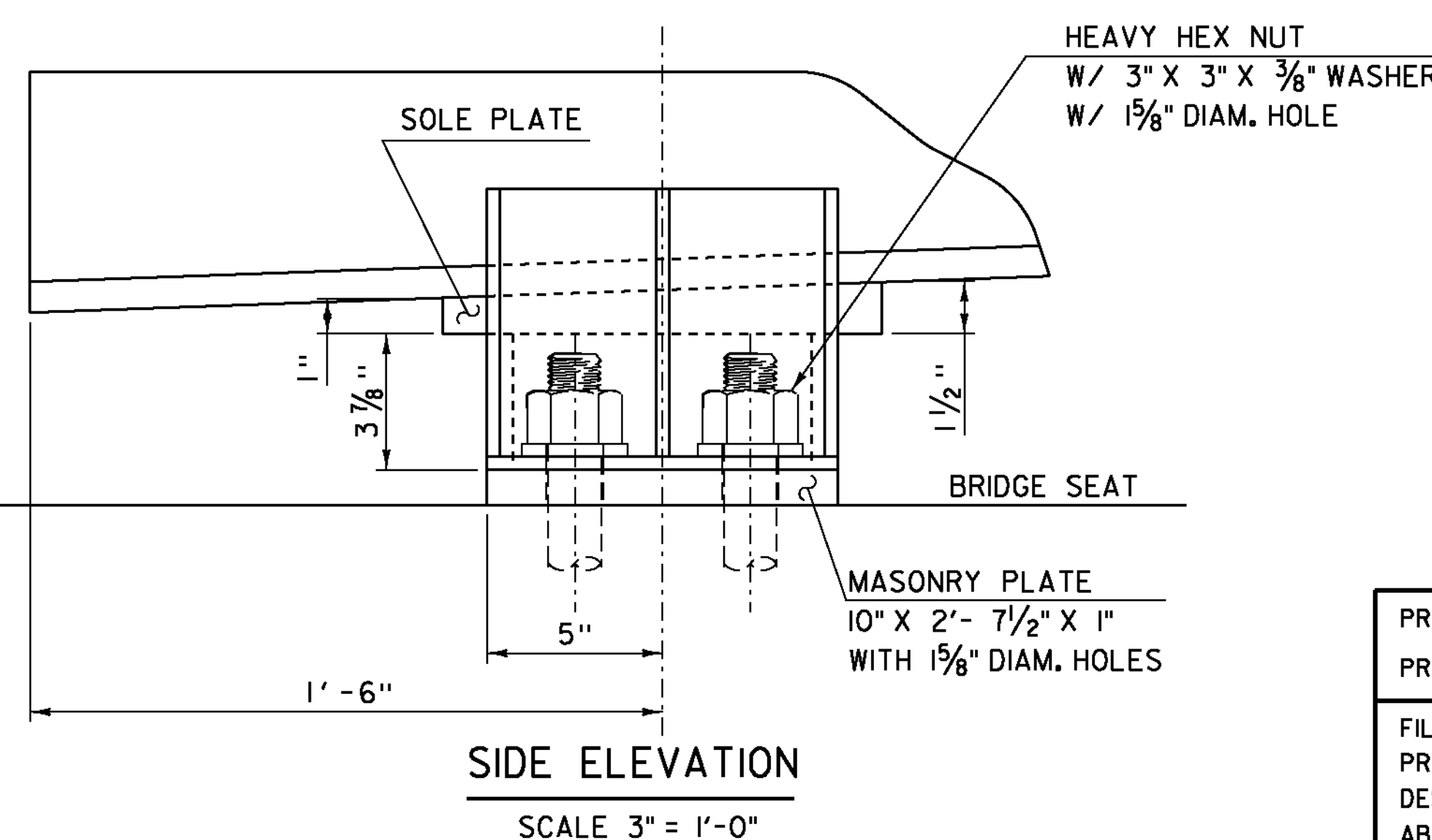


PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: s1lb214sup.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. EVANS-MONGEON
GIRDER SPLICE DETAILS	SHEET 23 OF 58

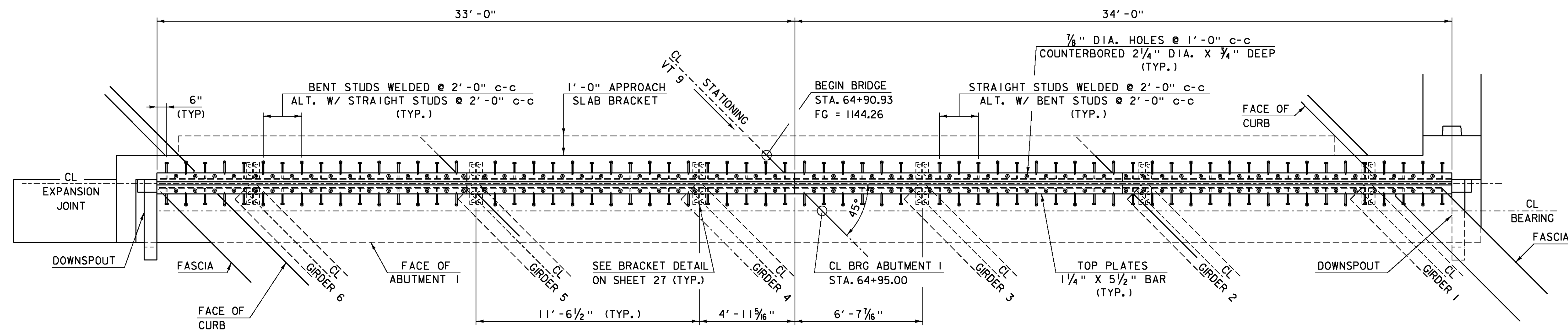


BEARING DEVICE NOTES

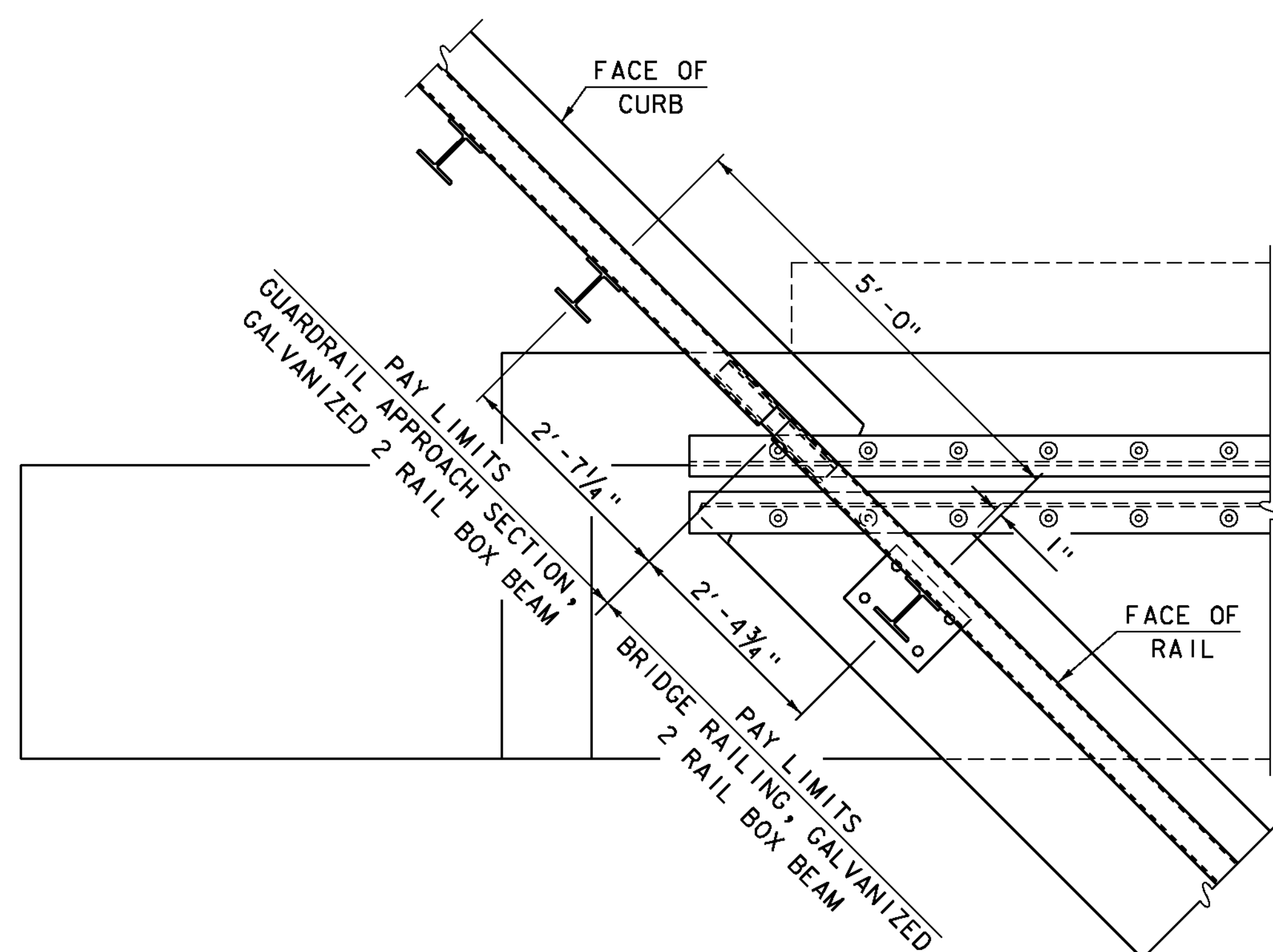
1. BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.17 "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 531 AND 731.
2. THE FIELD WELD CONNECTING THE BOTTOM FLANGE WITH THE BEARING DEVICE SHALL BE MADE WITH E7018 RODS. AREAS OF METALIZING DAMAGED BY WELDING AND/OR HANDLING SHALL BE REPAIRED BY METALIZING IN ACCORDANCE WITH ASTM A 760/760M.
3. FABRICATION DRAWINGS CONFORMING TO SUBSECTION 531.03 SHALL BE SUBMITTED AND INCLUDE ANY NECESSARY WELDING OR BONDING PROCEDURES. THE FABRICATION DRAWINGS SUBMITTAL SHALL ALSO INCLUDE A TYPE D CERTIFICATION PER SUBSECTION 700.02 (C).
4. ALL STEEL COMPONENTS SHALL BE METALIZED AS PER SUBSECTION 531.04(b) AND 506.14. AFTER THE BEARINGS ARE METALIZED, THEY SHALL BE SEALED WITH AN APPROVED SEALANT AS SPECIFIED IN SUBSECTION 726.09(c). ALL WASHERS SHALL BE 3/8" PLATE MINIMUM. PAYMENT FOR ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD". ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED PER AASHTO M 232/M 232M.
5. ALL STEEL IN BEARING DEVICES SHALL BE AASHTO M270M/M270 GRADE 36.
6. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL ASTM A36. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST, AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
7. STEEL REINFORCED ELASTOMERIC PAD BEARINGS SHALL HAVE A MINIMUM OF 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH THE BEARING OVER ALL INTERNAL PLATES.
8. FOR ELASTOMERIC BEARINGS, ALL MATERIALS SHALL CONFORM TO AASHTO M251M/M251.
9. ALTERNATE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THIS SHEET. THE ALTERNATE SHALL MAINTAIN THE ANCHORAGE SYSTEM SHOWN AND SHALL BE DESIGNED PER AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES LATEST REVISIONS.
10. BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATIVE CONFIGURATION.
11. DESIGN CRITERIA:
 - A. DESIGN ROTATION = 0.01 RADIANS
 - B. HORIZONTAL CAPACITY SHALL BE MINIMUM OF 20% VERTICAL LOAD IN ANY RESTRAINED DIRECTION.
 - C. VERTICAL DESIGN LOAD PER BEARING :
 - ABUTMENT BEARINGS
 - RDL = 45.0 Kips
 - RLL = 79.0 Kips
 - D. TEMPERATURE RANGE = -30°F TO 120°F
 - E. ELASTOMER SHALL HAVE NOMINAL HARDNESS OF 60 ON SHORE 'A' SCALE. ELASTOMER SHALL HAVE A SHEAR MODULUS BETWEEN 130 AND 175 psi. THE RAW ELASTOMER SHALL BE VIRGIN NEOPRENE CLASSIFIED AS LOW TEMPERATURE GRADE 4 AS DEFINED IN TABLE 18.4.5.1- 1A OF AASHTO, DIVISION II, SECTION 18.
 - F. NO FABRIC REINFORCEMENT WILL BE ALLOWED IN ELASTOMERIC PADS
12. THE BEARING TOLERANCES SHALL MEET THOSE GIVEN IN AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND ITS LATEST REVISIONS, DIVISION II SECTION 18.
13. THE STEEL SOLE PLATES AND MASONRY PLATES SHALL BE HOT BONDED TO THE REINFORCED ELASTOMERIC PAD DURING THE VULCANIZATION PROCESS. THE STEEL SURFACES TO BE BONDED TO THE PAD SHALL NOT BE METALIZED.
14. THE ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF A 307 GR. C.



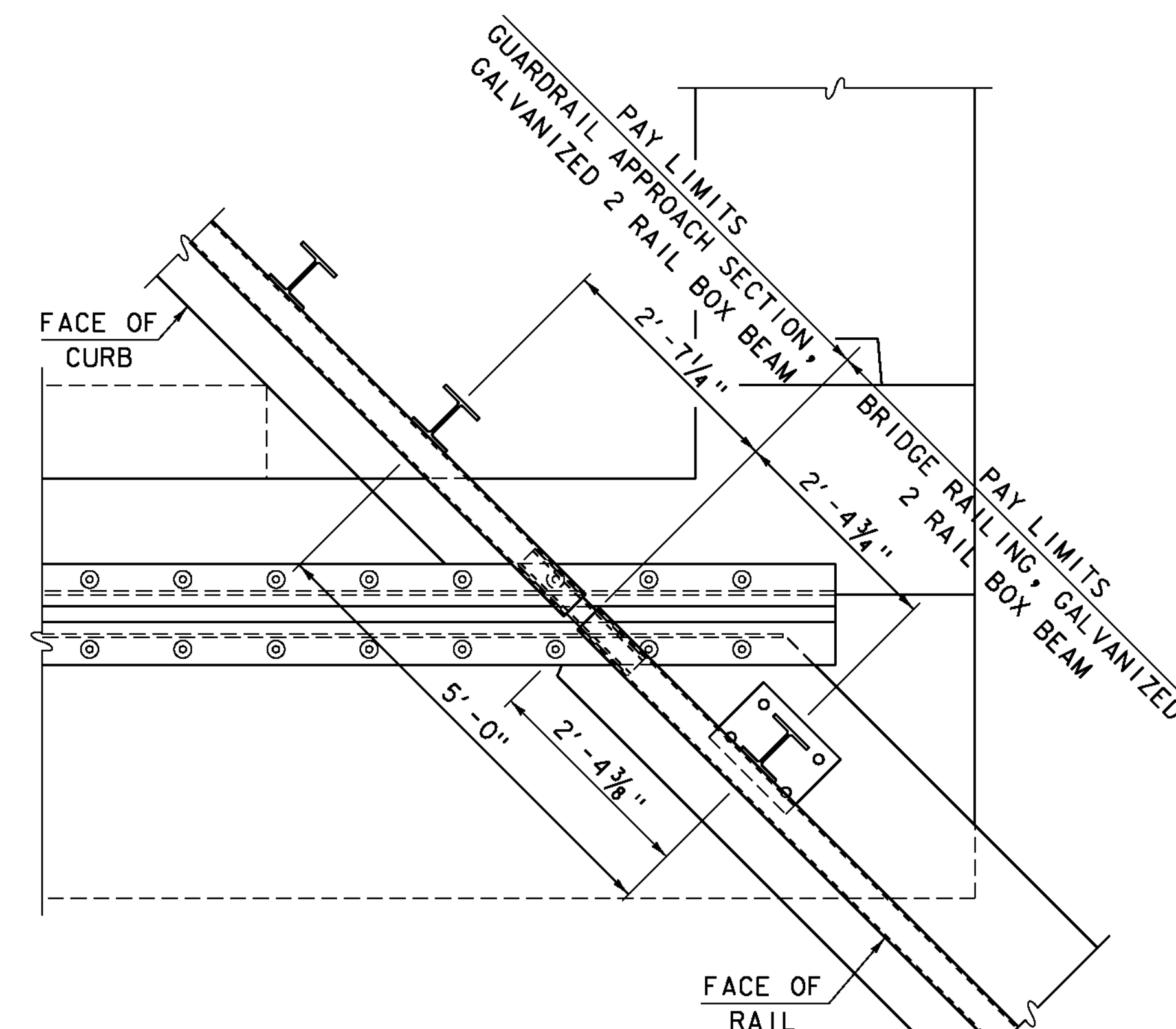
PROJECT NAME:	WOODFORD
PROJECT NUMBER:	ER BHF 010-1(44)
FILE NAME:	slb214sup.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	M. EVANS-MONGEON
ABUTMENT 1 BEARING DETAILS	
PLOT DATE:	23-MAR-2012
DRAWN BY:	C. MOONEY
CHECKED BY:	M. EVANS-MONGEON
SHEET	26 OF 58



ABUTMENT I VT JOINT PLAN VIEW
SCALE 3/8" = 1'-0"

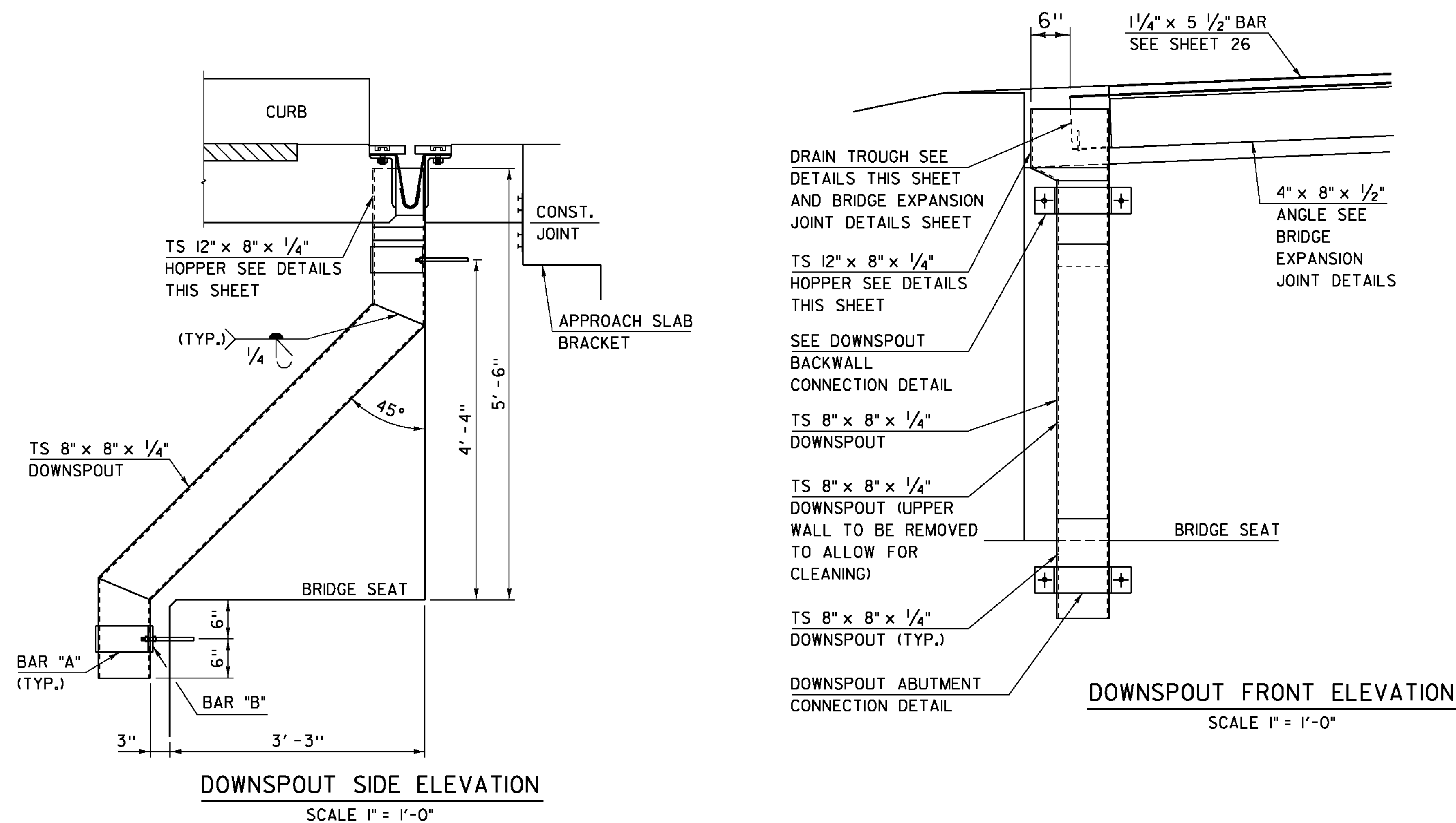


RAIL PLACEMENT @ WINGWALL 2
SCALE 3/4" = 1'-0"



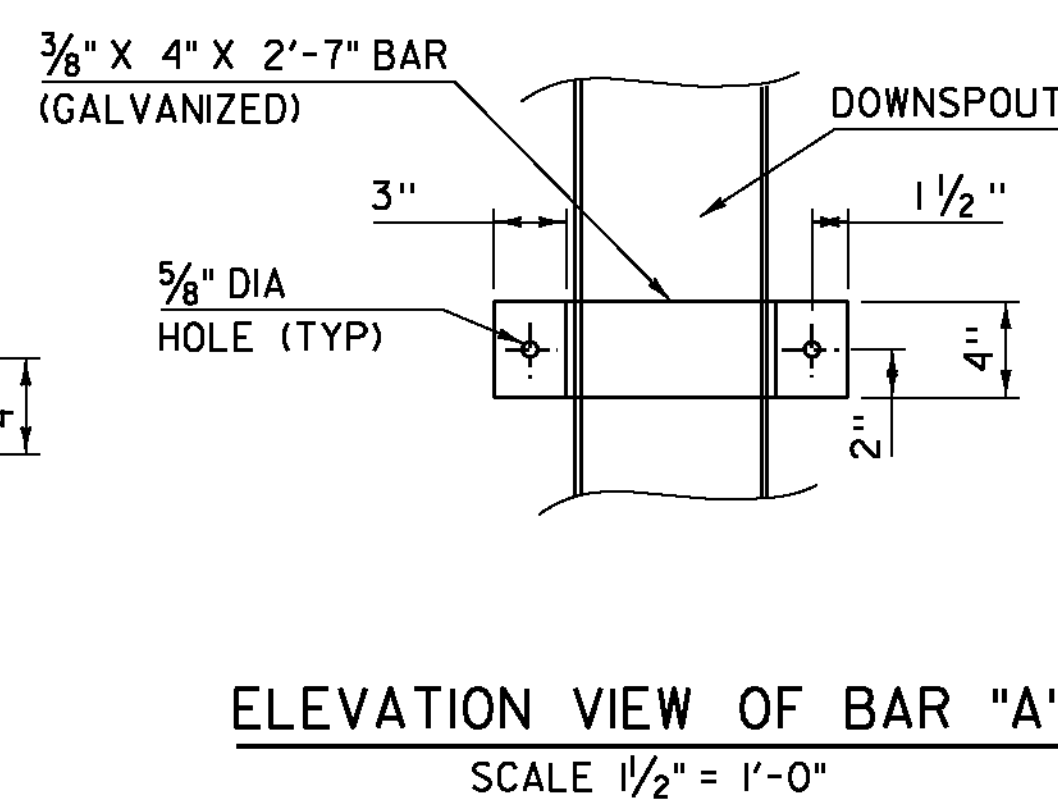
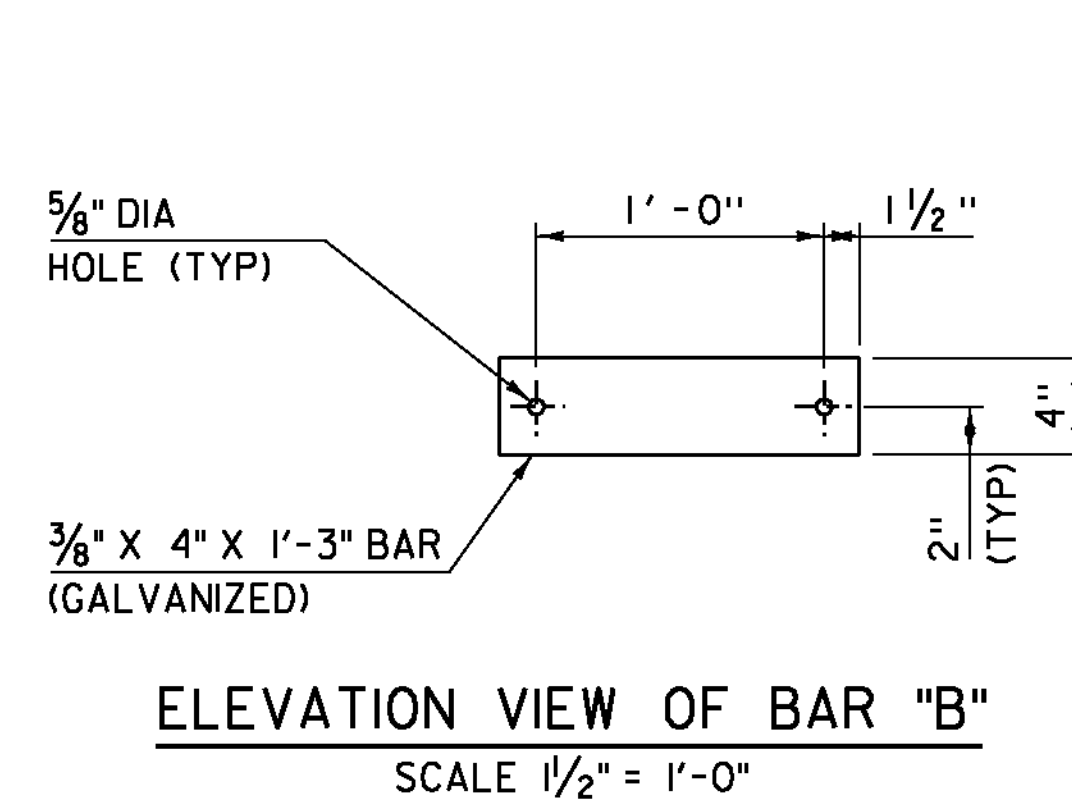
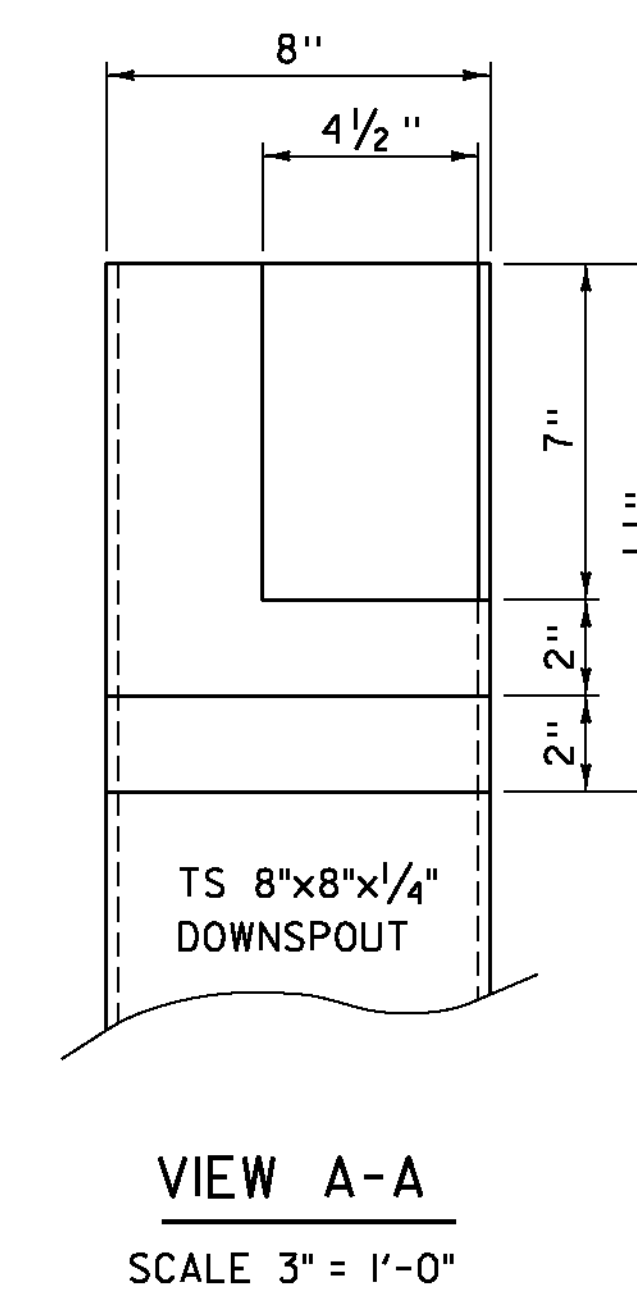
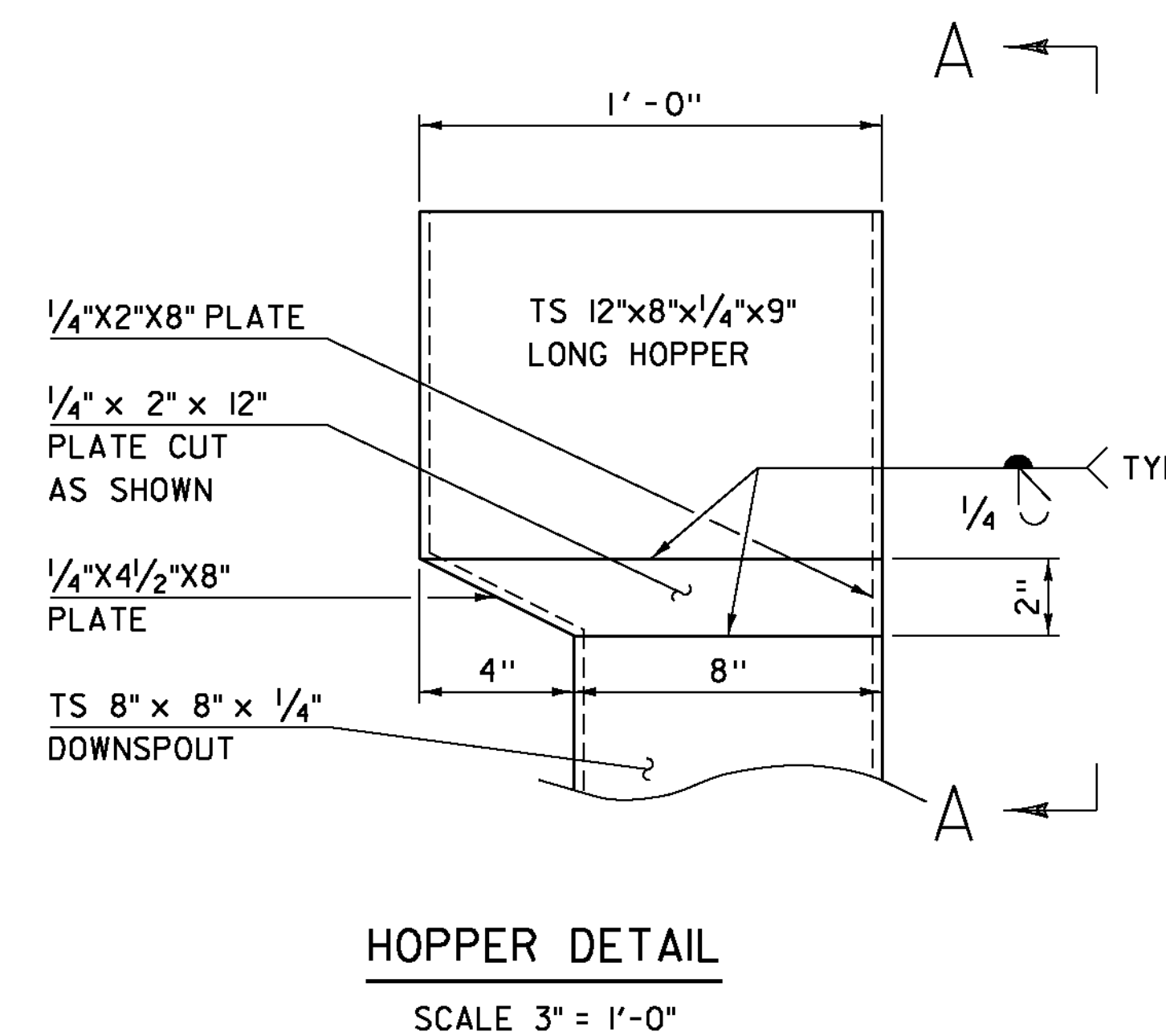
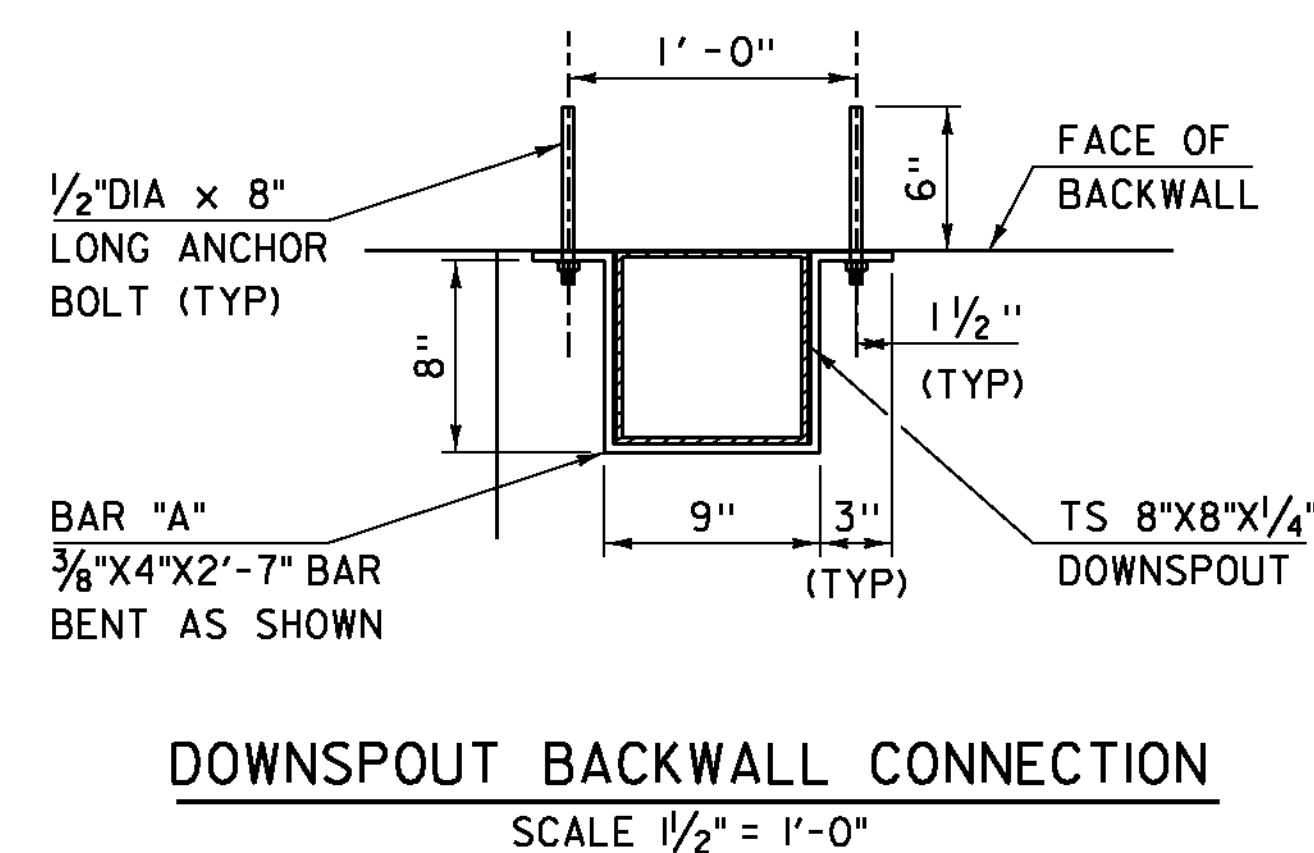
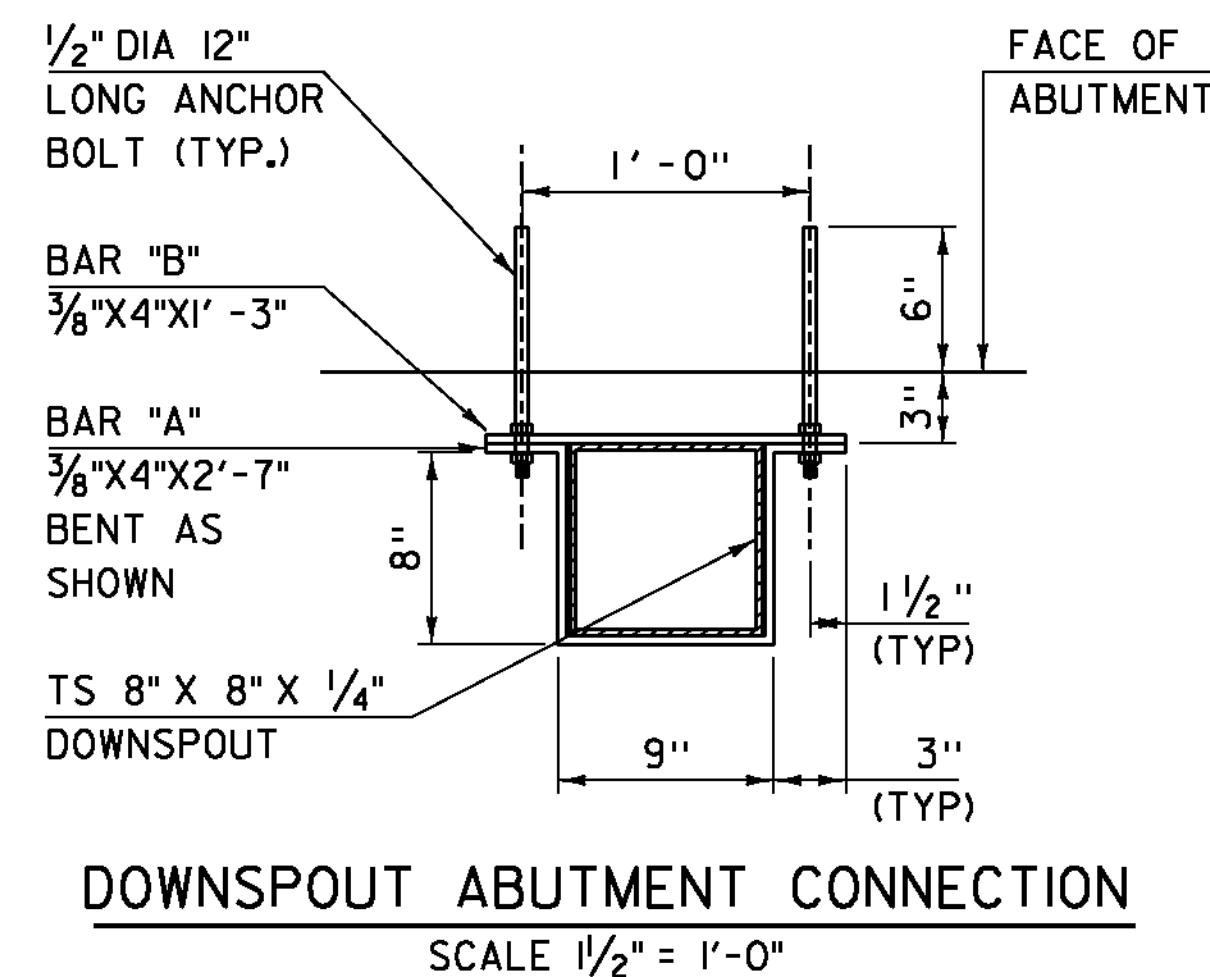
RAIL PLACEMENT @ WINGWALL I
SCALE 3/4" = 1'-0"

PROJECT NAME:	WOODFORD
PROJECT NUMBER:	ER BHF 010-1(44)
FILE NAME:	slb214sup.dgn
PROJECT LEADER:	C. CARLSON
DESIGNED BY:	M. EVANS-MONGEON
BRIDGE EXPANSION JOINT PLAN	
PLOT DATE:	23-MAR-2012
DRAWN BY:	C. MOONEY
CHECKED BY:	M. EVANS-MONGEON
SHEET	28 OF 58

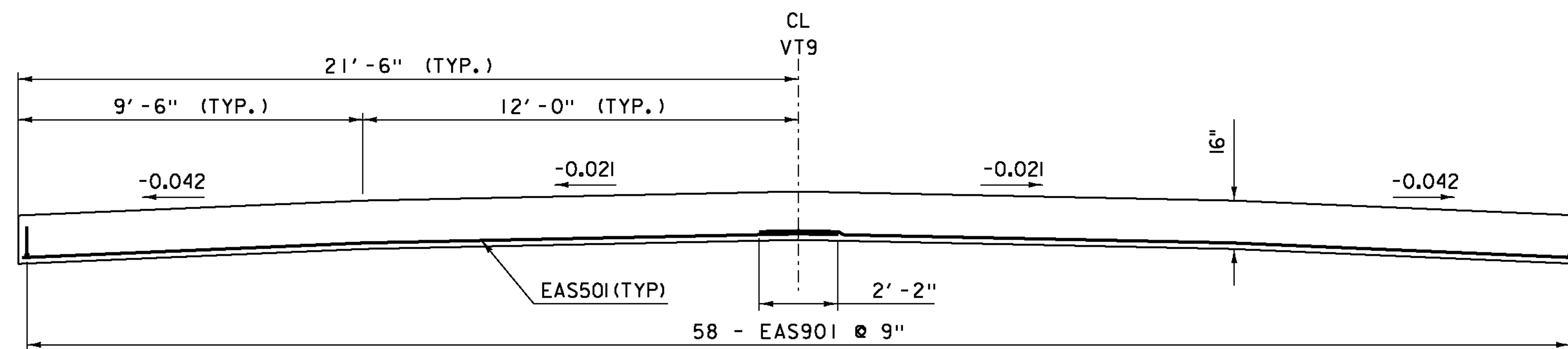


DOWNSPOUT NOTES

1. ALL HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A-500 GR. B.
2. ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO AASHTO M270M/M270 GR. 36.
3. DOWNSPOUT SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M318 /M318 AFTER FABRICATION.
4. ALL BOLTS AND RELATED HARDWARE SHALL BE ASTM A-307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-153 AASHTO M232).
5. ANY PLACE WHERE THE GALVANIZED HAS BEEN REMOVED FROM THE DOWNSPOUT EITHER BY CUTTING, BURNING, WELDING, PLACING, OR ANY OTHER MEANS, IT SHALL BE REPAIRED IN ACCORDANCE WITH SUBSECTION 726.08.
6. THE DOWNSPOUT AND RELATED HARDWARE FOR EACH SHALL BE PAID FOR UNDER THE ITEM 506.55 "STRUCTURAL STEEL, PLATE GIRDER".
7. ALL REQUIRED WELDS FOR DOWNSPOUT SHALL BE DETAILED ON FABRICATION DRAWINGS WHICH SHALL ALSO INCLUDE ALL APPLICABLE WELDING PROCEDURES.
8. AFTER ALL PAVING AND CONCRETE OPERATIONS THE DOWNSPOUT SHALL BE CLEANED OF ALL CONTAMINATION BY FLUSHING.
9. DETAILS SHOWN ARE TYPICAL BOTH SIDES OF BRIDGE AT ABUTMENT #1.

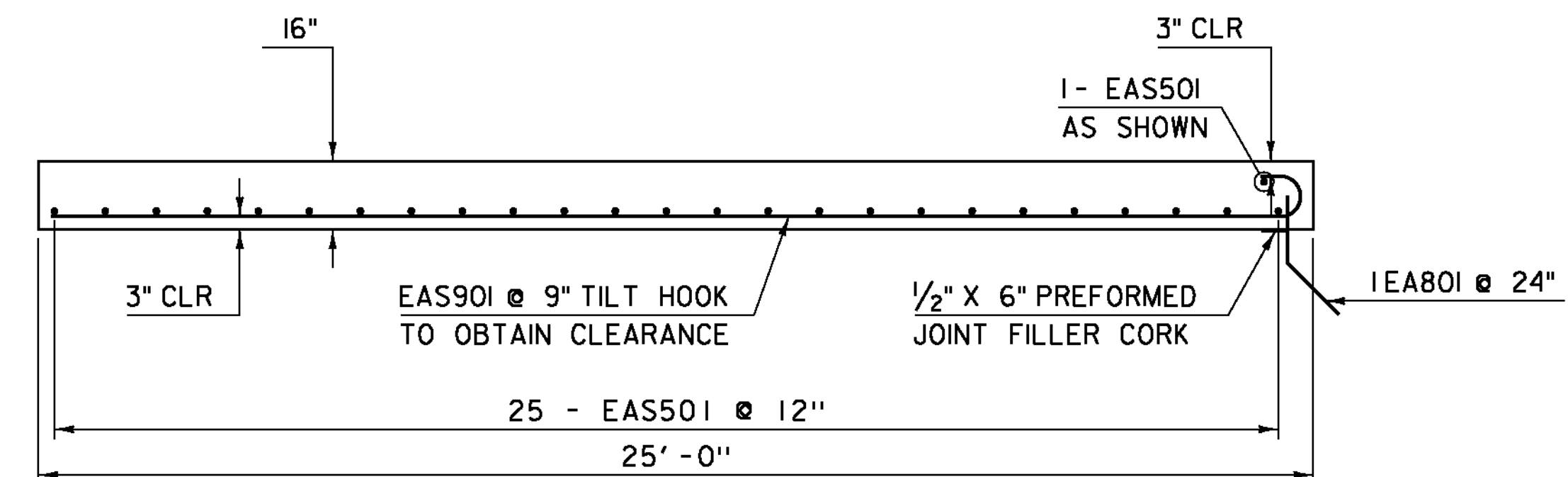


PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214sup.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. EVANS-MONGEON
DOWNSPOUT DETAILS	SHEET 29 OF 58



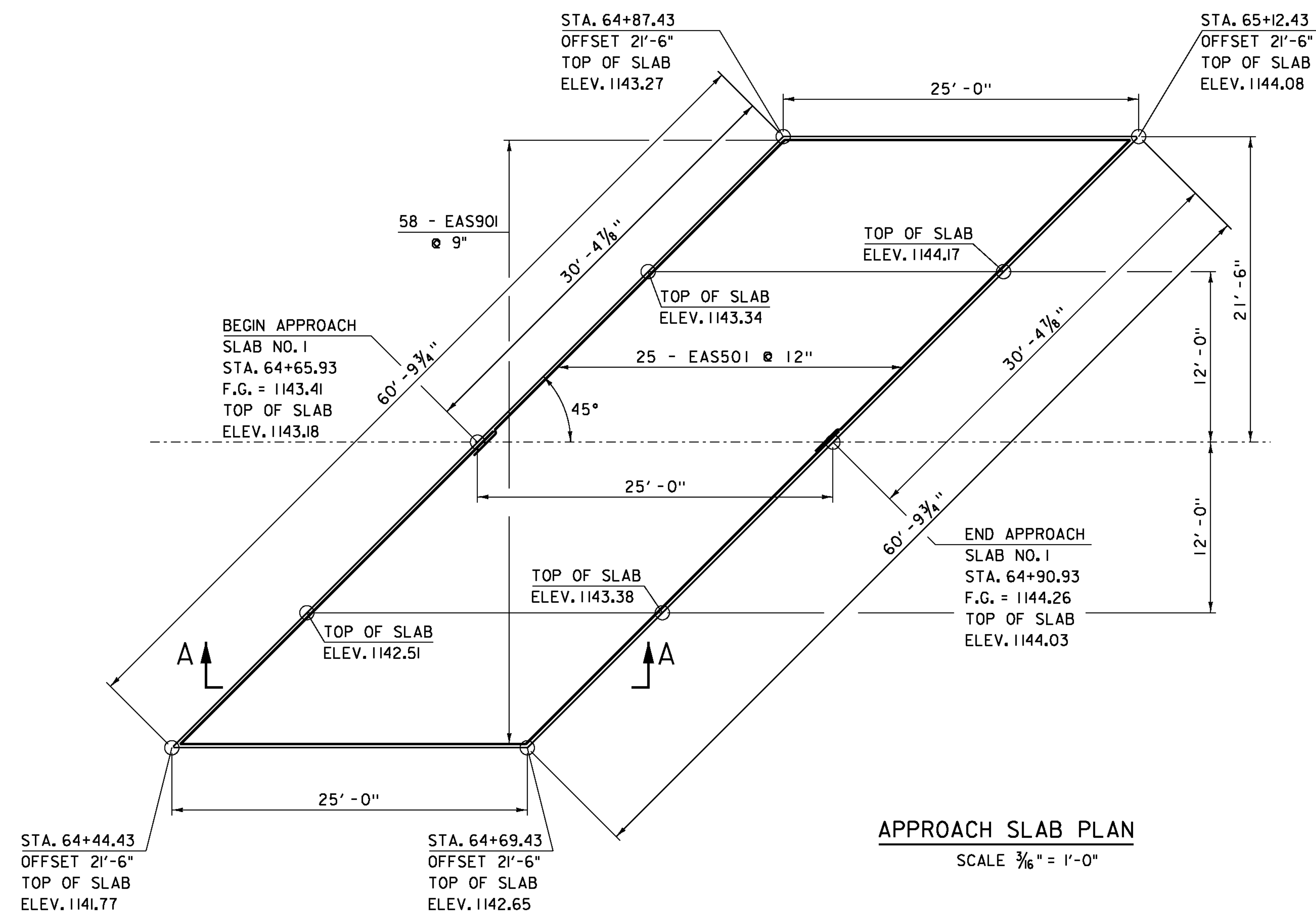
APPROACH SLAB SECTION

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



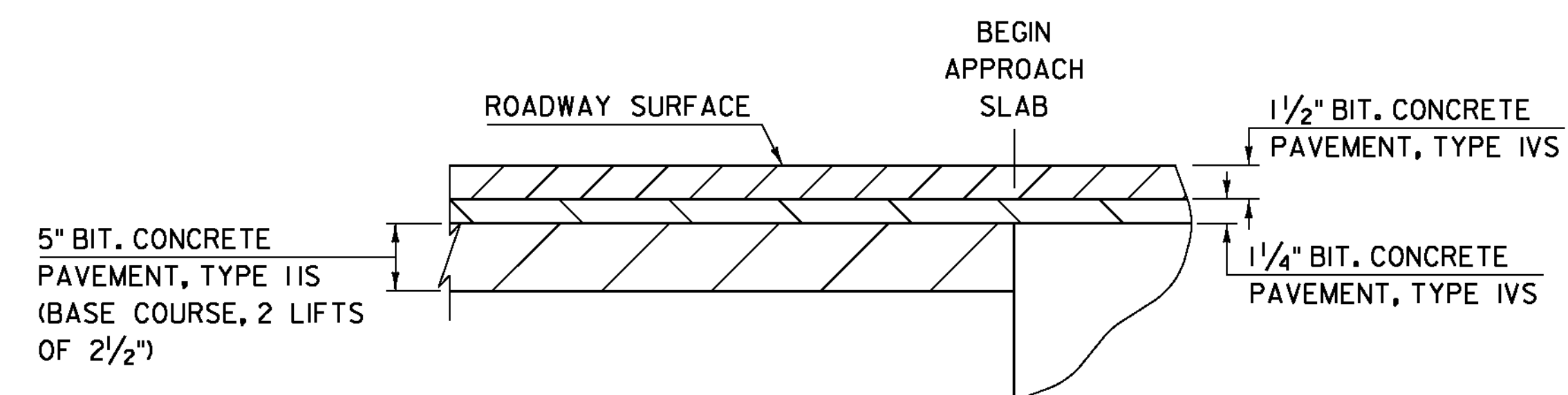
SECTION A-A

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



APPROACH SLAB PLAN

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

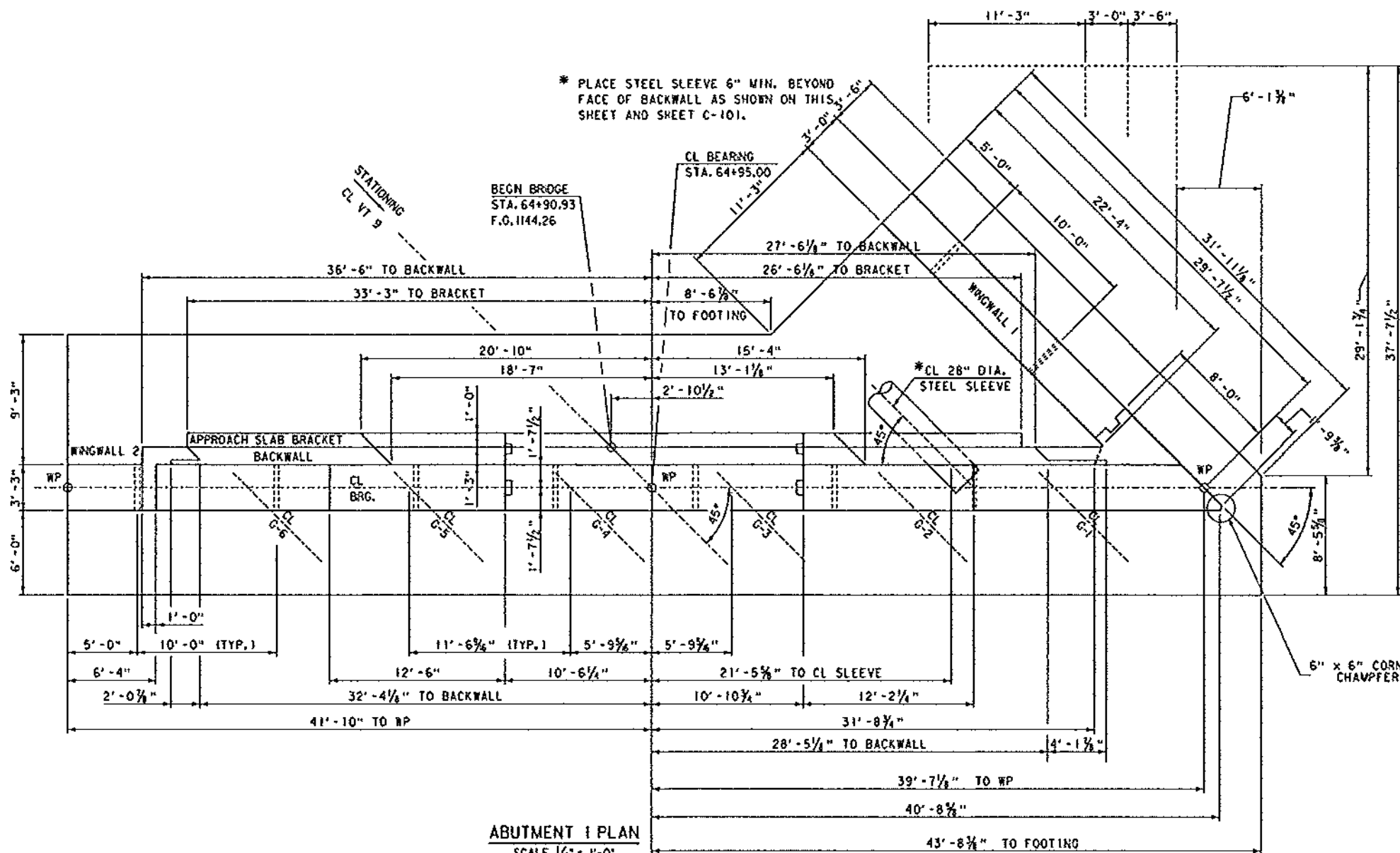


DETAIL AT APPROACH SLAB END

NTS

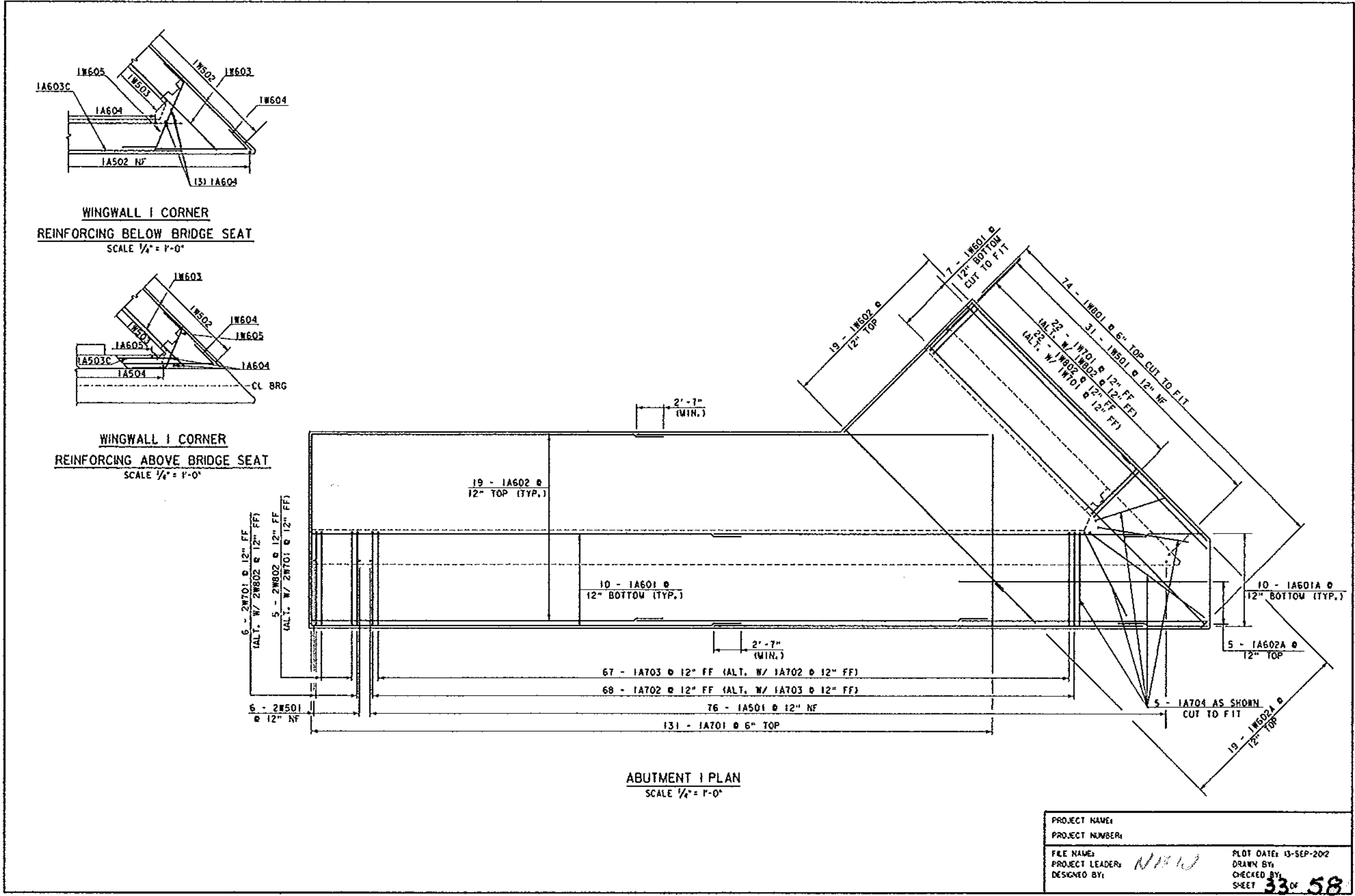
PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214sup.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: C. MOONEY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. EVANS-MONGEON
APPROACH SLAB DETAILS	SHEET 30 OF 58

RECORD PLANS



PROJECT NAME:	
PROJECT NUMBER:	
FILE NAME:	
PROJECT LEADER:	<i>1-45762</i>
DESIGNED BY:	
	PLOT DATE: 13-SEP-2
	DRAWN BY:
	CHECKED BY:

RECORD PLANS



RECORD PLANS

REINFORCING STEEL SCHEDULE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

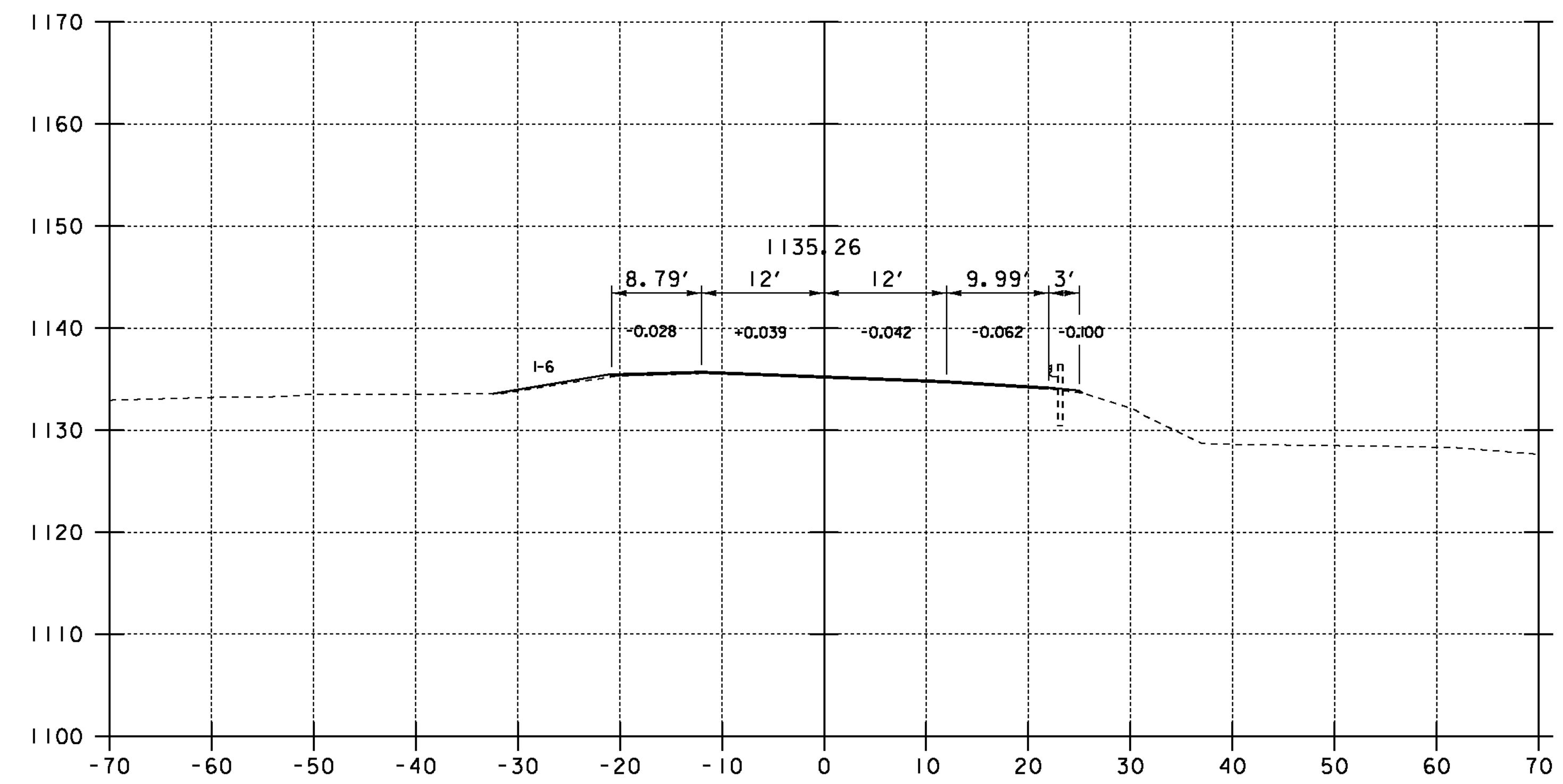
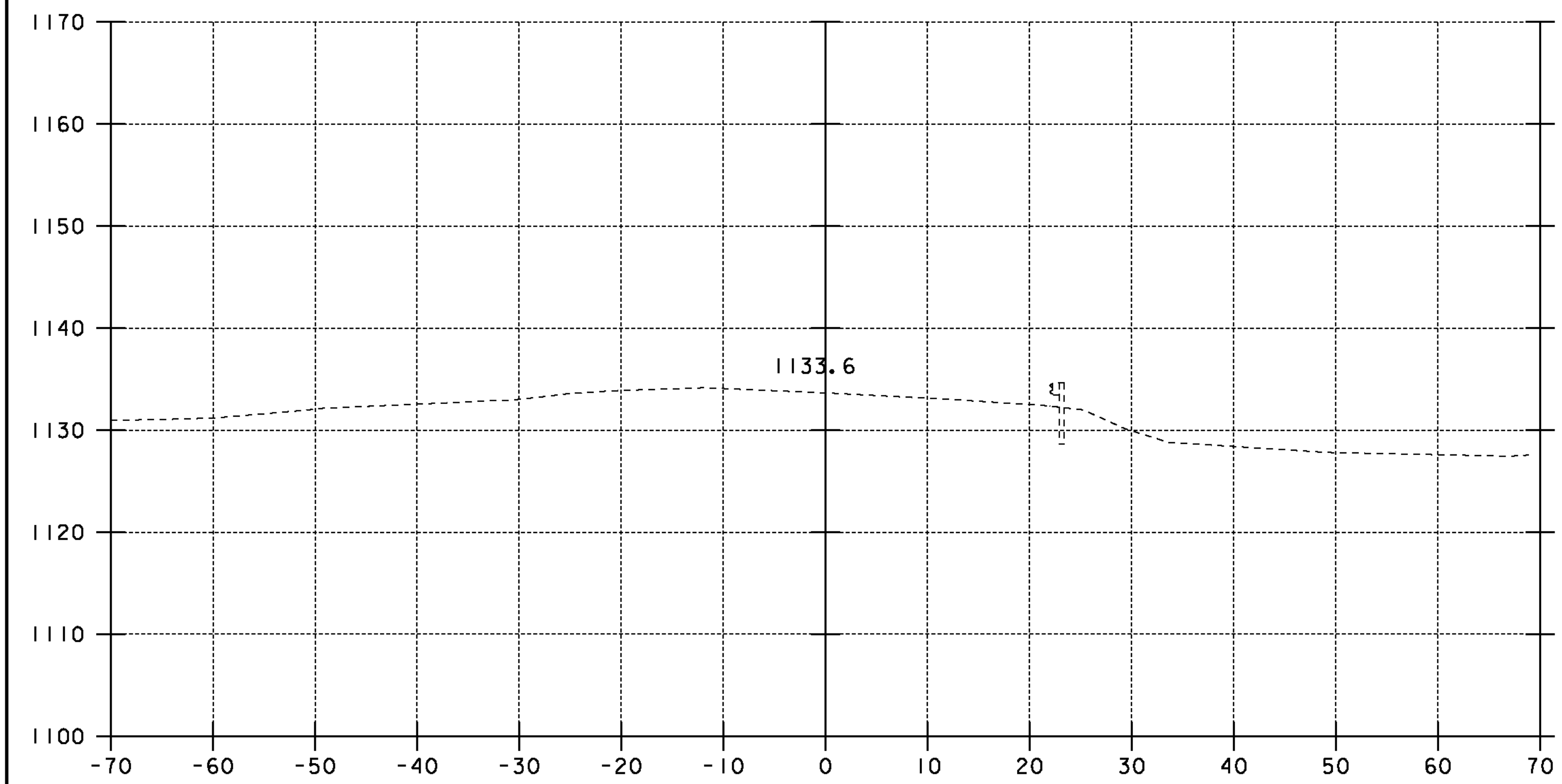
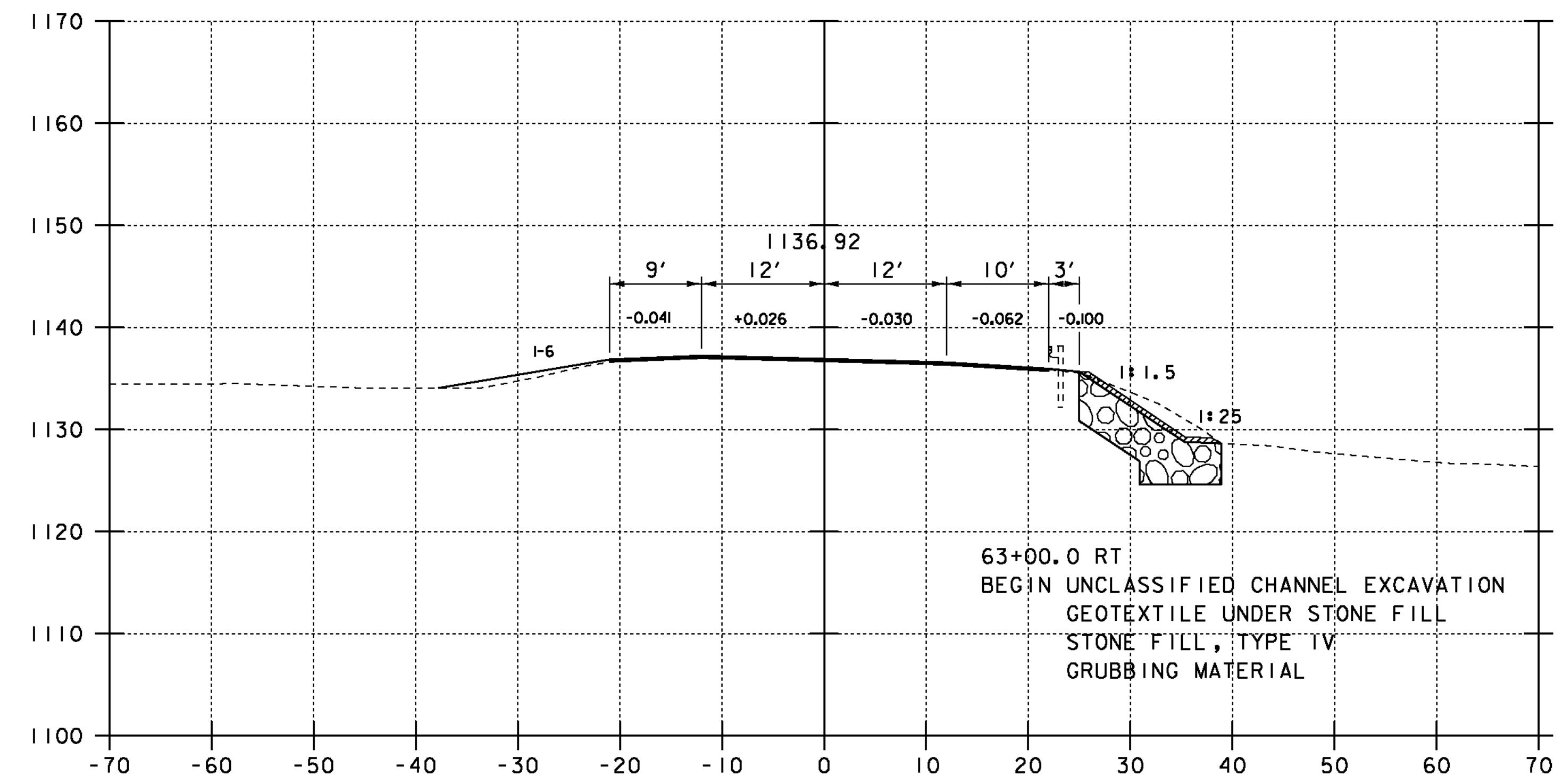
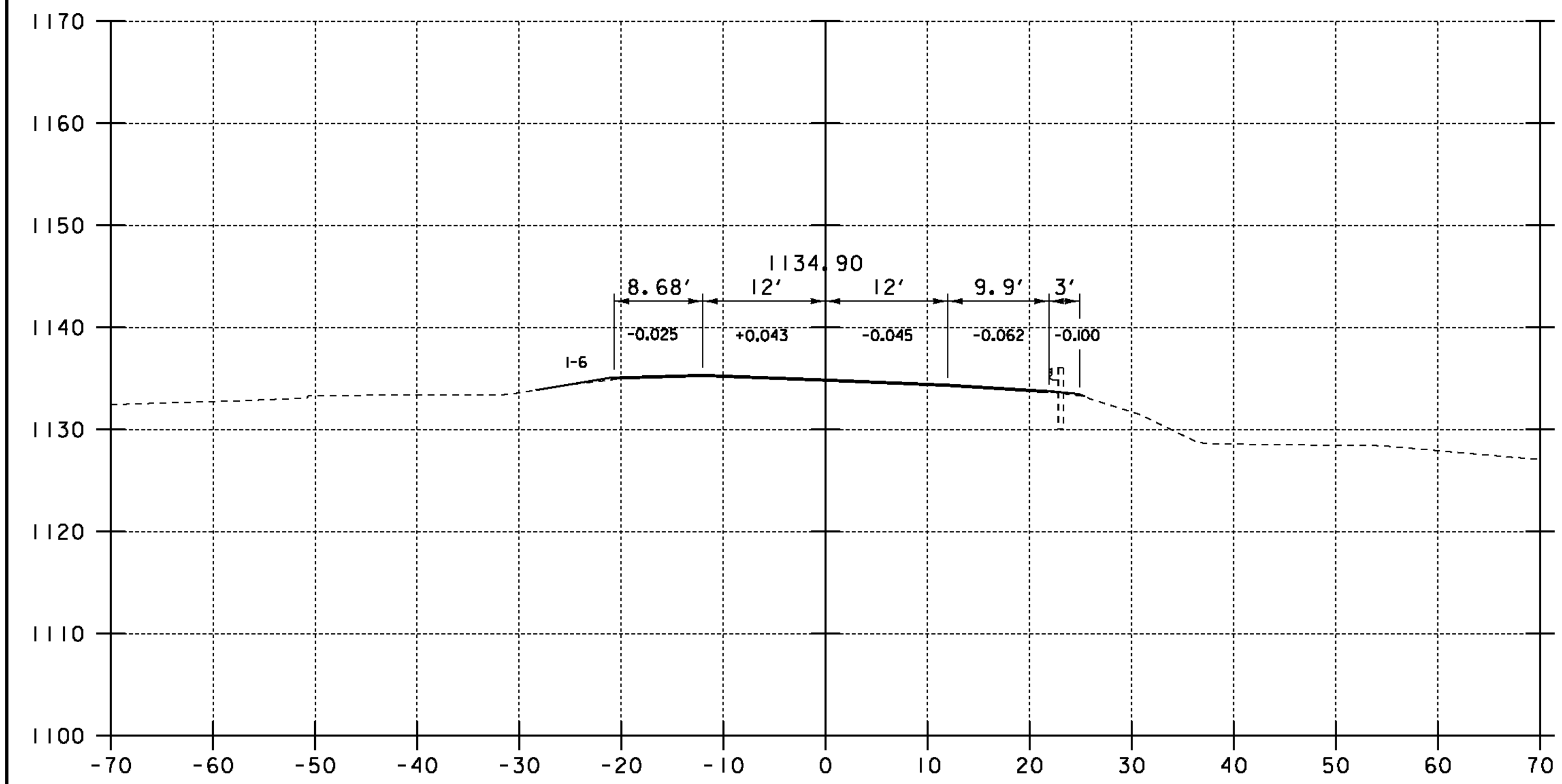
REINFORCING STEEL SCHEDULE

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR STANDARD BARS FOR PRECAST/PRESTRESSED CONCRETE REINFORCEMENT," ADOPTED IN PART M-15.10, ALL LAUS SHALL BE OF THIS TYPE, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL REINFORCEMENT DETAILS, RECOMMENDED PROPORTIONS OF BARS AND HOOPS, AND OTHER STANDARD PRACTICES ARE CURRENT CONCRETE REINFORCEMENT PRACTICES. INDICATE NUMBER OF TIE AND HOOPS PRACTICE.
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LISTS RECORDED.
- ALL DIMENSIONS ARE CUT TO OUT BAR EXCEPT "N" AND "O" ON STANDARD 100% BARS AND LISTS RECORDED HOOPS.
- "Z" DIMENSION ON UNBENT HOOPS TO BE INDICATED WHERE NECESSARY TO INDICATE HOOP SIZE. OTHERWISE, STANDARD HOOPS ARE TO BE USED.
- IF DIMENSION ON OUTSTANDING IS NOT SHOWN OR WHEN NECESSARY TO INDICATE CLEARANCES.
- WHERE HOOP DEPENDS FROM 45 DEGREE, DIMENSIONS "Y" AND "Z" SHALL BE SHOWN.
- ▲ DENOTES BARS TO BE CUT AT FIELD.
- ◆ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- REINFORCEMENT PRESTRESSING BENT CONCRETE REINFORCEMENT SCHEDULE.

DESIGN

* A 1H 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 90



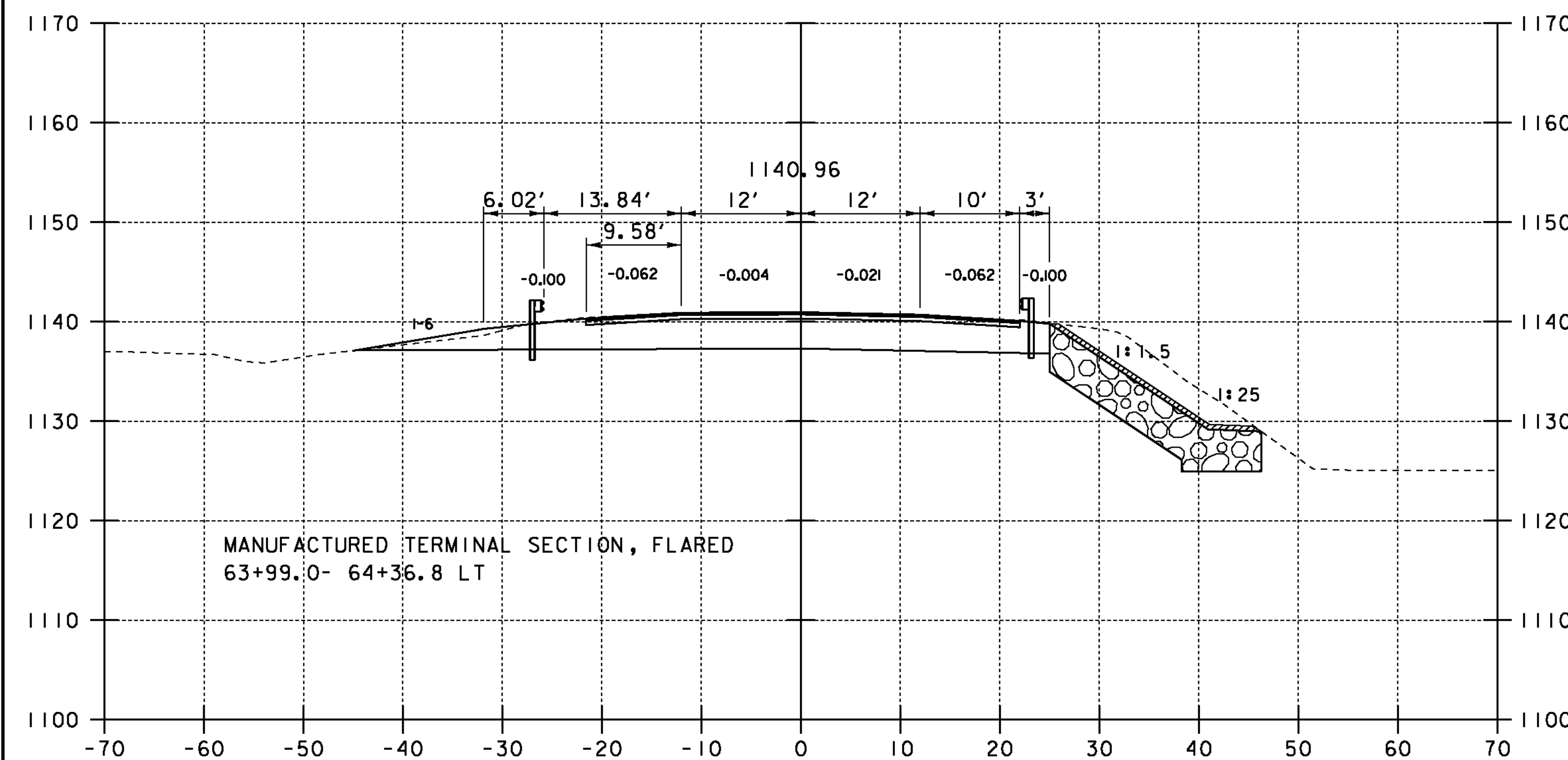
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63+00

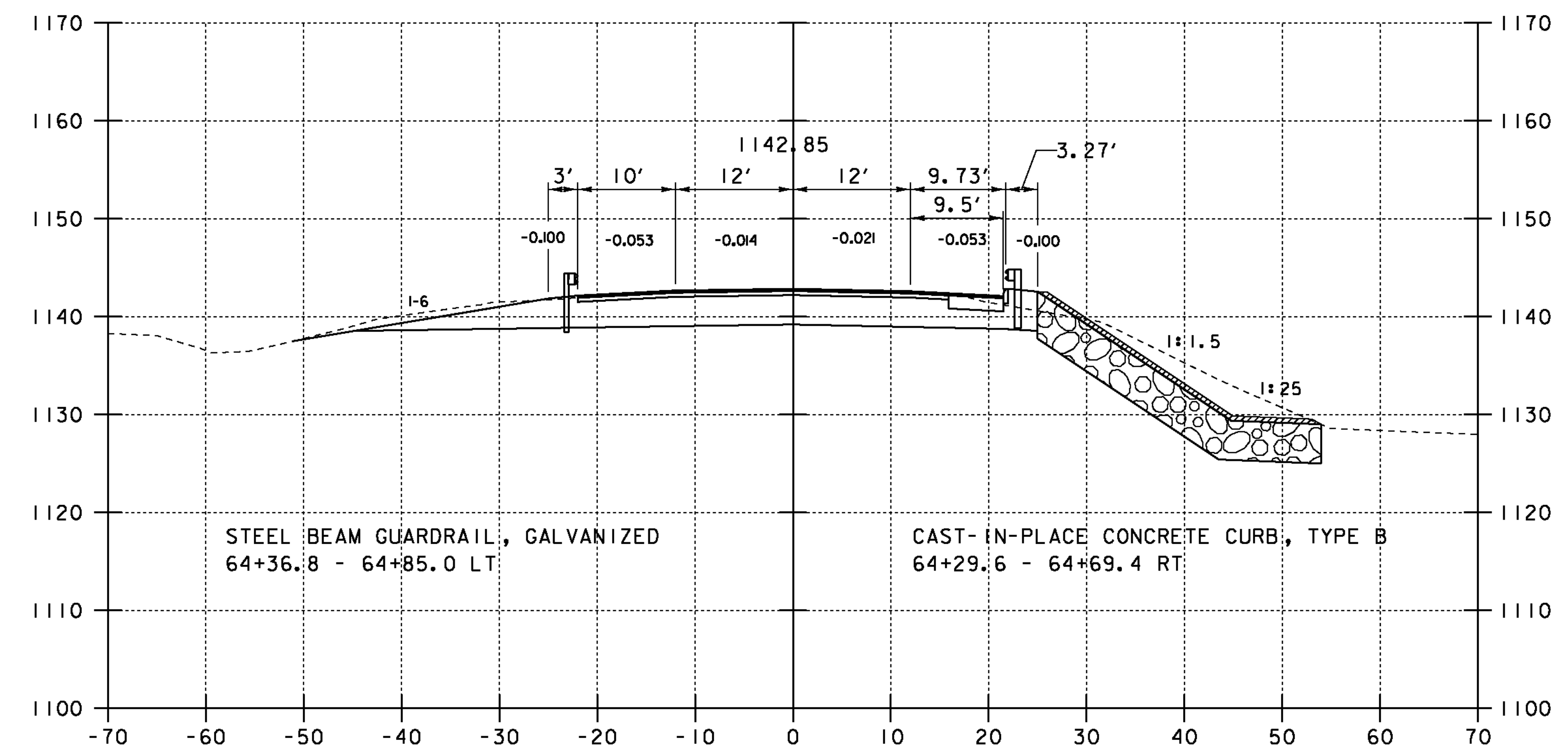
62+19

62+59

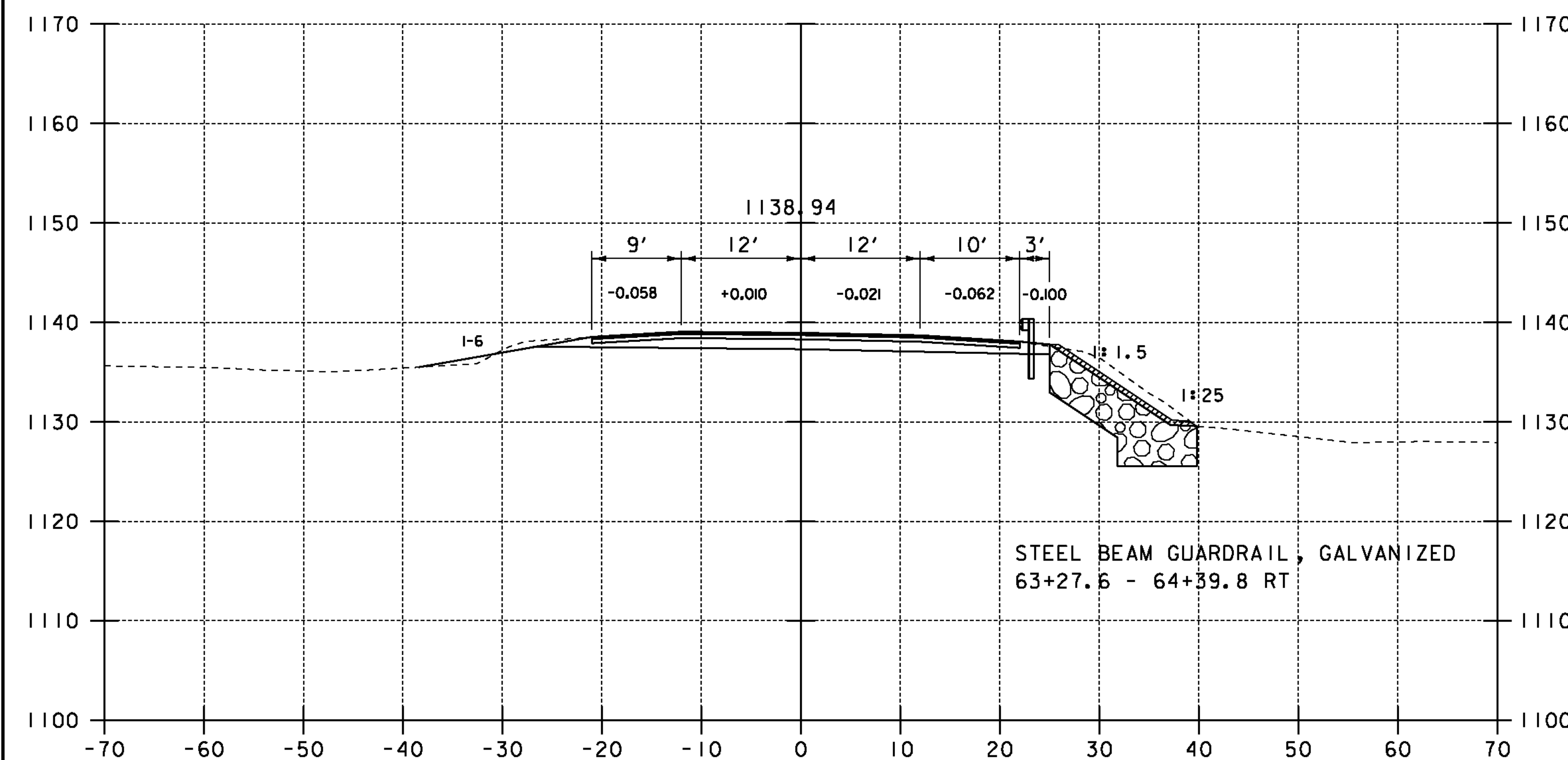
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PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
ROADWAY CROSS SECTIONS SHEET (1)	SHEET 36 OF 58



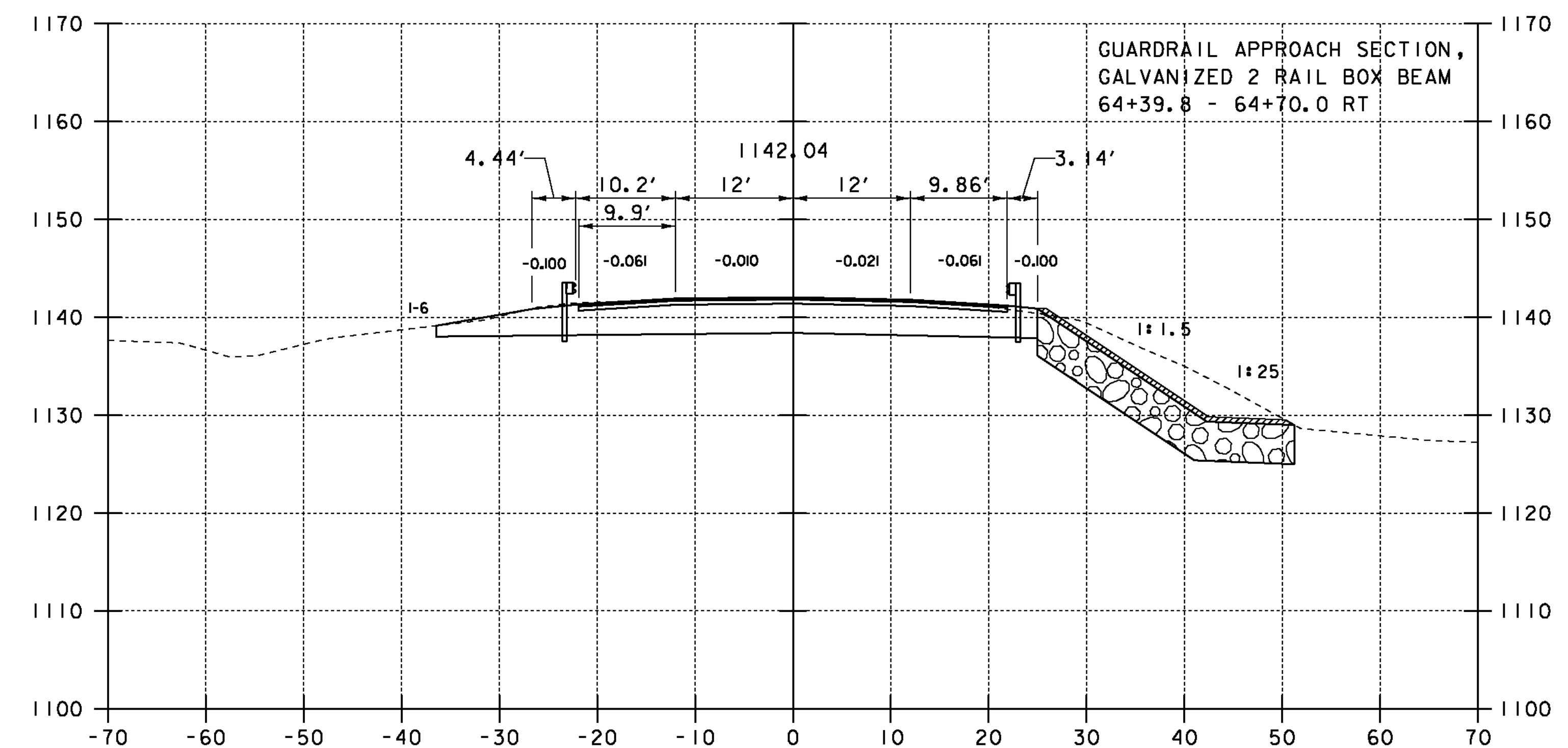
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64 + 50



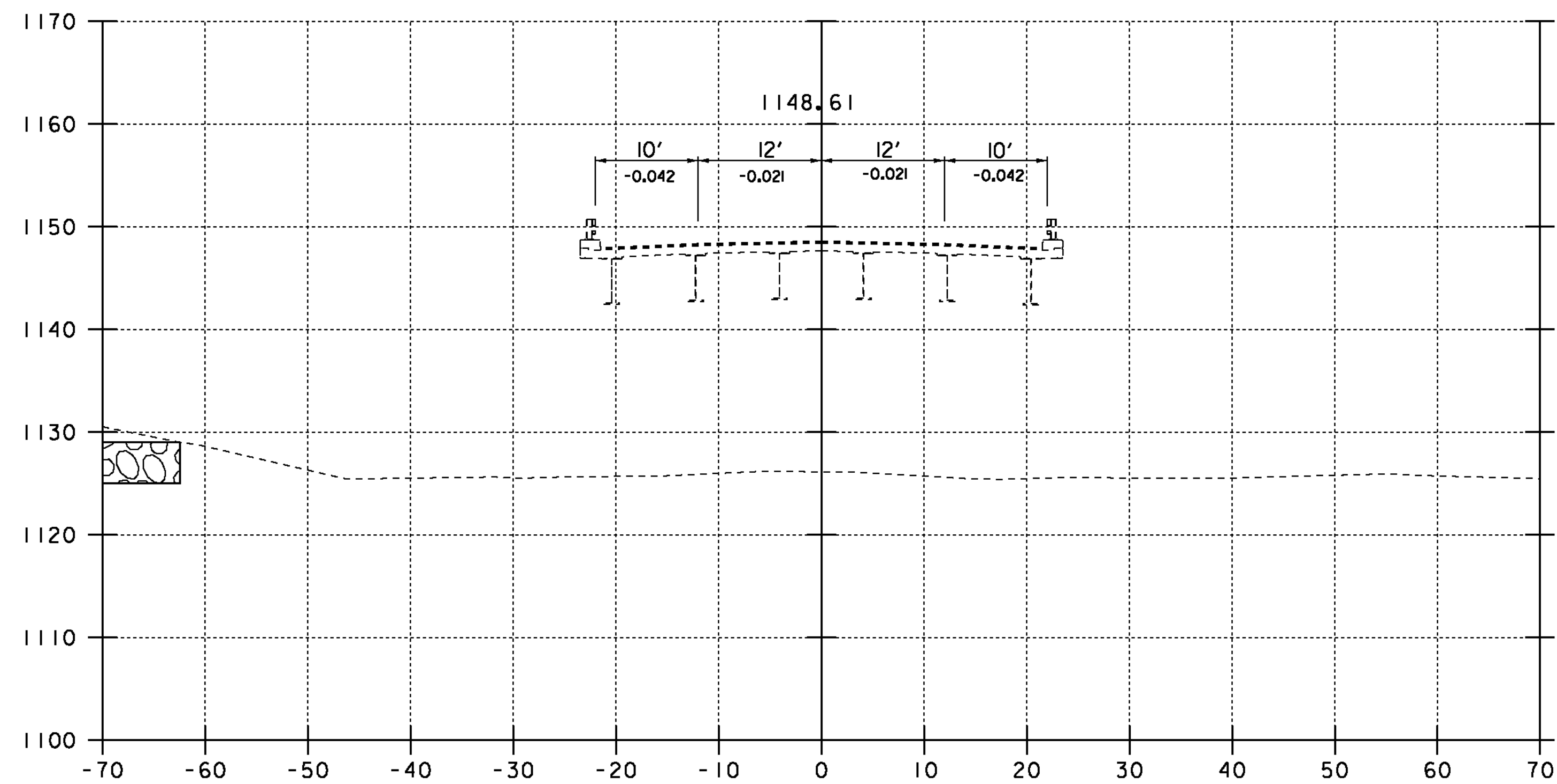
63 + 50



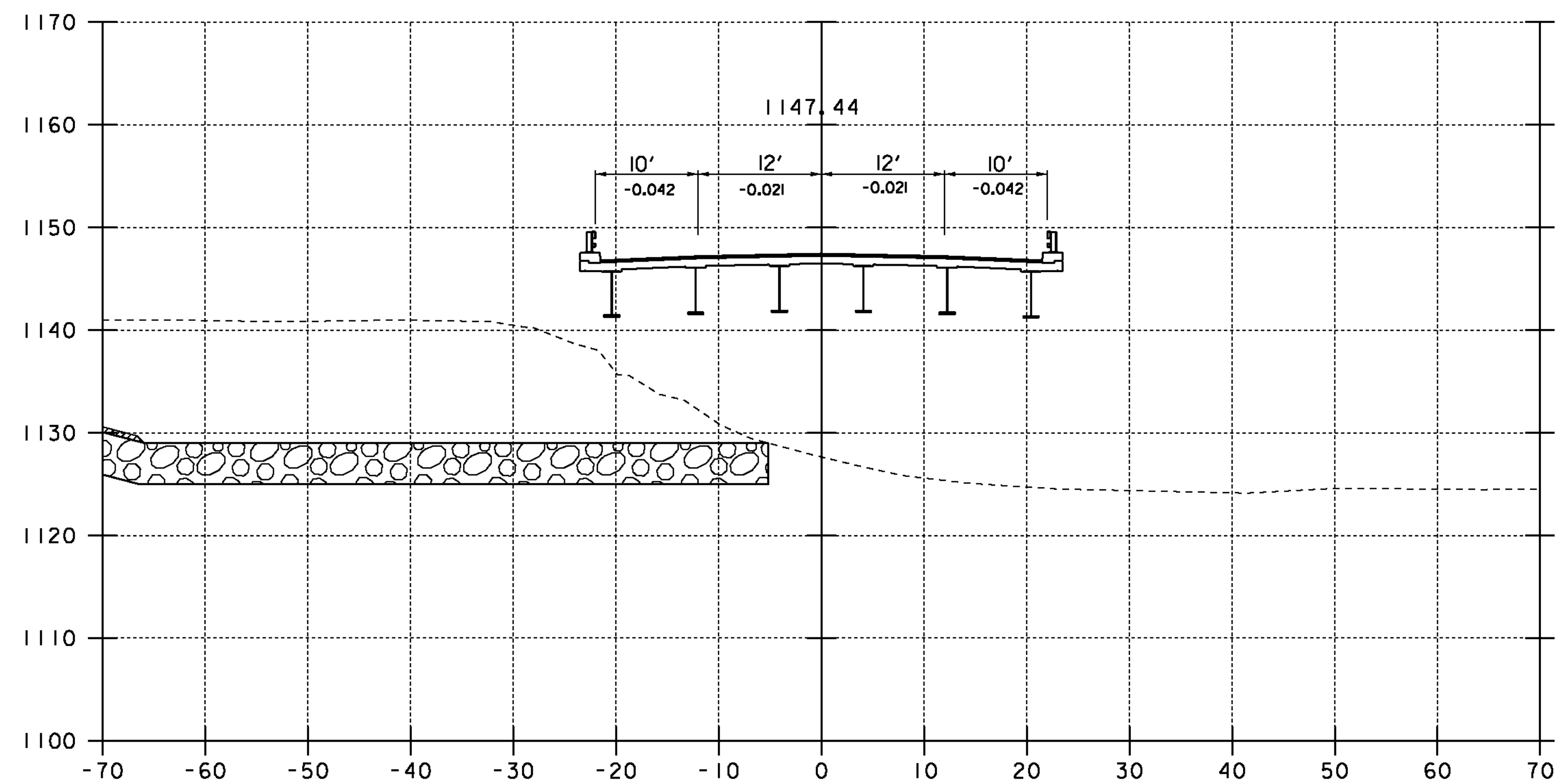
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PROJECT NUMBER: ER BHF OIO-1(44)	
FILE NAME: silb214xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
ROADWAY CROSS SECTIONS SHEET (2)	SHEET 37 OF 58

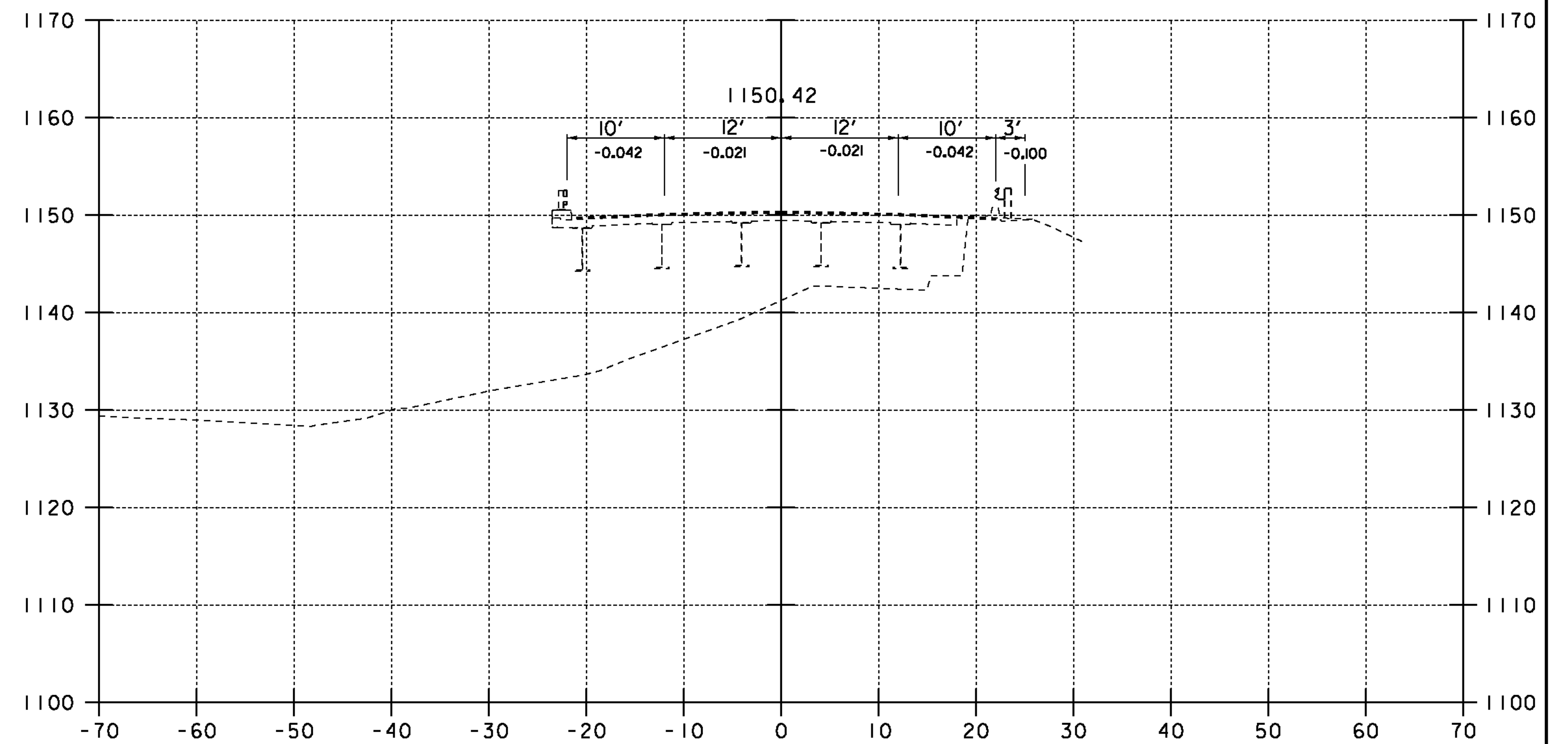
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PROJECT NUMBER: ER BHF OIO-1(44)	
FILE NAME: silb214xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
ROADWAY CROSS SECTIONS SHEET (2)	SHEET 37 OF 58



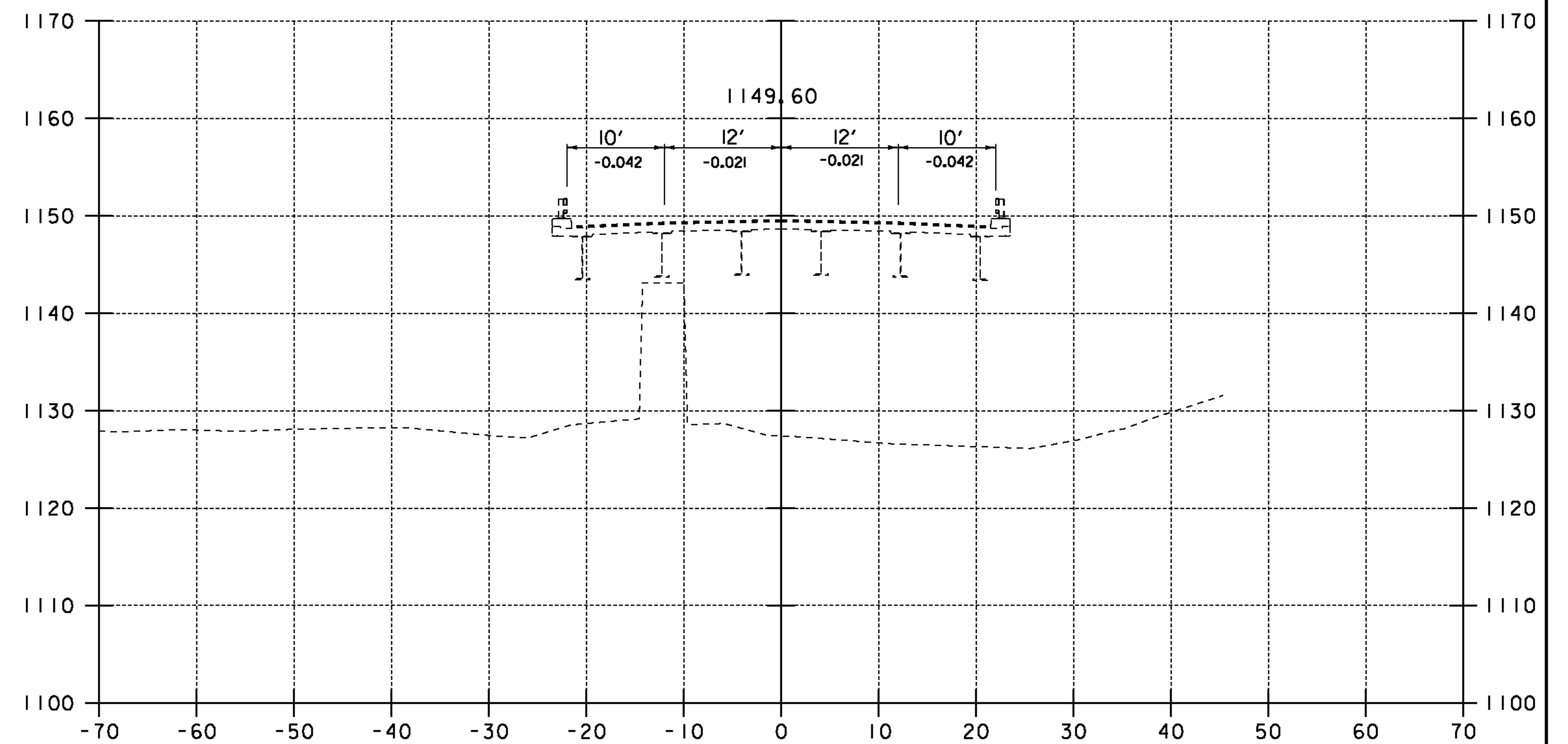
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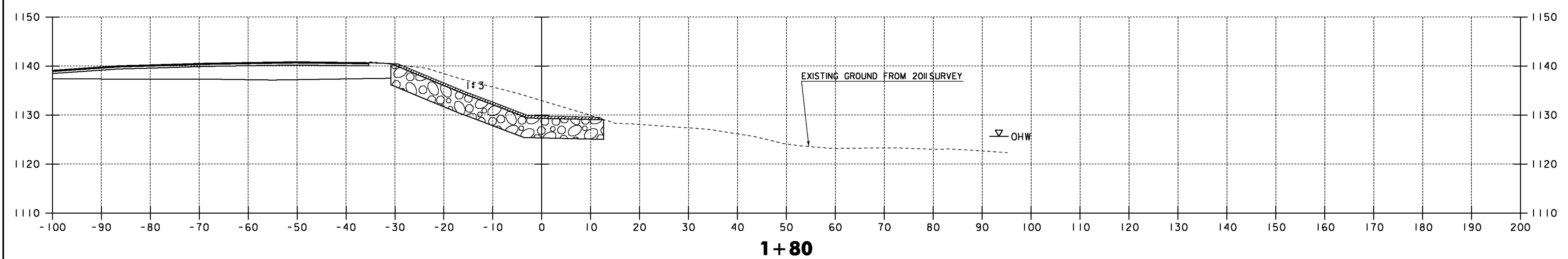
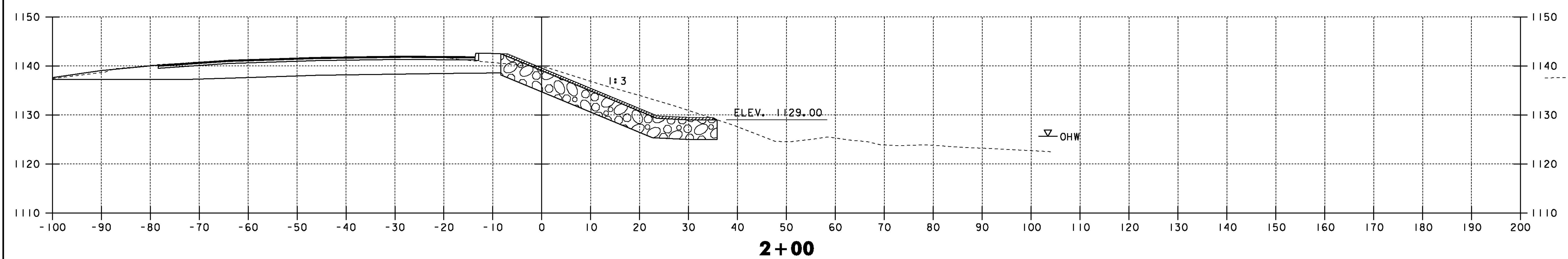
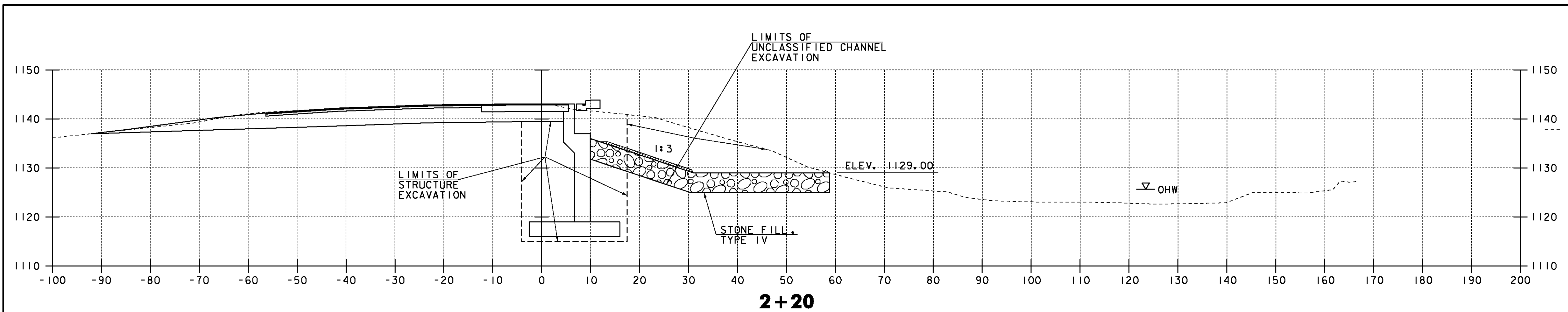


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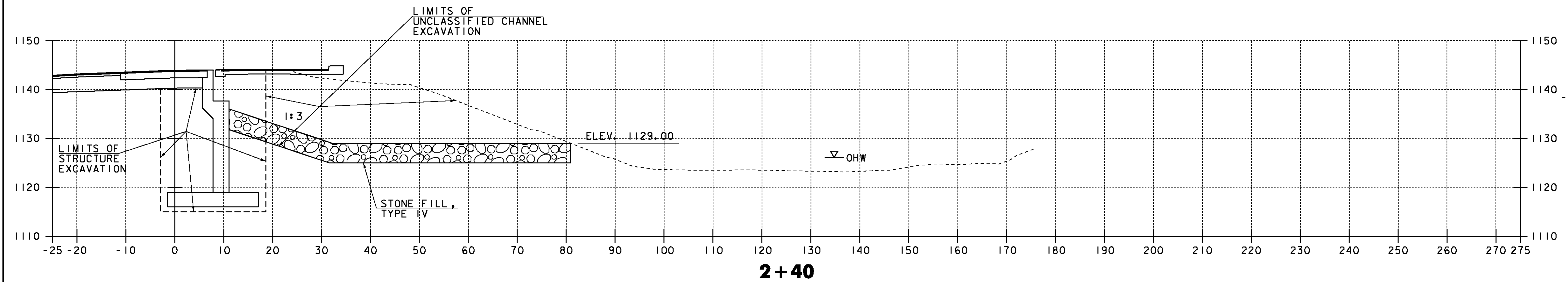
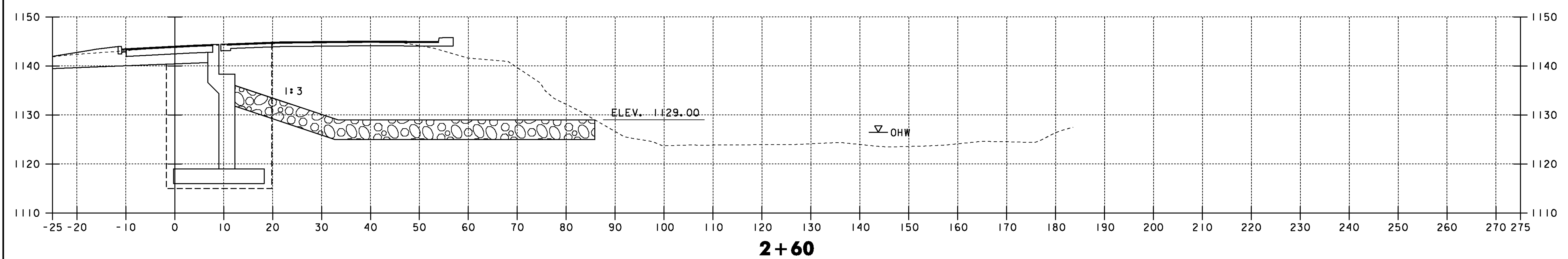
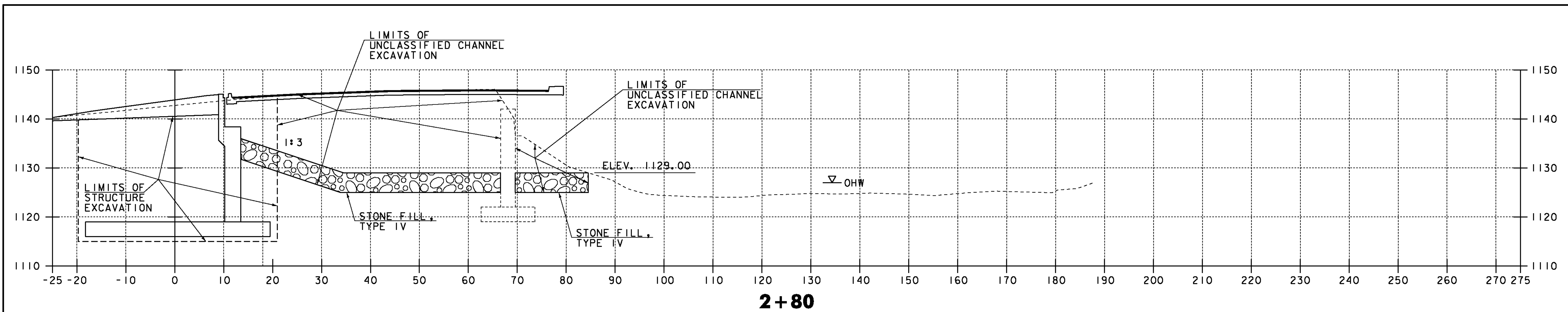


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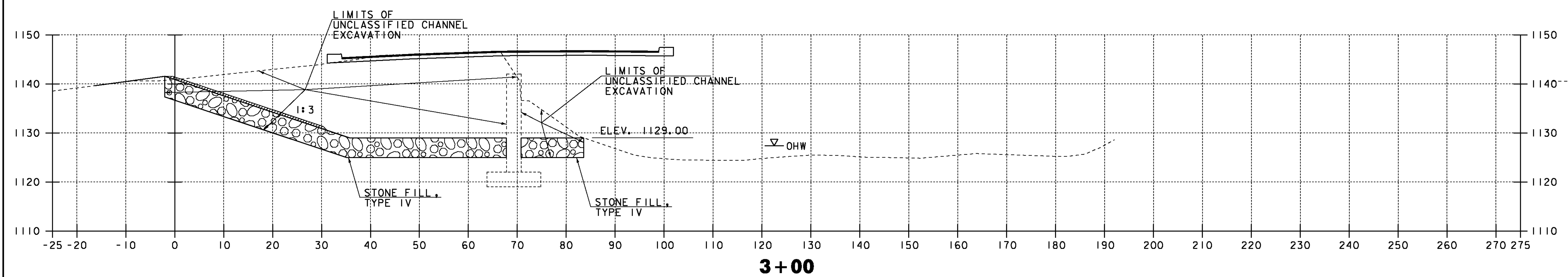
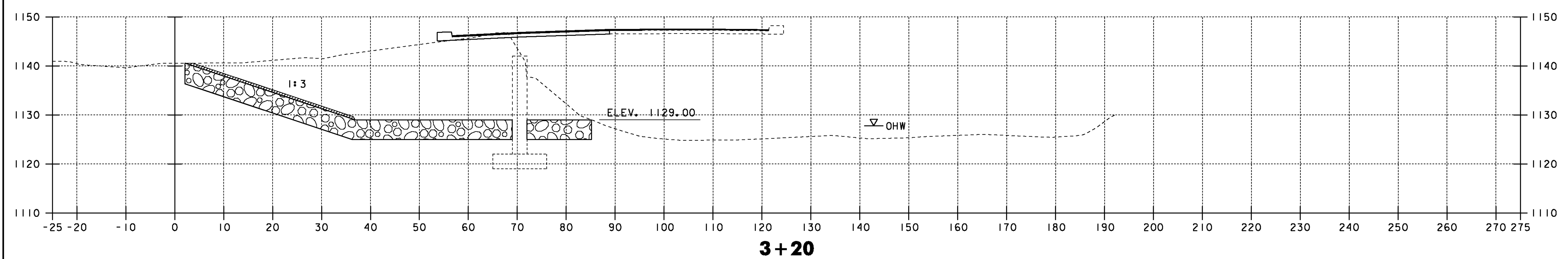
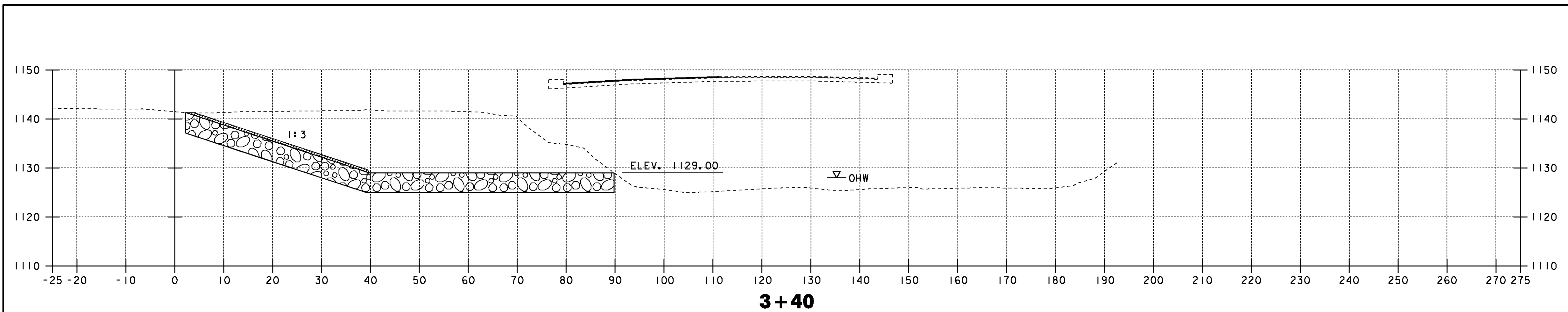
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PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
ROADWAY CROSS SECTIONS SHEET (4)	SHEET 39 OF 58



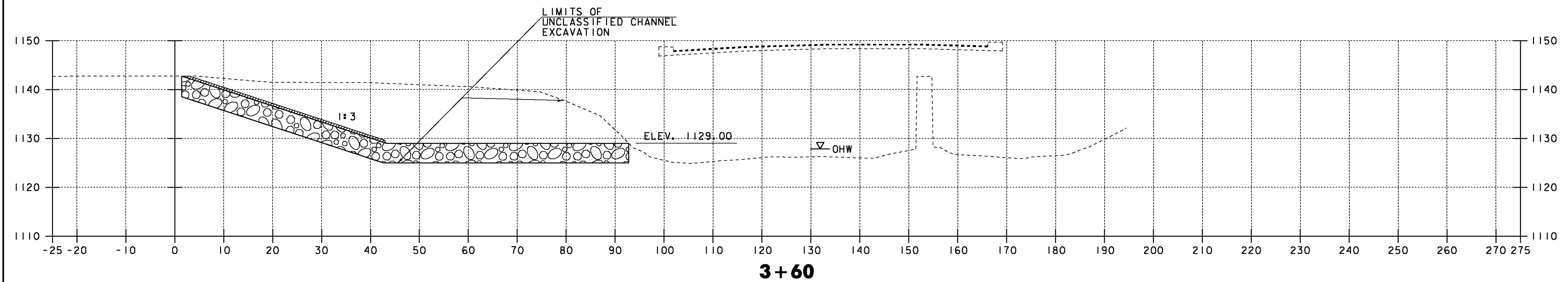
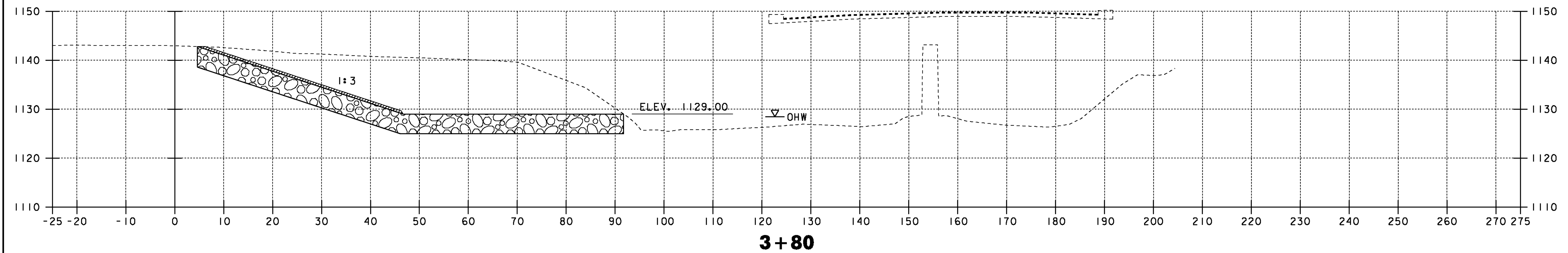
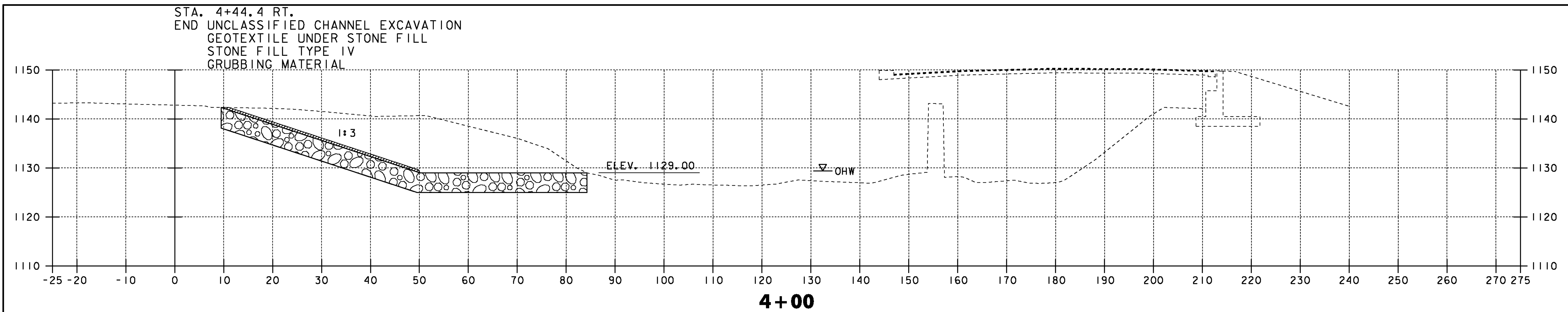
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PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214ch xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: EVANS-MONGEON
CHANNEL CROSS SECTIONS SHEET (1)	SHEET 40 OF 58



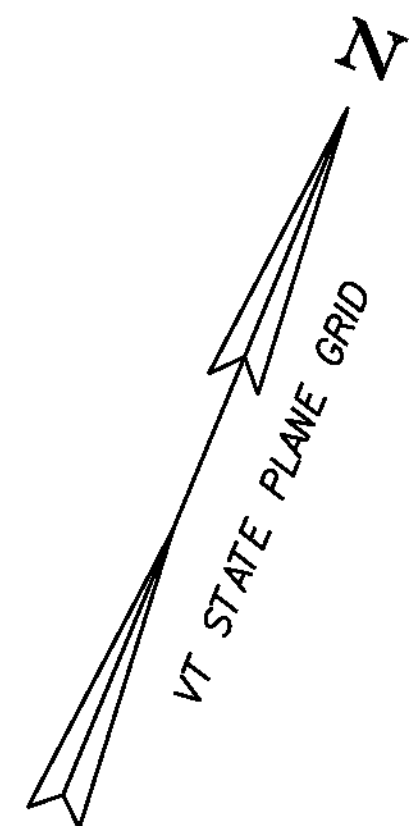
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PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214ch xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: EVANS-MONGEON
CHANNEL CROSS SECTIONS SHEET (2)	SHEET 41 OF 58



PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214ch xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: EVANS-MONGEON
CHANNEL CROSS SECTIONS SHEET (3)	SHEET 42 OF 58



PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214ch xs.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: EVANS-MONGEON
CHANNEL CROSS SECTIONS SHEET (4)	SHEET 43 OF 58



VT 9 CURVE IDATA

$\Delta = 26^\circ 32' 04''$
 $D = 5^\circ 50' 47''$
 $R = 980.00$
 $T = 231.07$
 $L = 453.85$
 $E = 26.87$
BANK = 0.077 FT / FT

DETOUR CURVE 2 DATA

$\Delta = 11^\circ 10' 44''$
 $D = 9^\circ 32' 57''$
 $R = 600.00$
 $T = 58.72$
 $L = 116.88$
 $E = 2.87$

DETOUR CURVE IDATA

$\Delta = 6^\circ 47' 25''$
 $D = 14^\circ 19' 26''$
 $R = 400.00$
 $T = 23.73$
 $L = 47.41$
 $E = 0.70$

BM NO. 5
CHISELED SQUARE
ON HEADWALL
EL. 123.744

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

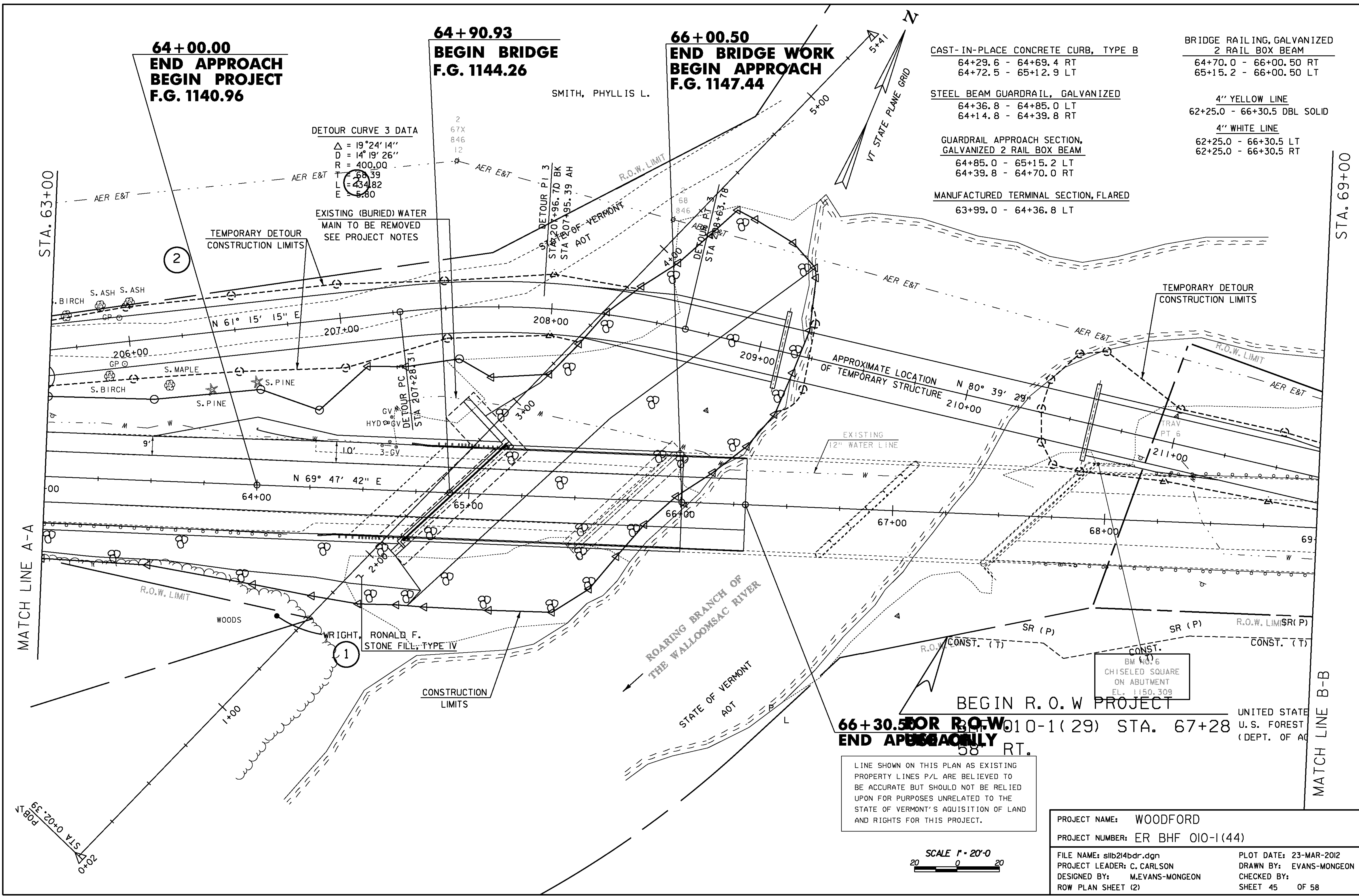
LINE SHOWN ON THIS PLAN AS EXISTING
PROPERTY LINES P/L ARE BELIEVED TO
BE ACCURATE BUT SHOULD NOT BE RELIED
UPON FOR PURPOSES UNRELATED TO THE
STATE OF VERMONT'S ACQUISITION OF LAND
AND RIGHTS FOR THIS PROJECT.

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: WOODFORD
PROJECT NUMBER: ER BHF 010-1(44)

FILE NAME: slb214bdr.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
R.O.W. PLAN SHEET (1)

PLOT DATE: 23-MAR-2012
DRAWN BY: EVANS-MONGEON
CHECKED BY:
SHEET 44 OF 58



64+00.00
END APPROACH
BEGIN PROJECT
F.G. 1140.96

64+90.93
BEGIN BRIDGE
F.G. 1144.26

66+00.50
END BRIDGE WORK
BEGIN APPROACH
F.G. 1147.44

CAST-IN-PLACE CONCRETE CURB, TYPE B
64+29.6 - 64+69.4 RT
64+72.5 - 65+12.9 LT

STEEL BEAM GUARDRAIL, GALVANIZED
64+36.8 - 64+85.0 LT
64+14.8 - 64+39.8 RT

GUARDRAIL APPROACH SECTION,
GALVANIZED 2 RAIL BOX BEAM
64+85.0 - 65+15.2 LT
64+39.8 - 64+70.0 RT

MANUFACTURED TERMINAL SECTION, FLARED
63+99.0 - 64+36.8 LT

BRIDGE RAILING, GALVANIZED
2 RAIL BOX BEAM
64+70.0 - 66+00.50 RT
65+15.2 - 66+00.50 LT

4" YELLOW LINE
62+25.0 - 66+30.5 DBL SOLID

4" WHITE LINE
62+25.0 - 66+30.5 LT
62+25.0 - 66+30.5 RT

66+30.50 FOR R.O.W.
END APPROACH ONLY
58' RT.

LINE 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.

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: slb214bdr.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY:
ROW PLAN SHEET (2)	SHEET 45 OF 58

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE RECONSTRUCTION OF BRIDGE 11 ON VT 9 IN WOODFORD. A NEW ABUTMENT WILL BE CONSTRUCTED ON THE WESTERN END OF BRIDGE 11 AND THE WESTERNMOST SPAN WILL BE REPLACED WITH NEW STEEL GIRDERS AND A NEW CONCRETE DECK. A TEMPORARY BRIDGE WILL BE CONSTRUCTED UPSTREAM OF THE EXISTING BRIDGE AND WILL BE REMOVED AT THE COMPLETION OF THE PROJECT. THE BRIDGE IS LOCATED IN THE TOWN OF WOODFORD, ON VT ROUTE 9, APPROXIMATELY 1.2 MILES EAST OF THE BENNINGTON- WOODFORD TOWN LINE, OVER THE ROARING BRANCH OF THE WALLOOMSAC RIVER.

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 1.64 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TERRAIN HAS MODERATE TO STEEP SLOPES IN THE VICINTY OF THE PROJECT SITE. VT ROUTE 9 IS A PAVED STATE HIGHWAY. DEVELOPMENT ALONG VT ROUTE 9 CONSISTS OF A MIX OF PERMANENT RESIDENCES AND MUNICIPAL BUILDINGS LYING ON THE OUTSKIRTS OF THE PROJECT LIMITS. THE EXISTING CABLE, TELEPHONE, AND ELECTRICAL UTILITIES EXIST WITHIN THE PROJECT SITE AND WILL NOT BE RELOCATED. A MUNICIPAL WATER MAIN CURRENTLY TRAVELS ACROSS THE NORTH SIDE OF THE EXISTING BRIDGE AND WILL BE RELOCATED TO THE TEMPORARY BRIDGE DURING CONSTRUCTION AND THEN FINALLY ONTO THE NEW BRIDGE.

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

THE ROARING BROOK OF THE WALLOOMSAC RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THERE ARE SEVERAL DRAINAGE WAYS IN THE PROJECT AREA THAT CARRY RUNOFF FROM THE ROAD TO THE RIVER, BUT THERE ARE NO KNOWN EPHEMERAL STREAMS OR PONDS WITHIN THE PROJECT SITE.

THERE EXIST UNLINED DRAINAGE DITCHES ALONG THE SIDES OF VT ROUTE 9. THE BANKS SLOPE STEEPLY IN THE VICINITY OF THE BRIDGE AND SOUTH WEST OF THE BRIDGE. THE DRAINAGE AREA AT THE CROSSING IS 37.7 MILES².

1.2.3 VEGETATION

THE PROJECT SITE CONTAINS A MIXTURE OF RESIDENTIAL AND FORESTED LANDS. IN THE RESIDENTIAL AREAS THERE ARE SCATTERED TREES CONSISTING OF SOME ASH, CHERRY, MAPLE, POPLAR, APPLE BIRCH AND PINE. THERE ARE ALSO SOME SHRUBS AND GRASSY LAWNS IN THE RESIDENTIAL AREA. IN ORDER TO PLACE THE TEMPORARY BRIDGE APPROXIMATELY 6 OF THE TREES THAT WERE PLACED IN 2006, AS PART OF PROJECT WOODFORD BHF 010-1 (29), WILL HAVE TO BE REMOVED. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV 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 BENNINGTON, VERMONT. THE SOIL TYPE IDENTIFIED FOR THIS PROJECT SITE IS COLTON GRAVELLY LOAMY SAND, 8% TO 15% SLOPES, THE SOIL IS CONSIDERED HIGHLY ERODIBLE WITH A K VALUE OF 0.17. IT BELONGS TO HYDROLOGICAL GROUP A AND THE PERMEABILITY OF THIS SOIL IS MODERATELY RAPID TO VERY RAPID.

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: ROARING BRANCH
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. 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.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

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 CONTRACTOR'S 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. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

FILTER CURTAIN WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN SURROUNDING THE STONE FILL AT ABUTMENT 1 IN ORDER TO KEEP SEDIMENT FROM ENTERING THE ROARING BRANCH WHILE THE STONE FILL IS BEING PLACED.

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. THERFORE 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.

NO STONE CHECK DAMS WILL BE NECESSARY FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS. STONE FILL TYPE IV WILL BE INSTALLED ALONG THE CHANNEL TO PREVENT EROSION FROM STORMWATER RUNOFF. A SHALLOW DITCH WILL CONTROL STORMWATER RUNOFF ON THE LEFT SIDE OF THE ROAD FROM BEGIN PROJECT TO BEGIN BRIDGE.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. 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.

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 THE ABUTMENT EXCAVATION 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

IN ADDITION TO 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 CONSTRUCTION SEQUENCE

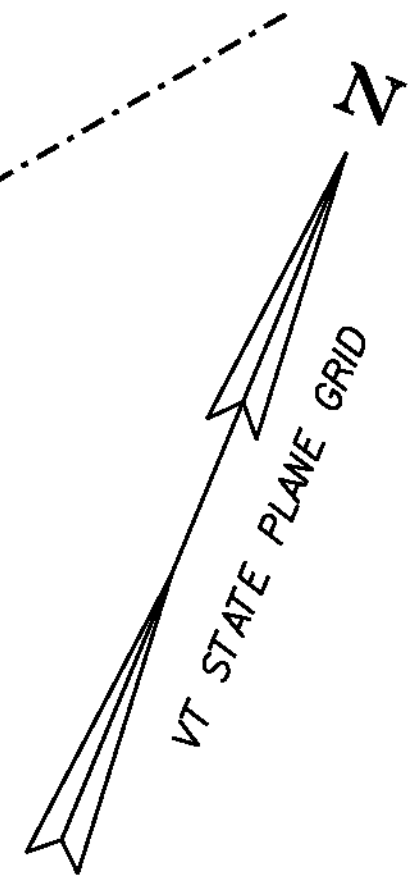
1.5.2 OFF-SITE ACTMITIES

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.

1.5.3 UPDATES

PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BRF 010-1(44)	
FILE NAME: s11b214epsc narrative.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY: G. ROY
EPSC NARRATIVE	SHEET 47 OF 58

SOIL INFORMATION
BERKSHIRE FINE LOAMY SAND
HYDRO GROUP B
HIGHLY ERODIBLE



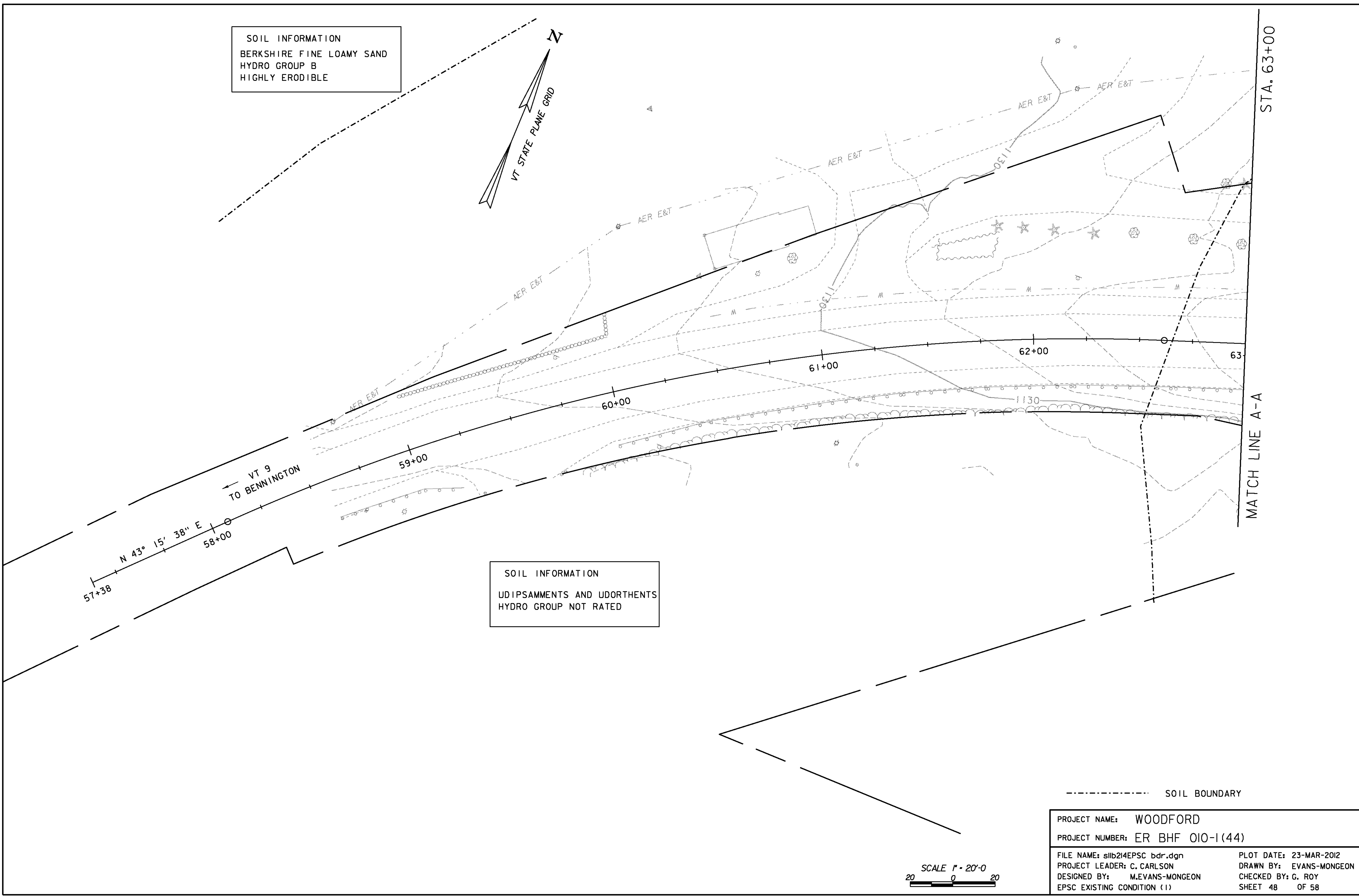
SOIL INFORMATION
UDIPSAMMENTS AND UDORTHENTS
HYDRO GROUP NOT RATED

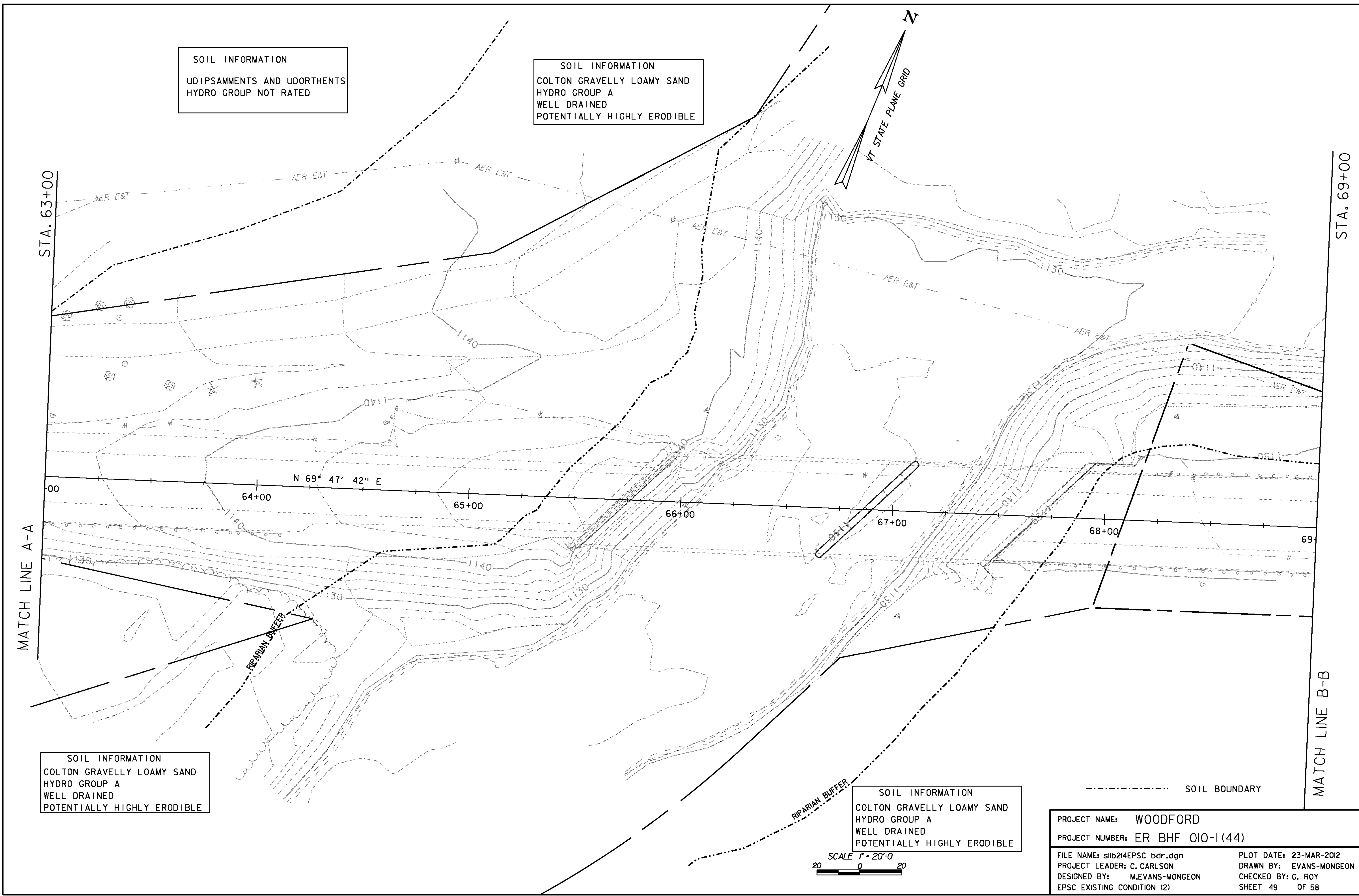
STA. 63+00
MATCH LINE A-A

----- SOIL BOUNDARY

PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: s11b214EPSC bdr.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY: G. ROY
EPSC EXISTING CONDITION (1)	SHEET 48 OF 58

SCALE 1" = 20'-0"
20 0 20





SOIL INFORMATION
UDIPSAMMENTS AND UDORTHENTS
HYDRO GROUP NOT RATED

SOIL INFORMATION
COLTON GRAVELLY LOAMY SAND
HYDRO GROUP A
WELL DRAINED
POTENTIALLY HIGHLY ERODIBLE

SOIL INFORMATION
COLTON GRAVELLY LOAMY SAND
HYDRO GROUP A
WELL DRAINED
POTENTIALLY HIGHLY ERODIBLE

SOIL INFORMATION
COLTON GRAVELLY LOAMY SAND
HYDRO GROUP A
WELL DRAINED
POTENTIALLY HIGHLY ERODIBLE

PROJECT NAME: WOODFORD
PROJECT NUMBER: ER BHF 010-1(44)

FILE NAME: s11b214EPSC bdr.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY: G. ROY
EPSC EXISTING CONDITION (2)	SHEET 49 OF 58

SCALE 1" = 20'-0"
20 0 20

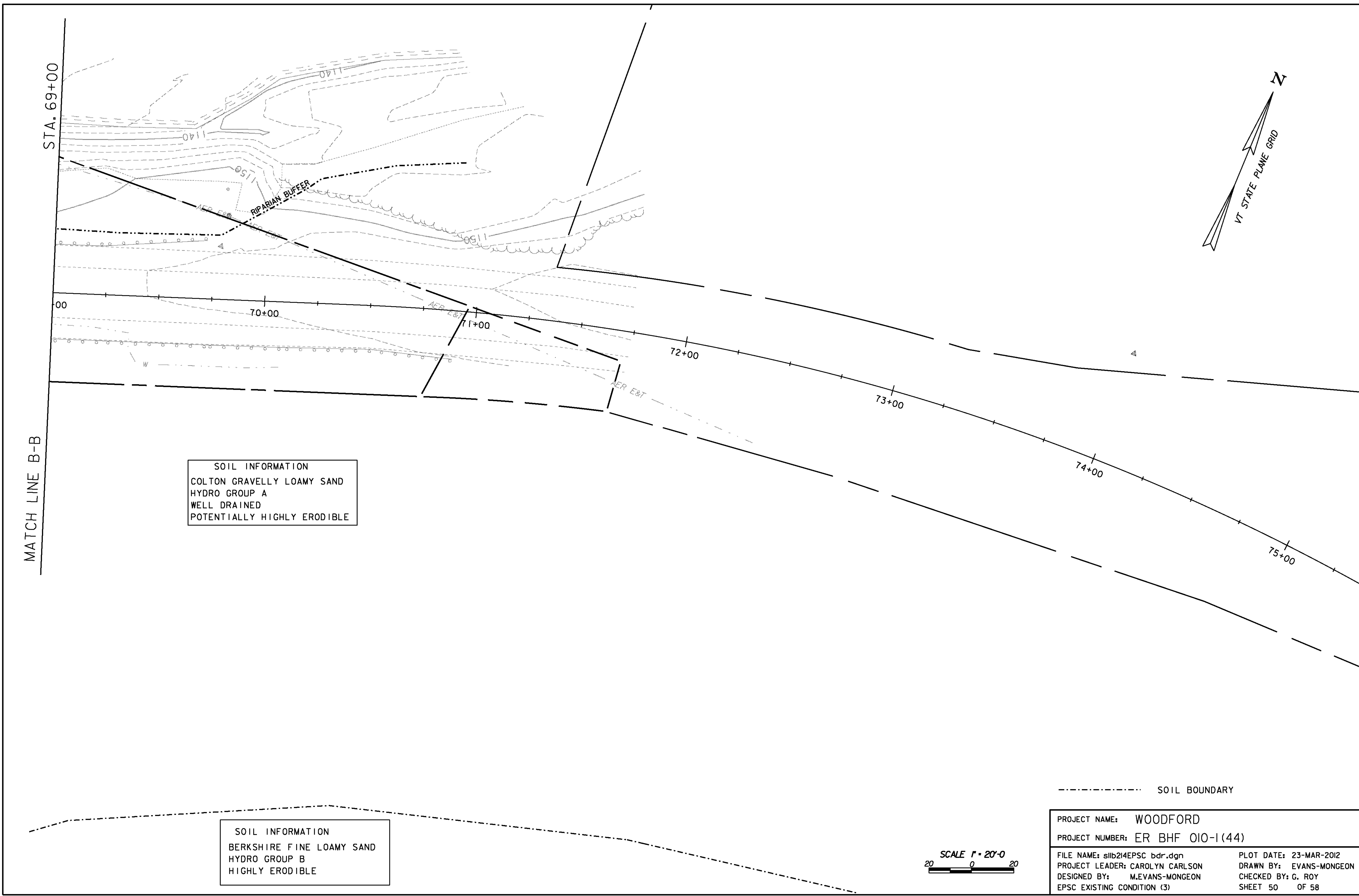
----- SOIL BOUNDARY

STA. 69+00

MATCH LINE B-B

MATCH LINE A-A

STA. 63+00



SOIL INFORMATION
COLTON GRAVELLY LOAMY SAND
HYDRO GROUP A
WELL DRAINED
POTENTIALLY HIGHLY ERODIBLE

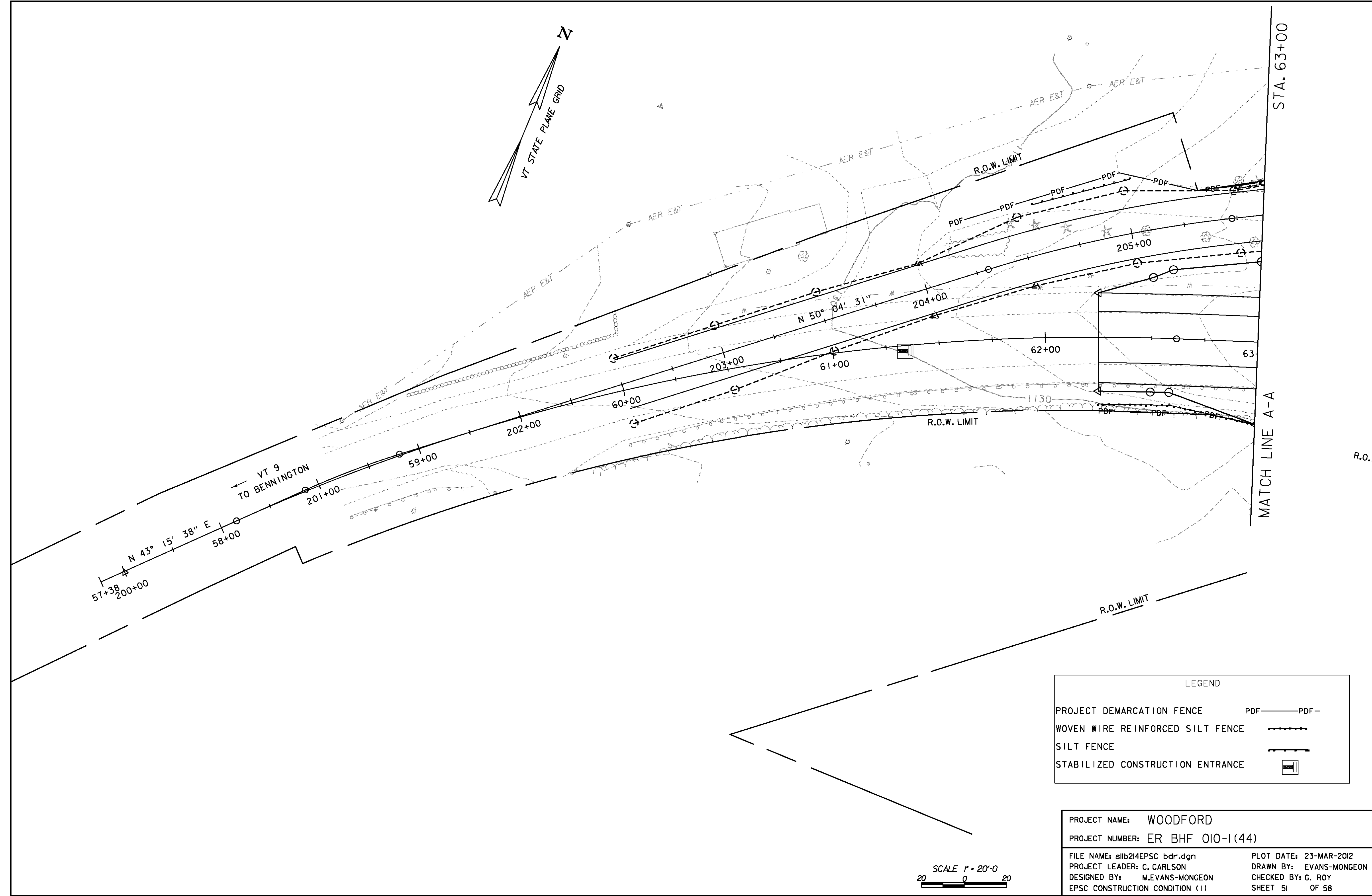
SOIL INFORMATION
BERKSHIRE FINE LOAMY SAND
HYDRO GROUP B
HIGHLY ERODIBLE

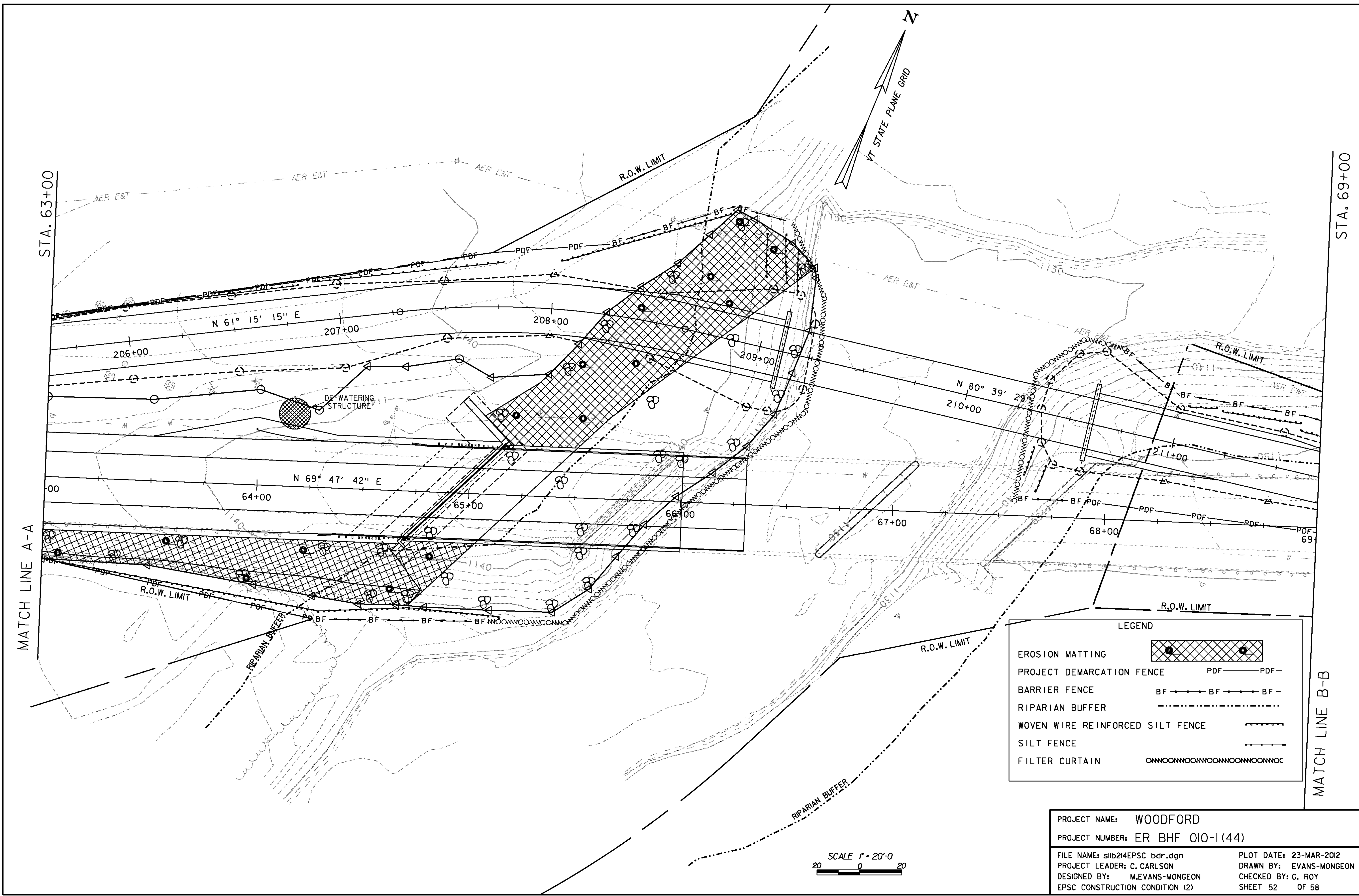
----- SOIL BOUNDARY

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME: WOODFORD
PROJECT NUMBER: ER BHF 010-1(44)

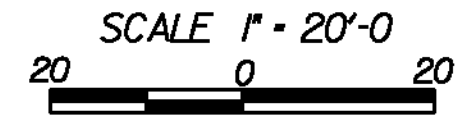
FILE NAME: s11b214EPSC bdr.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: CAROLYN CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY: G. ROY
EPSC EXISTING CONDITION (3)	SHEET 50 OF 58



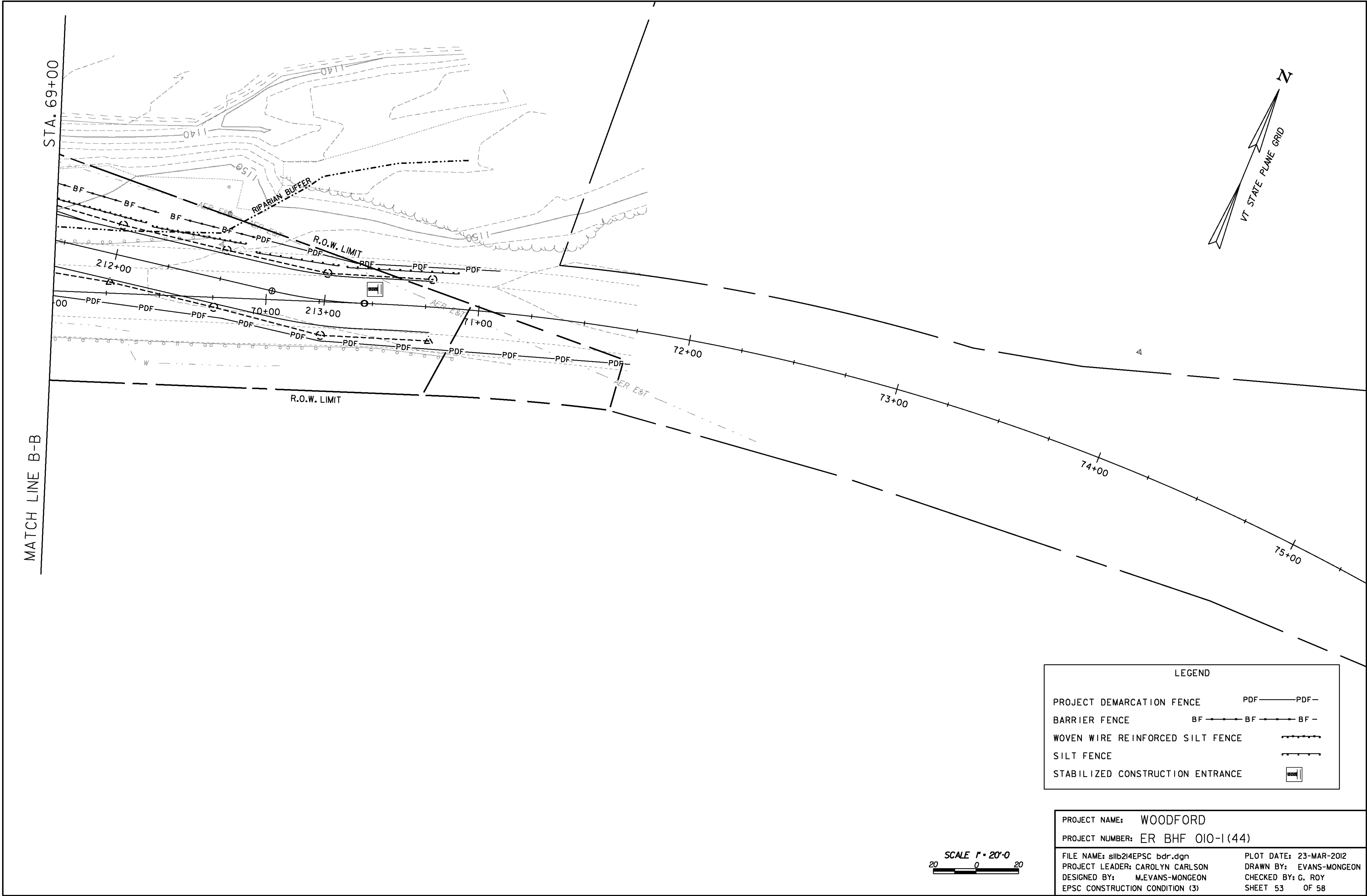


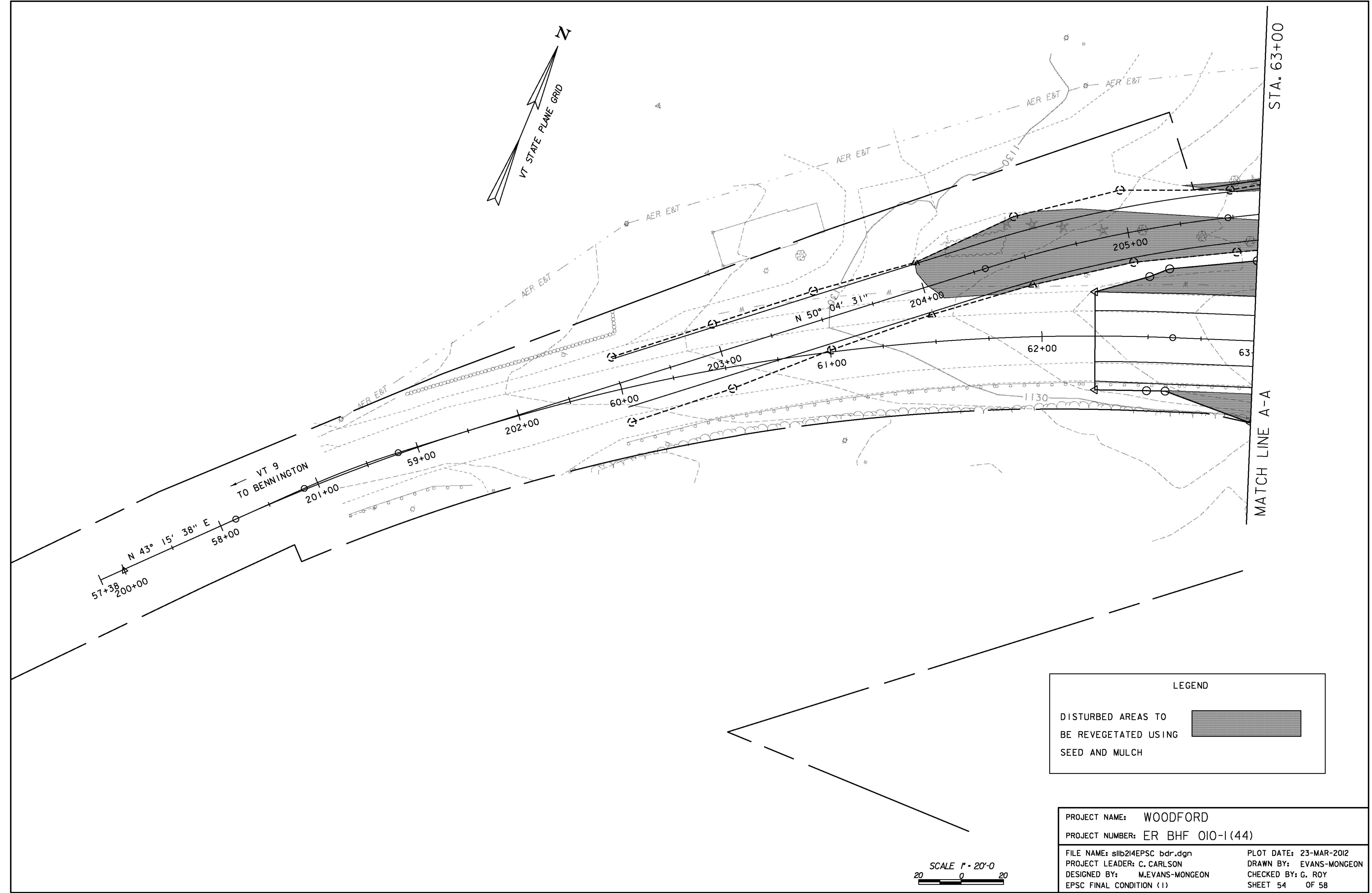
LEGEND

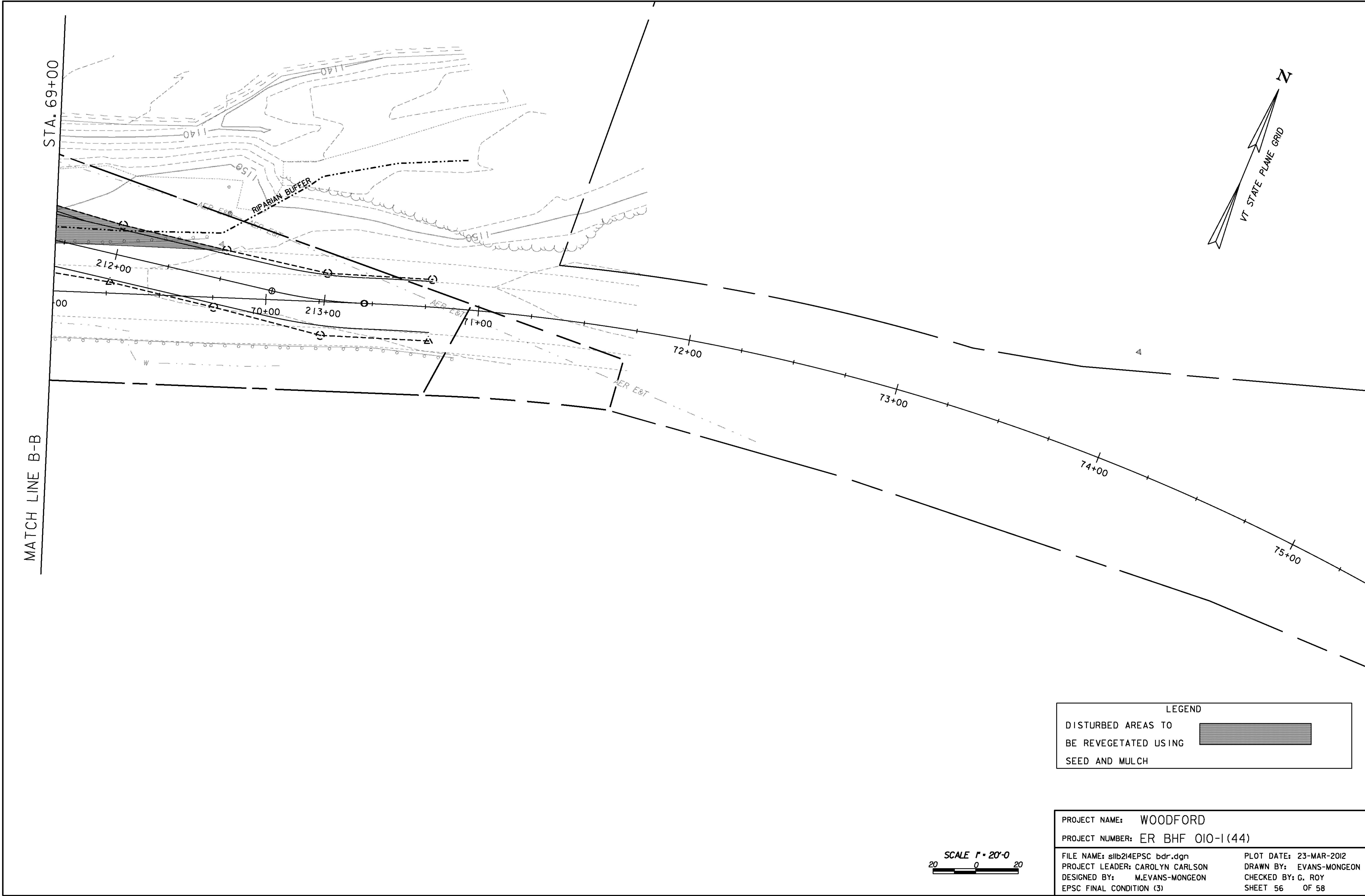
EROSION MATTING	
PROJECT DEMARCATION FENCE	PDF — PDF —
BARRIER FENCE	BF — BF — BF —
RIPARIAN BUFFER	— · — · — · — · —
WOVEN WIRE REINFORCED SILT FENCE	— · — · — · — · —
SILT FENCE	— · — · — · — · —
FILTER CURTAIN	ONNOONNOONNOONNOONNOONNO

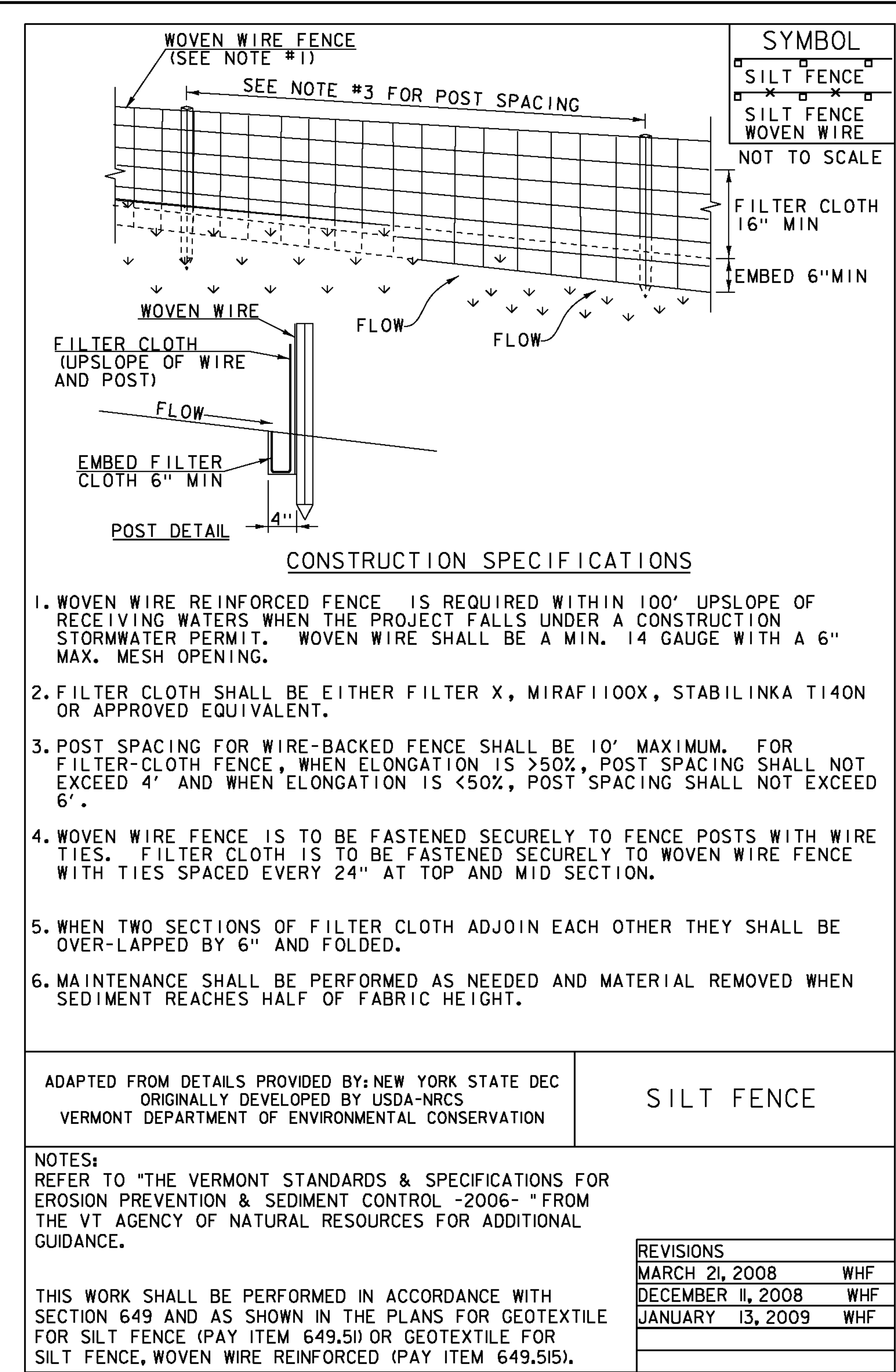
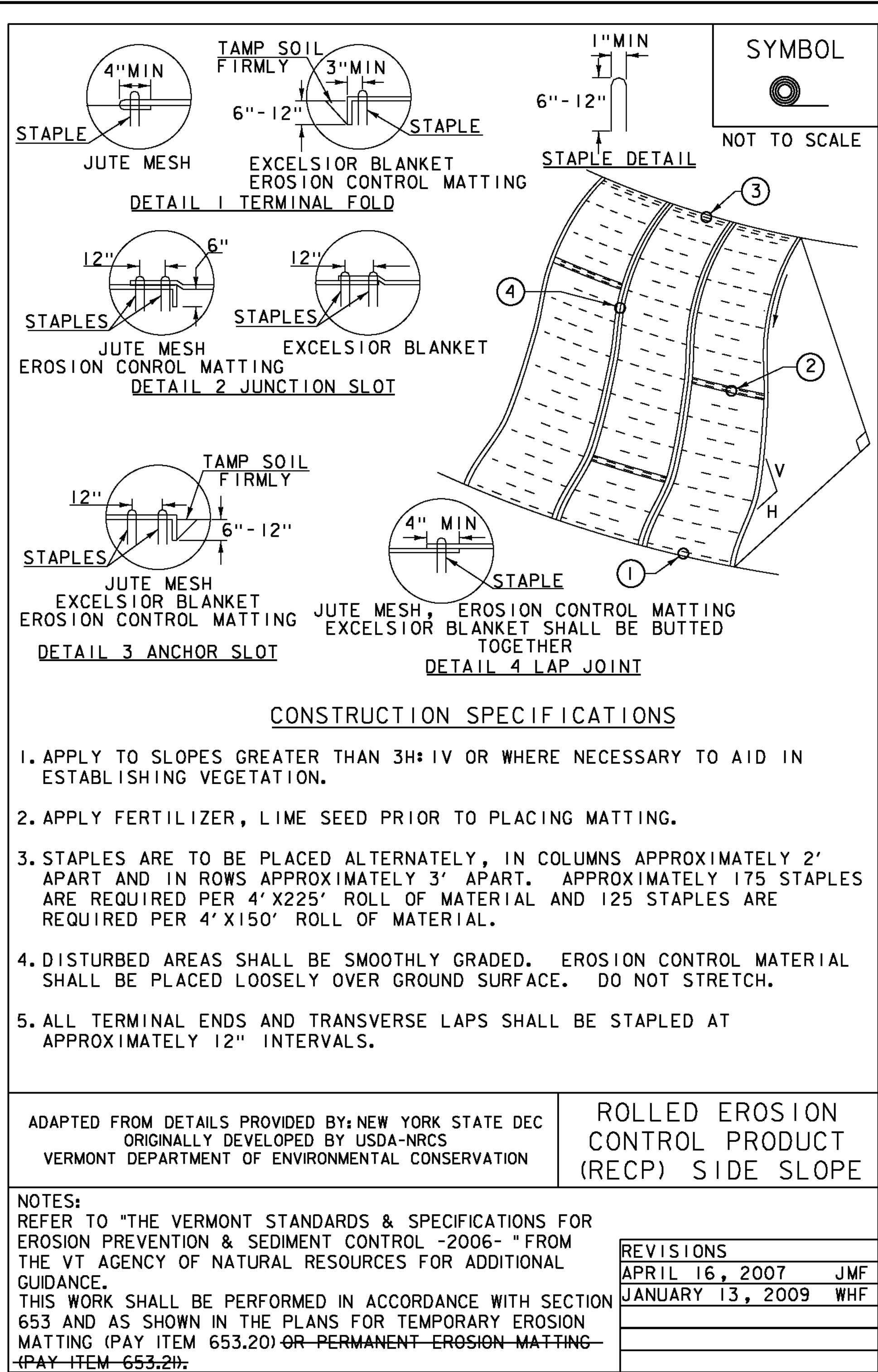
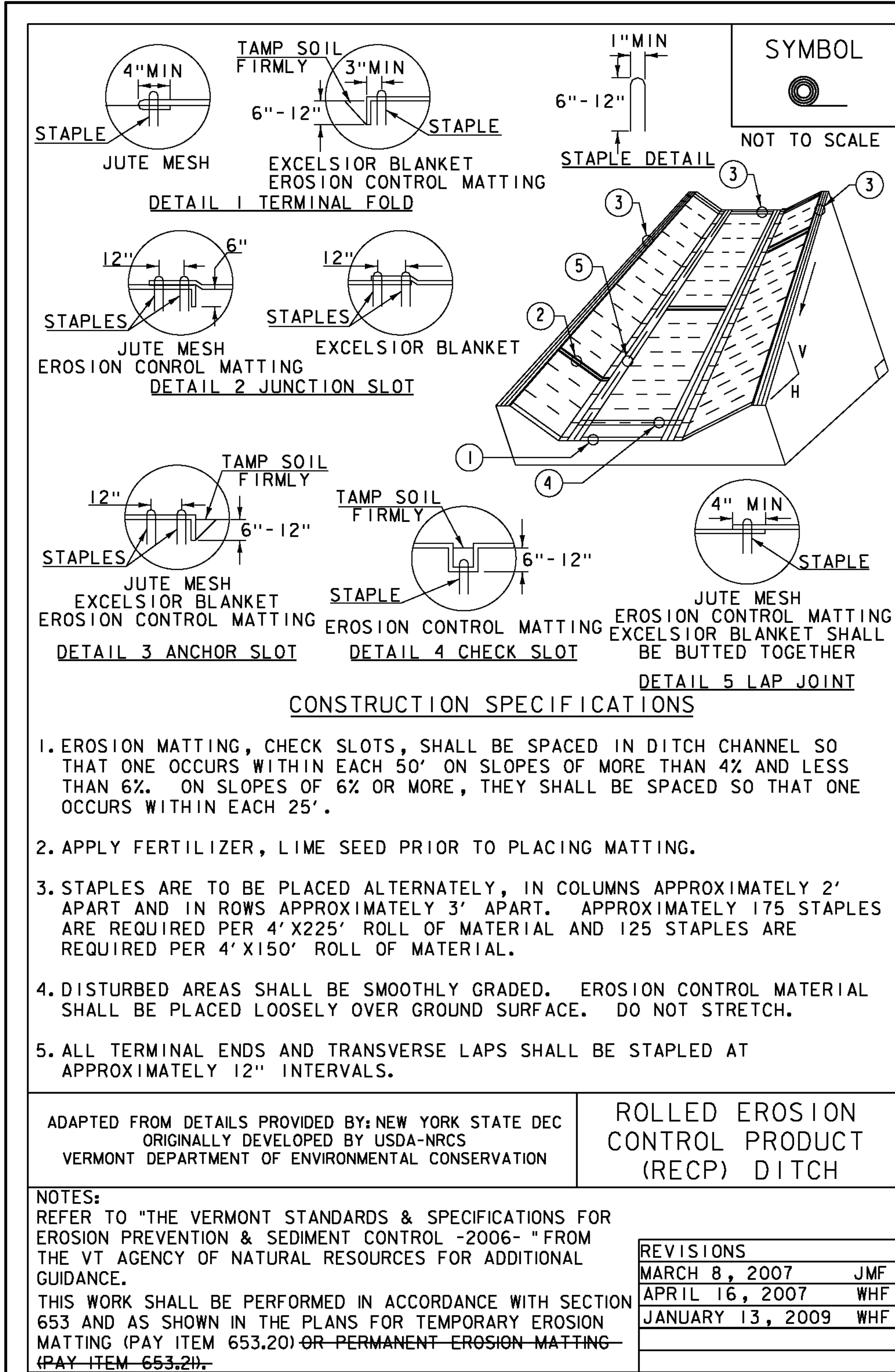


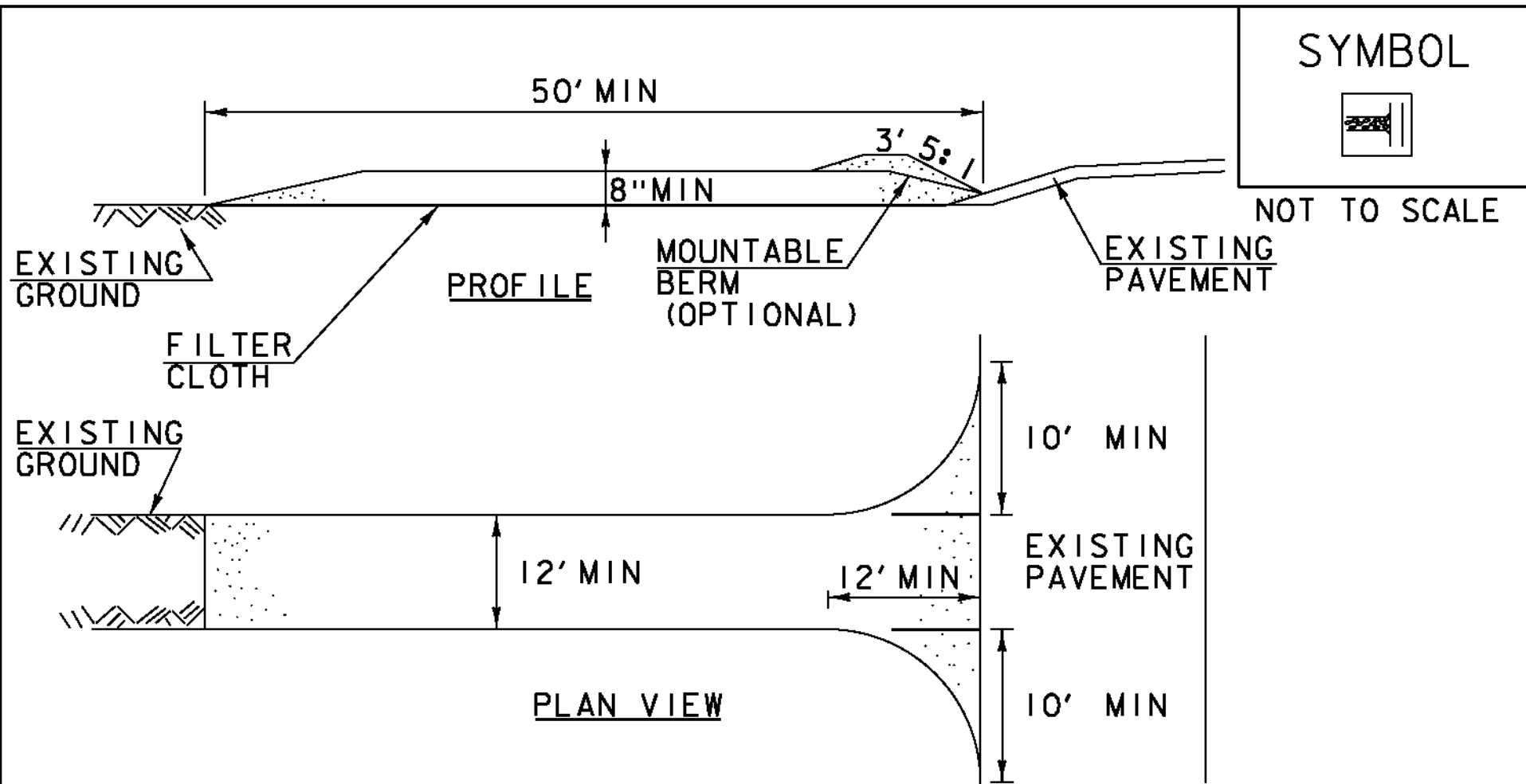
PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-1(44)	
FILE NAME: s11b214EPSC bdr.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M.EVANS-MONGEON	CHECKED BY: G. ROY
EPSC CONSTRUCTION CONDITION (2)	SHEET 52 OF 58











CONSTRUCTION SPECIFICATIONS

- 1.STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- 2.LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
- 3.THICKNESS- NOT LESS THAN 8".
- 4.WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24" IF SINGLE ENTRANCE TO SITE.
- 5.GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- 6.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.
- 7.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.
- 8.WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- 9.PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

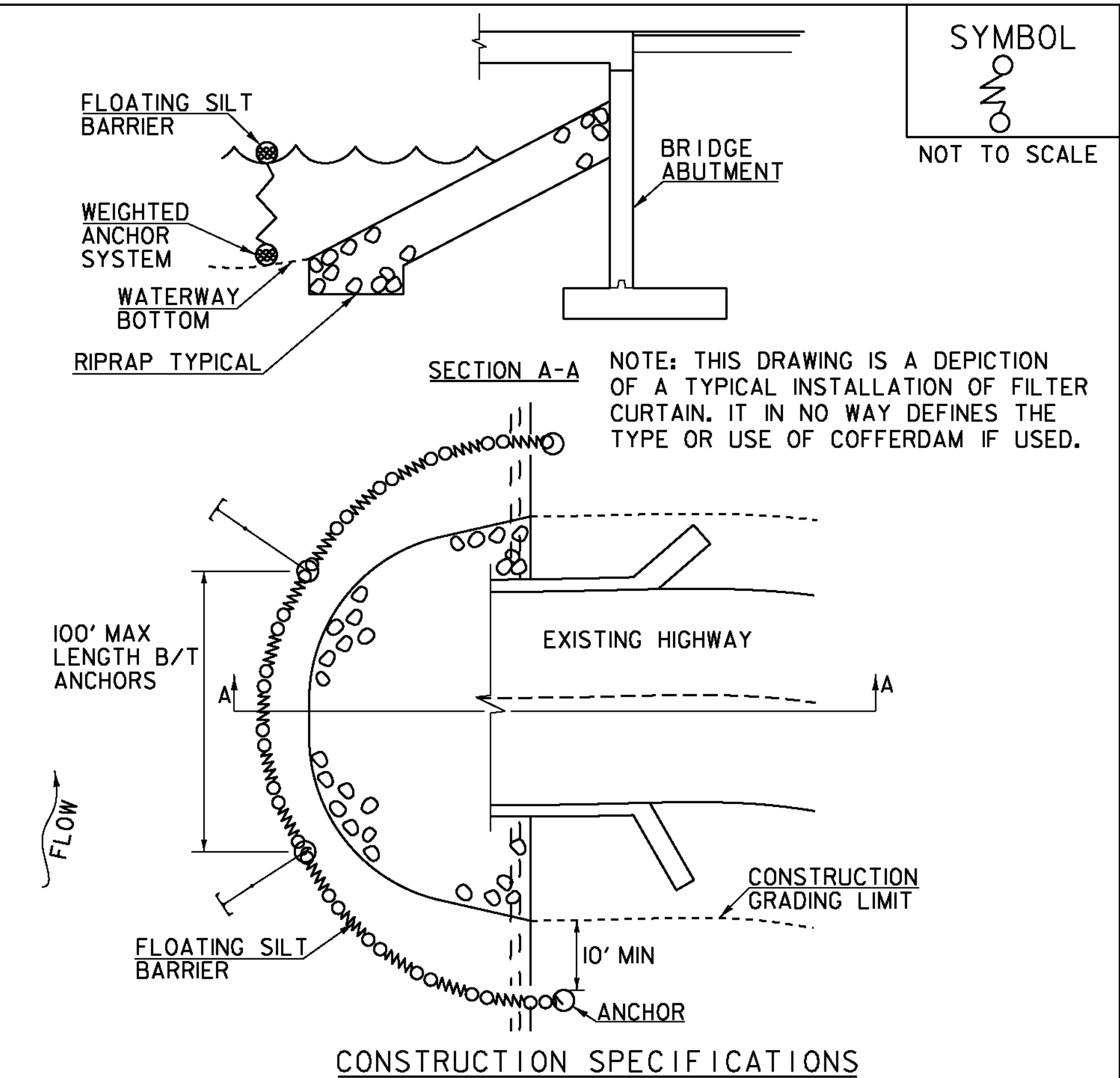
ADAPTED FROM DETAILS PROVIDED BY:NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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	



CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH
SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY
ITEM 649.6I).

REVISIONS		
APRIL 1, 2008	WHF	
JANUARY 13, 2009	WHF	
SEPTEMBER 4, 2009	WHF	

VAOT RURAL AREA MIX					
LBS/AC					
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
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	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
LBS/AC					
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
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

- 1.RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- 2.URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- 3.ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- 4.FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
- 5.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.
- 6.TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- 7.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
- 8.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

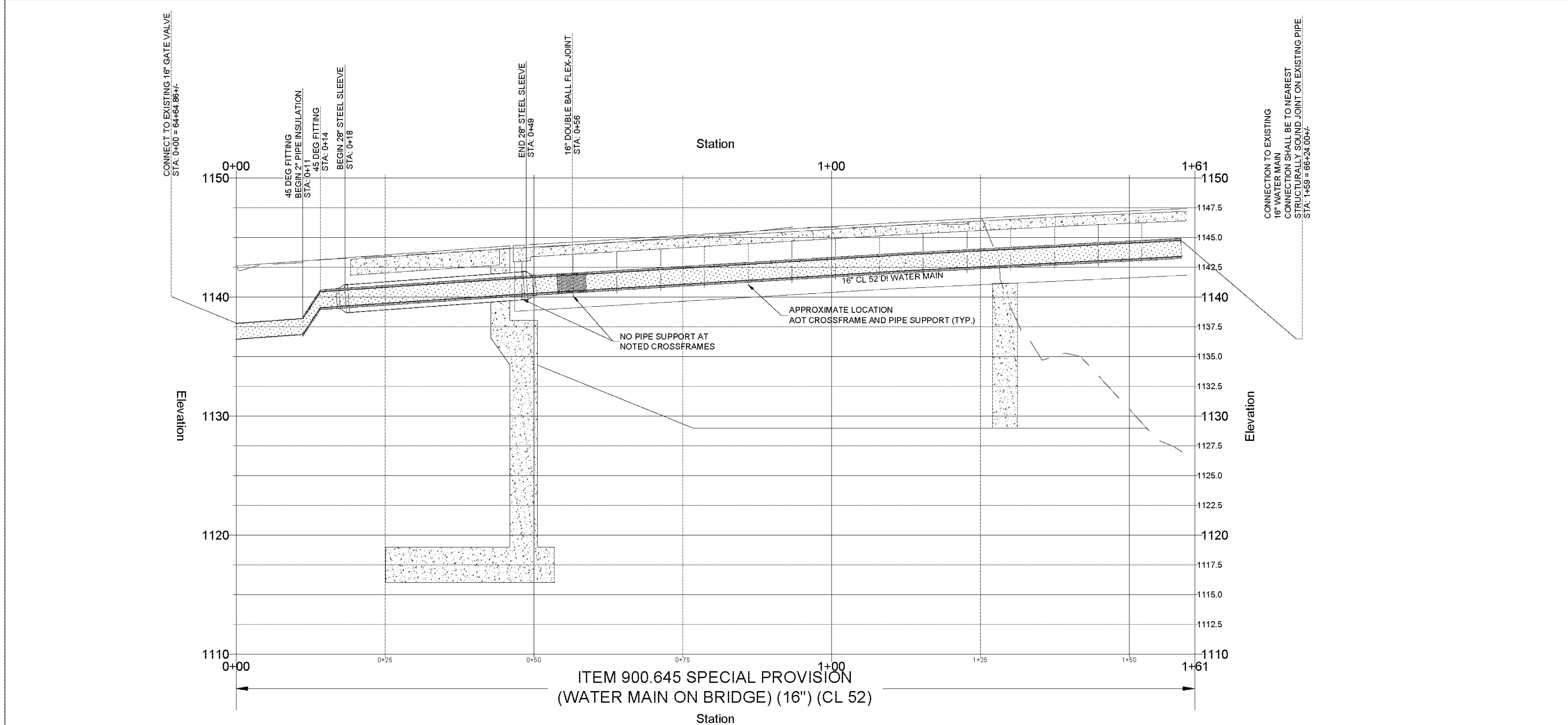
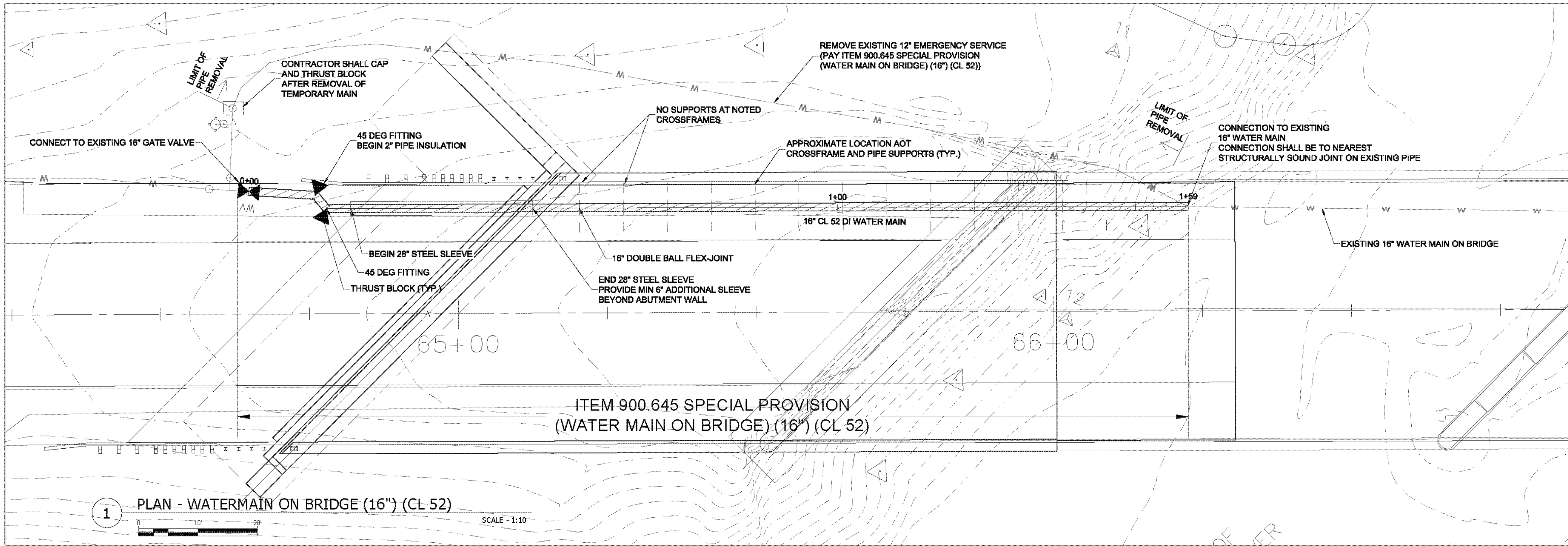
REVISIONS		
JUNE 23, 2009	WHF	
JANUARY 15, 2010	WHF	
FEBRUARY 16, 2011	WHF	

PROJECT NAME: WOODFORD

PROJECT NUMBER: ER BHF 010-1(44)

FILE NAME: s11b214epsc details.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M.EVANS-MONGEON
EPSC DETAILS (2)

PLOT DATE: 23-MAR-2012
DRAWN BY: EVANS-MONGEON
CHECKED BY:
SHEET 58 OF 58



GENERAL NOTES

CONSTRUCTION NOTES:

1. ALL WORK SHALL BE COMPLETED AND TESTED IN ACCORDANCE WITH THE TOWN OF BENNINGTON CONSTRUCTION ORDINANCE, STATE AGENCY OF NATURAL RESOURCES REGULATIONS, STATE AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2011 EDITION AND AWWA WATERLINE CONSTRUCTION STANDARDS C600 AND C652.
2. INSTALL EXPANSION JOINT NEAR BRIDGE WEST END ABUTMENT TO ALLOW FOR MAINTENANCE ACCESS. JOINT TO BE ROMAC INDUSTRIES DOUBLE BALL TYPE OR APPROVED EQUAL WITH MIN 8" OFFSET DEFLECTION OR ENGINEER APPROVED EQUAL. SUPPORT JOINT TO MANUFACTURERS INSTALLATION RECOMMENDATIONS. PIPING MATERIALS TO BE ATLANTIC STATES OR APPROVED EQUAL, CLASS 52, MIN 4 BRASS WEDGES SHALL BE INSTALLED PER JOINT.
3. BRIDGE PIPE SHALL BE MECHANICAL JOINT DUCTILE IRON PIPE WITH MEGALUG RESTRAINTS. ALL PIPE TO BE MECHANICALLY RESTRAINED AT JOINTS.
4. IF THERE ARE ANY CONFLICTS OR INCONSISTENCIES WITH THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR VERIFICATION BEFORE WORK CONTINUES ON THE ITEM IN QUESTION.
5. CONTRACTOR SHALL CHLORINATE, (2) NEGATIVE BACTERIA TESTS AND PRESSURE TEST NEW SEGMENT OF WATER PIPE PRIOR TO FINAL CONNECTION OF SYSTEM. TESTING SHALL BE IN ACCORDANCE WITH AWWA STANDARDS C600 AND C652, TOWN OF BENNINGTON AND STATE OF VERMONT STANDARDS. CONTRACTOR SHALL COORDINATE WITH ENGINEER AND TOWN OF BENNINGTON PRIOR TO TESTING. TEST SHALL ENCOMPASS ENTIRE BRIDGE FROM VALVE TO VALVE.

MSK ENGINEERING AND DESIGN, INC.
P.O. BOX 396, 46 CHURCH STREET
SHAFTSBURY, VT 05262
PH: (802) 447-1402 FAX: (802) 445-1201



REVISIONS

NO. DATE

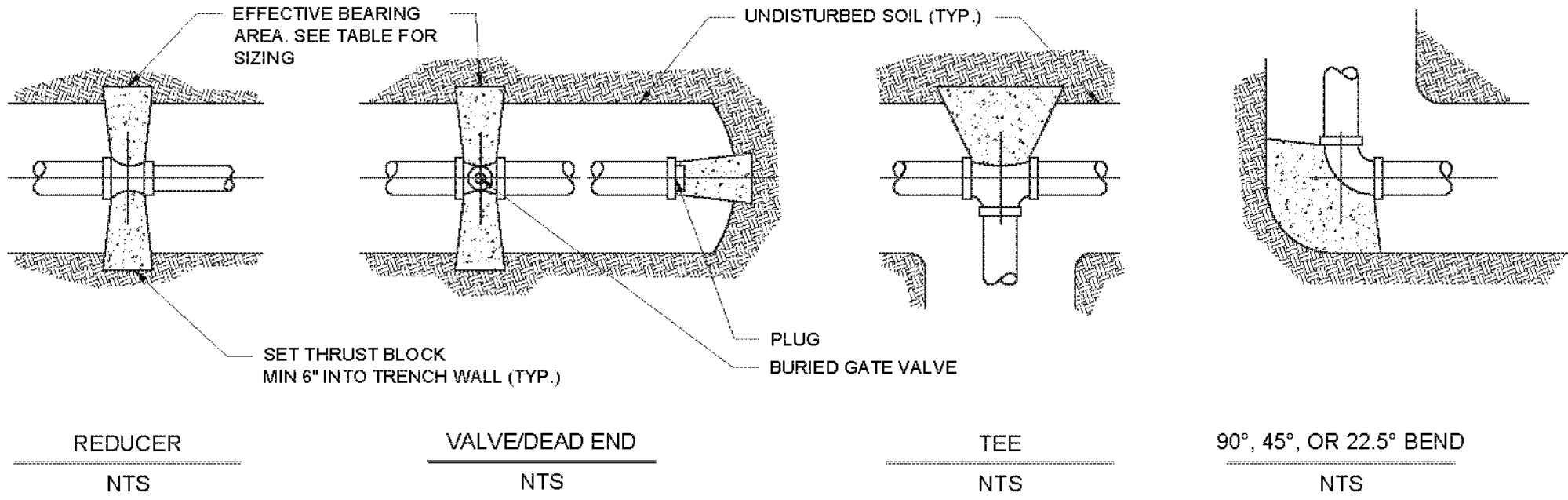
ER BHF 010-1 (44)
VT ROUTE 9
WOODFORD, VT

DRAWINGS THIS SHEET
WATERMAIN ON
BRIDGE - PERMANENT

NUMBER	DATE
DRAWN	03-01-12
JMD	JRS

SHEET NUMBER

C-101



MINIMUM BEARING SURFACE AREA OF CONCRETE THRUST BLOCKS (IN SQUARE FEET)

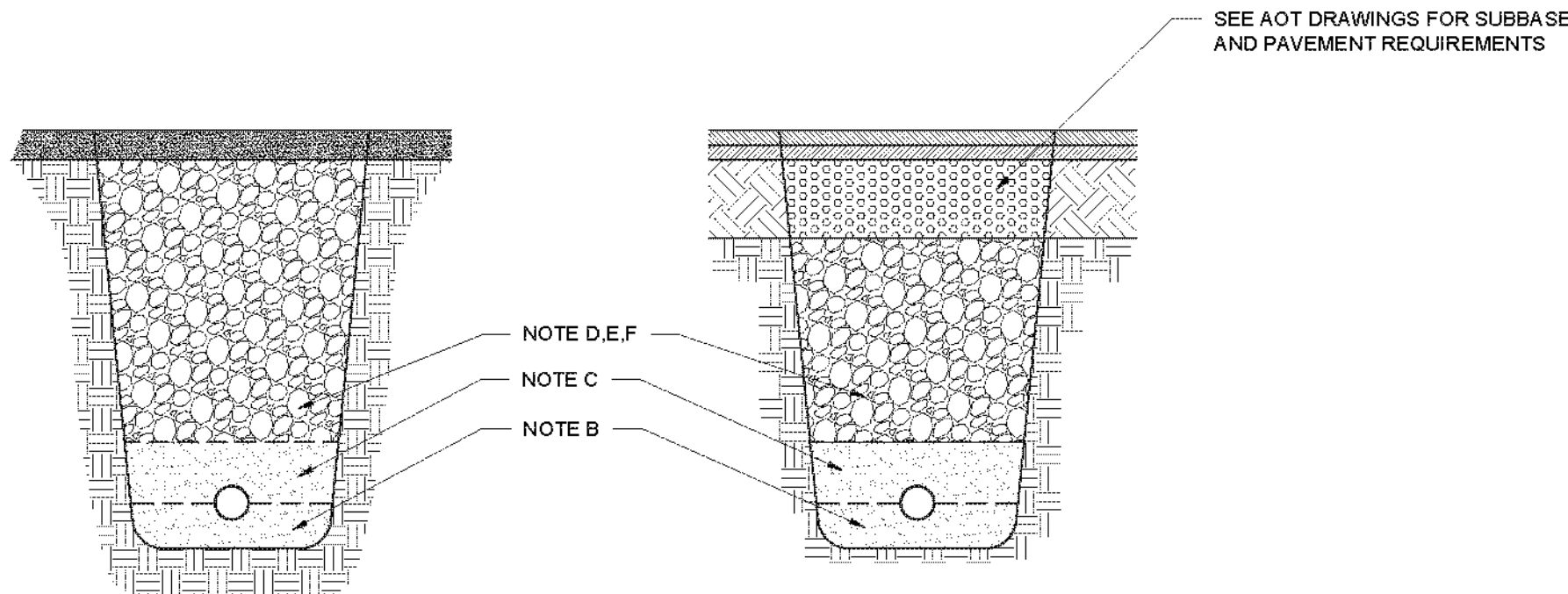
REDUCERS			4-8"				10"				12"				SOIL CONDITION	SAFE BEARING LOAD (PSF)
8X6	10X8	12X8	ENDS & TEES	90° ELB	45° ELB	22.5° OR LESS	ENDS & TEES	90° ELB	45° ELB	22.5° OR LESS	ENDS & TEES	90° ELB	45° ELB	22.5° OR LESS		
3.0	5.0	6.0	4.0	6.0	3.0	2.0	6.0	8.0	5.0	2.0	8.0	12.0	6.0	3.0	SOUND SHALE	10000
3.0	5.0	6.0	4.5	6.5	3.5	2.0	8.0	11.0	6.0	3.0	10.0	14.0	7.5	4.0	CEMENTED GRAVEL AND SAND	4000
7.0	7.0	11.0	7.0	9.0	5.0	3.0	10.0	14.0	7.0	4.0	14.0	19.0	11.0	5.0	COARSE AND FINE COMPACT SAND	3000
8.0	9.0	14.0	15.0	20.0	10.0	5.0	21.0	31.0	15.0	8.0	30.0	40.0	20.0	10.0	MEDIUM CLAY (CAN BE SPADED)	2000
8.0	11.0	16.0	20.0	28.0	15.0	8.0	29.0	41.0	22.0	11.0	41.0	58.0	31.0	16.0	SOFT CLAY	1000

MAX WATER PRESSURE 300 PSI

C1 TYPICAL CONCRETE THRUST BLOCK DETAIL

NTS

- NOTES:
- PLACE 3 MIL MINIMUM POLYETHYLENE SHEETING BETWEEN ALL CONCRETE THRUST BLOCKS AND PIPE AND/OR FITTINGS TO PREVENT BONDING

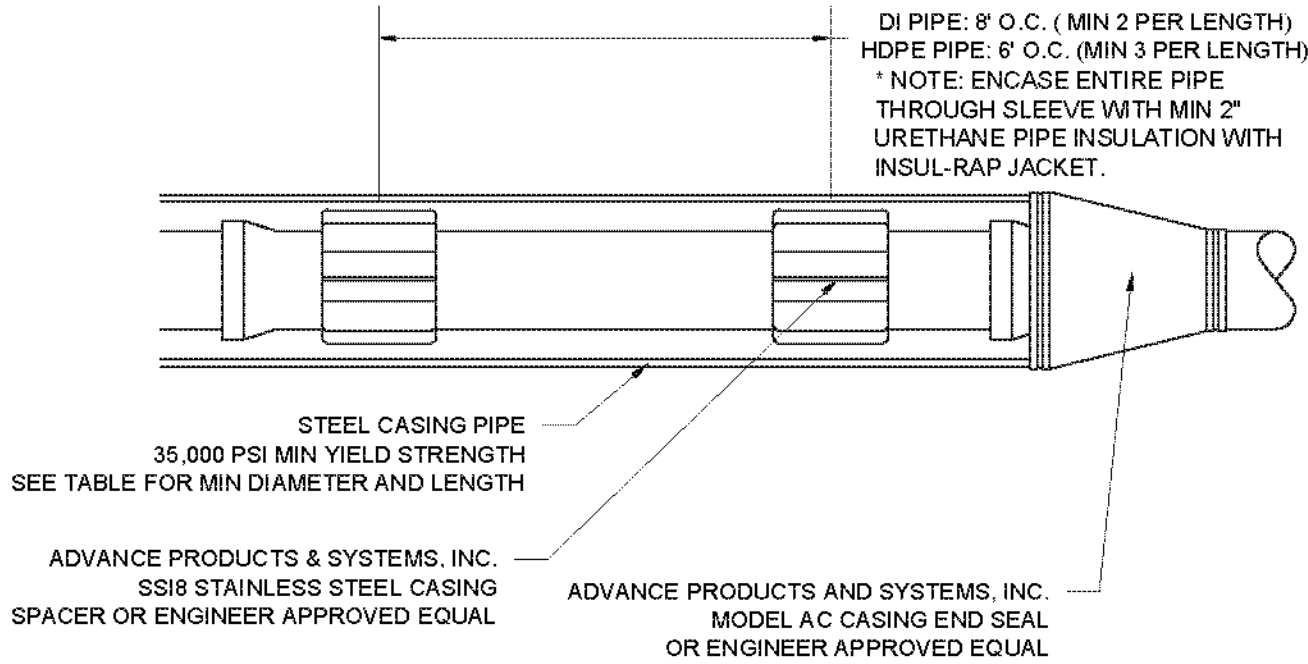


C2 TYPICAL TRENCH DETAIL

Scale: NTS

INSTALLATION SPECIFICATIONS

- A.** MINIMUM BURIAL DEPTH 5'-6" (4'-0" FOR SEWER) IF CONDITIONS PREVENT MINIMUM BURIAL DEPTH, ALL SECTIONS OF LINE LESS THAN MIN. DEPTH SHALL BE INSULATED WITH 1" THICKNESS RIGID FOAM INSULATION PER FOOT LESS THAN MINIMUM. (MIN. 2" thickness 250 psi)
- B.** BED PIPE IN 6" OF CRUSHED STONE (PASSING 1/2" BUT RETAINED ON #4 SIEVE) PIPE SHALL NOT BE LAID IN UNCOMPACTED SOIL OR IN WATER. IF IN LEDGE CONDITIONS, BED PIPE IN A MINIMUM OF 6" OF CLEAN SAND. DO NOT REST PIPE ON LEDGE ROCK.
- C.** BACKFILL OVER PIPE W/ 12" MINIMUM SAND, COMPACTED ENTIRE WIDTH OF TRENCH. BACKFILL WITH BEDDING STONE TO 12" DEPTH IF IN WATER.
- D.** REMAINDER OF BACKFILL TO BE SELECT EARTH OR BANK RUN GRAVEL NOT GREATER THAN 6" IN LARGEST DIMENSION. BACKFILL TO BE COMPACTED IN 6" LIFTS UNDER ROADS AND PAVED AREAS.
- E.** BACKFILL SHALL CONSIST OF SUITABLE MATERIAL REMOVED FROM EXCAVATION, AND SHALL BE FREE OF CLODS, DEBRIS, FROZEN CHUNKS, PAVEMENT PIECES, LARGE STONES, ORGANIC MATERIAL OR ANY OTHER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER.
- F.** BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY IN ALL TRENCH EXCAVATIONS. (95% OF LAWN/GRASS AREA)



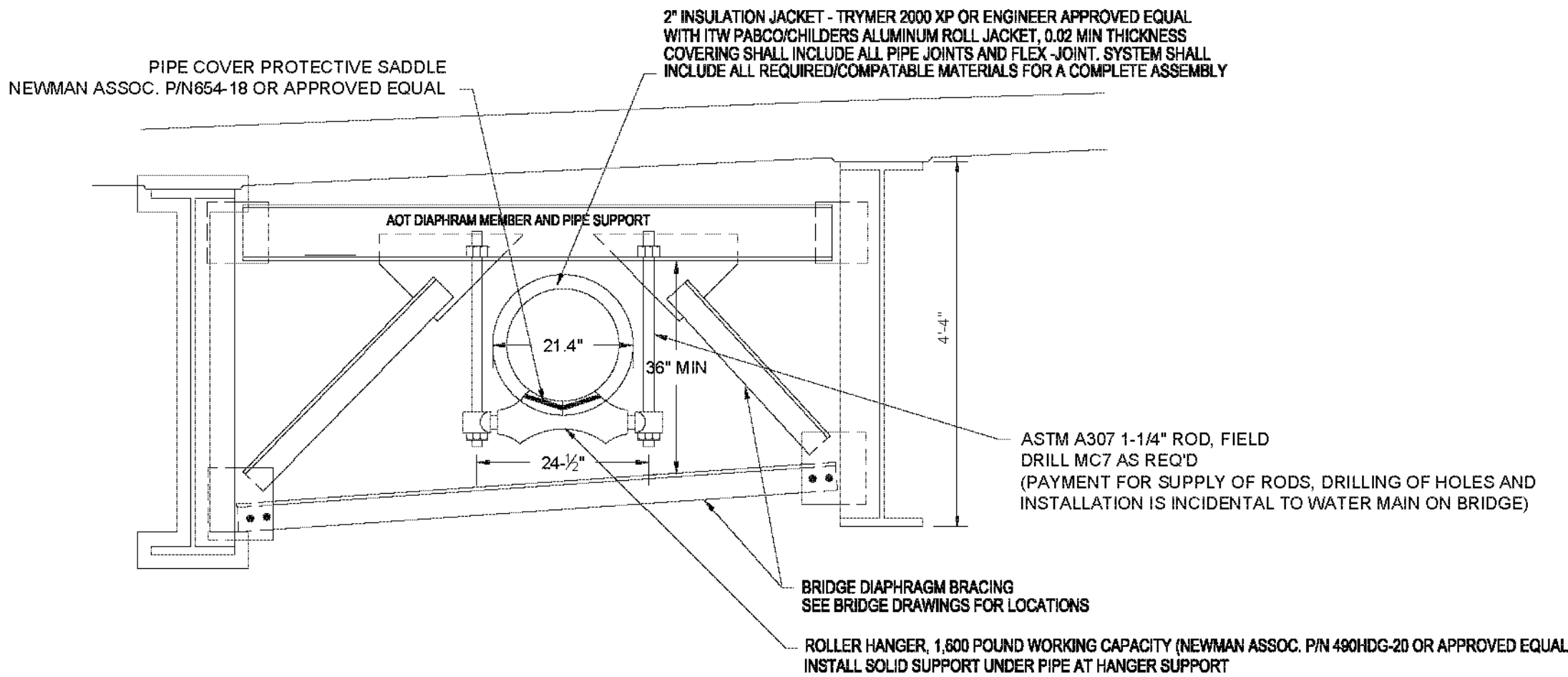
C3 SLEEVE PIPE DETAIL

Scale: NTS

SLEEVE PIPE SIZE AND THICKNESS		
CARRIER DIA	CASING DIAM/MTL	MIN THICKNESS
3/4"-2" K' CU	4" HDPE	N/A
4" DI	14" STEEL	0.312 inch
6" DI	16" STEEL	0.312 inch
8" DI	18" STEEL	0.312 inch
10" DI	20" STEEL	0.312 inch
12" DI	22" STEEL	0.312 inch
16" DI	28" STEEL	0.375 inch

NOTES:

- D17 HDPE PIPE MAY BE SUBSTITUTED FOR STEEL CASING WITH ENGINEER APPROVAL.



C4 HANGER SUPPORT DETAIL

Scale: NTS

NOTES:

- ENGINEER WILL PROVIDE BRIDGE FABRICATION DRAWINGS TO MSK ENGINEERING FOR FINAL COORDINATION OF PIPE SUPPORTS
- THE BRIDGE DIAPHRAGM BRACING WILL ALLOW CLEARANCE FOR A 24" OVERALL PIPE AND JACKET DIMENSION. COORDINATE THE FINAL LOCATION OF THE PIPE WITH THE BRIDGE DIAPHRAGM BRACING. REMOVE AND RE-INSTALL THE BOTTOM DIAPHRAGM MEMBER AS REQUIRED TO INSTALL THE PIPE.

MSK ENGINEERING AND DESIGN, INC.
P.O. BOX 396.46 CHURCH STREET
SHAFTSBURY, VT 05262
PH: (802) 447-1602 FAX: (802) 446-1291



REVISIONS

DESCRIPTION

NO. DATE

ER BHF 010-1 (44)
VT ROUTE 9
WOODFORD, VT

DRAWINGS THIS SHEET

WATERLINE
DETAILS

NUMBER	DATE
DRAWN	08-01-12
CHECKED	
JMD	JRS

SHEET NUMBER

C-501



State of Vermont
Southwest Regional Construction Office
1635 US Rte 4
Rutland, VT 05701
www.aot.state.vt.us

Agency of Transportation

[phone] SW 802-786-0023
[fax] SW 802-786-3810

WRITTEN ORDER No. 21

The following Written Order is hereby issued to, Project Manager Brian Emmons representing the Contractor, T. Buck Construction, Inc on the Woodford ER BHF 010-1(44) project.

You are hereby directed to add plantings to the project to replace those lost during Hurricane Irene and the subsequent recovery and reconstruction projects. A portion of the Woodford Bridge (BHF 010-1(29) sheets 31-32 and 37-39) are attached to use as a guide for placement. You are directed to plant the individual planting shown on the plans North West of the bridge as close to the locations shown as practical, final locations to be determined in the field. Plants to be installed as detailed on sheets 37-39. In addition to the individual plants, approximated quantities of 6-8 CY of item 651.27 Cedar Mulch and 9-12 CY of 651.35 Topsoil Mod. (Compost) will be needed. The anti-desiccant spray referenced on sheet 38 note 2 under Evergreen Tree Planting Detail shall be submitted for approval by the engineer and is considered subsidiary to the individual plantings.

The full list of plants includes;

7 Evergreen Trees (Pinus Strobus aka White Pine) Min Ht 5-6' Item 656.20

16 Evergreen Seedlings (Pinus Strobus aka White Pine) Min Ht 1-2' Item 656.15

2 Deciduous Trees (Betula Papyrifera aka Paper Birch-clump of 3) Min Ht 8-10' Item 656.30

3 Deciduous Treed (Acer Saccharum aka Sugar Maple) 1.5-2.0" Cal Item 656.30

11 Deciduous Trees (Betula Populifolia aka Gray Birch) Min Ht 4-5' Item 656.30

10 Deciduous Trees (Fraxinus Americana aka White Ash) Min Ht 4-5' Item 656.30

Date: February 27, 2013

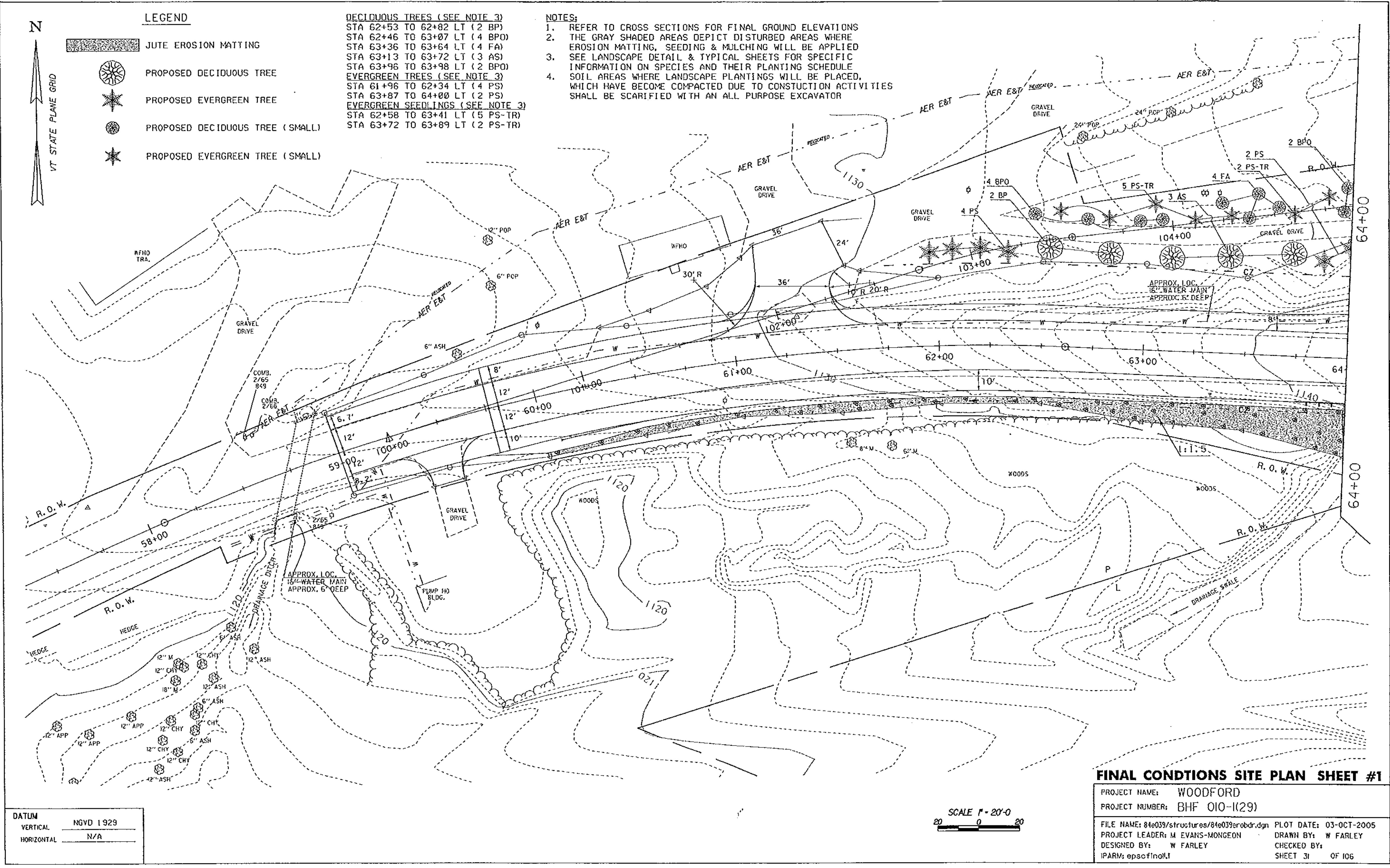
Signed,



Ronald Lemaire, Resident Engineer

Electronic Distribution:

Headquarters via Finals Engineer
Regional Construction Engineer
Regional Construction Technician
Regional Program Services Clerk
project file



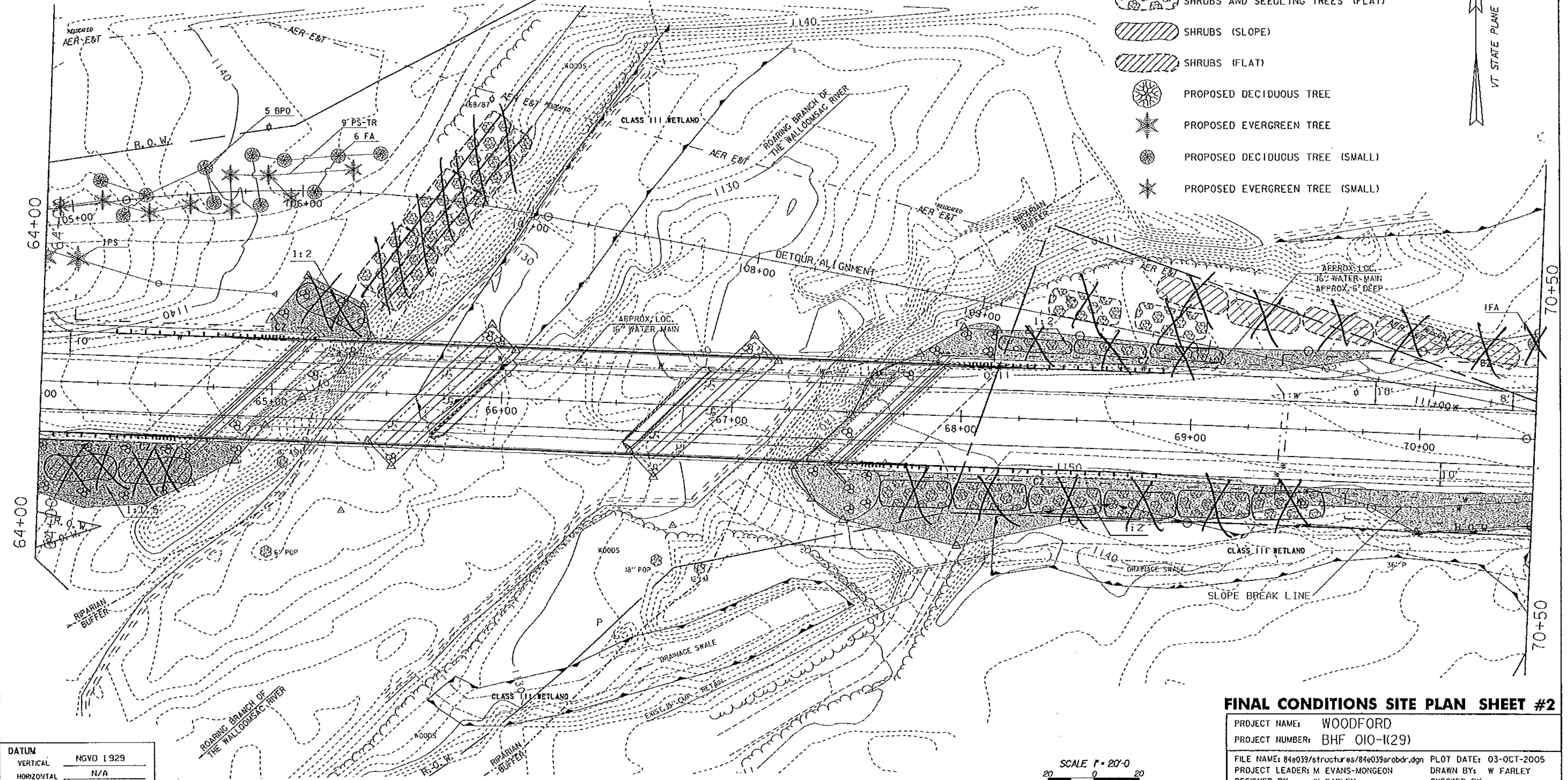
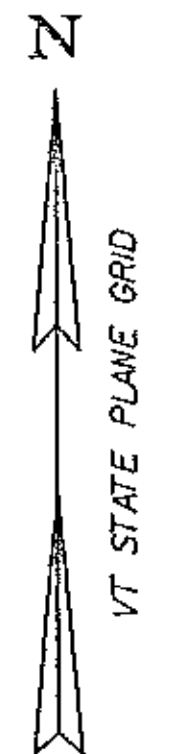
DECIDUOUS TREES (SEE NOTE 3)
 STA 64+23 TO 64+73 LT (5 BPO)
 STA 64+92 TO 65+44 LT (6 FA)
 STA 70+49 LT (1 FA)
 EVERGREEN TREES (SEE NOTE 3)
 STA 64+14 LT (1 PS)
 EVERGREEN SEEDLINGS (SEE NOTE 3)
 STA 64+06 TO 65+32 LT (9 PS-TR)

EMBANKMENT GROUPINGS (SEE NOTE 3)
 STA 64+02 TO 64+67 RT (2 GROUPS)
 STA 65+09 TO 65+40 LT (1 GROUP)
 STA 67+65 TO 69+59 RT (6 GROUPS)
 STA 68+15 TO 69+13 LT (3 GROUPS) (SEE NOTE 4)
 FLAT GROUND GROUPINGS (SEE NOTE 3)
 STA 65+36 TO 66+09 LT (6 GROUPS)
 STA 68+36 TO 69+06 LT (2 GROUPS)
 STA 68+83 TO 70+42 LT (5 GROUPS)

- NOTES:
1. REFER TO CROSS SECTIONS FOR FINAL GROUND ELEVATIONS
 2. THE GRAY SHADED AREAS DEPICT DISTURBED AREAS WHERE EROSION MATTING, SEEDING & MULCHING WILL BE APPLIED
 3. SEE LANDSCAPE DETAIL & TYPICAL SHEETS FOR SPECIFIC INFORMATION ON SPECIES AND THEIR PLANTING SCHEDULE
 4. THESE GROUPS WILL UTILIZE THE UPPER PORTION OF THE GROUPING AS SHOWN ON THE LANDSCAPE DETAIL SHEETS
 5. SOIL AREAS WHERE LANDSCAPE PLANTINGS WILL BE PLACED, WHICH HAVE BECOME COMPACTED DUE TO CONSTRUCTION ACTIVITIES SHALL BE SCARIFIED WITH AN ALL PURPOSE EXCAVATOR

LEGEND

- JUTE EROSION MATTING
- WETLANDS
- SHRUBS AND SEEDLING TREES (SLOPE)
- SHRUBS AND SEEDLING TREES (FLAT)
- SHRUBS (SLOPE)
- SHRUBS (FLAT)
- PROPOSED DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED DECIDUOUS TREE (SMALL)
- PROPOSED EVERGREEN TREE (SMALL)



DATUM
 VERTICAL NGVD 1929
 HORIZONTAL N/A

SCALE 1" = 20'-0"
 20 0 20

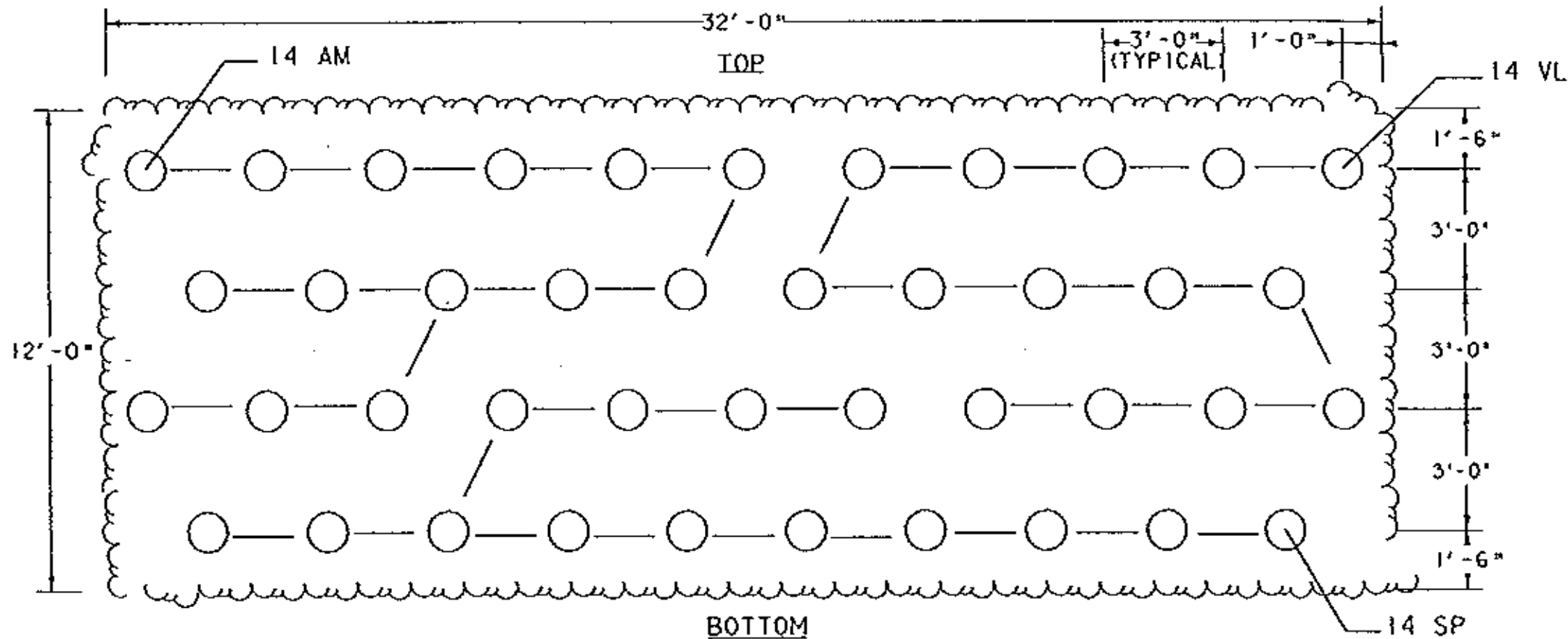
FINAL CONDITIONS SITE PLAN SHEET #2

PROJECT NAME: WOODFORD
 PROJECT NUMBER: BHF 010-K29)
 FILE NAME: 84e039/structures/84e039srobdr.dgn PLOT DATE: 03-OCT-2005
 PROJECT LEADER: M EVANS-MONGEON DRAWN BY: W FARLEY
 DESIGNED BY: W FARLEY CHECKED BY:
 IPARM: epscfino2.1 SHEET 32 OF 106

PLANT AND TREE LIST

QUANTITY	UNIT	KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	REMARKS	ITEM #
EVERGREEN SEEDLING								
116	EA	PS-TR	PINUS STROBUS	WHITE PINE	1-2' MINIMUM HT	6' OC	1 GALLON CONTAINER	656.15
EVERGREEN TREES								
7	EA	PS	PINUS STROBUS	WHITE PINE	5-6' MINIMUM HT	12' OC	CONTAINER/ B&B	656.20
DECIDUOUS TREES								
3	EA	AS	ACER SACCHARUM	SUGAR MAPLE	1.5-2.0" CAL	30' OC	CONTAINER/ B&B	656.30
2	EA	BP	BETULA PAPYRIFERA	PAPER BIRCH (CLUMP OF 3)	8-10' MINIMUM HT	30' OC	CONTAINER/ B&B	656.30
46	EA	BPO	BETULA POPULIFOLIA	GRAY BIRCH	4-5' MINIMUM HT	6' OC	2 GALLON CONTAINER	656.30
42	EA	FA	FRAXINUS AMERICANA	WHITE ASH	4-5' MINIMUM HT	35' OC	2 GALLON CONTAINER	656.30
34	EA	PRS	PRUNUS SEROTINA	BLACK CHERRY	4-5' MINIMUM HT	6' OC	2 GALLON CONTAINER	656.30
28	EA	PV	PRUNUS VIRGINIANA	CHOKE CHERRY	4-5' MINIMUM HT	6' OC	2 GALLON CONTAINER	656.30
DECIDUOUS SHRUBS								
350	EA	AM	ARONIA MELANOCARPA	BLACK CHOKEBERRY	18" MINIMUM HT	3' OC	1 GALLON CONTAINER	656.35
196	EA	CR	CORNUS RACEMOSA	GRAY DOGWOOD	18" MINIMUM HT	3' OC	1 GALLON CONTAINER	656.35
112	EA	SP	SALIX PURPUREA	STREAMCO WILLOW	18" MINIMUM HT	3' OC	1 GALLON CONTAINER	656.35
112	EA	VL	VIBURNUM LENTAGO	NANNYBERRY	18" MINIMUM HT	3' OC	1 GALLON CONTAINER	656.35

WOODY SHRUBS GROUPINGS



TYPICAL PLANT LIST FOR ONE WOODY SHRUBS DETAIL

QTY	KEY	COMMON NAME	BOTANICAL NAME
14	VL	NANNY BERRY	VIBURNUM LENTAGO
14	AM	BLACK CHOKEBERRY	ARONIA MELANOCARPA
14	SP	STREAMCO WILLOW	SALIX PURPUREA

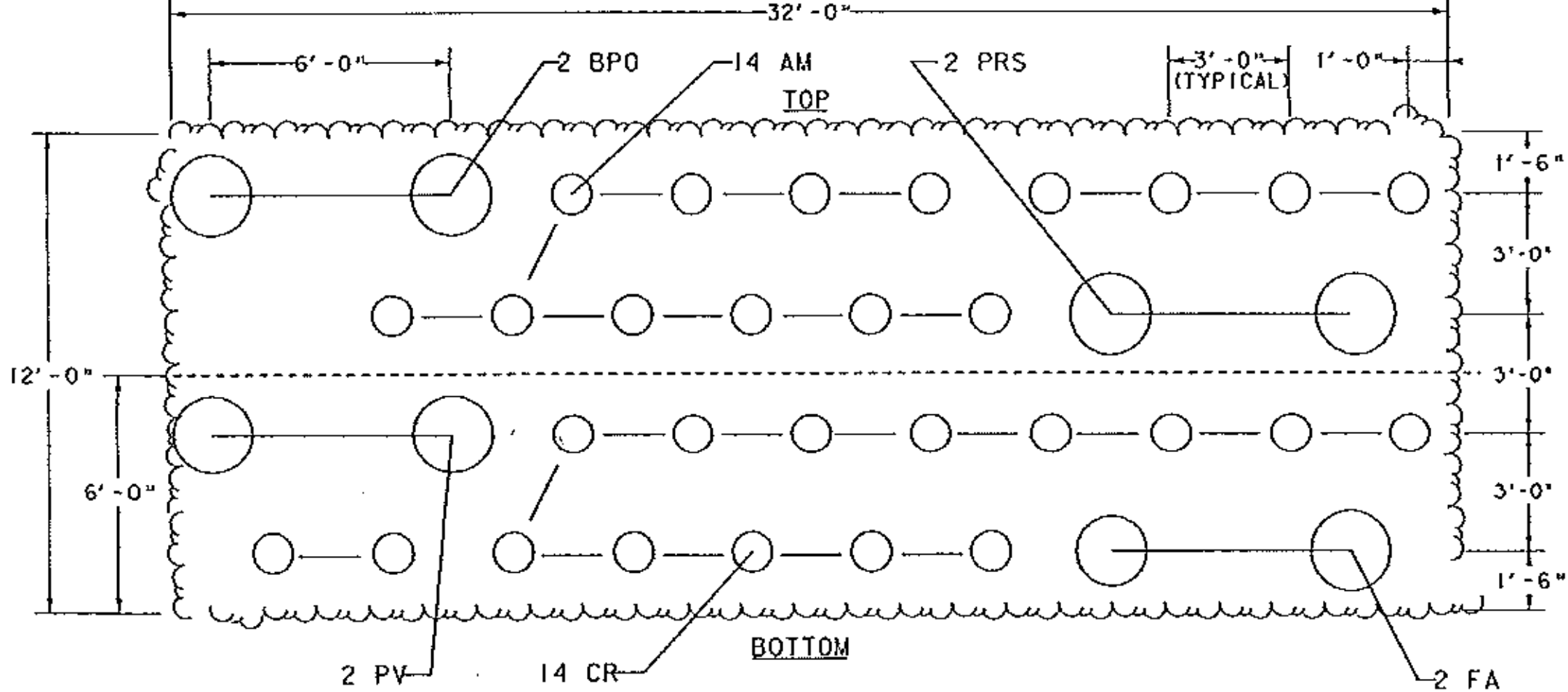
LOCATION OF WOODY SHRUBS PLANTING LAYOUTS AND LENGTHS

STA 64+02 TO STA 64+67 RT (64' X 12')	REPEAT 2 X ON SLOPED GROUND
STA 65+09 TO STA 65+40 LT (32' X 12')	REPEAT 1 X ON SLOPED GROUND
STA 68+83 TO STA 70+42 LT (160' X 12')	REPEAT 5 X ON FLAT GROUND

NOTES:

- LOCATIONS AND BED SHAPES ARE APPROXIMATE AND MAY VARY DUE TO SLOPE. FINAL LOCATION AND ELEVATIONS TO BE DETERMINED BY THE ENGINEER BASED ON ACTUAL SLOPE CONDITIONS.
- SEE EPSC PLAN SHEETS FOR ACTUAL GROUPING LOCATIONS.
- GROUPING SHAPES ARE TO BE STAKED AND LAID OUT TO GIVE A NATURAL APPEARANCE.
- TYPICAL GROUPING LAYOUTS SHOWN ARE FOR FLAT AND STEEP SLOPES OF PROJECT WHERE THERE IS NO STONE FILL.
- WATER ALL SHRUBS AND SEEDLING TREES AT TIME OF PLANTING. EACH SHRUB AND SEEDLING TREE SHALL RECEIVE A MINIMUM OF 5 GALLONS OF WATER TWICE A WEEK.
- SEE SPECIAL PROVISIONS FOR 651.18 FERTILIZER (*MOD*), THE APPLICATION OF MYCORRHIZAL FUNG! PER MANUFACTURER'S RECOMMENDATIONS AND 651.35 TOPSOIL *MOD*, THE APPLICATION OF COMPOST.

SHRUBS AND SEEDLING TREES GROUPING



TYPICAL PLANT LIST FOR ONE SHRUBS AND SEEDLING TREES DETAIL

QTY	KEY	COMMON NAME	BOTANICAL NAME
2	BPO	GRAY BIRCH	BETULA POPULIFOLIA
2	PRS	BLACK CHERRY	PRUNUS SEROTINA
2	FA	WHITE ASH	FRAXINUS AMERICANA
2	PV	CHOKE CHERRY	PRUNUS VIRGINIANA
14	AM	BLACK CHOKEBERRY	ARONIA MELANOCARPA
14	CR	GRAY DOGWOOD	CORNUS RACEMOSA

LOCATION OF SHRUBS AND SEEDLING TREES PLANTING LAYOUTS AND LENGTHS

STA 67+65 TO STA 69+59 RT (192' X 12')	REPEAT 6 X ON SLOPED GROUND
STA 65+36 TO STA 66+09 LT (96' X 24')	REPEAT 6 X ON FLAT GROUND
STA 68+36 TO STA 69+06 LT (64' X 12')	REPEAT 2 X ON FLAT GROUND

UTILIZE PART A FOR THE FOLLOWING STATIONS:

STA 68+15 TO STA 69+13 LT (96' X 6')	REPEAT 3 X ON SLOPED GROUND
--------------------------------------	-----------------------------

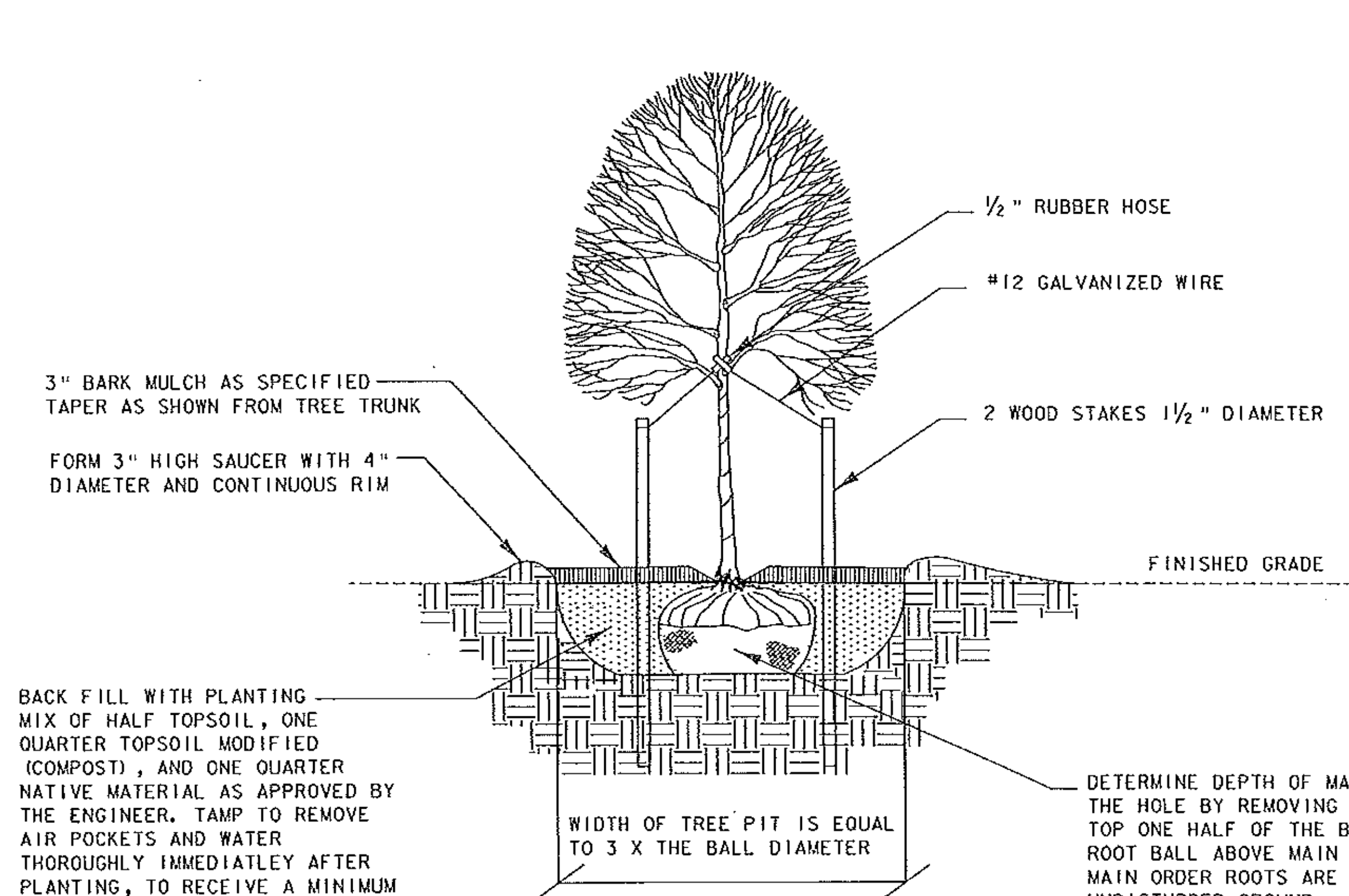
UTILIZE PART B FOR THE FOLLOWING STATIONS:

NOT USED

LANDSCAPE GROUPING DETAIL & PLANT LIST

PROJECT NAME:	WOODFORD
PROJECT NUMBER:	BHF 010-1(29)
FILE NAME:	84e039/structures/84e039eobdr.dgn
PROJECT LEADER:	M EVANS-MONGEON
DESIGNED BY:	J BROWN
IPARM:	epsclspdet11
PLOT DATE:	03-OCT-2005
DRAWN BY:	L GOLDSTEIN
CHECKED BY:	
SHEET	37 OF 106

NOT TO SCALE



DECIDUOUS TREE PLANTING DETAIL

NOTES:

1. STAKE ONLY THOSE TREES PLANTED IN WINDY, EXPOSED LOCATIONS, WHERE THEY MIGHT BE BLOWN OVER OR VANDALIZED.
2. COMPLETELY REMOVE ALL GUY WIRES, RUBBER HOSE, AND STAKES ONE YEAR AFTER PLANTING.

GENERAL LANDSCAPE NOTES:

1. FOLLOW STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 656.
2. SEE SPECIAL PROVISIONS FOR 651.18 FERTILIZER (MOD), THE APPLICATION OF MYCORRHIZAL FUNGI PER MANUFACTURER'S RECOMMENDATIONS AND 651.35 TOPSOIL (MOD), THE APPLICATION OF COMPOST.
3. TREE AND SHRUB SEEDLINGS FOR EROSION CONTROL AND RIPARIAN ZONE PLANTINGS ARE SPECIAL ORDER ITEMS. THE FOLLOWING ARE AMONG THE SOURCES FOR THIS SPECIFIC PLANT MATERIAL.

NEW ENGLAND WETLAND PLANTS, INC.
800 MAIN ST.
AMHERST, MA 01002
820 WEST ST. NURSERY
AMHERST, MA 01002
TEL: (413) 256-1752

HIGH REACH FARM
2847 TAMPICO ROAD
DANVILLE, VT 05828
TEL: (802) 748-3512

COBBLE CREEK NURSERY
991 TYLER BRIDGE ROAD
BRISTOL, VT 05443
TEL: (802) 453-3889
COBSCREEK@MADRIVER.COM

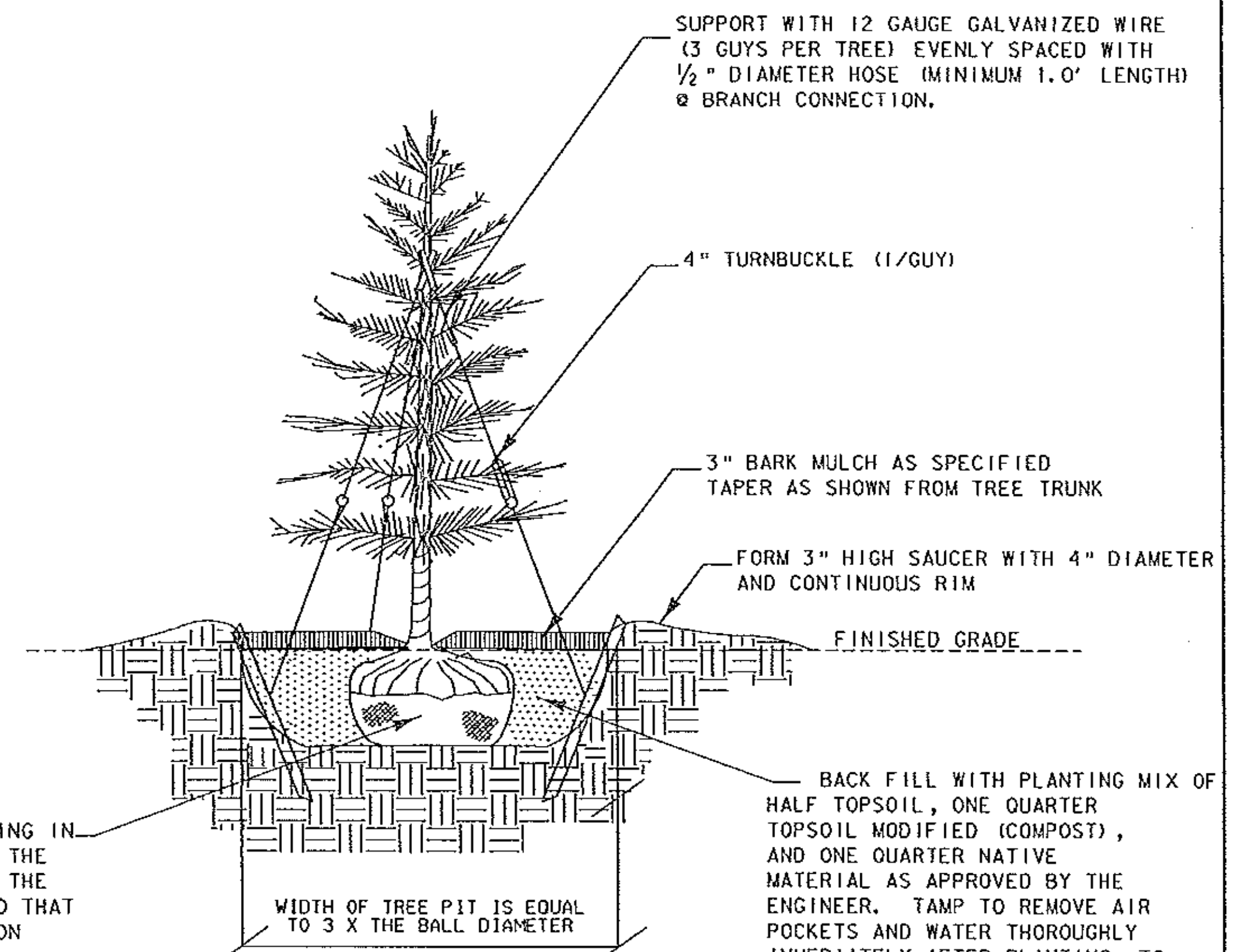
HORSFORD GARDENS & NURSERY
2111 GREENBUSH ROAD
CHARLOTTE, VT 05445
TEL: (802) 425-2811
FAX: (802) 425-2797

NORTHERN NURSERIES, INC.
WHOLESALE DISTRIBUTOR (OUT OF CT)
P.O. BOX 1048
WHITE RIVER JCT. VT 05001
TEL: (802) 295-2117
FAX: (802) 295-4889

HOP RIVER NURSERY
251 HOP RIVER ROAD
ROUTE 6
BOLTON, CT 06043
TEL. & FAX: (860) 646-7099

BIGELOW NURSERIES
P.O. BOX 718
NORTHBOROUGH, MA 01532
TEL: (508) 845-2143
FAX: (508) 842-9245

PIERSON NURSERIES, INC.
24 BUZZELL ROAD
BIDDEFORD, MAINE 04005
TEL: (207) 499-2994
FAX: (207) 499-2912



EVERGREEN TREE PLANTING DETAIL

NOTES:

1. ANTI-DESICCANT SPRAY IS TO BE APPLIED TO ALL EVERGREENS PER MANUFACTURER SPECIFICATIONS.
2. COMPLETELY REMOVE ALL GUY-WIRES AND TURNBUCKEL ONE YEAR AFTER PLANTING.

SEEDING FORMULA RURAL AREAS

% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREeping RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIROSFoot TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

GENERAL NOTES

1. SEED MIXTURE SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
2. SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER. FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).
3. AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

LANDSCAPE TREE PLANTING DETAIL

PROJECT NAME:	WOODFORD	PLOT DATE:	03-OCT-2005
PROJECT NUMBER:	BHF 010-K(29)	DRAWN BY:	SOUAD B
FILE NAME:	48a039/structures/84a039a0bdr.dgn	DESIGNED BY:	J BROWN
PROJECT LEADER:	M EVENS-MONGEON	CHECKED BY:	
IPARM:	epsclspdet2.i	SHEET	38 OF 106

NOT TO SCALE

NOTE:
SHRUBS SHALL BE MULCHED ONLY
ON FLAT GROUND OR DISCRETION
OF ENGINEER.

2" BARK MULCH AS SPECIFIED.
TAPER AT BASE AS SHOWN.

FORM SAUCER WITH 3" HIGH BY 3"
WIDE CONTINUOUS RIM.

EXISTING GRADE

FINISHED GRADE

BACK FILL MIX CONSISTS OF 1/2
TOPSOIL, 1/4 COMPOST, AND 1/4
NATIVE MATERIAL AS APPROVED BY
THE ENGINEER. TAMP TO REMOVE
AIR POCKETS AND WATER
THOROUGHLY AT TIME OF PLANTING.

PLACE SHRUB IN THE HOLE SUCH
THAT BARE ROOT BALL RESTS ON
UNDISTURBED GROUND. AVOID
PLANTING TOO DEEP. TOP OF
ROOTBALL SHOULD BE AT FINISHED
GRADE.

PLANTING HOLE SHALL BE AT
LEAST 3 X THE WIDTH OF
THE ROOT BALL.

SHRUB AND SEEDLING TREE PLANTING DETAIL

2" BARK MULCH AS SPECIFIED.
TAPER AT BASE AS SHOWN.

MAINTAIN MINIMUM 3" HIGH BY 3" WIDE
CONTINUOUS RIM ON LOWER SIDES OF
PLANTING TO RETAIN WATER.

ORIGINAL GROUND

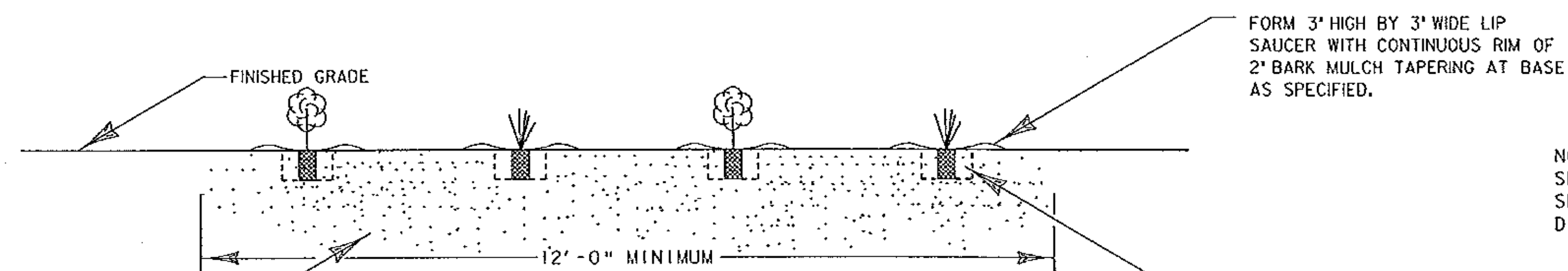
BACK FILL MIX CONSISTS OF 1/2 TOPSOIL,
1/4 COMPOST, AND 1/4 NATIVE MATERIAL AS
APPROVED BY THE ENGINEER. TAMP TO
REMOVE AIR POCKETS AND WATER THOROUGHLY
AT TIME OF PLANTING.

PLACE SHRUB IN THE HOLE SUCH THAT BARE
ROOT BALL RESTS ON UNDISTURBED GROUND.
AVOID PLANTING TOO DEEP. TOP OF ROOTBALL
SHOULD BE AT FINISHED GRADE.

PLANTING HOLE SHALL BE AT
LEAST 2 X THE WIDTH OF
THE ROOT BALL.

BIODEGRADABLE
JUTE MESH

SHRUB AND SEEDLING TREE PLANTING ON SLOPES DETAIL



SHRUBS AND SEEDLING TREE GROUPINGS CROSS SECTION
(FOR FLAT GROUND)

FORM 3' HIGH BY 3' WIDE LIP
SAUCER WITH CONTINUOUS RIM OF
2" BARK MULCH TAPERING AT BASE
AS SPECIFIED.

NOTE:
SEE SHRUB AND SEEDLING TREE PLANTING DETAIL.
SHRUBS SHALL BE MULCHED ON FLAT GROUND ONLY OR AT
DISCRETION OF ENGINEER.

BACK FILL MIX CONSISTS OF 1/2
TOPSOIL, 1/4 COMPOST, AND 1/4
NATIVE MATERIAL AS APPROVED BY
THE ENGINEER.

TAMP TO REMOVE AIR POCKETS AND
WATER THOROUGHLY AT TIME OF
PLANTING.

LANDSCAPE GROUP AND SHRUB CROSS-SECTION

PROJECT NAME: WOODFORD
PROJECT NUMBER: BHF 010-1(29)

FILE NAME: 84e039/structures/84e039erobdr.dgn PLOT DATE: 03-OCT-2005
PROJECT LEADER: M EVANS-MONGEON DRAWN BY: L GOLDSTEIN
DESIGNED BY: J BROWN CHECKED BY:
IPARM: epsclspdet3.1 SHEET 39 OF 106

NOT TO SCALE

LEIGH

T. BUCK CONSTRUCTION
ER BHF 010-1(44)
WOODFORD, VT
DELAUNCH AND DISASSEMBLY PROCEDURES
NOVEMBER 2012

PROJECT:

The bridge to be delaunched and disassembled is a 700XS Acrow Panel Bridge in Woodford, VT with one clear span of 200 ft. The truss construction is Triple Double Reinforced Three Heavy (TDR3H). The roadway width curb to curb is 24 ft. The deck is an orthotropic steel deck with an epoxy aggregate anti-skid surface.

OVERVIEW OF REMOVAL:

The bridge will be pulled back onto rollers behind the West Abutment. Based on input from the customer, the area behind the centerline of rocking rollers is to be a minimum of 240ft for the bridge disassembly. The bridge will be delaunched using a crane assisted delaunch utilizing a 40 ft Triple Single (TS) Nose and a 10 ft DS Tail. This method requires attaching a crane to the East End of the nose to provide support during the initial pull back until the bridge is safely pulled back onto the rollers behind the West Abutment. Roadway decks will be added to the tail as counterweight (See Launch Sequence Diagram). The deck and guardrail are to be removed prior the delaunching of the bridge.

BRIDGE WEIGHTS:

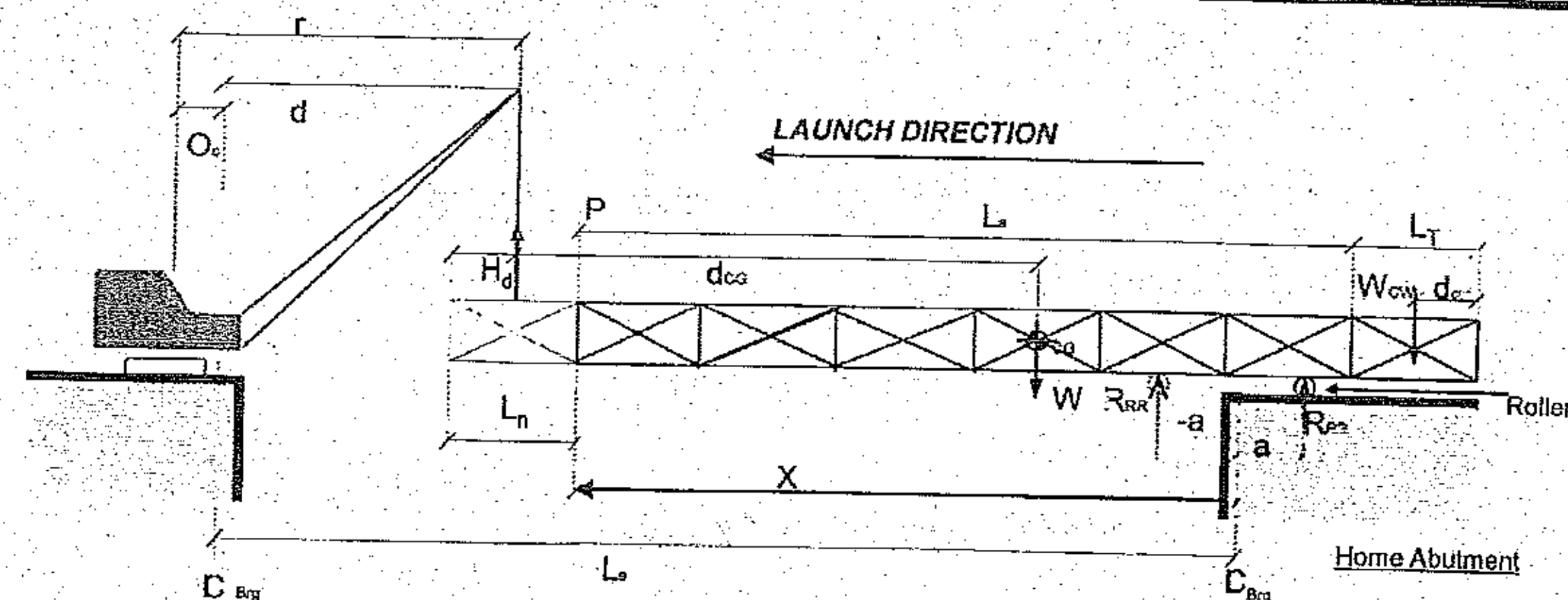
200 ft TDR3H span without deck	300 kips
200 ft TDR3H span with deck	425 kips
40 ft TS Nose	32 kips
10 ft DS Tail	7 kips

BASIC EQUIPMENT:

A small rough terrain crane (25 to 35 ton) will be needed for general disassembly. The heaviest component pick will be 7,000 lbs. **NOTE: A crane of adequate capacity will be required for the delaunching of the bridge.** Basic steel worker hand tools, including pinch bars, 3 LB sledge hammers, pry bars, 1 5/8", 2" and 1 1/16" thin-walled, deep welled sockets with a 3/4" drive, 6" drive extension, 3/4" universal (swivel), two 4-ton come-alongs or two chain falls, 4-way chain with 3/8" chain slip hooks for picking deck panels (1,500 lbs each), three to four 25-ton jacks, high quality 6 * 6 and 12 * 12 timber dunnage, nylon straps or cable for lifting the parts during disassembly, drift pins etc. A compressor and impact wrenches capable of relieving the 650 ft-lbs of bolt torque will be required.

CRANE

CRANE REACTION FOR CRANE ASSISTED LAUNCH [@ F.S. = 1.05]



$L_a = 200$ ft $d_{CW} = 5.0$ ft $H_d = 0$ ft
 $d_{cg} = 140.0$ ft $W_{CW} = 30$ k **Total Weight = 363.4 k (incl. W_{CW})**
 $L_n = 40$ ft $L_T = 10$ ft $a = 0$ ft
 $W_N = 31.8$ k $W_T = 6.43$ k $O_c = 20$ ft

x (ft)	Radius of Crane (r) (ft.)	Hookload, P (Kips)	Reaction at R_{RR} (Kips)
90	90	1	362
95	85	3	360
100	80	5	358
105	75	14	349
110	70	26	337
115	65	37	326
120	60	48	315
125	55	58	305
130	50	68	295
135	45	77	286
140	40	85	278
145	35	93	270
150	30	101	262
155	25	108	255
160	20	115	248

* O_c = Offset of Crane Pin to CenterLine of Bearing at far Abutment

Project: T Buck - Woodford, VT By: MJP Date: 11/21/2012

Legend:

r = Radius of Crane

O_c = Offset of Crane from CenterLine of Bearing

d = distance from hook to CenterLine of Bearing

L_n = Length of Nose

L_a = Length of Main Bridge

d_{CW} = distance from end of bridge to Center of Gravity of the Counter Weight

R_{RR} = Reaction at Roller

a = distance from Roller to CenterLine of Bearing

d_{cg} = Distance from crane hook to Center of Gravity

X = Distance from End of Abutment to End of Crane

H_d = Distance from CenterLine of Bearing to Crane Hook

STAGE 8: Ensure that the crane boom is in line with the bridge and the cable is vertical. The crane will experience the maximum load at this point but reduce with subsequent movements.

Pull bridge back 75ft. (130 ft Max in cantilever) **STOP.**

STAGE 9: Disconnect the crane. **STOP.**

STAGE 10: Continue to pull bridge back 130ft. **STOP.**

STAGE 11: Remove the counterweight from the tail and disassemble the 10 ft DS Tail, the 200 ft TDR3H Bridge and the 40 ft TS Nose.

NOTE: - When pushing/pulling the bridge, always connect the pushing machine to the floorbeam.

- Between movements, always tie off the bridge from additional movement.

Prepared By: Phil A. [Signature] Date: 11/20/12

Checked By: Zachary Wilkins Date: 11/21/12

PRIOR TO DISASSEMBLY

The backwall, guardrail and deck units are to be removed from the bridge prior to the Acrow Representative being on site.

Set up the build area as laid out in the Roller Layout Drawing. Position and secure the balance beams on concrete pads or timber blocking directly on the West Abutment. The balance beams will be placed as close to the center line of bearing as possible, being sure to avoid any rebar that may be present on the abutment for backwall support. The plain roller stations behind the West Abutment will be placed on top of concrete pads or timber blocking, and kept in place by keeper angles, as shown in the Roller Layout Drawing.

DELAUNCHING 200FT TDR3H SPAN:

STAGE 1: Remove the backwalls, deck units and guardrail from the bridge and install the taper chords under each truss line.

Grade the build area behind the West Abutment and install the plain rollers as shown in the Roller Layout drawing. **STOP.**

STAGE 2: Jack/Lift the bridge at both abutments high enough to install the rocking rollers and balance beam assemblies at each abutment.

Temporarily lower the bridge onto blocking to allow for assembly of the nose and tail. **STOP.**

STAGE 3: Build 40ft TS nose, 10 ft DS Tail. **STOP.**

STAGE 4: Install the rocking rollers and balance beams at each abutment.

Lower bridge down onto rocking rollers at the each Abutment. **STOP.**

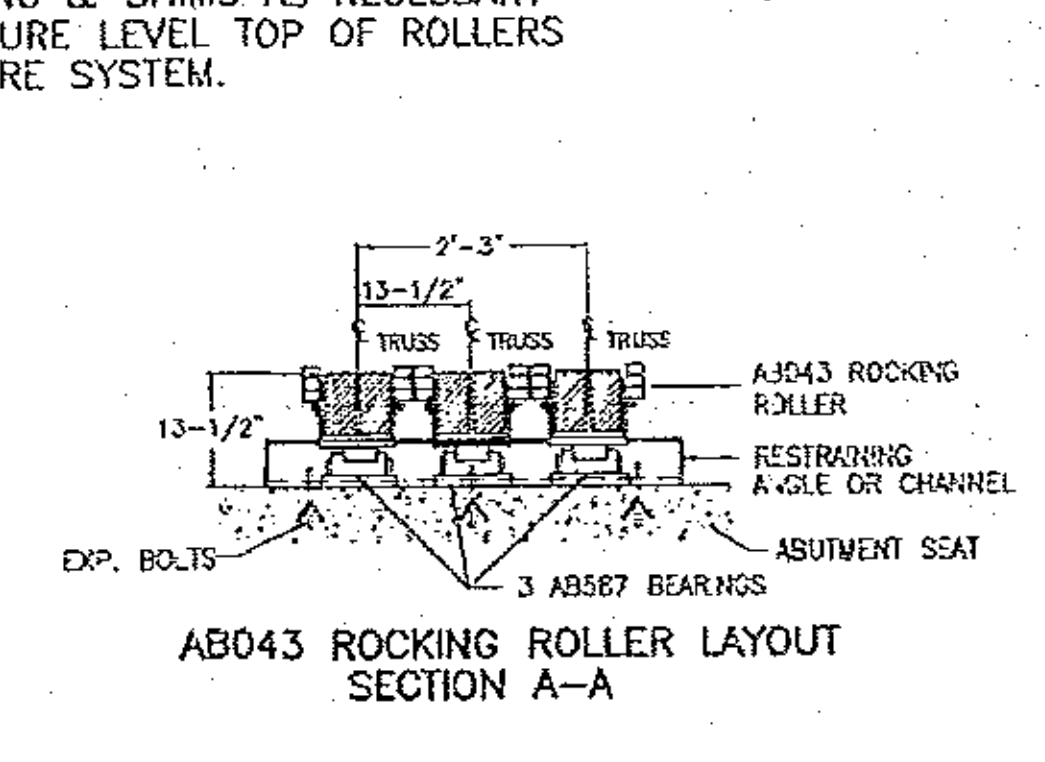
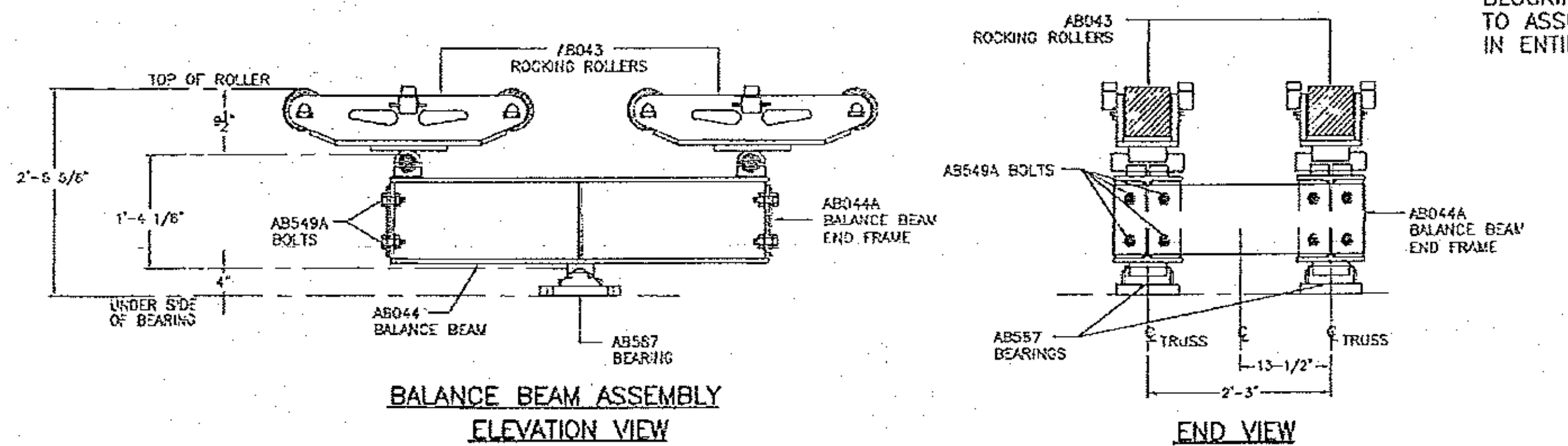
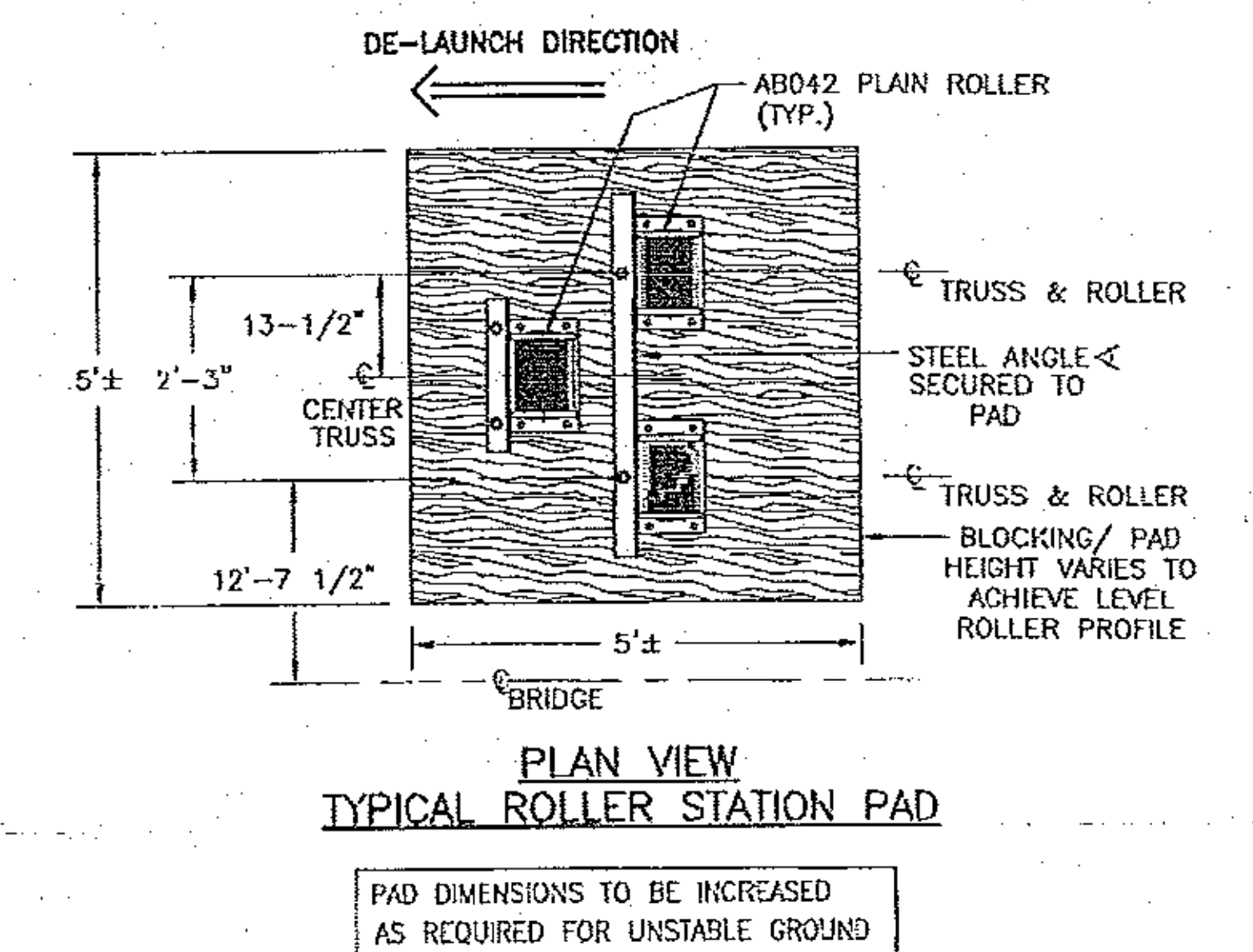
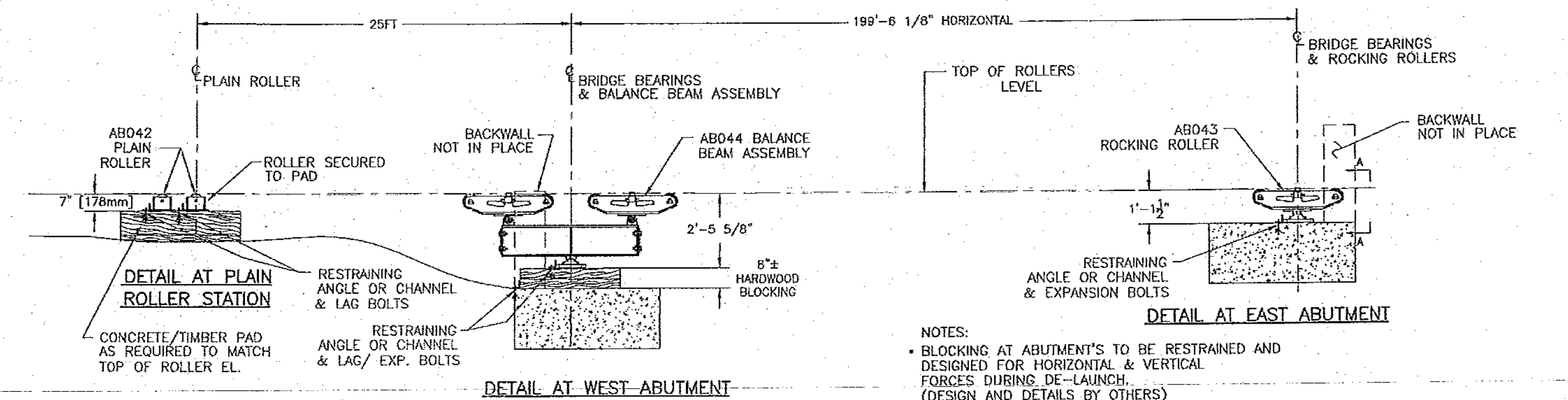
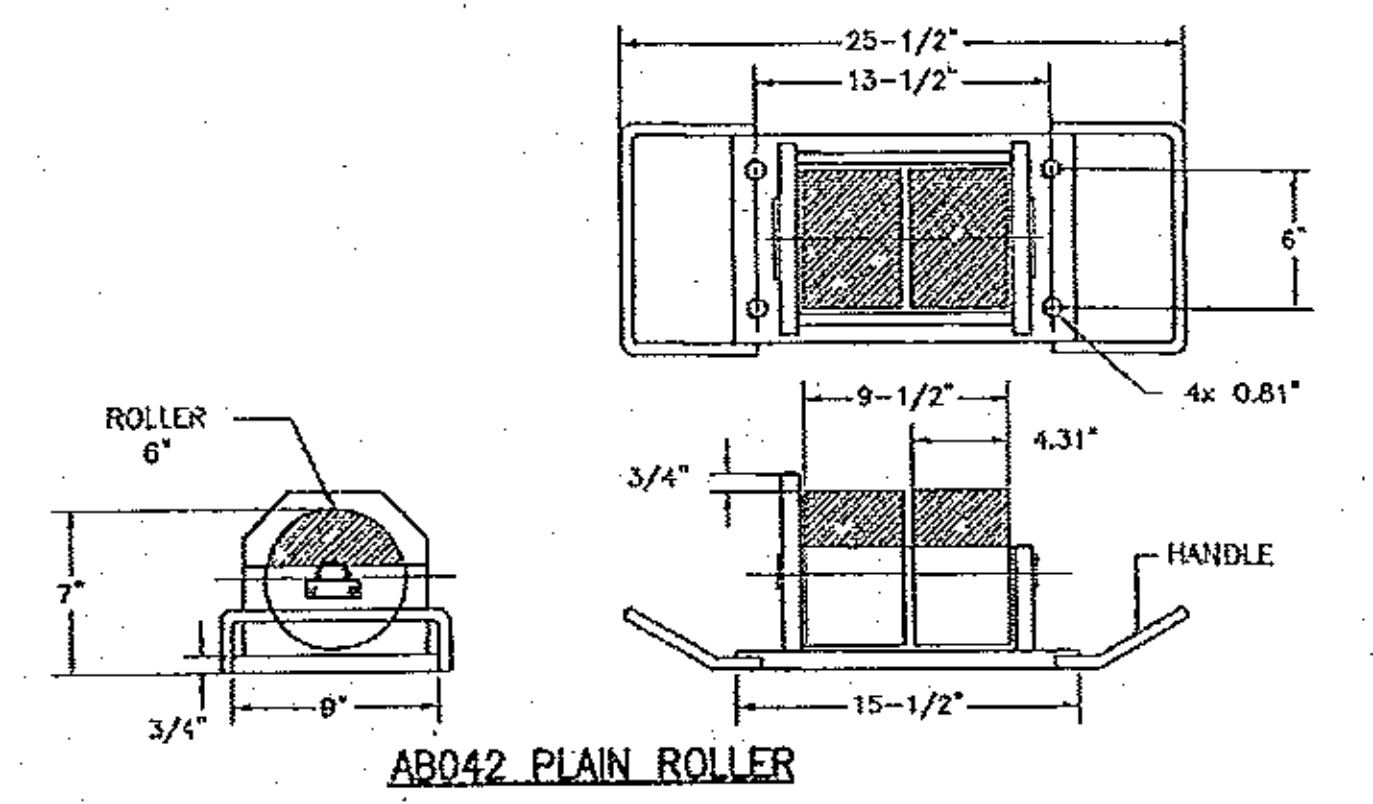
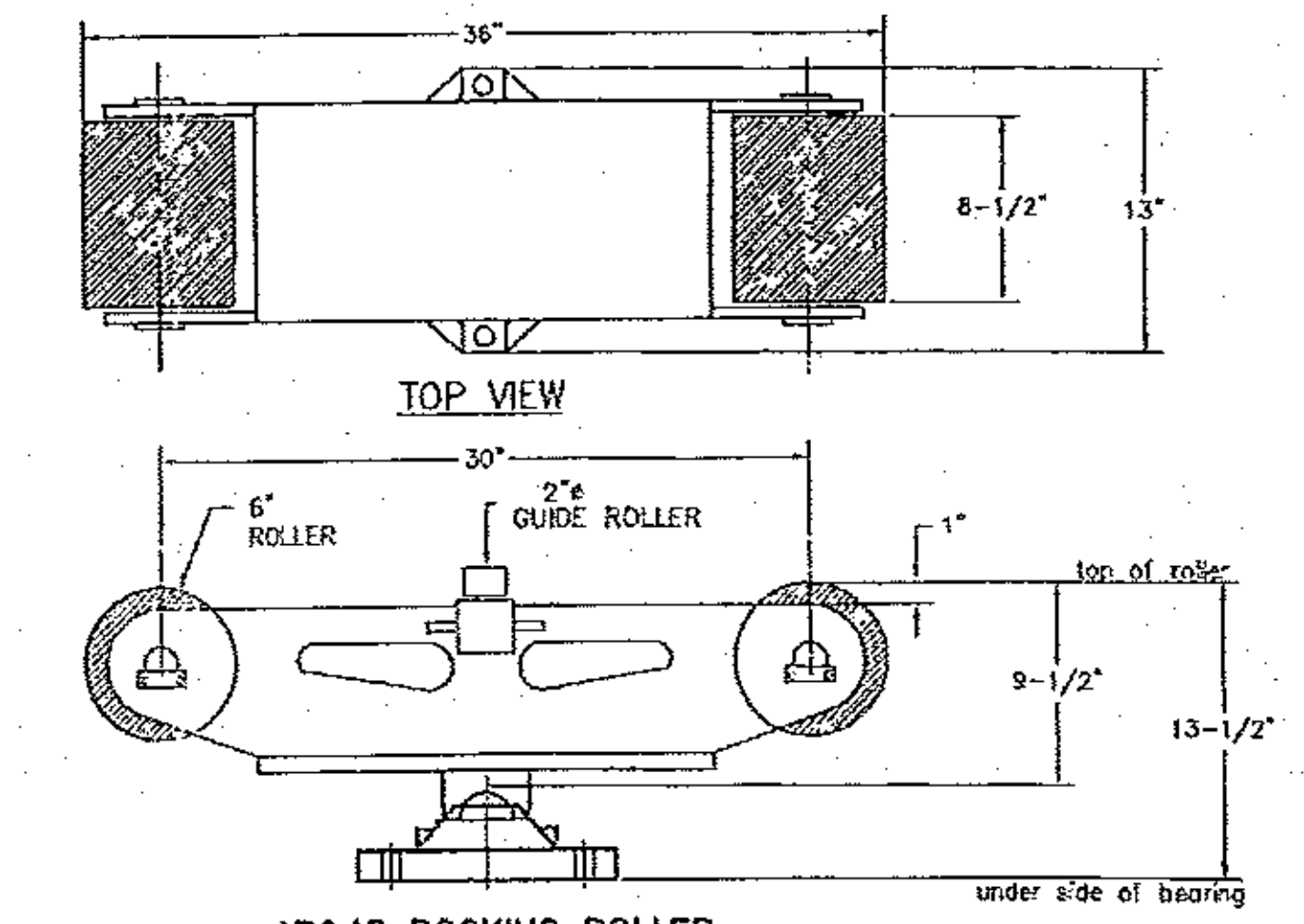
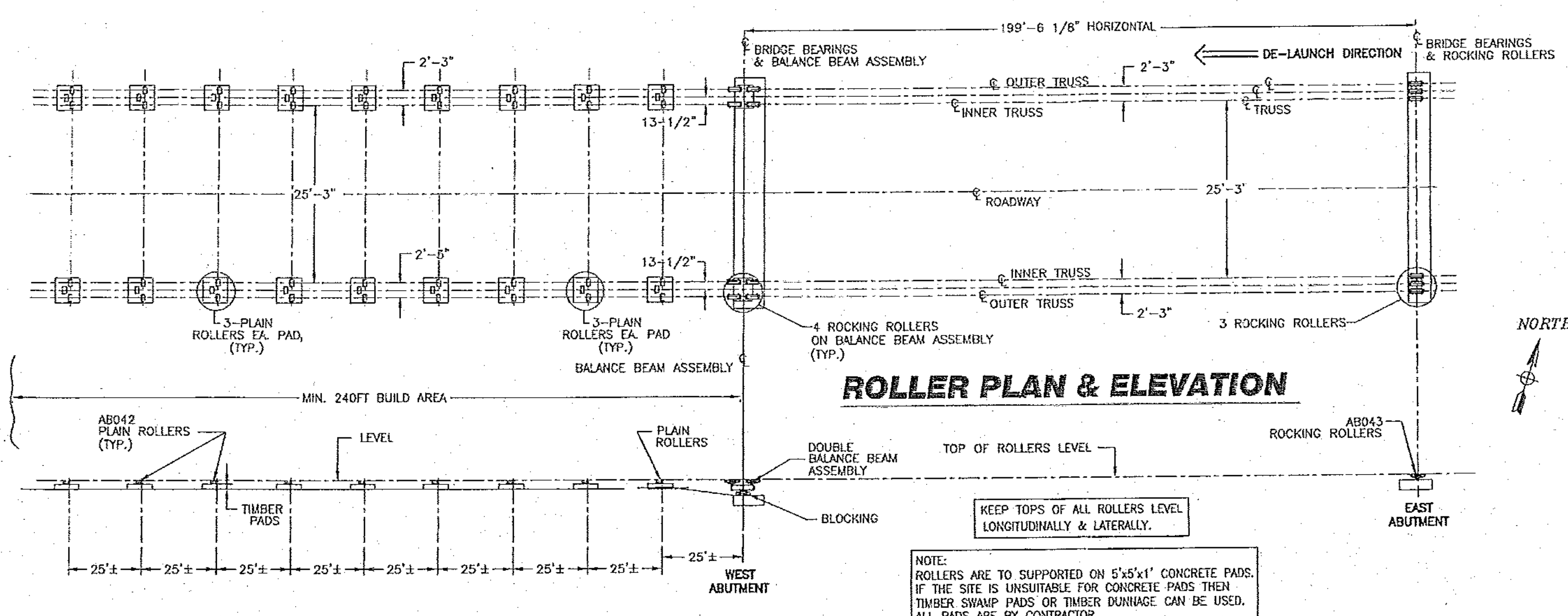
STAGE 5: Install the temporary bracing in the tail and Bay 20 of the bridge as shown in the Blocking/Pulling detail.

Add 20 Decks to the tail. **STOP.**

STAGE 6: Attach the pulling machine to the West End of the bridge.

Pull the bridge back 35 ft. **STOP.**

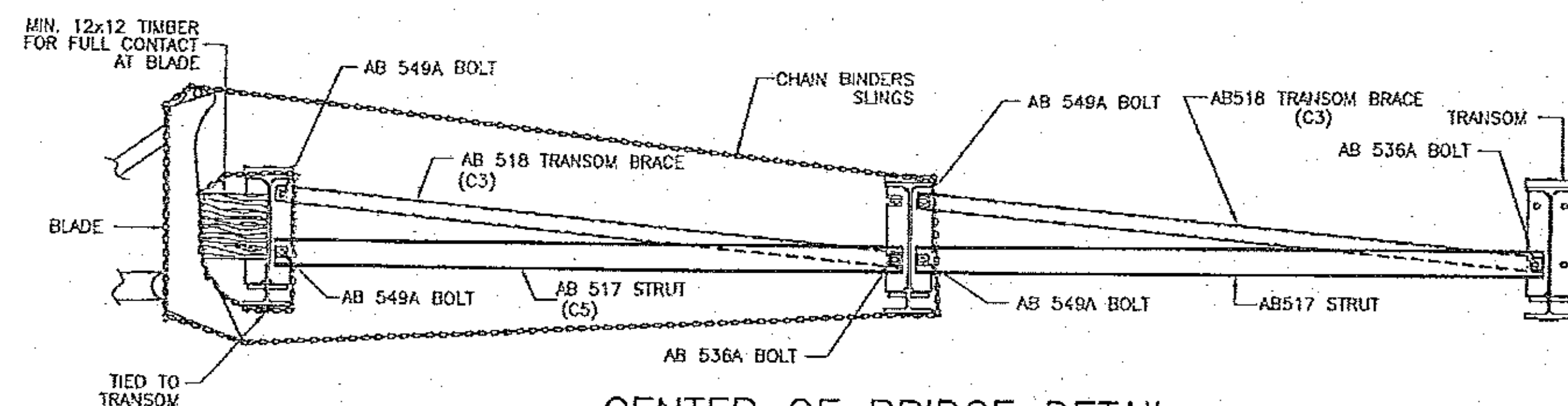
STAGE 7: Rig a crane to the East End of the nose as shown in the attached Rigging Diagram Drawing. **STOP.**



- NOTES:
- BLOCKING AT ABUTMENT'S TO BE RESTRAINED AND DESIGNED FOR HORIZONTAL & VERTICAL FORCES DURING DE-LAUNCH. (DESIGN AND DETAILS BY OTHERS)
 - CONTRACTOR TO VERIFY ELEVATION OF ROLLERS AND PROVIDE STABLE BLOCKING & SHIMS AS NECESSARY TO ASSURE LEVEL TOP OF ROLLERS IN ENTIRE SYSTEM.

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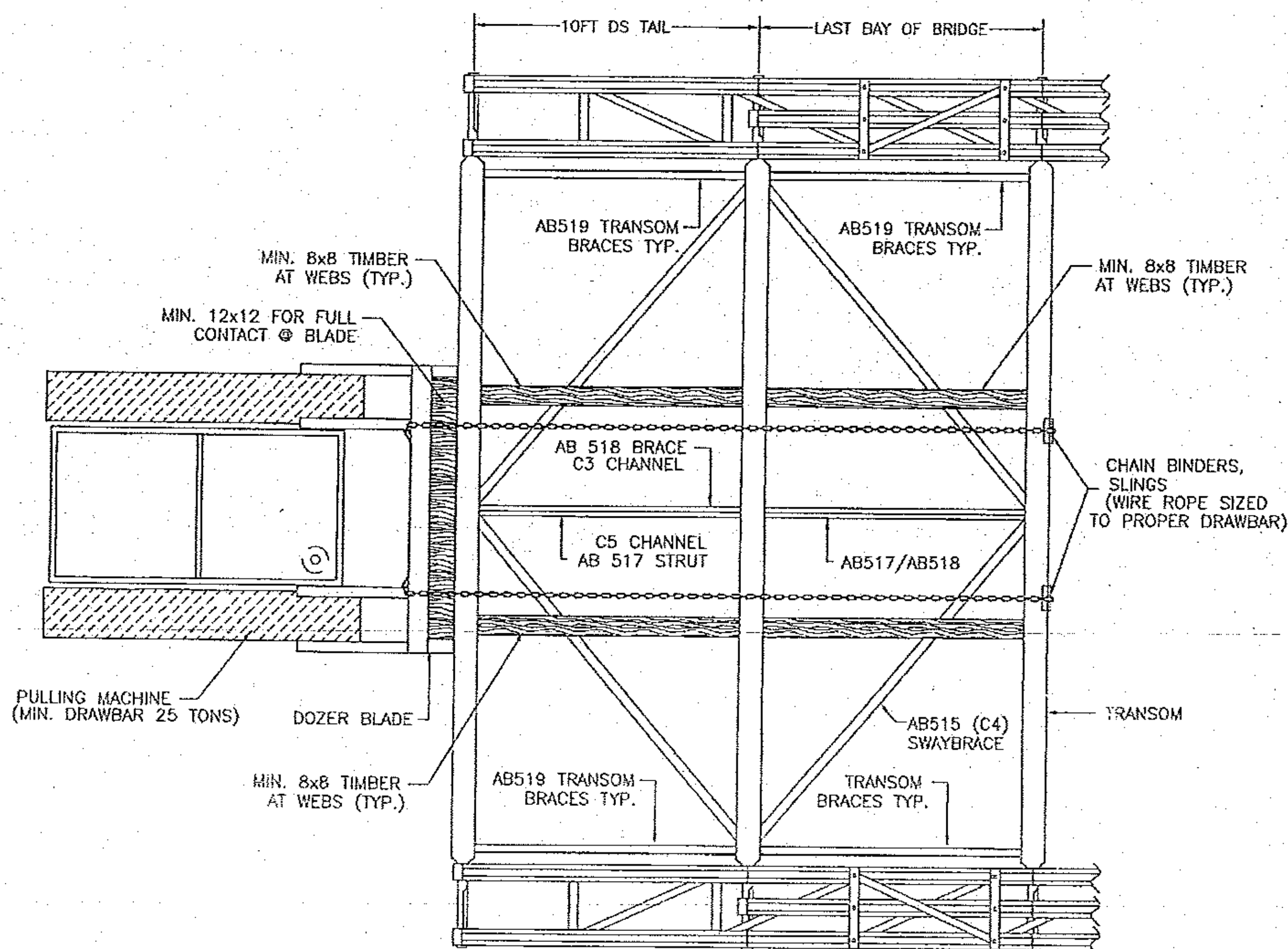
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		CORPORATION OF AMERICA 181 NEW ROAD, PARSIPPANY, NJ 07054	
ACROW 700XS PANEL BRIDGE DE-LAUNCH ROLLER LAYOUT 200FT x 2 LANE 24FT TOR3H BRIDGE WOODFORD, VT ER BHF 010-1(44)			
DRAWN BY: RJ CHECKED BY: MP APPROVED BY: SP	DATE: NOVEMBER 21, 2012 SCALE: AS SHOWN	CONTRACT NO.:	
T. BUCK CONSTRUCTION AUBURN, ME		DRAWING NO.: AB1543-DL	REV.
		SHT 1 OF 4	



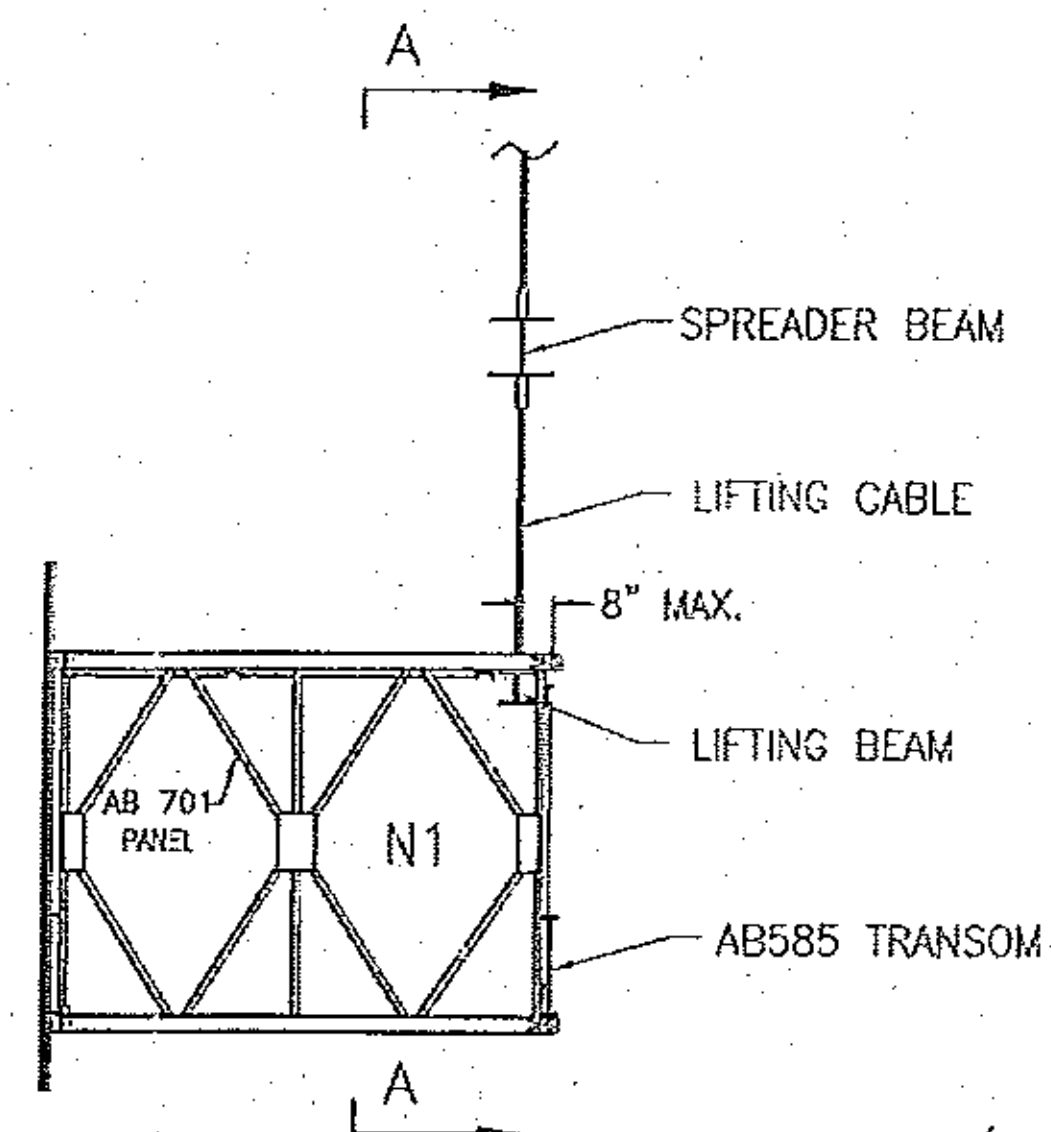
CENTER OF BRIDGE DETAIL
8x8 TIMBER STRUT NOT SHOWN FOR CLARITY

NOTE:

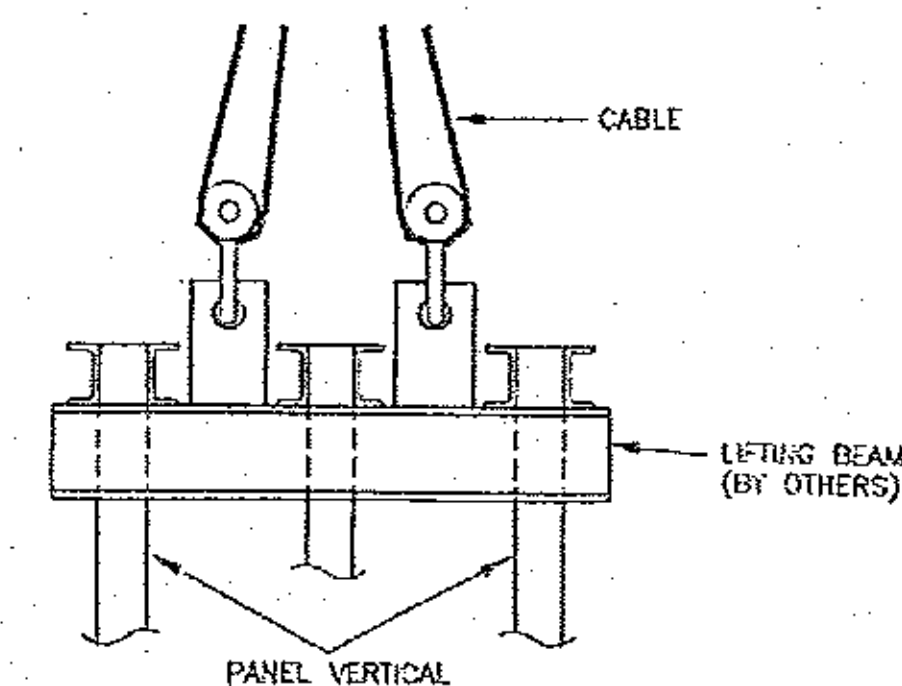
THIS BRACING DETAIL APPLIES TO LAST 2 BAYS FOR EVERY PUSH (SWAYBRACING, TIMBER, CENTER & TRANSOM BRACING)



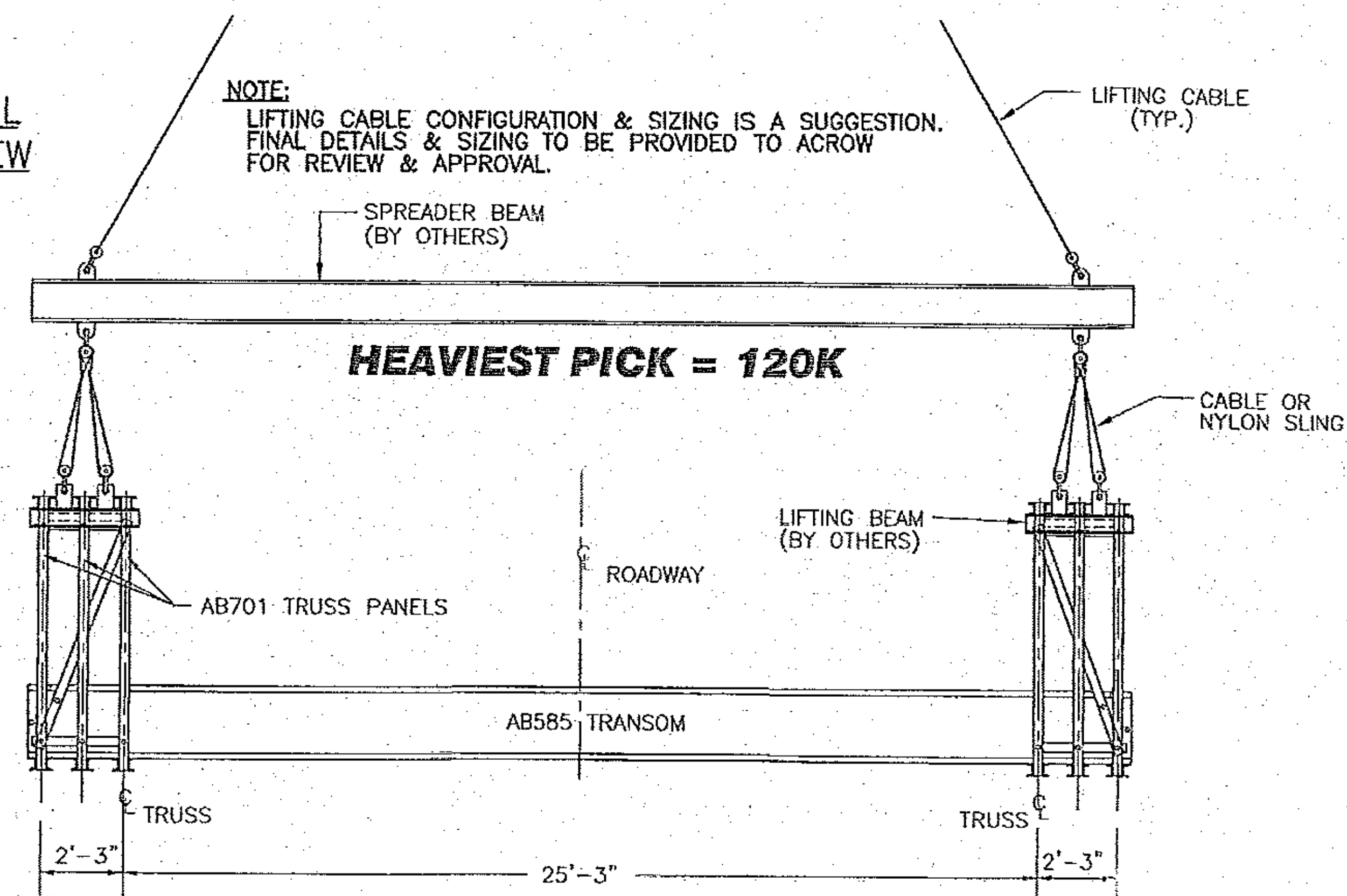
PLAN



**TS NOSE
LIFTING DETAIL
ELEVATION VIEW**



TYPICAL DETAIL @ TOP CHORD



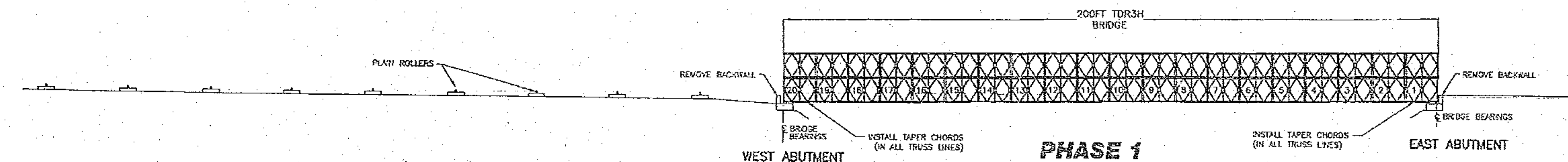
**SECTION A-A
LIFTING DETAIL**

NOTES:

1. ALL RIGGING PROVIDED & SIZED BY ERECTOR
2. CRANE SIZING & SET-UP BY OTHERS

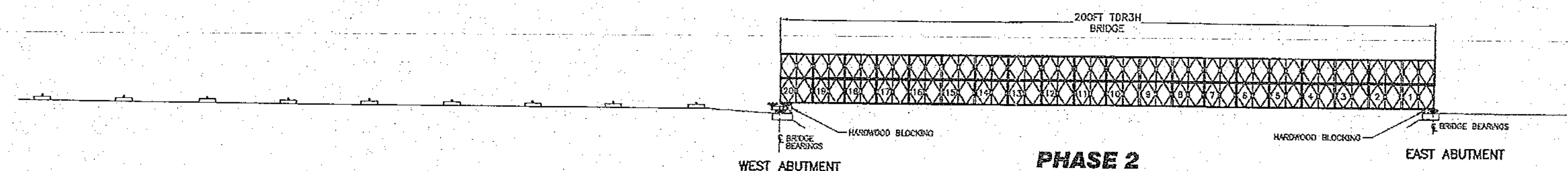
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		CREATING ENGINEERED SOLUTIONS WORLDWIDE® CORPORATION OF AMERICA 181 NEW ROAD, PARSIPPANY, NJ 07054	
		ACROW 700XS PANEL BRIDGE PULLING-BLOCKING/ RIGGING DETAIL 200FT x 2 LANE 24FT TOR3H BRIDGE WOODFORD, VT ER BHF 010-1(44)	
DRAWN BY: RJ CHECKED BY: MP APPROVED BY: SP	DATE: NOVEMBER 21, 2012 SCALE: AS SHOWN	CONTRACT NO.	
T. BUCK CONSTRUCTION AUBURN, ME		DRAWING NO. AB1543-DL SHT 3 OF 4	REV.



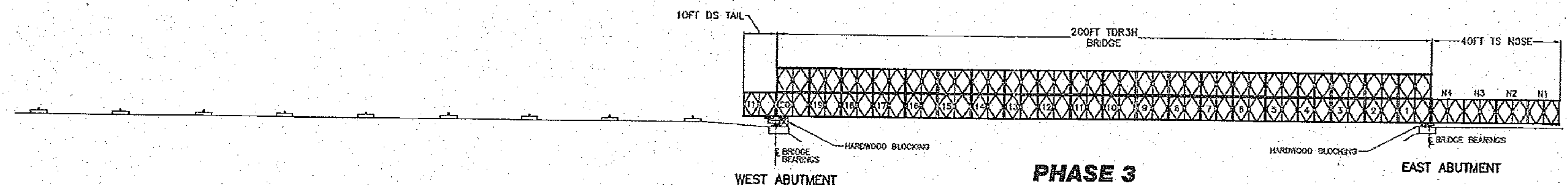
PHASE 1

- REMOVE ALL DECK PANELS & GUARDRAIL
- INSTALL TAPER CHORDS
- REMOVE THE BACKWALLS AND GRADE BUILD AREA BEHIND THE WEST ABUTMENT AND INSTALL PLAIN ROLLERS AS SHOWN IN THE DE-LAUNCH ROLLER LAYOUT



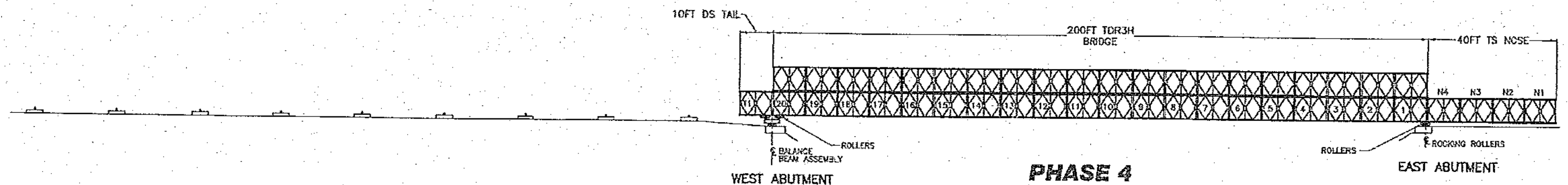
PHASE 2

- JACK UP BRIDGE AT EACH ABUTMENT HIGH ENOUGH TO INSTALL ROCKING ROLLERS
- LOWER BRIDGE ONTO TEMPORARY BLOCKING



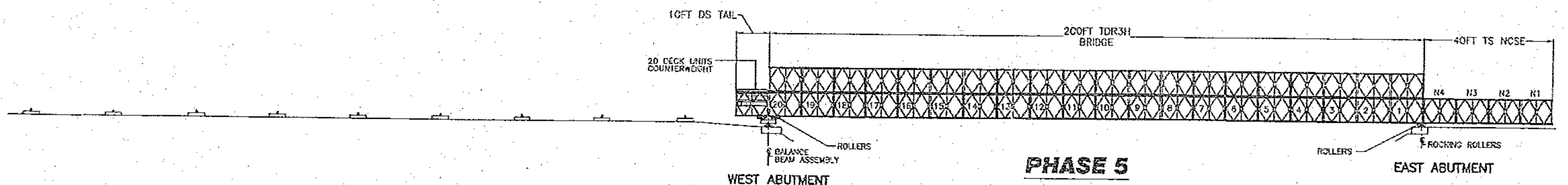
PHASE 3

- BUILD 40FT OF TS NOSE & 10FT OF DS TAIL



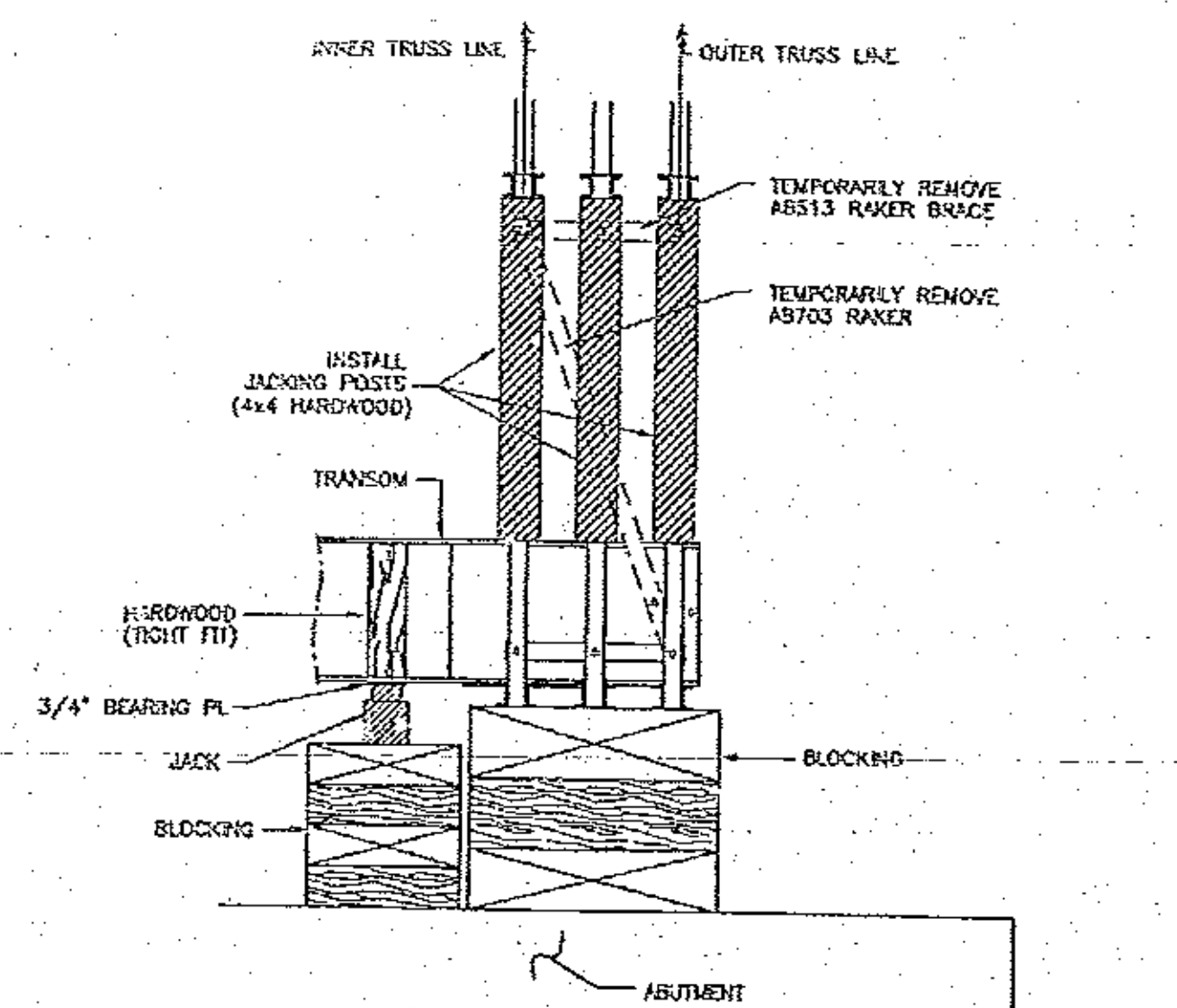
PHASE 4

- LOWER BRIDGE ONTO ROLLERS AT EACH ABUTMENT

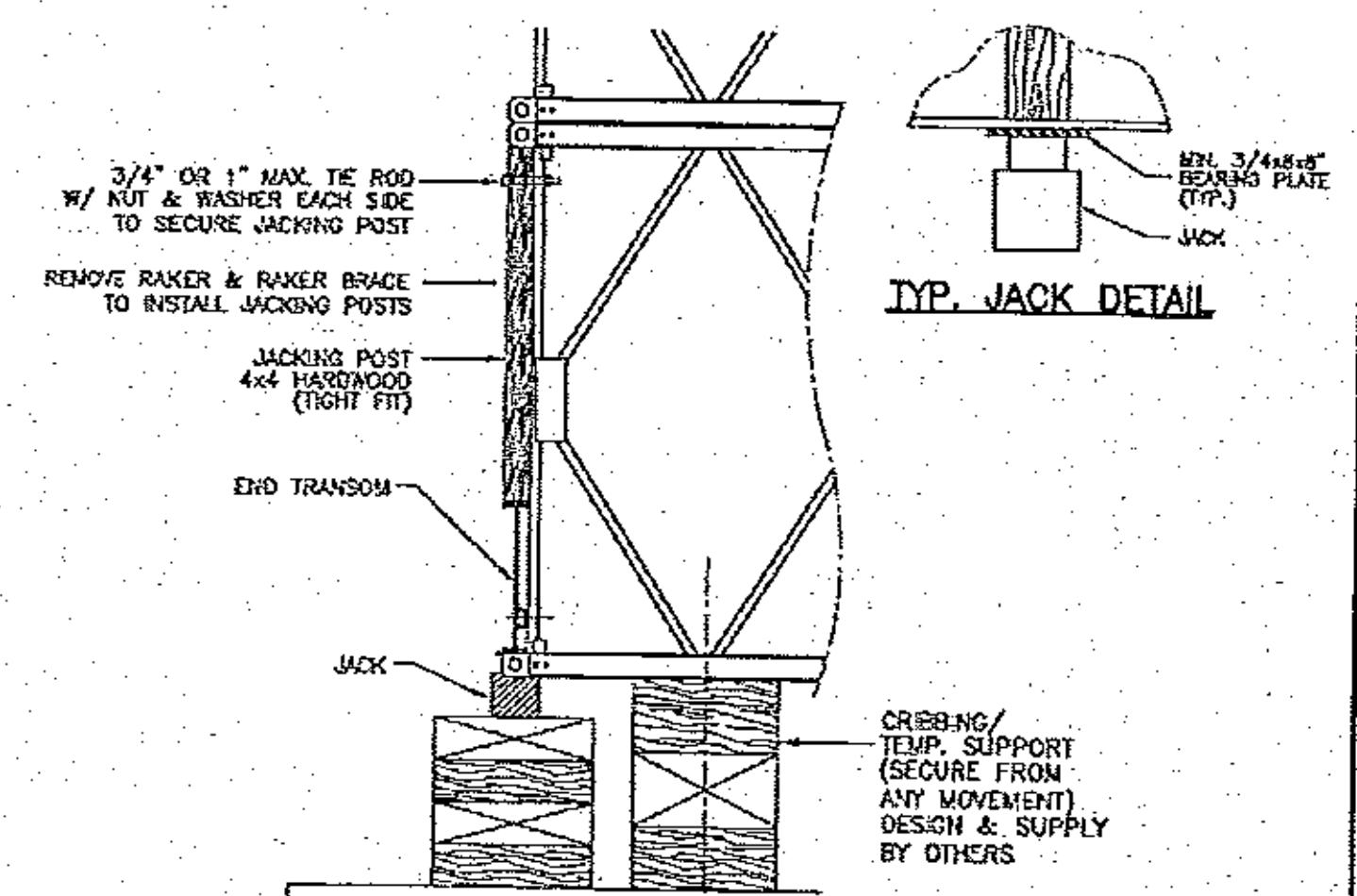


PHASE 5

- INSTALL TEMPORARY BRACING IN BAY T1 & 20 AS SHOWN IN THE PULLBACK/ BLOCKING DETAIL
- ADD 20 DECKS COUNTERWEIGHT TO THE TAIL BAY



TYPICAL JACKING DETAIL



TYPICAL BLOCKING DETAIL ELEVATION VIEW

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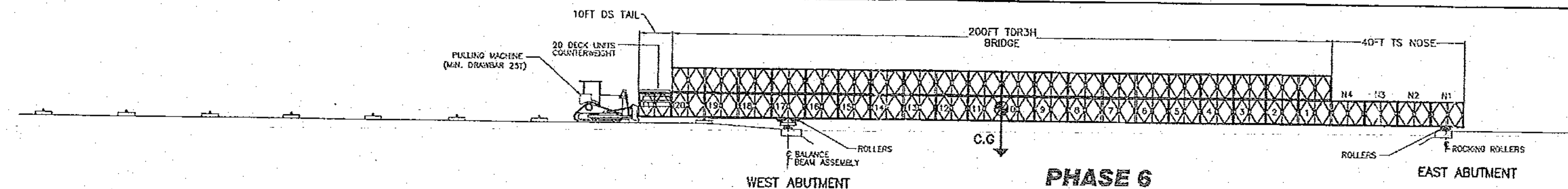


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CORPORATION OF AMERICA
181 NEW ROAD, PARSIPPANY, NJ 07054

ACROW 700XS PANEL BRIDGE
DE-LAUNCHING SEQUENCE
200FT x 2 LANE 24FT TDR3H BRIDGE
WOODFORD, VT
ER BHF 010-1(44)

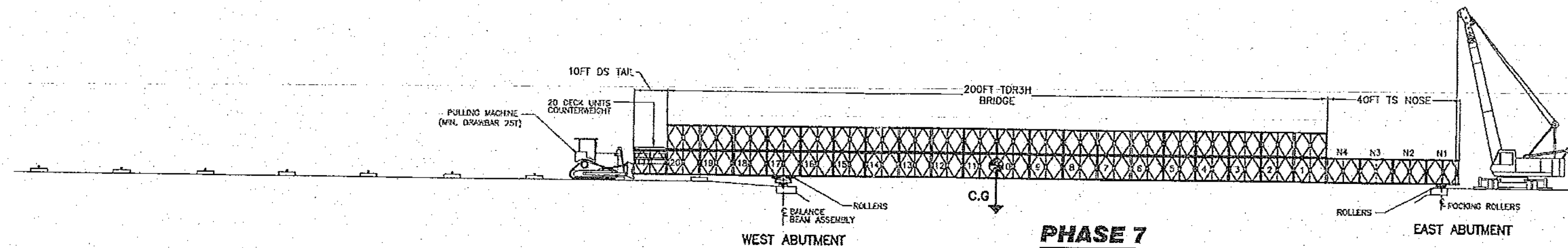
DRAWN BY RJ DATE NOVEMBER 21, 2012 CONTRACT NO.
CHECKED BY MP
APPROVED BY SP SCALE: AS SHOWN

T. BUCK CONSTRUCTION
AUBURN, ME
DRAWING NO. AB1543-DL
SHT 4A OF 4



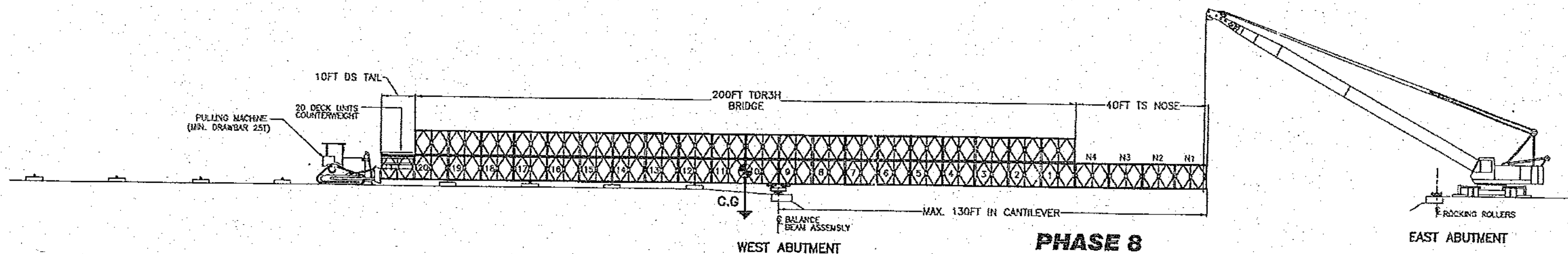
PHASE 6

- ATTACH PUSHING MACHINE
- PULL BACK BRIDGE 35FT



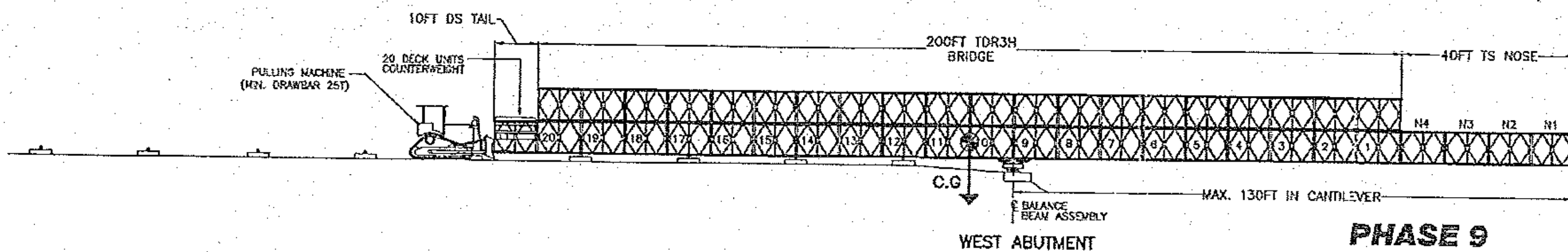
PHASE 7

- ATTACH CRANE TO THE NOSE OF THE BRIDGE



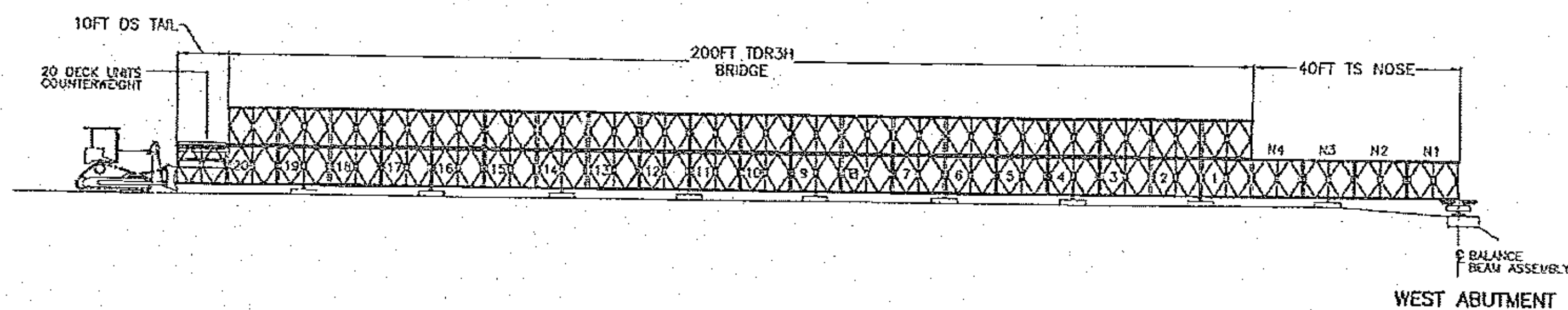
PHASE 8

- PULL BACK BRIDGE 75FT (130FT IN CANTILEVER MAX.)



PHASE 9

- DETACH CRANE



PHASE 10

- PULL BACK BRIDGE 130FT

PHASE 11

- REMOVE ALL COUNTERWEIGHT
- DISMANTLE TAIL, BRIDGE AND NOSE

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ACROW

CREATING ENGINEERED SOLUTIONS WORLDWIDE
CORPORATION OF AMERICA
181 NEW ROAD, PARSONS, NJ 07654

ACROW 700XS PANEL BRIDGE
DE-LAUNCHING SEQUENCE
200FT x 2 LANE 24FT TOR3H BRIDGE
WOODFORD, VT
ER BHF 010-1(44)

DRAWN BY	BJ	DATE	NOVEMBER 21, 2012	CONTRACT NO.
CHECKED BY	MP	SCALE	AS SHOWN	
APPROVED BY	SP			

T. BUCK CONSTRUCTION
AUBURN, ME

DRAWING NO.	REV.
AB1543-DL	
SHT 4B OF 4	



State of Vermont
Program Development
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

July 16, 2012

Highway Safety Corp
Glastonbury, CT

Project Name: Woodford Project #: ER BHF 010-1(44)

Structure Identification: VT 9 Over the Roaring Branch of the Walloomsac River

The following bridge railing details item 525.33, "Bridge Railing, Galvanized 2 Rail Box Beam" for the above project (Vendor's Job #1881, transmitted by T. Buck Construction, Inc. and received by our office on Friday, July 13, 2012, have been reviewed and are being returned herewith.

Sheet 1 and 4 and the welding procedures are approved.

Sheet 2 and 3 are approved "as noted". (Please make appropriate changes as indicated on the "as noted" drawing and submit a new "*.pdf" for our use in the record plans for this project.)

You must provide notice to our fabrication inspector Jeff Clark as to the date fabrication represented by these drawings will begin. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. That notice must be received at least seven days prior to that date, as per Specification 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Carolyn W. Carlson, PE
Project Manager

Attachments

cc: [X] Resident Engineer Ron Lemaire -w/prints
[X] T. Buck Construction, Inc. – w/prints
[X] Shop Inspector - Jeff Clark w/prints
[X] Materials & Research Section (C&IA Unit) – Letter only
[X] F.R. Lafayette – w/prints
[X] Construction Division - Letter only
[X] CWC



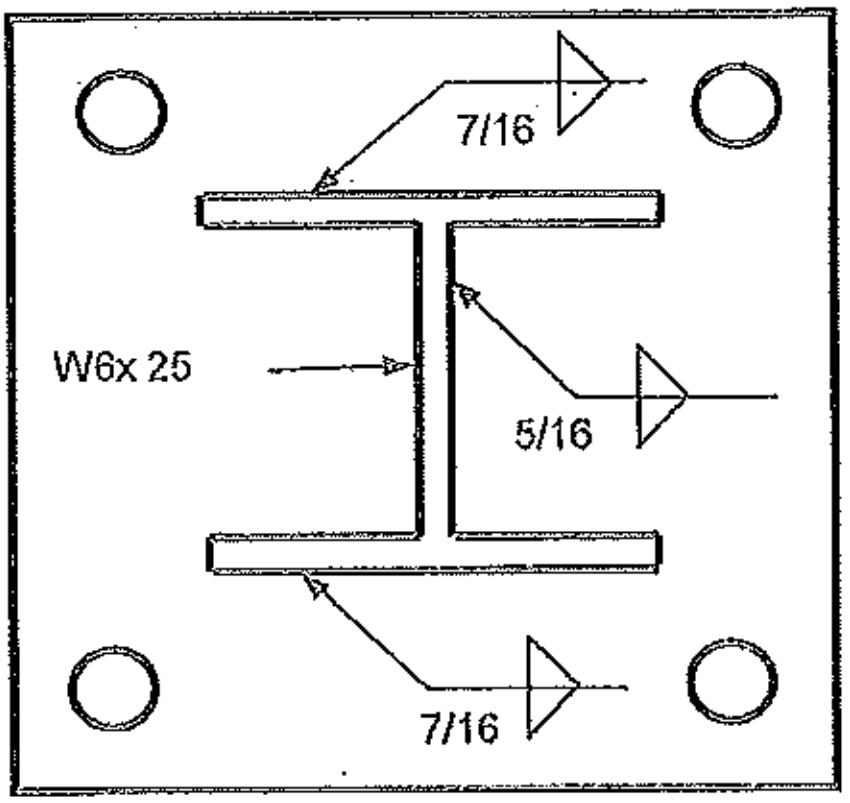
Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification A572 gr 50, A709 Gr 50
Welding process Gas Metal Arc Welding (GMAW) Spray Transfer
Manual, semi-automatic, or automatic Semi-Automatic
Position of welding Flat (1F) or Horizontal (2F)
Filler metal specification AWS A5.18
Filler metal classification ER70S-6
Electrode and manufacturer Lincoln Electric Lincoln Weld L-56
Flux and manufacturer N/A
Shielding gas 86% Argon / 14% CO2 Flow rate 35-45 CFM
Single or multiple pass Single or Multiple
Single or multiple arc Single
Welding current DCEP
Polarity Reverse - electrode positive
Welding progression Stringers
Root treatment clean base metal
Preheat and interpass temperature base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)
Postheat treatment None
Electrode extension 3/4" ± 1/4"

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters		Travel speed	Joint detail
			Amperes	Volts		
5/16"	1	0.062"	300 A ± 30	29 V ± 2	15 ipm ± 2	
7/16"	1 & 2	0.062"	↓	↓	15 ipm ± 2	

Trans Received JUN 27 2012

CK'D BY JWC

Resubmit BY APPROVED DATE 7/2/12

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

WPS no. W-VTPEDPOST1
Revision no. 0
Supporting PQR no. Pre-Qualified
Project Name Woodford, VT

Fabricator Highway Safety Corporation
Prepared By: Paul Radice
Date 5/31/12
Project Number ER BHF 010-1(44)

Paul A Radice
CWI 98670221
QC1 EXP. 7/1/2013

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification ASTM A500 gr B

Welding process Gas Metal Arc Welding (GMAW)

Manual, semi-automatic, or automatic Semi-Automatic

Position of welding Flat (1F) or Horizontal (2F)

Filler metal specification AWS A5.18

Filler metal classification ER70S-6

Electrode and manufacturer Lincoln Electric Lincoln Weld L-56

Flux and manufacturer N/A

Shielding gas 86% Argon / 14% CO2 Flow rate 35-45 CFM

Single or multiple pass Single

Single or multiple arc Single

Welding current DCEP

Polarity Reverse - electrode positive

Welding progression Stringers

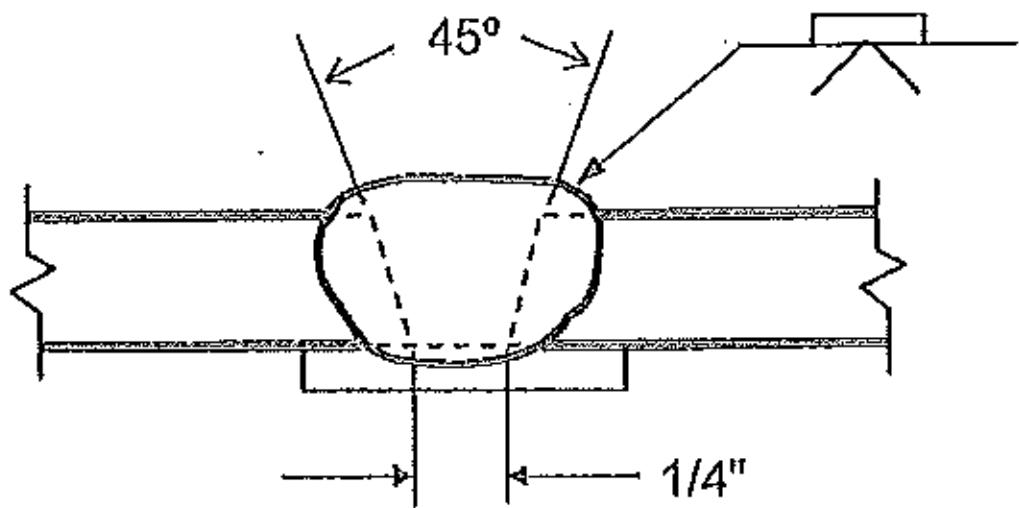
Root treatment clean base metal

Preheat and interpass temperature base metal up to 3/4" (50°F)

Postheat treatment None

Electrode extension 3/4" ± 1/4"

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters		Travel speed	Joint detail
			Amperes	Volts		
	1	0.063"	300 A ± 30	29 V ± 2	15 ipm ± 2	B-U2a-GF
Trans Received CK'D BY: <i>JRC</i> JUN 27 2012 Resubmit BY: <i>APPROVED</i> DATE: <i>17/6/12</i>						
						

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1

WPS no. W-VGWBCK

Revision no. 0

Supporting PQR no. Pre-Qualified

Project Name Woodford, VT

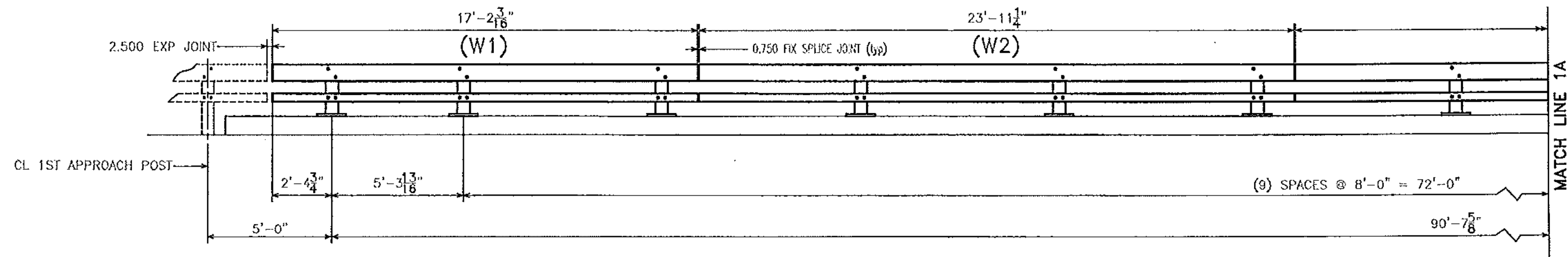
Fabricator Highway Safety Corporation

Prepared By: Paul Radice

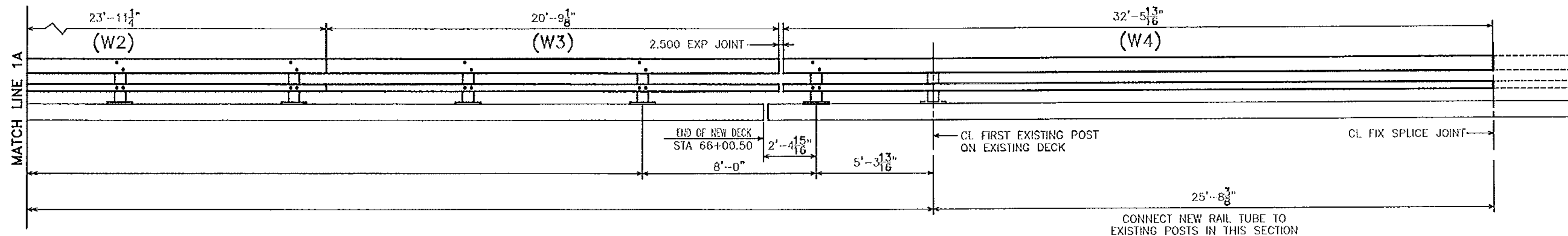
Date 5/31/12

Project Number ER BHF 010-1(44)

Paul A. Radice
CWI 98070221
QC1 EXP 7/1/201



NORTH RAIL ELEVATION
facing north from center of road



BILL OF MATERIAL (NORTH RAIL)				
Mk#	Qty.	Description	Size/Shape	Material
POST				
12		BRIDGE RAIL PED POST 2'-0 3/8" OAH W/ BASE PLATE		
12		POST UPRIGHT	W6 x 25	1'-11 3/8" A709 Gr. 50
12		POST BASE PLATE	10" x 1"	1'-2" A709 Gr. 50
SPLICE				
5		UPPER SPLICE TUBE FOR 8 x 4 RAIL		
5		TUBE	TS 7x3x3/8	1'-8" A500 Gr. B
10		WELDED LOCK NUT (OUTER HOLES ONLY)	5/8"	A563
5		LOWER SPLICE TUBE FOR 4 x 4 RAIL		
5		TUBE	TS 3x3x5/16	1'-8" A500 Gr. B
10		WELDED LOCK NUT (OUTER HOLES ONLY)	5/8"	A563
RAIL				
W1	1	UPPER RAIL 1 END FIX, 1 END DP	TS 8x4x5/16	17'-2 3/16" A500 Gr. B
	1	LOWER RAIL 1 END FIX, 1 END DP	TS 4x4x1/4	17'-2 3/16" A500 Gr. B
W2	2	UPPER RAIL R/C SPLICE BOTH ENDS	TS 8x4x5/16	23'-11 1/4" A500 Gr. B
	2	LOWER RAIL FIX SPLICE BOTH ENDS	TS 4x4x1/4	23'-11 1/4" A500 Gr. B
W3	1	UPPER RAIL 1 END FIX, 1 END DP	TS 8x4x5/16	20'-9 1/8" A500 Gr. B
	1	LOWER RAIL 1 END FIX, 1 END DP	TS 4x4x1/4	20'-9 1/8" A500 Gr. B
W4	1	UPPER RAIL 1 END FIX, 1 END DP	TS 8x4x5/16	32'-5 13/16" A500 Gr. B
	1	LOWER RAIL 1 END FIX, 1 END DP	TS 4x4x1/4	32'-5 13/16" A500 Gr. B
HARDWARE				
11		ANCHOR PLATE	9 3/8" x 3/8"	1'-1" A36
48		ANCHOR STUD	1" DIA.	12" A449
44		JAMB NUT	1" DIA.	A563
92		HEAVY HEX NUT	1" DIA.	A563DH
48		WASHER	1" DIA.	F436
48		ROUND HEAD BOLT	3/4" DIA.	6" M164 type 1
48		LOCK NUT	3/4" DIA.	A563DH
48		WASHER	3/4" DIA.	F436
40		CAP SCREW	5/8" DIA.	1 3/4" A325
40		WASHER	5/8" DIA.	F436
8		PIPE SPACER (SCH. 40)	3/4" DIA.	1/2" A53
12		BEARING PAD	10" x 1/8"	1'-2" M251

PAY LENGTH ITEM 525.33 NETC 2 RAIL BRIDGE RAIL = 118.7 LF

Vermont Agency of Transportation

RECEIVED

CK'D BY GFR OK'D BY CAM

07/13/2012

RESUBMIT APPROVED X

BY C. CARLSON DATE 07/16/2012

No.	Remarks	Date
A	CORRECTED SUBMITTAL	
O	Initial submittal	05-31-12
REVISIONS		

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

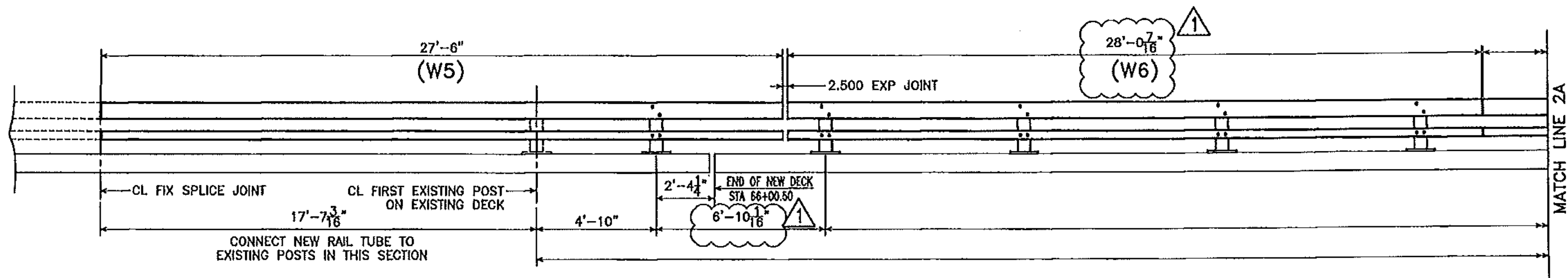
ITEM 525.33 NETC 2 RAIL BRIDGE RAIL
VT RT 9 BRIDGE NO. 11
TOWN OF WOODFORD
COUNTY OF BENNINGTON, VERMONT
PROJECT NO. ER BHF 010-1(44)

CERTIFIED
FABRICATOR

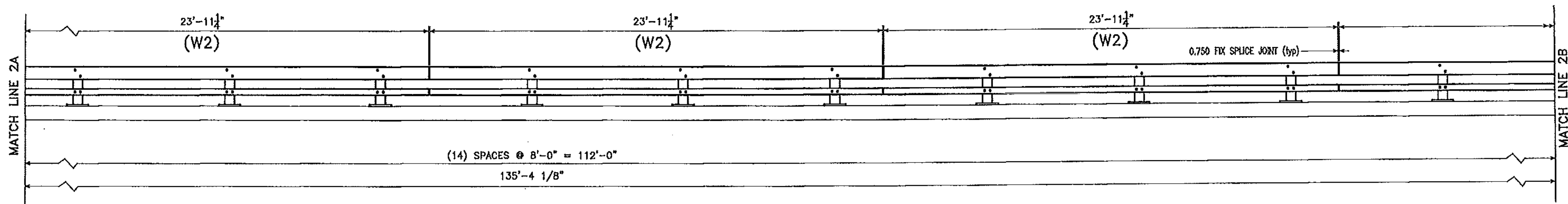
1881

1 of 4

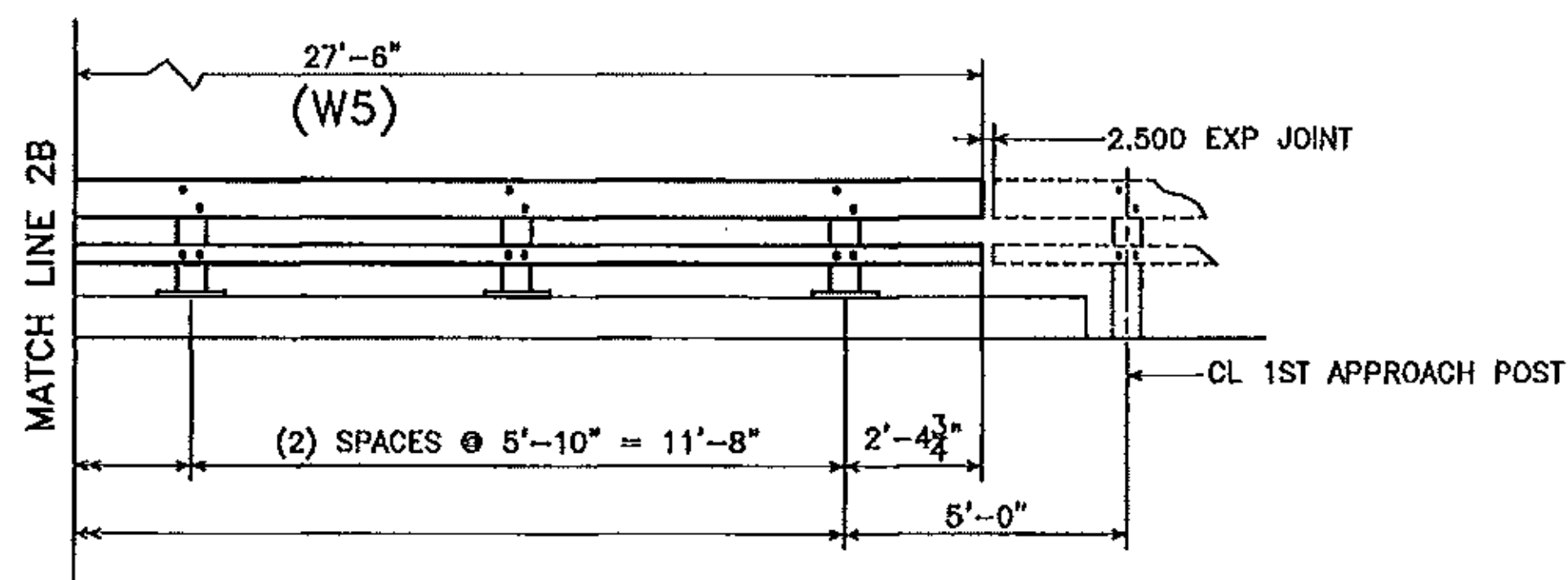
GENERAL CONTRACTOR	T BUCK CONSTRUCTION
DATE	05-31-12
CHECKED	PAR
SCALE	NONE
SIZE	D



BILL OF MATERIAL (SOUTH RAIL)				
Mk#	Qty.	Description	Size/Shape	Material
POST				
18		BRIDGE RAIL PED POST 2'-0 3/8" OAH W/ BASE PLATE		
18		POST UPRIGHT	W6 x 25	1'-11 3/8" A709 Gr. 50
18		POST BASE PLATE	10" x 1"	1'-2" A709 Gr. 50
SPLICE				
6		UPPER SPLICE TUBE FOR 8 x 4 RAIL		
6		TUBE	TS 7x3x3/8	1'-8" A500 Gr. B
12		WELDED LOCK NUT (OUTER HOLES ONLY)	5/8"	A563
6		LOWER SPLICE TUBE FOR 4 x 4 RAIL		
6		TUBE	TS 3x3x5/16	1'-8" A500 Gr. B
12		WELDED LOCK NUT (OUTER HOLES ONLY)	5/8"	A563
RAIL				
W2	3	UPPER RAIL	FIX SPLICE BOTH ENDS	TS 8x4x5/16 23'-11 1/4" A500 Gr. B
	3	LOWER RAIL	FIX SPLICE BOTH ENDS	TS 4x4x1/4 23'-11 1/4" A500 Gr. B
W5	2	UPPER RAIL	1 END FIX, 1 END EXP	TS 8x4x5/16 27'-6" A500 Gr. B
	2	LOWER RAIL	1 END FIX, 1 END EXP	TS 4x4x1/4 27'-6" A500 Gr. B
W6	1	UPPER RAIL	1 END FIX, 1 END EXP	TS 8x4x5/16 28'-0 7/16" A500 Gr. B
	1	LOWER RAIL	1 END FIX, 1 END EXP	TS 4x4x1/4 28'-0 7/16" A500 Gr. B
HARDWARE				
17		ANCHOR PLATE	9 3/8" x 3/8"	1'-1" A36
72		ANCHOR STUD	1" DIA.	12" A449
68		JAMB NUT	1" DIA.	A563
140		HEAVY HEX NUT	1" DIA.	A563DH
72		WASHER	1" DIA.	F436
72		ROUND HEAD BOLT	3/4" DIA.	6" M164 type 1
72		LOCK NUT	3/4" DIA.	A563DH
72		WASHER	3/4" DIA.	F436
48		CAP SCREW	5/8" DIA.	1 3/4" A325
48		WASHER	5/8" DIA.	F436
8		PIPE SPACER (SCH. 40)	3/4" DIA.	1/2" A53
18		BEARING PAD	10" x 1/8"	1'-2" M251



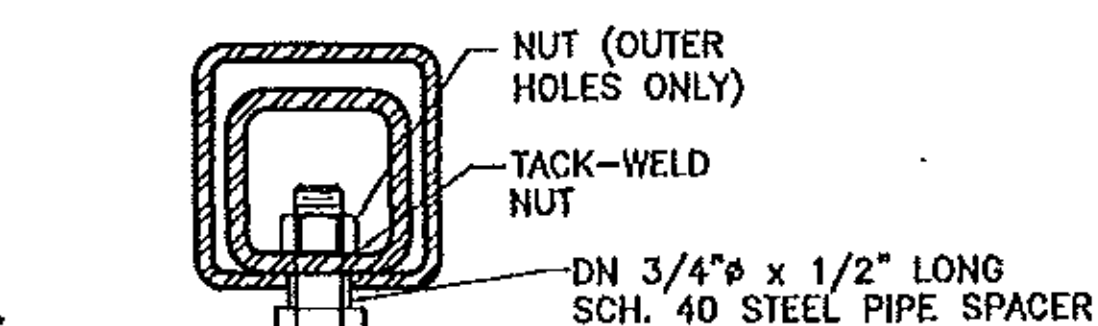
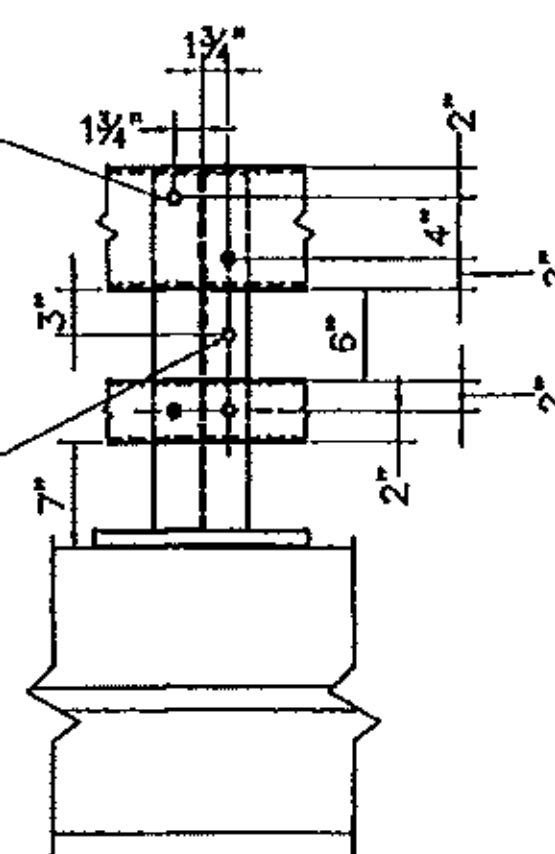
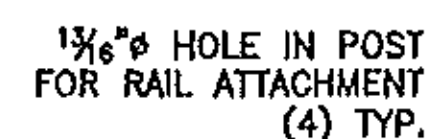
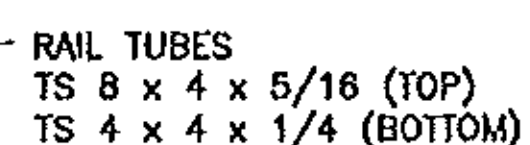
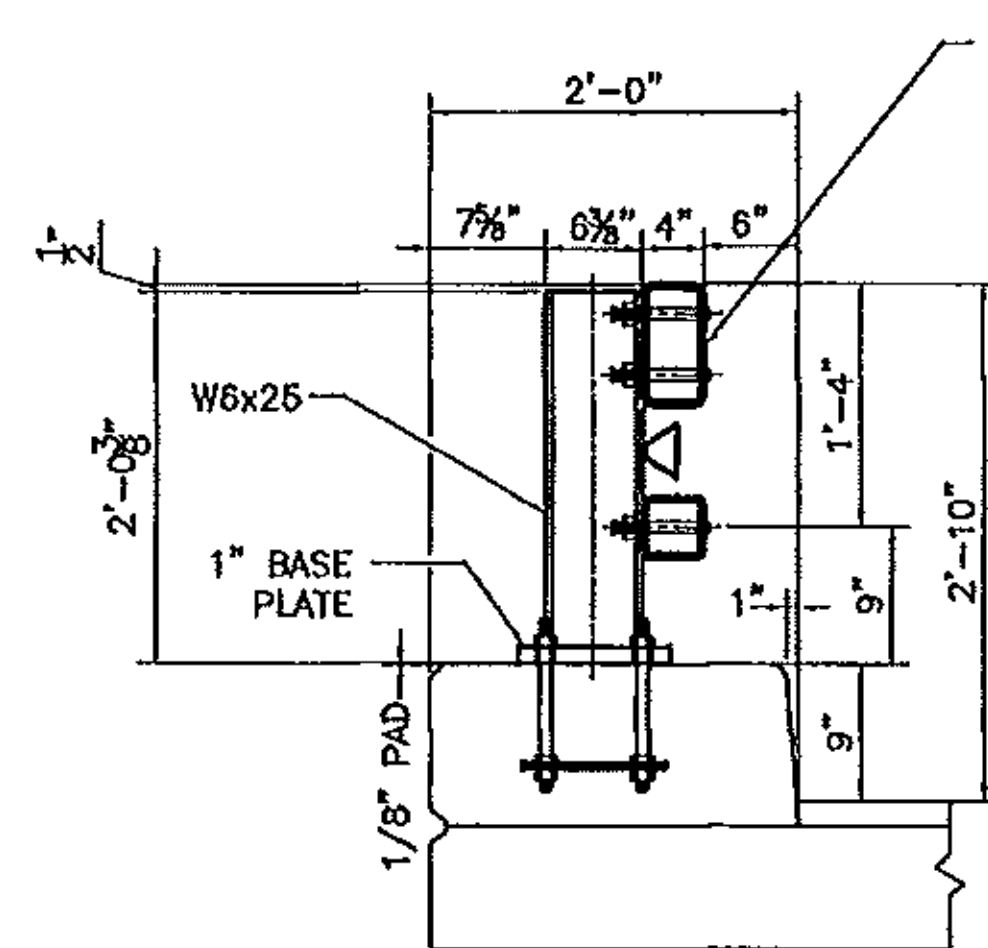
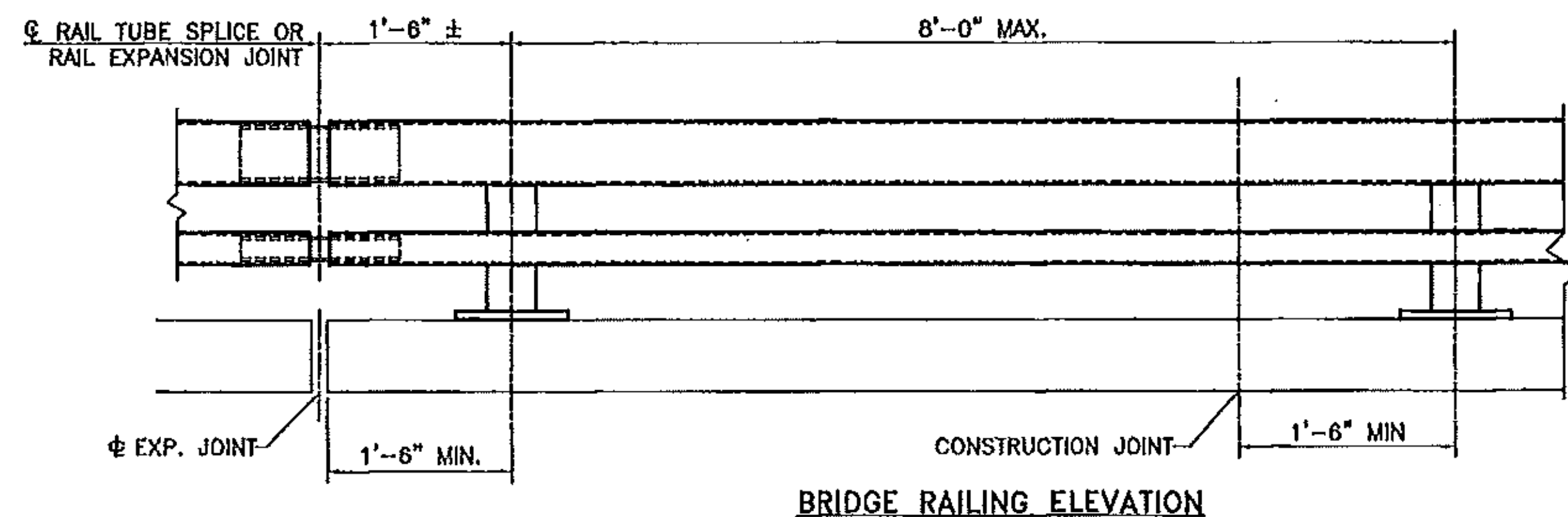
SOUTH RAIL ELEVATION
facing south from center of road



PAY LENGTH ITEM 525.33 NETC 2 RAIL BRIDGE RAIL = 155.3 LF

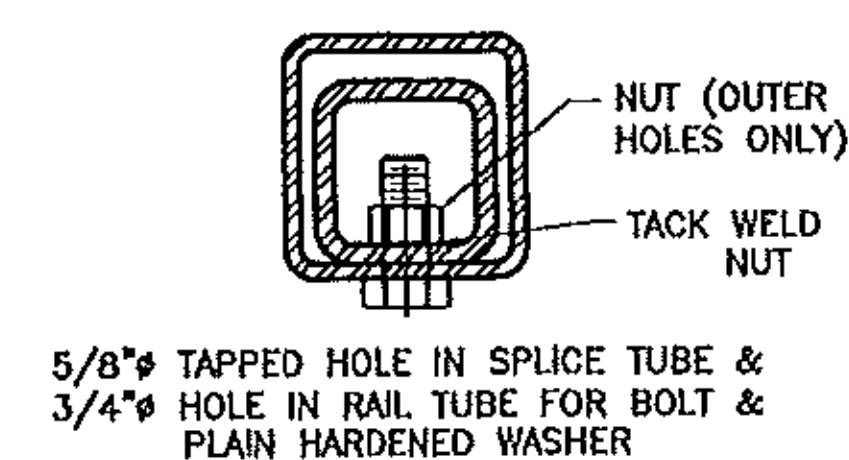
No.	Remarks	Date
1	APPROVED-AS-NOTED CORRECTIONS	07-16-12
A	CORRECTED SUBMITTAL	07-10-12
0	Initial submittal	05-31-12
REVISIONS		

HIGHWAY SAFETY CORP GLASTONBURY, CT 860-633-9445	
ITEM 525.33 NETC 2 RAIL BRIDGE RAIL VT RT 9 BRIDGE NO. 11 TOWN OF WOODFORD COUNTY OF BENNINGTON, VERMONT PROJECT NO. ER BHF 010-1(44)	
GENERAL CONTRACTOR T BUCK CONSTRUCTION	1881 2 of 4
DRAWN: MMH CHECKED: PAR DATE: 05-31-12 SCALE: NONE SIZE: D	CERTIFIED FABRICATOR

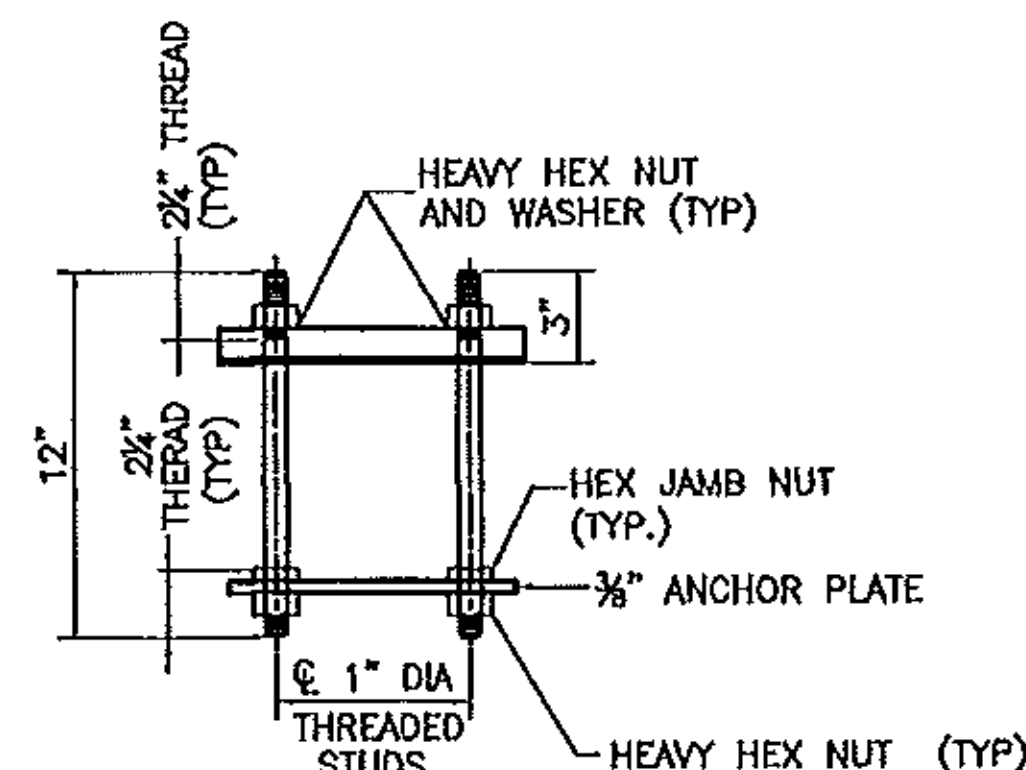


5/8"ø TAPPED HOLE IN SPLICE TUBE
AND 1 1/8" x 'C' SLOT IN RAIL TUBE FOR
BOLT AND PLAIN HARDENED WASHER

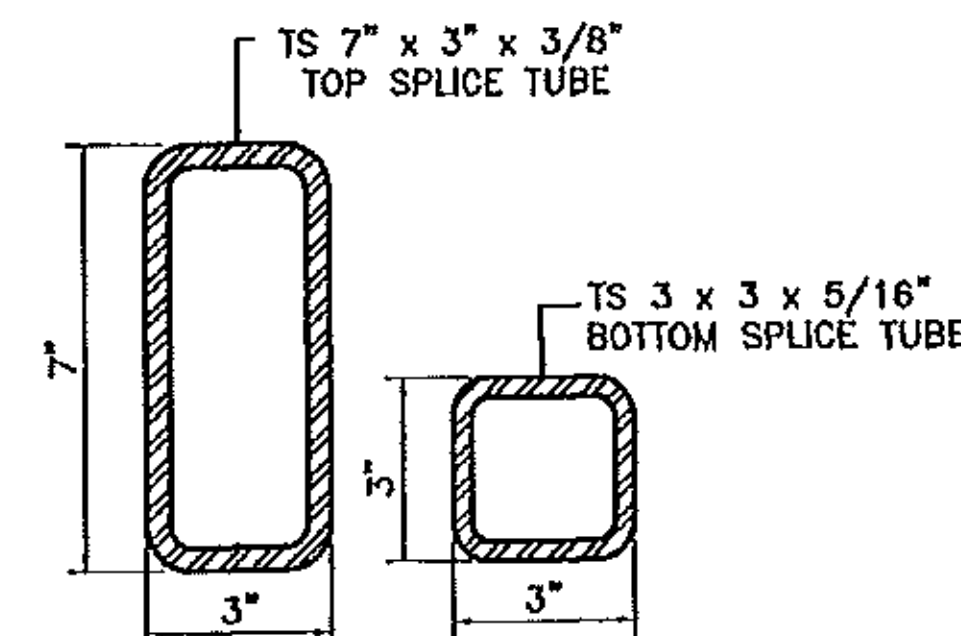
EXPANSION JOINT SECTION
FOR DETAILS NOT SHOWN,
SEE "RAIL TUBE SPLICE SECTION."



5/8" TAPPED HOLE IN SPLICE TUBE &
3/4" HOLE IN RAIL TUBE FOR BOLT &
PLAIN HARDENED WASHER



RAIL POST ANCHORAGE



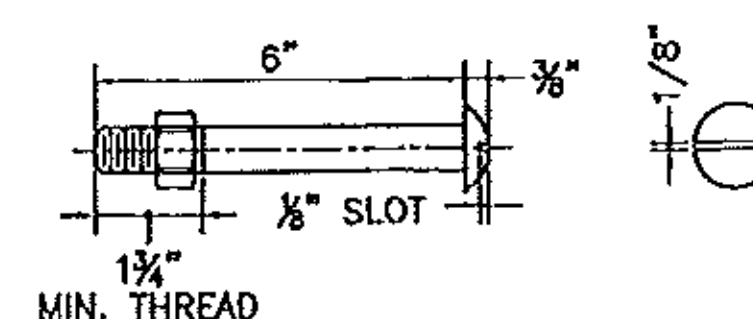
RAIL TUBE SPLICE SECTION

NOTES:

1. ALL RAILINGS AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATION FOR CONSTRUCTION SECTION 525, BRIDGE RAILINGS.
2. PRIOR TO GALVANIZING, ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
3. RAIL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
5. RAIL TUBE EXPANSION JOINT SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 45°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT HARDWARE, WHICH SHALL MEET THE REQUIREMENTS OF AASHTO M232.
7. RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
8. RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLT INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
9. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT SHALL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
10. IF THERE IS A CONFLICT BETWEEN THE DETAILS SHOWN ON THIS SHEET AND THE DESIGN, THE REQUIREMENTS OF THE DESIGN DRAWINGS SHALL BE FOLLOWED.
11. ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY, AND SHALL BE DONE AT THE FABRICATION PLANT.
12. THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH SUBSECTION 506.04 OF THE STANDARD SPECIFICATIONS. ALL WELDING SHALL CONFORM WITH SUBSECTION 506.10.
13. RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A-370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN
14. EXPANSION JOINT HARDWARE, REFLECTORS AND REFLECTOR HARDWARE PROVIDED BY OTHERS.

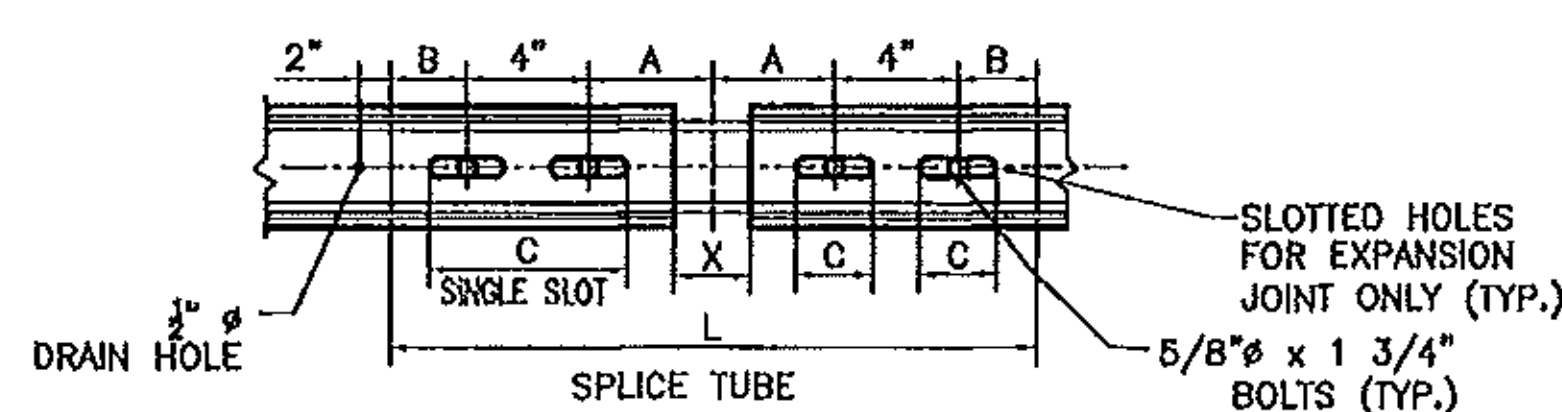
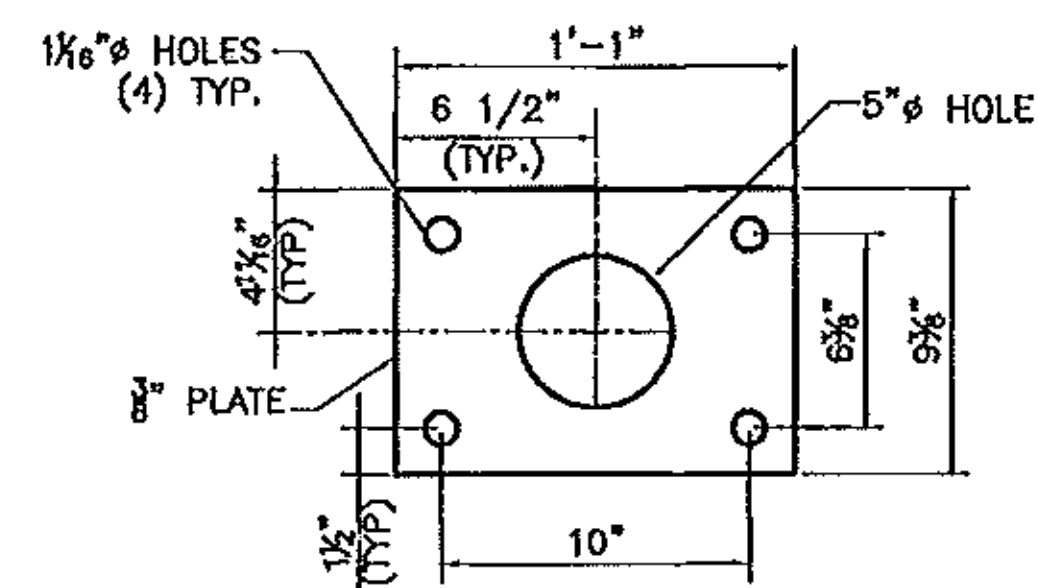
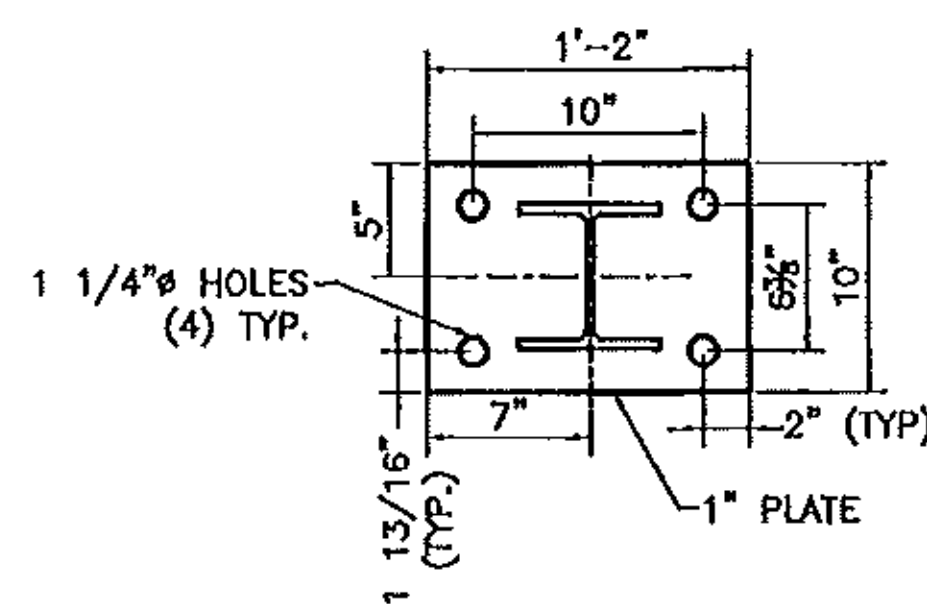
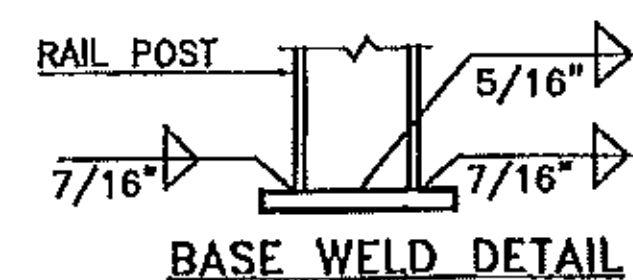
MATERIALS

- MATERIALS**
- | | |
|-------------------------------------|---------------------------------|
| RAIL TUBES..... | ASTM A500, GRADE B OR ASTM A501 |
| RAIL POSTS AND BASE PLATES..... | ASTM A709/A709M, GRADE 50 |
| ALL OTHER SHAPES AND PLATES..... | ASTM A709/A709M, GRADE 36 |
| ANCHOR STUDS..... | ASTM A449 |
| AND OTHER BOLTS (UNLESS NOTED)..... | AASHTO M164, TYPE I |
- NUTS FOR AASHTO M164 BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291 (ASTM A563).



3/4" DIA. M164 (TYPE 1)
ROUND HEAD BOLT.

(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)
(SEE NOTE #8)
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



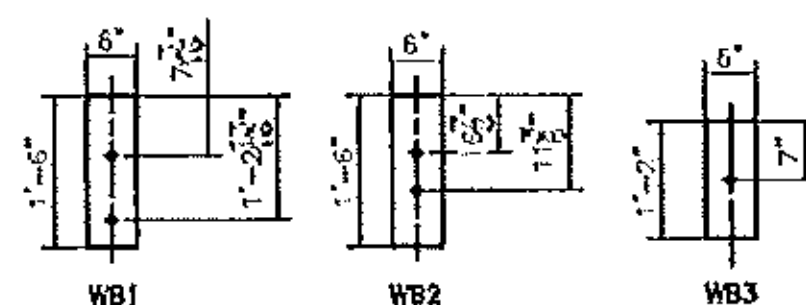
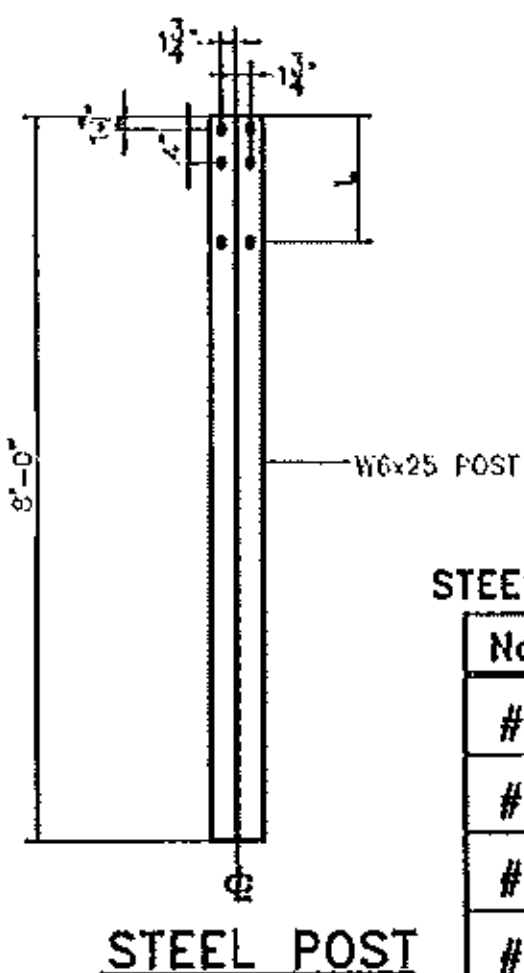
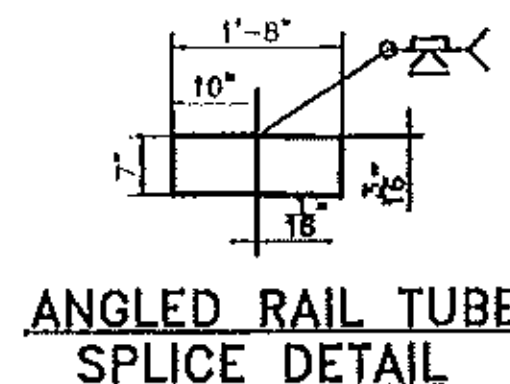
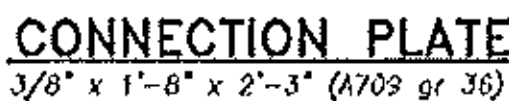
SPLICE TABLE					
T	A	B	C	L	X
N/A	4"	2"	--	20"	3/4"

EXPANSION JOINT TABLE					
<4"	4"	2"	2 1/2"	20"	2 1/2"

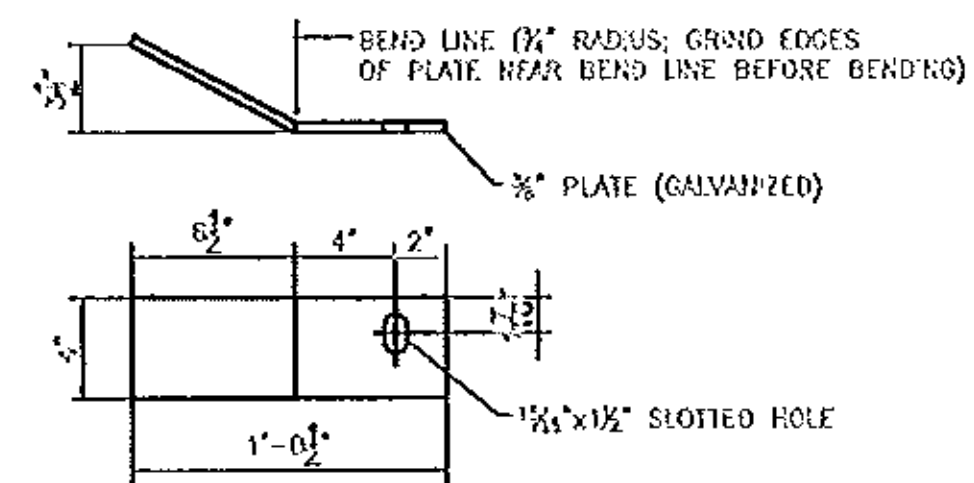
T = TOTAL MOVEMENT BETWEEN BRIDGE
EXPANSION JOINTS. SEE NOTE 5

1	APPROVED-AS-NOTED CORRECTIONS	07-16-1
0	Initial submittal	05-31-1
No.	Remarks	Date
	REVISIONS	

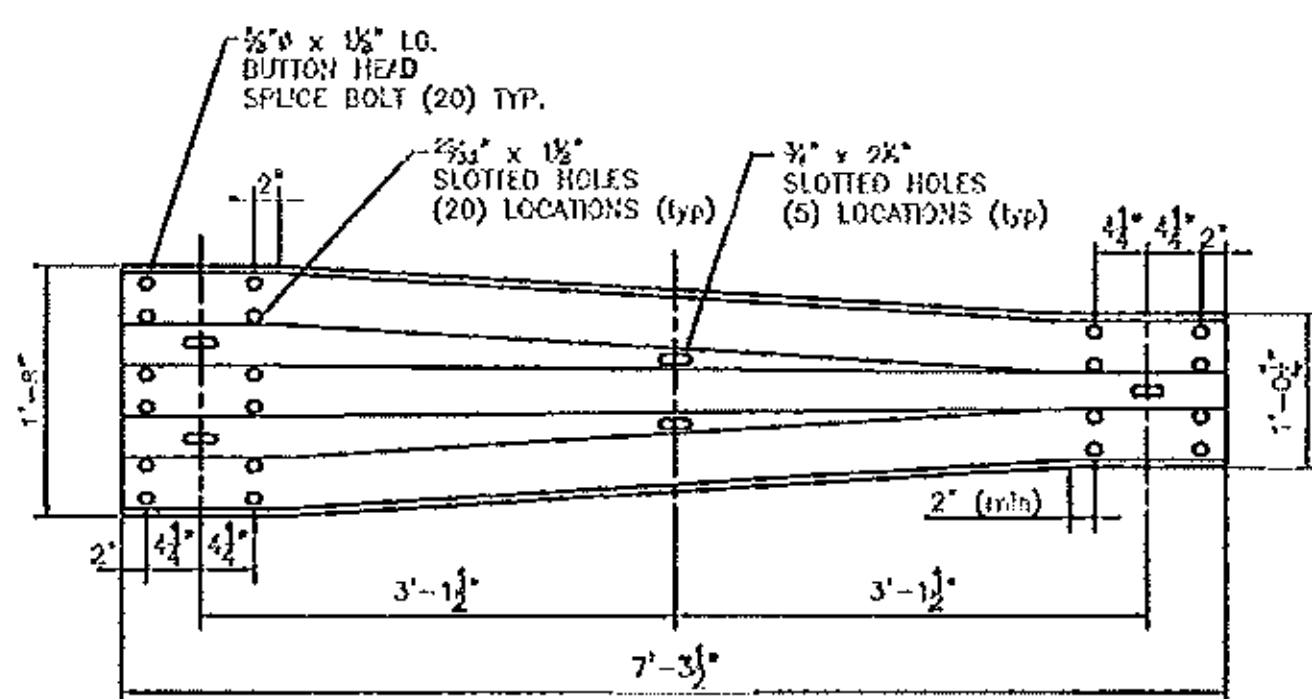
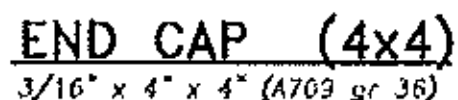
	HIGHWAY SAFETY CORP					
	GLASTONBURY, CT 860-833-9445					
ITEM 525.33 NETC 2 RAIL BRIDGE RAIL VT RT 9 BRIDGE NO. 11 TOWN OF WOODFORD COUNTY OF BENNINGTON, VERMONT PROJECT NO. ER BHF 010-1(44)						
SPECIAL CONTRACTOR						
SUB CONTRACTOR						
I BUCK CONSTRUCTION						
MADE IN	WHW	CHECKED	PAR	SITE	SCALE	DATE
				05-31-12		
						NOV 11 2011



WOOD BLOCK DETAILS



DEFLECTOR PLATE



THREE TRANSITION PANEL
12 GAUGE (AASHTO M160 A2)



No.	L
#1	1'-3.125"
#2	1'-2.875"
#3	1'-2.625"
#4	1'-2.437"

REVISIONS		
No.	Remarks	Date
0	Initial submittal	

Vermont Agency of Transportation
R E C E I V E D

CK'D BY GFR OK'D BY CAM

05/31/2012

RESUBMIT APPROVED X
BY C. CARLSON DATE 07/02/2012



HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-8445

ITEM 621.72 NETC 2 RAIL BRIDGE APPROACH
VT RT 9 BRIDGE NO. 11
TOWN OF WOODFORD
COUNTY OF BENNINGTON, VERMONT
PROJECT NO. ER BHF 010-1(44)

**AISC CERTIFIED
FABRICATOR**

MSO JCR NO.

GENERAL CONTRACTOR					1881	
SUB CONTRACTOR					SHEET NO.	
T BUCK CONSTRUCTION					4 of 4	
DATE	MHM	CHECKED	PAR	DATE	SCALE	BY
				05-31-12	NONE	

Roy, Gaston

From: Abel, Leigh [label@gpinet.com]
Sent: Monday, July 02, 2012 11:03 AM
To: Roy, Gaston; Carlson, Carolyn
Cc: Lemaire, Ron
Subject: Woodford Bridge Bridge Rail Post measurements

Gaston and Carolyn

Ron and I re-measured the bridge rail posts based on stationing. Hopefully this improves the accuracy for their locations. In addition I counted the posts from the first post on the East end of the bridge to the last post we are keeping to make sure the posts in question can be identified going forward.

North side of bridge (station left)

Post # 25 location is Sta. ^{66+08.23}66+08:77 lt (91 ft 9-1/4" west of sta 67+00)

South side of bridge (station right)

Post # 19 location is Sta. 66+07:31 rt (92 ft 3-3/4" west of sta 67+00)

Hope this helps. ^{66+07.69}

PS Carolyn do you know the status of the Traffic Control Plan in for review. I haven't seen anything more on it. It was submitted on June 21st.

Thanks
Leigh Abel
Senior Inspector
GPI / Greenman-Pedersen, Inc.
Engineering and Construction Services
Woodford ER BHF 010-1(44) Field Office
c: (518) 466-6130
p: (802) 681-7181
f: (802) 681-7242
Email: label@gpinet.com
Web Address: www.gpinet.com

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Roy, Gaston

From: Abel, Leigh [label@gpinet.com]
Sent: Friday, June 29, 2012 7:37 AM
To: Roy, Gaston; Carlson, Carolyn
Cc: Lemaire, Ron; Gilmore, Judy
Subject: Woodford ER BHF 010 - 1(44) Bridge Rail Field Measurements

Mr. Roy

Carolyn asked that we make some field measurements regarding the existing bridge rail and contact you directly with the results.

here is what we found.

South side of bridge

Distance from cl first post left after demo to cl bearing pier #1 = 55.4 ft
Distance from cl first post left after demo to first up station splice in rail = 17.6 ft

North side of bridge

Distance from cl first post left after demo to cl bearing pier #1 = 11.6 ft
Distance from cl first post left after demo to first up station splice in rail = 25.7 ft

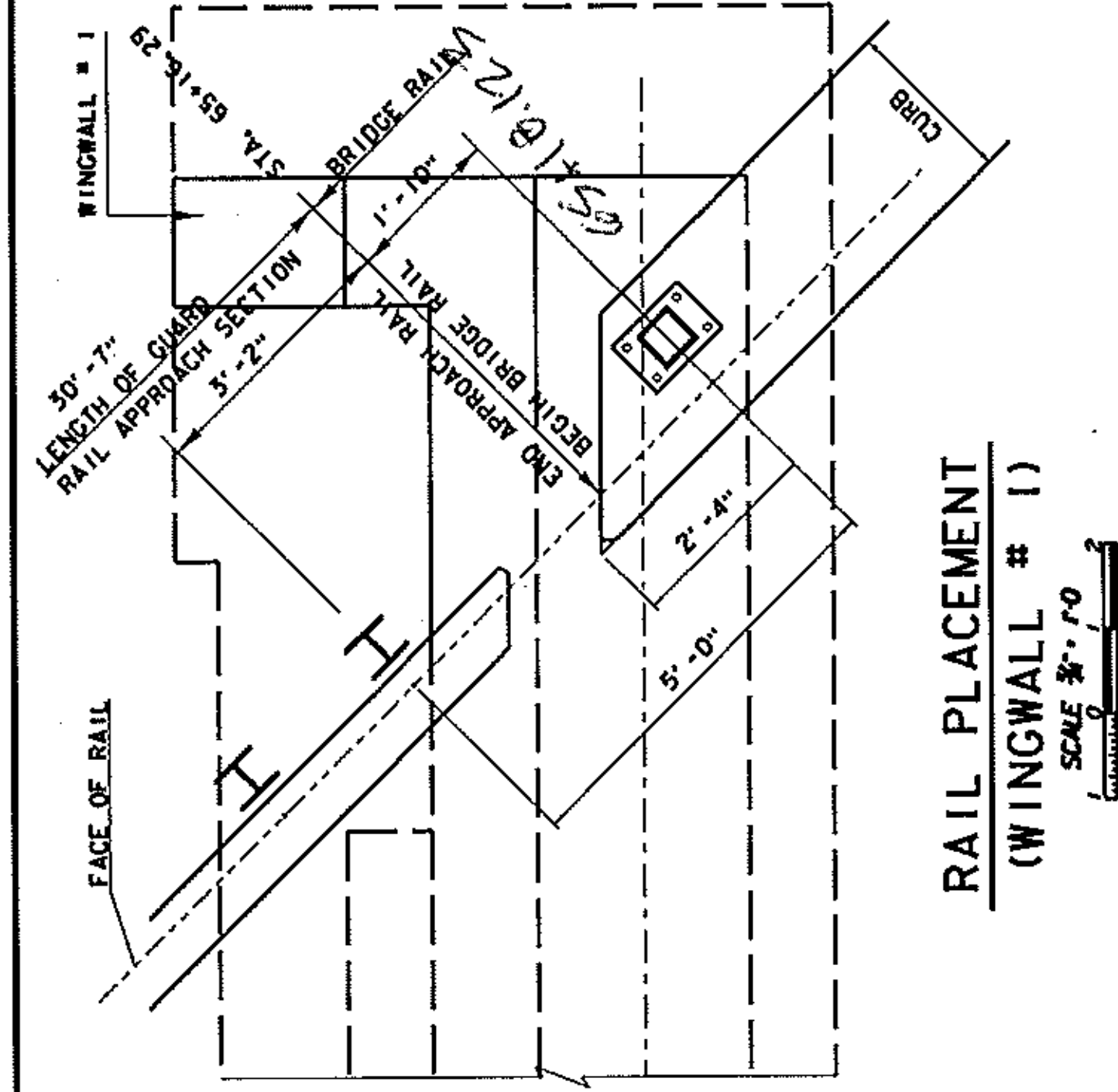
Please let us know if there are any other questions you might have that we can help you with.

PS...for Carolyn ..visual inspection under the bridge found no cracking.

Leigh Abel
Senior Inspector
GPI / Greenman-Pedersen, Inc.
Engineering and Construction Services
Woodford ER BHF 010-1(44) Field Office
c: (518) 466-6130
p: (802) 681-7181
f: (802) 681-7242
Email: label@gpinet.com
Web Address: www.gpinet.com

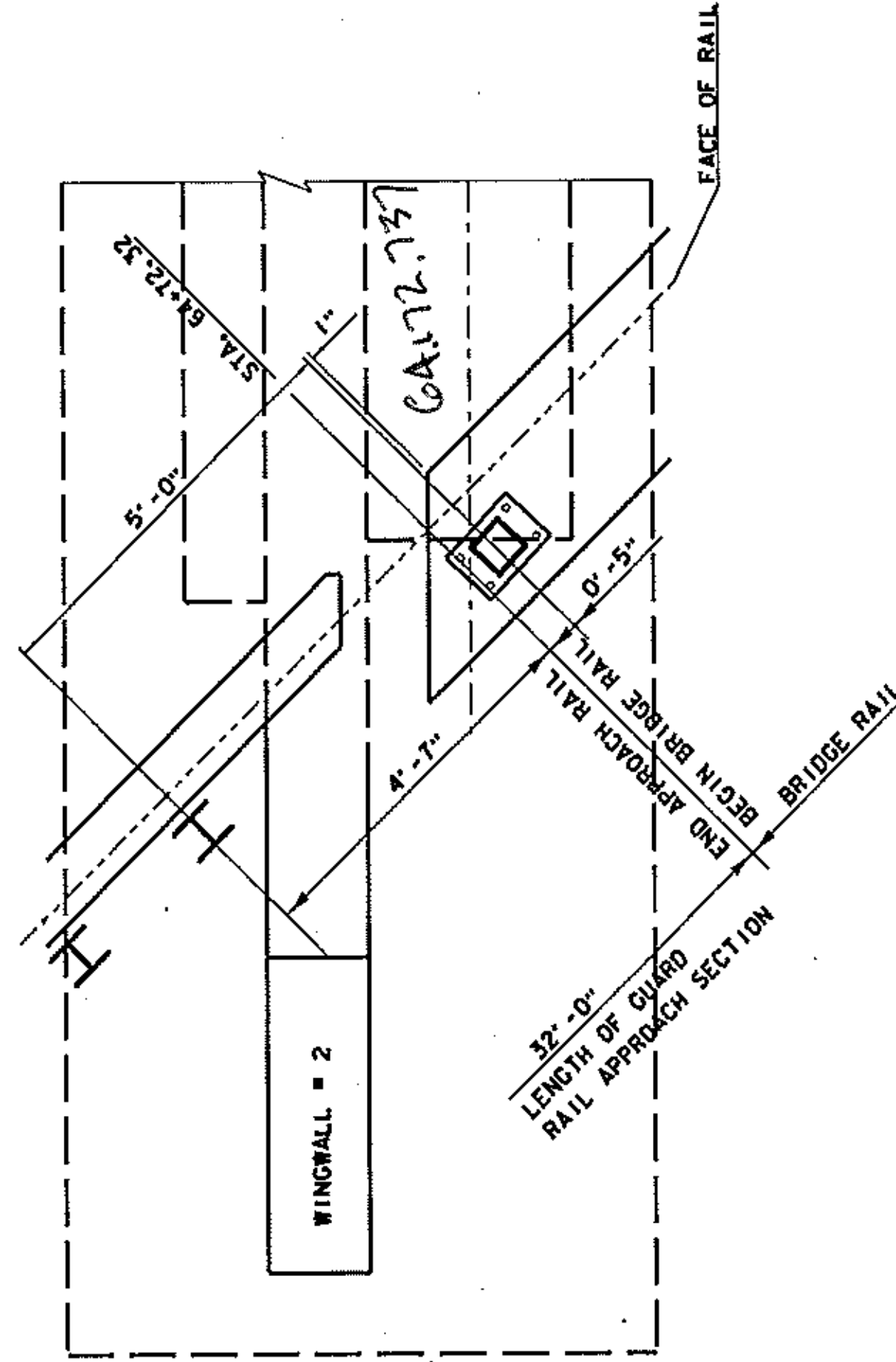
An Equal Opportunity Employer

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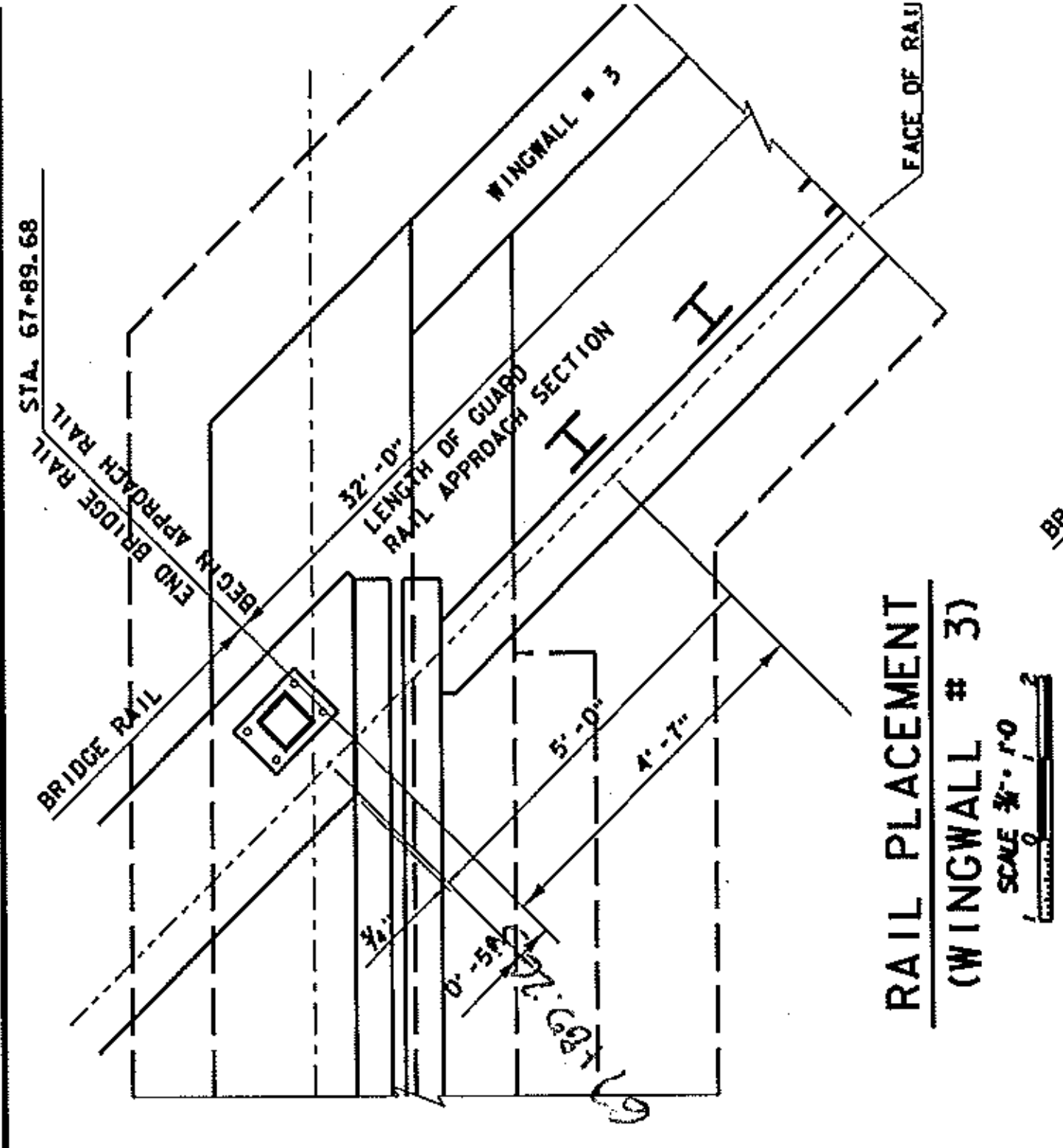
RAIL PLACEMENT
(WINGWALL # 1)

SCALE 3/4" = 1'-0"



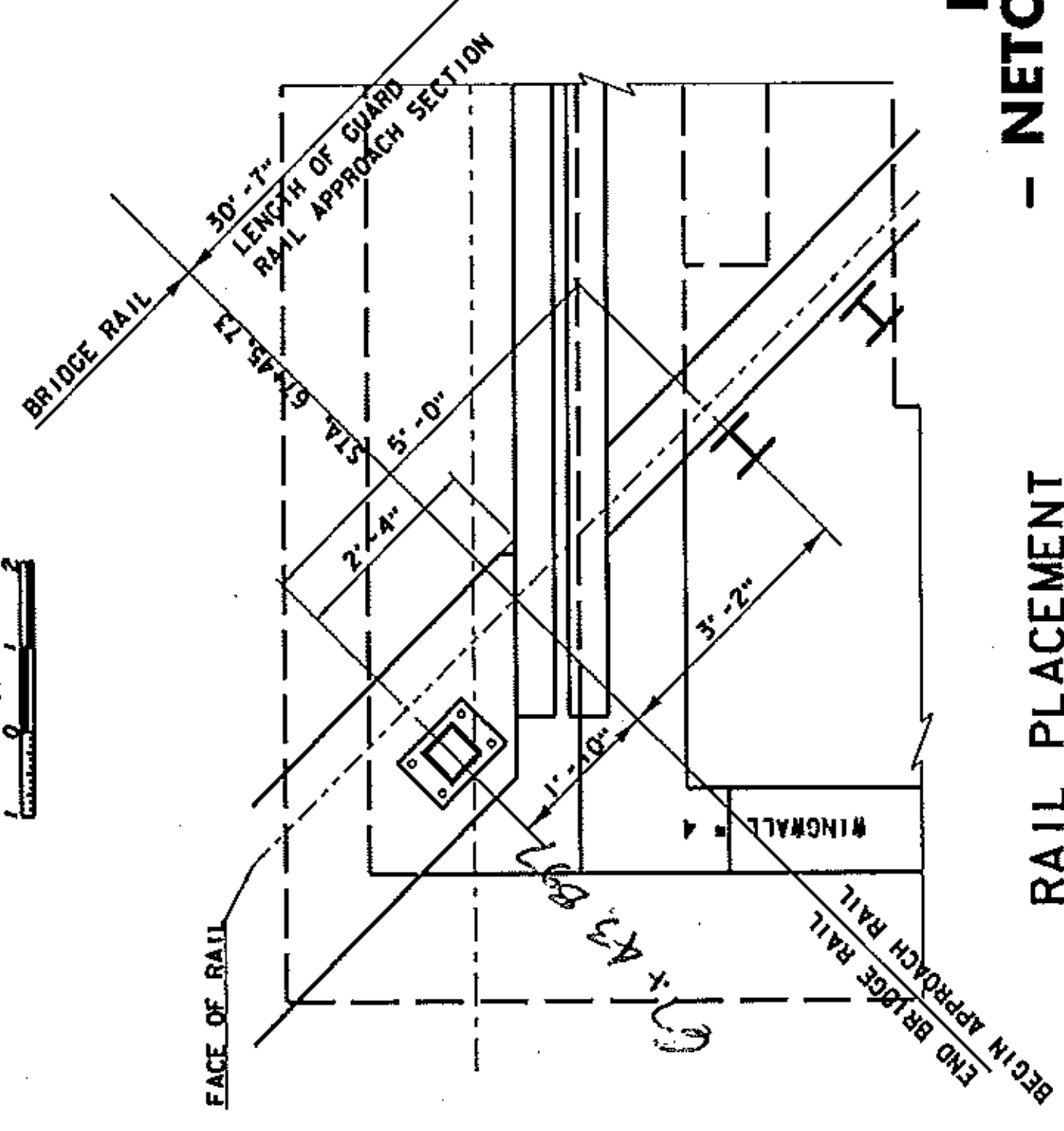
RAIL PLACEMENT
(WINGWALL # 2)

SCALE 3/4" = 1'-0"



RAIL PLACEMENT
(WINGWALL # 3)

SCALE 3/4" = 1'-0"

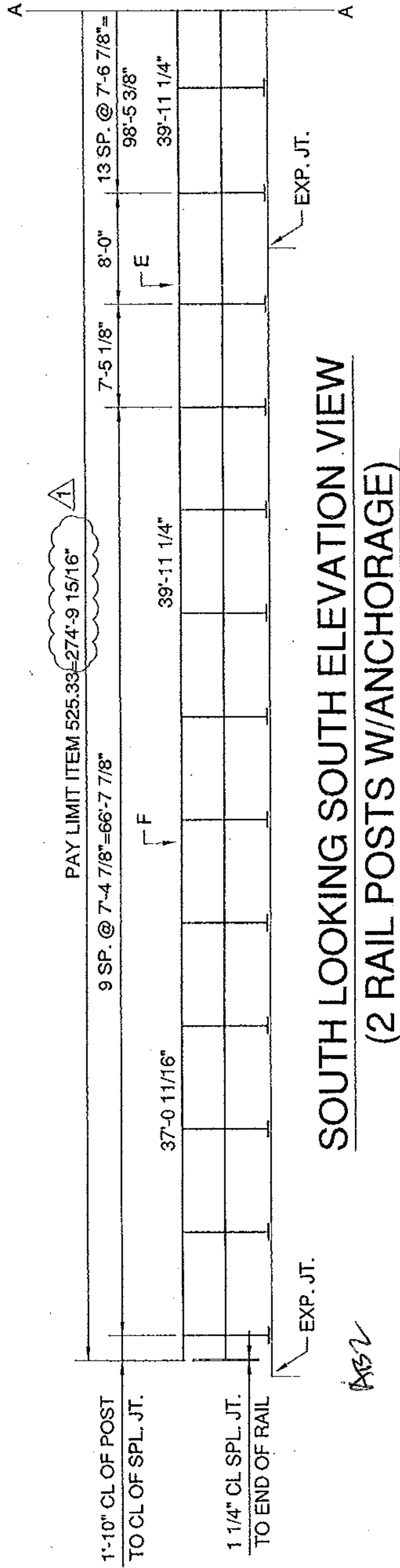


RAIL PLACEMENT
(WINGWALL # 4)

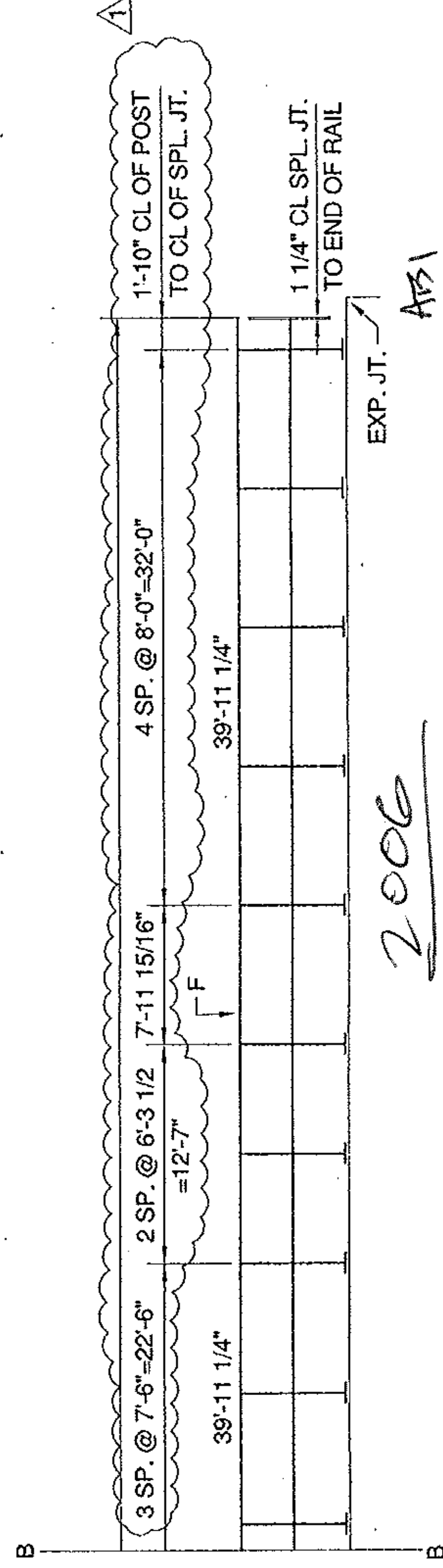
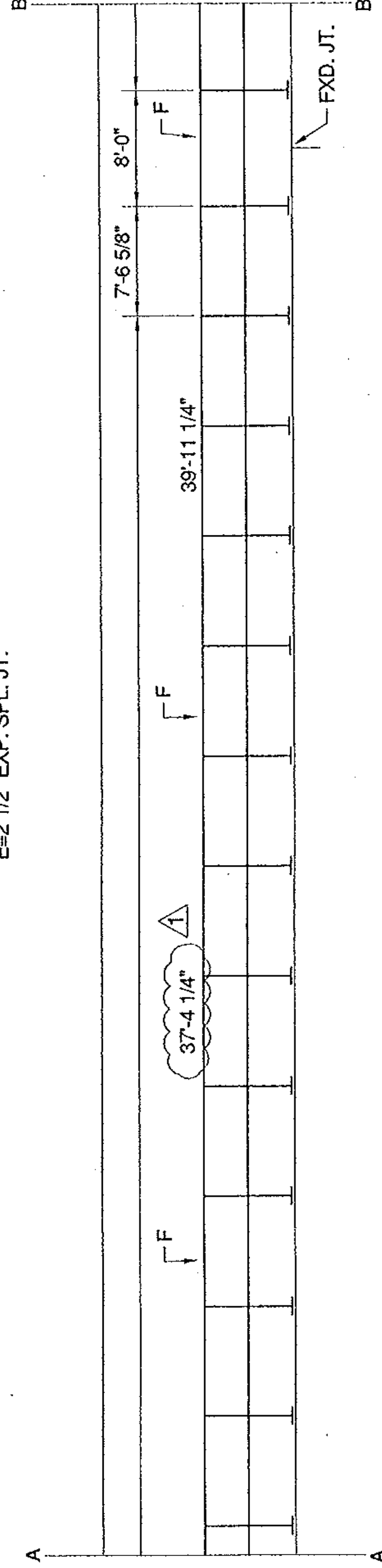
SCALE 3/4" = 1'-0"

BRIDGE
- NETC 2 R

PROJECT NAME:	W
PROJECT NUMBER:	B1
FILE NAME:	/B440597.mxd
PROJECT LEADER:	A. P.
DESIGNED BY:	M.E.V

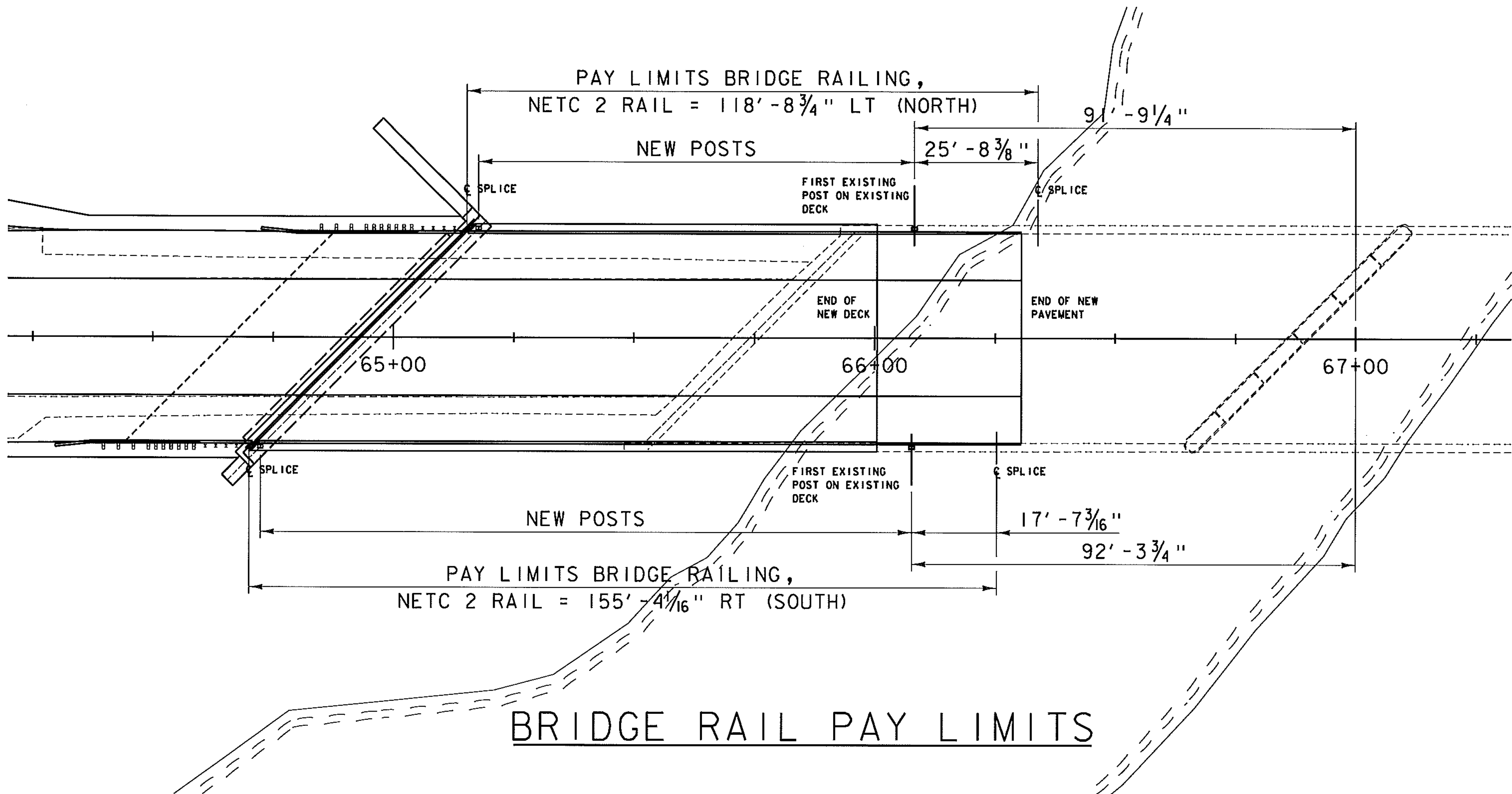


KEY
F=3/4" FXD. SPL. JT.
E=2 1/2" EXP. SPL. JT.



2006

AS1





State of Vermont
Program Development
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

January 30, 2013

Structal Bridges
386 River Road
Claremont, NH 03743

Project Name: Woodford Project #: ER BHF 010-1(44)

Structure Identification: VT 9 Over the Roaring Branch of the Walloomsac River

The following structural steel details for the revised cross frames at Abutment No. 1 for the above project (Vendor's Job #UN04260), have been reviewed.

Sheets E104, 115, 116, 117 and 118 are approved "as noted". (Please make appropriate changes as indicated on the "as noted" drawing and submit a new "*.pdf" for our use in the record plans for this project.)

You must provide notice to our fabrication inspector Jeff Clark as to the date fabrication represented by these drawings will begin. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us.

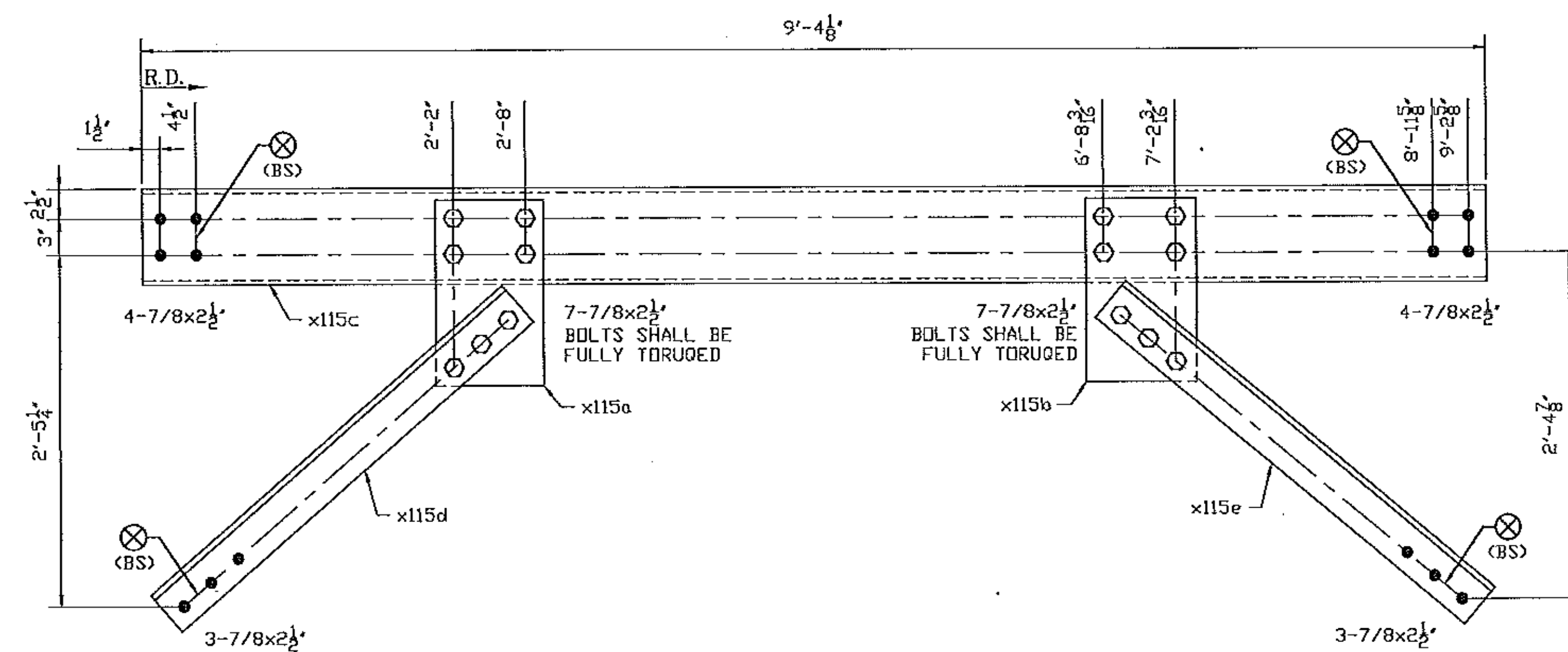
Sincerely,

Carolyn W. Carlson, PE
Project Manager

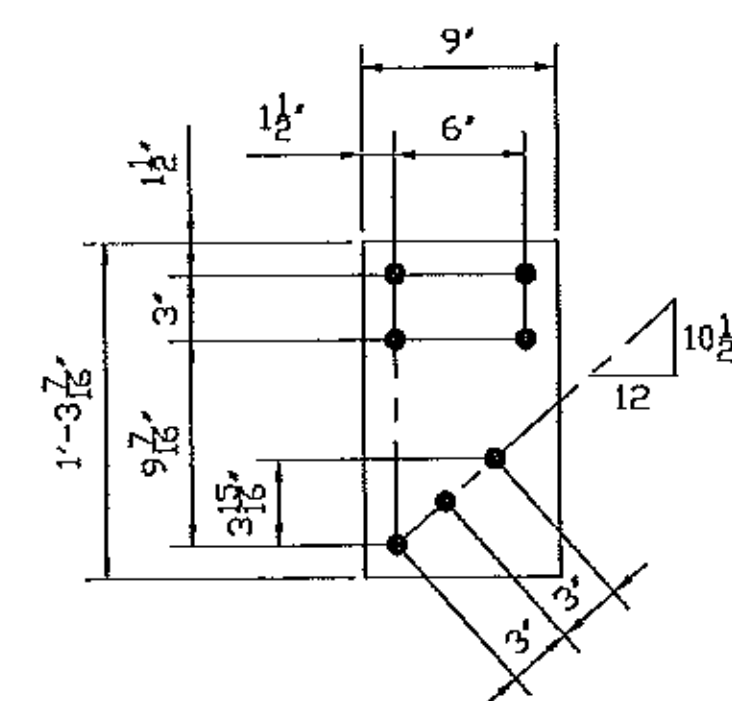
Attachments

cc: ☒ Resident Engineer Ron Lemaire -w/prints
☒ T. Buck Construction, Inc. – w/prints
☒ Shop Inspector - Jeff Clark w/prints
☒ Materials & Research Section (C&IA Unit) – Letter only
☒ Construction Division - Letter only
☒ CWC

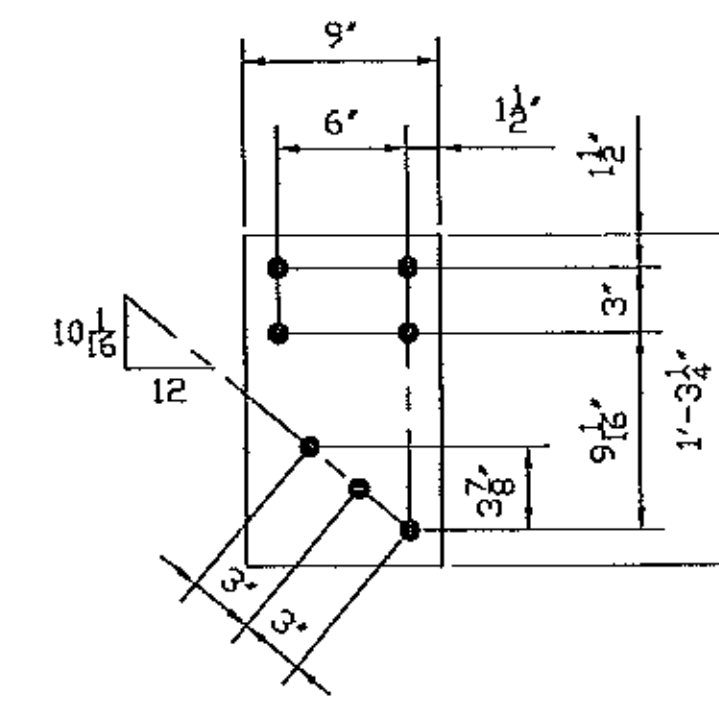




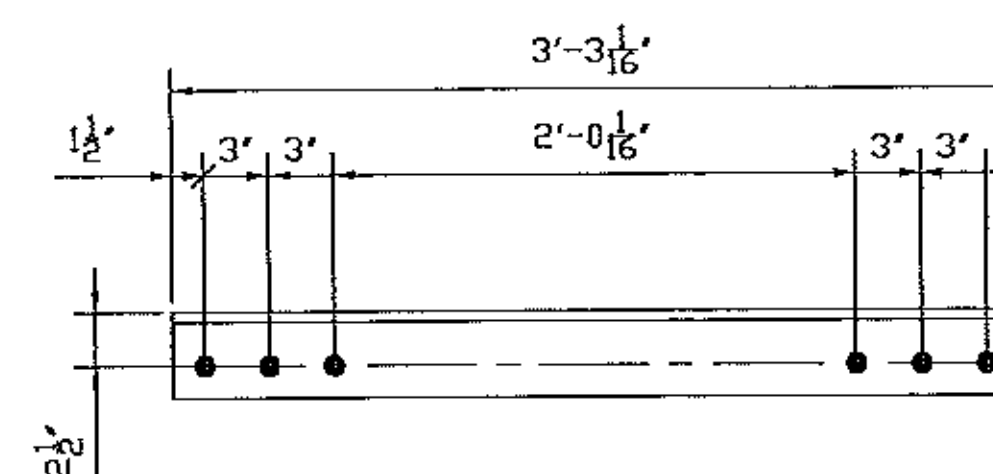
ONE - CROSS FRAME 115CF1
PAINTED



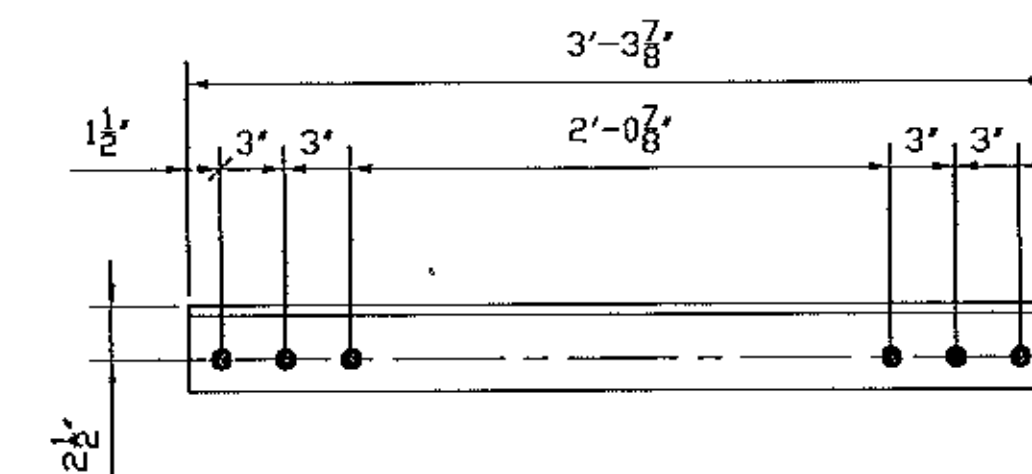
PL1/2x9x1-3 7/16 - x115a



PL1/2x9x1-3 1/4 - x115b



L4x4x1/2x3-3 1/16 - x115d



L4x4x1/2x3-3 7/8 - x115e

GENERAL NOTES: SEE GN100
HOLES: 15/16 (UN.)
CLEANING AND PAINTING: SEE SHEET P100 AND P101

PRIMER ONLY, NO PAINT
BOTH SIDES 75 MM DIA AROUND HOLE
WHERE NOTED WITH THIS SYMBOL
⊗
(BS)

337

BILL OF MATERIAL									
Mark	Qty.	Description	SU	Length	Remark	ABM	Total (lbs)	Seq	Qty
			Grd				Weight	/Seq	
115CF1	ONE	CROSS FRAME							
115CF1	1	CROSS FRAME		9-4 1/8	PAINT				
x115a	1	PL1/2x9	A70950W	1- 3 7/16		104-5	20		
x115b	1	PL1/2x9	A70950W	1- 3 1/4		104-5	19		
x115c	1	MC8x22.8	A70950W	9-4 1/8		104-1	213		
x115d	1	L4x4x1/2	A70950W	3-3 1/16		104-3	42		
x115e	1	L4x4x1/2	A70950W	3-3 7/8		104-3	43		
78S212	14	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
FB		FIELD BOLTS							
78F212	14	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				

Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

Jan. 29, 2013

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 01-29-2013

NO	REVISION	DATE	PAR	VER.
1	CROSSFRAME MODIFIED	01/16/13	BR	GG
2	CROSSFRAME MODIFIED	09/17/12	BR	GG
3	FOR SHOP	08/03/12	SM	GG
4	FOR APPROVAL	07/06/12	BR	EG

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

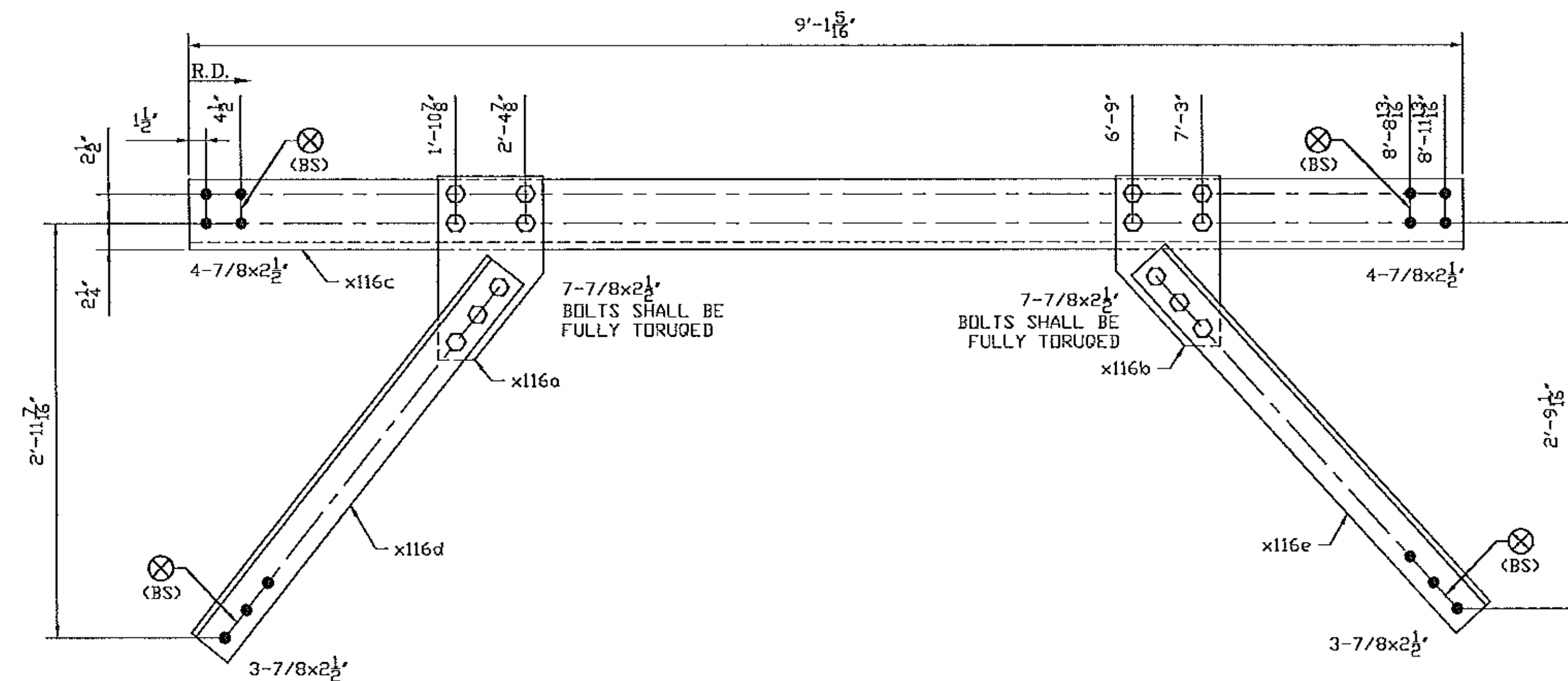


PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

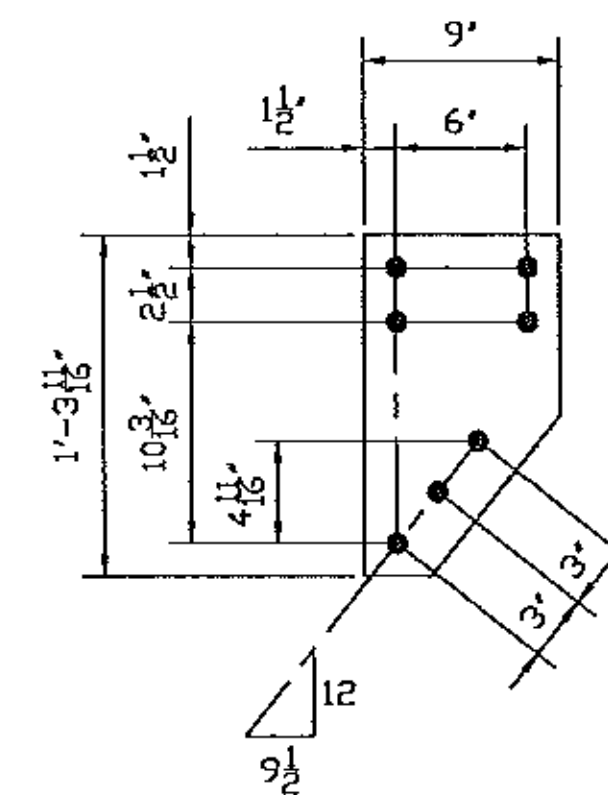
TITLE: ABUTMENT CROSS FRAME

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

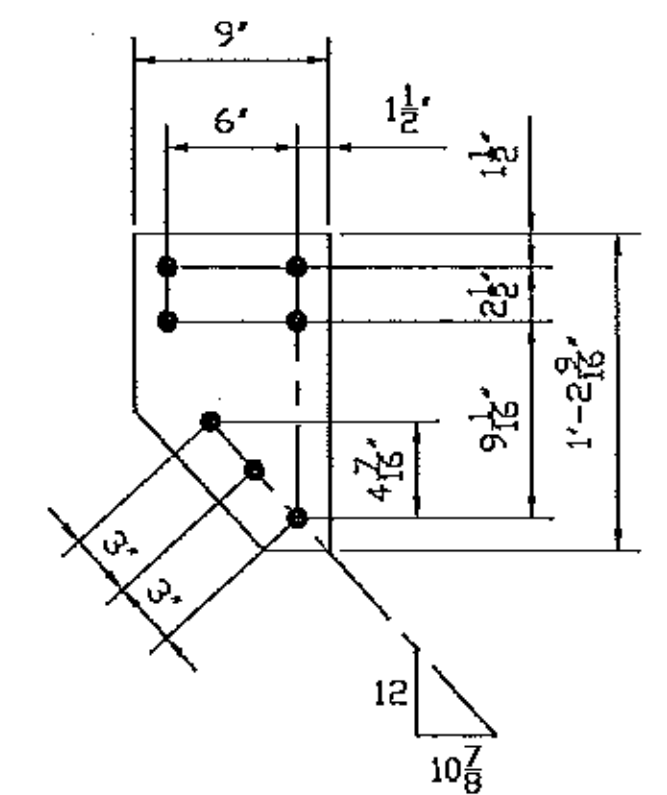
DESIGNED BY	BR	DATE	JULY 2012	CONTRACT NO.	UN04260
CHECKED BY	GG	DATE	JULY 2012	SHEET NO.	115/2



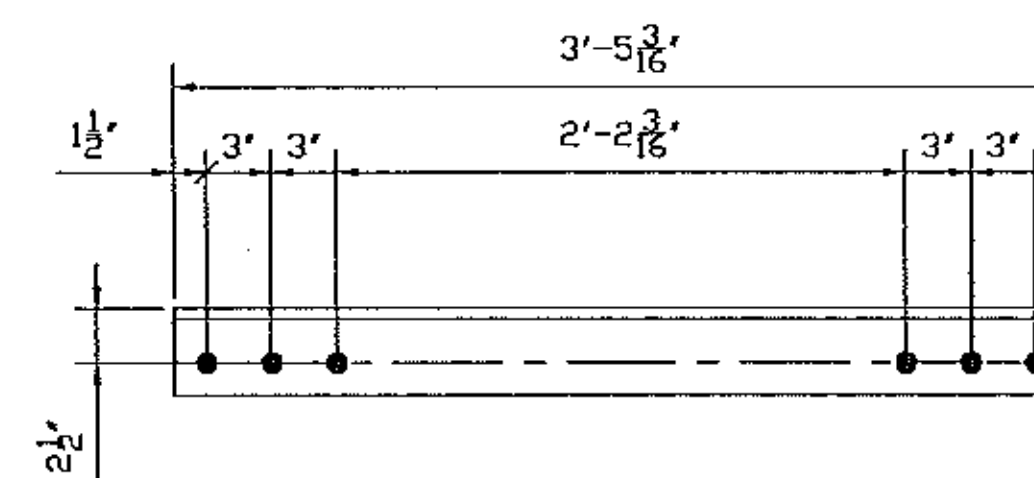
ONE - CROSS FRAME 116CF1
PAINTED



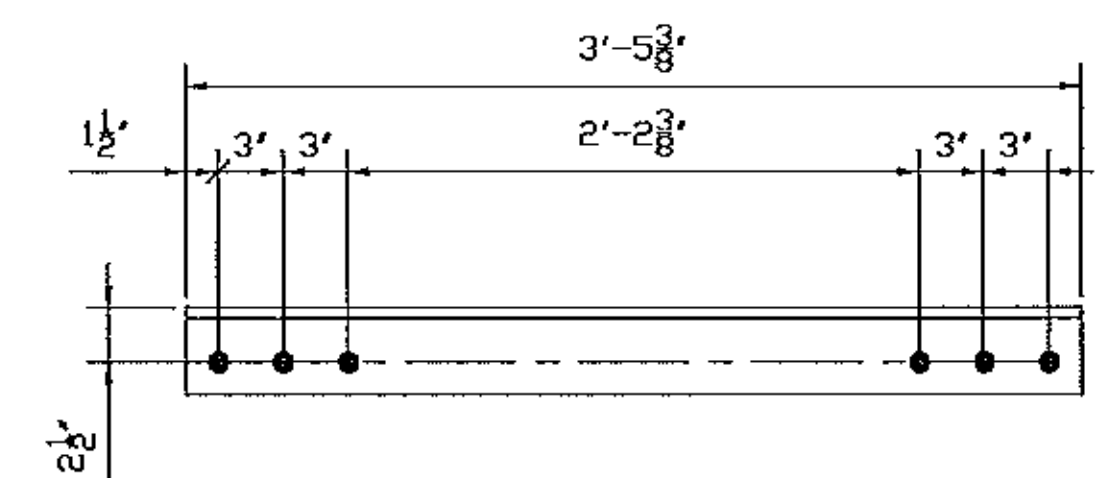
PL1/2x9x1-3 11/16 - x116a



PL1/2x9x1-2 9/16 - x116b



L4x4x1/2x3-5 3/16 - x116d



L4x4x1/2x3-5 3/8 - x116e

PRIMER ONLY, NO PAINT
BOTH SIDES 75 mm DIA AROUND HOLE
WHERE NOTED WITH THIS SYMBOL

(BS)

GENERAL NOTES: SEE GN100
HOLES: 15/16 (U.N.)
CLEANING
AND PAINTING: SEE SHEET P100
AND P101

NO	REVISION	DATE	PAR	VER.
1	CROSSFRAME MODIFIED	01/16/13	BR	GG
2	CROSSFRAME MODIFIED	09/17/12	BR	GG
3	FOR SHOP	08/03/12	SM	GG
4	FOR APPROVAL	07/06/12	BR	EG

BILL OF MATERIAL									
Mark	Qty.	Description	SU	Length	Remark	ABM	Total (lb)	Seq	Qty
			Grd				Weight	/Seq	/Seq
116CF1	ONE	CROSS FRAME							
116CF1	1	CROSS FRAME		9-1 5/16	PANT				
x116a	1	PL1/2x9	A70950W	1-3 11/16		103-5	20		
x116b	1	PL1/2x9	A70950W	1-2 9/16		103-5	19		
x116c	1	L6x6x5/8	A70950W	9-1 5/16		103-1	220		
x116d	1	L4x4x1/2	A70950W	3-5 3/16		103-3	44		
x116e	1	L4x4x1/2	A70950W	3-5 3/8		103-3	44		
78S212	14	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
FB		FIELD BOLTS							
78F212	14	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				

Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

Jan. 29, 2013

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 01-29-2013

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

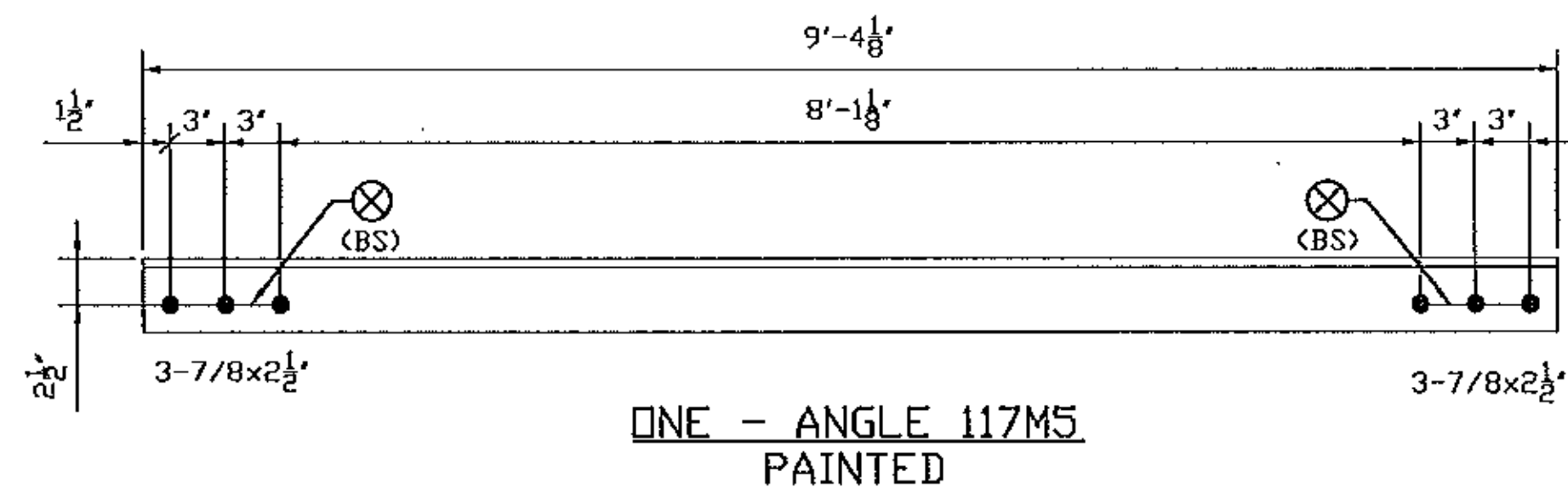
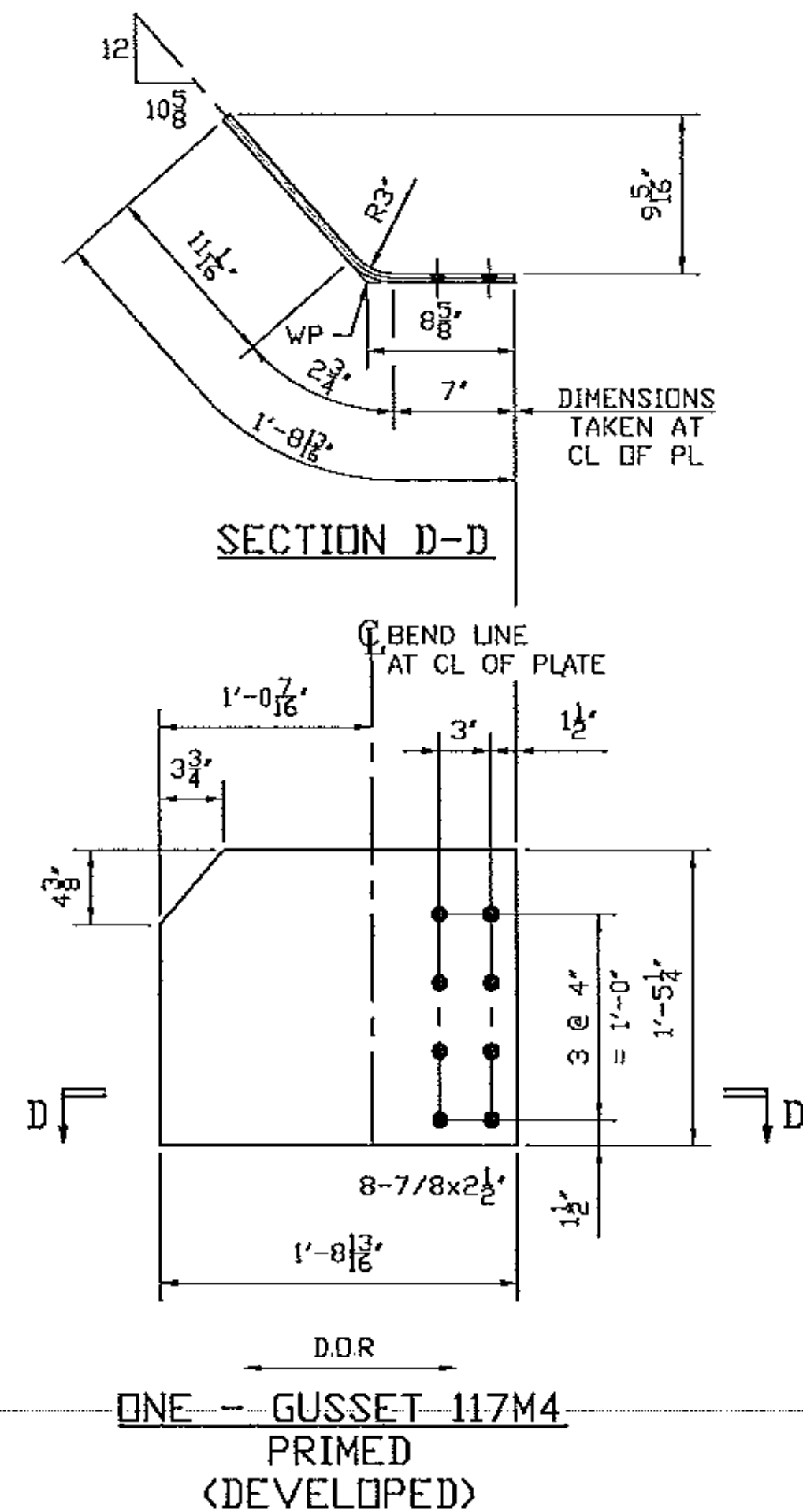
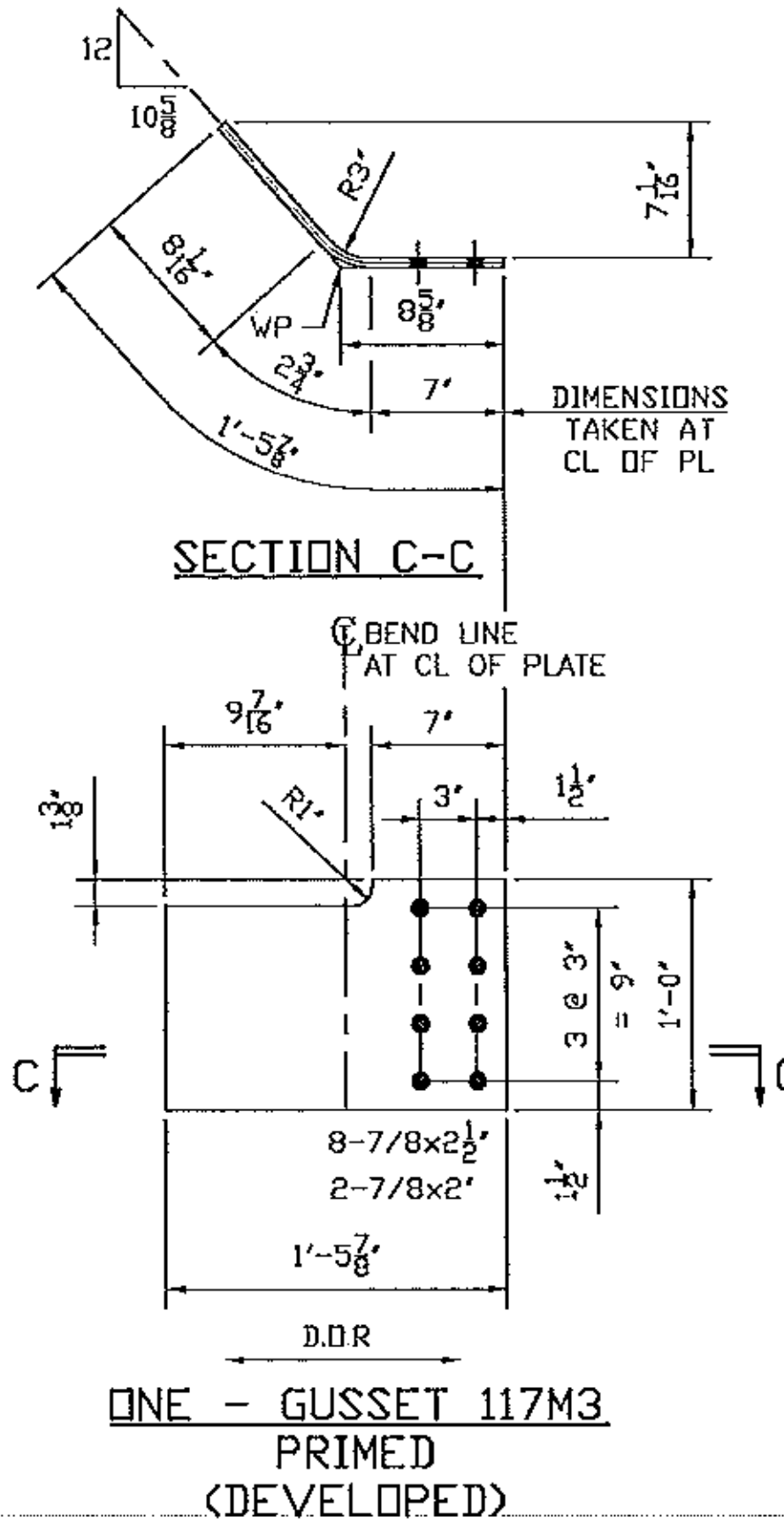
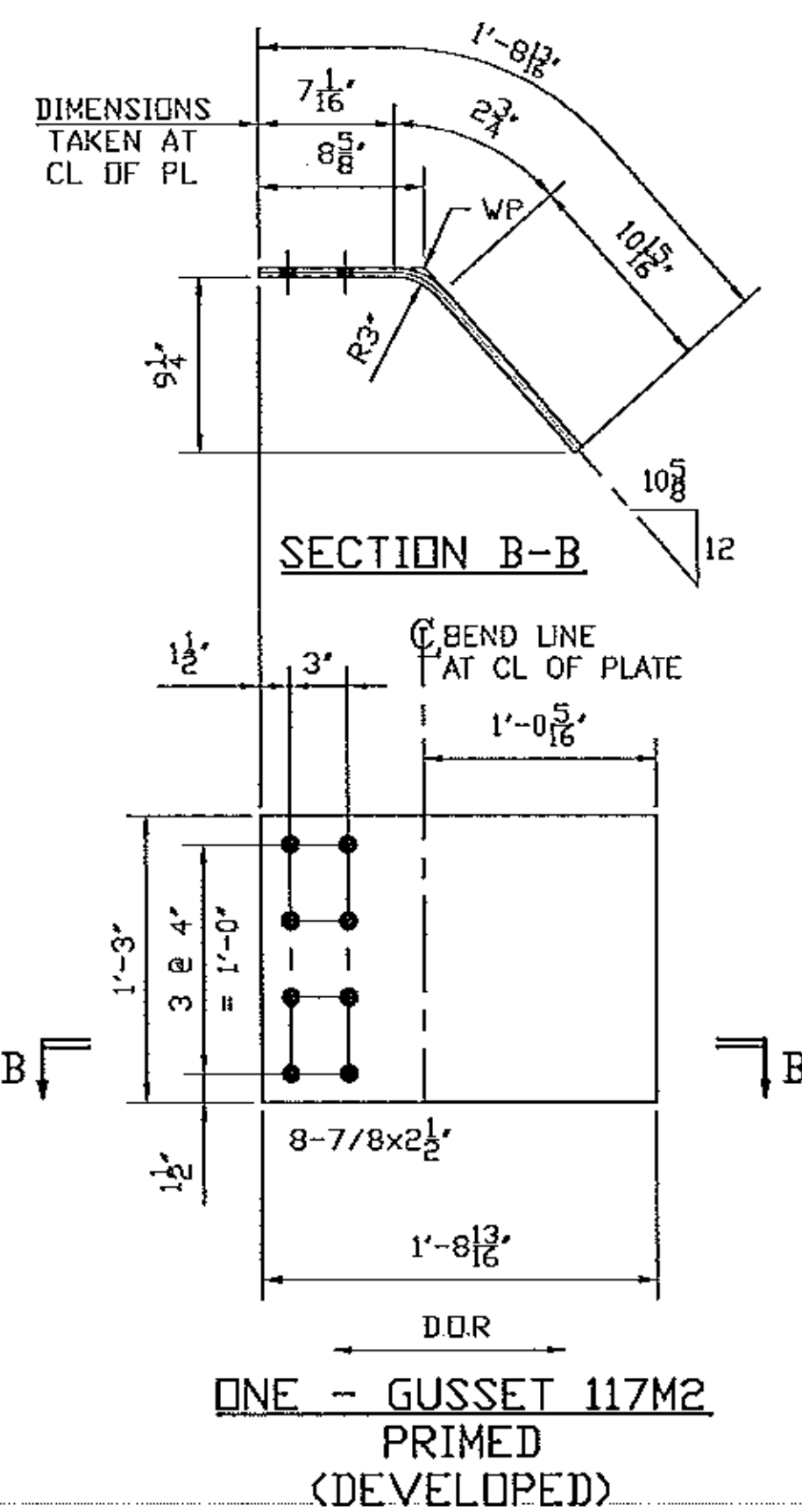
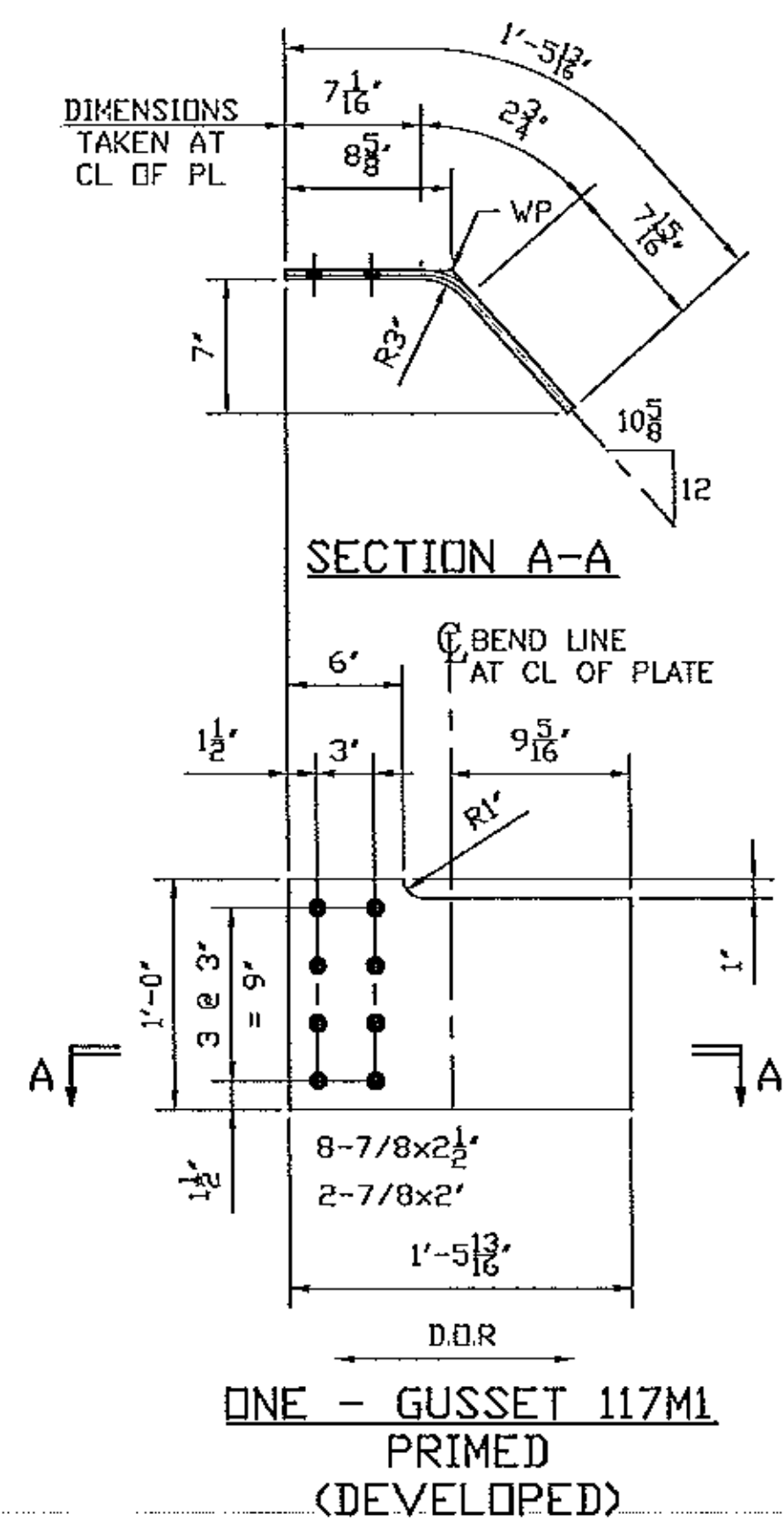


PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: ABUTMENT CROSS FRAME

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

DESIGNED BY	BR	DATE	JULY 2012	PROJECT NO.	UN04260
CHECKED BY	GG	DATE	JULY 2012	SCALE	116/2



GENERAL NOTES: SEE GN100
HOLES: 15/16 (U.N.)
CLEANING AND PAINTING: SEE SHEET P100 AND P101

PRIMER ONLY, NO PAINT
BOTH SIDES 75 mm DIA AROUND HOLE
WHERE NOTED WITH THIS SYMBOL

(BS)

BILL OF MATERIAL									
Mark	Qty.	Description	SU	Length	Remark	ABM	Total (lbs)	Seq	Qty
			Grd				Weight		/Seq
117M1	ONE	GUSSET				30	30	1	1
117M1	1	PL1/2x12	A70950W	1-5 13/16	PRIMER	104-4	44		
FB		FIELD BOLTS							
78F2	2	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
78F212	8	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
117M2	ONE	GUSSET				44	44	1	1
117M2	1	PL1/2x15	A70950W	1-8 13/16	PRIMER	104-4	44		
FB		FIELD BOLTS							
78F212	8	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
117M3	ONE	GUSSET				30	30	1	1
117M3	1	PL1/2x12	A70950W	1-5 7/8	PRIMER	104-4	30		
FB		FIELD BOLTS							
78F2	2	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
78F212	8	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				

BILL OF MATERIAL									
Mark	Qty.	Description	SU	Length	Remark	ABM	Total (lbs)	Seq	Qty
			Grd				Weight		/Seq
117M4	ONE	GUSSET				44	44	1	1
117M4	1	PL1/2x15	A70950W	1-8 13/16	PRIMER	104-4	44		
FB		FIELD BOLTS							
78F212	8	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
117M5	1	ANGLE				120	120	1	1
117M5	1	L4x4x1/2	A70950W	9-4 1/8	PAINT	104-2	120		
FB		FIELD BOLTS							
78F212	6	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				

Vermont Agency of Transportation
RECEIVED
CK'D BY M.E.M. OK'D BY C.W.M.
Jan. 29, 2013
RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 01-29-2013

REVISION	DATE	PAR	VER.
CROSSFRAME MODIFIED	01/16/13	BR	GG

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

STRUCTAL
Bridges
386 River Road, Claremont, NH 03743
Tel: (603) 542-5202 Fax: (603) 542-5312
a division of CANAM INC.

PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: ABUTMENT CROSS FRAME

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

DESIGNED BY: BR	DATE: JAN 2013	CONTRACT NO: UN04260
CHECKED BY: GG	DATE: JAN 2013	117

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 01-29-2013



State of Vermont
Program Development
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

July 27, 2012

Structal Bridges
386 River Road
Claremont, NH 03743

Project Name: Woodford Project #: ER BHF 010-1(44)

Structure Identification: VT 9 Over the Roaring Branch of the Walloomsac River

The following structural steel details item 506.13, "Structural Steel, Plate Girder" for the above project (Vendor's Job #UN042601), transmitted by T. Buck Construction, Inc. and received by our office on Monday, July 9, 2012, have been reviewed and are being returned herewith.

Sheets 101-1, 102-1, 103-1, 104-1, 105-1, 106-1, E100-E103, GN100, P100, P101, X102 and the welding procedures are approved.

Sheet 101-2, 101-3, 102-2, 102-3, 103-2, 103-3, 104-2, 104-3, 105-2, 105-3, 106-2, 106-3, 107-116, and X101 are approved "as noted". (Please make appropriate changes as indicated on the "as noted" drawing and submit a new "*.pdf" for our use in the record plans for this project.)

You must provide notice to our fabrication inspector Jeff Clark as to the date fabrication represented by these drawings will begin. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. That notice must be received at least seven days prior to that date, as per Specification 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Carolyn W. Carlson, PE
Project Manager

Attachments

cc: [X] Resident Engineer Ron Lemaire -w/prints
[X] T. Buck Construction, Inc. – w/prints
[X] Shop Inspector - Jeff Clark w/prints
[X] Materials & Research Section (C&IA Unit) – Letter only
[X] F.R. Lafayette – w/prints
[X] Construction Division - Letter only
[X] CWC



Contractor/Organization: STRUCTAL, Div. Canam
Welding process(es): FCAW
Type: Semi Auto or Auto

JOINT DESIGN USED

Backing: N/A Mat'l: N/A
Root Opening: N/A Rf Dim.: N/A
Groove Angle: N/A Radius (J, U): N/A
Backgouging: N/A Method: N/A
Root Treatment: Grind or Blast to Bare Metal

BASE METALS

Material Spec: A709 Type or Grade: Gr.36, 50,
50W
Size of Groove: N/A Size of fillet: 5/16"

FILLER METALS

AWS Spec.: A5.20 AWS Class.: 81T1-Ni1C H8
Manufacturer Trade Name: ESAB 810X-Ni1

SHIELDING

Flux: N/A Mfg Trade Name: N/A
Dew Point: -40° F Cup size: N/A
Gas composition: 100% CO₂ Flow Rate: 40 CFH minimum

POSTWELD HEAT TREATMENT

Temperature: N/A Holding Time: N/A
Heating/Cooling rate: N/A

HEAT INPUT

Min. Heat Input: 26.4 kJ/in Max. Heat input: 45.9 kJ/in

WPS : FC-1001

Revision: 0 Date: 06/25/2012 By: Tyler Gaunt

Authorized by: *Tyler Gaunt* Date: 06/25/2012

Supporting PQR: PQR-FC-50W-50W-3G-WM23

POSITION

Position of Groove: N/A Fillet: 3F
Vertical progression : Vertical UP

ELECTRICAL CHARACTERISTICS

Transfer mode: N/A Current: DCEP
ESO: 3/4" +/- 1/4" Other: N/A

TECHNIQUE

Stringer or Weave Bead: STRINGER
Single or multiple pass: Single
Nb of Electrodes: 1
Electrode spacing :
Longitudinal: N/A, Lateral: N/A, Angle: varies
Interpass Cleaning: REMOVE ALL CONTAMINANTS

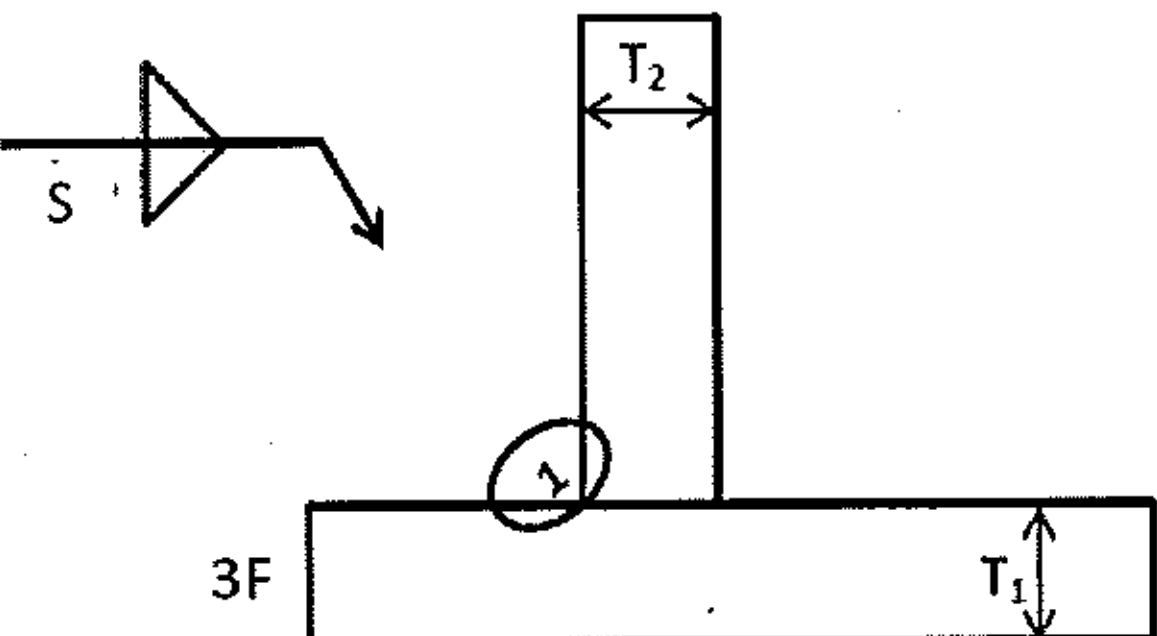
PREHEAT – Maximum interpass : N/A

MINIMUM PREHEAT & INTERPASS TEMPERATURE		
Thickness of thickest part at point of welding	FCM Application	Non FCM Application
t ≤ 3/4 (in.)	150 °F	50 °F
3/4 < t ≤ 1-1/2 (in.)	250 °F	70 °F
1-1/2 < t ≤ 2-1/2 (in.)	325 °F	150 °F
2-1/2 > t (in.)	350 °F	225 °F

Note1: For Fillet Welding on Secondary members

Note2: For Stiffener to Flange fillet welds on Main Members

Note3: For Fillet Welding of Drip Bars

(S)	PASS	ELECT. SIZE	WELDING CURRENT		TRAVEL SPEED (IN/MIN)	JOINT DETAIL
			AMPS	VOLTS		
5/16"	1	1/16"	200-239	24-25	5 - 7	
1/4"	1	1/16"	200-239	24-25	5-7	

THIS PROCEDURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP, PASS SIZE, ETC. WITHIN THE LIMITATION OF
VARIABLES GIVEN IN SECTION 5 OF AWS D1.5:2010.

CK'D _____
VTrans
Received *JW*
OK'D BY _____

JUL 11 2012

Contractor/Organization: STRUCTAL, Div. Canam
Welding process(es): FCAW
Type: Semi Auto or Auto

JOINT DESIGN USED

Backing: N/A Mat'l: N/A
Root Opening: N/A Rf Dim.: N/A
Groove Angle: N/A Radius (J, U): N/A
Backgouging: N/A Method: N/A
Root Treatment: Grind or Blast to Bare Metal

BASE METALS

Material Spec: A709 Type or Grade: Gr.36, 50,
50W
Size of Groove: N/A Size of fillet: 5/16"

FILLER METALS

AWS Spec.: A5.20 AWS Class.: 81T1-Ni1C H8
Manufacturer Trade Name: ESAB 810X-Ni1

SHIELDING

Flux: N/A Mfg Trade Name: N/A
Dew Point: -40° F Cup size: N/A
Gas composition: 100% CO₂ Flow Rate: 40 CFH minimum

POSTWELD HEAT TREATMENT

Temperature: N/A Holding Time: N/A
Heating/Cooling rate: N/A

HEAT INPUT

Min. Heat Input: 27.3 kJ/in Max. Heat input: 45.4 kJ/in

WPS : FC-1002

Revision: 0 Date: 06/25/2012 By: Tyler Gaunt

Authorized by: *Tyler Gaunt* Date: 06/25/2012

Supporting PQR: PQR-FC-50W-50W-1G-WM23

POSITION

Position of Groove: N/A Fillet: 1F or 2F
Vertical progression : Vertical UP

ELECTRICAL CHARACTERISTICS

Transfer mode: N/A Current: DCEP
ESO: 3/4" +/- 1/4" Other: N/A

TECHNIQUE

Stringer or Weave Bead: STRINGER
Single or multiple pass: Single
Nb of Electrodes: 1
Electrode spacing :
Longitudinal: N/A, Lateral: N/A, Angle: varies
Interpass Cleaning: REMOVE ALL CONTAMINANTS

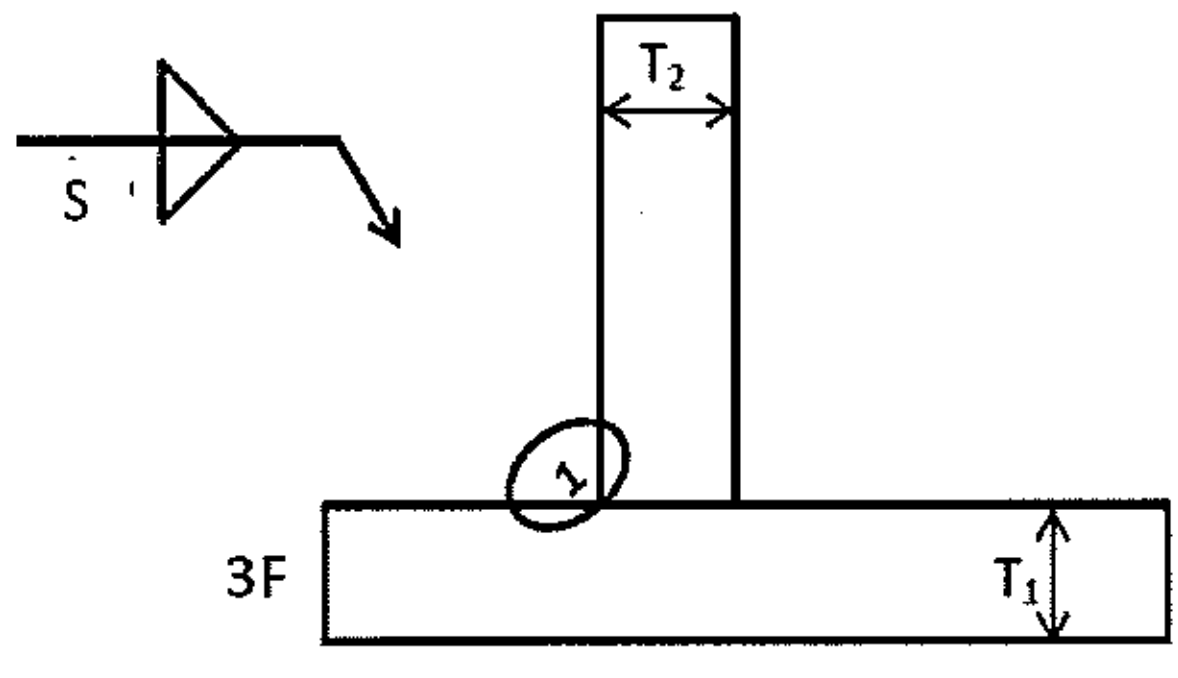
PREHEAT – Maximum interpass : N/A

MINIMUM PREHEAT & INTERPASS TEMPERATURE		
Thickness of thickest part at point of welding	FCM Application	Non FCM Application
t ≤ 3/4 (in.)	150 °F	50 °F
3/4 < t ≤ 1-1/2 (in.)	250 °F	70 °F
1-1/2 < t ≤ 2-1/2 (in.)	325 °F	150 °F
2-1/2 > t (in.)	350 °F	225 °F

Note1: For Fillet Welding on Secondary members

Note2: For Stiffener to Flange fillet welds on Main Members

Note3: For Fillet Welding of Drip Bars

(S)	PASS	ELECT. SIZE	WELDING CURRENT		TRAVEL SPEED (IN/MIN)	JOINT DETAIL
			AMPS	VOLTS		
5/16"	1	1/16"	300-325	28-30	13 -14	
1/4"	1	1/16"	200-239	28-30	13-14	

THIS PROCEDURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP, PASS SIZE, ETC. WITHIN THE LIMITATION OF
VARIABLES GIVEN IN SECTION 5 OF AWS D1.5:2010.

VTrans
Received
CKD _____ OK'D BY: *JWC*

JUL 11 2012

Contractor/Organization: STRUCTAL, Div. Canam
Welding process(es): SAW
Type: Semi Auto or Auto

JOINT DESIGN USED

Backing: N/A Mat'l: N/A
Root Opening: N/A Rf Dim.: N/A
Groove Angle: N/A Radius (J, U): N/A
Backgouging: N/A Method: N/A
Root Treatment: Grind or Blast to Bare Metal

BASE METALS

Material Spec: A709 Type or Grade: Gr.36, 50,
Gr.50W
Size of Groove: N/A Size of fillet: 5/16"

FILLER METALS

AWS Spec.: A5.17 AWS Class.: EM12K-H8
Manufacturer Trade Name: ESAB Spoolarc 81

SHIELDING

Flux: ESAB Mfg Trade Name: OK 10.71
Electrode Flux (Class): F7A5 Cup size: N/A
Gas composition: N/A Flow Rate: N/A

POSTWELD HEAT TREATMENT

Temperature: N/A Holding Time: N/A
Heating/Cooling rate: N/A

HEAT INPUT

Min. Heat Input: 36.7 kJ/in Max. Heat input: 56.9 kJ/in

WPS : S-1001

Revision: 0 Date: 06/25/2012 By: Tyler Gaunt

Authorized by: *Tyler Gaunt* Date: 06/25/2012

Supporting PQR: PQR Ortho 1G DCEN

POSITION

Position of Groove: N/A Fillet: 1F or 2F
Vertical progression : N/A

ELECTRICAL CHARACTERISTICS

Transfer mode: N/A Current: DCEN
ESO: 1-1/4" +/- 1/4" Other: N/A

TECHNIQUE

Stringer or Weave Bead: STRINGER
Single or multiple pass: Single
Nb of Electrodes: 1
Electrode spacing :
Longitudinal: N/A, Lateral: N/A, Angle: varies
Interpass Cleaning: REMOVE ALL CONTAMINANTS

PREHEAT – Maximum interpass : N/A

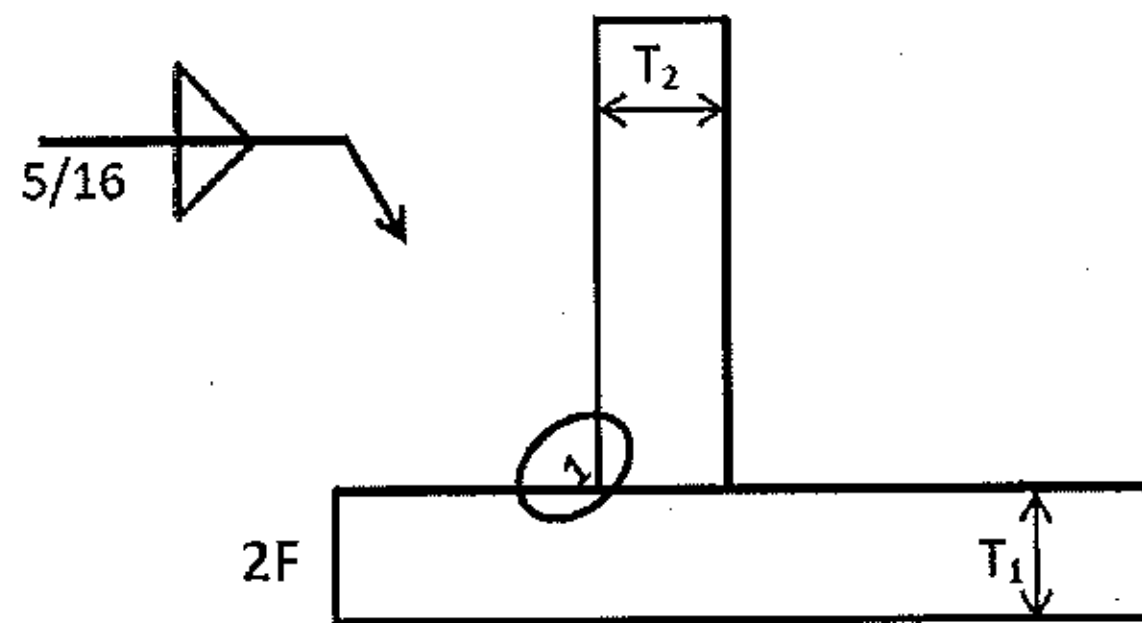
MINIMUM PREHEAT & INTERPASS TEMPERATURE

Thickness of thickest part at point of welding	FCM Application	Non FCM Application
$t \leq \frac{3}{4}$ (in.)	150 °F	50 °F
$\frac{3}{4} < t \leq 1\frac{1}{2}$ (in.)	250 °F	70 °F
$1\frac{1}{2} < t \leq 2\frac{1}{2}$ (in.)	325 °F	150 °F
$2\frac{1}{2} > t$ (in.)	350 °F	225 °F

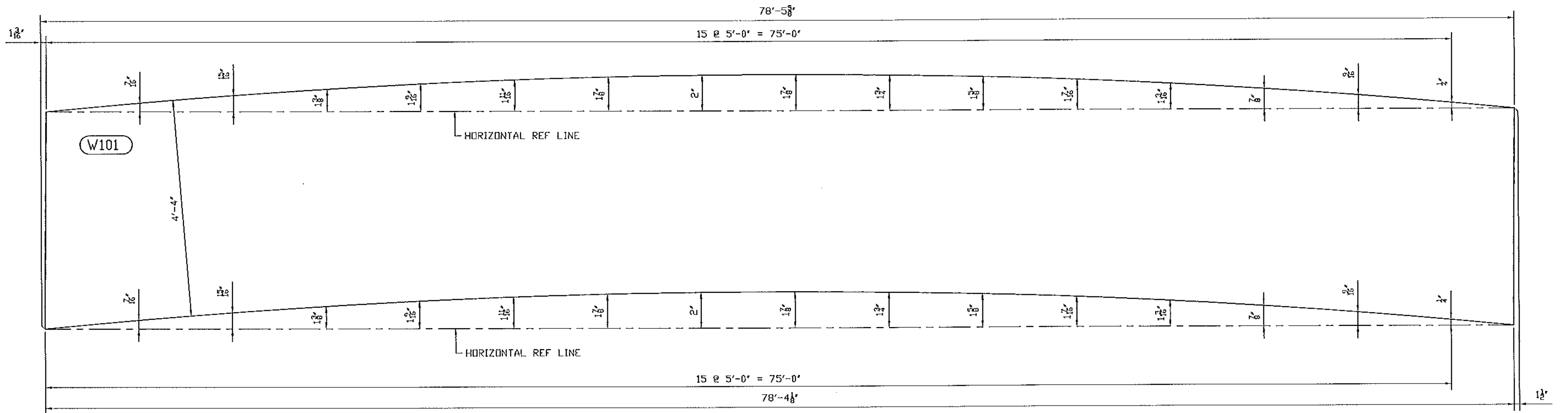
Note1: For Fillet Welding on Main members

Note2: For Fillet Welding on Secondary members

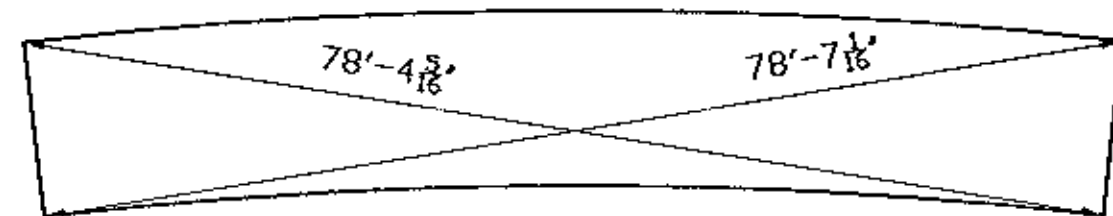
Note3: Web to Flange fillet welds and stiffener to web fillet welds on main members shall be an automatic process

(S)	PASS	ELECT. SIZE	WELDING CURRENT		TRAVEL SPEED (IN/MIN)	JOINT DETAIL 1F or 2F (2F shown)
			AMPS	VOLTS		
5/16"	1	1/8"	590-630	32-34	24 - 25	
5/16"	1	3/32"	590-630	32-34	24 - 25	
CR'D BY <u>JWC</u> DATE <u>JUL 11 2012</u>						
Resubmit BY _____ APPROVED BY <u>JWC</u> DATE <u>7/25/12</u>						
APPROVED BY _____ DATE _____						

THIS PROCEDURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP, PASS SIZE, ETC. WITHIN THE LIMITATION OF
VARIABLES GIVEN IN SECTION 5 OF AWS D1.5:2010.



ONE WEB PLATE W101
W101 = PL 1/2"



GENERAL NOTES: SEE GN100

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.



PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOMSAC RIVER

TITLE: GIRDER 101G1

REFERENCED: PROJECT NO. ER BHF 010-1 (44)

DESIGN BY BR	DATE JULY 2012	CONTRACT NO. UN04260
CHECKED BY GG	DATE JULY 2012	REVISION 101-1

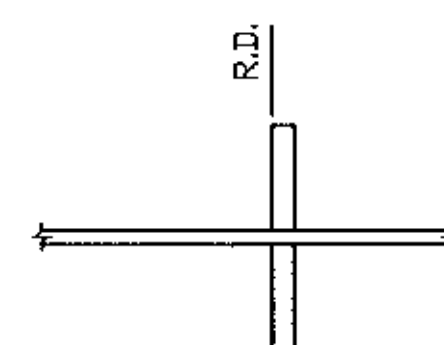
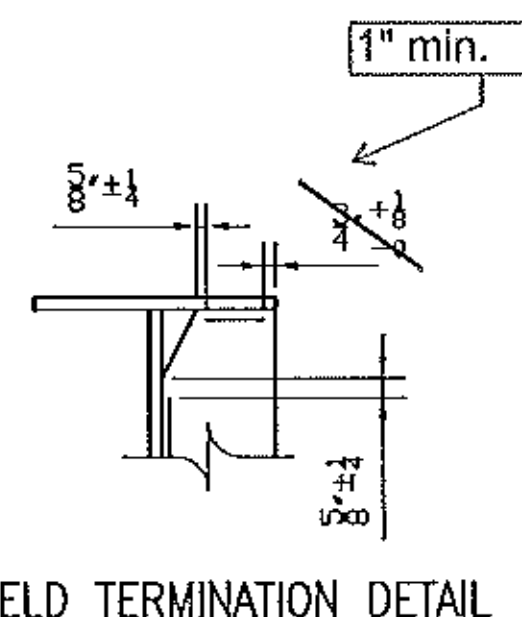
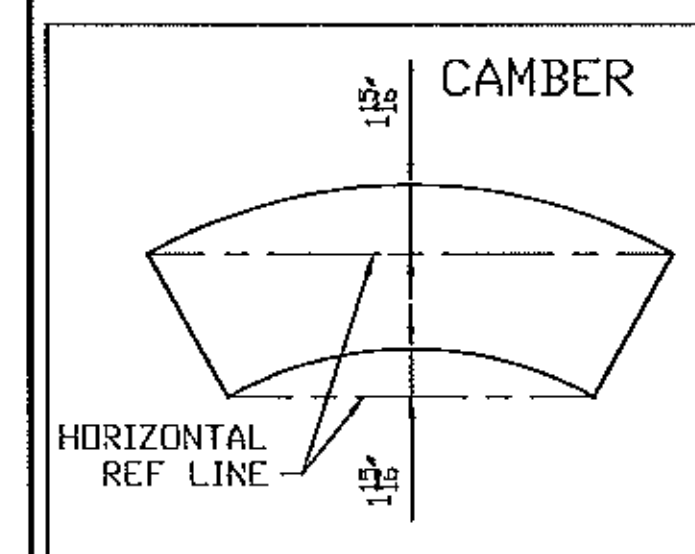
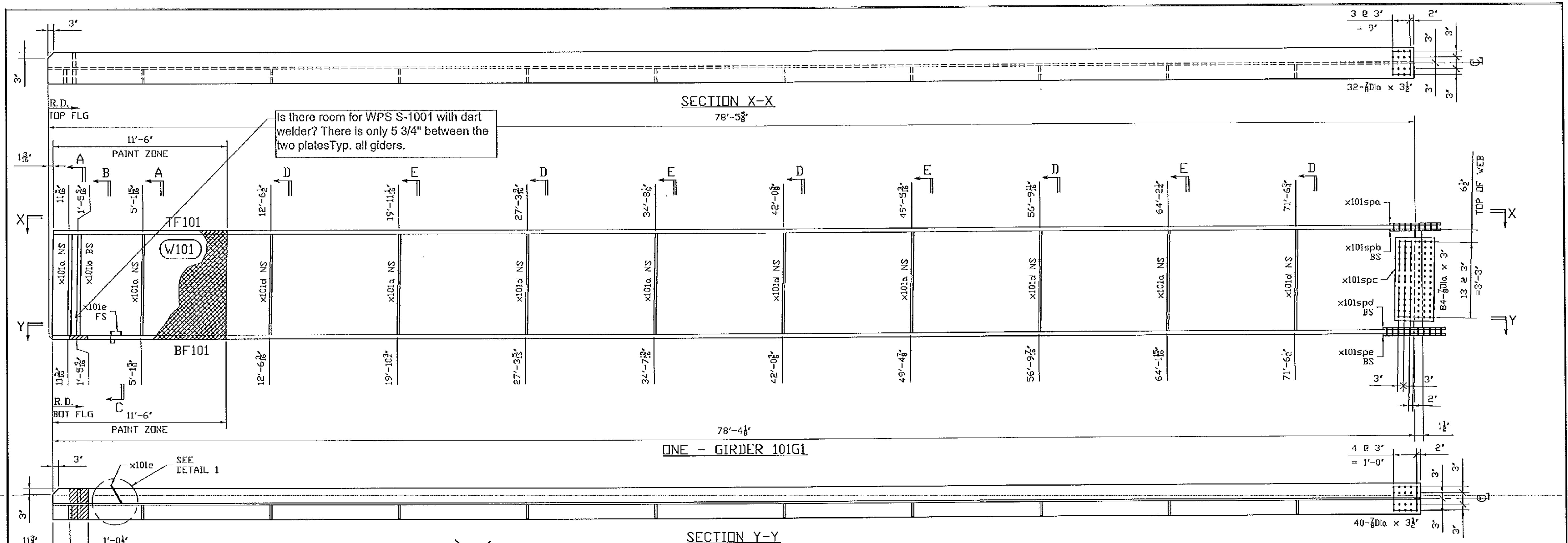
Vermont Agency of Transportation

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CK'D BY M.E.M. OK'D BY C.W.M.

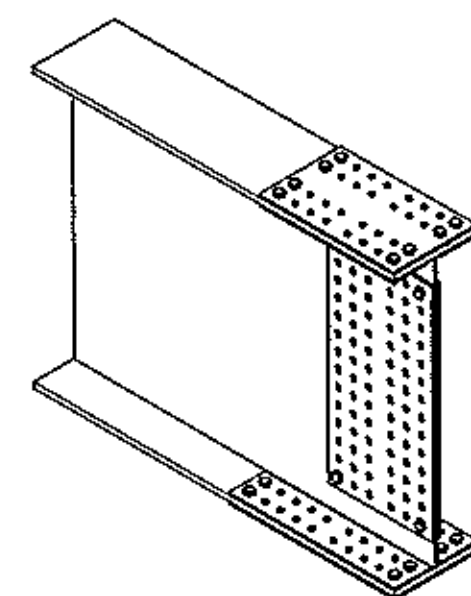
July 09, 2012

RESUBMIT APPROVED
BY C. CARLSON DATE 07-27-2012



TYPICAL DETAIL
FOR STIFFENER

THE FIELD SPLICE PLATES MUST NOT EXCEED THE END OF GIRDER



THE FIELD SPLICE PLATES MUST NOT EXCEED THE END OF GIRDER

~~NO PAINT
NO PRIMER~~

Primer only

TYPICAL SECTION
FOR MASKING ZONE
AT SOLE PLATE

BILL OF MATERIAL									
Mark	Qty.	Description	Stl	Length	Remark	ABM	Total	Seq	Qty
			Grd				Weight		/Sec
101G1	ONE	GIRDER				16628	16753	1	
101G1	1	GIRDER		78-5 5/8					
1F101	1	PL1x16	A70950WT2	78-4 7/16		100-1	4267		
W101	1	PL1/2x52	A70950WT2	78-5 5/8		100-2	8942		
BF101	1	PL1x16	A70950WT2	78-4 1/8		100-1	4265		
x101a	6	PL1/2x7 1/2	A70950WT2	4-4		101-2/3	332		
x101b	2	PL7/8x7 1/2	A70950WT2	4-4	WB	101-1	194		
x101d	5	PL1/2x7 1/2	A70950WT2	4-4		101-3	276		
x101e	1	PL1/4x3 1/8	A70950WT2	11		101-4	2		
x101spa	1	PL1/2x16	A70950WT2	2-2 1/4		102-1	60		
x101spb	2	PL1/2x7	A70950WT2	2-2 1/4		102-2	52		
x101spc	2	PL1/2x43	A70950WT2	8 1/4		102-3	101		
x101spd	2	PL1/2x7	A70950WT2	2-8 1/4		102-4	64		
x101spe	1	PL1/2x16	A70950WT2	2-8 1/4		102-5	73		
FB		FIELD_BOLTS							
78F3	84	.7/8 Dia A325 TYP3		3	1FL WASH		67		
78F312	72	.7/8 Dia A325 TYP3		3 1/2	1FL WASH		25		

GENERAL NOTES: SEE GN100
HOLE: 15/16 (U.N.)
CLEANING
AND PAINTING: SEE SHEET P100 AND P101

See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

Vermont Agency of Transportation

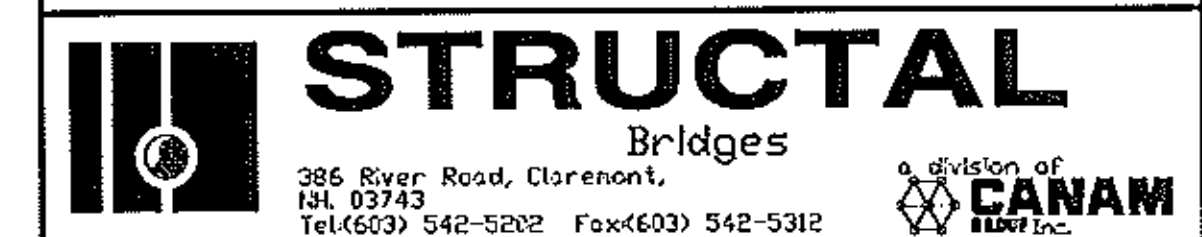
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July 09, 2012

RESUBMIT	APPROVED AS NOTED
BY C. CARLSON	DATE 07-27-2012

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NOTE:	BOLT 1 WASHER:	1 WASHER UNDER NUT U.N.
	BOLT 2 WASHER:	1 WASHER UNDER HEAD U.N.
		1 WASHER UNDER HEAD U.N.

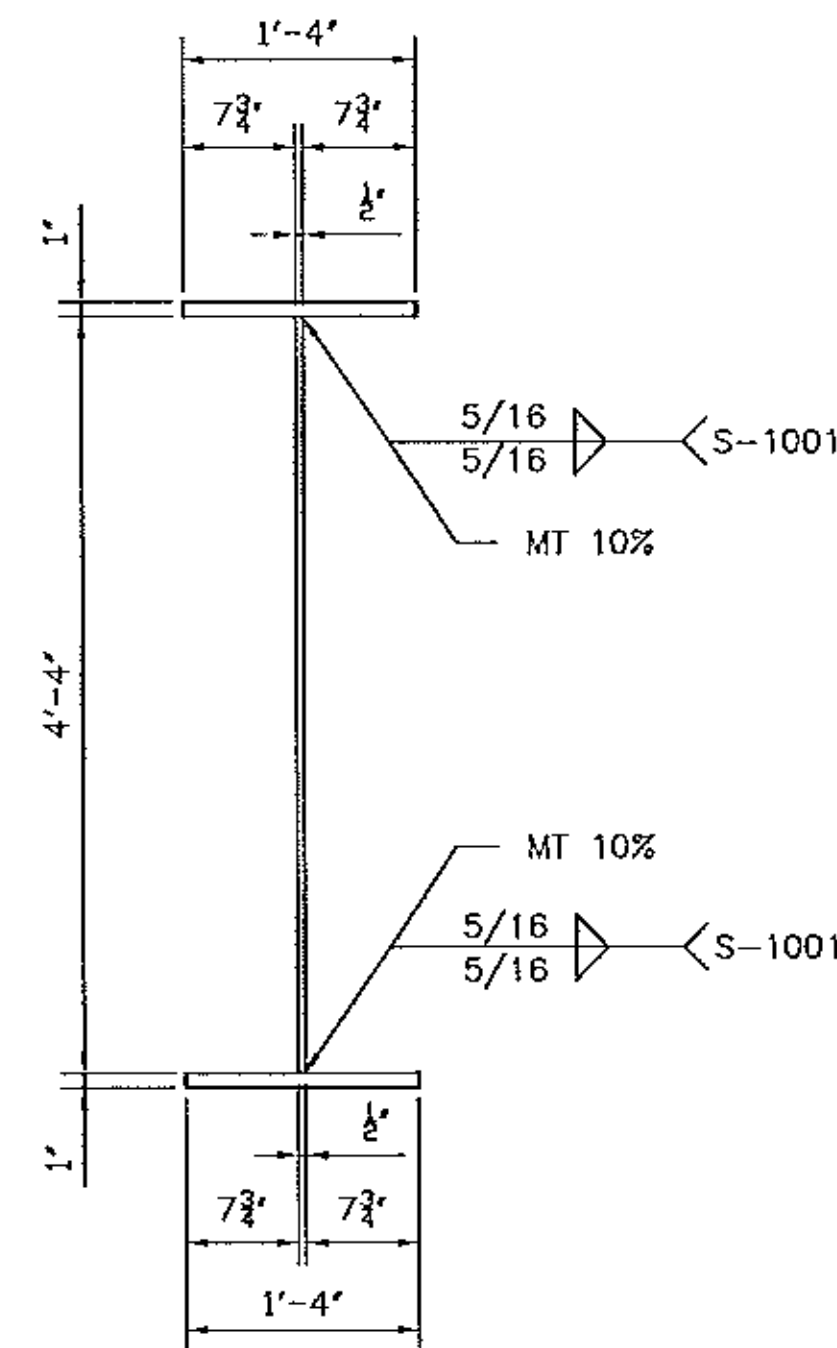


PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

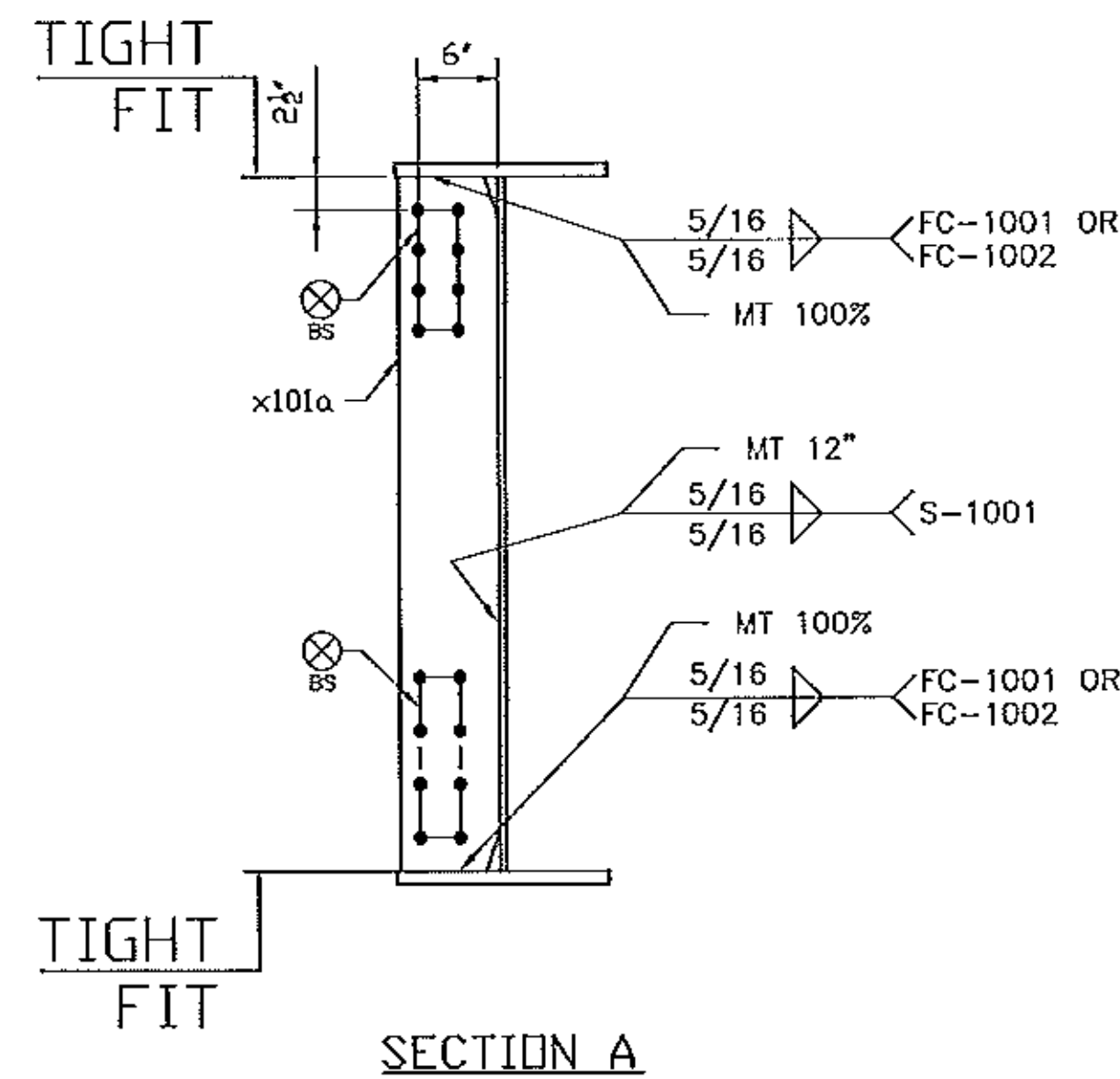
TITLE	GIRDER 101G1
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REFERENCE	PROJECT NO. ER BHF 010-1 (44)
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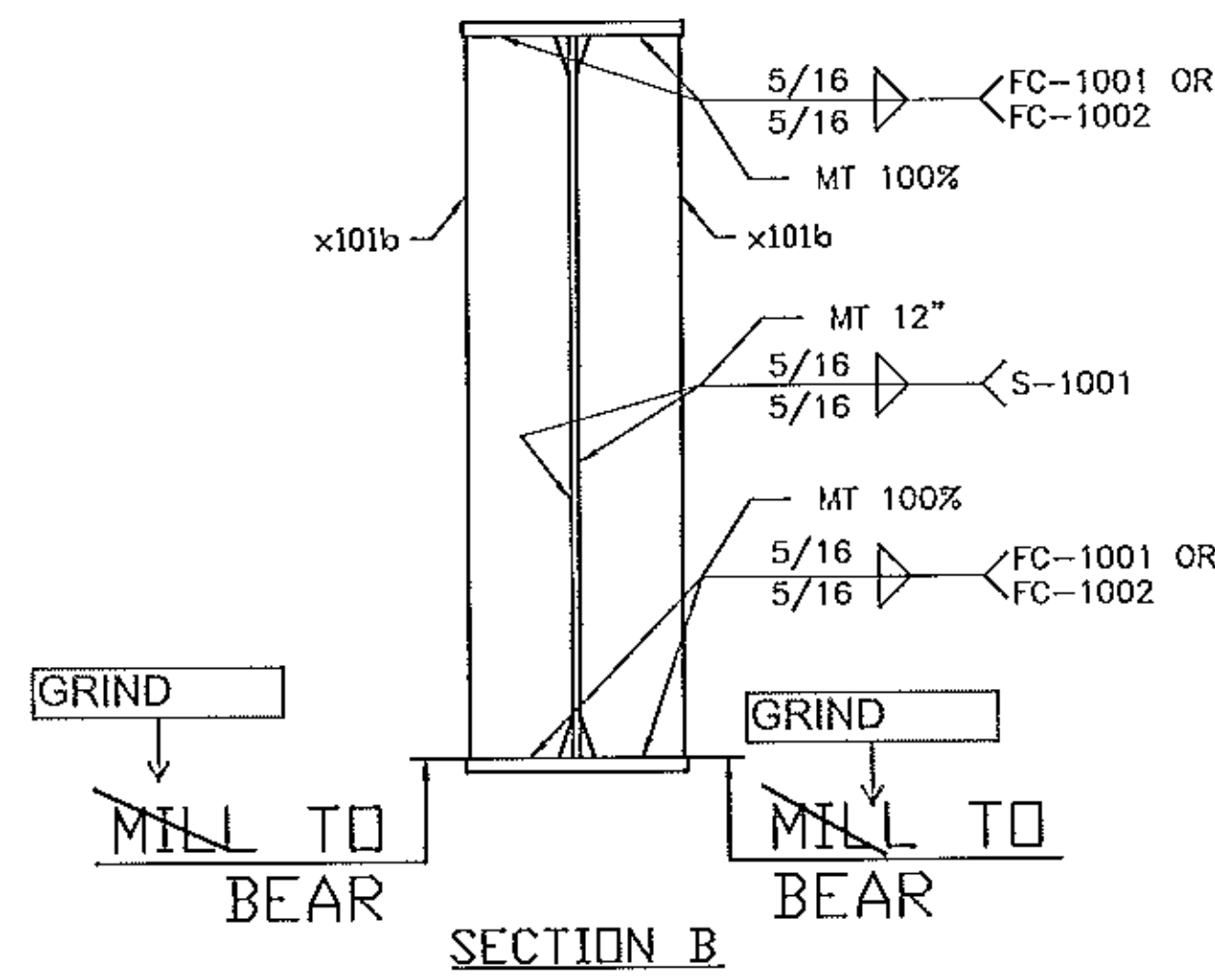
ISSUED BY BR	DATE JULY 2012	CONTRACT NO UN04260
ORDER BY GG	DATE JULY 2012	ISSUED BY 101-2/A



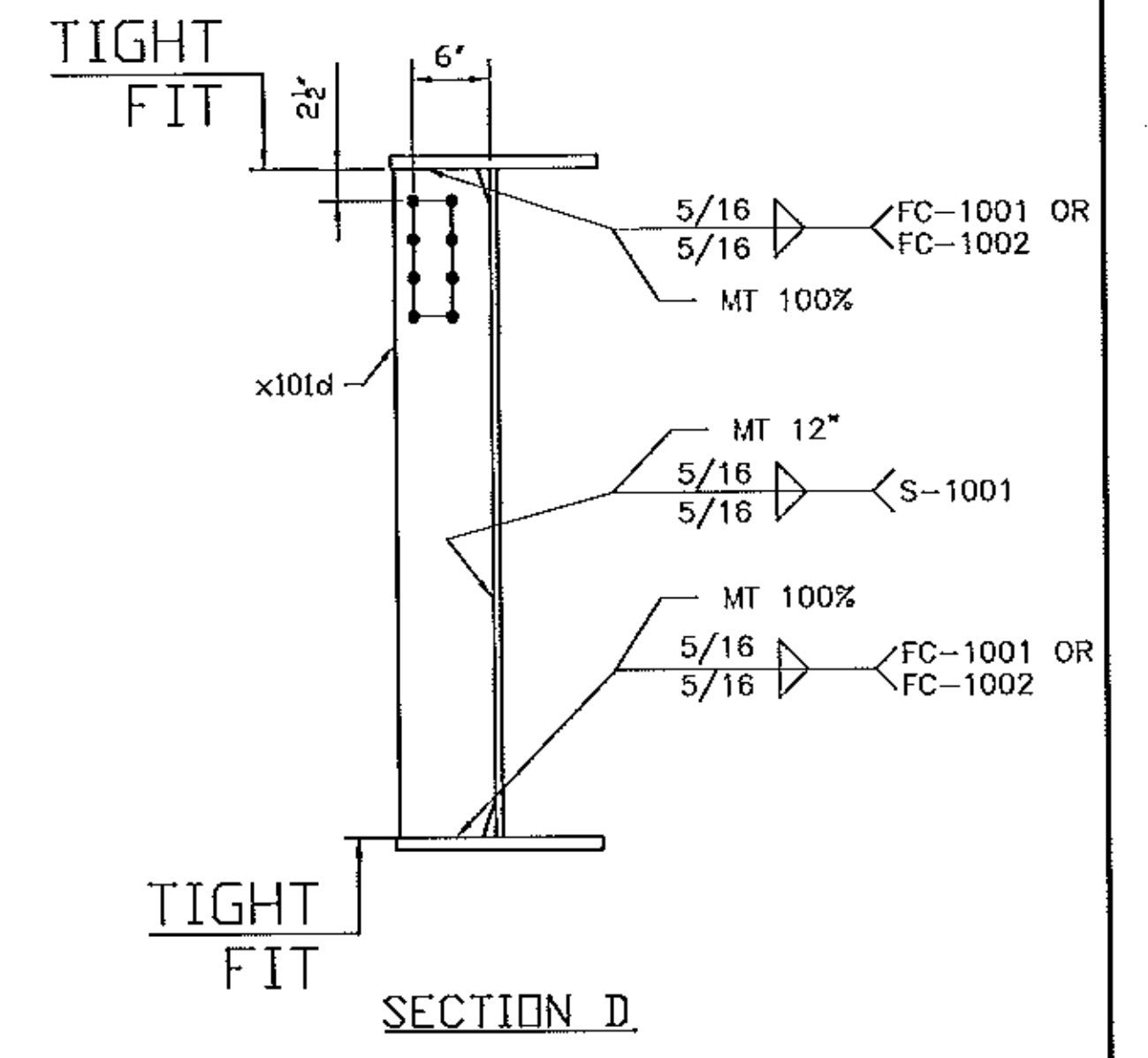
TYPICAL SECTION



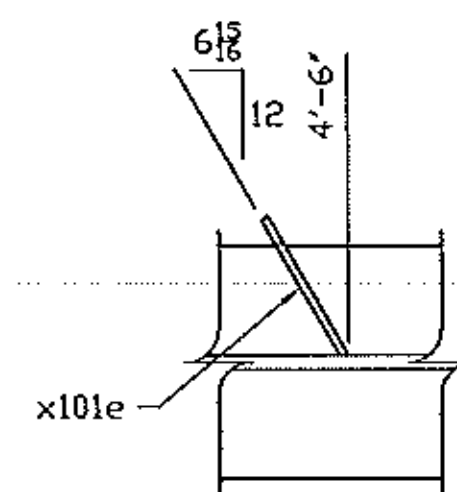
SECTION A



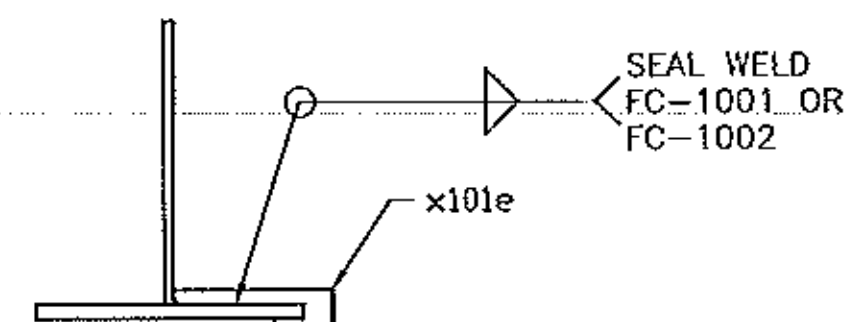
SECTION B



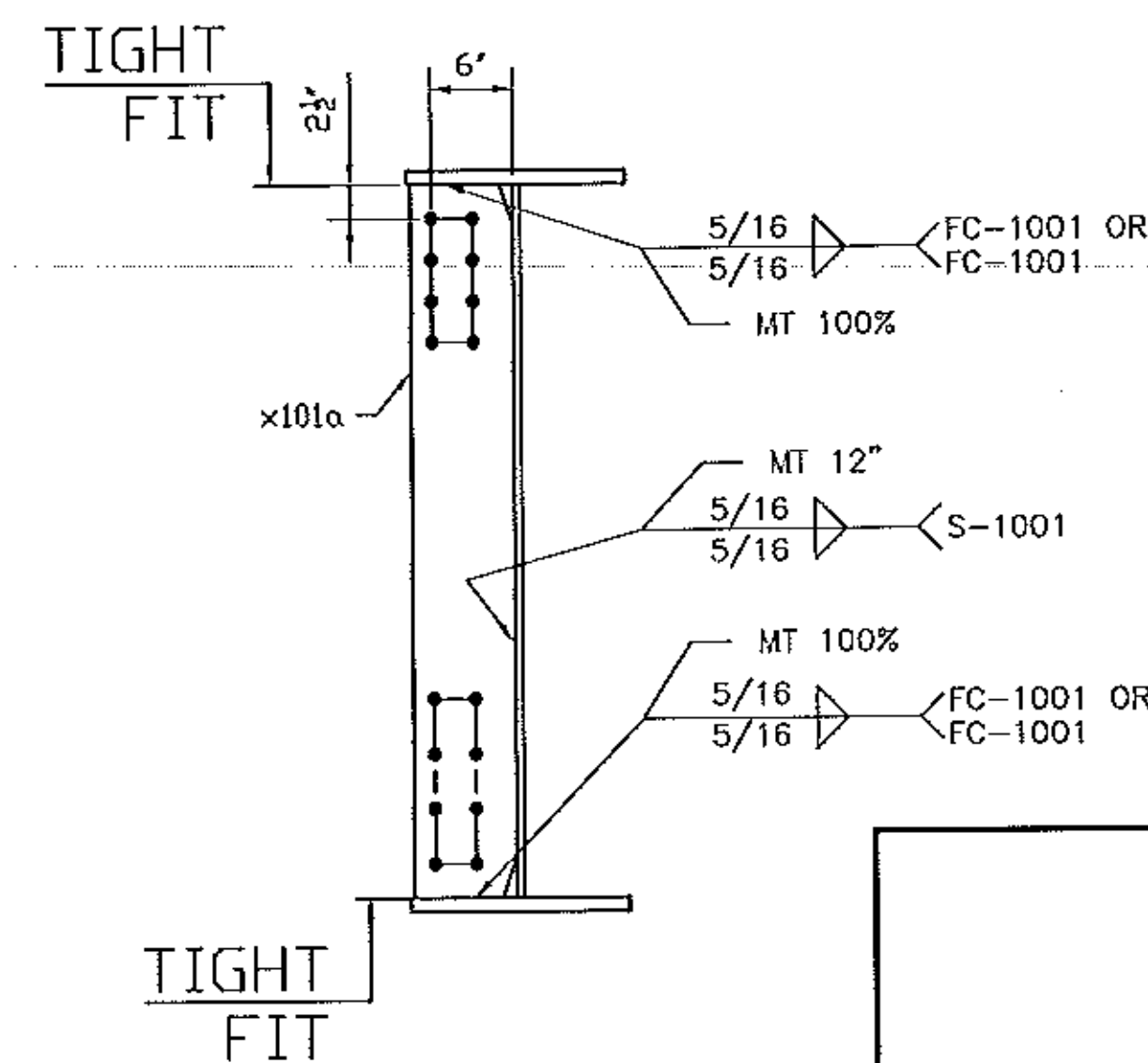
SECTION D



DETAIL 1



SECTION C

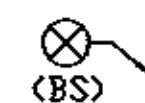


SECTION E

GENERAL NOTES: SEE GN100
 HOLES: 15/16 (U.N.)
 CLEANING AND PAINTING: SEE SHEET P100 AND P101

No	REVISION	DATE	PAR	VER.
1	FOR APPROVAL	07/06/12	BR	EG

PRIMER ONLY, NO PAINT
 BOTH SIDES 75 mm DIA AROUND HOLE
 WHERE NOTED WITH THIS SYMBOL



Vermont Agency of Transportation

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July 09, 2012

RESUBMIT APPROVED AS NOTED
 BY C. CARLSON DATE 07-27-2012

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
 BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
 1 WASHER UNDER HEAD U.N.

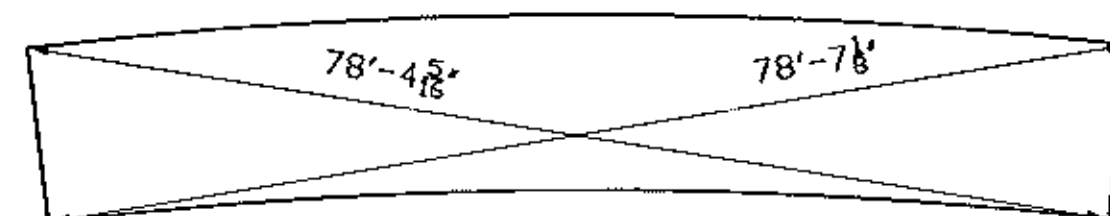
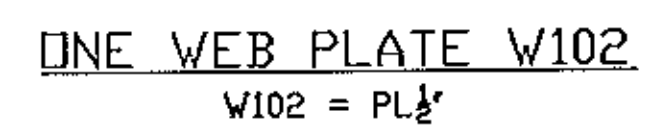


PROJECT: VT RT 9, BRIDGE NO. 11
 TOWN OF WOODFORD, VT
 OVER WALDOOMSAC RIVER

TITLE: GIRDER 101G1

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

BY: BR	DATE: JULY 2012	EX-101: UN04260
CHECKED BY: GG	DATE: JULY 2012	REV: 101-3 A



△				
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△				
△				
△	FOR APPROVAL	07/06/12	BR	EG
No	REVISION	DATE	PAR	VER.

NOTE:	BOLT 1 WASHER:	1 WASHER UNDER NUT U.N.
	BOLT 2 WASHER:	1 WASHER UNDER HEAD U.N.
		1 WASHER UNDER HEAD U.N.



PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE	GIRDER 102G1
-------	--------------

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

REF ID: BR	DATE: JULY 2012	CONTRACT NO: UN04260
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ORDER #	GG	DATE	JULY 2012	BOOK NO	102-1A
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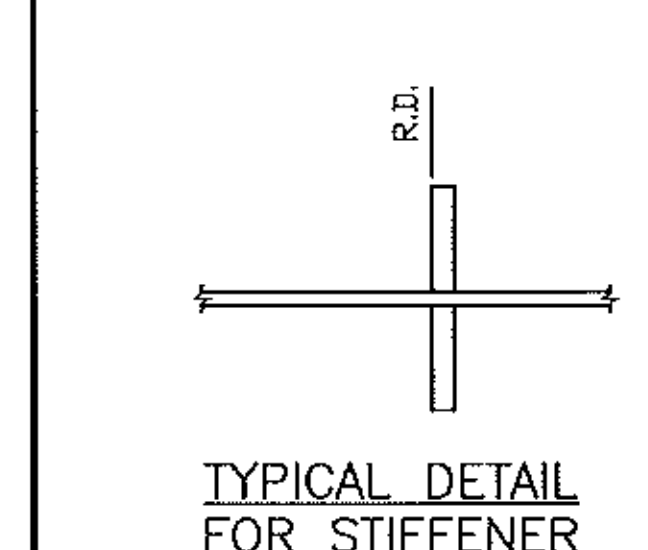
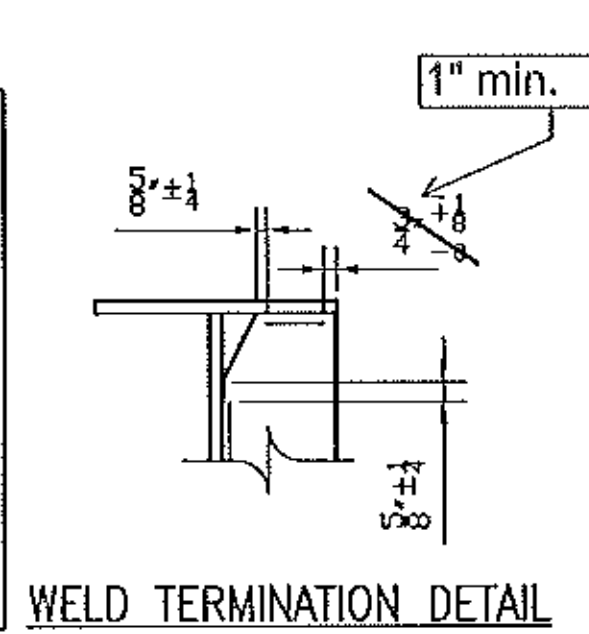
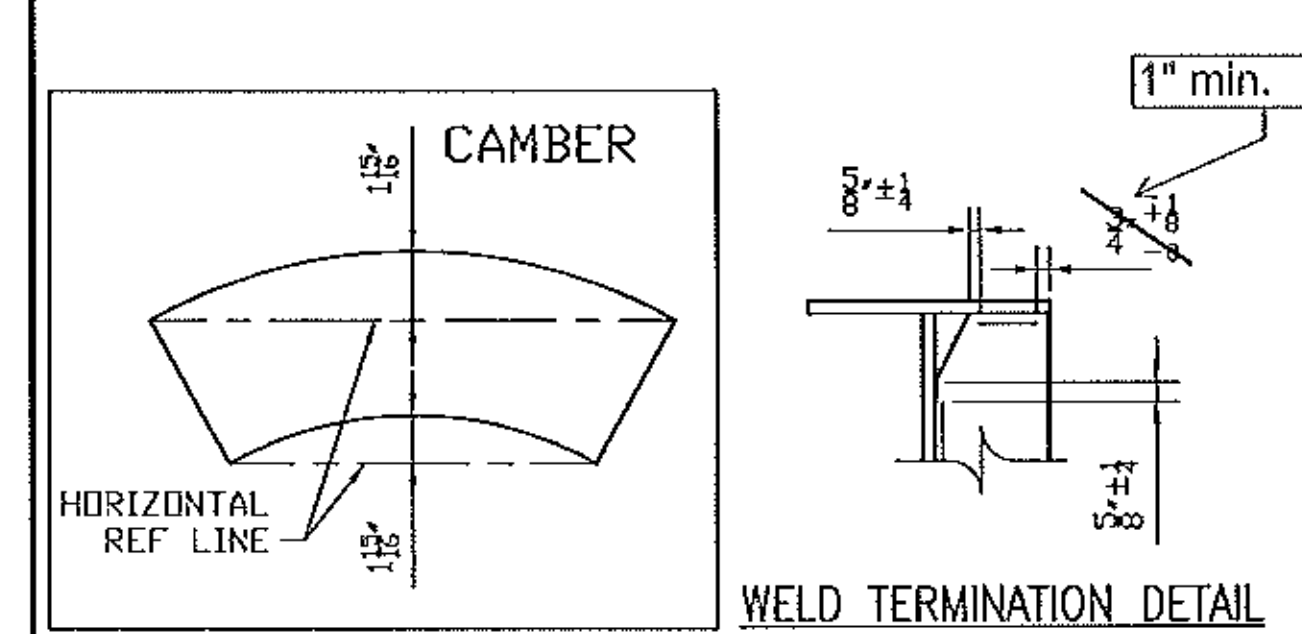
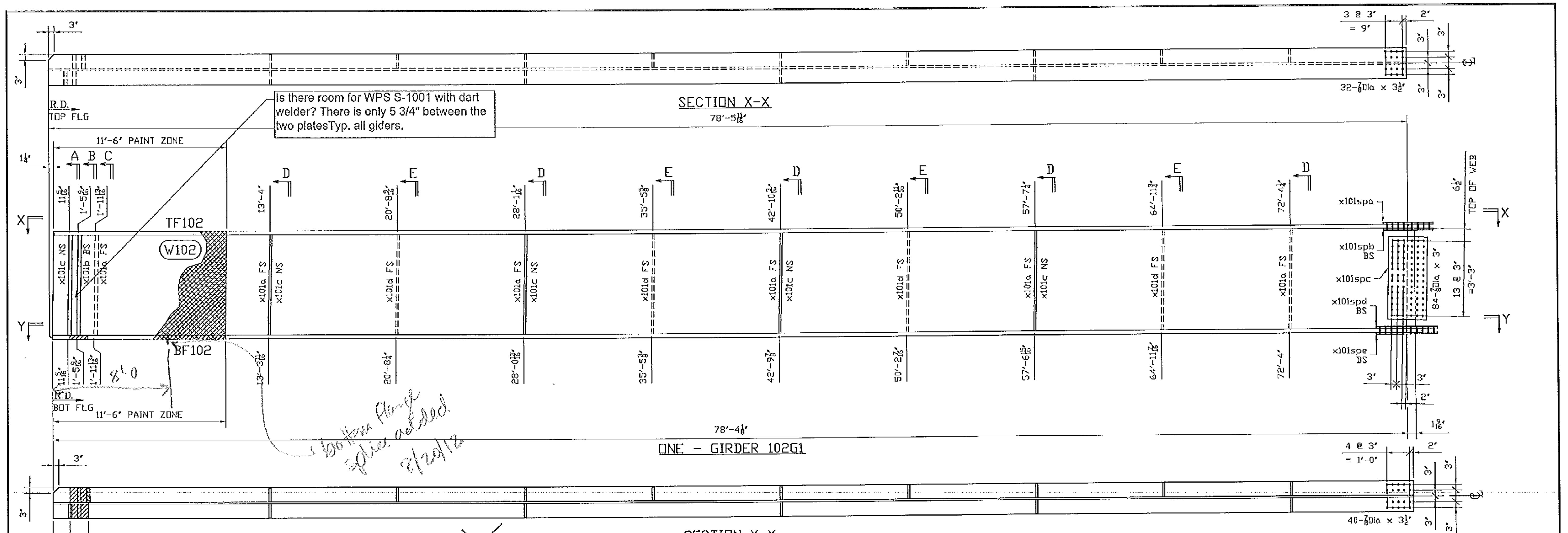
Vermont Agency of Transportation

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July 09, 2012

RESUBMIT BY C. CARLSON APPROVED DATE 07-27-2012



THE FIELD SPLICE PLATES MUST NOT EXCEED THE END OF GIRDER

Primer only
TYPICAL SECTION FOR MASKING ZONE AT SOLE PLATE

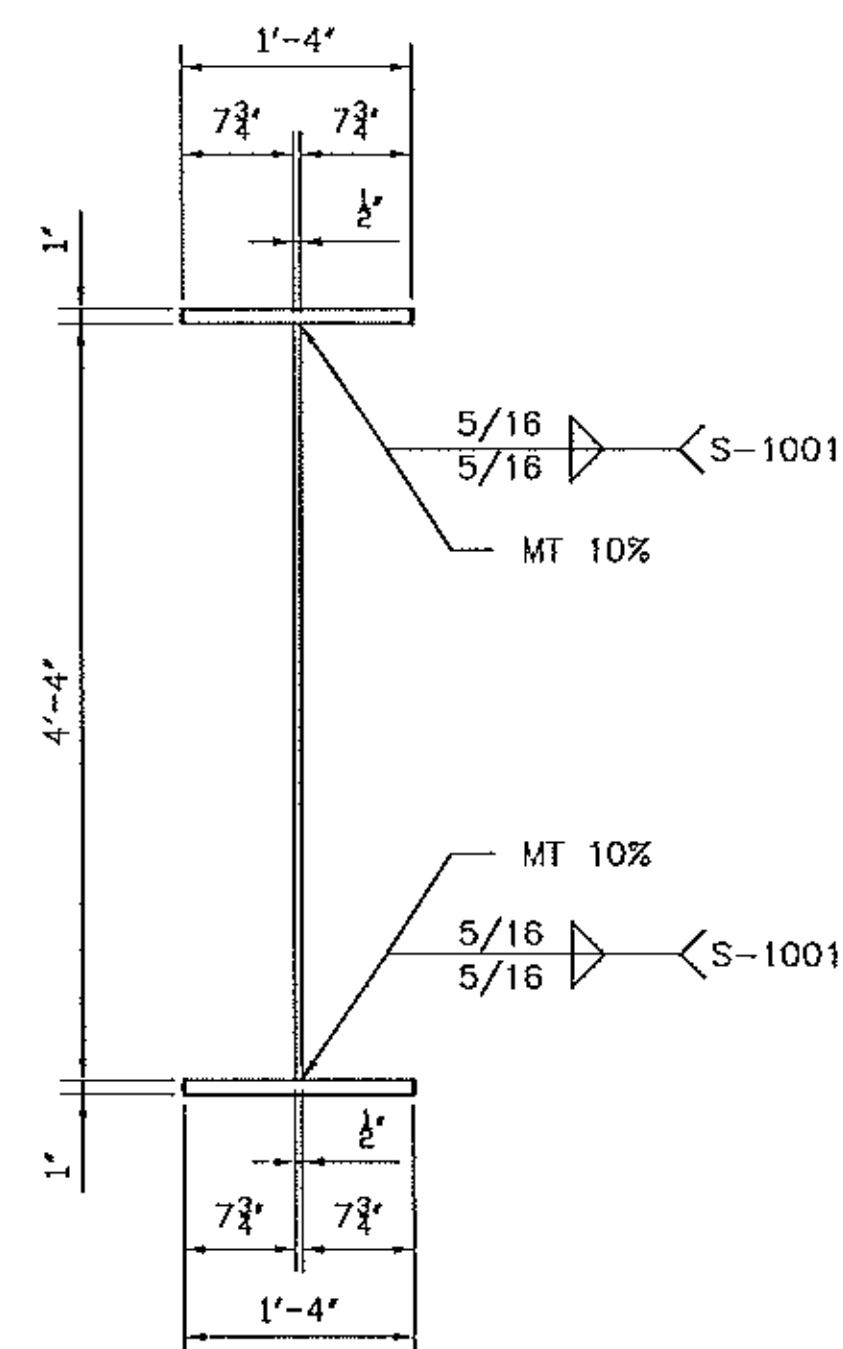
GENERAL NOTES: SEE GN100
HOLES: 15/16 (U.N.)
CLEANING AND PAINTING: SEE SHEET P100 AND P101

BILL OF MATERIAL									
Mark	Qty.	Description	Stl	Length	Remark	ABM	Total Weight	Seq	Qty
102G1	ONE	GIRDER	Grd			16848	16973	1	1
102G1	1	GIRDER		78-5 11/16					
TF102	1	PL1x16	A70950WT2	78-4 7/16		100-1	4267		
W102	1	PL1/2x52	A70950WT2	78-5 11/16		100-2	6943		
BF102	1	PL1x16	A70950WT2	78-4 1/8		100-1	4265		
x101a	6	PL1/2x7 1/2	A70950WT2	4-4		101-2	332		
x101b	2	PL7/8x7 1/2	A70950WT2	4-4	WB	101-1	194		
x101c	5	PL1/2x7 1/2	A70950WT2	4-4		101-2/3	276		
x101d	4	PL1/2x7 1/2	A70950WT2	4-4		101-3	221		
x101spa	1	PL1/2x16	A70950WT2	2-2 1/4		102-1	60		
x101spb	2	PL1/2x7	A70950WT2	2-2 1/4		102-2	52		
x101spc	2	PL1/2x43	A70950WT2	8 1/4		102-3	101		
x101spd	2	PL1/2x7	A70950WT2	2-8 1/4		102-4	64		
x101spe	1	PL1/2x16	A70950WT2	2-8 1/4		102-5	73		
FB		FIELD BOLTS							
78F3	84	.7/8 Dia A325 TYP3		3	1FL WASH		67		
78F312	72	.7/8 Dia A325 TYP3		3 1/2	1FL WASH		58		

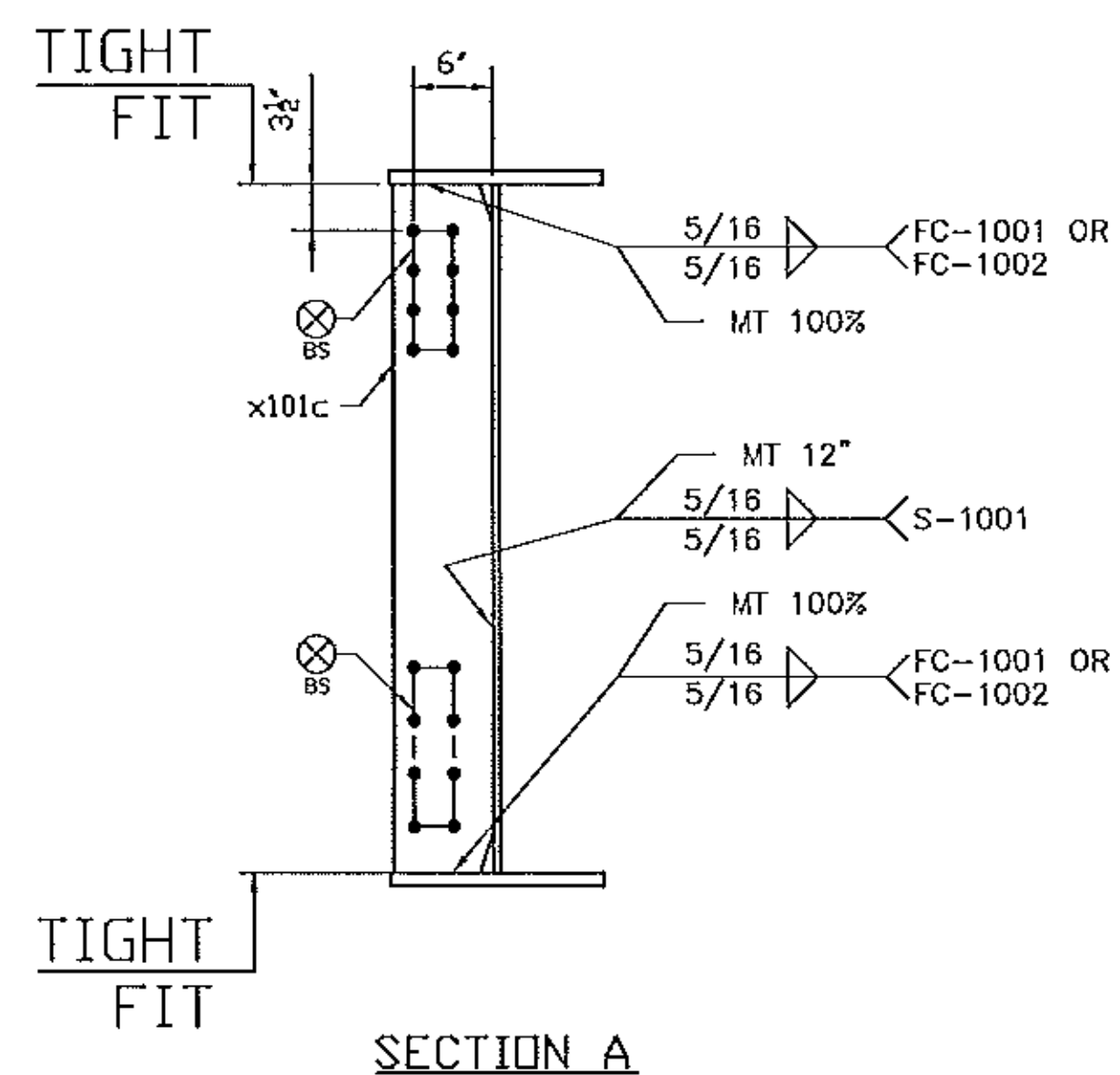
See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

Vermont Agency of Transportation
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CK'D BY M.E.M. OK'D BY C.W.M.
July 09, 2012
RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012

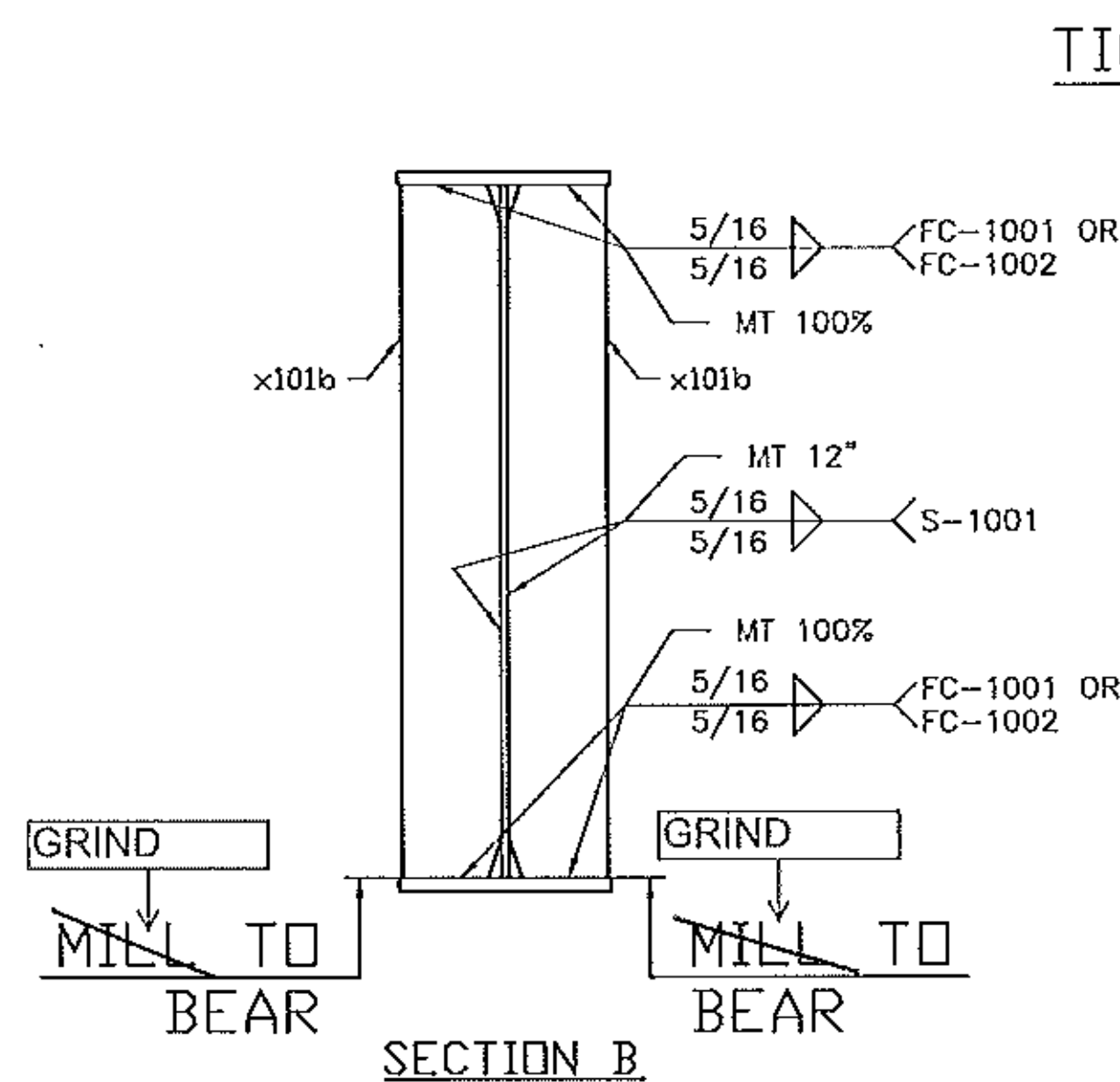
FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.
NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N. BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N. 1 WASHER UNDER HEAD U.N.			
PROJECT: VT RT 9, BRIDGE NO. 11 TOWN OF WOODFORD, VT OVER WALDOOMSAC RIVER			
TITLE: GIRDER 102G1			
REFERENCE: PROJECT NO. ER BHF 010-1 (44)			
BR	JULY 2012	UN04260	
GG	JULY 2012	102-2	



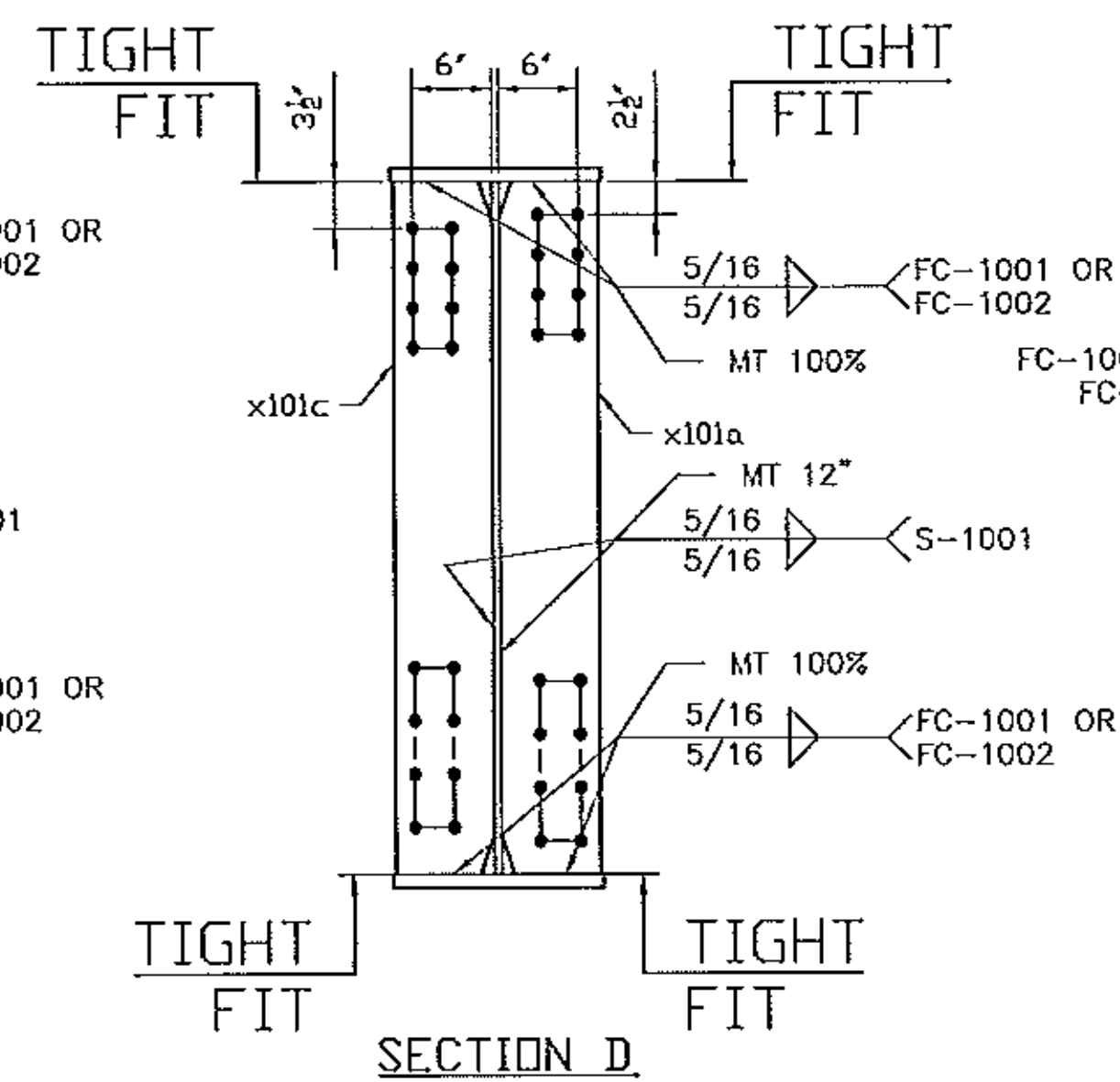
TYPICAL SECTION



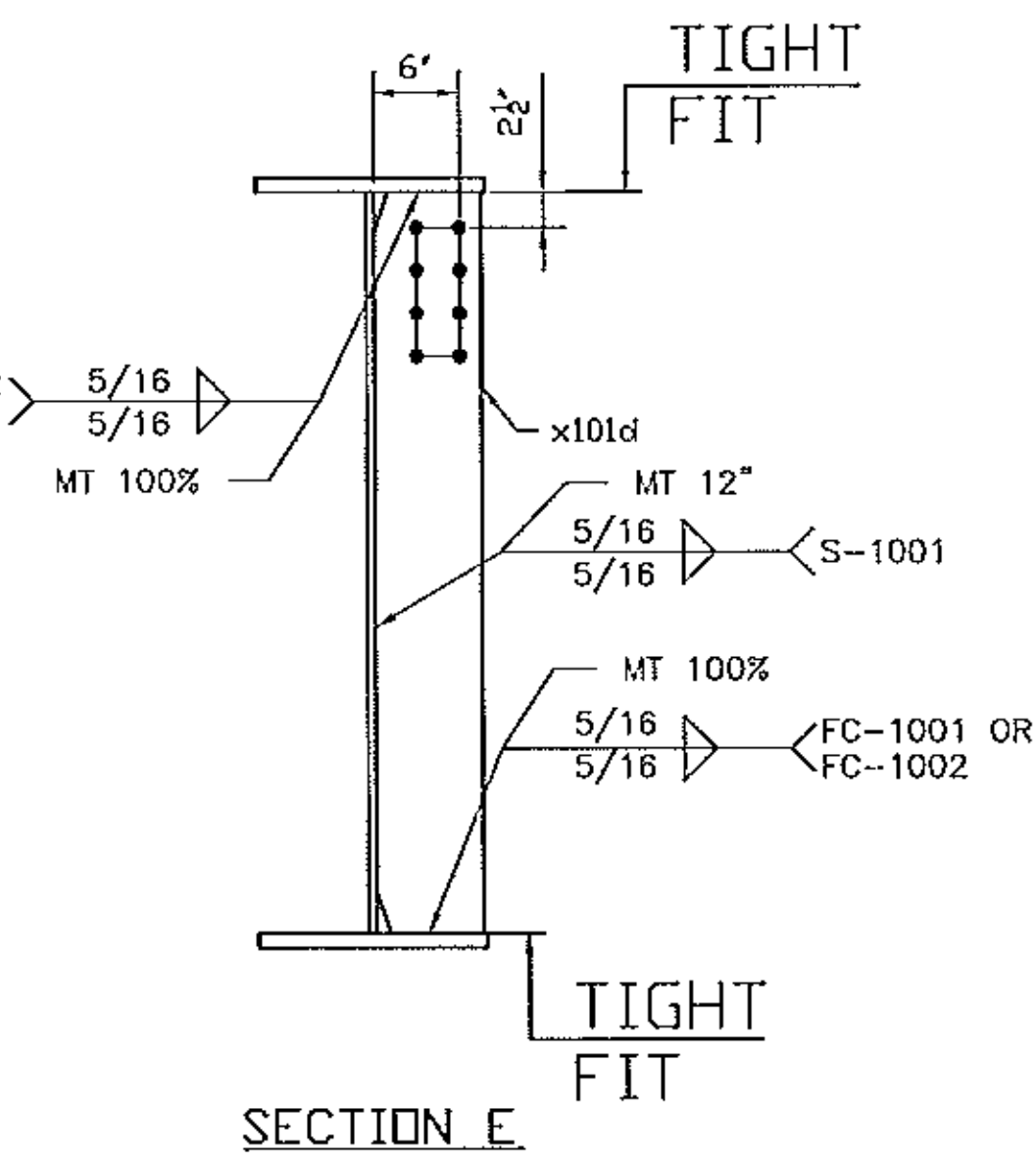
SECTION A



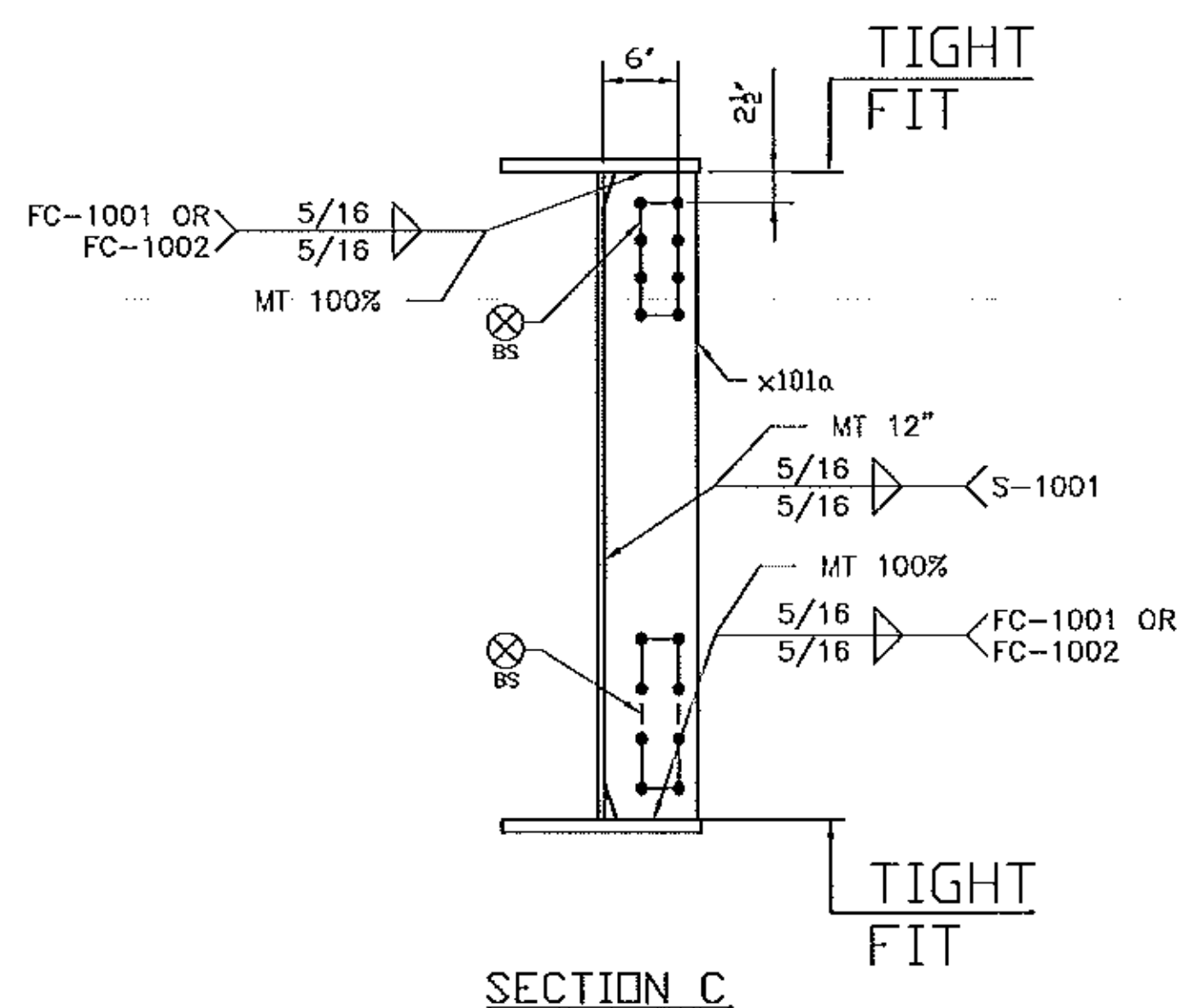
SECTION B



SECTION D

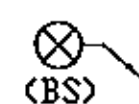


SECTION E



SECTION C

PRIMER ONLY, NO PAINT
BOTH SIDES 75 mm DIA AROUND HOLE
WHERE NOTED WITH THIS SYMBOL



GENERAL NOTES: SEE GN100
HOLES: 15/16 (UN.)
CLEANING AND PAINTING: SEE SHEET P100 AND P101

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.



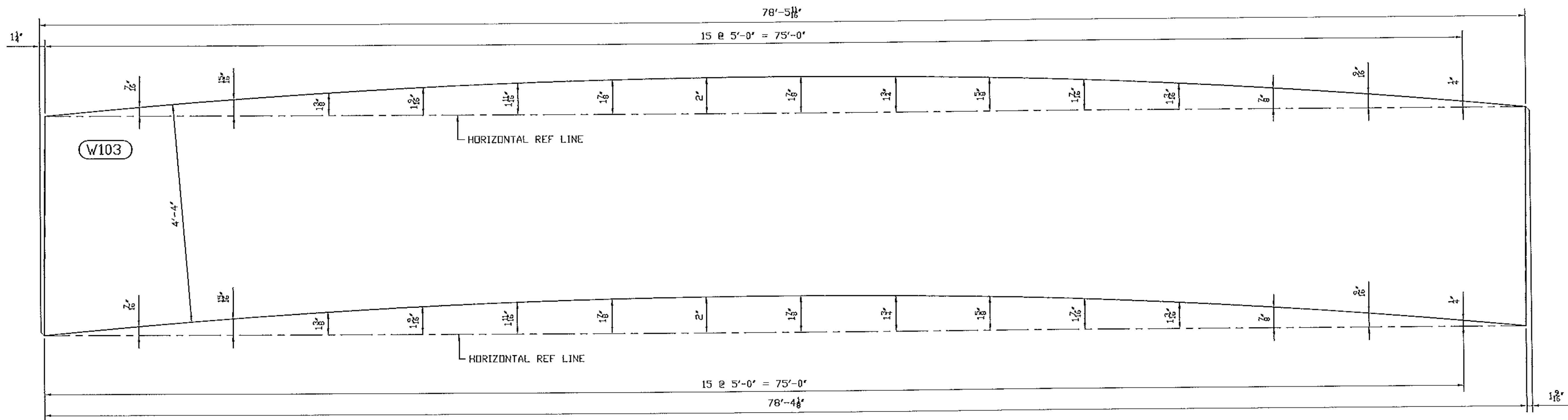
PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: GIRDER 102G1

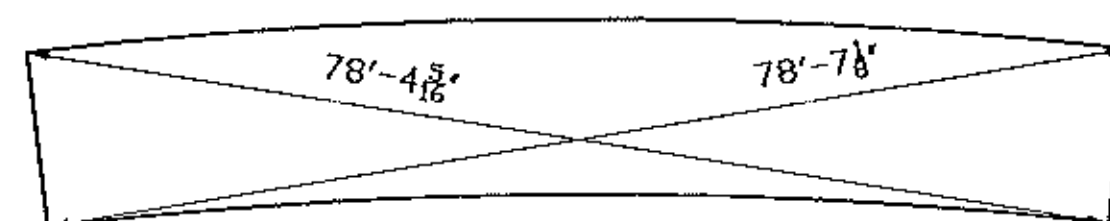
REFERENCE: PROJECT NO. ER BHF 010-1 (44)

DESIGNED BY	BR	DATE	JULY 2012	CHECKED BY	UN04260
DESIGNED BY	GG	DATE	JULY 2012	CHECKED BY	102-3 A

Vermont Agency of Transportation
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July 09, 2012
RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012



ONE WEB PLATE W103
W103 = PL $\frac{1}{2}$ "



GENERAL NOTES: SEE GN100

△				
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△	FOR APPROVAL	07/06/12	BR	EG
No	REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.



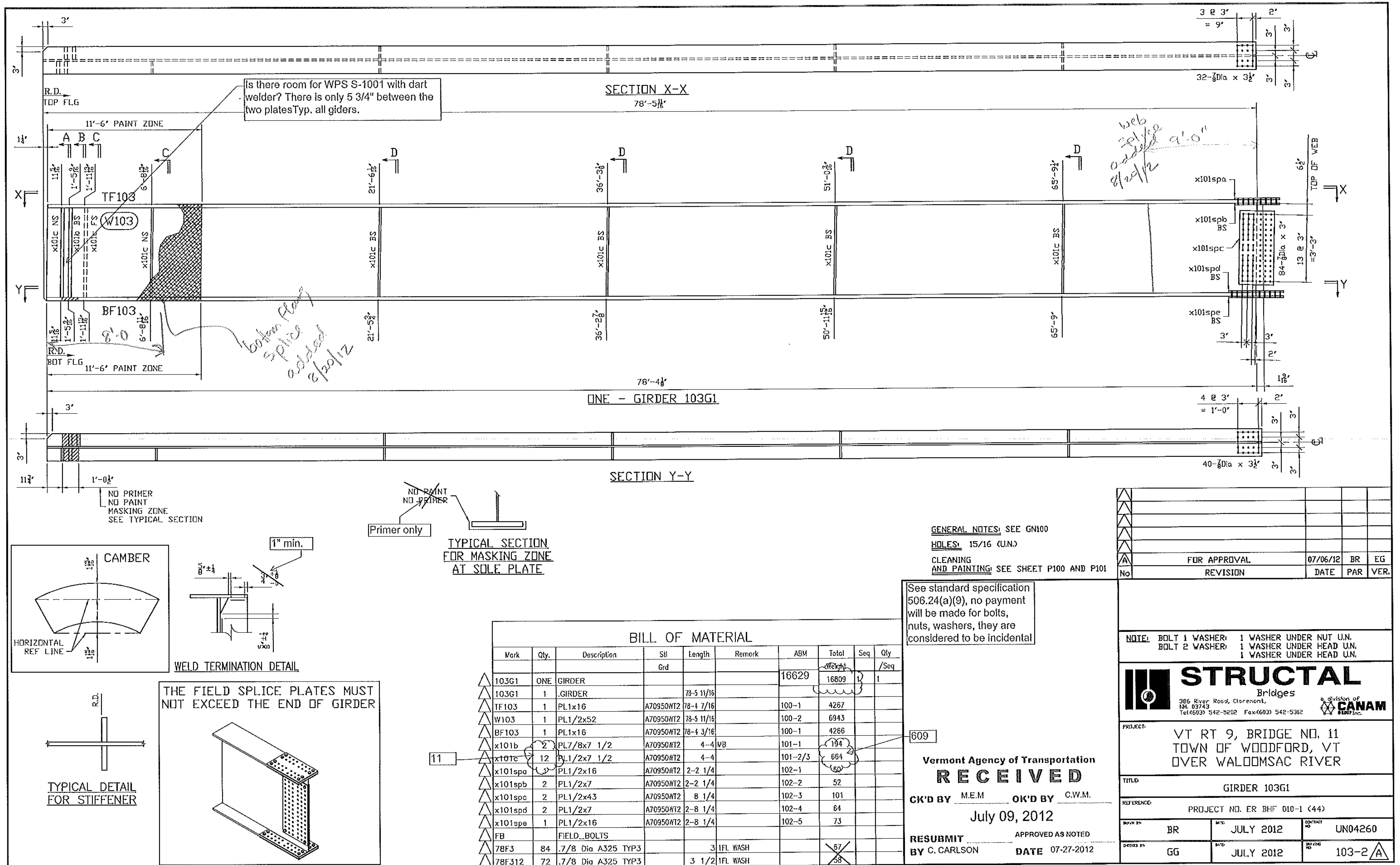
PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOMSAC RIVER

TITLE: GIRDER 103G1

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

DESIGNED BY	BR	DATE	JULY 2012	EXCHG NO	UN04260
CHECKED BY	GG	DATE	JULY 2012	EXCHG NO	103-1 A

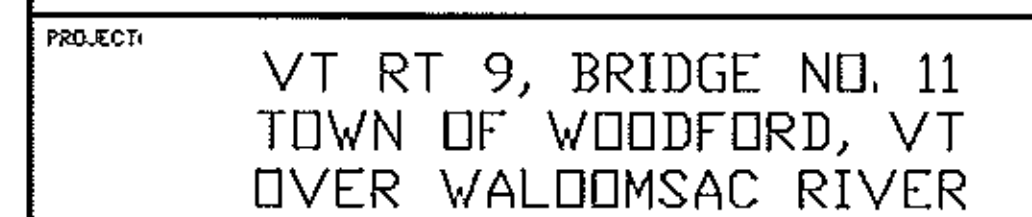
Vermont Agency of Transportation
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July 09, 2012
RESUBMIT APPROVED ✓
BY C. CARLSON DATE 07-27-2012





CLEANING
AND PAINTING: SEE SHEET P100 AND P101

NOTE:	BOLT 1 WASHER:	1 WASHER UNDER NUT U.N.
	BOLT 2 WASHER:	1 WASHER UNDER HEAD U.N.
		1 WASHER UNDER HEAD U.N.



TITLE	GIRDER 103G1
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REFERENCE	PROJECT NO. ER BHF 010-1 (44)
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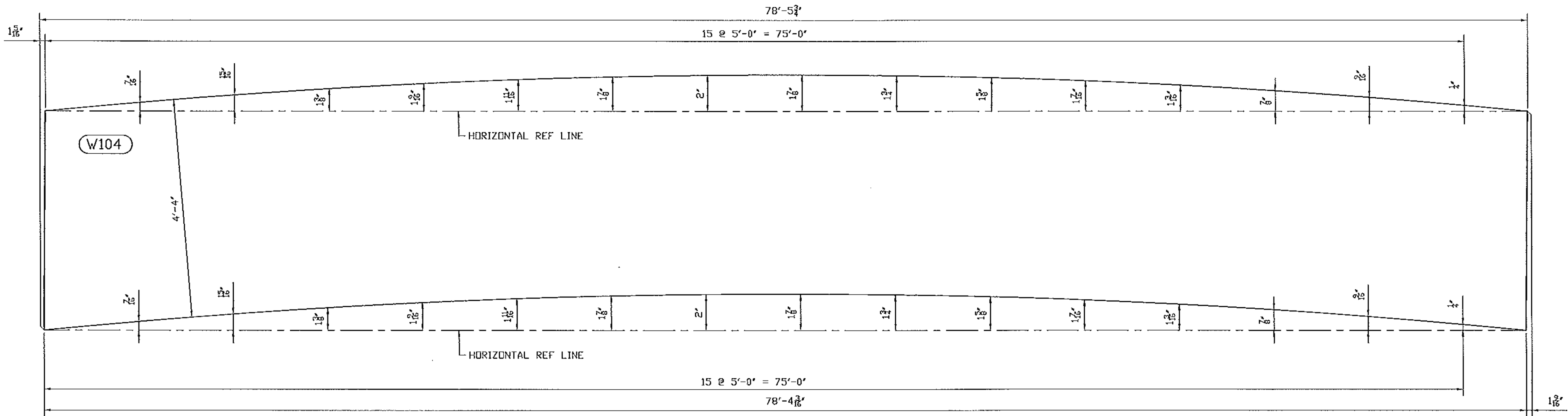
BR	JULY 2012	UN04260
GG	JULY 2012	103-3 

RECEIVED

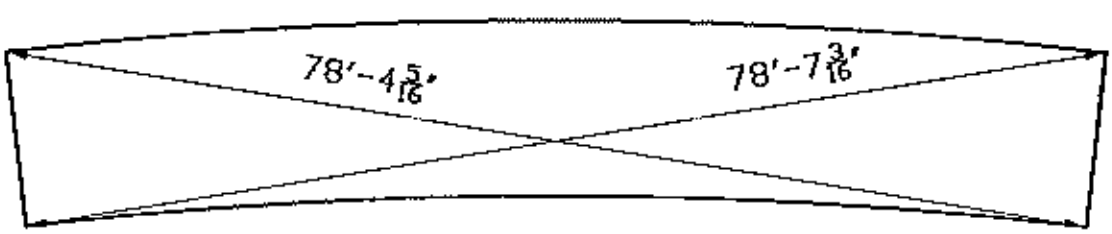
CK'D BY M.E.M. OK'D BY C.W.M.

July 09, 2012

RESUBMIT **APPROVED AS NOTED**
BY C. CARLSON **DATE 07-27-2012**



ONE WEB PLATE W104
W104 = PL 1/2"



GENERAL NOTES: SEE GN100

	FOR APPROVAL	07/06/12	BR	EG
No	REVISION	DATE	PAR	VER.

Vermont Agency of Transportation
RECEIVED
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July 09, 2012
RESUBMIT APPROVED ✓
BY C. CARLSON DATE 07-27-2012

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

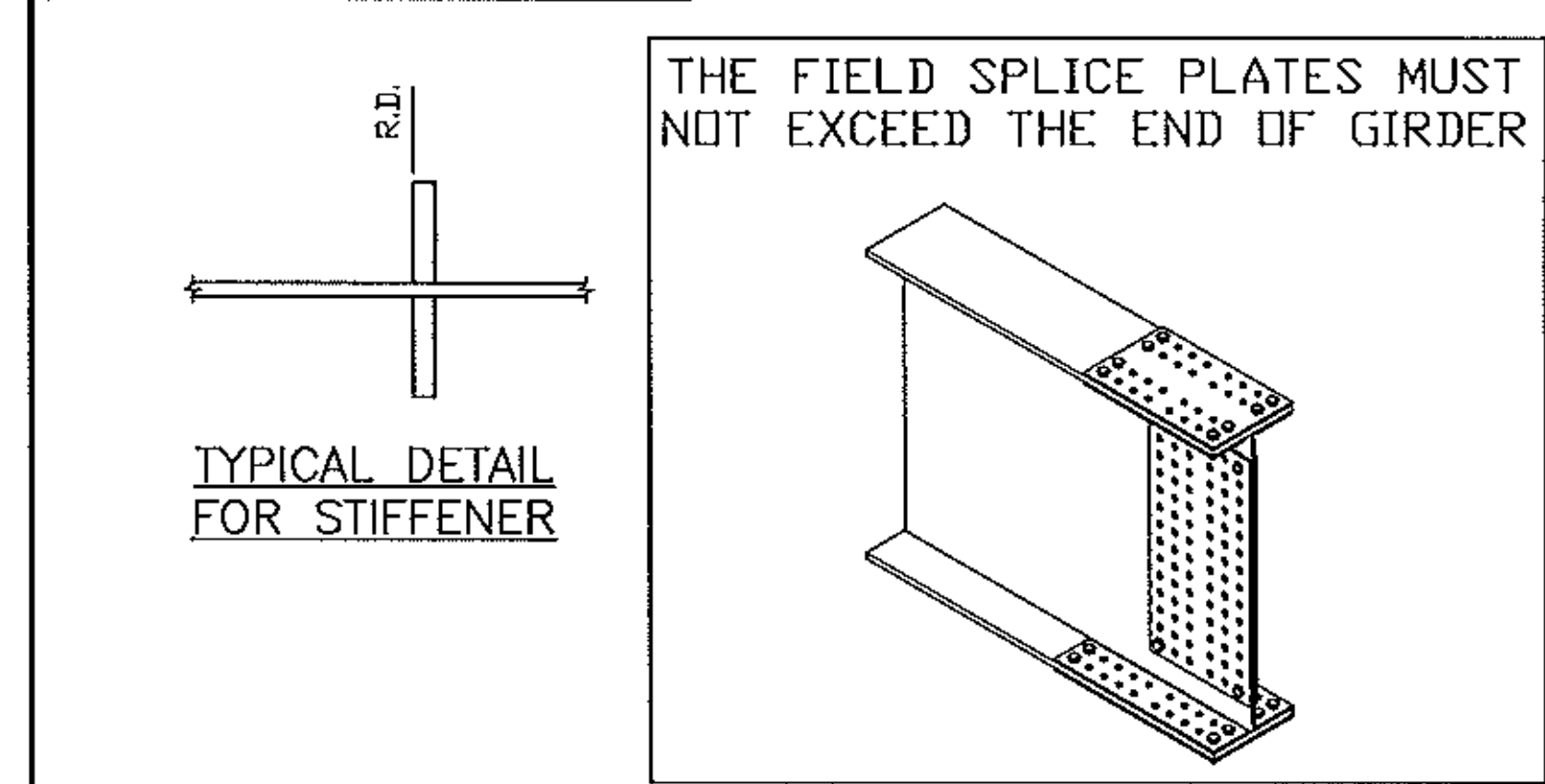
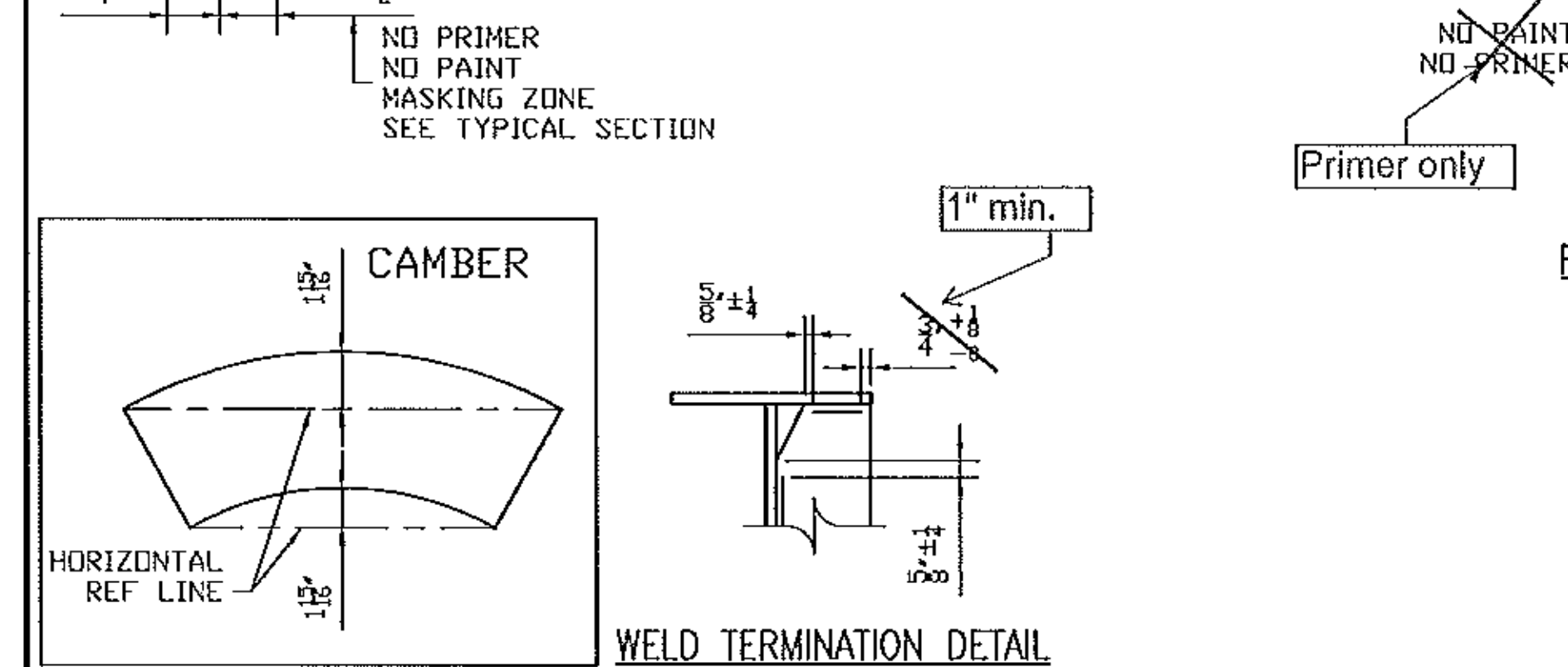
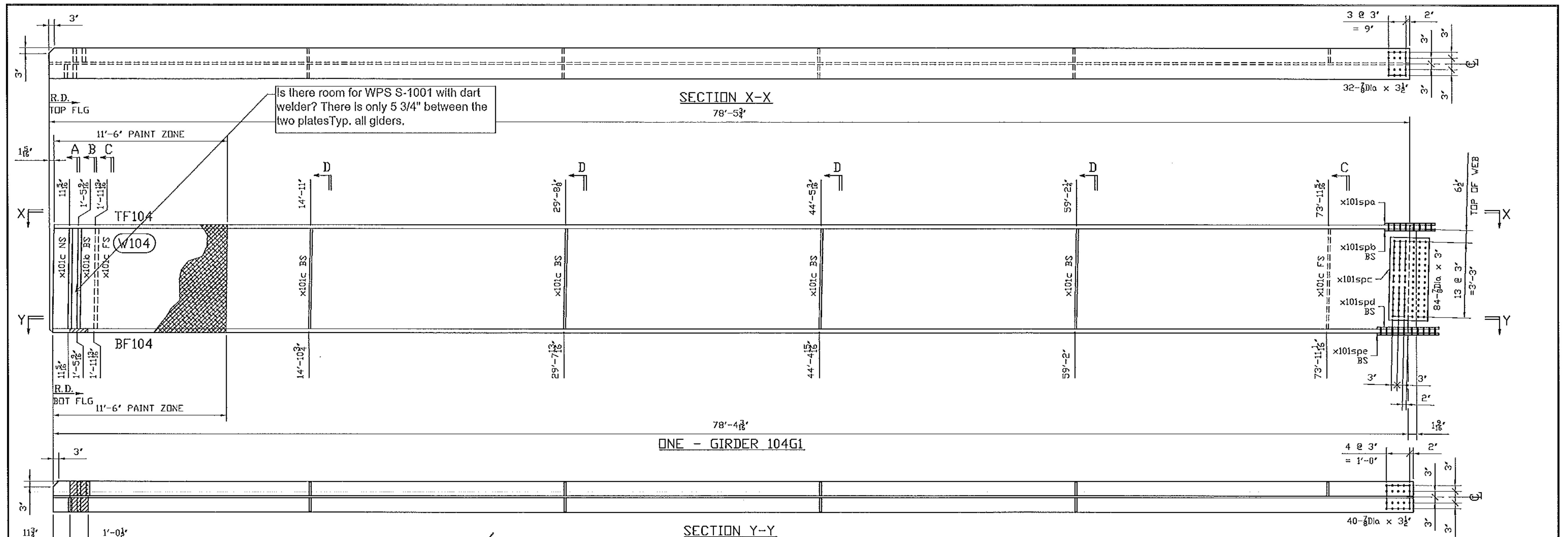
STRUCTAL
Bridges
386 River Road, Claremont,
NH 03743
Tel: (603) 542-5202 Fax: (603) 542-5312
a division of **CANAM** GROUP INC.

PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOMSAC RIVER

TITLE: GIRDER 104G1

REFERENCED: PROJECT NO. ER BHF 010-1 (44)

REVISED BY	BR	DATE	JULY 2012	CONTRACT NO.	UN04260
DRAWN BY	GG	DATE	JULY 2012	REVISION NO.	104-1 A



TYPICAL SECTION
FOR MASKING ZONE
AT SOLE PLATE

BILL OF MATERIAL									
Mark	Qty.	Description	SI	Length	Remark	ABM	Total	Seq	Qty
104G1	ONE	GIRDER	Grd			16628	16753	1	1
104G1	1	GIRDER		78-5 3/4					
TF104	1	PL1x16	A70950N12	78-4 7/16		100-1	4267		
W104	1	PL1/2x52	A70950N12	78-5 3/4		100-2	6943		
BF104	1	PL1x16	A70950N12	78-4 3/16		100-1	4266		
x101b	2	PL7/8x7 1/2	A70950N12	4-4 1/8		101-1	194		
x101g	11	PL1/2x7 1/2	A70950N12	4-4		101-2/3	608		
x101spa	1	PL1/2x16	A70950N12	2-2 1/4		102-1	60		
x101spb	2	PL1/2x7	A70950N12	2-2 1/4		102-2	52		
x101spc	2	PL1/2x43	A70950N12	8 1/4		102-3	101		
x101spd	2	PL1/2x7	A70950N12	2-8 1/4		102-4	64		
x101spe	1	PL1/2x16	A70950N12	2-8 1/4		102-5	73		
FB		FIELD_BOLTS							
78F3	84	.7/8 Dia A325 TYP3		3 1/2	1FL WASH		67		
78F312	72	.7/8 Dia A325 TYP3		3 1/2	1FL WASH		58		

GENERAL NOTES: SEE GN100
HOLES: 15/16 (UN.)
CLEANING AND PAINTING: SEE SHEET P100 AND P101

See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

Vermont Agency of Transportation
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CK'D BY M.E.M. OK'D BY C.W.M.
July 09, 2012
RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.
NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N. BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N. 1 WASHER UNDER HEAD U.N.			
PROJECT: VT RT 9, BRIDGE NO. 11 TOWN OF WOODFORD, VT OVER WALDOOMSAC RIVER			
TITLE: GIRDER 104G1			
REFERENCE: PROJECT NO. ER BHF 010-1 (44)			
DATE: BR	DATE: JULY 2012	CONTRACT NO: UN04260	
DESIGN BY: GG	DATE: JULY 2012	REVISED TO: 104-2	



 (BS)

GENERAL NOTES: SEE GN100

HOLES: 15/16 (U.N.)

CLEANING
AND PAINTING: SEE SHEET P100 AND P101

△			
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△			
△			
△	FOR APPROVAL	07/06/12	BR EG
No	REVISION	DATE	PAR VER.

<u>NOTE:</u>	BOLT 1 WASHER:	1 WASHER UNDER NUT U.N.
	BOLT 2 WASHER:	1 WASHER UNDER HEAD U.N.
		1 WASHER UNDER HEAD U.N.



PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: GIRDER 104G1

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

SEARCHED BR	DATE JULY 2012	CONTRACT NO UN04260
INDEXED GG	DATE JULY 2012	REF. NO. 104-3 A

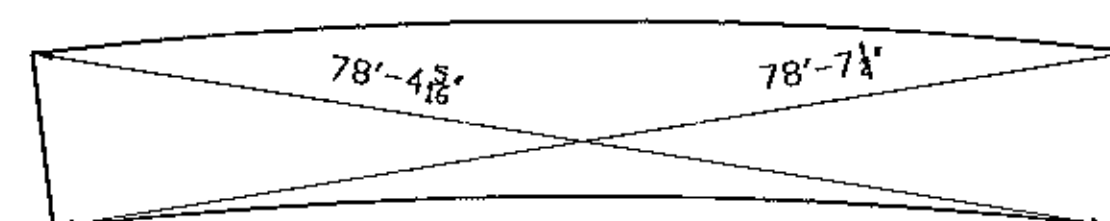
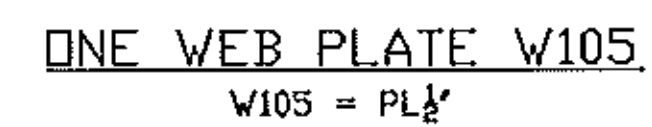
Vermont Agency of Transportation

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July 09, 2012

RESUBMIT **APPROVED AS NOTED**
BY C. CARLSON **DATE 07-27-2012**



▲				
▲				
▲				
▲				
▲				
▲	FOR APPROVAL	07/06/12	BR	EG
No	REVISION	DATE	PAR	VER.

NOTE:	BOLT 1 WASHER:	1 WASHER UNDER NUT U.N.
	BOLT 2 WASHER:	1 WASHER UNDER HEAD U.N.
		1 WASHER UNDER HEAD U.N.



PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: GIRDER 105G1

REFERENCE:	PROJECT NO. ER BHF 010-1 (44)
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BR	JULY 2012	CONTRACT NO. UN04260
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06015 PM	GG	W	JULY 2012	BRING NO	105-1 A
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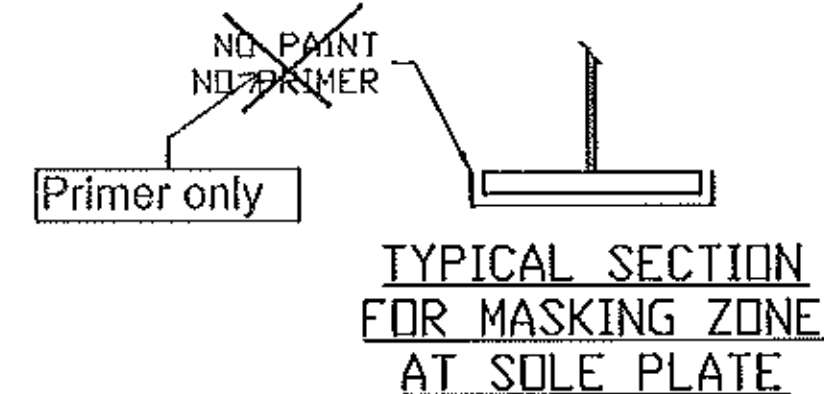
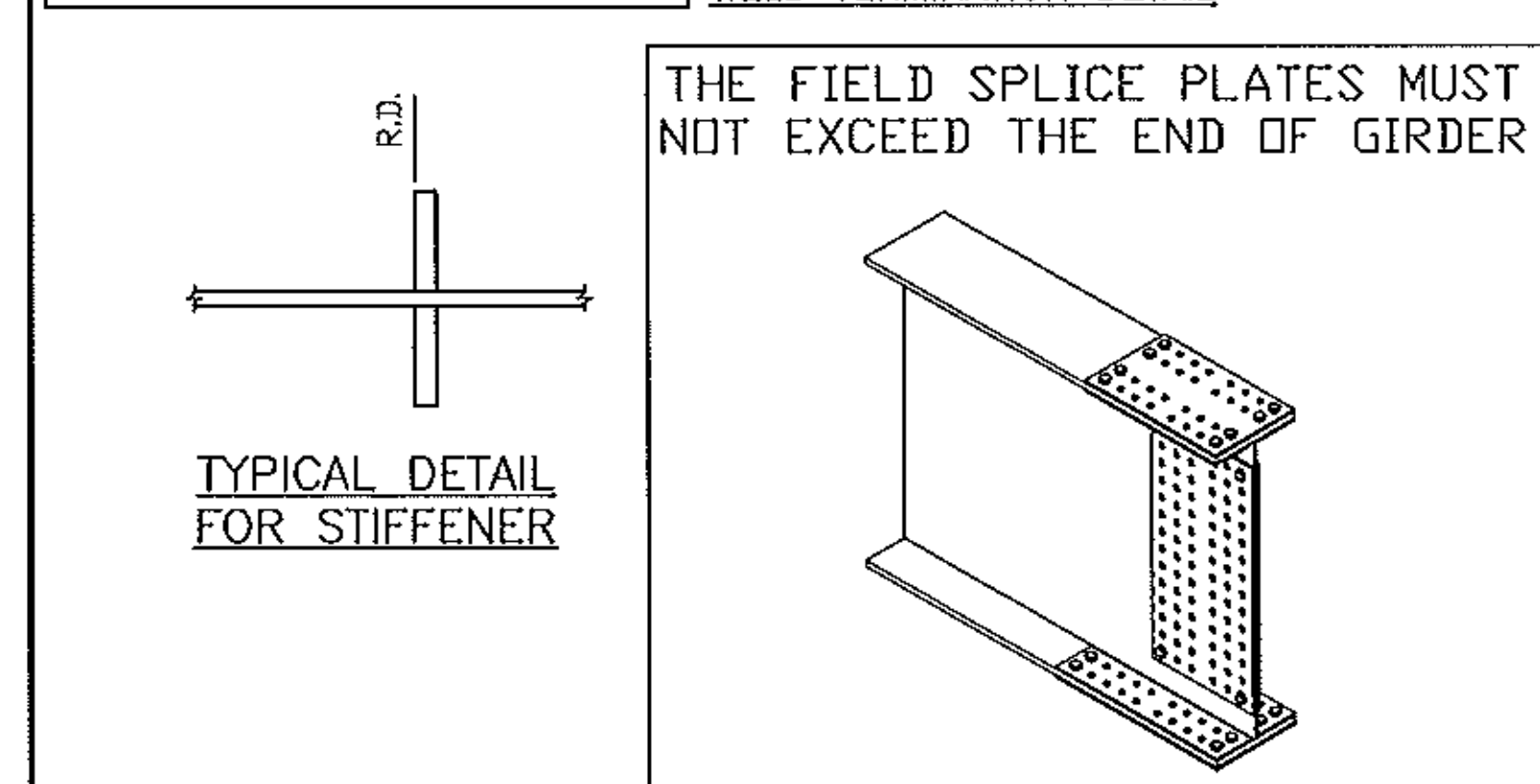
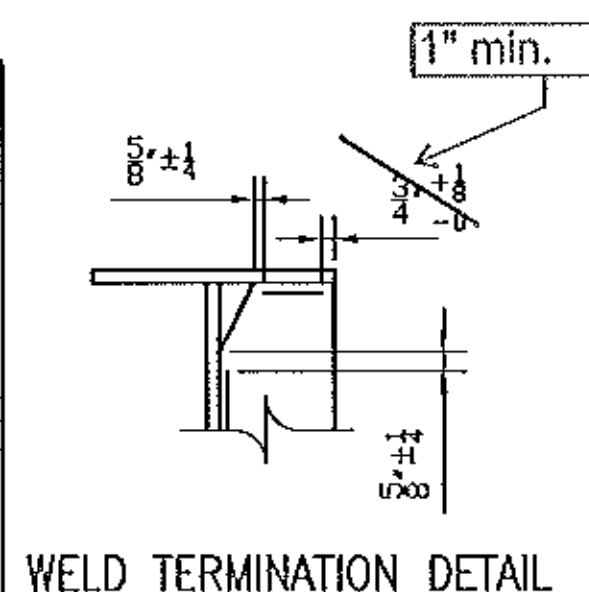
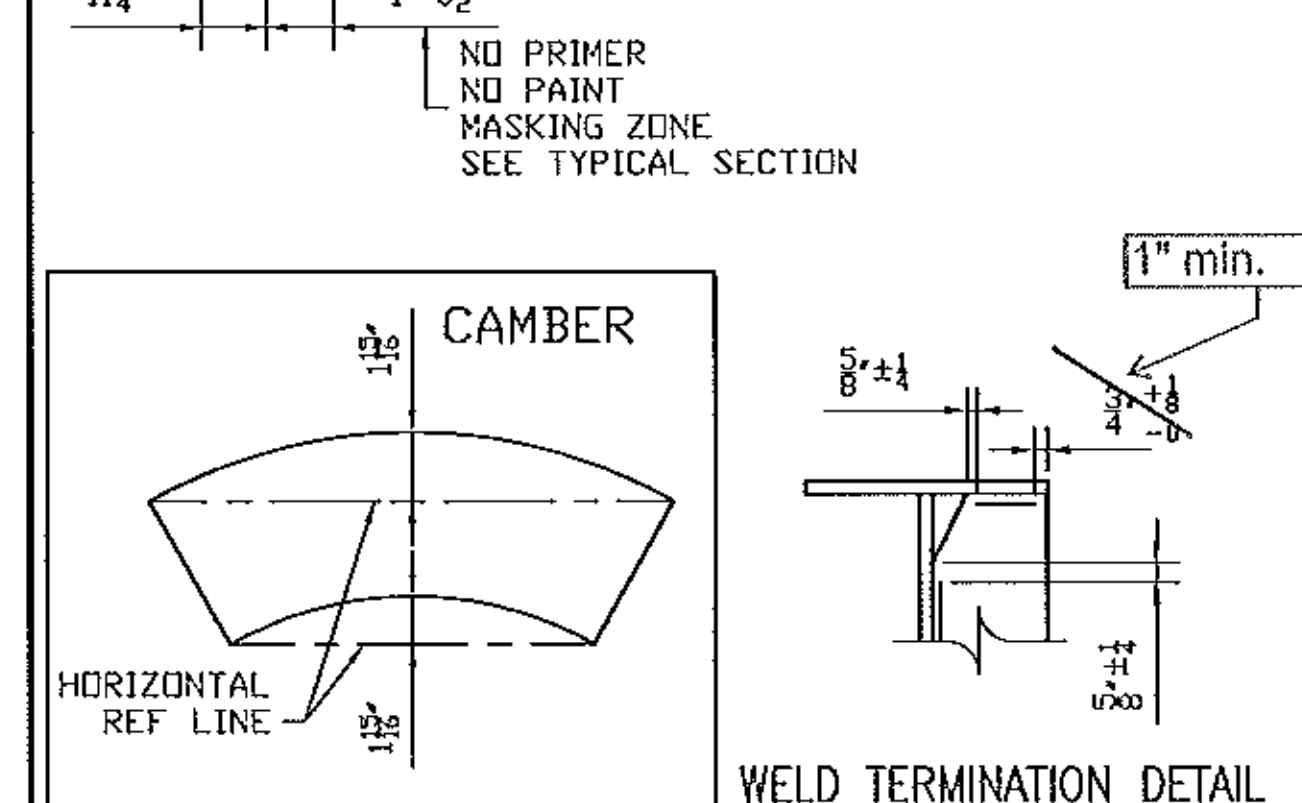
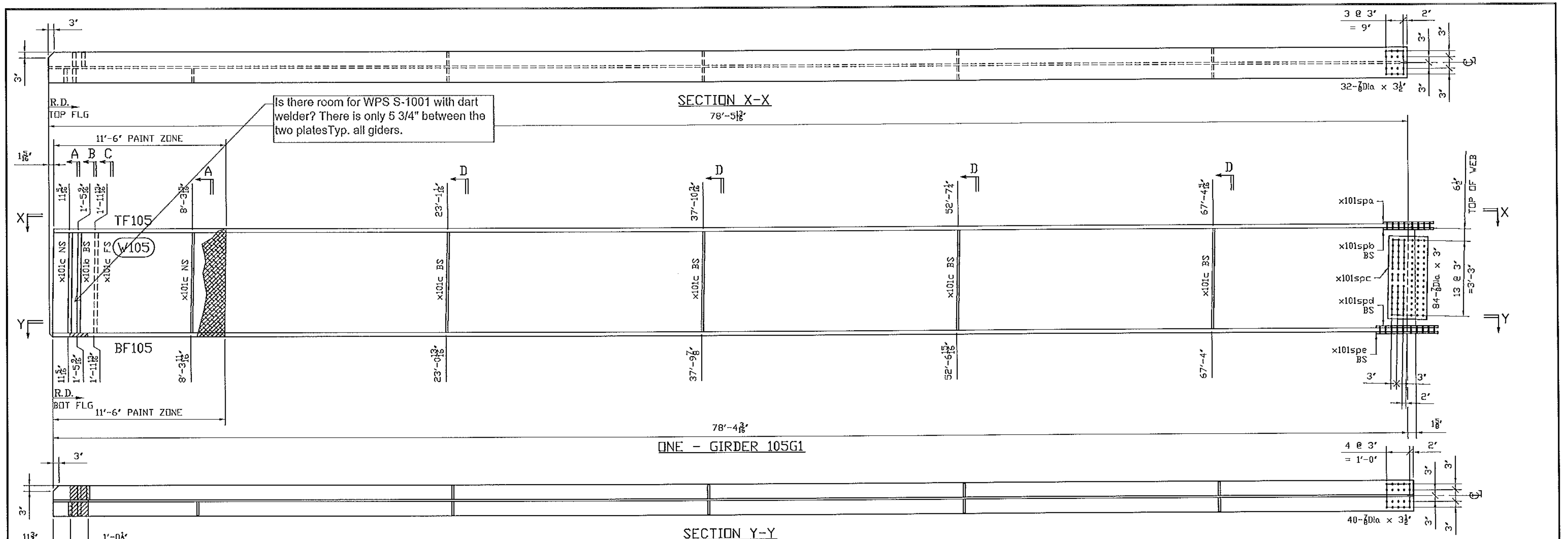
Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M OK'D BY C.W.M.

July 09, 2012

RESUBMIT _____ APPROVED ☒
BY C. CARLSON _____ DATE 07-27-2012



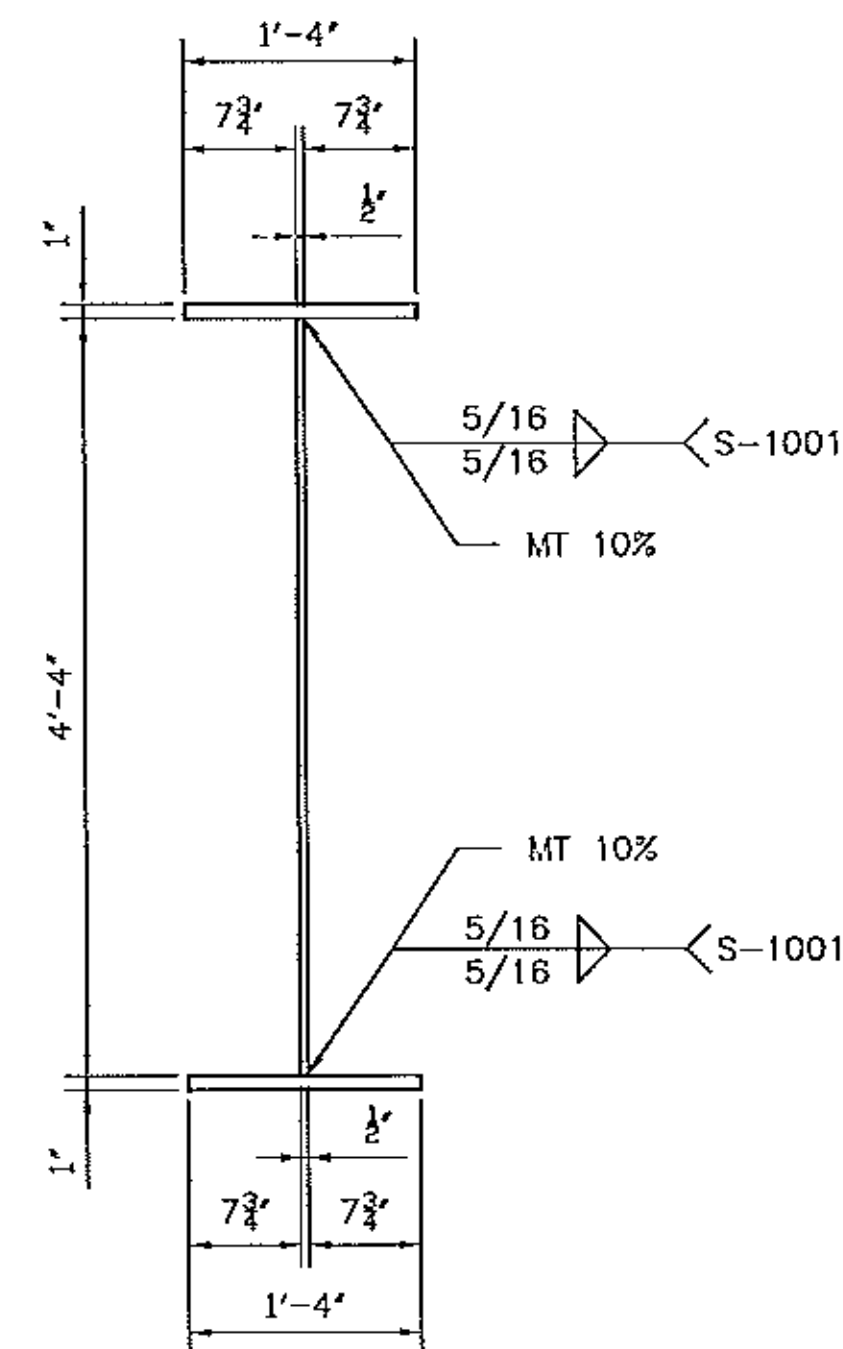
BILL OF MATERIAL									
Mark	Qty.	Description	Std	Length	Remark	ABM	Total	Seq	Qty
			Grd				Weight		/Seq
105G1	ONE	GIRDER				16629	16699	1	1
105G1	1	.GIRDER		78-5 13/16					
TF105	1	PL1x16	A70950WT2	78-4 1/2		100-1	4267		
W105	1	PL1/2x52	A70950WT2	78-5 13/16		100-2	6944		
BF105	1	PL1x16	A70950WT2	78-4 3/16		100-1	4266		
x101b	2	PL7/8x7 1/2	A70950WT2	4-4 WB		101-1	194		
x101c	10	PL1/2x7 1/2	A70950WT2	4-4		101-2/3	553		
x101spa	1	PL1/2x16	A70950WT2	2-2 1/4		102-1	60		
x101spb	2	PL1/2x7	A70950WT2	2-2 1/4		102-2	52		
x101spc	2	PL1/2x43	A70950WT2	8 1/4		102-3	101		
x101spd	2	PL1/2x7	A70950WT2	2-8 1/4		102-4	64		
x101spe	1	PL1/2x16	A70950WT2	2-8 1/4		102-5	73		
FB		FIELD BOLTS							
78F3	84	.7/8 Dia A325 TYP3		3	1FL WASH				
78F312	72	.7/8 Dia A325 TYP3		3 1/2	1FL WASH				

GENERAL NOTES: SEE GN100
 HOLES: 15/16 (U.N.)
 CLEANING AND PAINTING: SEE SHEET P100 AND P101

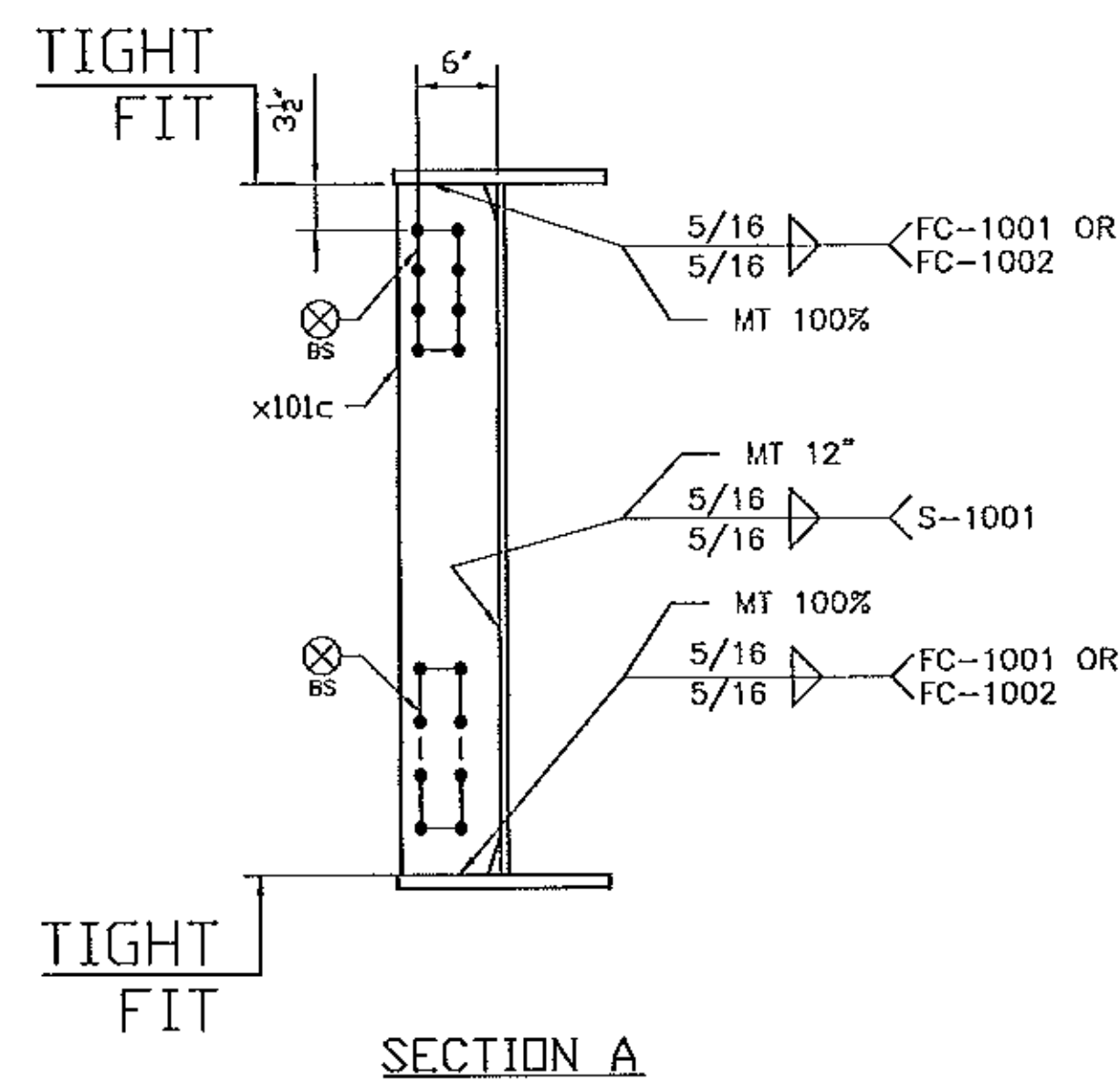
See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

608
 Vermont Agency of Transportation
RECEIVED
 CK'D BY M.E.M. OK'D BY C.W.M.
 July 09, 2012
 RESUBMIT APPROVED AS NOTED
 BY C. CARLSON DATE 07-27-2012

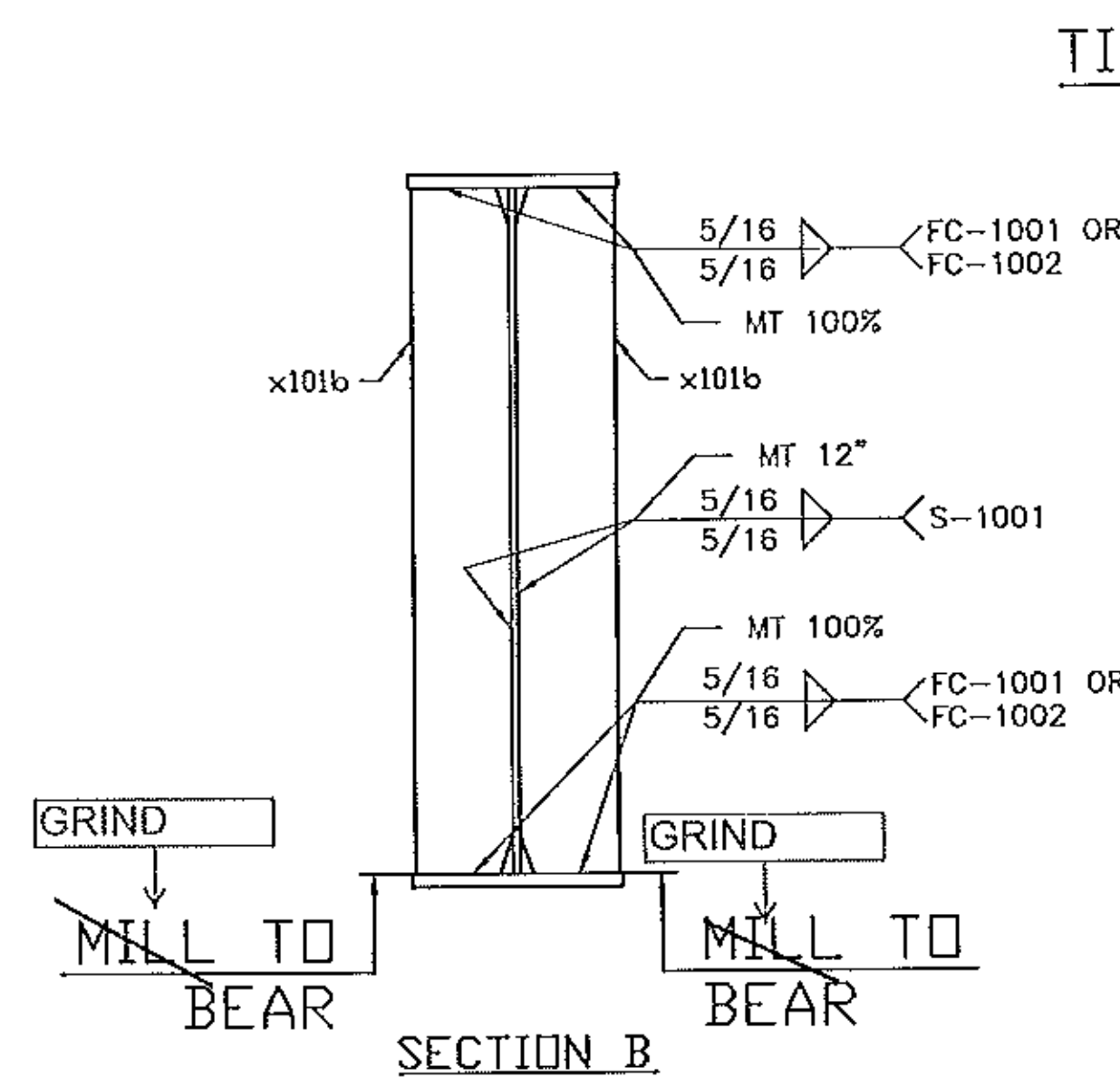
FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.
NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N. BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N. 1 WASHER UNDER HEAD U.N.			
STRUCTAL Bridges 386 River Road, Claremont, NH 03743 Tel(603) 542-5202 Fax(603) 542-5312			
PROJECT: VT RT 9, BRIDGE NO. 11 TOWN OF WOODFORD, VT OVER WALDOOMSAC RIVER			
TITLE: GIRDER 105G1			
REFERENCED: PROJECT NO. ER BHF 010-1 (44)			
DRAWN BY: BR CHECKED BY: GG	DATE: JULY 2012	CONTRACT NO: UN04260	SHEET NO: 105-2



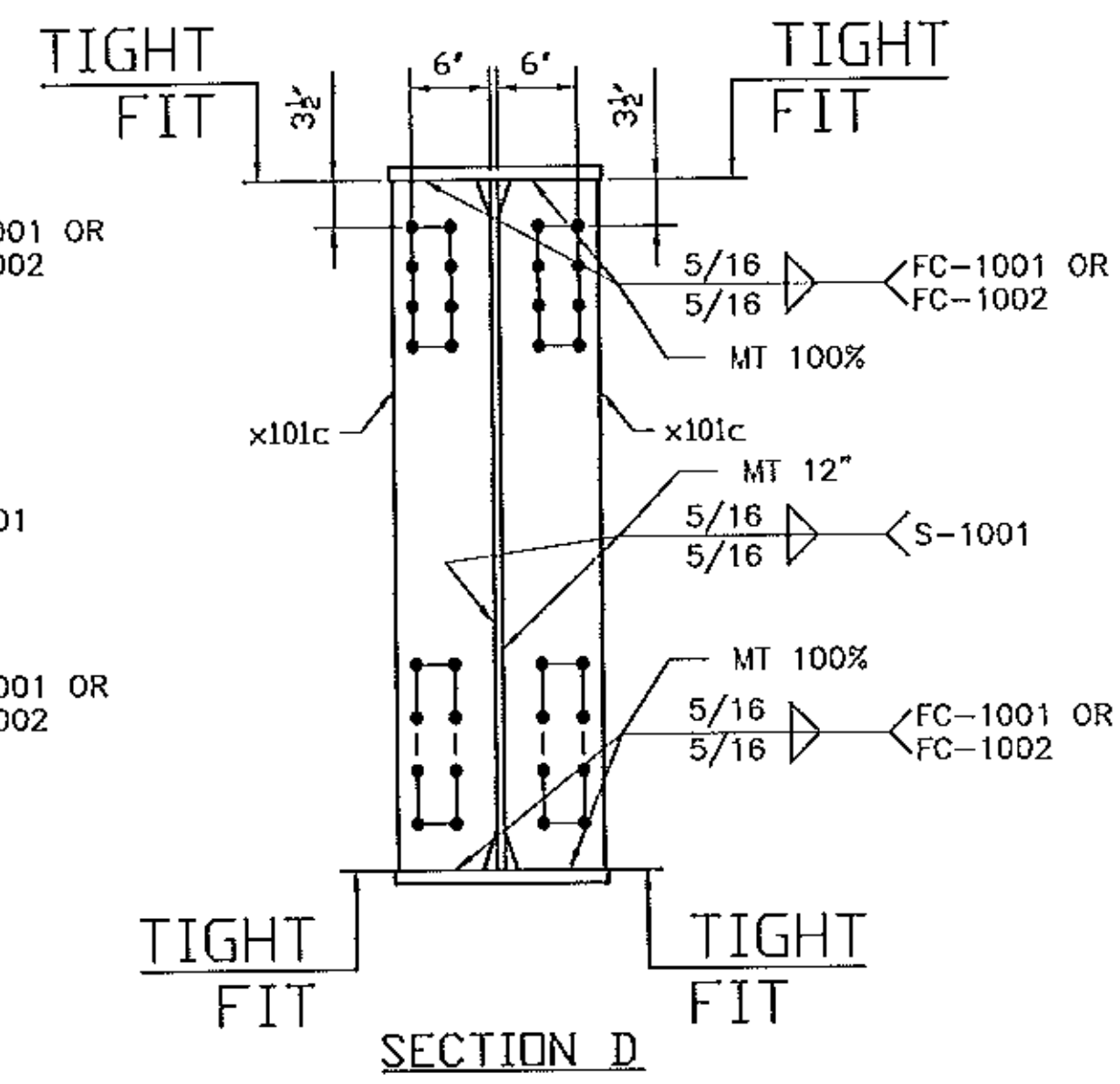
TYPICAL SECTION



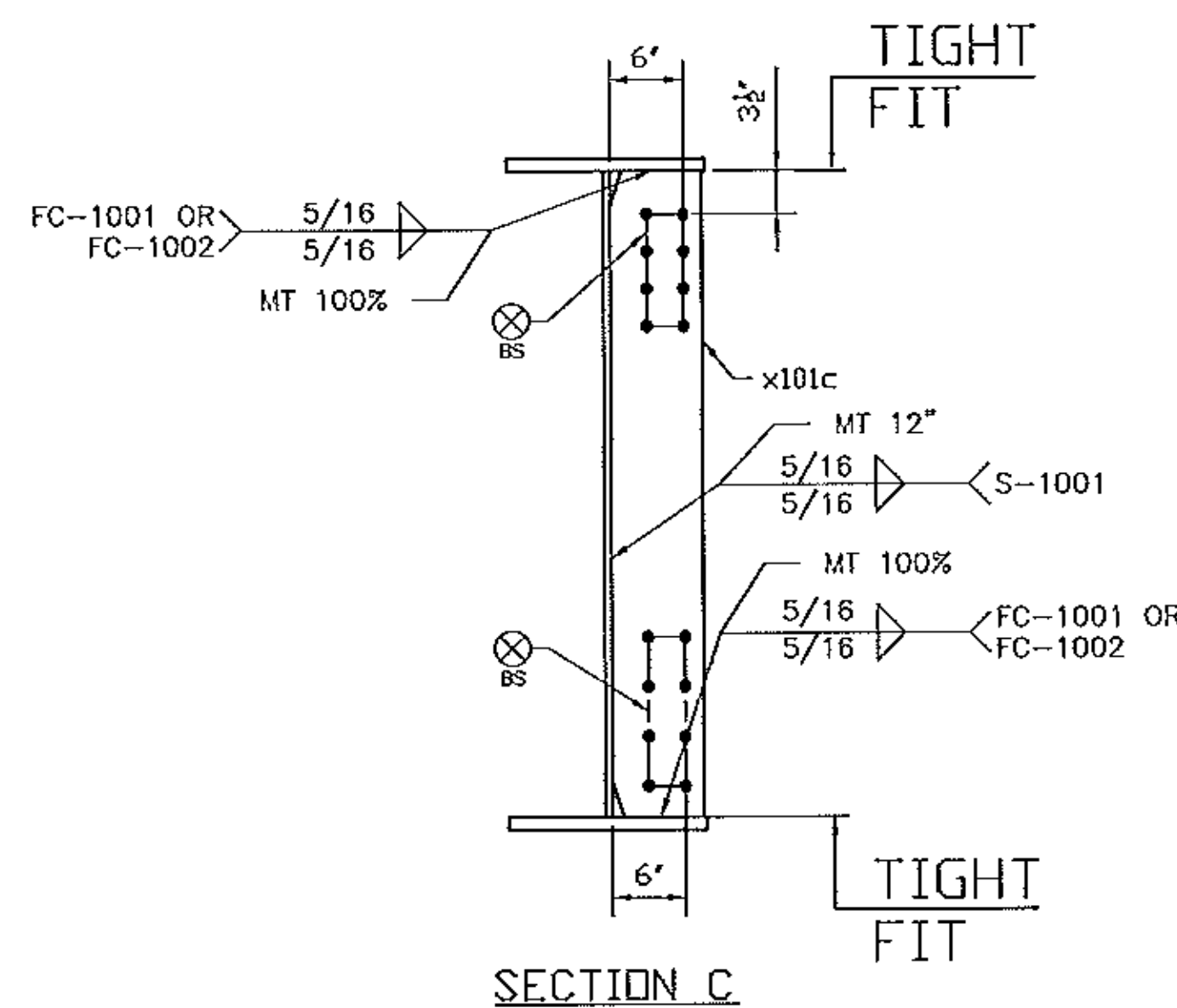
SECTION A



SECTION B

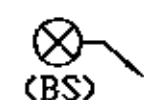


SECTION D



SECTION C

PRIMER ONLY, NO PAINT
BOTH SIDES 75 mm DIA AROUND HOLE
WHERE NOTED WITH THIS SYMBOL



GENERAL NOTES: SEE GN100
HOLES: 15/16 (UN.)
CLEANING
AND PAINTING: SEE SHEET P100 AND P101

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

Vermont Agency of Transportation

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CK'D BY M.E.M. OK'D BY C.W.M.

July 09, 2012

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

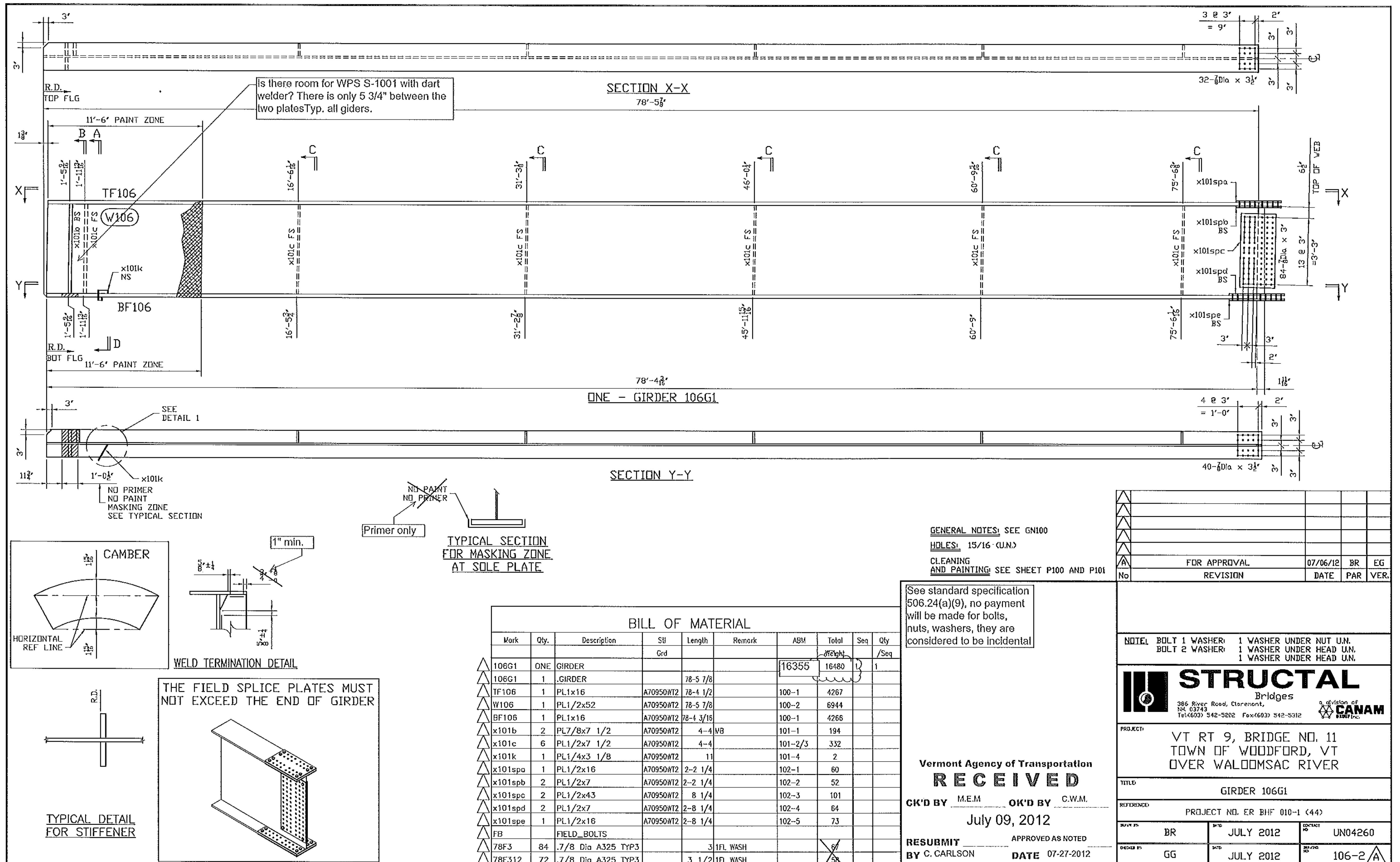


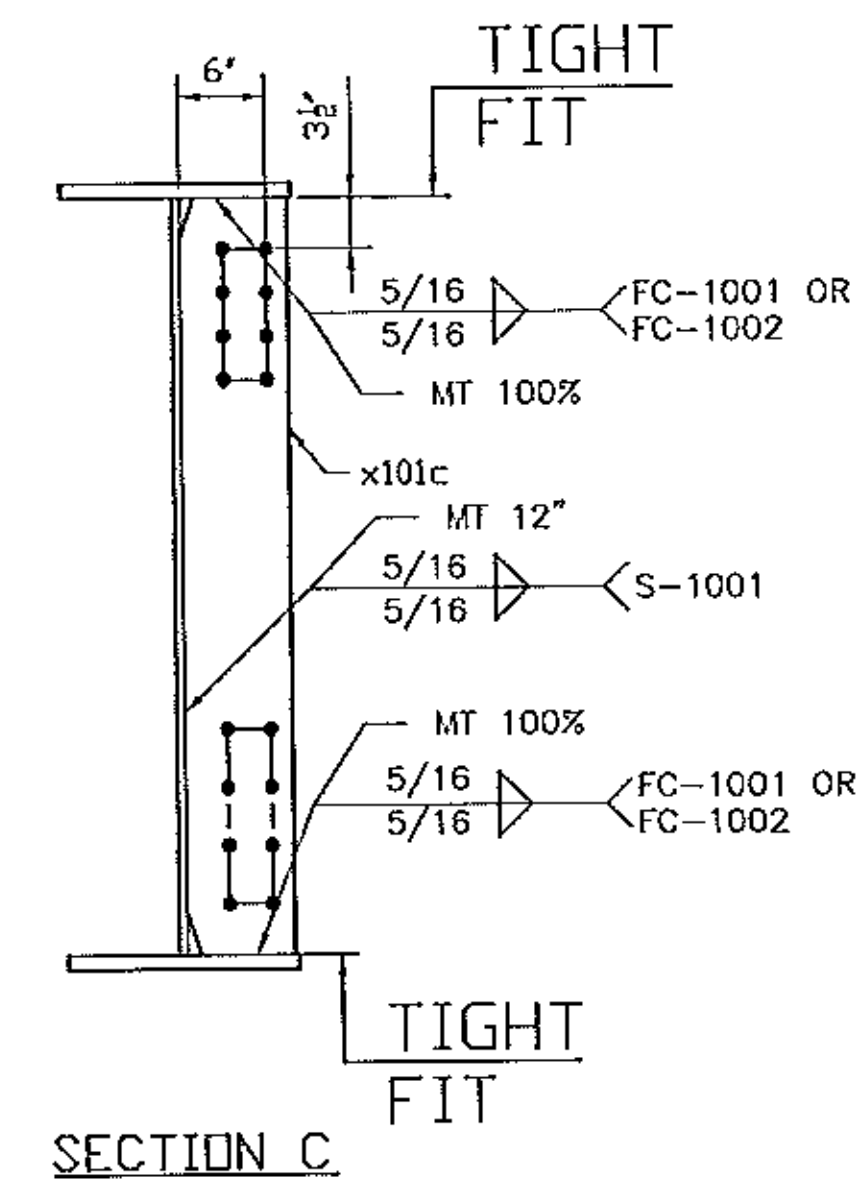
PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOMSAC RIVER

TITLE: GIRDER 105G1

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

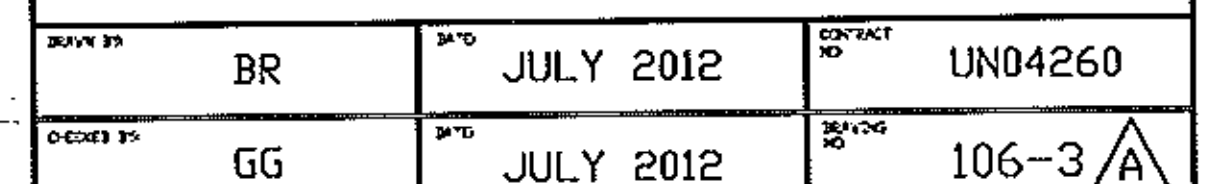
BR	JULY 2012	UN04260
GG	JULY 2012	105-3 A

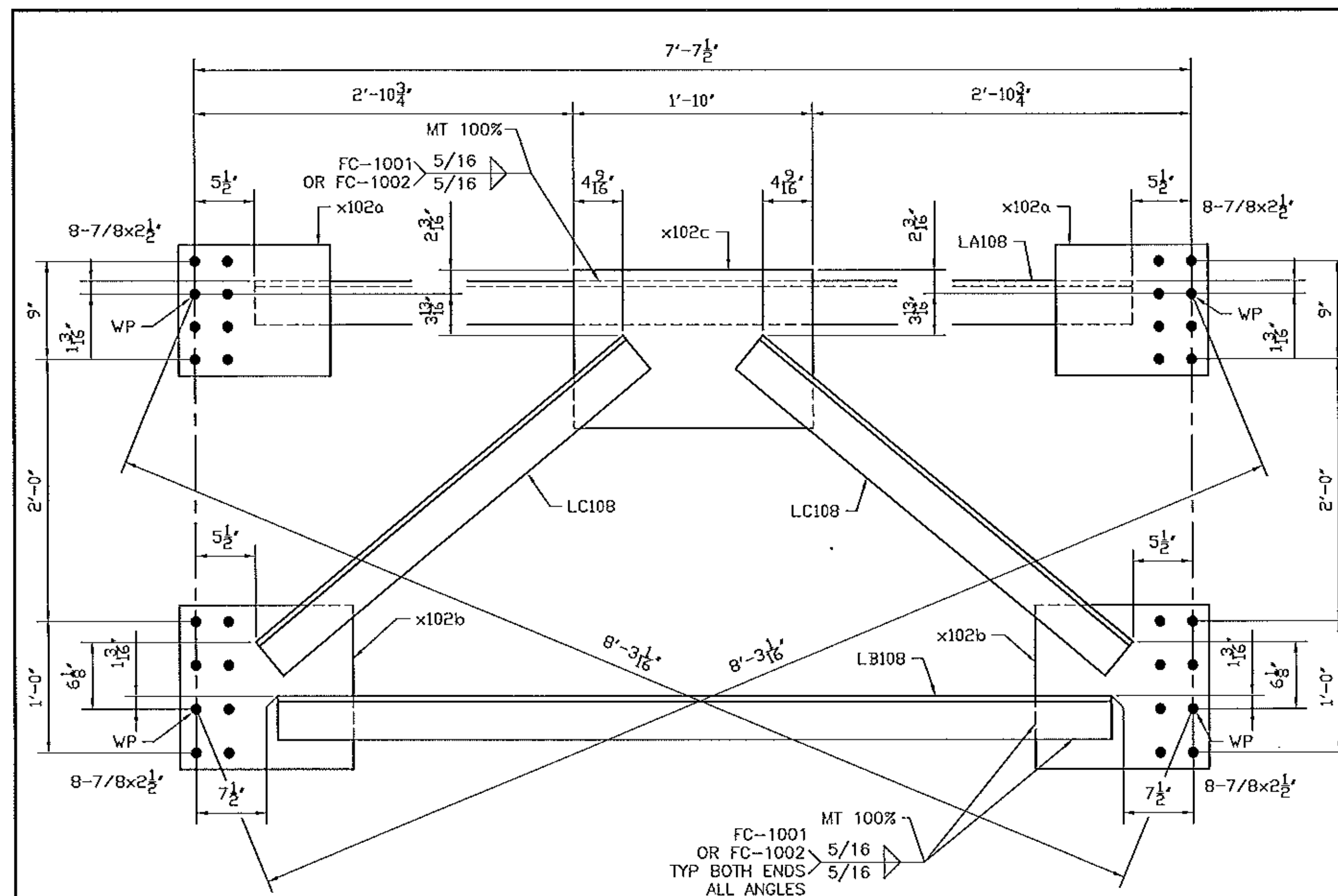




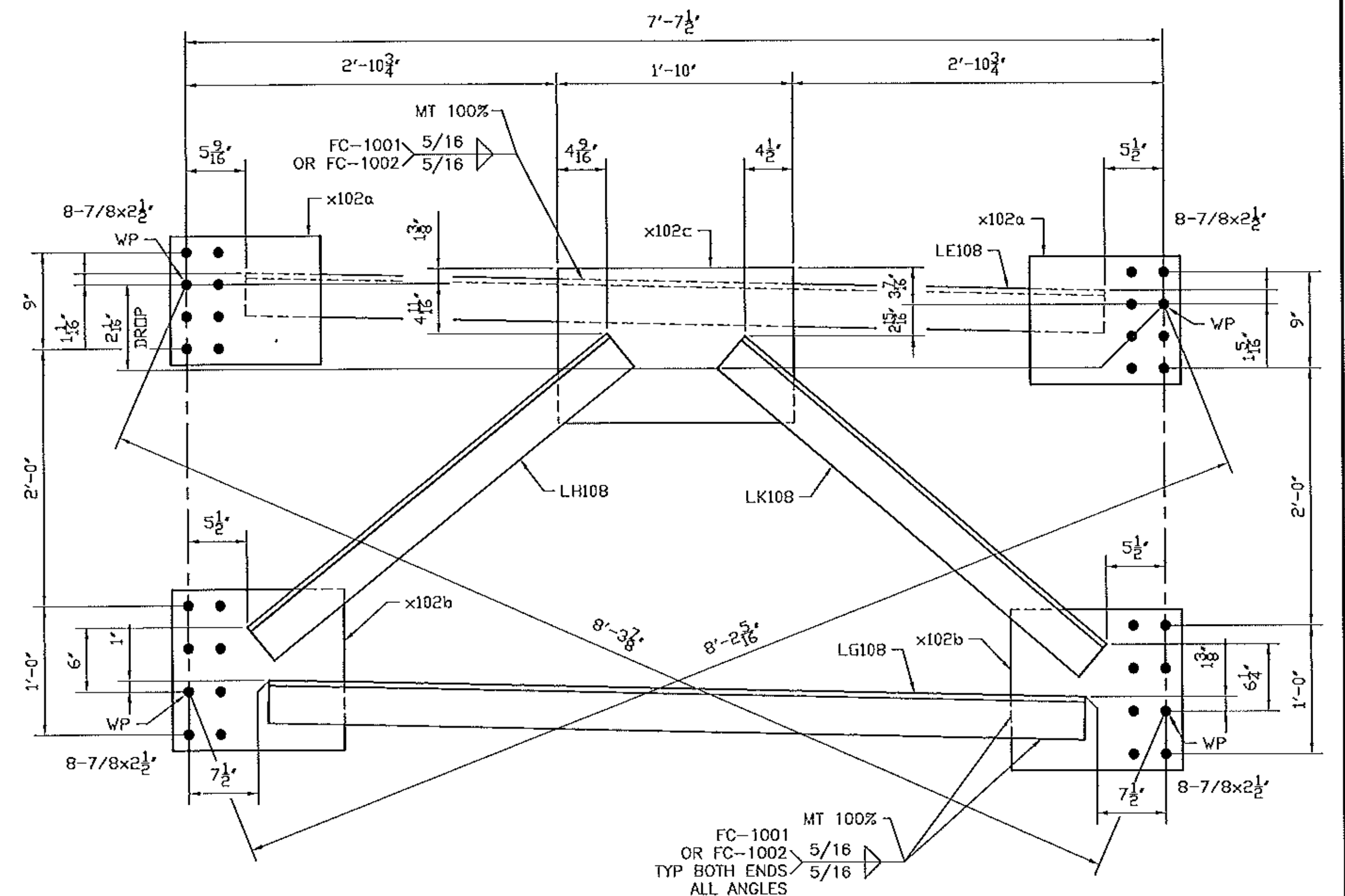
SECTION C

A	FDR APPROVAL	07/06/12	BR	EG
No	REVISION	DATE	PAR	VER.

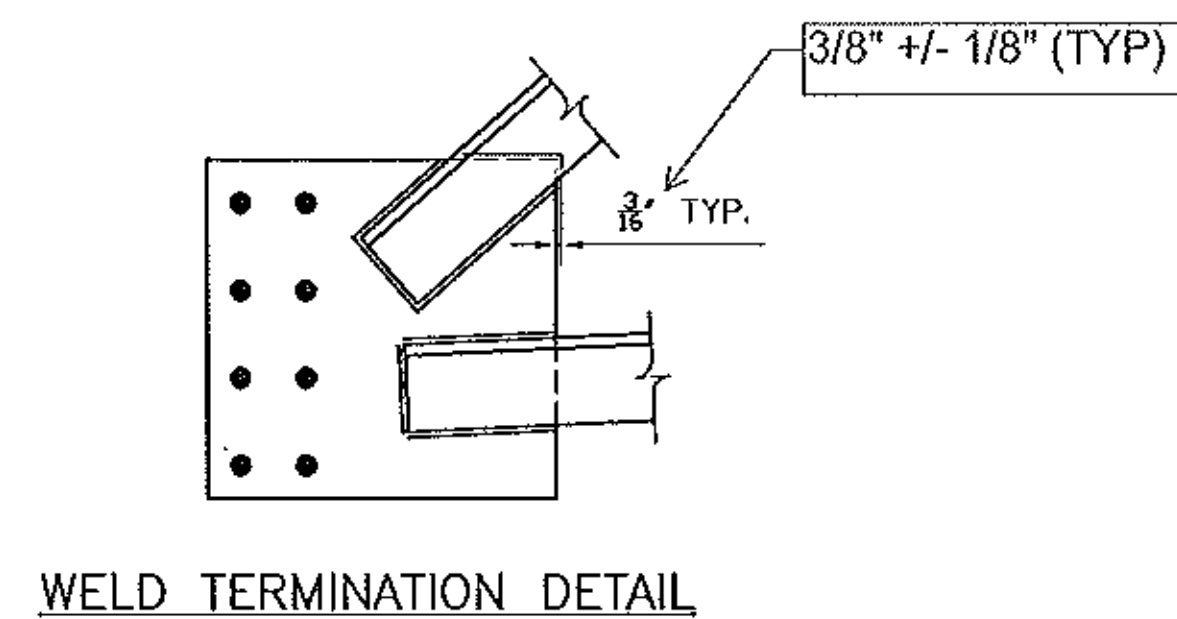




4 - CROSS FRAME 108CF1



4 - CROSS FRAME 108CF2



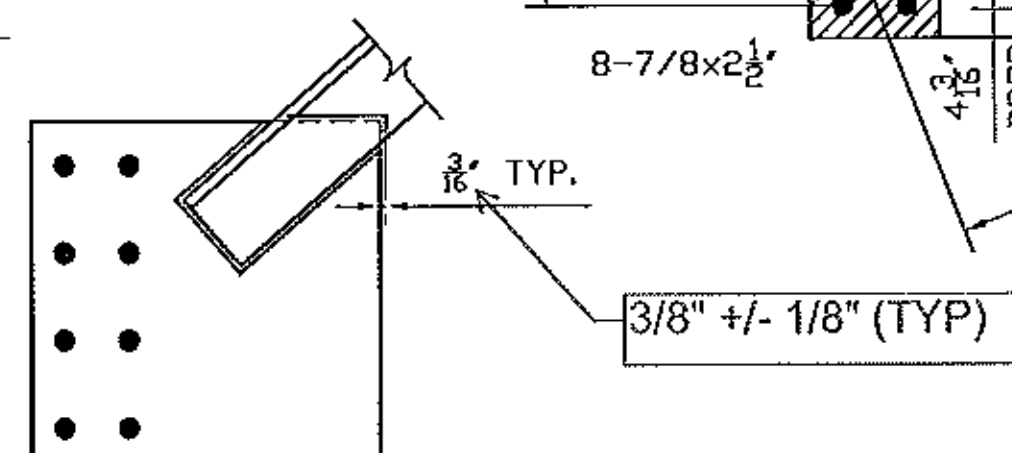
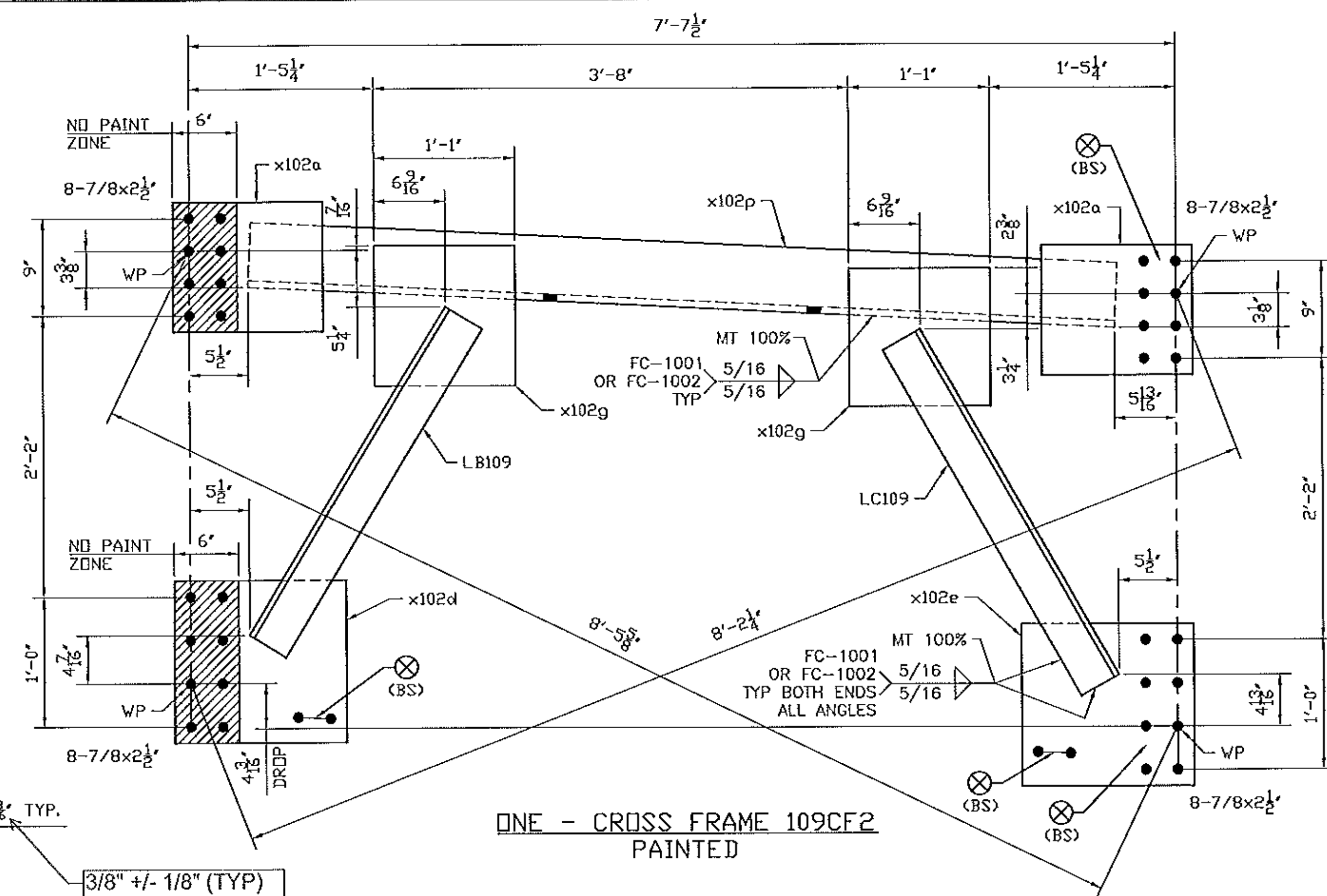
BILL OF MATERIAL									
Mark	Qty.	Description	SI	Length	Remark	ABM	Total Weight	Seq	Qty
108CF1	4	CROSS FRAME	Grd			1688	1789	1	4
108CF1	4	CROSS FRAME		7-10 1/2					
LA108	4	L4x4x1/2	A70950W	6-8 1/2		106-2	343		
LB108	4	L4x4x1/2	A70950W	6-4 1/2		106-2	326		
LC108	8	L4x4x1/2	A70950W	3-7 15/16		106-4	375		
x102a	8	PL1/2x12	A70950W	1-2		106-6	191		
x102b	8	PL1/2x15	A70950W	1-4		106-6	272		
x102c	4	PL1/2x14 1/2	A70950W	1-10		106-8	181		
FB		FIELD BOLTS							
78F212	128	7/8 Dia A325 TYP3		2 1/2	1FL WASH				
108CF2	4	CROSS FRAME				1688	1790	1	4
108CF2	4	CROSS FRAME		7-10 1/2					
LE108	4	L4x4x1/2	A70950W	6-8 7/16		106-2	343		
LG108	4	L4x4x1/2	A70950W	6-4 1/2		106-2	326		
LH108	4	L4x4x1/2	A70950W	3-7 1/2		106-4	186		
LK108	4	L4x4x1/2	A70950W	3-8 3/8		106-4	189		
x102a	8	PL1/2x12	A70950W	1-2		106-6	191		
x102b	8	PL1/2x15	A70950W	1-4		106-6	272		
x102c	4	PL1/2x14 1/2	A70950W	1-10		106-8	181		
FB		FIELD BOLTS							
78F212	128	7/8 Dia A325 TYP3		2 1/2	1FL WASH				

GENERAL NOTES: SEE GN100
HOLES: 15/16 (U.N.)
CLEANING AND PAINTING: SEE SHEET P100

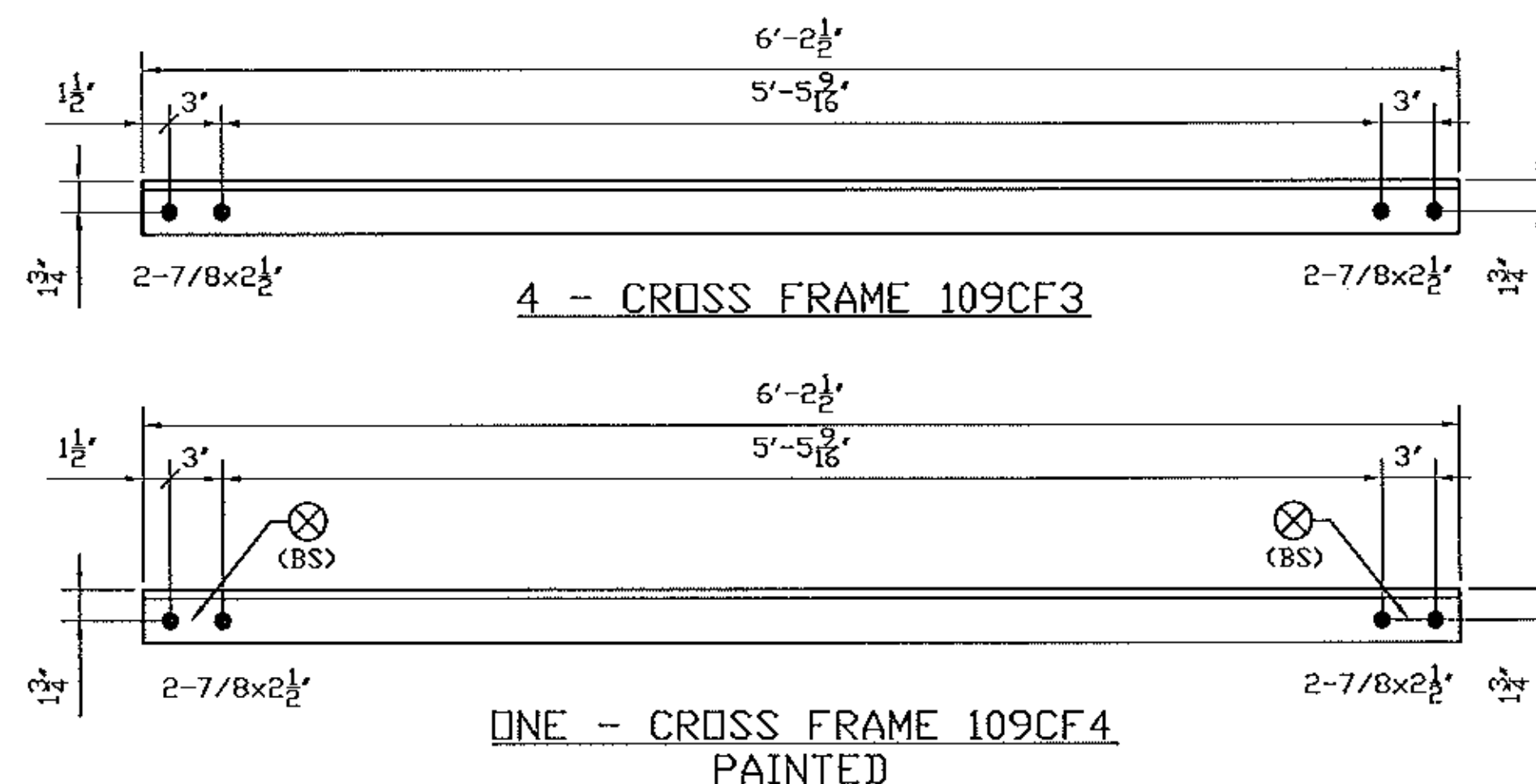
See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

Vermont Agency of Transportation
RECEIVED
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JULY 09, 2012
RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.
NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N. BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N. 1 WASHER UNDER HEAD U.N.			
STRUCTAL Bridges 386 River Road, Claremont, NH 03743 Tel: (603) 542-5202 Fax: (603) 542-5312			
PROJECT: VT RT 9, BRIDGE NO. 11 TOWN OF WOODFORD, VT OVER WALDOOMSAC RIVER			
TITLE: CROSS FRAME			
REFERENCE: PROJECT NO. ER BHF 010-1 (44)			
BR	JULY 2012	UN04260	
GG	JULY 2012	108	A



WELD TERMINATION DETAIL



BILL OF MATERIAL									
Mark	Qty.	Description	Stl	Length	Remark	ABM	Total Weight	Seq	Qty /Seq
109CF3	4	CROSS FRAME	Grd				246	1	4
109CF3	4	L3x3x1/2	A70950W	6-2 1/2		105-4	233		
FB		FIELD BOLTS							
78F212	16	.7/8 Dia A325 TYP3		2 1/2	1FL WASH		13		
109CF4	ONE	CROSS FRAME					61	1	1
109CF4	1	L3x3x1/2	A70950W	6-2 1/2	PAINT	105-3	58		
FB		FIELD BOLTS							
78F212	4	.7/8 Dia A325 TYP3		2 1/2	1FL WASH		3		

BILL OF MATERIAL									
Mark	Qty.	Description	Std	Length	Remark	ABM	Total	Seq	Qty
			Grd				Weight		/Sec
109CF1	4	CROSS FRAME				1611	1713	1	4
109CF1	4	CROSS FRAME		7-10 1/2					
LB109	4	L4x4x1/2	A70950W	2-11 3/8		105-6	151		
LC109	4	L4x4x1/2	A70950W	5-0 13/16		105-6	157		
x102a	8	PL1/2x12	A70950W	1-2		105-8	191		
x102d	4	PL1/2x15	A70950W	1-4		105-8	136		
x102e	4	PL1/2x15	A70950W	1-4		105-8	136		
x102g	8	PL1/2x13	A70950W	1-1		105-10	192		
x102p	4	L6x6x5/8	A70950W	6-8 5/16		105-2	648		
FB		FIELD BOLTS							
78F212	128	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
109CF1	ONE	CROSS FRAME				403	429	1	1
109CF1	1	CROSS FRAME		7-10 1/2	PAINT				
LB109	1	L4x4x1/2	A70950W	2-11 3/8		105-5	38		
LC109	1	L4x4x1/2	A70950W	5-0 13/16		105-5	39		
x102a	2	PL1/2x12	A70950W	1-2		105-7	48		
x102d	1	PL1/2x15	A70950W	1-4		105-7	34		
x102e	1	PL1/2x15	A70950W	1-4		105-7	34		
x102g	2	PL1/2x13	A70950W	1-1		105-9	48		
x102p	2	L6x6x5/8	A70950W	6-8 5/16		162	648		
FB		FIELD BOLTS							
78F212	32	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				

GENERAL NOTES: SEE GN100

HOLES, 15/16 (U.N.)

CLEANING
AND PAINTING: SEE SHEET P100
AND P101

See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

△				
△				
△				
△				
△				
△	FOR APPROVAL	07/06/12	BR	EG
No	REVISION	DATE	PAR	VER

NOTE:	BOLT 1 WASHER:	1 WASHER UNDER NUT U.N.
	BOLT 2 WASHER:	1 WASHER UNDER HEAD U.N.
		1 WASHER UNDER HEAD U.N.



PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE CROSS FRAME AT WATERLINE

REFERENCE PROJECT NO. ER BHF 010-1 (44)

BR	DATE JULY 2012	CONTRACT NO UN04260
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CHECKED BY GG	DATE JULY 2012	DRAWING NO 109/
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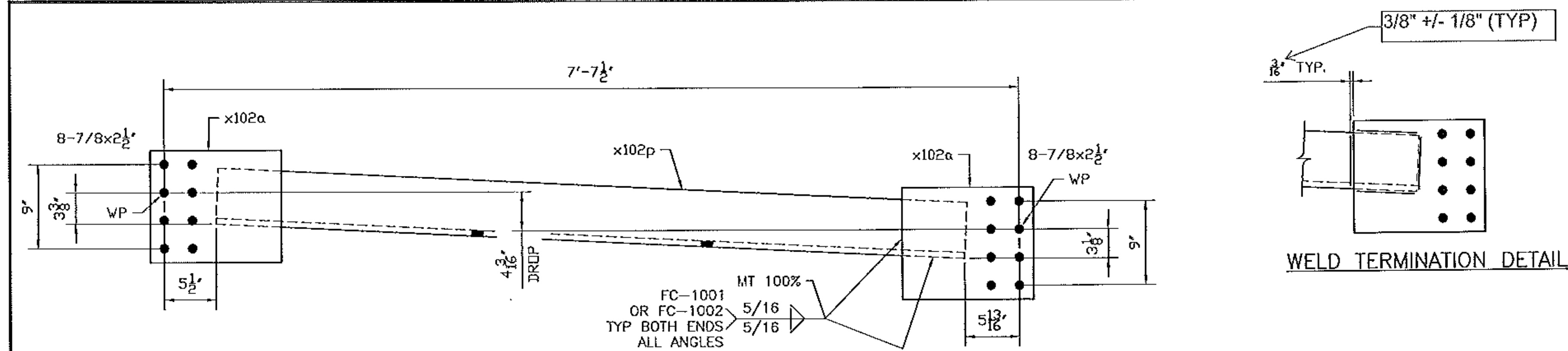
Vermont Agency of Transportation

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CK'D BY M.E.M OK'D BY C.W.M.

July 09, 2012

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012



5 - INTERMEDIATE SUPPORT 111CF1

GENERAL NOTES: SEE GN100
 HOLES: 15/16 (U.N.)
 CLEANING AND PAINTING: SEE SHEET P100 AND P101

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

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 BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
 1 WASHER UNDER HEAD U.N.



PROJECT: VT RT 9, BRIDGE NO. 11
 TOWN OF WOODFORD, VT
 OVER WALDOOMSAC RIVER

TITLE: INTERMEDIATE SUPPORT AT WATERLINE

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

BR	JULY 2012	UN04260
GG	JULY 2012	111 A

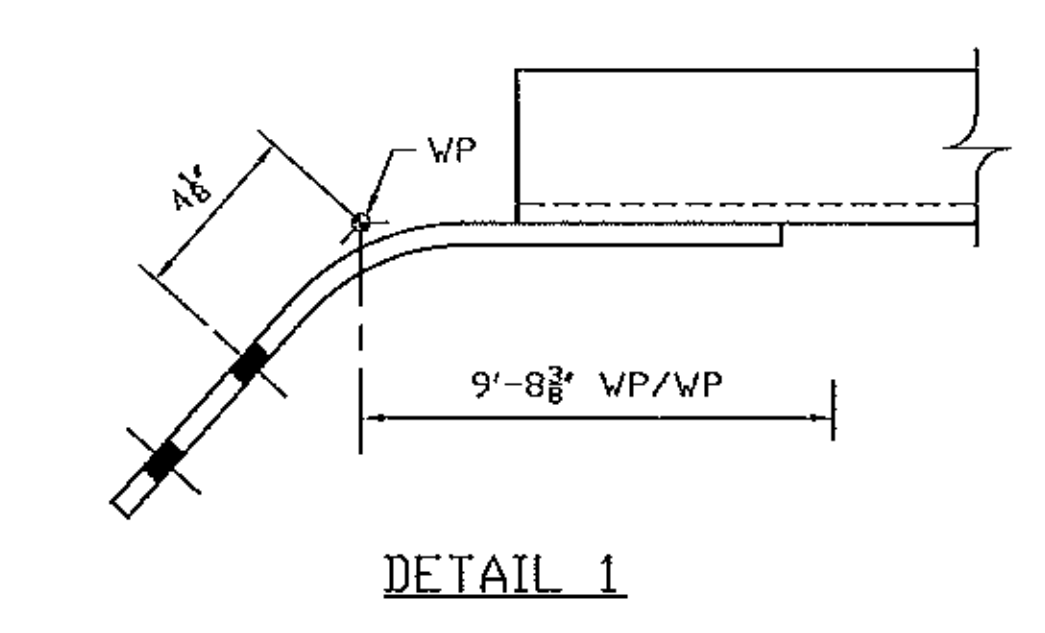
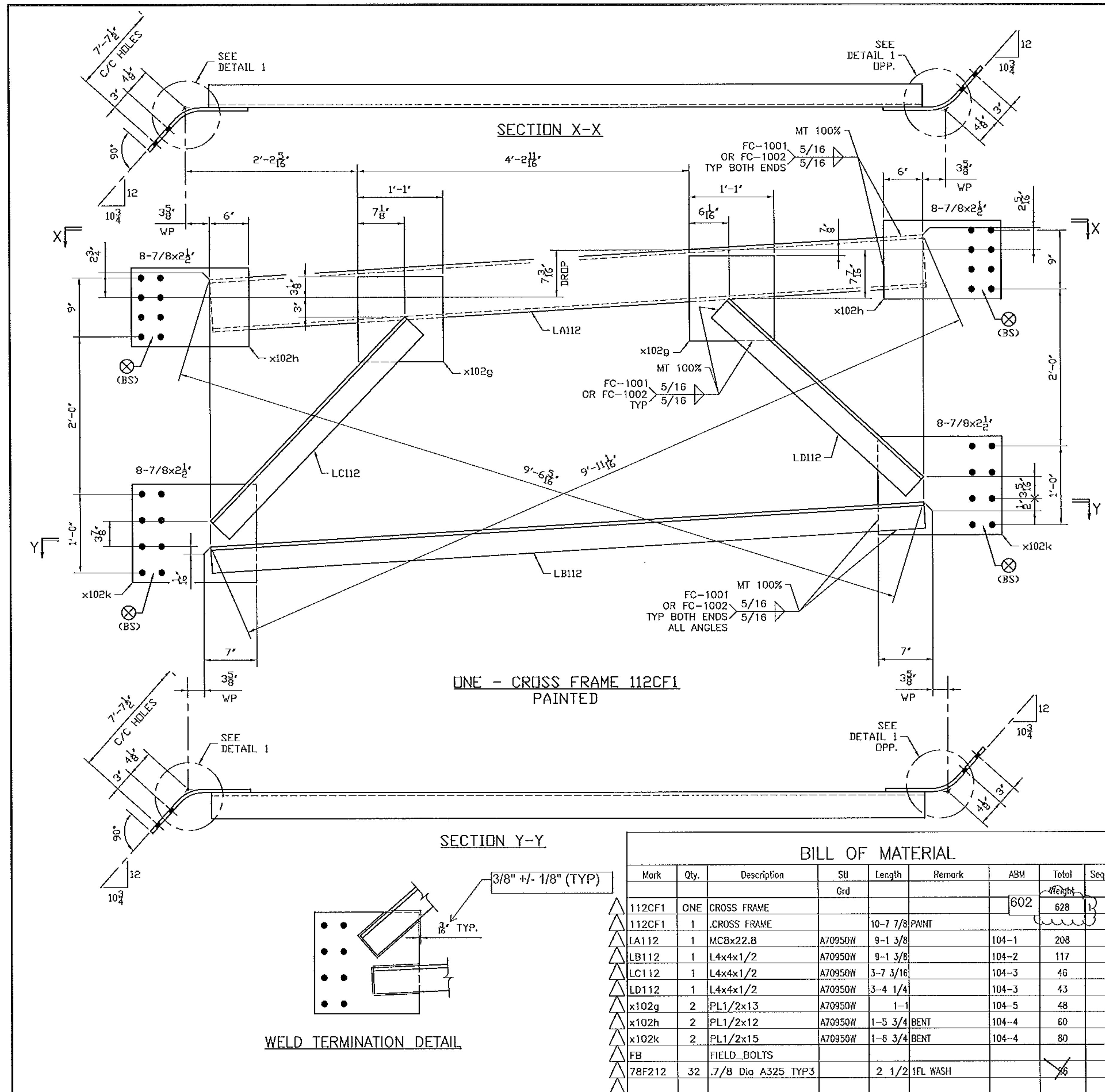
BILL OF MATERIAL									
Mark	Qty.	Description	SU	Length	Remark	ABM	Total Weight	Seq	Qty /Seq
111CF1	5	INTERMEDIATE SUPPORT	Grd			1048	1112	5	
111CF1	5	INTERMEDIATE SUPPORT		7-10 1/2					
x102a	10	PL1/2x12	A70950W	1-2		107-2	238		
x102p	5	L6x6x5/8	A70950W	6-8 5/16		107-1	810		
FB		FIELD BOLTS							
78F212	80	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				

Vermont Agency of Transportation
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July 09, 2012

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 BY C. CARLSON DATE 07-27-2012



GENERAL NOTES: SEE GN100
 HOLES: 15/16 (U.N.)
 CLEANING AND PAINTING: SEE SHEET P100 AND P101

See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

BILL OF MATERIAL

Mark	Qty.	Description	Stl	Length	Remark	ABM	Total Weight	Seq	Qty
112CF1	ONE	CROSS FRAME	Grd			602	628	1	1
112CF1	1	CROSS FRAME		10-7 7/8	PAINT				
LA112	1	MC8x22.8	A70950W	9-1 3/8		104-1	208		
LB112	1	L4x4x1/2	A70950W	9-1 3/8		104-2	117		
LC112	1	L4x4x1/2	A70950W	3-7 3/16		104-3	46		
LD112	1	L4x4x1/2	A70950W	3-4 1/4		104-3	43		
x102g	2	PL1/2x13	A70950W	1-1		104-5	48		
x102h	2	PL1/2x12	A70950W	1-5 3/4	BENT	104-4	60		
x102k	2	PL1/2x15	A70950W	1-6 3/4	BENT	104-4	80		
FB		FIELD BOLTS							
78F212	32	7/8 Dia A325 TYP3		2 1/2	1FL WASH				

Vermont Agency of Transportation
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 RESUBMIT APPROVED AS NOTED
 BY C. CARLSON DATE 07-27-2012

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
 BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
 1 WASHER UNDER HEAD U.N.

STRUCTAL Bridges
 386 River Road, Claremont, NH 03743
 Tel (603) 542-5202 Fax (603) 542-5312

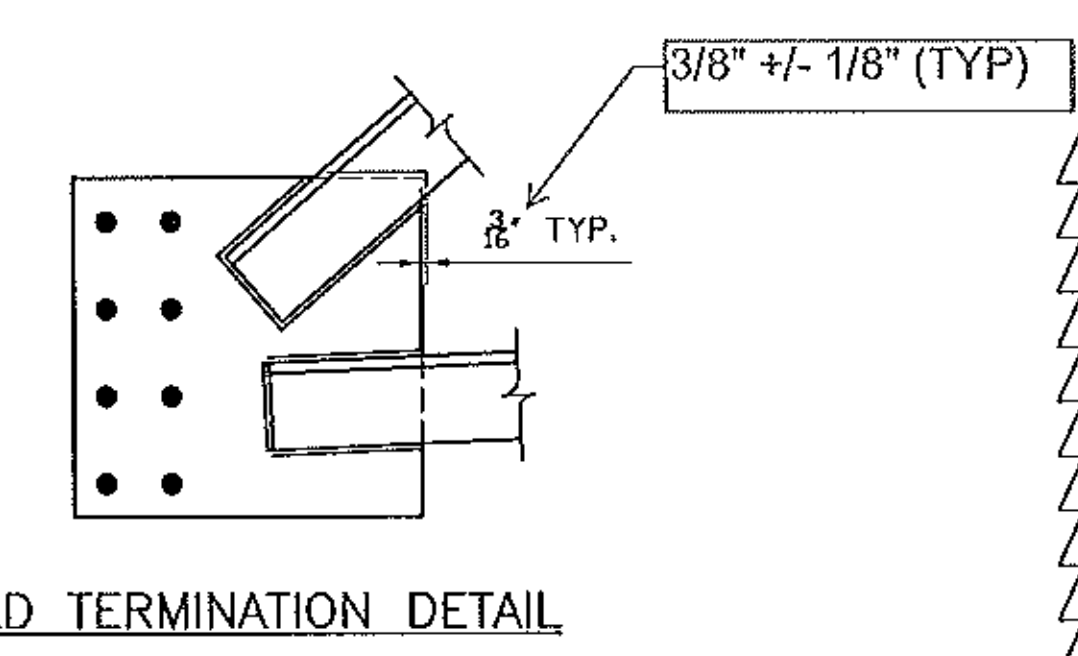
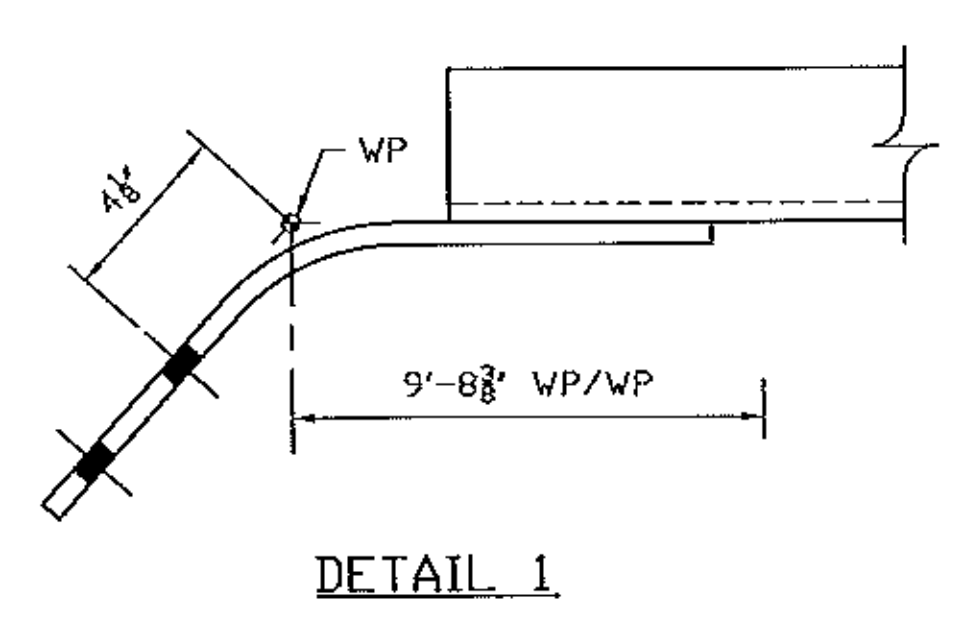
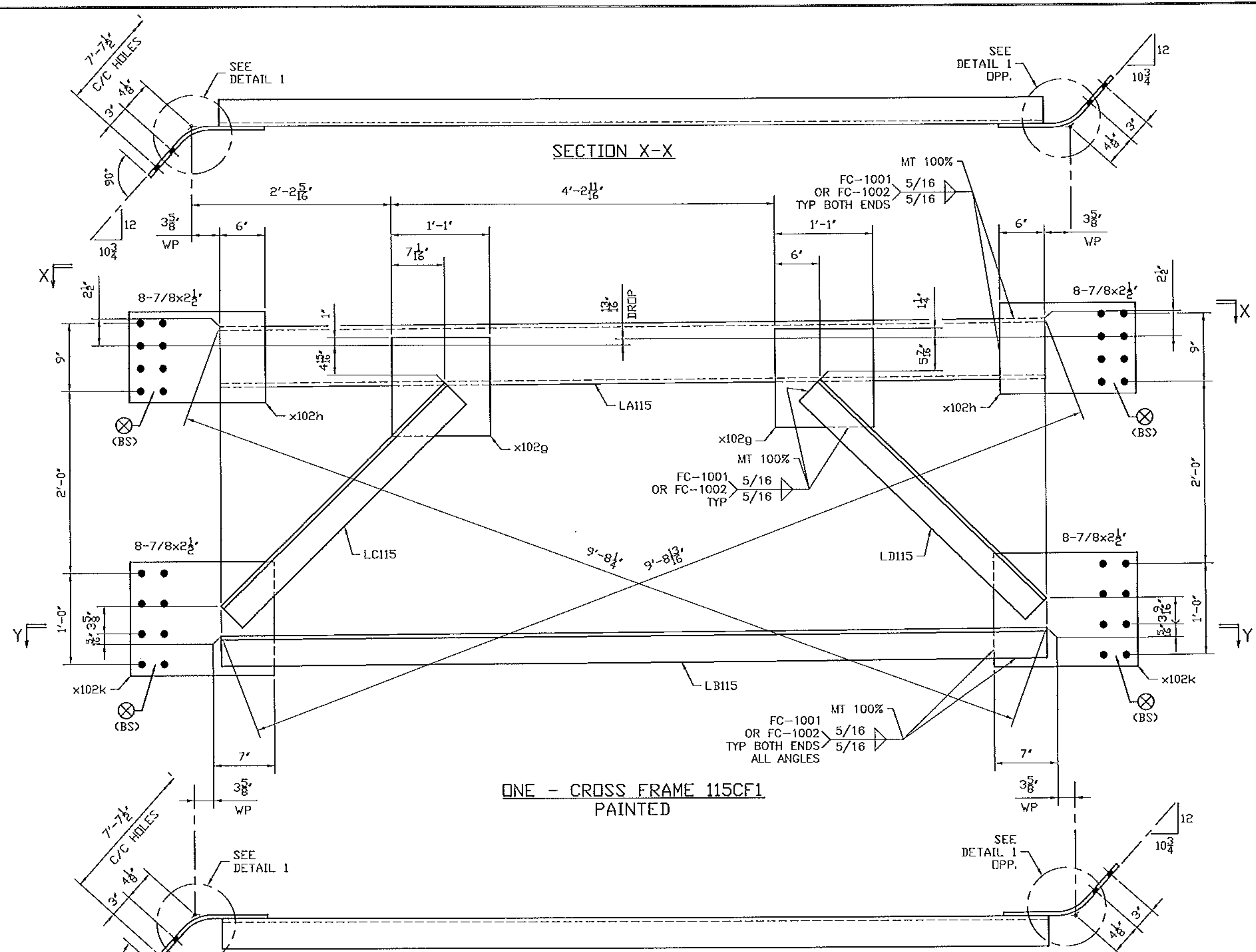
PROJECT: VT RT 9, BRIDGE NO. 11
 TOWN OF WOODFORD, VT
 OVER WALDOOMSAC RIVER

TITLE: ABUTMENT CROSS FRAME

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

REVISED BY	DATE	CONTRACT NO.	UN04260
GG	JULY 2012		

112/A



GENERAL NOTES: SEE GN100
 HOLES: 15/16 (UN.)
 CLEANING AND PAINTING: SEE SHEET P100 AND P101

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

See standard specification 506.24(a)(9), no payment will be made for bolts, nuts, washers, they are considered to be incidental

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
 BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
 1 WASHER UNDER HEAD U.N.

STRUCTAL Bridges
 386 River Road, Clarendon, NH 03743
 Tel: (603) 542-5202 Fax: (603) 542-5312
 a division of CANAM

PROJECT: VT RT 9, BRIDGE NO. 11
 TOWN OF WOODFORD, VT
 OVER WALDOOMSAC RIVER

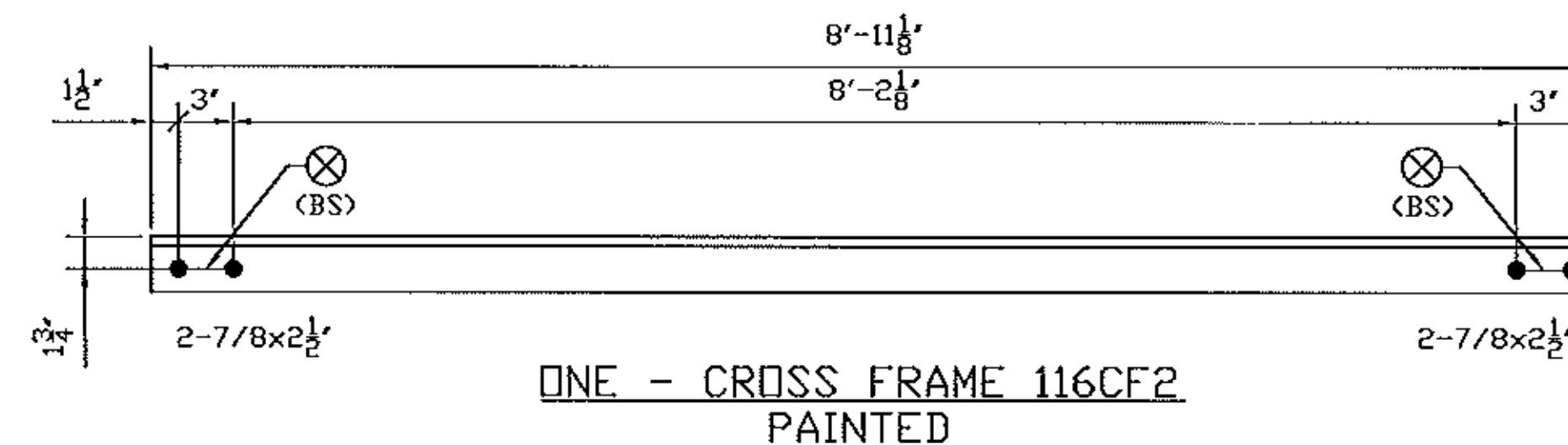
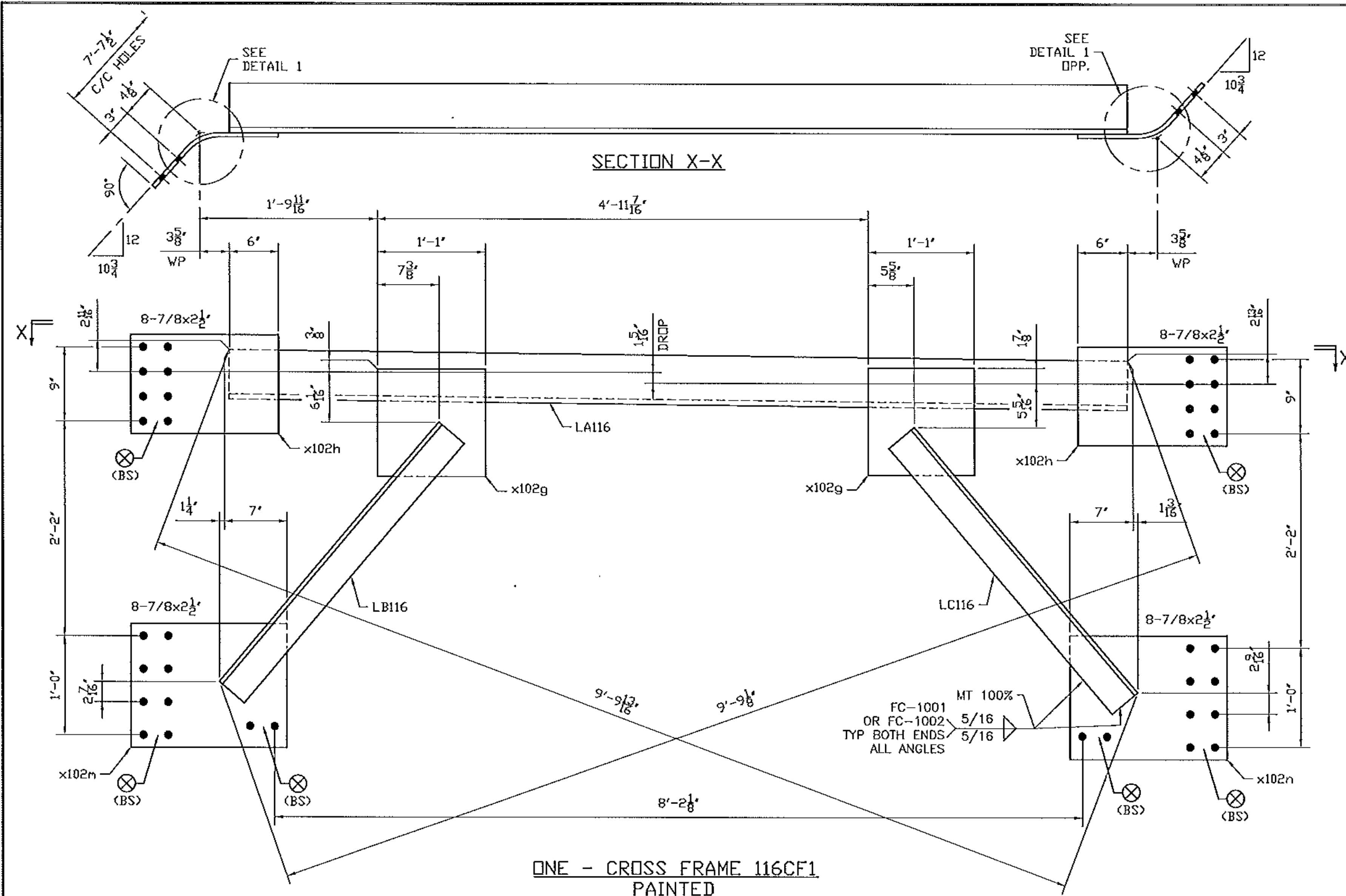
TITLE: ABUTMENT CROSS FRAME

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

BR	JULY 2012	UN04260
GG	JULY 2012	115

BILL OF MATERIAL									
Mark	Qty.	Description	SH	Length	Remark	ABM	Total	Seq	Qty
115CF1	ONE	CROSS FRAME	Grd			600	626	1	
115CF1	1	CROSS FRAME		10-7 7/8	PAINT				
LA115	1	MC8x22.8	A70950W	9-1 1/8		104-1	207		
LB115	1	L4x4x1/2	A70950W	9-1 1/8		104-2	116		
LC115	1	L4x4x1/2	A70950W	3-5 13/16		104-3	45		
LD115	1	L4x4x1/2	A70950W	3-5 1/2		104-3	44		
x102g	2	PL1/2x13	A70950W	1-1		104-5	48		
x102h	2	PL1/2x12	A70950W	1-5 3/4	BENT	104-4	60		
x102k	2	PL1/2x15	A70950W	1-6 3/4	BENT	104-4	80		
FB		FIELD BOLTS							
78F212	32	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				

Vermont Agency of Transportation
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 CK'D BY M.E.M. OK'D BY C.W.M.
 July 09, 2012
 RESUBMIT APPROVED AS NOTED
 BY C. CARLSON DATE 07-27-2012



GENERAL NOTES: SEE GN100
HOLES: 15/16 (U.N.)
CLEANING AND PAINTING: SEE SHEET P100 AND P101

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

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PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: ABUTMENT CROSS FRAME

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

BR	JULY 2012	UN04260
GG	JULY 2012	116 A

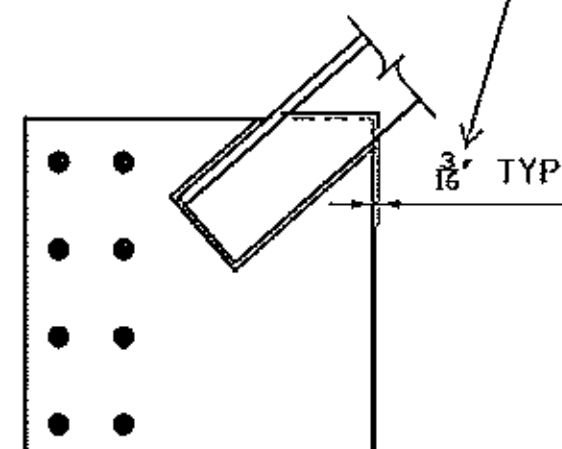
Vermont Agency of Transportation
RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

July 09, 2012

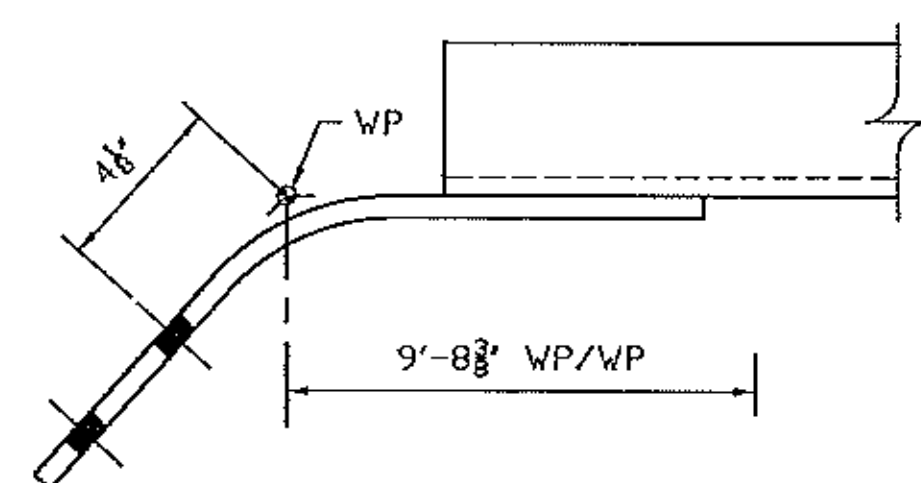
RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012

3/8" +/- 1/8" (TYP)

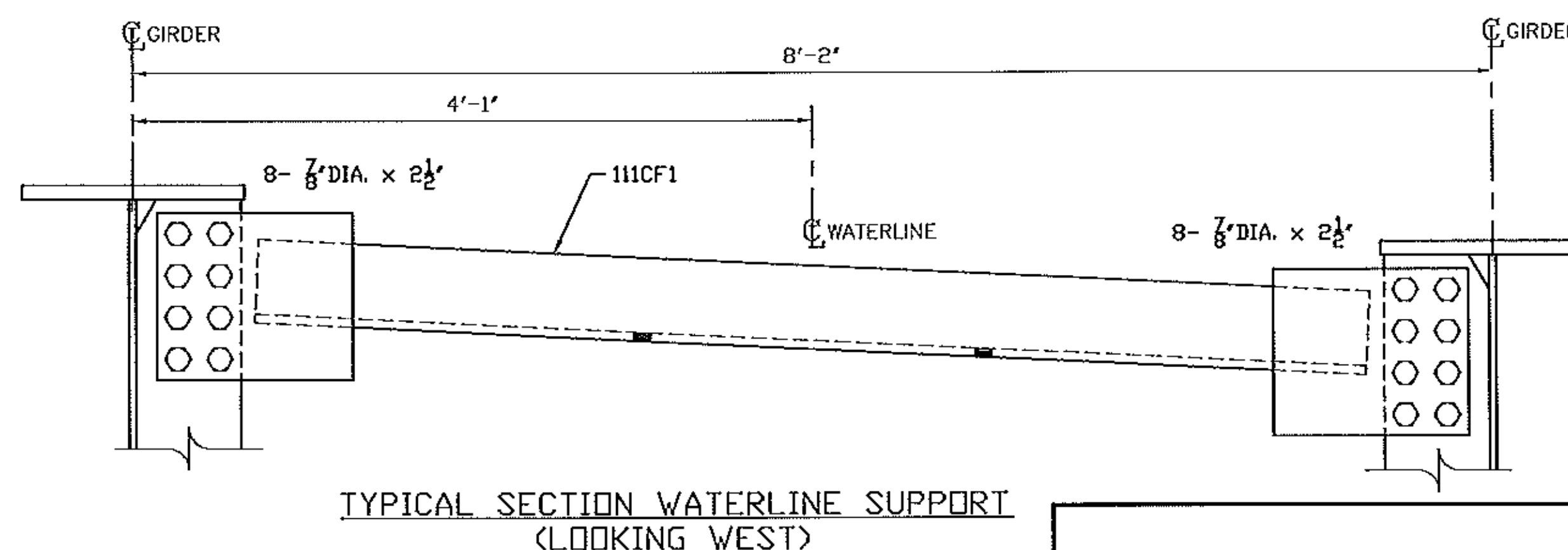
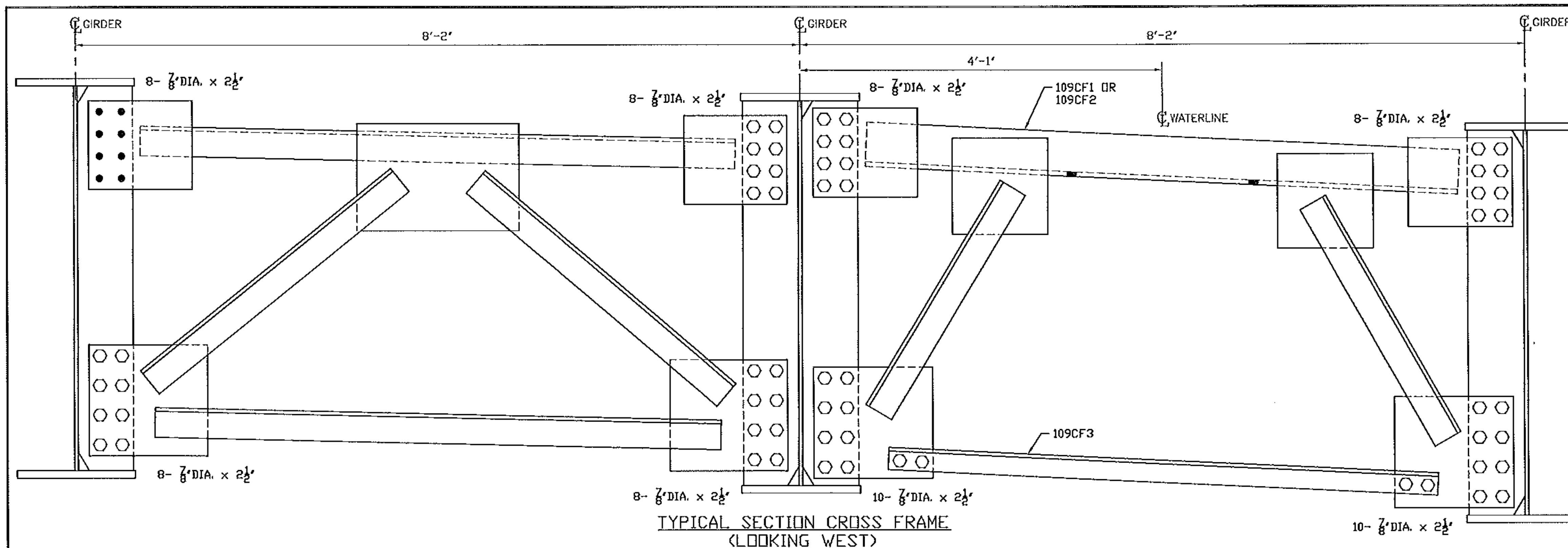


WELD TERMINATION DETAIL

Mark	Qty.	Description	SI	Length	Remark	ABM	Total	Seq	Qty
116CF1	ONE	CROSS FRAME				497	523	1	
116CF1	1	CROSS FRAME		10-7 7/8	PAINT				
LA116	1	L6x6x5/8	A70950W	9-1 1/8		103-1	220		
LB116	1	L4x4x1/2	A70950W	3-5 1/4		103-3	44		
LC116	1	L4x4x1/2	A70950W	3-6 1/16		103-3	45		
x102g	2	PL1/2x13	A70950W	1-1		103-5	48		
x102h	2	PL1/2x12	A70950W	1-5 3/4	BENT	103-4	60		
x102m	1	PL1/2x15	A70950W	1-6 3/4	BENT	103-4	40		
x102n	1	PL1/2x15	A70950W	1-6 3/4	BENT	103-4	40		
FB		FIELD BOLTS							
78F212	32	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				
116CF2	1	CROSS FRAME				84	87	1	
116CF2	1	L3x3x1/2	A70950W	8-11 1/8	PAINT	103-2	84		
FB		FIELD BOLTS							
78F212	4	.7/8 Dia A325 TYP3		2 1/2	1FL WASH				



DETAIL 2



*** THIS DRAWING IS TO BE USED FOR MARKS AND BOLTS ONLY AND MUST BE READ IN CONJUNCTION WITH THE CONTRACT DRAWINGS SPECIFICATIONS AND SPECIAL PROVISIONS. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION SEQUENCING OR AS AN ERECTION PROCEDURE.

Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

July 09, 2012

RESUBMIT
BY C. CARLSON

APPROVED ✓
DATE 07-27-2012

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

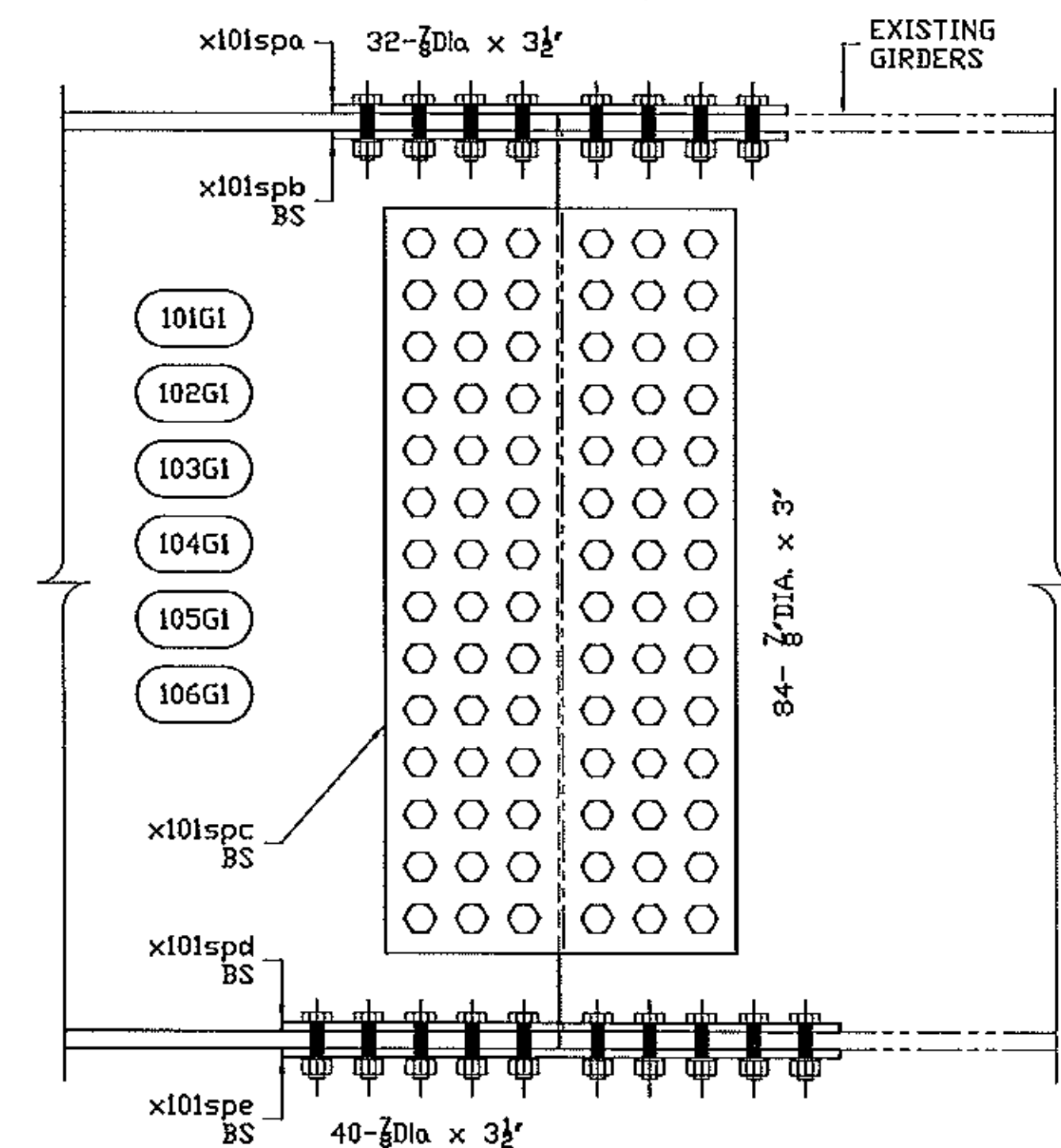


PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: ERECTION PLAN CROSS FRAME

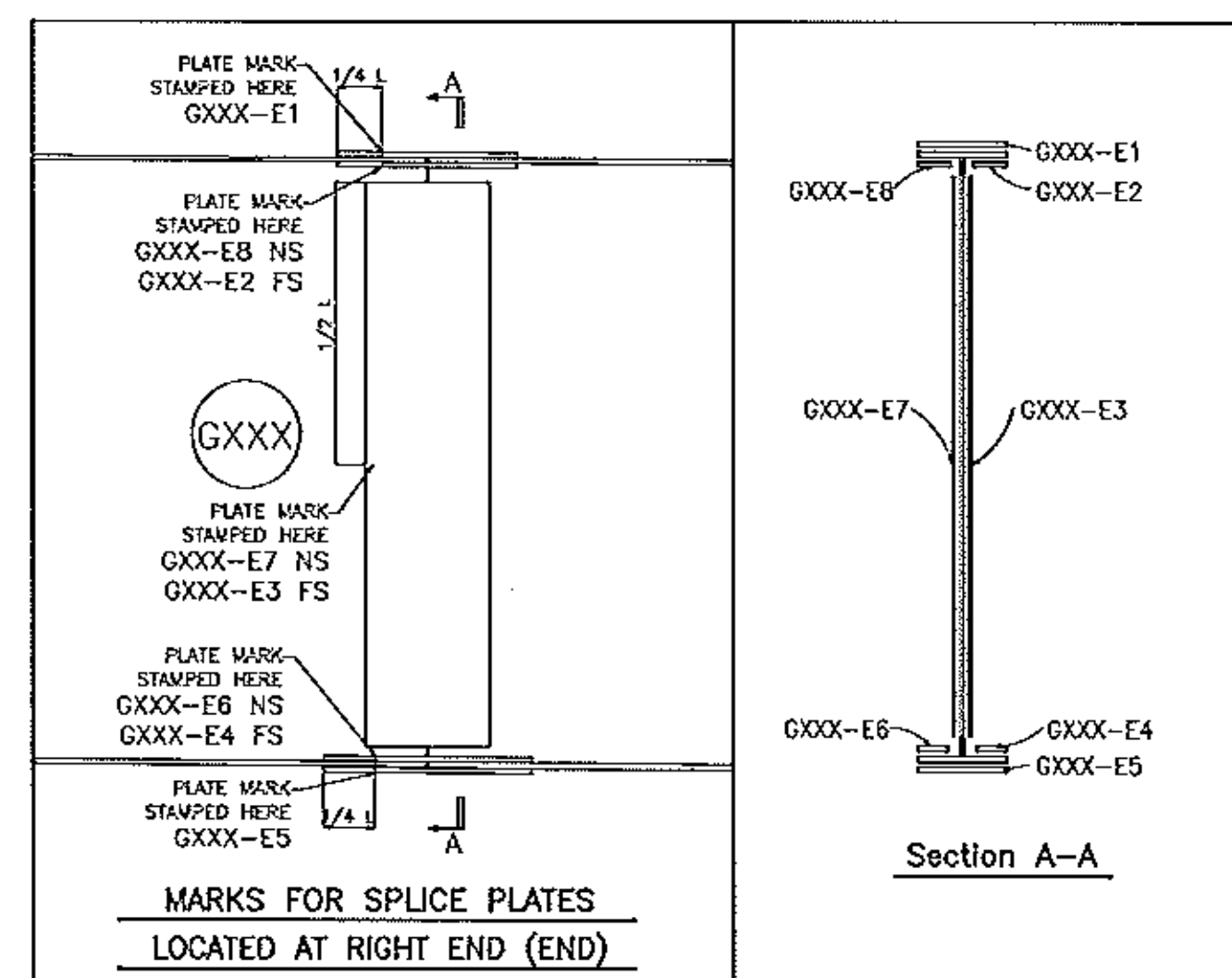
REFERENCE: PROJECT NO. ER BHF 010-1 (44)

DATE	BR	DATE	JULY 2012	CONTRACT NO.	UN04260
CHECKED BY	GG	DATE	JULY 2012	REVISION	E102 A



NOTE: FOR BOLTS ORIENTATION
SEE GN100

*** THIS DRAWING IS TO BE USED FOR MARKS AND BOLTS ONLY AND MUST BE READ IN CONJUNCTION WITH THE CONTRACT DRAWINGS SPECIFICATIONS AND SPECIAL PROVISIONS. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION SEQUENCING OR AS AN ERECTION PROCEDURE.



Vermont Agency of Transportation
RECEIVED
CK'D BY M.E.M. OK'D BY C.W.M.
July 09, 2012
RESUBMIT APPROVED ✓
BY C. CARLSON DATE 07-27-2012

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

STRUCTAL
Bridges
386 River Road, Claremont,
NH 03743
Tel: (603) 542-5202 Fax: (603) 542-5312
a division of **CANAM**

PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: ERECTION PLAN FIELD SPLICE

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

REVISED BY	BR	DATE	JULY 2012	CONTRACT NO.	UN04260
DESIGNED BY	GG	DATE	JULY 2012	REVISED BY	E103/A

1 CONSTRUCTION SPECIFICATIONS:

2 MATERIAL SPECIFICATIONS:

TYPE 3 SHALL BE USED FOR UNPAINTED CONNECTIONS.
TYPE 1 (GALV.) SHALL BE USED FOR PAINTED CONNECTIONS.

3. FABRICATION:

MILL TO BEAR. 100% OF THE PROJECTED BEARING AREA SHALL BE IN FULL CONTACT.

4 WELDING:

NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.

5 CLEANING:

ALL STEEL THAT WILL BE PAINTED SHALL BE BLAST CLEANED AS PER SSPC SP-6
PER SPEC. 513.04(a)

6 PAINT:

7 FIELD CONNECTIONS:

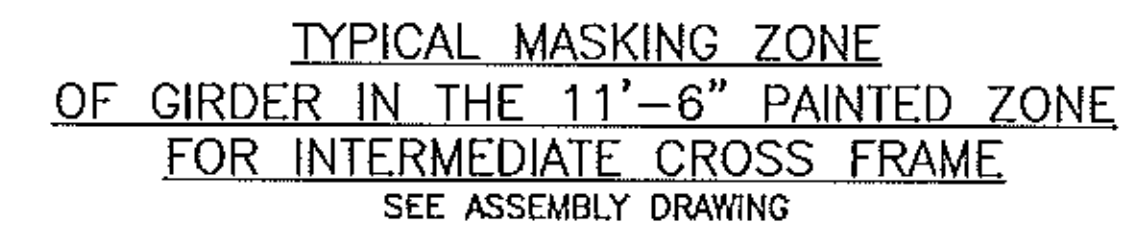
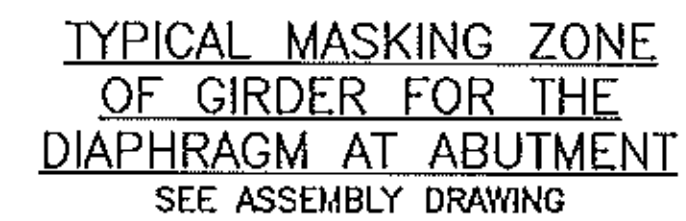
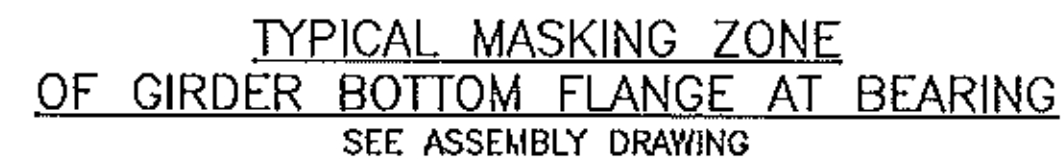
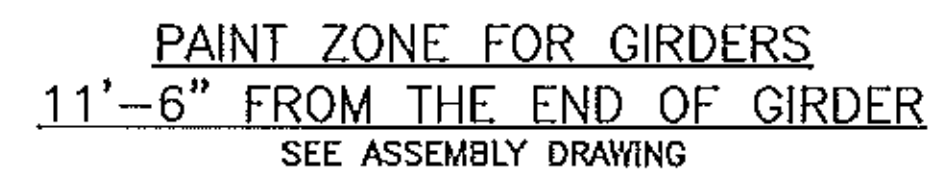
BOLTS INSTALLED WITH THE STEM VERTICAL SHALL HAVE THE HEADS UP.
BOLTS INSTALLED WITH THE STEM HORIZONTAL SHALL HAVE THE HEADS TOWARDS THE WEATHER UNLESS
CLEARANCE RESTRICTIONS DICTATE OTHERWISE.



△				
△				
△				
△				
△				
△	FOR APPROVAL	07/06/12	BR	EG
No	REVISION	DATE	PAR	VER.

BRNN IS	EG	DATE	JULY 2012	CONTACT NO	UN04260
CHNCR IS	BR	DATE	JULY 2012	BRVING NO	GN100 

RESUBMIT _____ APPROVED ☒
BY C. CARLSON DATE 07-27-2012



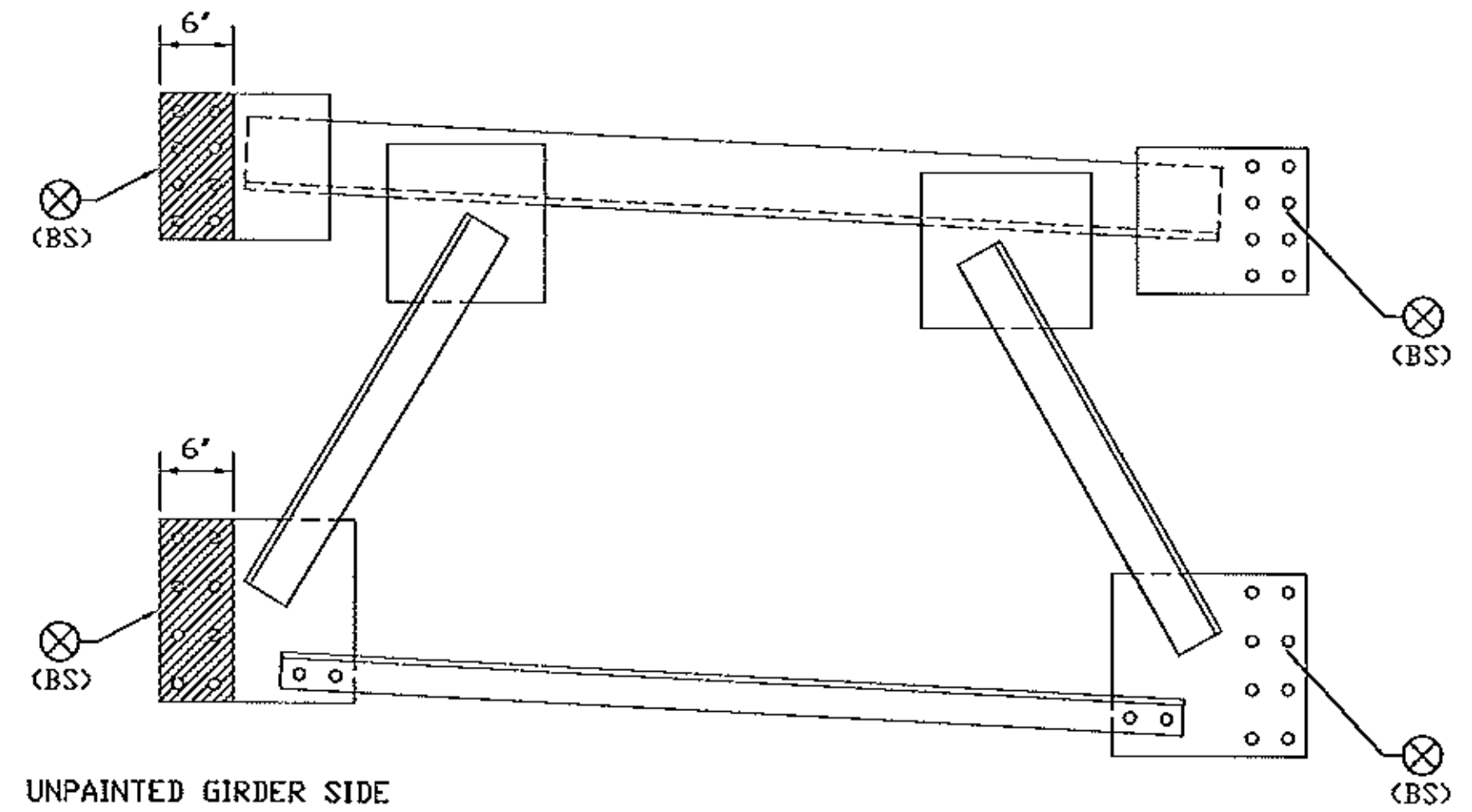
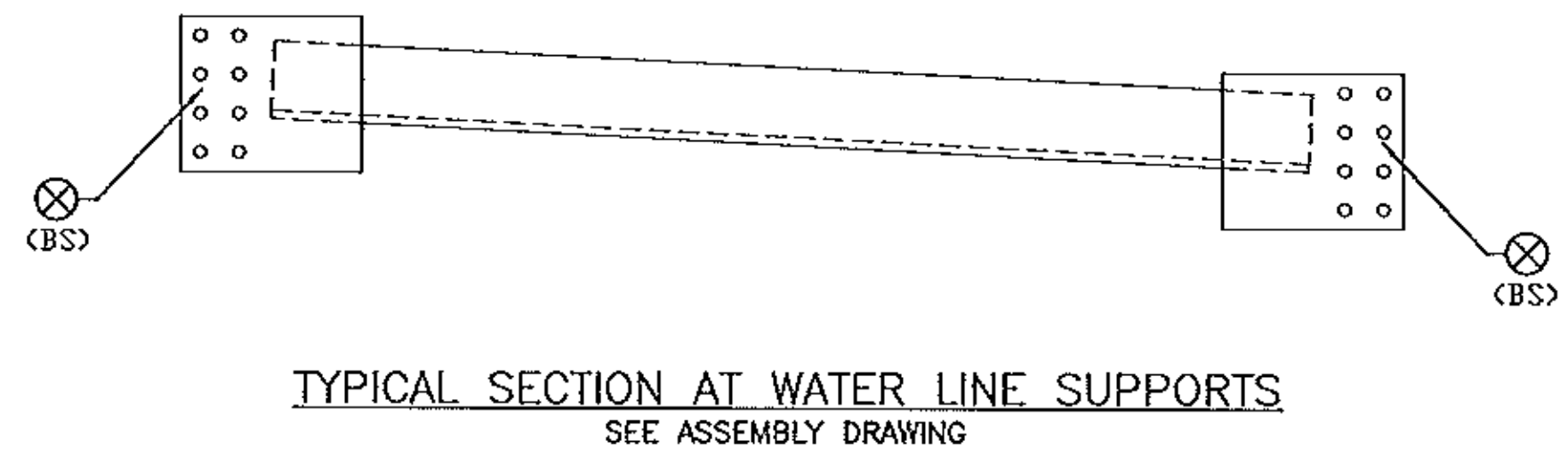
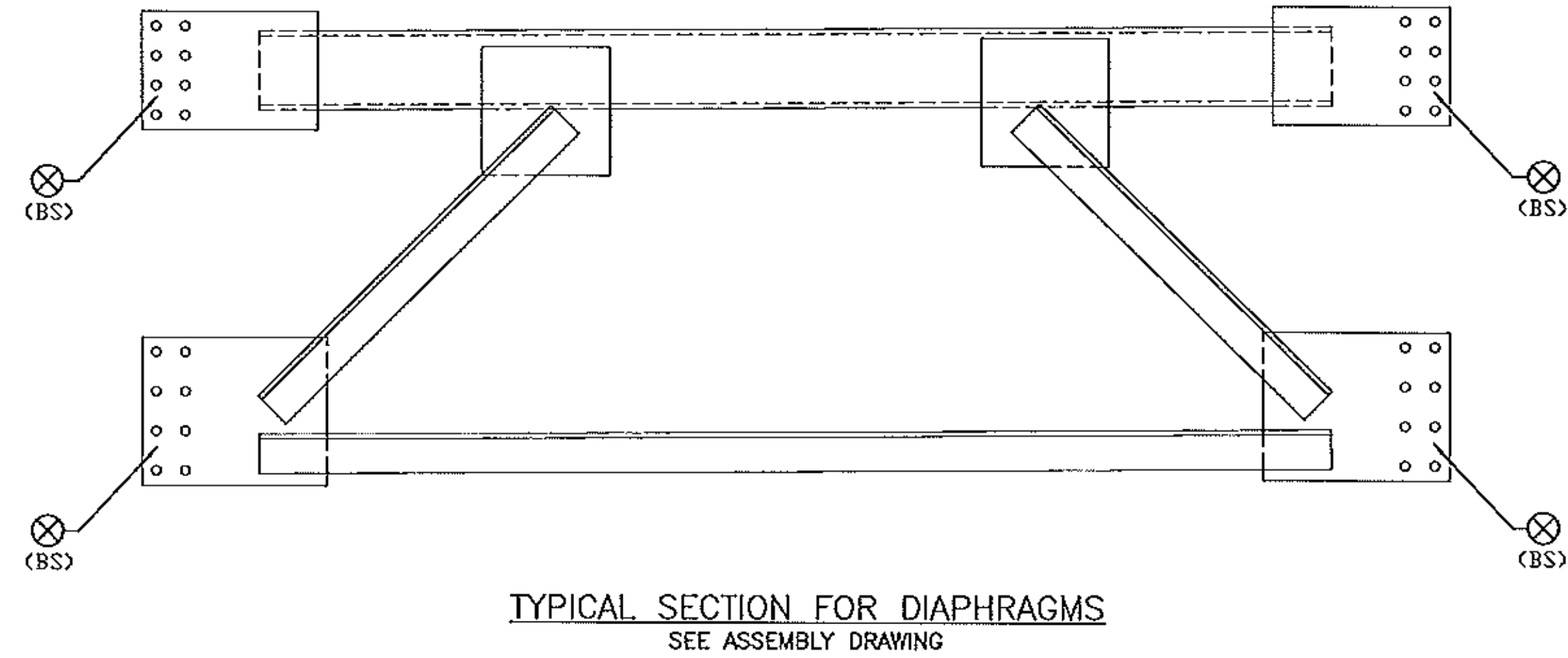
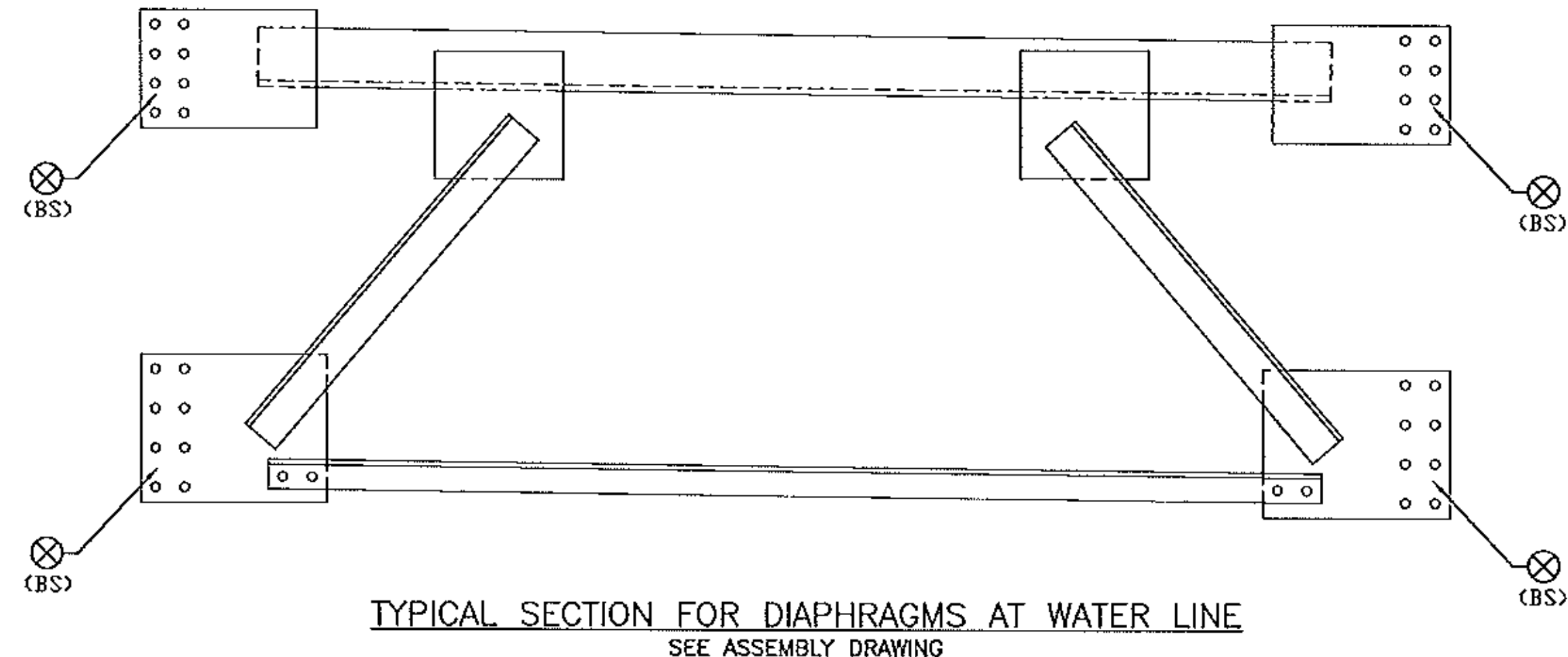
(BS)

COATING SYSTEM SEE P100 AND P101

-TOP COAT COLOR: FEDERAL STANDARD 595 COLOR NO. 20059 BROWN.

BUYER ID: EG	DATE: JULY 2012	CONTRACT NO: UN04260
CHECKER ID: GG	DATE: JULY 2012	ISSUING NO: P100 

RESUBMIT _____ APPROVED ☒
BY C. CARLSON _____ DATE 07-27-2012



GENERAL NOTES: SEE GN100
 HOLES: 15/16 (U.N.)
 COATING SYSTEM: SEE P100 AND P101

PRIMER ONLY, NO PAINT
 BOTH SIDES 75 mm DIA AROUND HOLE
 WHERE NOTED WITH THIS SYMBOL

Vermont Agency of Transportation
RECEIVED
 CK'D BY M.E.M. OK'D BY C.W.M.
 July 09, 2012
 RESUBMIT APPROVED ✓
 BY C. CARLSON DATE 07-27-2012

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
 BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
 1 WASHER UNDER HEAD U.N.

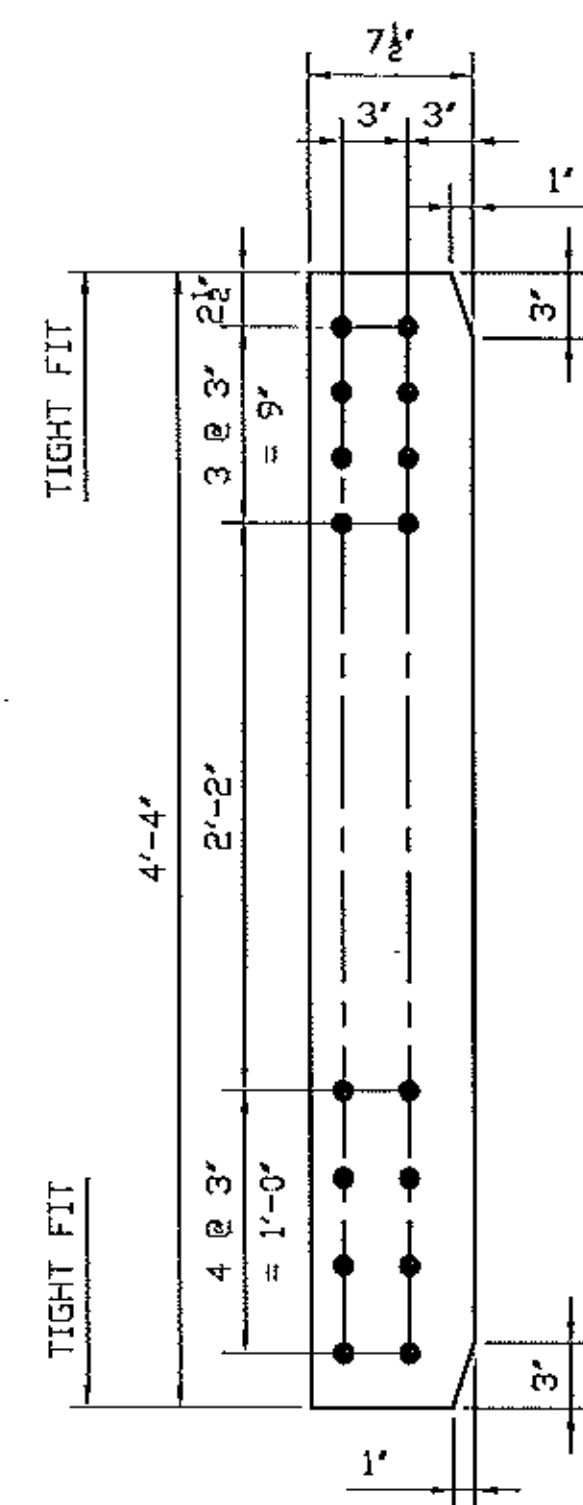
STRUCTAL
 Bridges
 386 River Road, Claremont,
 NH 03743
 Tel: (603) 542-5202 Fax: (603) 542-5312
 a division of **CANAM**

PROJECT: VT RT 9, BRIDGE NO. 11
 TOWN OF WOODFORD, VT
 OVER WALDOOMSAC RIVER

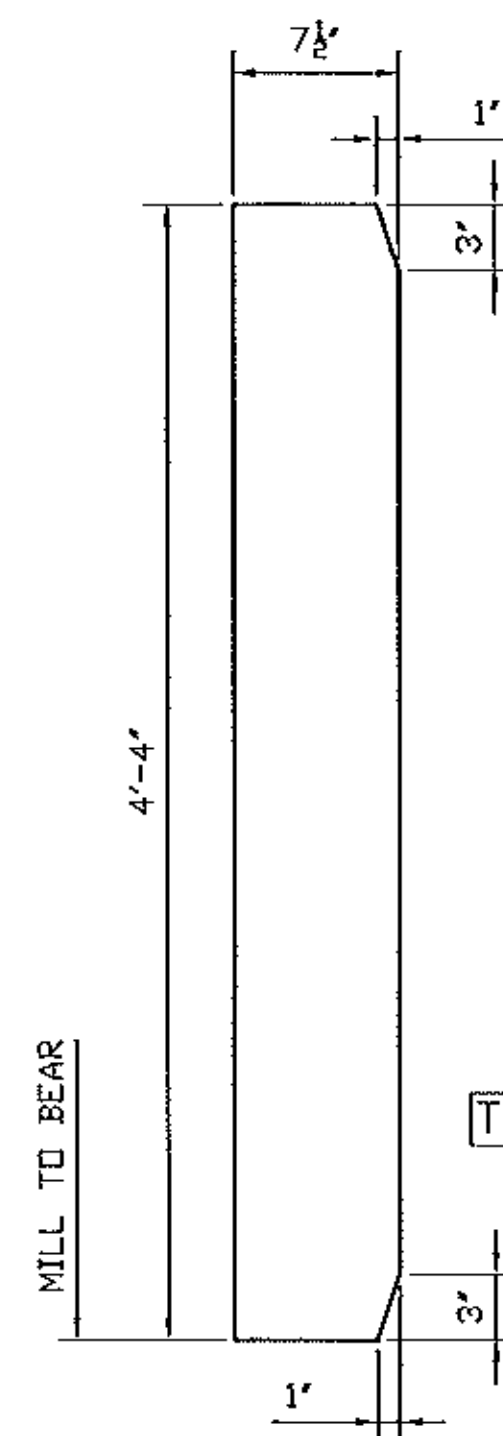
TITLE: PAINT NOTES

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

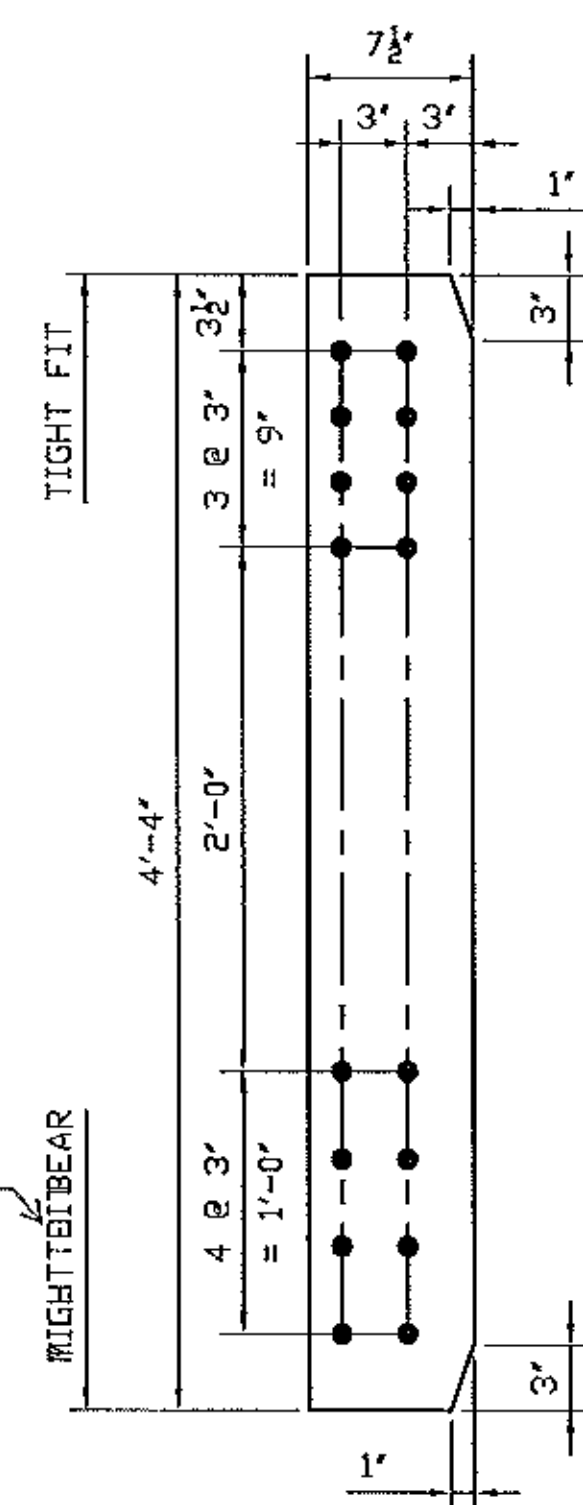
NO. 10	EG	DATE	JULY 2012	CONTRACT NO.	UN04260
DESIGNED BY	GG	DATE	JULY 2012	REVISION	P101



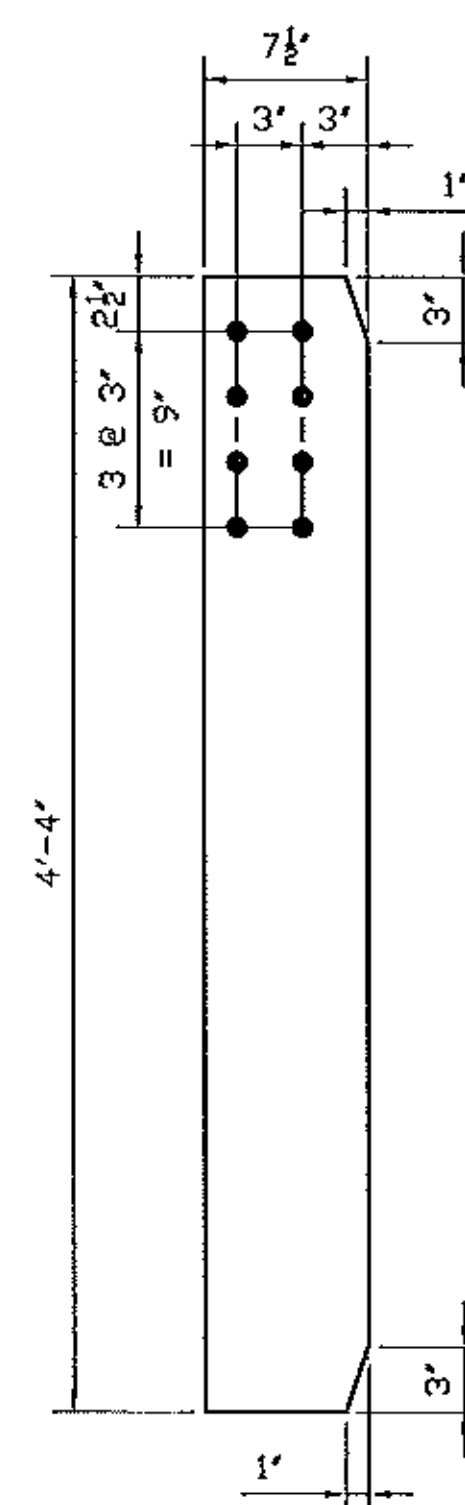
PL1/2x7 1/2x4-4 - x101a



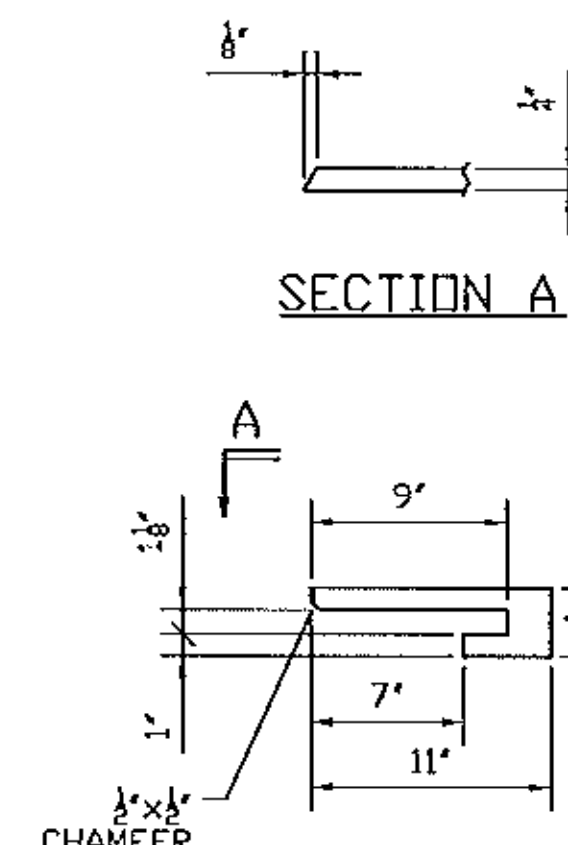
PL7/8x7 1/2x4-4 - x101b



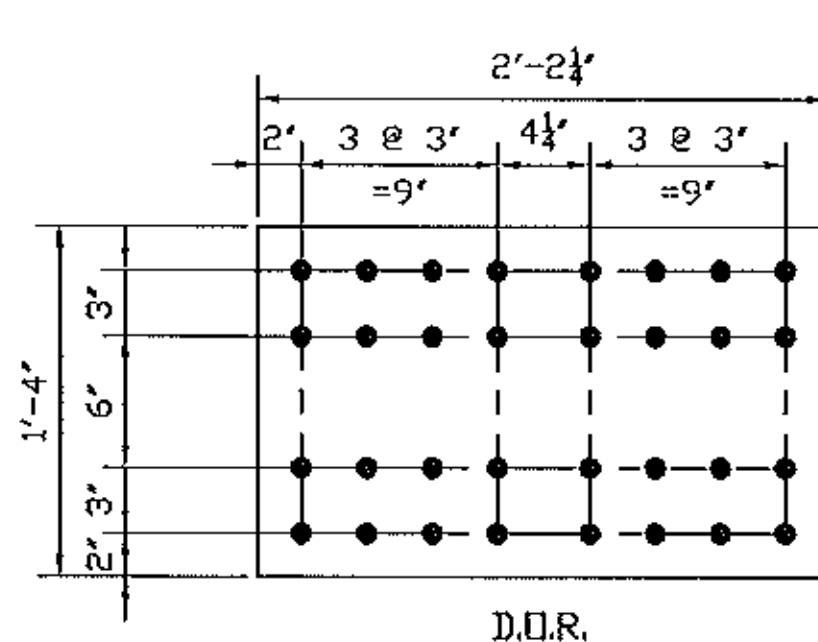
PL1/2x7 1/2x4-4 - x101c



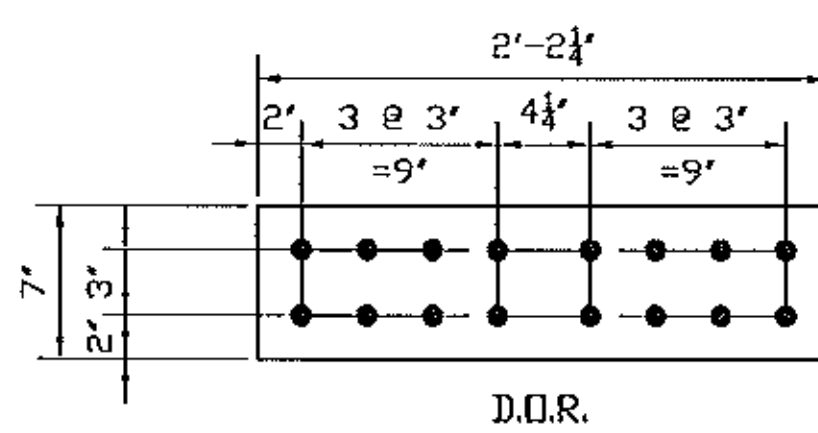
PL1/2x7 1/2x4-4 - x101d



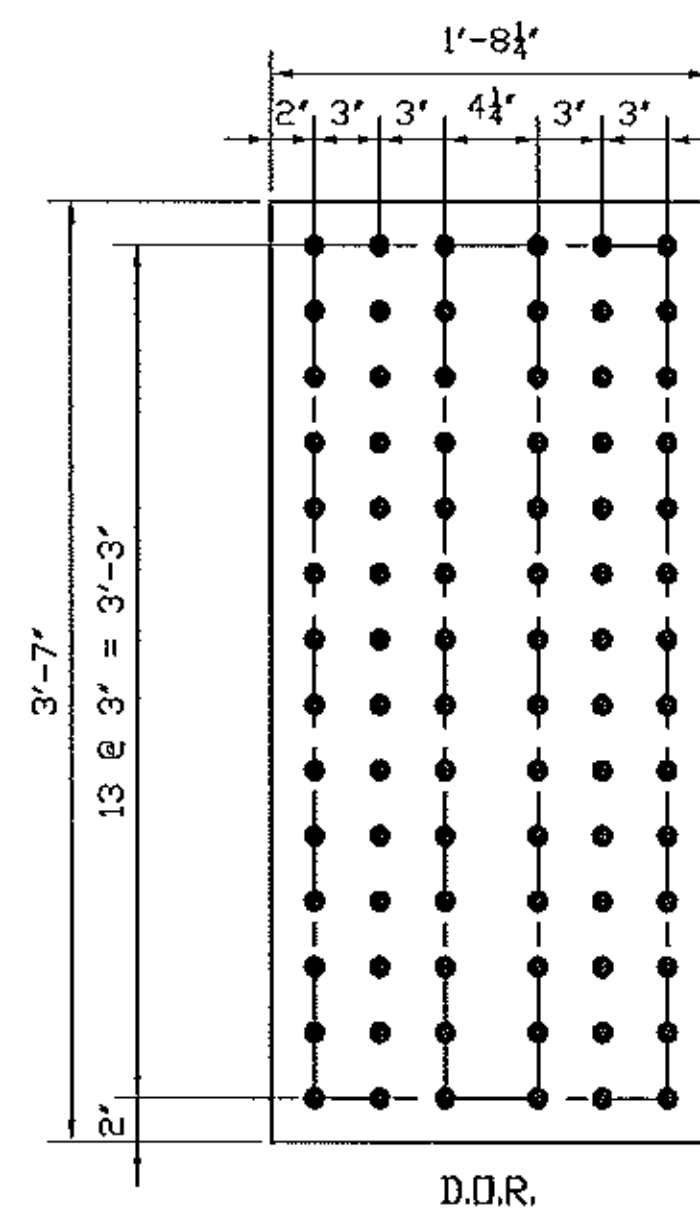
PL1/4x3 1/8x11 - x101e



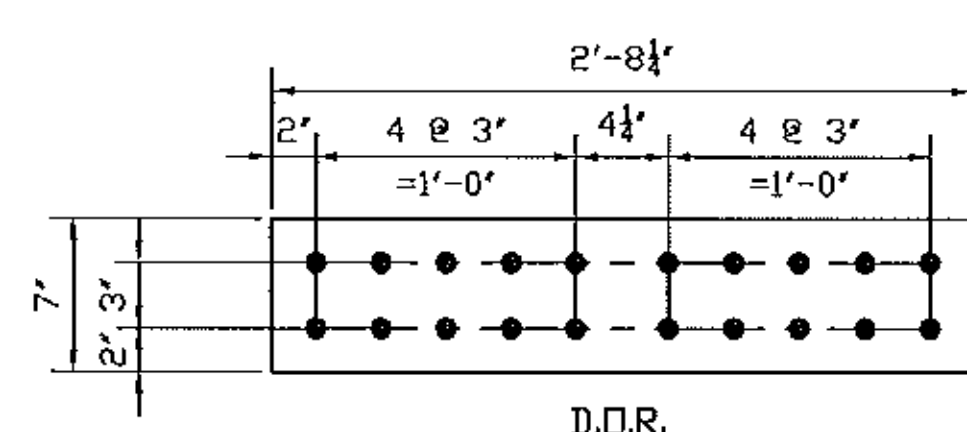
PL1/2x16x2-2 1/4 - x101spa



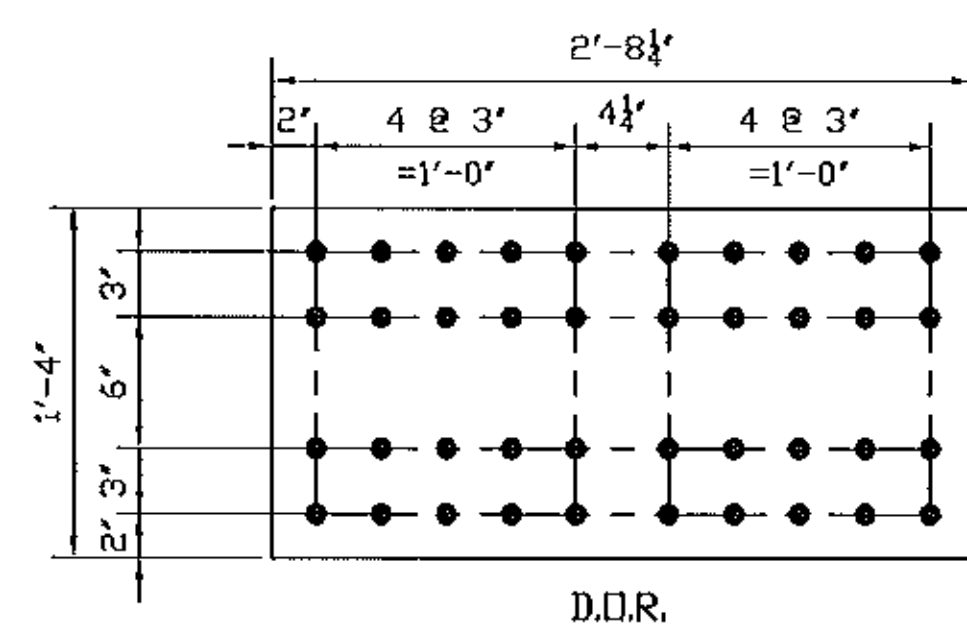
PL1/2x7x2-2 1/4 - x101spb



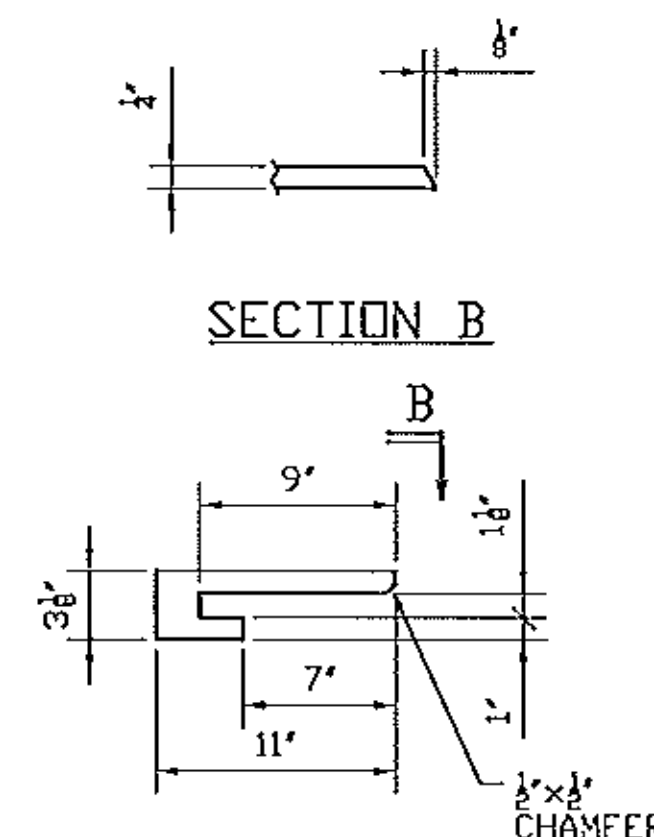
PL1/2x43x1-8 1/4 - x101spc



PL1/2x7x2-8 1/4 - x101spd



PL1/2x16x2-8 1/4 - x101spe



PL1/4x3 1/8x11 - x101k

GENERAL NOTES: SEE GN100

HOLES: 15/16 (U.N.)

CLEANING AND PAINTING: SEE SHEET P100 AND P101

Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

July 09, 2012

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 07-27-2012

FOR APPROVAL	07/06/12	BR	EG
REVISION	DATE	PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.

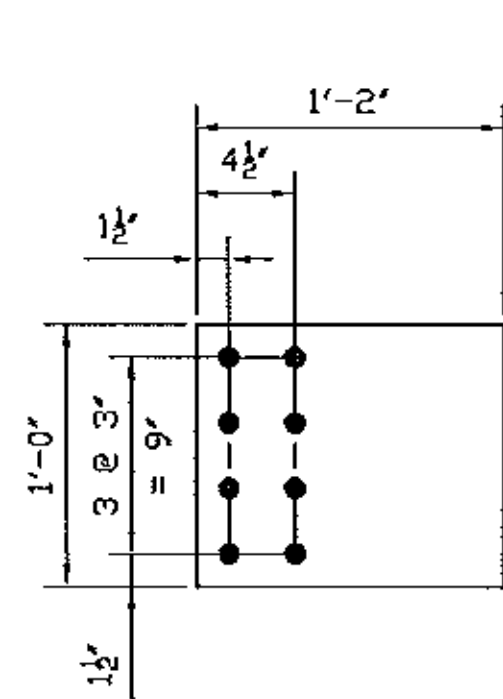


PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

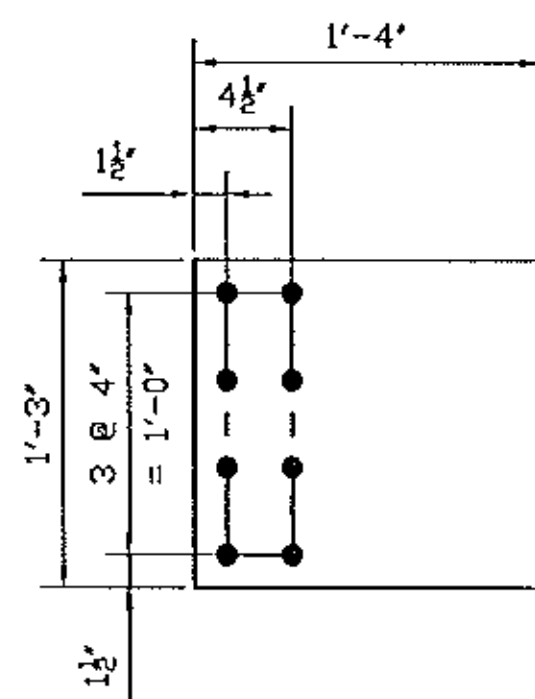
TITLE: GIRDER DETAILS

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

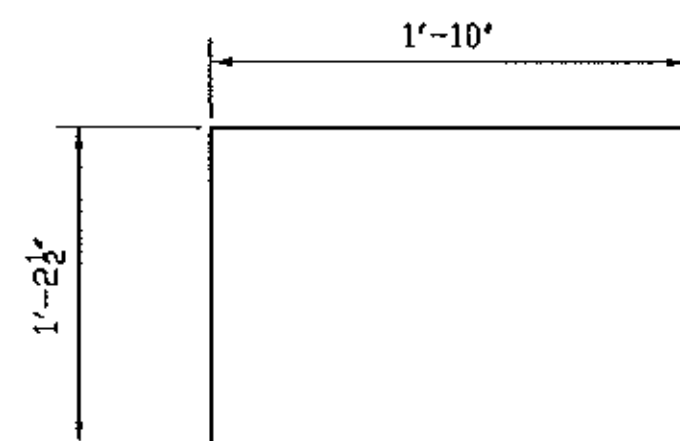
DESIGNED BY	BR	DRAWN BY	JULY 2012	CONTRACT NO.	UN04260
CHECKED BY	GG	DATE	JULY 2012	REVISED	X101/A



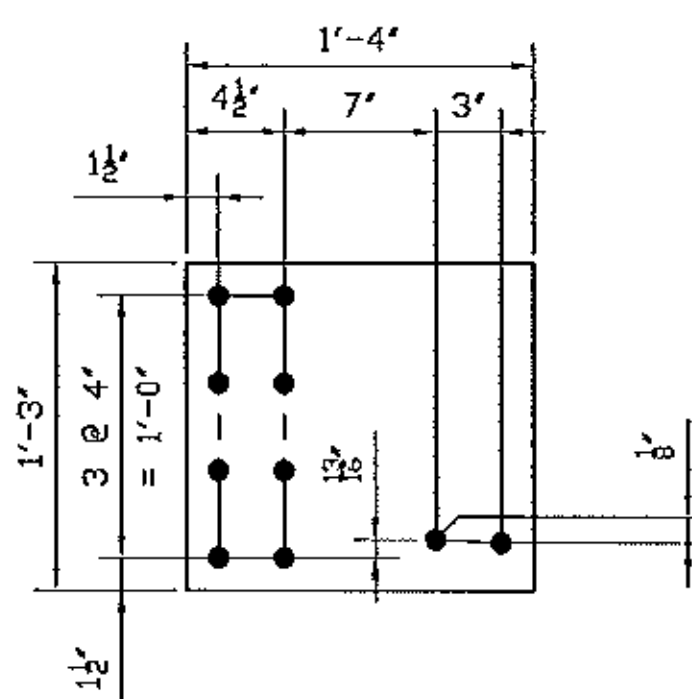
PL1/2x12x1-2 - x102a



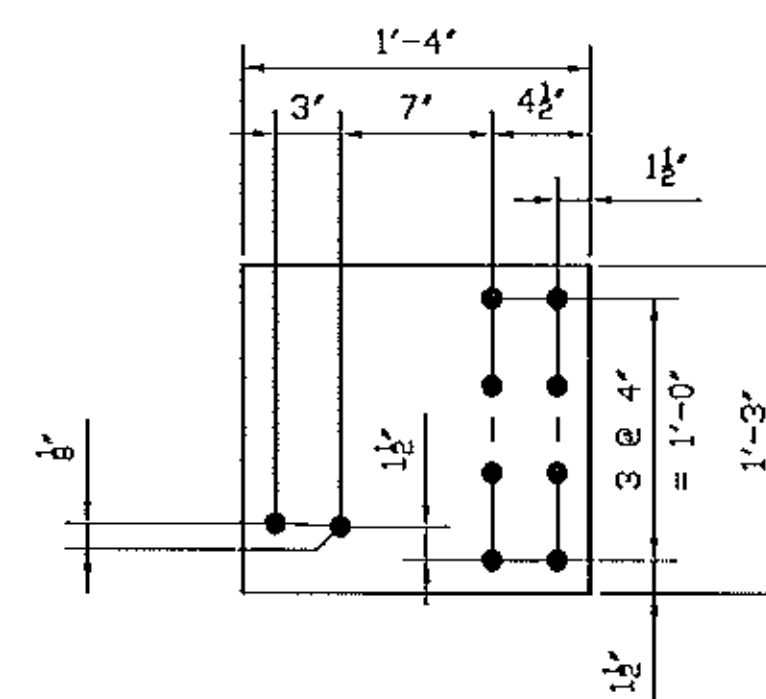
PL1/2x15x1-4 - x102b



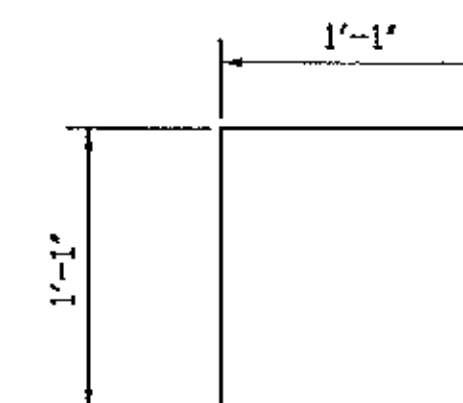
PL1/2x14 1/2x1-10 - x102c



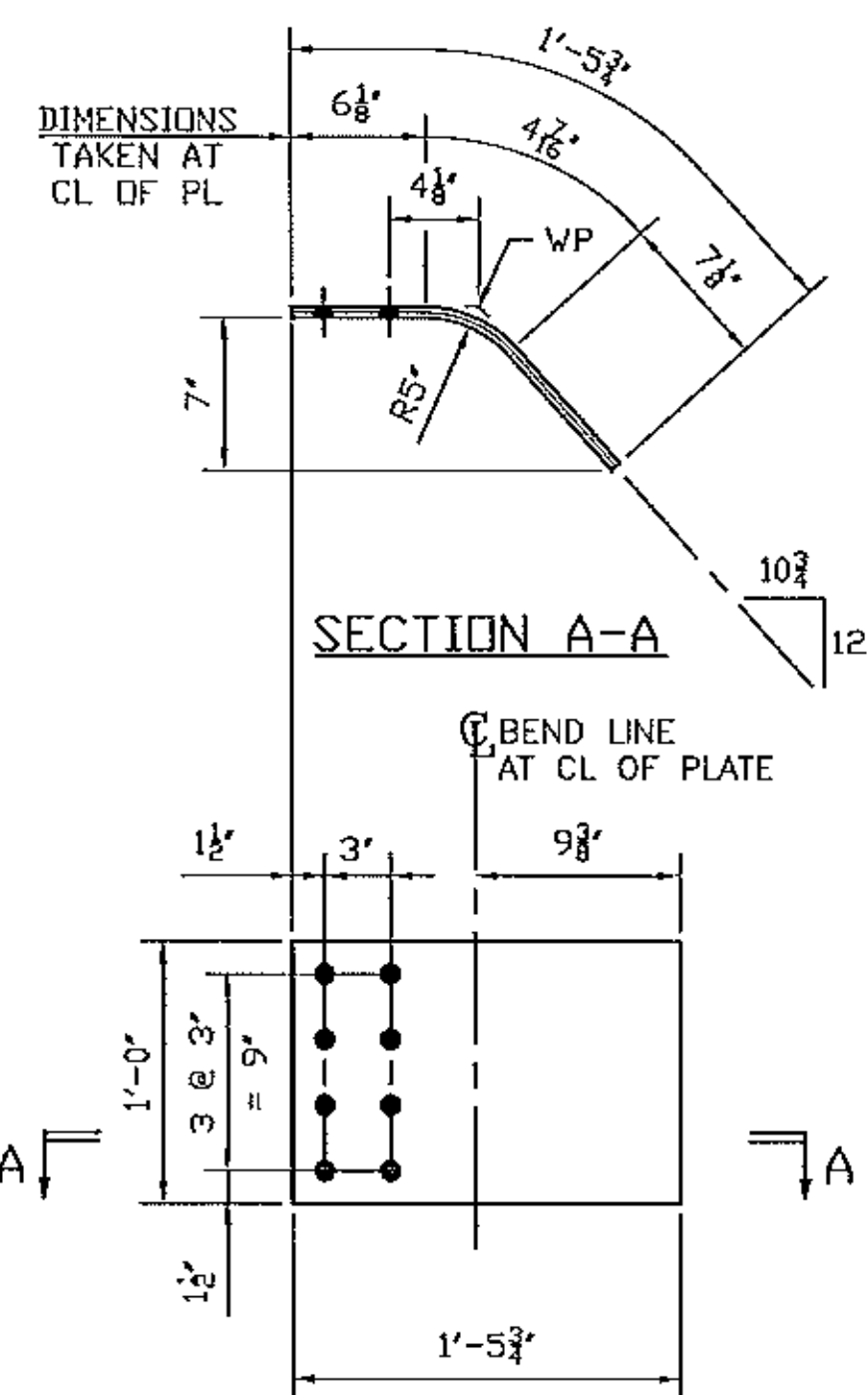
PL1/2x15x1-4 - x102d



PL1/2x15x1-4 - x102e

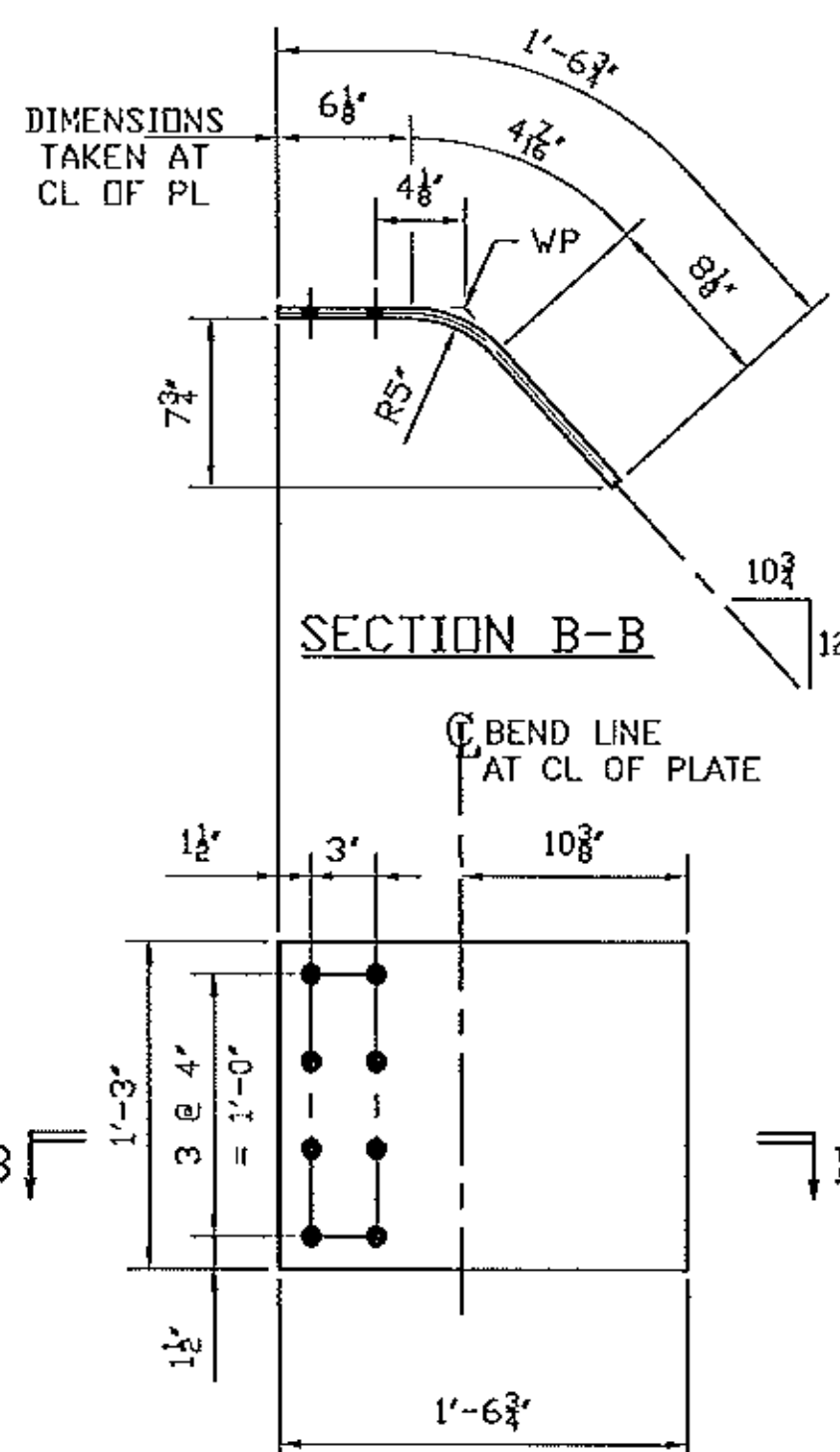


PL1/2x13x1-1 - x102g



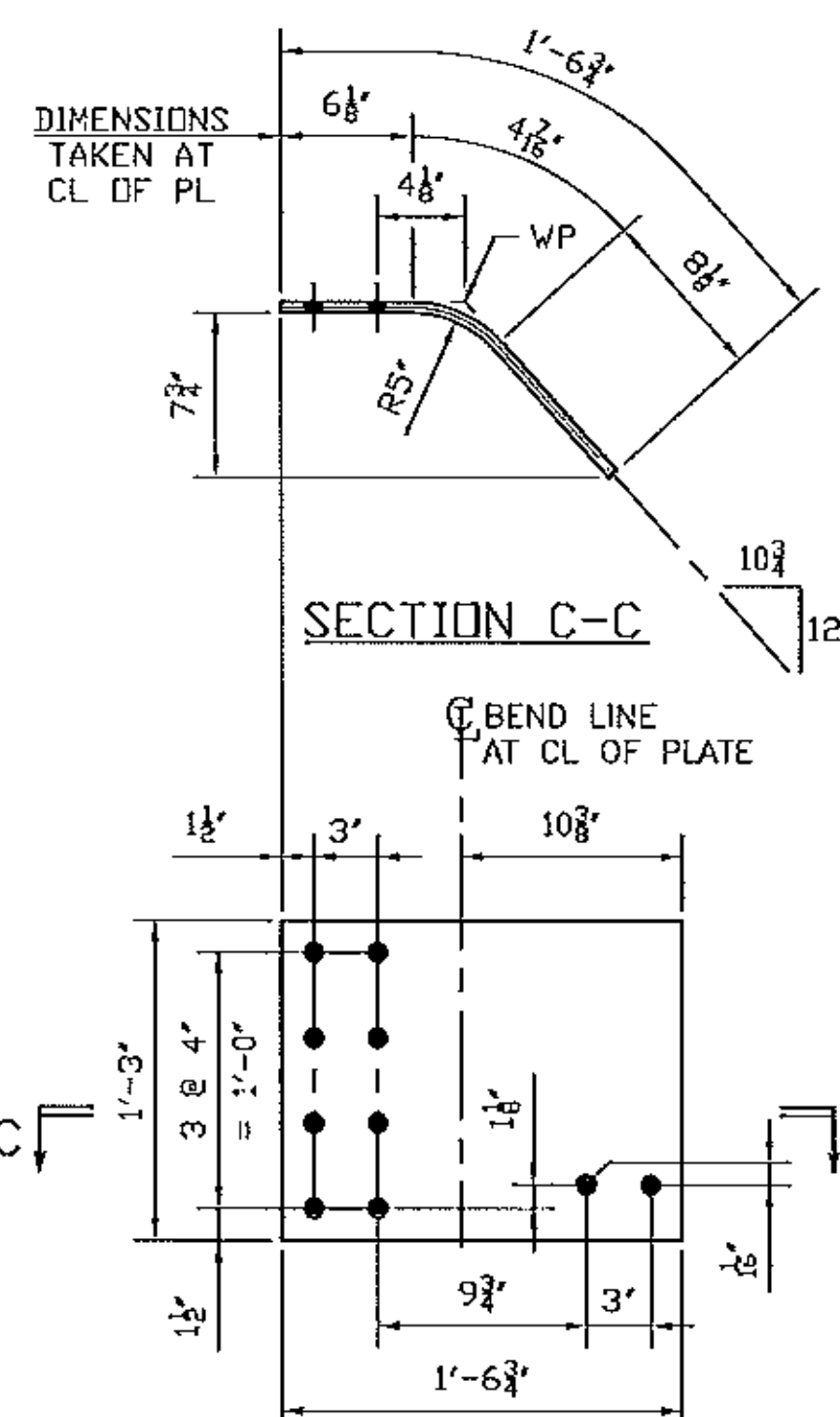
PL1/2x12x1-5 3/4 - x102h
(DEVELOPED)

D.O.R.



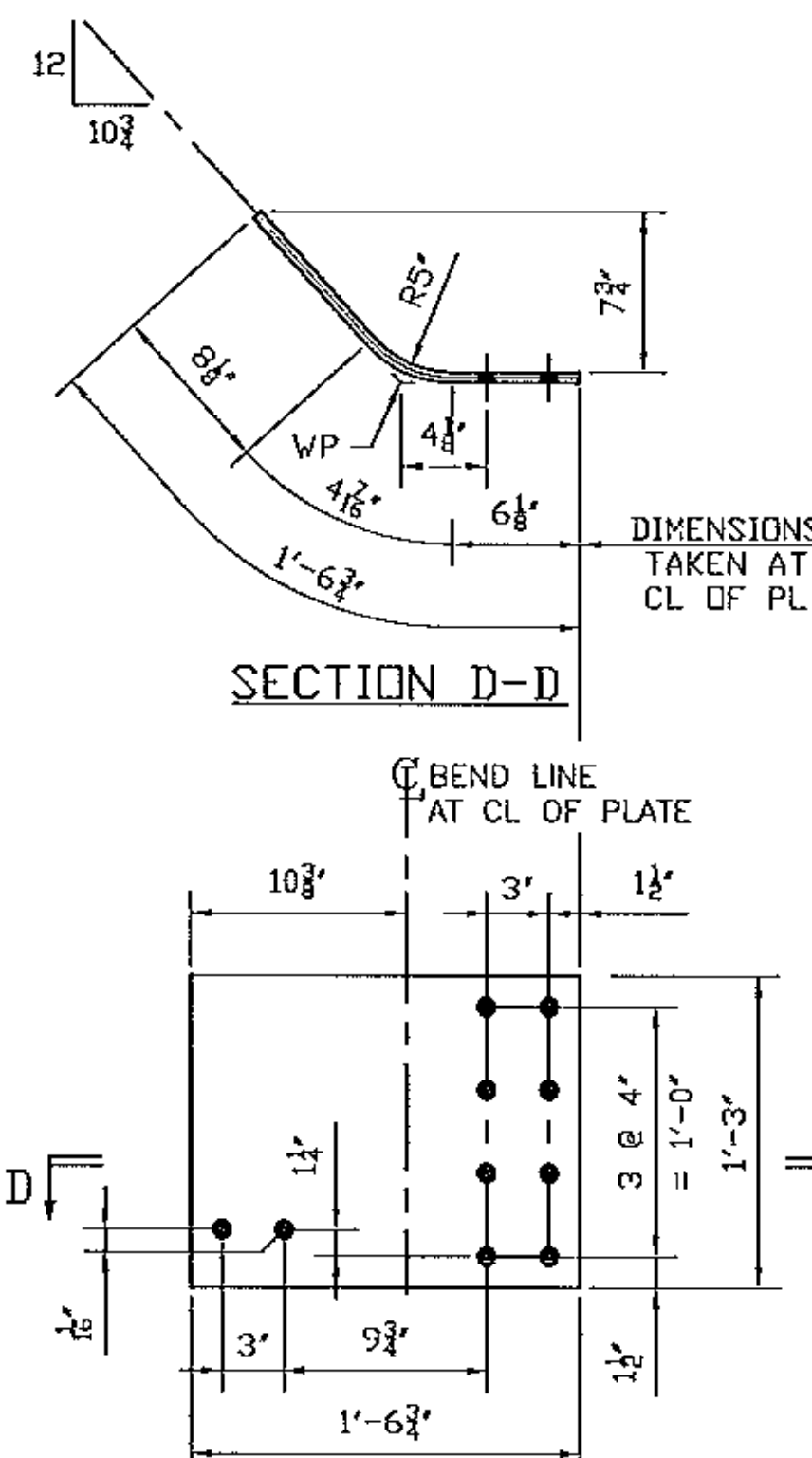
PL1/2x15x1-6 3/4 - x102k
(DEVELOPED)

D.O.R.



PL1/2x15x1-6 3/4 - x102m
(DEVELOPED)

D.O.R.



PL1/2x15x1-6 3/4 - x102n
(DEVELOPED)

D.O.R.

GENERAL NOTES: SEE GN100

HOLES: 15/16 (U.N.)

CLEANING
AND PAINTING: SEE SHEET P100
AND P101

No	FOR APPROVAL	DATE	BR	EG
	REVISION		PAR	VER.

NOTE: BOLT 1 WASHER: 1 WASHER UNDER NUT U.N.
BOLT 2 WASHER: 1 WASHER UNDER HEAD U.N.
1 WASHER UNDER HEAD U.N.



PROJECT: VT RT 9, BRIDGE NO. 11
TOWN OF WOODFORD, VT
OVER WALDOOMSAC RIVER

TITLE: CROSSFRAME DETAILS

REFERENCE: PROJECT NO. ER BHF 010-1 (44)

DESIGN BY	BR	DATE	JULY 2012	PROJECT NO.	UN04260
CHECKED BY	GG	DATE	JULY 2012	REVISED BY	X102/A

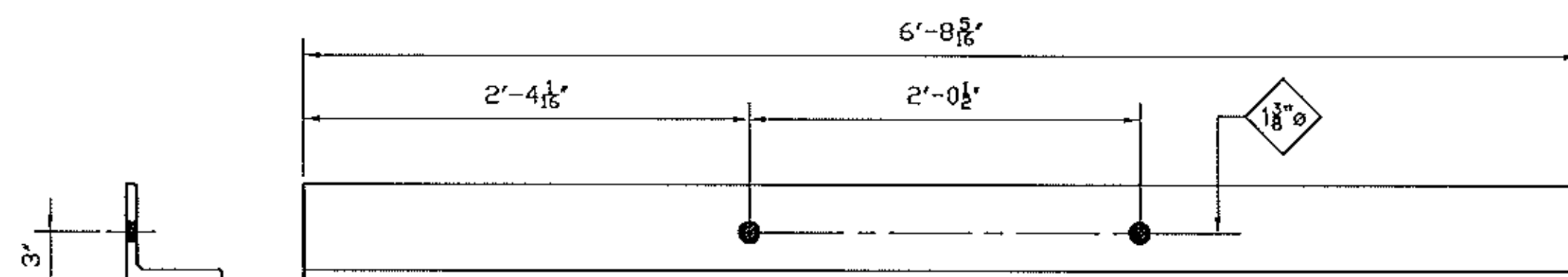
Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

July 09, 2012

RESUBMIT APPROVED
BY C. CARLSON DATE 07-27-2012



L6x6x5/8x6-8 15/16 - x102p

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

August 13, 2012

ARC Enterprises, INC.
P.O. Box 120
Kingfield, Maine 04947

Project Name: Woodford Project #: ER BHF 010-1(44)

Structure Identification: VT 9 Over the Roaring Branch of the Walloomsac River

The following Downspout details [Paid for under Item # 506.55, “Structural Steel, Plate Girder”] for the above project (Vendor’s Job # 12-324) transmitted via Brian Emmons of T. Buck Construction, Inc. on August 22, 2012 have been reviewed and are being returned herewith.

Sheet: 1 of 2 is **approved [X]**

Sheets: 2 of 2 and the Welding Procedures **are approved “as noted”**.

Please make appropriate changes as indicated on these “as noted” or “approved” drawings and submit white prints for our use in the record plans for this project.

You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. Jeff must receive and acknowledge your notice at least seven days prior to that date, as per Specification 506.03. You may contact Jeff by phone at (802)828-0044 or email at jeff.clark@state.vt.us. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,



Carolyn W. Carlson, PE
Structures Project Manager

Attachments

cc: [X] Resident Engineer Ron Lemaire – w/prints
[X] T. Buck Construction, Inc. – w/prints
[X] Shop Inspector - Jeff Clark – w/prints
[X] Materials and Research (C&IA) – letter only
[X] Construction – letter only
[X] CWC



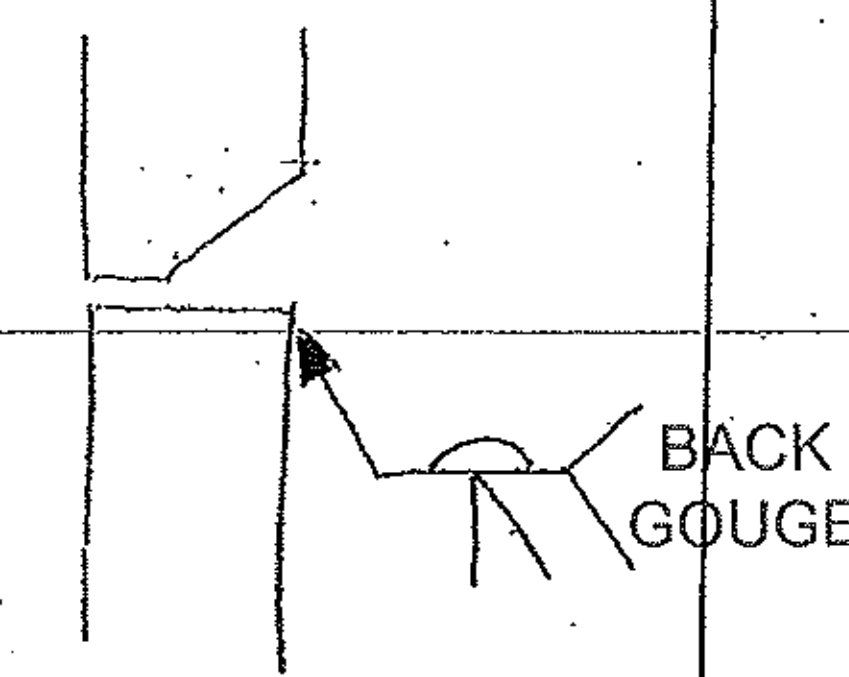
WELDING PROCEDURE SPECIFICATION (WPS) YES (X)
PREQUALIFIED X QUALIFIED BY TESTING _____
or PROCEDURE QUALIFICATION RECORD (PQR) YES ()

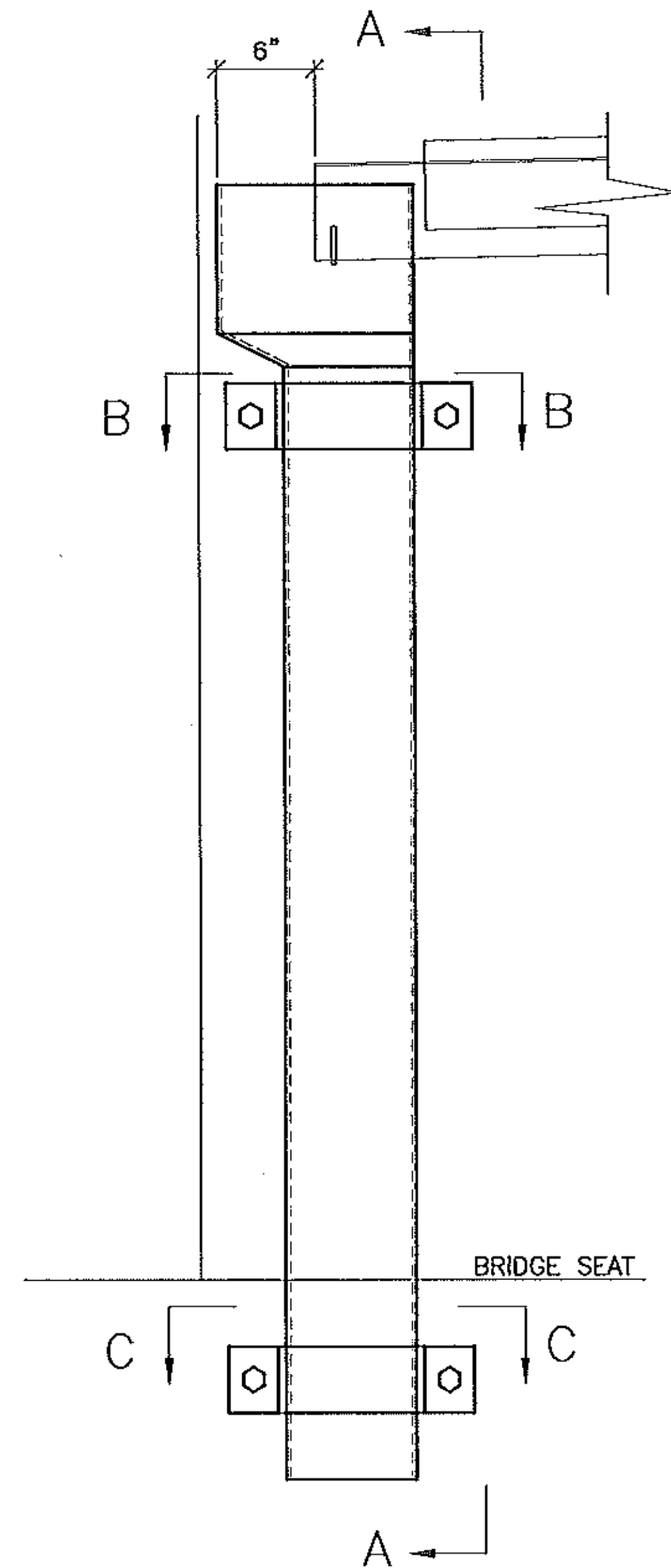
Company Name ARC Ent. Inc.
Welding Process(es) GMAW
Supporting PQR No.(s) _____

Identification # ARC WPS 7M2
Revision 5 Date 8/3/2012 By SVH
Authorized by STEVE HOWARD Date 8/3/2012
Type - Manual Semi - Automatic (X)
Machine () Automatic ()

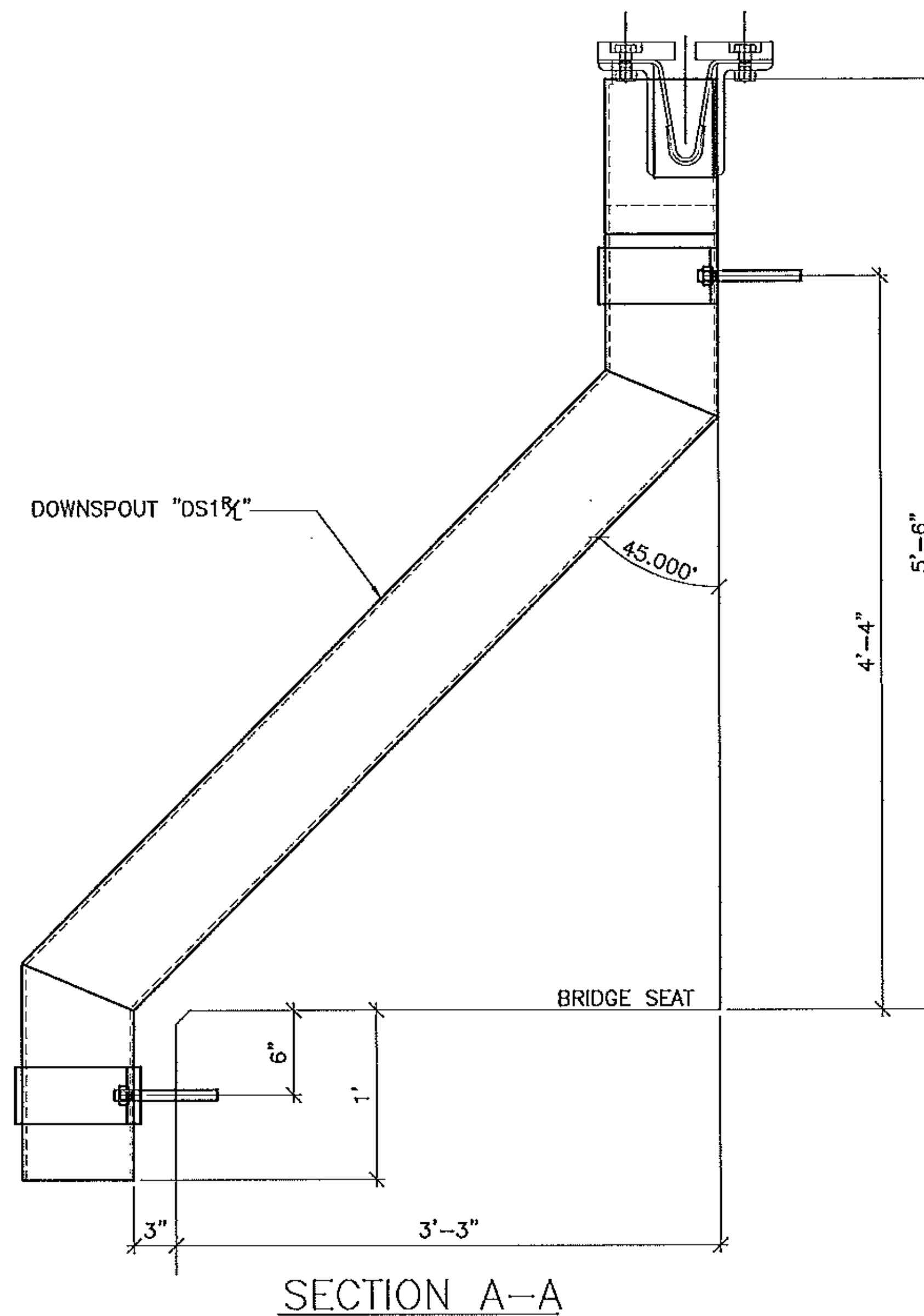
D 1.1

JOINT DESIGN USED Type <u>B - U4b - GF</u> Single (X) Double Weld () Backing () NO Backing Material _____ Root Opening <u>0 - 1/8"</u> Root Face Dimension <u>0 - 1/8"</u> Groove Angle <u>45 Degrees</u> Radius (J-U) _____ Back Gouging Method _____		POSITION Position of Groove <u>1G 2G</u> Fillet _____ Vertical Progression ()	
BASE METALS Material Spec <u>A709 A500</u> Type or Grade <u>36 50</u> Thickness _____ Groove U _____ Fillet _____ Diameter (Pipe) _____		ELECTRICAL CHARACTERISTICS Transfer Mode (FCAW) _____ Short Circuiting () Globular () Spray (X) Current : AC () DCEP (X) DCEN () Pulsed () OTHER : _____	
FILLER METALS Lincoln L-56 AWS Specification <u>A5.18</u> AWS Classification <u>ER70S - 6</u>		TECHNIQUE Stringer or Weave Bead <u>stringer</u> Multi-pass or Single Pass (per side) <u>multi</u> Number of Electrodes <u>one</u> Electrode Spacing _____ Longitudinal _____ Lateral _____ Angle _____	
SHIELDING Flux _____ Gas <u>AR-2</u> Composition <u>argon 98 oxygen 2</u> Electrode - Flux (Class) _____ Flow Rate <u>25 - 40</u> Gas Cup Size <u>5/8</u>		Contact Tube to Work Distance <u>5/8 - 3/4"</u> Peening _____ Interpass Cleaning : <u>brush or grind</u>	
		POSTWELD HEAT TREATMENT Temp _____ Time _____	

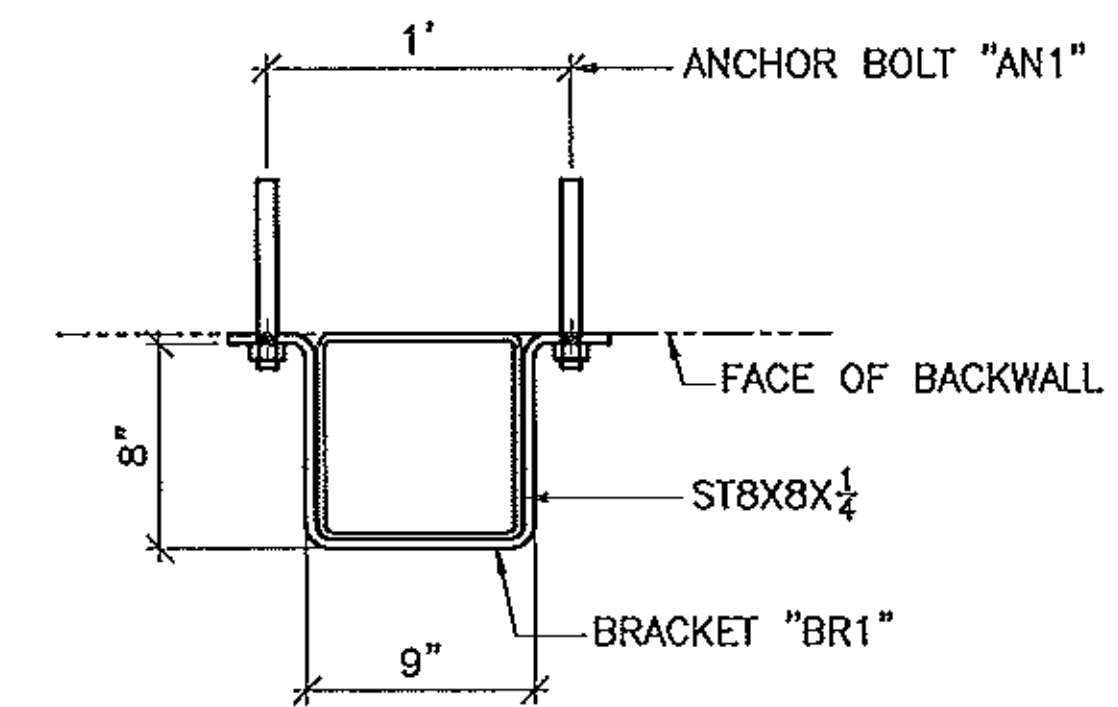
WELDING PROCEDURE								
Pass or Weld Layer(s)	S	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diameter	Type & Polarity	Amps or Wire Feed Speed			
1 - 3		ER70S-6	.035"	DCEP	180-220	25-27	6 - 7 ipm	
Vermont Agency of Transportation RECEIVED CK'D BY <u>J CLARK</u> OK'D BY _____ 08/21/2012 RESUBMIT APPROVED AS NOTED BY <u>C. CARLSON</u> DATE <u>08/29/2012</u>								



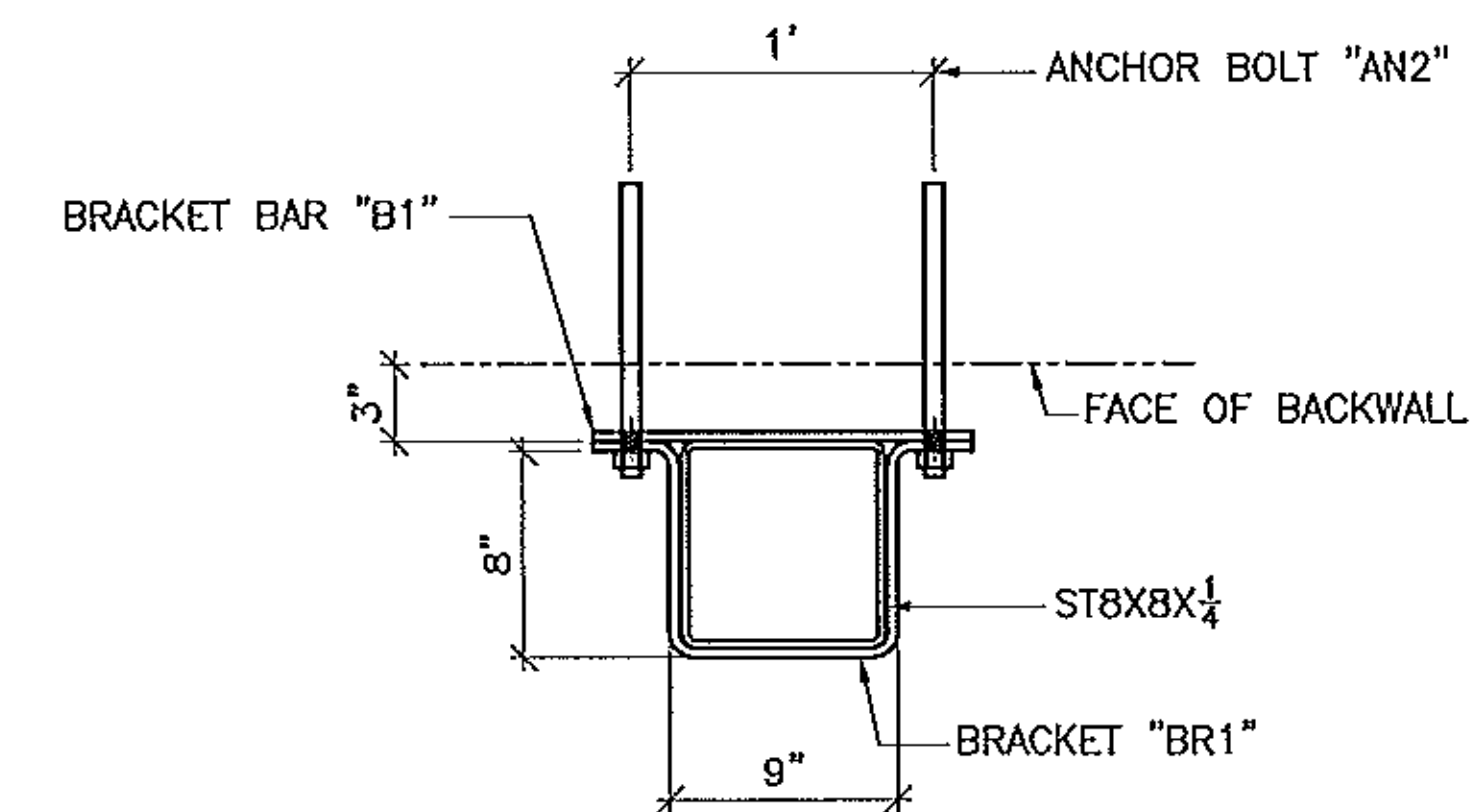
DOWNSPOUT SIDE ELEVATION
(ONE LOCATION AS SHOWN, ONE LOCATION OPP. HAND)



SECTION A-A



SECTION B-B



SECTION C-C

SEE DWG. 2 FOR DETAILS & B.O.M.

Vermont Agency of Transportation

RECEIVED

CK'D BY MEM OK'D BY GER

08/21/2012

RESUBMIT
BY C. CARLSON

APPROVED X
DATE 08/29/2012

FINISH	HOT DIPPED GALVANIZED				
MATERIAL	AASHTO M270 GR. 36/ASTM A500 GR.B				
HOLES	AS NOTED				
ELECTRODES	PER W.P.S.				
WELDS	AS NOTED				
SURFACE PREP	SSPC-SP8				
		NO	DATE	DESCRIPTION	BY
REVISIONS					
		ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED			
		P.O. BOX 120 KINGFIELD, ME. 04947 PHONE: (207) 265-2646 - FAX: (207) 265-4064			
DRAFTER	JAC	DOWNSPOUT ERECTION DETAILS			PROJECT NO.
DATE	7/28/12	VERMONT AGENCY OF TRANSPORTATION, TOWN OF WOODFORD			OR BIF 010-1(4)
CHECKED	WTD	ABUTMENT #1 VI JOINT			DWG. NO.
JOB	12-324	G.C. T BUCK CONSTRUCTION, INC.			1



Technical drawing of a U-shaped metal part. The main view shows a U-shaped profile with a total width of 9 inches and a height of 8 1/4 inches. The top flanges are 3 inches wide and 1 1/2 inches thick. The vertical legs are 2 inches thick. The bottom flange is 2 inches thick. A detail view at the top shows a cross-section of the material with a thickness of 1/4 inch and a hole diameter of 5/8 inch. The distance from the outer edge to the center of the hole is 2 inches. The inner radius of the U-shape is 9/16 inch.

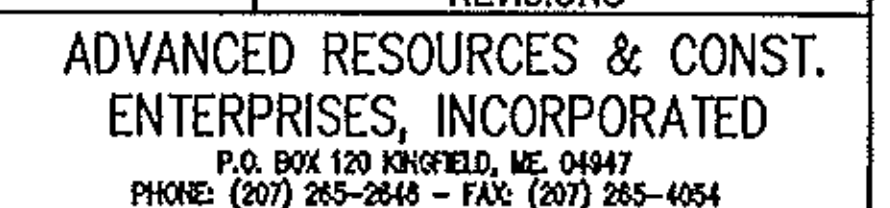
Technical drawing of a rectangular plate with the following dimensions and specifications:

- Overall width: $1' - 3''$
- Overall height: $4''$
- Distance from top edge to center of holes: $1\frac{1}{2}''$
- Distance between centers of holes: $1'$
- Hole diameter: $\frac{5}{8}'' \phi$ HOLES
- Distance from left edge to center of left hole: $1\frac{1}{2}''$
- Distance from right edge to center of right hole: $1\frac{1}{2}''$
- Offset dimension: $\frac{3}{4}''$

2 REQ'D, $\frac{3}{8}$ " BRACKET BAR MARK "B1"

[illegible]

FINISH	HOT DIPPED GALVANIZED				
MATERIAL	AASHTO M270 GR. 36/ASTM A500 GR.B				
HOLES	AS NOTED				
ELECTRODES	PER W.P.S.				
WELDS	AS NOTED				
SURFACE PREP	SSPC-SP8	△	8/21/12	PER APPROVAL	JAC
		NO	DATE	DESCRIPTION	BY
				REVISIONS	



DRAFTER	JAC	DOWNSPOUT DETAILS VERMONT AGENCY OF TRANSPORTATION, TOWN OF WOODFORD ABUTMENT #1 VT JOINT G.C. T BUCK CONSTRUCTION, INC.	PROJECT NO.
DATE	7/29/12		OR REF 010-X(4)
CHECKED	MTD		DWG. NO.
JOB	12-324		2



State of Vermont
Program Development
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

July 2, 2012

The D.S. Brown Company
300 E. Cherry Street
North Baltimore, Ohio 45872

Project Name: Woodford Project #: ER BHF 010-1(44)

Structure Identification: VT 9 Over the Roaring Branch of the Walloomsac River

The following bearing devices details for the above project (Vendor's Job #36775, transmitted by T. Buck Construction, Inc. and received by our office on Monday, June 25, 2012, have been reviewed and are being returned herewith.

Sheet 1 of 2 and the welding procedures are approved.

Sheet 2 of 2 is approved "as noted". (Please make appropriate changes as indicated on the "as noted" drawing and submit a new "*.pdf" for our use in the record plans for this project.)

Also, the following is our response to the RFI that was submitted:

1. The natural rubber and the shear modulus range are fine.
2. The 16 GA internal shims are fine for the 1/16" thick internal shims shown on our plans.
3. The AASHTO M251-06 testing is required for this project.

You must provide notice to our fabrication inspector Jeff Clark as to the date fabrication represented by these drawings will begin. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. That notice must be received at least seven days prior to that date, as per Specification 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Carolyn W. Carlson, PE
Project Manager

Attachments

cc: [X] Resident Engineer Ron Lemaire -w/prints
[X] T. Buck Construction, Inc. – w/prints
[X] Shop Inspector - Jeff Clark w/prints
[X] Materials & Research Section (C&IA Unit) – Letter only
[X] Construction Division - Letter only
[X] CWC



DS Brown Company
300 East Cherry Street
North Baltimore, OH 45872
(419) 257-3561
(419) 257-0332 [Engineering Fax #]



Request for Information

Date Sent: 06-22-12 Response Requested by: ASAP

DS Brown RFI #: 36775-1104-RFI1
(File name format: DS Brown Project # - Product Code -- RFI# or #####-####-RFI#)

Contractor:	T Buck Construction
To:	Brian Emmons
Project Description:	Vt. Rt. 9, Principal Arterial
Project #:	ER-BHF 010-1(44)
Fax #:	
DS Brown Project #:	36775-1104
Reply to:	Erica Kelley
E-mail Address:	ekelley@dsbrown.com
Subject:	Elastomeric bearings

Shop Drawing Status:

- ☒ Able to Proceed
- ☐ Able to Proceed BUT requested information needed prior to drawing submittal
- ☐ ON HOLD until receipt of requested information

Please provide the following items:

- ☐ Special Provisions
- ☐ Field Measurements (sketch provided—please complete)
- ☐ Structural Steel Drawings
- ☐ "As Built" Shop Drawings
- ☐ Finish Details
 - ☐ Federal Color Number
 - ☐ Paint System
- ☐ Contract Document Clarification (explanation provided below)
- ☐ Other (explanation provided below)

OK
Explanation: 1) The contract plans specify the elastomer to be Grade 4 Neoprene. DS Brown does not have a compound for a neoprene grade 4 material. If a grade 4 material is needed, then the bearing will need to be supplied as natural rubber. Also, note our 60 durometer Grade 4 natural rubber has a shear modulus range of 136-184 PSI. Please verify that natural rubber and this shear modulus are acceptable.

2) Please note that thin steel is only available in gauge thickness. We will use 16 GA internal shims for the 1/16" shown 16 GA is 0.60" thick. If you require this to be increased the next available GA is 14 GA which is 0.075" thick.

3) Please verify that Testing to AASHTO M251-06 is required.



Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: A-(MC)GF-01 Date Issued: 9-28-04 Revision No: 02 Rev. Date: 9-15-09

Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical ☒ Fracture Critical ☐ WPS Expiration Date: 8-11-14

2. Qualified in accordance with: AWS D1.5- 2008 (5.13)

Referenced PQR No(s). PQR-(MC)GMAW-03(09) , , ,

Referenced FWST No(s). PQR-(MC)GMAW-FWST-01A(09) , PQR-(MC)GMAW-FWST-01B(09) , , ,

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W

For DOT Approval

4. Material Thickness (es) Unlimited

5. Welding process GMAW

6. Manual ☐ , machine ☒ , or semiautomatic ☒

7. Position(s) of welding 1F, 2F

8. Filler metal specification AWS A5.18

9. Filler metal class and brand name E70C-6M Corex Metal-Core Maxim

10. Flux class & brand N/A , Type N/A

11. Shielding gas 75% Ar / 25% CO2 Flow rate 45 CFH

12. Single pass ☒ Or multiple pass ☒

13. Single arc ☒ Or multiple arc ☐

14. Welding Current DCEP

15. Polarity Reverse

16. Welding progression stringers

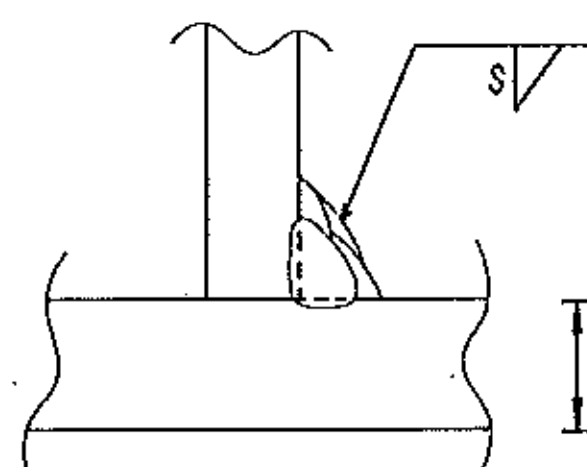
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)

18. Postheat treatment N/A

19. Calculated Heat Input (KJ/In) Min 34.77 KJ/in Max 49.65 KJ/in

20. Electrode extension (electrical stickout) 3/4"

Trans
Received
OK'd BY JWC
JUN 26 2012
Resubmit
BY
APPROVED
DATE 7/2/12

Weld size (in)	Pass No(s)	Electrode Size (in)	Welding Process Variables		Travel Speed (IPM)	Joint Detail (Fillet) Show all dimensions, weld sizes, passes, and AWS symbols
			AMPS/WFS*	VOLTS		
**1/4"	1	.052"	270-307	27.9-31	11.5-13	 T1 = Varies T2 = Varies S = Weld Size ** T1 & T2 equal to or less than 3/4" for 1/4" welds.
5/16"	1	.052"	270-307	27.9-31	11.5-13	
3/8"	1-3	.052"	270-307	27.9-31	11.5-13	
7/16"	2-4	.052"	270-307	27.9-31	11.5-13	
1/2"	4-6	.052"	270-307	27.9-31	11.5-13	
5/8"	5-7	.052"	270-307	27.9-31	11.5-13	
3/4"	6-8	.052"	270-307	27.9-31	11.5-13	

* Wire feed speed may be used along with amperage (include chart)

Prepared By: DSB QA Manager

Project:

DSB Job: 36775-1104-VT

Preheat and Interpass Temperature Chart		
Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤ 3/4"	50°F	450 °F
>3/4" to ≤1.5"	70°F	450 °F
>1.5" to ≤2.5"	150°F	450 °F
>2.5"	225°F	450 °F

Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.



Production Joint Welding Procedure Specification (D1.5-08)

Procedure No: B-FF-01 Date Issued: 3-28-08 Revision No: 01 Rev. Date: 11-11-09

Contractor (Fabricator) D. S. Brown Company Prepared by: Brad Streeter, Quality Assurance Manager

1. Non-Fracture Critical ☒ Fracture Critical ☐ WPS Expiration Date: 3-6-13

2. Qualified in accordance with: AWS D1.5- 2008 (5.13)

Referenced PQR No(s). PQR-FCAW-01-(08) , ,

Referenced FWST No(s). PQR-FCAW-FWST-01A(08) , PQR-FCAW-FWST-01B(08) , ,

3. Material specification(s) ASTM A709 Gr. 36, 50, 50W

4. Material Thickness (es) Unlimited

5. Welding process FCAW

6. Manual ☐ , machine ☐ , or semiautomatic ☒

7. Position(s) of welding 1F, 2F

8. Filler metal specification AWS A5.20

9. Filler metal class and brand name E71T-1CH8 (UltraCore71C)

10. Flux class & brand N/A , Type N/A

11. Shielding gas. 100% CO2 Flow rate 45 CFH

12. Single pass ☒ Or multiple pass ☒

13. Single arc ☒ Or multiple arc ☐

14. Welding Current DCEP

15. Polarity Reverse

16. Welding progression stringers

17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)

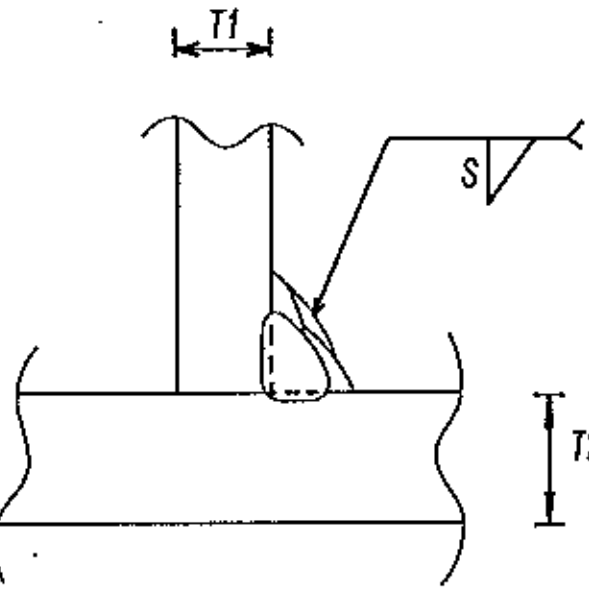
18. Postheat treatment N/A

19. Calculated Heat Input (KJ/In) Min 32.2 KJ/in Max 45.8 KJ/in

20. Electrode extension (electrical stickout) 3/4"

For DOT Approval

WITNESSED
RECEIVED
OK'D BY JWC
JUN 26 2012
Resubmit
BY 7/2/12

Weld size (In)	Pass No(s)	Electrode Size (In)	Welding Process Variables		Travel Speed (IPM)	Joint Detail (Fillet) Show all dimensions, weld sizes, passes, and AWS symbols
			AMPS/WFS*	VOLTS		
**1/4"	1	1/16"	257-295	26.1-29.5	11.4-12.5	 T1 = Varies T2 = Varies S = Weld Size ** T1 & T2 equal to or less than 3/4" for 1/4" welds.
5/16"	1	1/16"	257-295	26.1-29.5	11.4-12.5	
3/8"	2-3	1/16"	257-295	26.1-29.5	11.4-12.5	
7/16"	3-5	1/16"	257-295	26.1-29.5	11.4-12.5	
1/2"	4-6	1/16"	257-295	26.1-29.5	11.4-12.5	
5/8"	5-7	1/16"	257-295	26.1-29.5	11.4-12.5	
3/4"	6-8	1/16"	257-295	26.1-29.5	11.4-12.5	

* Wire feed speed may be used along with amperage (include chart)

Prepared By: [Signature] DSB QA Manager

Project: _____

DSB Job: 36775-1104-VT

Preheat and Interpass Temperature Chart

Base Metal Thickness range	Minimum Preheat (°F)	Max Preheat & Interpass (°F)
≤ 3/4"	50°F	450 °F
>3/4" to ≤1.5"	70°F	450 °F
>1.5" to ≤2.5"	150°F	450 °F
>2.5"	225°F	450 °F

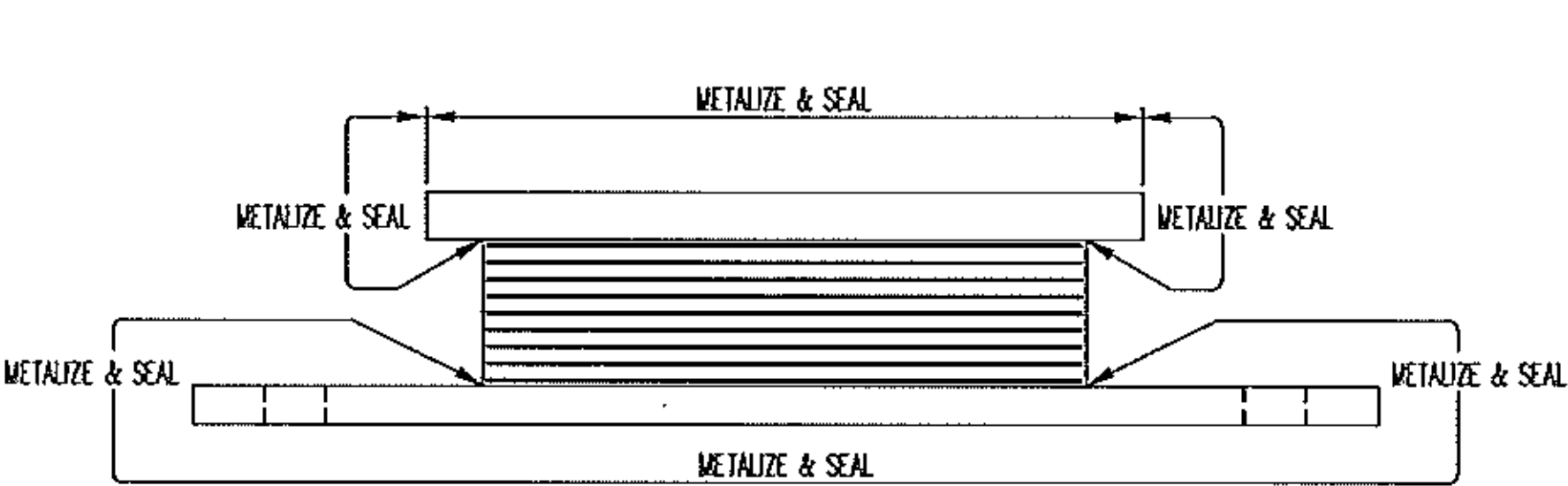
Note: When this procedure is used for A709Gr50W materials, it shall be limited to 5/16" single pass or material be coated.

GENERAL NOTES:

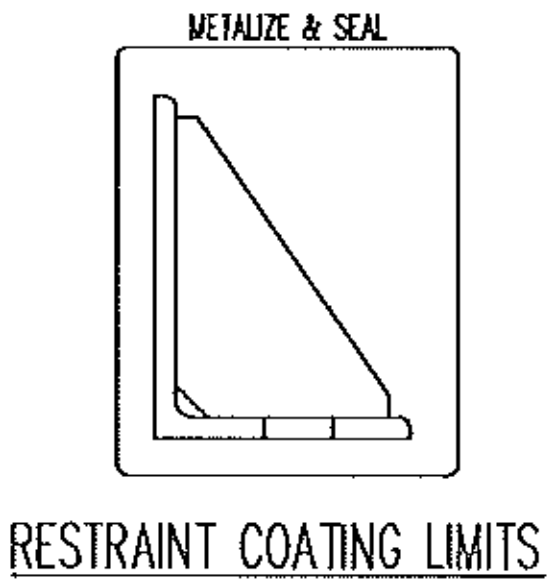
1. PAD AND MATERIALS SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2006 AND THE LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FOURTH EDITION, DATED 2007, AND ITS LATEST REVISIONS, CONTRACT PLANS, AND THE SPECIAL PROVISIONS. GENERAL SHOP PRACTICES, STRUCTURAL FABRICATION, WELDING AND ASSEMBLY SHALL BE GOVERNED BY AWS/AASHTO/AWS D1.5 BRIDGE WELDING CODE.
2. THESE SHOP DRAWINGS ARE PREPARED IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS. THE D.S. BROWN COMPANY DOES NOT ACCEPT LIABILITY FOR THE DESIGN OF THE PRODUCTS DETAILED IN THESE SHOP DRAWINGS.
3. THE D.S. BROWN COMPANY TO SUPPLY ONLY THE PARTS SHOWN ON THESE DRAWINGS.
4. ALL STEEL SHALL BE PRODUCED IN THE UNITED STATES OF AMERICA.
5. THE BEARING SHALL BE SUBJECT TO RANDOM IN-HOUSE ELASTOMER TESTING AND IN-HOUSE PROOF LOAD TESTING IN ACCORDANCE WITH AASHTO DIVISION I, SECTION 14 (METHOD "A") AND AASHTO DIVISION II, SECTION 18.
6. THE TEMPERATURE OF THE STEEL ADJACENT TO THE ELASTOMER SHALL NOT EXCEED 93°C (200°F). TEMPERATURE SHALL BE CONTROLLED BY THE USE OF A TEMPERATURE INDICATING CRAYON OR OTHER DEVICES APPROVED BY THE ENGINEERS.
7. ALL CORNERS AND EDGES OF STEEL PLATES SHALL BE GROUND TO A 0.063" RADIUS.
8. ALL STRUCTURAL STEEL SURFACES TO BE METALIZED SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP5.
9. ALL SPECIFIED STEEL TO BE ZINC METALIZED IN ACCORDANCE WITH AWS C 2.18 SPECIFICATIONS TO A MINIMUM THICKNESS OF 6 MILS. THE COATING SHALL CONSIST OF 99.9% PURE ZINC (MINIMUM PURITY). THE METALIZATION SHALL OCCUR AFTER THE VULCANIZATION PROCESS. THE FIRST COATING SHALL BE APPLIED WITHIN ONE HOUR OF BLAST CLEANING AND THE SURFACE MUST BE COMPLETELY COATED TO THE SPECIFIC THICKNESS WITHIN TWO HOURS OF BLASTING. EXTERIOR SURFACES SHALL BE SEALED WITH CARBOLINE SEALER "RUSTABOND" WITH A MINIMUM DRY FILM THICKNESS 2 MILS. SEE COATING LIMITS FOR LOCATIONS. REPAIR DAMAGED METALIZATION PER ASTM A780.
10. TESTING SHALL BE IN ACCORDANCE WITH AASHTO M251.

TOLERANCE TABLE	
DESCRIPTION	TOLERANCE
OVERALL VERTICAL DIMENSION	+ 1/8", -0
ELASTOMERIC BEARING DESIGN THICKNESS > 1.250"	+ 1/4", -0
ELASTOMERIC BEARING PLAN ≤ 36"	+ 1/4", -0
ELASTOMERIC COVER TOP & BOTTOM	+ 1/8", -0
ELASTOMERIC COVER SIDES	+ 1/8", -0
THICKNESS OF INDIVIDUAL LAYERS OF ELASTOMER (LAMINATED BEARINGS ONLY) AT ANY POINT WITHIN THE BEARING	± 1/8"
VARIATION FROM A PLANE PARALLEL TO THE THEORETICAL SURFACE (AS DETERMINED BY MEASUREMENTS AT THE EDGE OF THE BEARINGS)	
TOP	0.005 RAD
SIDES	± 1/4"
POSITION OF EXPOSED CONNECTION MEMBERS	± 1/8"
EDGE COVER OF EMBEDDED LAMINATES OF CONNECTION MEMBERS	+ 1/8", -0
SIZE OF HOLES, SLOTS, OR INSERTS	± 1/8"
POSITION OF HOLES, SLOTS, OR INSERTS	± 1/8"
MASONRY PL. PLAN DIMENSIONS	±1/4"
MASONRY PL. UNDERSIDE SURFACE FLATNESS	CLASS C
MASONRY PL. UPSIDE SURFACE FLATNESS	CLASS A
MASONRY PL. THICKNESS	±1/16"
HOLE & SIZE LOCATION	±1/16"
SOLE PL. PLAN DIMENSIONS	±1/16"
SOLE PL. UNDERSIDE SURFACE FLATNESS	CLASS A
SOLE PL. UPSIDE SURFACE FLATNESS	CLASS C
SOLE PL. BEVEL SLOPE	± 0.002 RAD
SOLE PL. THICKNESS	±1/16"
MASONRY & SOLE PLATE SURFACE FINISH (BEARING SIDE)	125 RMS

FLATNESS TOLERANCE	
CLASS	X NOM. DIM.
A	0.001
B	0.002
C	0.005



ELASTOMERIC BEARING COATING LIMITS



Vermont Agency of Transportation

RECEIVED

CK'D BY CAM OK'D BY GFR

06/22/2012

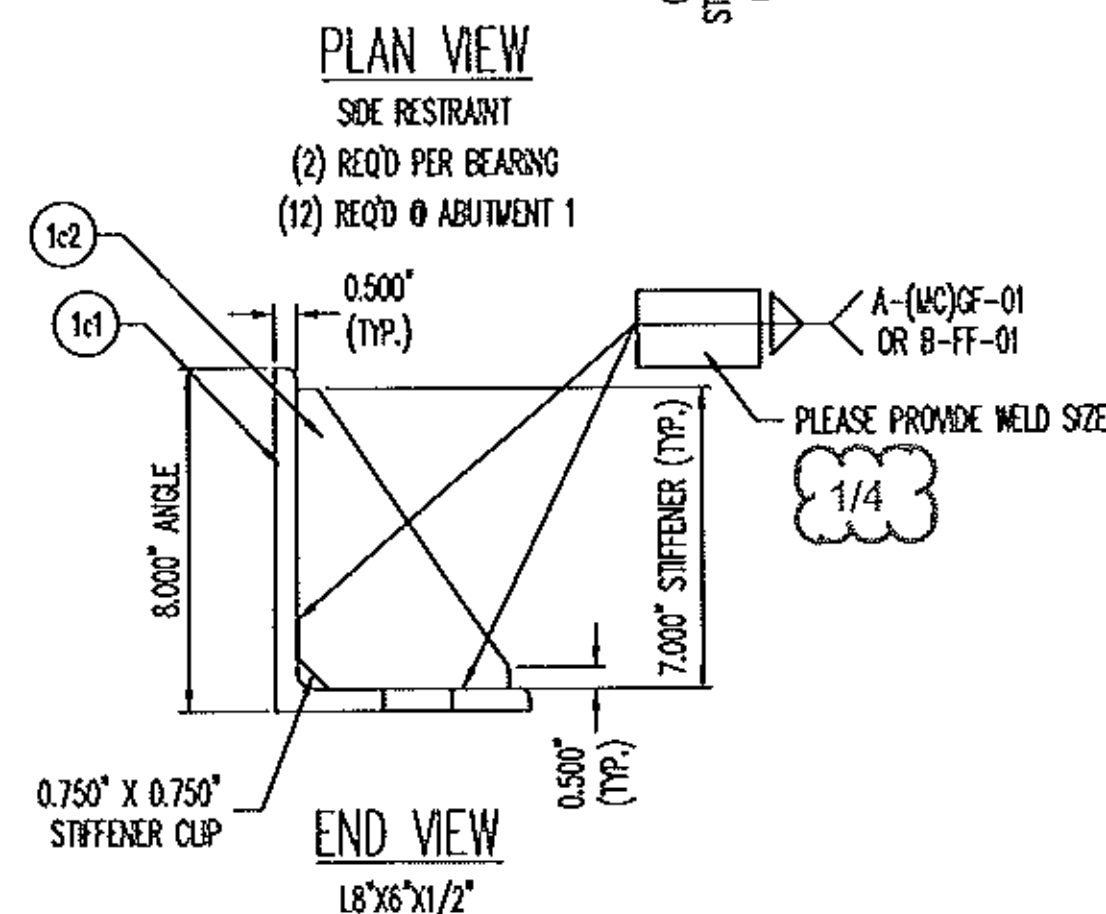
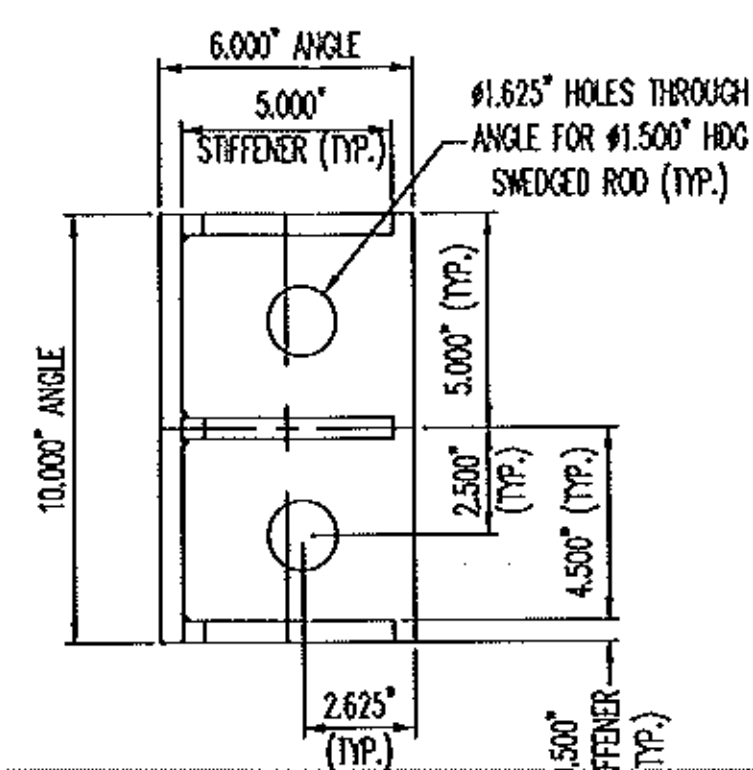
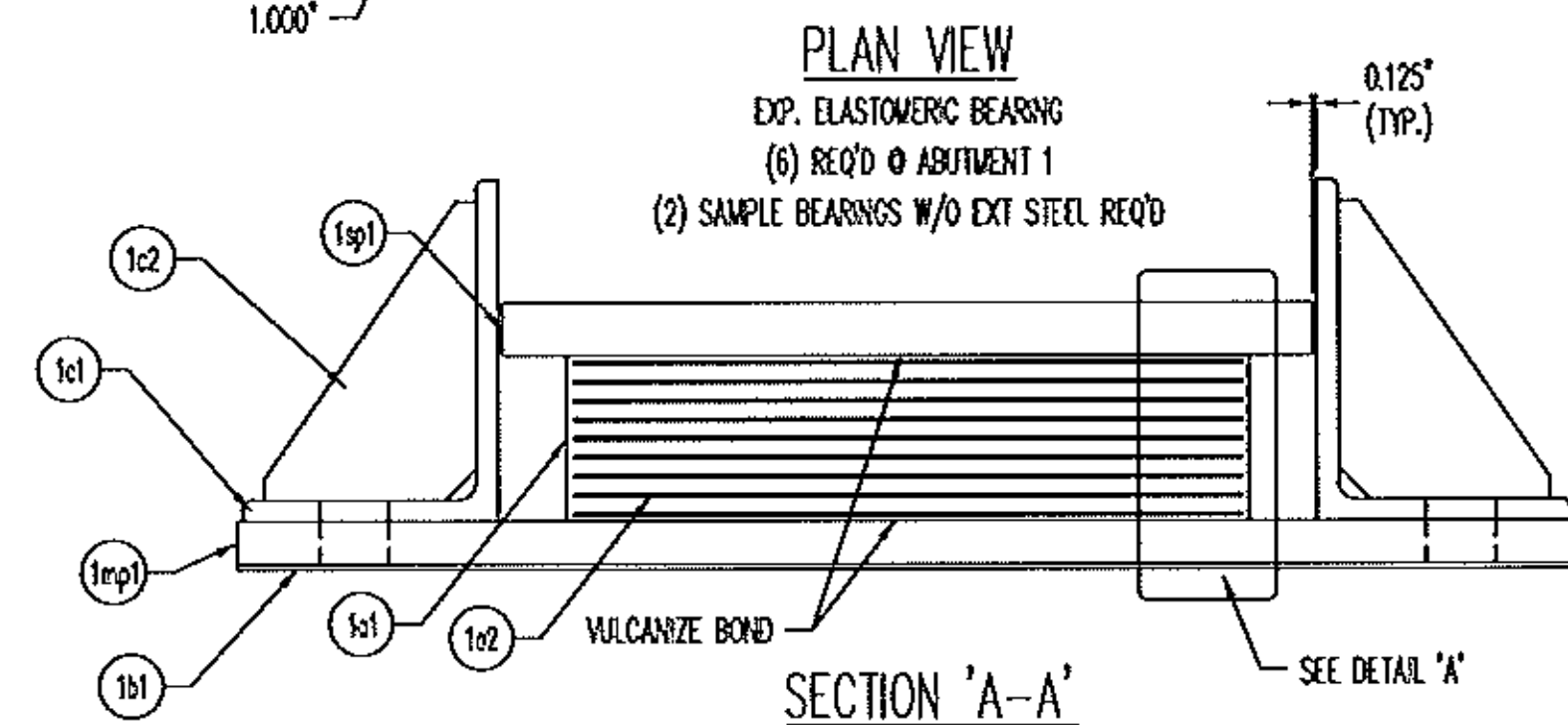
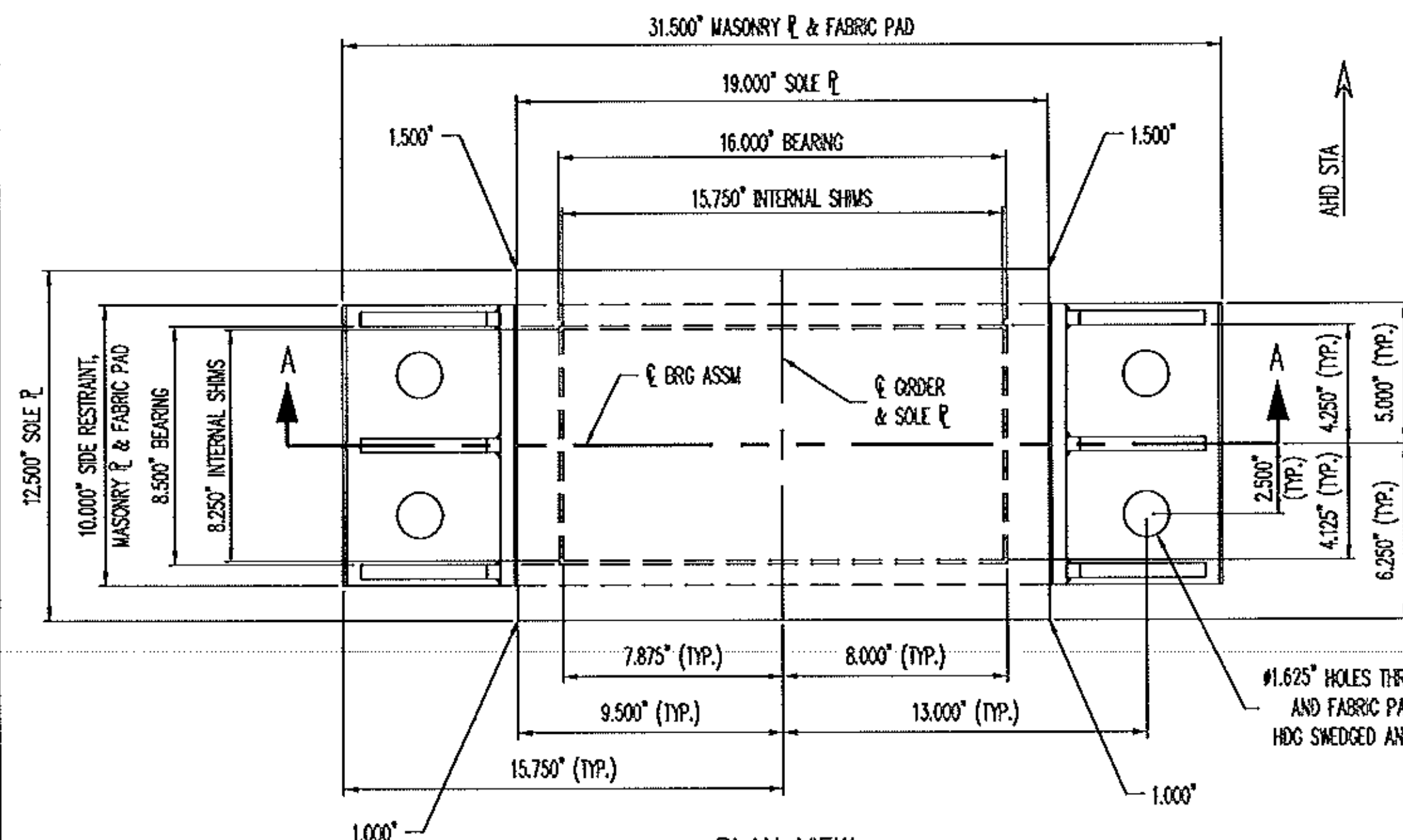
RESUBMIT APPROVED X
BY C. CARLSON DATE 06/29/2012



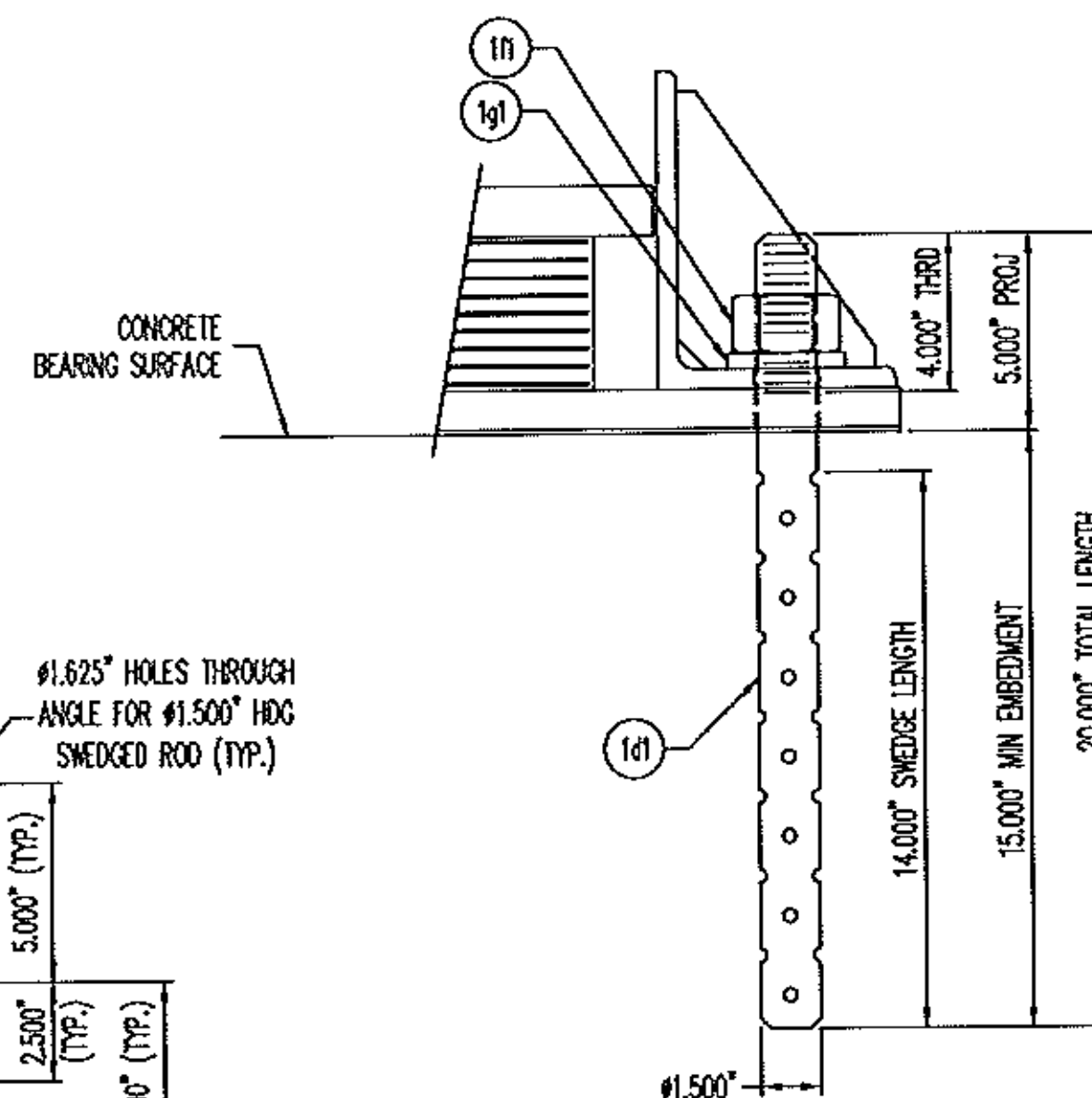
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM



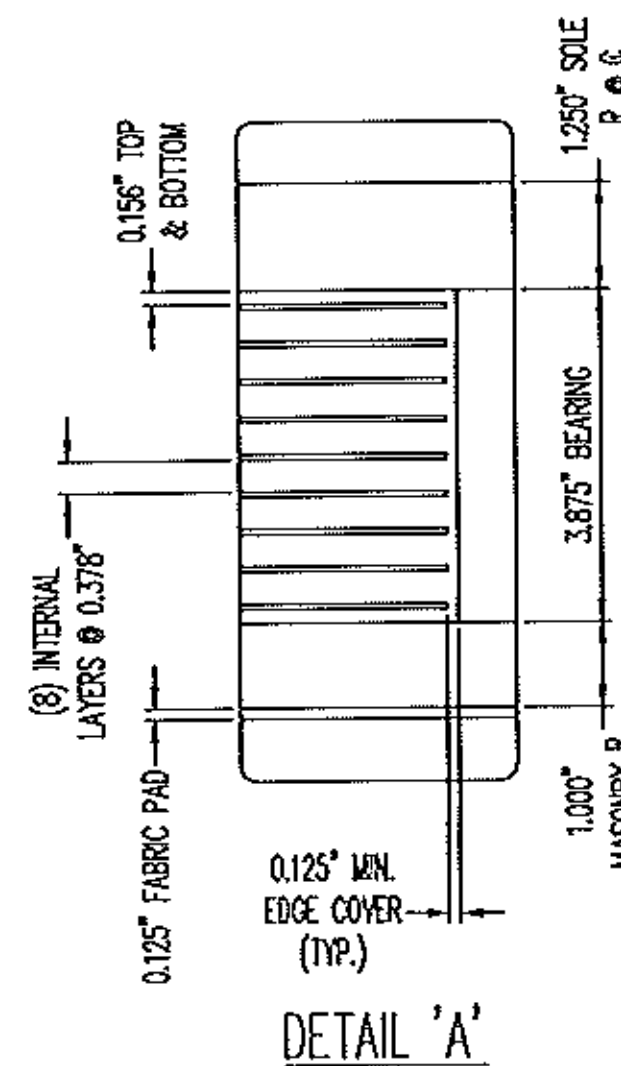
REV.	DESCRIPTION	DATE	DET.	CKD.
	LOCATION — VT RT 9, PRINCIPAL ARTERIAL			
	BRIDGE — 11			
	PROJECT — ER BHF 010-1(44)			
	—			
	—			
	DESIGNER — VT AGENCY OF TRANSPORTATION			
	CUSTOMER — T BUCK CONSTRUCTION, INC.			
GENERAL NOTES AND COATING LIMITS BENNINGTON CO., VT		SCALE N.T.S.	QUANTITY SP	DATE 8/12
		PROJECT NUMBER 36775	PROJECT CODE 1104	DATE 1
		PROJECT CODE 1	DATE 1	DATE GN1



NOTE: THE OUTSIDE 0.500\"/>



ANCHOR ROD ASSEMBLY
(24) REQ'D @ ABUTMENT 1



PLEASE SEE ATTACHED RFI

NR	QTY	DESCRIPTION	MATERIAL	LENGTH	REMARKS	REV
1A	6	ELASTOMERIC BEARING				-
1a1	6	3.875" X 16.000"	NATURAL RUBBER	8.500"	60/-5 DURO GR5; SHEAR MODULUS 136-184 PSI	-
1a2	54	16 GA. X 15.750"	A1011 GR 36	8.250"	PLAIN	-
1ap1	6	1.000" X 31.500"	A709 GR 36	10.000"	METALIZE, SEAL	-
1ap1	6	1.500" X 18.000"	A709 GR 36	12.500"	METALIZE, SEAL	-
1B	6	FABRIC PAD				-
1b1	6	0.125" X 31.500"	VT 707.07	10.000"	HOLES	-
1C	12	SIDE RESTRAINT				-
1c1	12	1.8 X 6 X 1/2	A36	10.000"	METALIZE, SEAL	-
1c2	36	0.500" X 5.000"	A36	7.000"	CHAMFER; METALIZE, SEAL	-
1D	24	SMEDGED ROD				-
1d1	24	Ø1.500" X 20.000" SMEDGED ROD	F1554 GR 36		1" SMEDGE, 4" BIRD; A153-HOG	-
1E	24	HEAVY HEX NUT				-
1E1	24	Ø1.500" HEX NUT	A563-DH OR A194-ZH		A153-HOG, DRY LUBE & DYE	-
1G	24	PLATE WASHER				-
1g1	24	0.375" X 3.000"	A36	3.000"	1 9/16" Ø HOLE CENTERED; A123-HOG	-
1H	2	SAMPLE BEARINGS				-
1h1	2	3.875" X 16.000"	NATURAL RUBBER	8.500"	60/-5 DURO GR5; SHEAR MODULUS 136-184 PSI	-
1h2	18	16 GA. X 15.750"	A1011 GR 36	8.250"	PLAIN	-
					6/22/2012 8:04:32 AM	

PLEASE SEE ATTACHED RFI

LOAD DATA	
MAX DL REACTION (KIPS)	45.0
MAX LL REACTION (KIPS)	79.0
MAX DL+LL REACTION (KIPS)	124.0

SEE SHEET 36775-1104-GN1 FOR GENERAL NOTES AND COATING LIMITS

Vermont Agency of Transportation
RECEIVED

CK'D BY CAM OK'D BY GFR

06/22/2012

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 06/29/2012

D.B. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM



REV.	DESCRIPTION	DATE	DET.	CHKD.
1	LOCATION — VT RT 9, PRINCIPAL ARTERIAL BRIDGE — 11 PROJECT — ER BHF 010-1(44)			
2	DESIGNER — VT AGENCY OF TRANSPORTATION CUSTOMER — T BUCK CONSTRUCTION, INC.			
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State of Vermont
Program Development
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

September 11, 2012

Watson Bowman Acme Corporation
95 Pineview Drive
Amherst, NY 14228

Project Name: Woodford Project #: ER BHF 010-1(44)

Structure Identification: VT 9 Over the Roaring Branch of the Walloomsac River

This letter is an update to the letter provided to you dated September 5, 2012. The following **bridge expansion joint details item 516.11, "Bridge Expansion Joint, Vermont"** for the above project (Vendor's Job #143833), transmitted by T. Buck Construction, Inc. and received by our office on Tuesday, August 21, 2012, have been updated with some additional changes needed.

Sheets 5 and the welding procedures are approved.

Sheets 1, 2, 3 and 4 of are approved "as noted". (Please make appropriate changes as indicated on the "as noted" drawing and submit a new "*.pdf" for our use in the record plans for this project.)

The updated drawings were emailed to you via the contractor. As a reminder, you must provide notice to our fabrication inspector Jeff Clark as to the date fabrication represented by these drawings will begin. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. That notice must be received at least seven days prior to that date, as per Specification 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Carolyn W. Carlson, PE
Project Manager

Attachments

cc: [X] Resident Engineer Ron Lemaire -w/updated prints
[X] T. Buck Construction, Inc. – w/updated prints
[X] Shop Inspector - Jeff Clark w/updated prints
[X] Materials & Research Section (C&IA Unit) – Letter only
[X] Construction Division - Letter only
[X] CWC





Structures

State of Vermont
Program Development
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

[phone] 802-828-2621
[fax] 802-828-3566
[ttd] 800-253-0191

September 5, 2012

Watson Bowman Acme Corporation
95 Pineview Drive
Amherst, NY 14228

Project Name: Woodford Project #: ER BHF 010-1(44)

Structure Identification: VT 9 Over the Roaring Branch of the Walloomsac River

The following bridge expansion joint details item 516.11, "Bridge Expansion Joint, Vermont" for the above project (Vendor's Job #143833), transmitted by T. Buck Construction, Inc. and received by our office on Tuesday, August 21, 2012, have been reviewed and are being returned herewith.

Sheets 4, 5 and the welding procedures are approved.

Sheets 1, 2, 3 of are approved "as noted". (Please make appropriate changes as indicated on the "as noted" drawing and submit a new "*.pdf" for our use in the record plans for this project.)

You must provide notice to our fabrication inspector Jeff Clark as to the date fabrication represented by these drawings will begin. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. That notice must be received at least seven days prior to that date, as per Specification 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Carolyn W. Carlson, PE
Project Manager

Attachments

cc: [X] Resident Engineer Ron Lemaire -w/prints
[X] T. Buck Construction, Inc. -- w/prints
[X] Shop Inspector - Jeff Clark w/prints
[X] Materials & Research Section (C&IA Unit) -- Letter only
[X] Construction Division - Letter only
[X] CWC



AWS D1.8
WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION: ASTM: A709 GR 250, 345, & 345W (painted); A36, A572; A588 (painted)
(ref. AWS D1.5:2002, sect. 1.2 & 5.4)

WELDING PROCESS: GMAW

MANUAL OR MACHINE: Semi-Automatic

POSITION OF WELDING: Flat, Horizontal

FILLER METAL SPECIFICATION: A5.18

FILLER METAL CLASSIFICATION: BR70S-6

FILLER METAL MANUFACTURER: HOBART BR-6

SHIELDING GAS: Ar - 98%; O₂ - 2%

SINGLE OR MULTIPLE PASS: Single

SINGLE OR MULTIPLE ARC: Single

WELDING CURRENT: DCEP

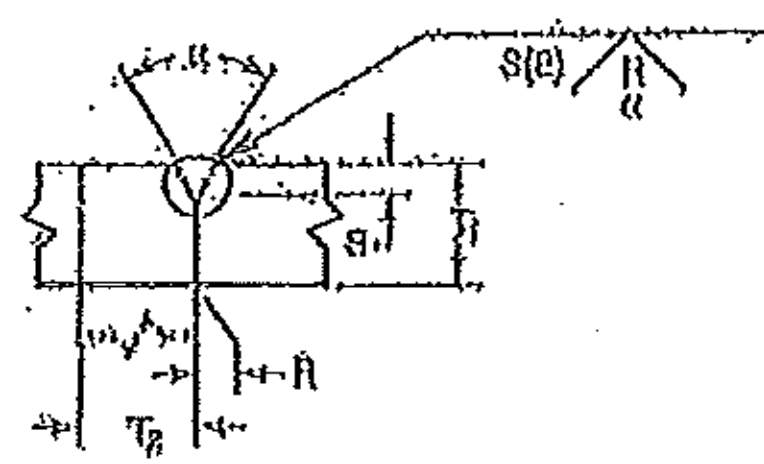
WELDING PROGRESSION: Forward

ROOT TREATMENT: Surfaces shall be smooth and uniform, and free of discontinuities, loose or thick scale, slag, rust, moisture, grease/oil, and other foreign material.
(ref. AWS D1.5:2002, 3.2.1)

PREHEAT AND INTERPASS TEMP: Minimum: $\leq 3/4"$ = 50°F; over 3/4" to 1-1/2" = 70°F;
over 1-1/2" to 2-1/2" = 150°F; over 2-1/2" = 225°F. Maximum: 450°F

POSTHEAT TREATMENT: N/A

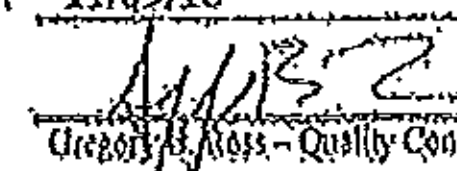
WELDING PROCEDURE

Weld Size (in)	Electrode Size	Welding Current		Travel Speed in/in	Depth of Prep. (in)	Joint Detail C-P2-G
		Amps	Volts			
3/16"	.045	265-280	27.5-30	10.0-11.0	265-280	
1/4"	.045	265-280	27.5-30	10.0-11.0	265-280	
5/16"	.045	265-280	27.5-30	10.0-11.0	265-280	
R=0	$\alpha = 60^\circ$	$T_1 = 1/4"$ min	$T_2 =$ Unbeveled	$t = 1/8"$ min, $S = 1/32"$		

*** This procedure may vary within the limitations identified in AWS D1.5:2008 "Bridge Welding Code", ***

PROCEDURE NO: GMAW-06 REVISION NO: 0-2010

QUALIFYING PQR: WPA - GMAW 2010-A PQR REQ'D DATE: 11/09/16

MANUFACTURER: Watson Doyman Acme Corp. AUTHORIZED BY: 
Gregory J. Ross - Quality Control Manager

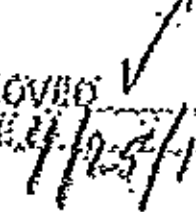
Trans
Received
GWB BY: JWC



CREATED BY: ROSS
CWI 0801/211
QC1 EXP 07/01/11



APR 17 2012

APPROVED BY: 
DATE: 4/25/12

AWD D1.5
WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION: ASTM: A709 Gr. 250, 345, & 345W (painted); A36, A572, A588 (painted)
(ref. AWS D1.5:2002, sect. 1.2 & 5.4)

WELDING PROCESS: GMAW

MANUAL OR MACHINE: Semi-Automatic

POSITION OF WELDING: Flat, Horizontal

FILLER METAL SPECIFICATION: A5.18

FILLER METAL CLASSIFICATION: BR70S-C

FILLER METAL MANUFACTURER: HOBART BR-C

SHIELDING GAS: Ar - 98%, O₂ - 2% DEW POINT: -40°F min. FLOW RATE: 37 - 49 CFH

SINGLE OR MULTIPLE PASS: Multiple

SINGLE OR MULTIPLE ARC: Single ELECTRODE STICKOUT: 3/4" ± 1/4"

WELDING CURRENT: DCEP

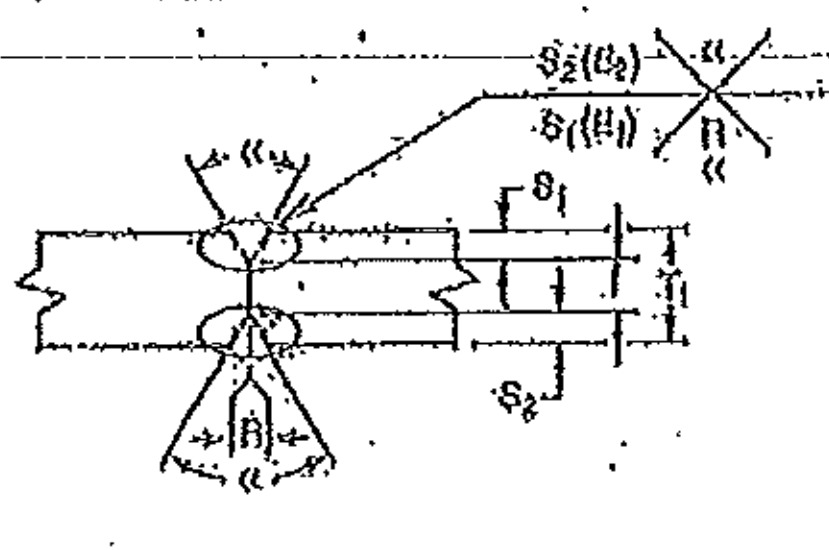
WELDING PROGRESSION: Forward

ROOT TREATMENT: Surfaces shall be smooth and uniform, and free of discontinuities, loose or thick scale, slag, rust, moisture, grease/oil, and other foreign material.
(ref. AWS D1.5:2002, 3.2.1)

PREHEAT AND INTERPASS TEMP.: Minimum: ≤ 3/4" = 50°F; over 3/4" to 1-1/2" = 70°F;
over 1-1/2" to 2-1/2" = 150°F; over 2-1/2" = 225°F Maximum: 450°F

POSTHEAT TREATMENT: N/A

WELDING PROCEDURE

Weld Size - # of Passes	Electrode Size	Welding Current		Travel Speed "/Min	Joint Detail D.P.3-Q
		Amps	Volts		
All	.045	265-280	27.5-30	10.0-11.0	
				$T_1 = 1/2"$ min $T = 1/8"$ min $\alpha = 60^\circ$ $R = 0$ $S_1 + S_2 = 1/3 T$	

*** This procedure may vary within the limitations identified in AWS D1.5:2005 "Bridge Welding Code" ***

PROCEDURE NO: GMAW-07 REVISION NO: 0-2010

QUALIFYING PQR: WBA - GMAW 2010 -A PQR REQUAL DATE: 11/09/15

MANUFACTURER: Watson Boylston Acme Corp. AUTHORIZED BY: *[Signature]*
Gregory Ross - Quality Control Manager

Trans
Received
GRD BY: *[Signature]*



ORFORD ROSS
CWI 08070211
QC1 EXP 07/01/11



APR 17 2012

Resubmit: _____ APPROVED: *[Signature]*
BY: _____ DATE: 4/25/12

AWS D1.5
WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION: ASTM A709 Gr. 250, 345 & 345W (painted); A36, A572, A588 (painted) (ref. AWS D1.5:2002 sect. 1.2 & 3.4)

WELDING PROCESS: GMAW

MANUAL OR MACHINE: Semi-Automatic

POSITION OF WELDING: Flat & Horizontal

FILLER METAL SPECIFICATION: A5.18

FILLER METAL CLASSIFICATION: ER70S-6

FILLER METAL MANUFACTURER: HOBART ER-6

SHIELDING GAS: Ar - 98% O₂ - 2%

SINGLE OR MULTIPLE PASS: Single (S₁) or Multiple (S₂)

SINGLE OR MULTIPLE ARC: Single

WELDING CURRENT: DCBP

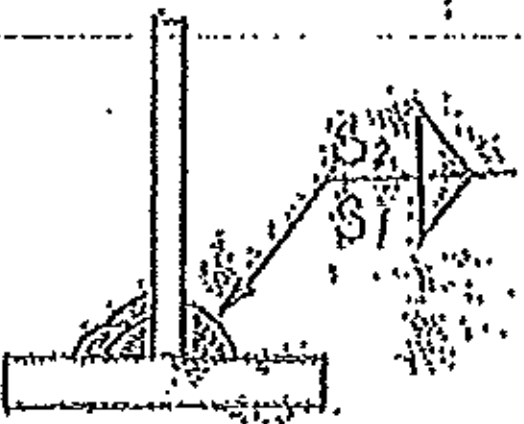
WELDING PROGRESSION: Forward

ROOT TREATMENT: Surfaces shall be smooth and uniform, and free of discontinuities, loose or thick scale, slag, rust, moisture, grease/oil, and other foreign material. (ref. AWS D1.5:2002, 3.2.1)

PREHEAT AND INTERPASS TEMP: Minimum $\leq 3/4"$ = 50°F; over 3/4" to 1-1/2" = 70°F; over 1-1/2" to 2-1/2" = 150°F; over 2-1/2" = 225°F Maximum 450°F

POSTHEAT TREATMENT: N/A

WELDING PROCEDURE

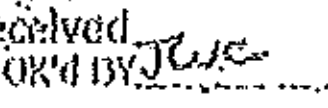
Weld Size	Electrode Size	Welding Current		Travel Speed, in/min	Joint Detail Fillet
		Amps	Volts		
$\leq 5/16$ (S ₁)	.045	265-280	27.5-30	10.0 - 11.0	
$\geq 5/16$ (S ₁)	.045	265-280	27.5-30	10.0 - 11.0	

*** This procedure may vary within the limitations identified in AWS D1.5:2008 "Bridge Welding Code", ***

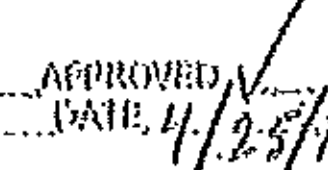
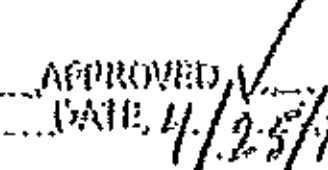
PROCEDURE NO: GMAW-11 REVISION NO: 0-2010

QUALIFYING PQR: WBA-GMAW-2010 & GMAW-CS-2007 Fillet PQR REQUEST DATE: 11/09/13

MANUFACTURER: Watson Bowman Acme Corp. AUTHORIZED BY: 
Gregory V. Ross - Quality Control Manager

Received
OK'D BY: 
APPROVED BY: 
DATE: 08/07/11
EXP: 07/01/11

APR 17 2012

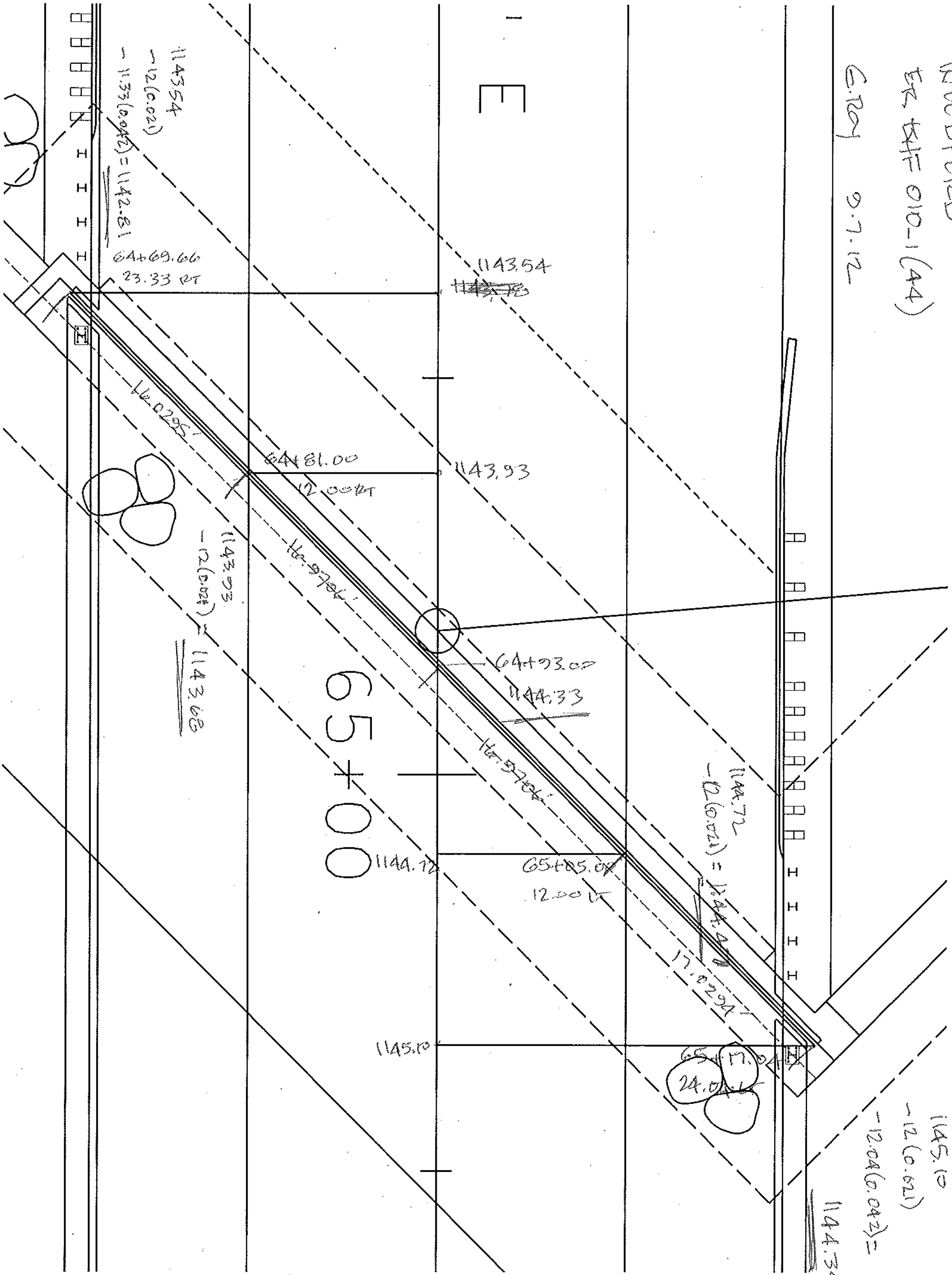
Resubmit: 
BY: 
DATE: 4/25/12



WOODFORD

EX. REF 010-1(44)

GRAY 9.7.12



GENERAL NOTES

1.0 GENERAL

- 1.1 THE CONTRACTOR MUST VERIFY ALL DIMENSIONS PRIOR TO FABRICATION TO ENSURE ACCURACY OF THE EXPANSION JOINT.

DIMENSIONS VERIFIED: _____

- 1.2 ALL WORK SHALL COMPLY WITH THE VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SIXTEENTH EDITION AND ITS LATEST REVISIONS, EXCEPT AS NOTED HEREIN.

- 1.3 ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

- 1.4 IN CASE OF DIFFERENCE ON THE CONTRACT PLANS BETWEEN SCALE DIMENSIONS AND FIGURES, THE FIGURES SHALL BE FOLLOWED.

2.0 STANDARD SPECIFICATION CRITERIA

3.0 SPECIAL PROVISION CRITERIA

4.0 MATERIALS

- 4.1 ALL STRUCTURAL AND PERMANENT MATERIALS SHALL BE OF DOMESTIC ORIGIN, AND MATERIAL CERTIFICATION STATING ALL SUCH MATERIALS ARE "MELTED AND MANUFACTURED" IN THE UNITED STATES OF AMERICA SHALL BE SUBMITTED.

- 4.2 STEEL BARS, PLATES AND SHAPES SHALL CONFORM TO ASTM A 36.

- 4.3 STRUCTURAL USE AND GENERAL USE BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-325. BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-325, A-563 AND F-436 RESPECTIVELY. SCREWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F-835.

- 4.4 THE FABRIC TROUGH SHALL BE ONE CONTINUOUS FABRIC PIECE FOR THE FULL LENGTH OF THE EXPANSION JOINT.

- 4.5 THE CONCRETE ANCHOR STUDS SHALL BE IN ACCORDANCE WITH ASTM A-108.

5.0 INSPECTION REQUIREMENTS

- 5.1 IN HOUSE SHOP INSPECTION BY A REPRESENTATIVE OF VERMONT AGENCY OF TRANSPORTATION INDEPENDENT OF WATSON BOWMAN ACME CORP.'S QUALITY CONTROL INSPECTOR IS REQUIRED.

- 5.2 QUALITY CONTROL INSPECTION

- 5.2.1 DURING FABRICATION OF THE EXPANSION JOINT, WATSON BOWMAN ACME SHALL PROVIDE FULL TIME QUALITY CONTROL INSPECTION TO INSURE THAT THE MATERIALS AND WORKMANSHIP MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE CONTRACT.

6.0 FABRICATION

- 6.1 FABRICATION SHALL BE IN ACCORDANCE WITH WATSON BOWMAN ACME'S QUALITY CONTROL MANUAL AND MANUFACTURING TOLERANCE.
- 6.2 ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.5 WELDING SPECIFICATIONS.
- 6.3 ALL WELDING SHALL BE EXECUTED USING GMAW PROCESSES. SEAL WELD ALL CONNECTIONS WHERE POSSIBLE PRIOR TO GALVANIZING.
- 6.4 STUDS SHALL BE INSPECTED VISUALLY AND SHALL BE GIVEN A LIGHT BLOW WITH A HAMMER. ANY STUD WHICH DOES NOT HAVE A COMPLETE END WELD OR DOES NOT EMIT A RINGING SOUND WHEN STRUCK WITH A LIGHT BLOW WITH A HAMMER SHALL BE REPLACED.
- 6.5 STUDS SHALL NOT BE LOCATED MORE THAN 1" FROM THE LOCATION SHOWN ON THESE SHOP DRAWINGS.
- 6.6 THE FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION. A DRIP BEAD OD 1/4" x 7" PREFORMED FABRIC MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 1" FROM THE DOWNSPOUT END OF THE TROUGH.
- 6.7 THE EXPANSION JOINT OPENING SHALL BE PRESET BY THE MANUFACTURER, TO THE DIMENSION SHOWN AT 45°F. FINAL ADJUSTMENTS SHALL BE MADE IN THE FIELD BY THE CONTRACTOR AT THE DIRECTION OF THE ENGINEER IN CHARGE, PRIOR TO FINAL CONCRETE PLACEMENT.
- 6.8 STUDS MAY BE BENT TO AN ANGLE OF 30° TO AVOID INTERFERENCE WITH DECK REINFORCEMENT, OR TO PROVIDE PROPER CONCRETE COVER.
- 6.9 AFTER FABRICATION, BUT BEFORE SHIPPING, STRAIGHTEN STEEL SHAPES SO THAT THEY ARE FREE FROM WARP, TWIST AND SWEEP.
- 6.10 FOR PAYMENT PURPOSES THE LENGTH OF THE JOINT PAID FOR WILL BE THE NUMBER OF LINEAR METERS OF JOINT SYSTEM INSTALLED, MEASURED HORIZONTALLY AND VERTICALLY ALONG THE CENTERLINE OF THE JOINT SYSTEM BETWEEN THE OUTER LIMITS OF THE BRIDGE FASCIA UNLESS OTHERWISE SHOWN ON THE PLANS.

7.0 COATINGS

- 7.1 THE EXPANSION JOINT ASSEMBLY, INCLUDING THE SUPPORT ANGLES, SHALL BE GALVANIZED. IN ACCORDANCE WITH ASTM A-123. THE WELDED EMBEDMENT PLATE WITH STUDS AND FIELD WELDED 1" DIA THREADED STUDS SHALL NOT BE GALVANIZED.
- 7.2 REPAIR DAMAGED HOT-DIP GALVANIZING ACCORDING TO AASHTO M-111. REPAIRED AREAS TO BE "COLD GALVANIZED". PRODUCT SHALL BE 82% ZINC DUST AND HAVE A DRY FILM THICKNESS EQUAL TO OR GREATER THAN THE ORIGINAL GALVANIZING. AEROSOL CANS SHALL NOT BE USED.
- 7.3 PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO A 1.6mm (1/16") RADIUS.

The 1 1/4" x 5 1/2" bars shall be furnished in eight pieces, four pieces per side. The maximum length of any one piece shall not exceed 17'-1 3/8"

Either the 33 foot or the 34 foot section of joint shall be assembled prior to shipping, with the fabric trough included.

Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

Aug. 21, 2012

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 09-05-2012

STATE: VERMONT
COUNTY: BENNINGTON
PROJECT NO.: ER BHF 010-1(44)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: XXX
WBA PRODUCT NO.: EMB143833AA

SHEET NUMBER
FIRM DESIGNATION
FIRM NUMBER
2e1
MARK SYSTEM

DRAWING ACTION:

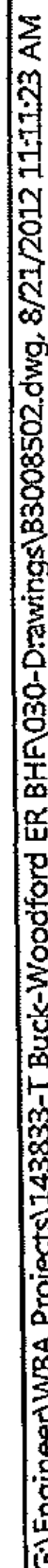


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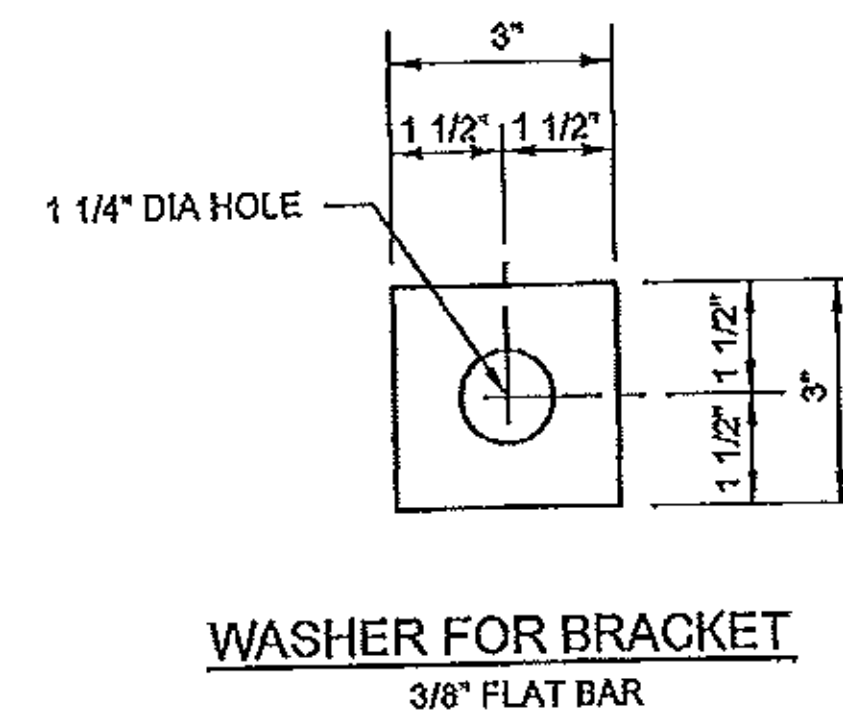
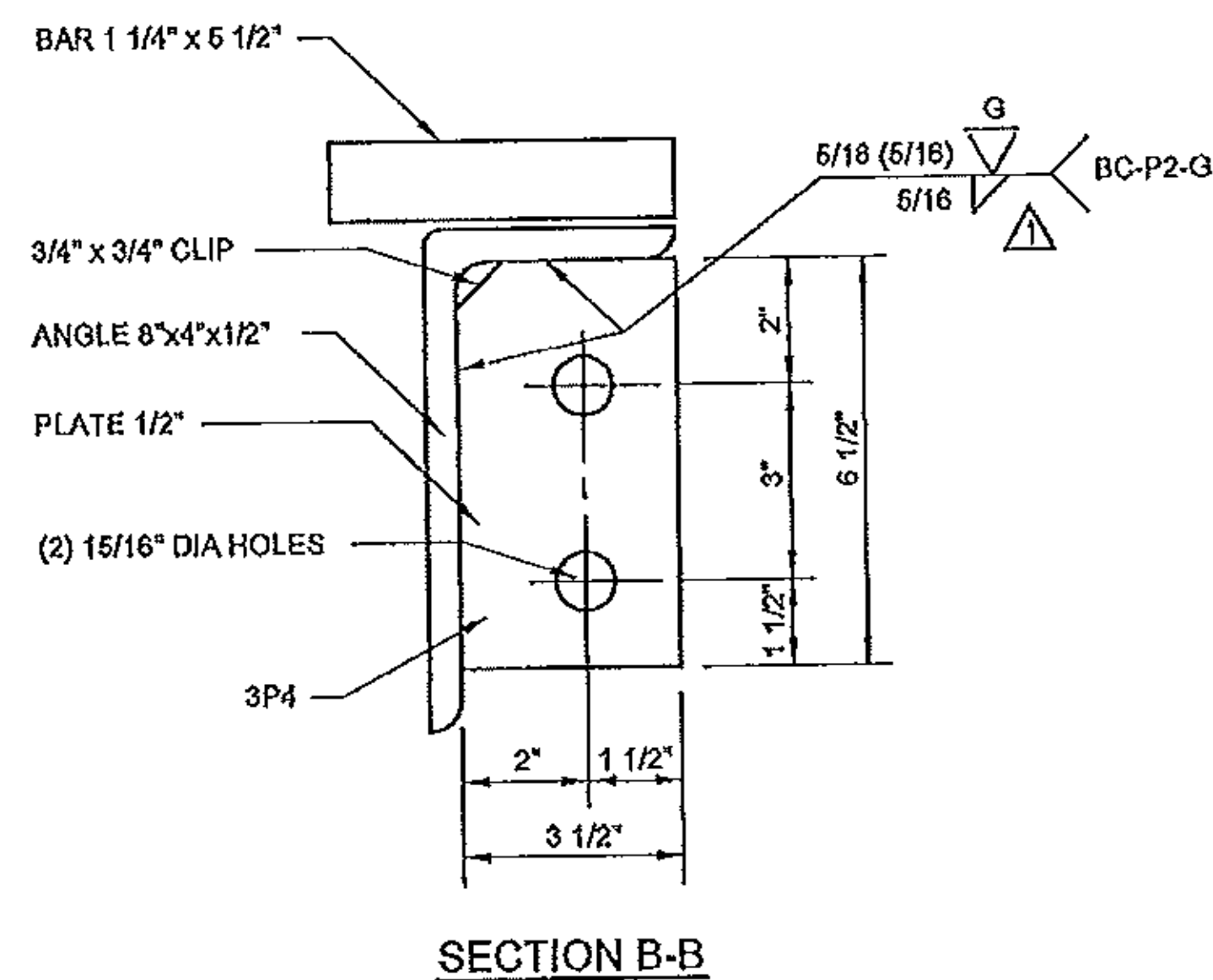
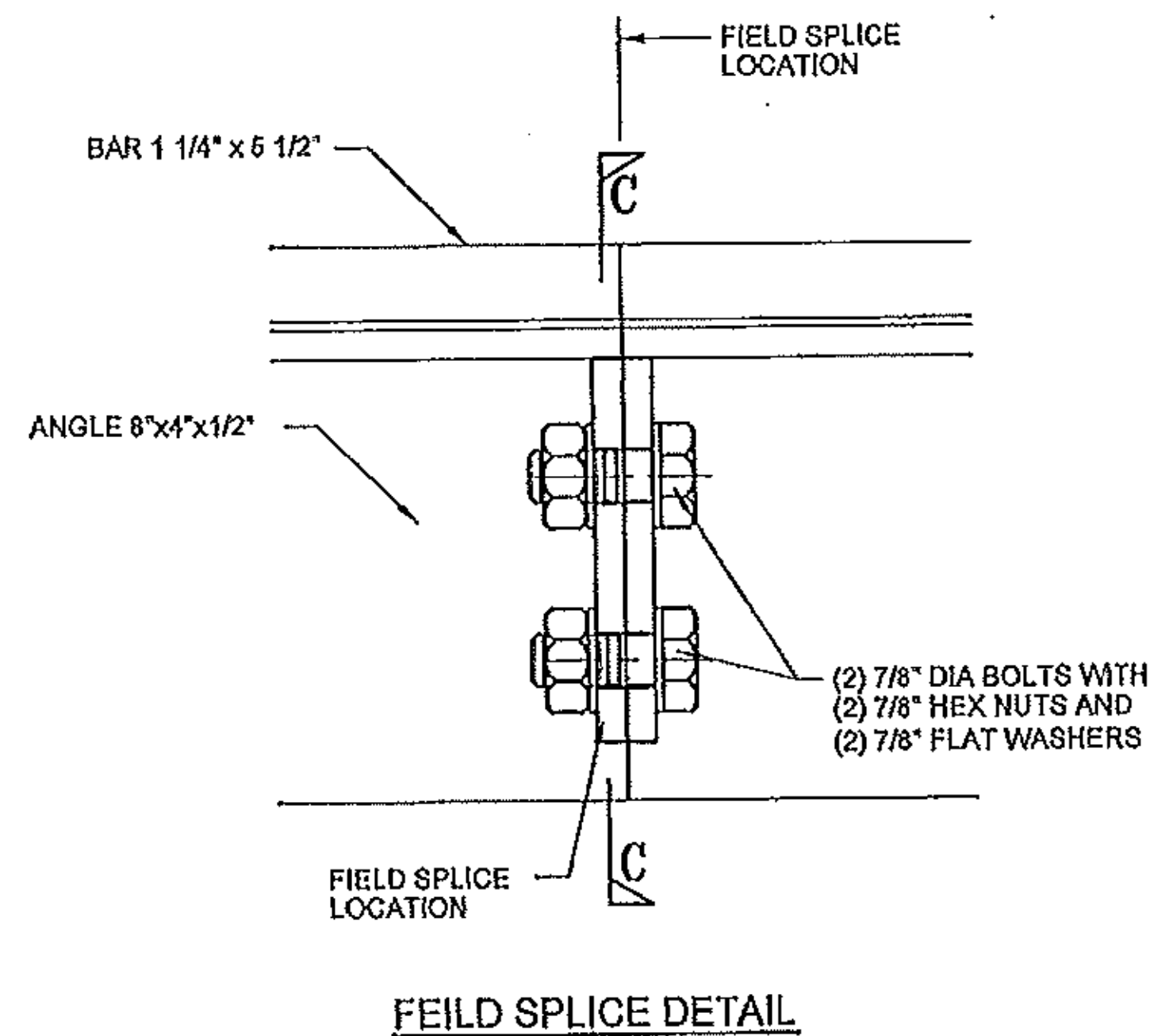
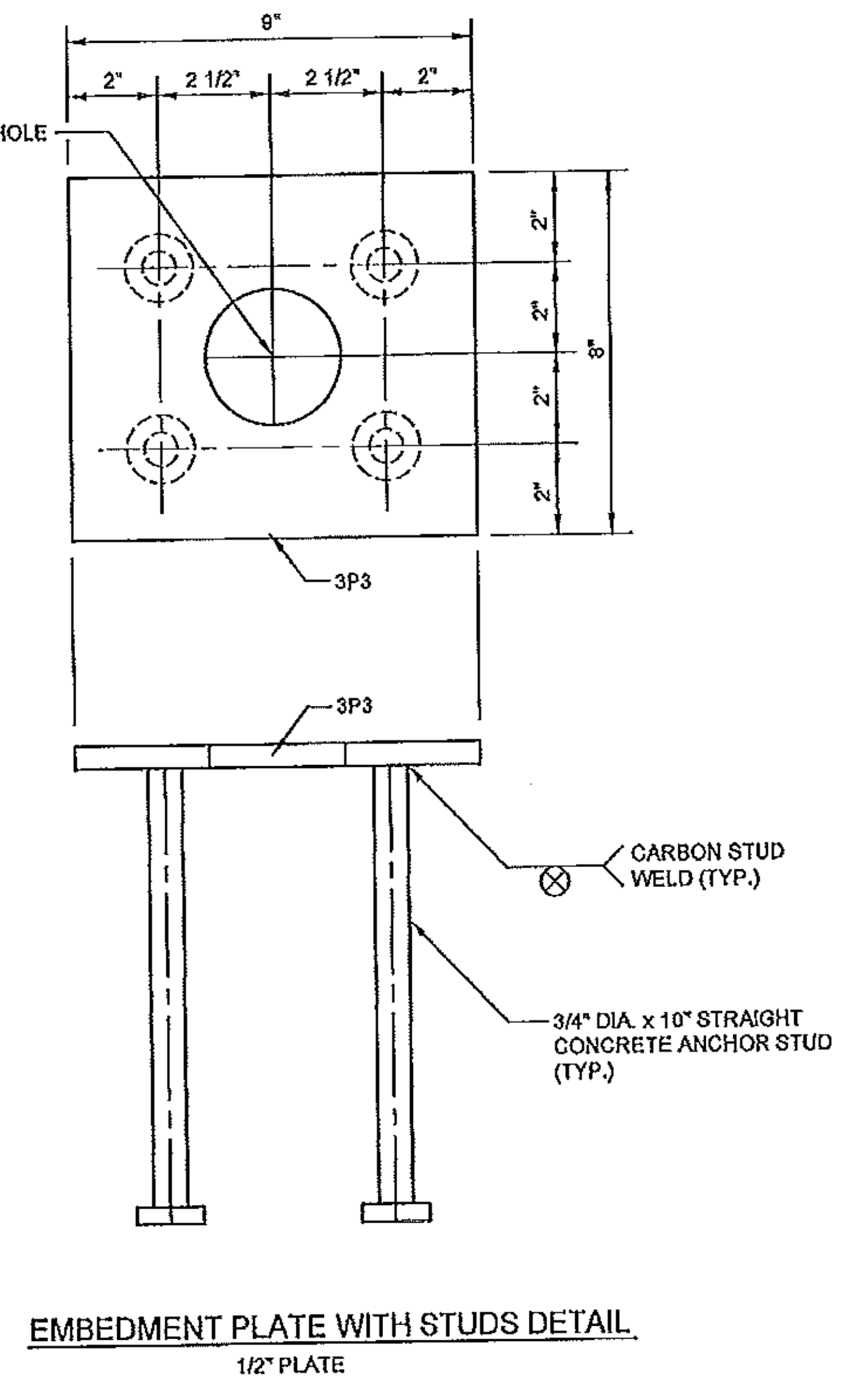
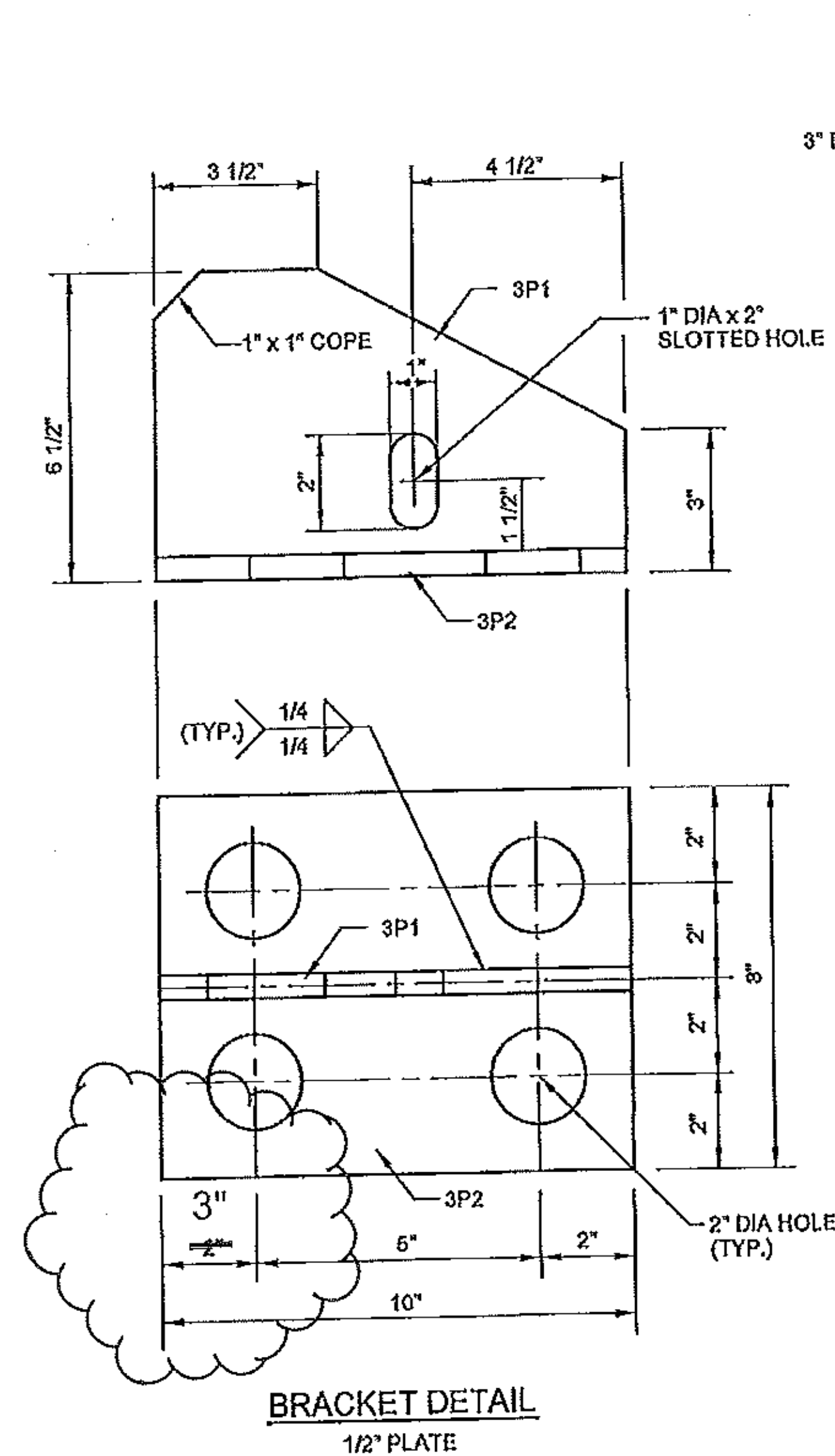
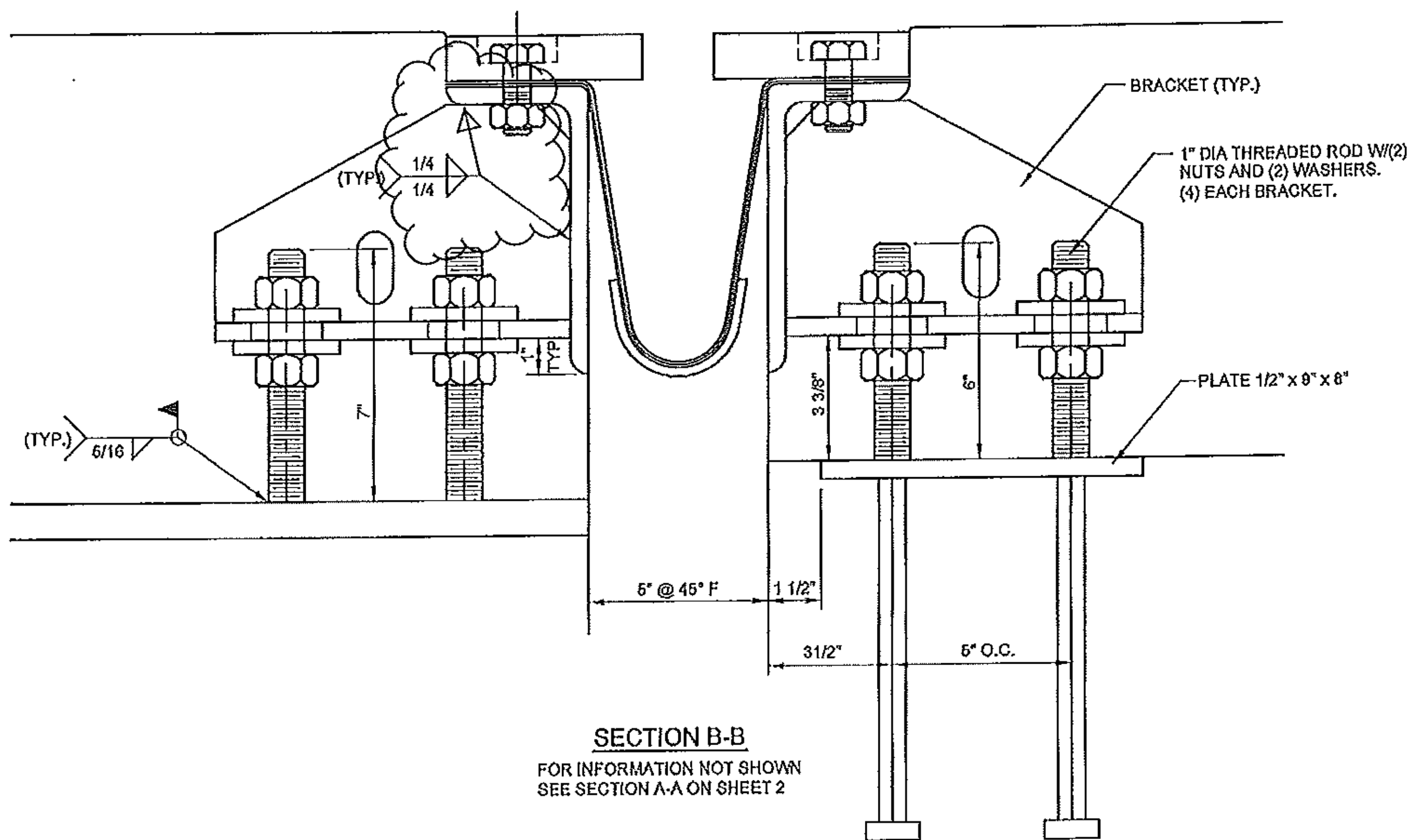
PROJECT: WOODFORD
VT RT 9 BRIDGE NO. 11 OVER ROARING
BRANCH OF THE WALLOOMSAC RIVER
WABO PLATE JOINT W/NEOPRENE TROUGH DETAILS

DESIGNED BY KF	DATE 8-14-12
CHECKED BY JFW	DATE 8-14-12
SCALE NTS	WBA JOB NO. 143833
SHEET NO. 1 OF 5	DRAWING NO. B-30085



DELETED BY JFW	DATE 8-14-12
CREATED BY KF	DATE 8-14-12
SCALE NTS	BOX JOB NO. 143833
SHEET NO. 2 OF 5	DRAWING NO. B-30085

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Vermont Agency of Transportation
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CK'D BY M.E.M. OK'D BY C.W.M.

Aug. 21, 2012

RESUBMIT APPROVED AS NOTED
BY C. CARLSON DATE 09-05-2012

STATE: VERMONT
COUNTY: BENNINGTON
PROJECT NO.: ER BHF 010-1(44)
REFERENCE NO.: XXXXXXXXXX
DISTRICT: XXX ROUTE: XXX
WBA PRODUCT NO.: EMB143833AA

MARK SYSTEM
2e1

DRAWING ACTION:

NO.	REVISION	DATE	BY	CHKD
1	REVISED WELD DETAIL	8/21/2012	JFW	
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Watson
Bowman
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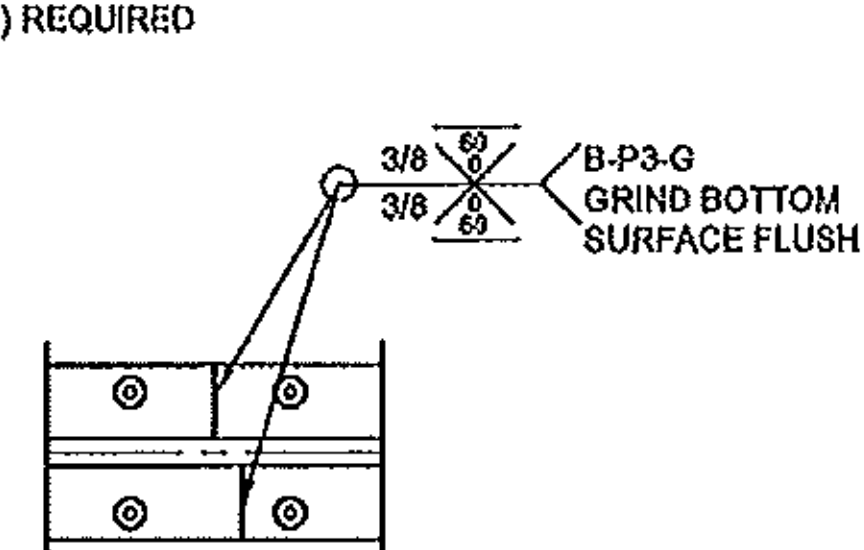
B-BASE
The Gravel Company

WATSON BOWMAN ACME CORPORATION
65 PREVIEW DRIVE AUSTIN, TX 78728 TEL: (512) 611-7343 FAX: (512) 611-9339

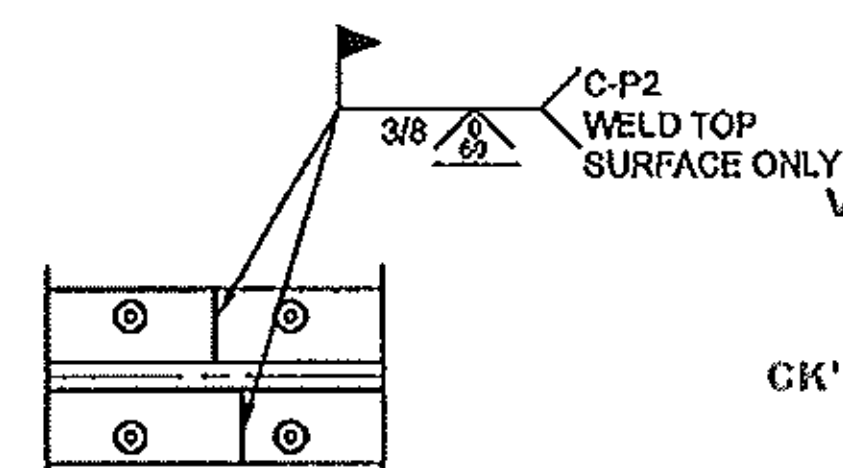
PROJECT: WOODFORD
VT RT 9 BRIDGE NO. 11 OVER ROARING
BRANCH OF THE WALLOOMSAC RIVER
WABO PLATE JOINT W/NEOPRENE TROUGH DETAILS

DESIGNED BY	JFW	DATE	8-14-12
CHECKED BY	KF	DATE	8-14-12
SCALE	NTS	WBA JOB NO.	143833
SHEET NO.	3 OF 5	DISTRICT NO.	B-30085

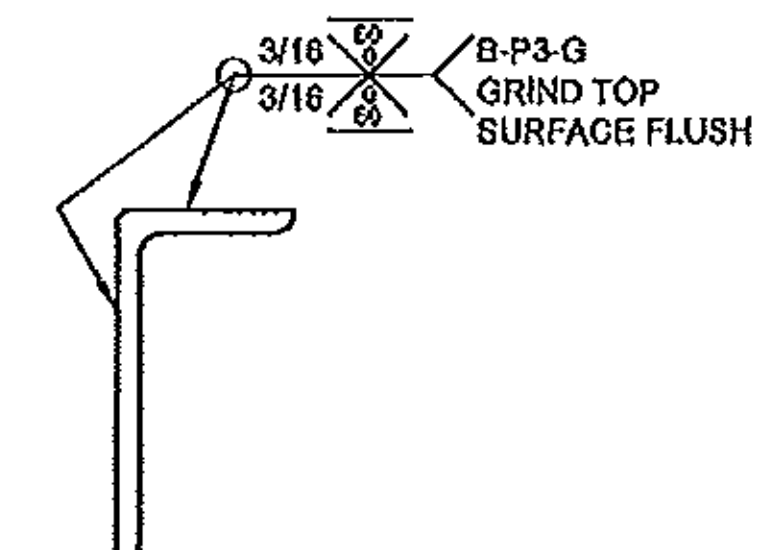
MTO143833DB - (1) REQUIRED



1 1/4" x 5" BAR



1 1/4" x 5" BAR



8" x 4" x 1/2" ANGLE

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

08/21/2012

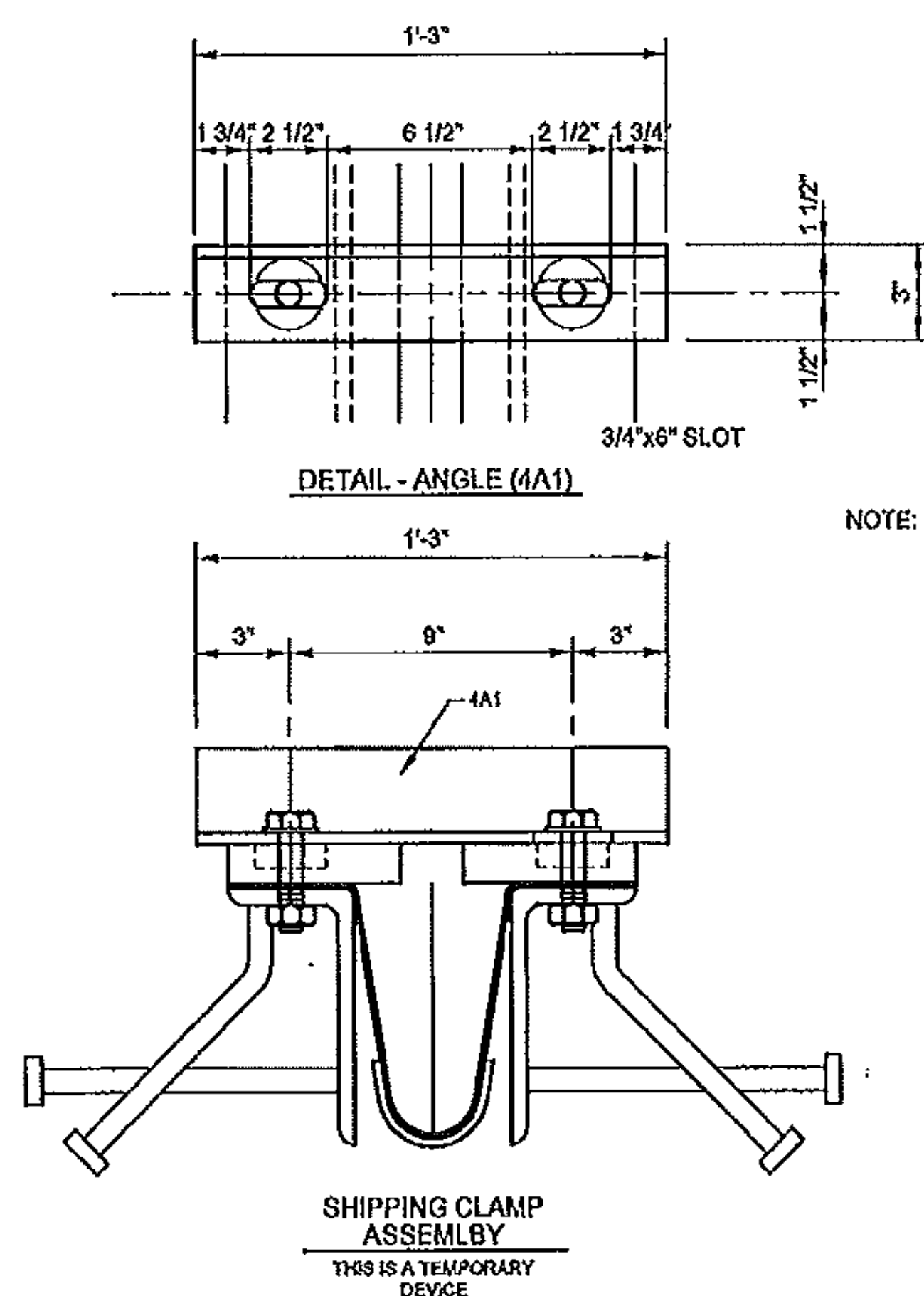
RESUBMIT APPROVED AS NOTED

BY C. CARLSON DATE 09/07/2012

NOTE: 1. SHIPPING CLAMPS SHALL BE SPACED 1'-0" FROM
END OF JOINT AND 4'-0" O.C. THEREAFTER.

2. THE CONTRACTOR IS TO REMOVE THE SHIPPING CLAMPS
WHEN THE JOINT IS SET. CONTRACTOR SHALL TOUCH
UP ANY DAMAGED GALVANIZING.

3. EACH SHIPPING CLAMP ASSEMBLY SHALL INCLUDED,
1 - ANGLE (4A1) 3" x 3" x 1/2"
2 - 3/4" Ø x 3 1/2" LG FULLY THREADED BOLT
2 - 3/4" WASHER



201

MARK SYSTEM

DRAWING ACTION:

  				
	ADDED WELD DETAILS		JFW	6
NO	DEDUCT	NONE	0	0
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**Watson
Bowman
Acme**

D-RAS
The Chemical Company

PROJECT: WOODFORD
VT RT 9 BRIDGE NO. 11 OVER ROARING
BRANCH OF THE WALLOOMSAC RIVER
WABO PLATE JOINT W/NEOPRENE TROUGH DETAILS

DETAILS BY JFW	DATE 8-14-12
PROD BY KF	DATE 8-14-12
SCALE NTS	394 JOB NO: 143833
SHEET NO: 4 OF 5	DRAWING NO: 8-30085

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EMB143833AA QTY: 1 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	EMB143833AA	1.00	EA	WABO PLATE EXP. JOINT; ABUTMENT 1; 67.0 LF (X	JOINT IS GALVANIZED
					SHIPPING LENGTH = 34 LF +/-
1	NTS143833FB	135.00	FT	FLAT BAR 1 1/4" x 5 1/2"	A-36
1	4170	135.00	FT	ANGLE 8" x 4" x 1/2"	A-36
1	4782	68.00	EA	CONC ANG STUDS 3/4" DIA x 10" STRAIGHT	A-108
1	4840	66.00	EA	CONC ANG STUDS 3/4" DIA x 10" BENT	A-108
1	NTS143833BT	98.00	EA	3/4" DIA x 2 1/2" HEAVY HEX BOLT	AASHTO M164, TYPE 1 GALVANIZED
1	NTS143833NT	132.00	EA	3/4" DIA HEAVY HEX NUT	ASTM A-563 GALVANIZED
1	2830	150.00	EA	BEDDING TAPE	BUTYL RUBBER TAPE
1	5308	34.00	EA	3/4" DIA x 3 1/2" HEX BOLT FULLY THREADED	FOR SHIPPING CLAMP
1	7602	34.00	EA	3/4" DIA FLAT WASHER	FOR SHIPPING CLAMP
1	EMB143833AA01	17.00	EA	SHIPPING CLAMP 3" x 3" x 3/8" x 1'-3" (4A1)	
2	3891	1.26	FT	ANGLE 3" x 3" x 3/8"	A-36
1	EMB143833AA02	12.00	EA	SUPPORT BRACKET	
2	4640	20.00	LB	PLATE 1/2"	A-36
1	EMB143833AA02	4.00	EA	FIELD SPLICE PLATE	
2	6021	0.55	FT	FLAT BAR 1/2" x 3 1/2"	A-36

NTS143833AA QTY: 1 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	NTS143833AA	1.00	EA	PREFORMED FABRIC TROUGH 5/32" x 2'-2" x 68'-0" (THREE PLY) NEOPRENE	

NTS143833AB QTY: 1 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	NTS143833AB	2 1.00	EA	PREFORMED FABRIC DRIP EDGE 1/4" x 7" x 68'-0" (THREE PLY) NEOPRENE	

EMB143833PS QTY: 1 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	EMB143833PS	1.00	EA	PARTS FOR SHIPPING (V	
1	NTS143833BT	34.00	EA	3/4" DIA x 2 1/2" HEAVY HEX BOLT	AASHTO M164, TYPE 1 GALVANIZED
1	NTS143833BL	4.00	EA	7/8" DIA x 2" HEAVY HEX BOLT	AASHTO M164, TYPE 1 GALVANIZED
1	NTS143833NL	4.00	EA	7/8" DIA HEAVY HEX NUT	ASTM A-563 GALVANIZED
1	7591	8.00	EA	7/8" DIA FLAT WASHER	ASTM F-436 GALVANIZED
1	7967	96.00	EA	1" DIA HEAVY HEX NUT (A)	ASTM A-563 GALVANIZED
1	XXXX			ADHESIVE FOR DRIP EDGE	

EMB143833EB QTY: 6 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	EMB143833EB	1.00	EA	EMBEDMENT PLATE WITH STUDS (X	UNCOATED
1	3580	10.25	LB	PLATE 1/2" (3P3)	A-36
1	4782	4.00	EA	CONC ANG STUDS 3/4" DIA x 10" STRAIGHT	A-108

EMB143833SW QTY: 96 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	EMB143833SW	1.00	EA	SQUARE WASHER FOR SUPPORT BRACKET	GALVANIZED
1	6011	0.34	FT	FLAT BAR 1/2" x 3"	A-36

EMB143833TRI QTY: 24 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	EMB143833TRI	1.00	EA	THREADED ROD 1" DIA x 6" LONG	UNCOATED
1	7170	0.51	FT	1" DIA THREADED ROD	

EMB143833TR2 QTY: 24 REQ'D. STRUCTURED BILL OF MATERIALS DWG. NO.: B-30085					
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL
0	EMB143833TR2	1.00	EA	THREADED ROD 1" DIA x 7" LONG	UNCOATED
1	7170	0.59	FT	1" DIA THREADED ROD	

Vermont Agency of Transportation

RECEIVED

CK'D BY M.E.M. OK'D BY C.W.M.

Aug. 21, 2012

RESUBMIT APPROVED
BY C. CARLSON DATE Sept. 05, 2012

STATE: VERMONT
COUNTY: BENNINGTON
PROJECT NO.: ER BHF 010-1(44)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: XXX
WBA PRODUCT NO.: EMB143833AA

MARK SYSTEM

DRAWING ACTION:



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WATSON BOWMAN ACME CORPORATION
85 PRINCE DRIVE JAMESTOWN, N.Y. 14221 TEL: (716) 631-7555 FAX: (716) 631-2239

PROJECT: WOODFORD
VT RT 9 BRIDGE NO. 11 OVER ROARING
BRANCH OF THE WALLOOMSAC RIVER
WABO PLATE JOINT W/NEOPRENE TROUGH DETAILS



DESIGNED BY	JFW	DATE	8-14-12
CHECKED BY	KF	DATE	8-14-12
SCALE	NTS	WBA JOB NO.	143833
SHEET NO.	5 OF 5	DWG. NO.	B-30085

TOUCH UP PAINT ON BEAMS

(INCIDENTAL TO ITEM 900.645-SPECIAL PROVISION-QC/QA CLEANING AND PAINTING STRUCTURAL COMPONENTS)

Surface Preparation

- Surfaces not to be coated shall be identified and protected for the duration of cleaning and coating operations. We will be using tape/plastic as needed to protect areas not to be painted.
- Inspect surfaces for residual chlorides and sulfates which might impair service life of coatings due to osmotic blistering
- Decontaminate if indicated according to NACE 6G186 guidelines. Decontamination is not anticipated.
- Staging of work area as required for coating work.
- Surface preparation per SSPC SP1.
 1. **Solvent Cleaning SSPC-SP1 Definition:**

Solvents such as water, mineral spirits, xylol, toluol etc., are used to remove solvent-soluble foreign matter from the surface of ferrous metals. Rags and solvents must be replenished frequently to avoid spreading the contaminant rather than removing it. Low-pressure (1500 - 4000 psi) high volume (3 - 5 gal/min.) water washing with appropriate cleaning chemicals is a recognized "solvent cleaning" method. All surfaces should be should be cleaned per this specification prior to using hand tools or blast equipment.
- Identify flaws (chips), with indelible ink pen surface preparation per SSPC SP3 power tool clean grind "holidays" to feather out 1" from flaw. Apply repair product.
 1. **Power Tool Cleaning SSPC-SP3 (SSI-St3) Definition:**

A mechanical method of surface preparation widely used in industry and involving the use of power sanders or wire brushes, power chipping hammers, abrasive grinding wheels, needle guns etc. Although usually more effective than hand tool cleaning, it is not considered adequate for use under severe exposure conditions or for immersion applications.

Coating Application

- Apply Sherwin Williams paint as originally specified to areas as required by manufacturer or as directed by the resident.
- Connections that are noted on the approved shop drawings as “primer only” will receive mid coat and top coat only.
- See attached cut sheets for Sherwin Williams material data sheets.

PAINT MANUFACTURER:
SHERWIN WILLIAMS

PRODUCT SYSTEM:

–PRIMER COAT: ZINC CLAD III HS 100, ORGANIC ZINC RICH EPOXY PRIMER, 3–5 MILS DFT

–INTERMEDIATE COAT: MACROPOXY 646–100, FAST CURE EPOXY, 5–10 MILS DFT

–TOP COAT: ACROLON 218 HS, ACRYLIC POLYURETHANE, 3–6 MILS DFT

–TOP COAT COLOR: FEDERAL STANDARD 595 COLOR NO. 20059 BROWN.

IMAGE OF NOTE ON APPROVED SHOP DRAWINGS

Coating Quality Control

- Log in lot numbers of all products to be used in coating application
- Record critical environmental conditions as required at least one time per shift
 - a. Relative humidity (as needed)
 - b. Surface temperature
 - c. Dew Point (as needed)
 - d. Ambient air temperature
- Record coating start time and stop time for each phase of work. This is to assure the proper overcoat windows are maintained.



Protective
&
Marine
Coatings

ZINC CLAD® III HS 100
ORGANIC ZINC-RICH EPOXY PRIMER

PART A
PART B
PART F

B69A110
B69V110
B69D11

BASE
HARDENER
ZINC DUST

Revised 2/12

PRODUCT INFORMATION

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PRODUCT DESCRIPTION

ZINC CLAD III HS 100 is a three-component, polyamide epoxy, zinc-rich coating. It has a low VOC level and contains 90.3% by weight of zinc dust pigment in its dried film.

- Meets Class B requirements for Slip Coefficient and Creep Resistance
- Provides cathodic protection
- Damaged film exhibits "self-healing" properties
- Fast Recoat Time
- HAPS Free
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Gray-green
Volume Solids:	60% ± 2%, mixed
Weight Solids:	88% ± 2%, mixed
VOC (EPA Method 24):	Unreduced: <100 g/L; 0.71 lb/gal mixed
Zinc Content in Dry Film:	90.3% by weight
Mix Ratio:	3 components, premeasured 3.25 gallons (12.3L) total

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	5.0 (125)	8.0 (200)
Dry mils (microns)	3.0 (75)	5.0 (125)
~Coverage sq ft/gal (m²/L)	190 (4.6)	320 (7.8)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	960 (23.5)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	45 minutes	30 minutes	10 minutes
To handle:	2 hours	1 hour	30 minutes
To recoat*:			
minimum:	4 hours	2 hours	1 hour
maximum:	1 year	1 year	1 year
To cure:	10 days	7 days	5 days

Drying time is temperature, humidity, and film thickness dependent.

*NOTE: Film must be free of solvent, hard and firm. When rubbed with the face of a coin or knife the film should polish but not flake or chip.

Pot Life:	6 hours	4 hours	2 hours
Sweat-in-Time:	1 hour	30 minutes	15 minutes

Shelf Life:	Parts A, B, & F: 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C)
Flash Point:	60°F (16°C), PMCC, mixed
Reducer/Clean Up:	R7K111 or R6K10

RECOMMENDED USES

For use over properly prepared blasted steel.

- Fabrication Shops
- Bridge and Highway Structures
- Stadiums and Sports Complexes
- Drilling Rigs
- Piping
- Refineries
- Barges and Ships
- Wind Towers - onshore and offshore
- Shop or Field Applications
- Not recommended for immersion service.

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP10/NACE 2

System Tested*:

- 1 ct. Zinc Clad III HS @ 5.0 mils (125 microns) dft
- 1 ct. Macropoxy 646 @ 5.0-10.0 mils (125-250 microns) dft
- 1 ct. Acrolon 218 HS @ 5.0 mils (125 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Adhesion	ASTM D4541	975 psi
Corrosion Weathering	ASTM D5894, 13 cycles, 2016 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Dry Heat Resistance (zinc only)	ASTM D2485	300°F (149°C)
Moisture Condensation Resistance	ASTM D4585, 100°F, 4000 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Pencil Hardness (zinc only)	ASTM D3363	2H
Salt Fog Resistance	ASTM B117, 4500 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Slip Coefficient* (zinc only)	AISC Specifications for Structural Joints using ASTM A325 or ASTM A490 Bolts	Class B, 0.51

Complies with ISO 12944-5 C5I and C5M requirements.

*Refer to Slip Certification document



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ZINC CLAD® III HS 100
ORGANIC ZINC-RICH EPOXY PRIMER

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PRODUCT INFORMATION

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RECOMMENDED SYSTEMS		
	Dry Film Thickness / ct.	
	Mils	(Microns)
Steel, polyurethane topcoat:		
1 ct. Zinc Clad III HS 100	3.0-5.0	(75-125)
1-2 cts. Acrolon 218 HS	3.0-6.0	(75-150)
Steel, catalyzed epoxy topcoat:		
1 ct. Zinc Clad III HS 100	3.0-5.0	(75-125)
1-2 cts. Macropoxy 646	5.0-10.0	(125-250)
Steel, catalyzed epoxy topcoat:		
1 ct. Zinc Clad III HS 100	3.0-5.0	(75-125)
1-2 cts. Tile-Clad HS	2.5-4.0	(63-100)
Steel, acrylic topcoat:		
1 ct. Zinc Clad III HS 100	3.0-5.0	(75-125)
2 cts. DTM Acrylic Coating	2.5-4.0	(63-100)
or		
1 ct. Fast Clad HB Acrylic	5.0-8.0	(125-200)
Steel, water based epoxy topcoat:		
1 ct. Zinc Clad III HS 100	3.0-5.0	(75-125)
2 cts. Waterbased Tile-Clad Epoxy	2.0-4.0	(50-100)
Steel, water-based urethane topcoat:		
1 ct. Zinc Clad III HS 100	3.0-5.0	(75-125)
1 ct. Waterbased Tile-Clad Epoxy	2.0-4.0	(50-100)
1-2 cts. Hydrogloss	2.0-4.0	(50-100)

The systems listed above are representative of the product's use, other systems may be appropriate.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel:	SSPC-SP6/NACE 3, 2 mil (50 micron) profile
Galvanizing:	SSPC-SP7
Weathered Zinc Rich Primer:	Clean, dry, sound

Surface Preparation Standards					
	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING	
Do not tint.	

APPLICATION CONDITIONS	
Temperature:	40°F (4.5°C) minimum, 120°F (49°C) maximum (air, surface, and material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum
Refer to product Application Bulletin for detailed application information.	

ORDERING INFORMATION	
Packaging:	3.25 gallons (12.3L) mixed
Part A	1 gallon (3.78L)
Part B	1 gallon (3.78L)
Part F	73 lb (33.1 Kg) Zinc Dust
Weight:	28.65 ± 0.2 lb/gal ; 3.44 Kg/L, mixed

SAFETY PRECAUTIONS	
Refer to the MSDS sheet before use.	
Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.	

WARRANTY	
The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.	

DISCLAIMER
The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.



Protective
&
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Coatings

ZINC CLAD® III HS 100
ORGANIC ZINC-RICH EPOXY PRIMER

PART A
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BASE
HARDENER
ZINC DUST

Revised 2/12

APPLICATION BULLETIN

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SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Zinc rich coatings require direct contact between the zinc pigment in the coating and the metal substrate for optimum performance.

Iron & Steel (atmospheric service)

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Coat any bare steel the same day as it is cleaned or before flash rusting occurs.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned or before flash rusting occurs.

Weathered Zinc-Rich Primer

Remove zinc salts by either high pressure water washing and scrubbing with stiff bristle brush or sweep blast followed by water flush. Allow to dry.

Note: If blast cleaning with steel media is used, an appropriate amount of steel grit blast media may be incorporated into the work mix to render a dense, angular 1.5-3.0 mil (38-75 micron) surface profile, per Keane-Tator Surface Profile Comparator. A profile up to 4 mils (100 microns) is acceptable, however, coating must be applied to achieve a minimum of 3 mils (75 microns) dft. This method may result in improved adhesion and performance.

Surface Preparation Standards				
Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Rusted	D St 2	D St 2	SP 2	-
Pitted & Rusted	D St 3	D St 3	SP 3	-
Power Tool Cleaning	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 120°F (49°C) maximum
(air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up.....R7K111 or R6K10

Airless Spray

(use Teflon packings and continuous agitation)

Pressure.....2000 - 2300 psi
Hose.....3/8" ID
Tip 019"
Filter none
Reduction.....As needed up to 10% by volume

Conventional Spray

(continuous agitation required)

Gun Binks 95
Fluid Nozzle 68
Air Nozzle.....68P
Atomization Pressure.....50 psi
Fluid Pressure.....10 - 20 psi
Reduction.....As needed up to 10% by volume

Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.

Brush

Brush.....Small areas only; natural bristle
Reduction.....Not recommended

If specific application equipment is not listed above, equivalent equipment may be substituted.



Protective
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ZINC CLAD® III HS 100 ORGANIC ZINC-RICH EPOXY PRIMER

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Zinc Clad III HS 100 comes in 3 premeasured containers which when mixed provides 3.25 gallons (12.3L) of ready-to-apply material.

Mixing Instructions:

Mix contents of component A and B thoroughly with a low speed power agitator. Make certain no pigment remains on the bottom of the can. Then combine 1 part by volume of Part A with 1 part by volume of Part B, then add Part F (73 lb zinc dust). Thoroughly agitate the mixture with power agitation. After mixing, pour through a 30-60 mesh screen. Allow the material to sweat-in as indicated. Re-stir before using.

If reducer solvent is used, add only after components have been thoroughly mixed, after sweat-in.

Continuous agitation of mixture during application is required, otherwise zinc dust will quickly settle out.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	5.0 (125)	8.0 (200)
Dry mils (microns)	3.0 (75)	5.0 (125)
~Coverage sq ft/gal (m ² /L)	190 (4.6)	320 (7.8)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	960 (23.5)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 5.0 mils wet (125 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	45 minutes	30 minutes	10 minutes
To handle:	2 hours	1 hour	30 minutes
To recoat*:			
minimum:	4 hours	2 hours	1 hour
maximum:	1 year	1 year	1 year
To cure:	10 days	7 days	5 days

Drying time is temperature, humidity, and film thickness dependent.

*NOTE: Film must be free of solvent, hard and firm. When rubbed with the face of a coin or knife the film should polish but not flake or chip.

Pot Life:	6 hours	4 hours	2 hours
Sweat-in-Time:	1 hour	30 minutes	15 minutes

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with R7K111 or R6K10. Clean tools immediately after use with R7K111 or R6K10. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

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PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and performance.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with R7K111 or R6K10.

Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.

Application above recommended film thickness may result in mud cracking.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



Protective
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MACROPOXY® 646-100
FAST CURE EPOXY

PART A
PART B

B58-620
B58V620

SERIES
HARDENER

Revised 5/11

PRODUCT INFORMATION

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PRODUCT DESCRIPTION

MACROPOXY 646-100 FAST CURE EPOXY is a high solids, less than 100 g/L VOC, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.

- Low VOC, <100 g/L
- Low odor
- Outstanding application properties
- Chemical resistant
- Abrasion resistant

PRODUCT CHARACTERISTICS

Finish: Semi-Gloss
Color: Mill White and a wide range of colors available through tinting
Volume Solids: 73% ± 2%, mixed
Mill White
Weight Solids: 83% ± 2%, mixed
Mill White
VOC (EPA Method 24): Unreduced: <100 g/L; .83 lb/gal
mixed Reduced 10%: <100 g/L; .83 lb/gal
Mix Ratio: 1:1 by volume

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	7.0 (175)	13.5 (338)
Dry mils (microns)	5.0* (125)	10.0* (250)*
~Coverage sq ft/gal (m²/L)	116 (2.8)	232 (5.7)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1168 (28.6)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

*See Recommended Systems on reverse side. See Performance Tips section also.

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	4-5 hours	2 hours	1.5 hours
To handle:	48 hours	8 hours	4.5 hours
To recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
Cure for			
service:	10 days	7 days	4 days
immersion:	14 days	7 days	4 days
If maximum recoat time is exceeded, abrade surface before recoating. Drying time is temperature, humidity, and film thickness dependent.			
Pot Life:	10 hours	4 hours	2 hours
Sweat-in-time:	30 minutes	30 minutes	15 minutes

Shelf Life: 36 months, unopened
Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point: 61°F (16°C), PMCC, mixed
Reducer/Clean Up: Reducer R7K111 or Oxsol 100

RECOMMENDED USES

- Marine applications
- Fabrication shops
- Pulp and paper mills
- Power plants
- Offshore platforms
- Refineries
- Chemical plants
- Tank exteriors
- Water treatment plants
- Mill White is acceptable for immersion use for salt water and fresh water
- Not acceptable for potable water
- Suitable for use in USDA inspected facilities
- Conforms to AWWA D102 OCS #5

PERFORMANCE CHARACTERISTICS

Substrate*: Steel
Surface Preparation*: SSPC-SP10/NACE 2
System Tested*:
1 ct. Macropoxy 646-100 Fast Cure @ 6.0 mils (150 microns) dft
*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	84 mg loss
Accelerated Weathering - QUV¹	ASTM D4587, QUV-A, 12,000 hours	Passes
Adhesion	ASTM D4541	1,037 psi
Corrosion Weathering¹	ASTM D5894, 36 cycles, 12,000 hours	Rating 10 per ASTM D714 for blistering; Rating 9 per ASTM D610 for rusting
Direct Impact Resistance	ASTM D2794	30 in. lb.
Dry Heat Resistance	ASTM D2485	250°F (121°C)
Exterior Durability	1 year at 45° South	Excellent, chalks
Flexibility	ASTM D522, 180° bend, 3/4" mandrel	Passes
Immersion	1 year fresh and salt water	Passes, no rusting, blistering, or loss of adhesion
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance¹	ASTM B117, 6,500 hours	Rating 10 per ASTM D610 for rusting; Rating 9 per ASTM D1654 for corrosion
Water Vapor Permeance	ASTM D1653, Method B	1.16 grains/day

Epoxy coatings may darken or discolor following application and curing.

Footnotes:

¹ Zinc Clad II Plus Primer



Protective
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Marine
Coatings

MACROPOXY® 646-100 FAST CURE EPOXY

PART A
PART B

B58-620
B58V620

SERIES
HARDENER

PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

Dry Film Thickness / ct.		
	Mils	(Microns)
Immersion and atmospheric:		
Steel:		
2 cts. Macropoxy 646-100	5.0-10.0	(125-250)
Concrete/Masonry, smooth:		
2 cts. Macropoxy 646-100	5.0-10.0	(125-250)
Concrete Block:		
1 ct. Kem Cati-Coat HS Epoxy Filler/Sealer as needed to fill voids and provide a continuous substrate.	10.0-20.0	(250-500)
2 cts. Macropoxy 646-100	5.0-10.0	(125-250)
Atmospheric:		
*Steel:		
(Shop applied system, new construction, AWWA D102, can also be used at 3 mils (75 microns) dft when used as an intermediate coat as part of a multi-coat system)		
1 ct. Macropoxy 646-100 Fast Cure Epoxy	3.0-6.0	(75-150)
1-2 cts. of recommended topcoat		
Steel:		
1 ct. Recoatable Epoxy Primer	4.0-6.0	(100-150)
2 cts. Macropoxy 646-100	5.0-10.0	(125-250)
Steel:		
1 ct. Macropoxy 646-100	4.0-6.0	
1-2 cts. Acrolon 218 Polyurethane	3.0-6.0	(75-150)
or Hi-Solids Polyurethane	3.0-5.0	(75-125)
or SherThane 2K Urethane	2.0-4.0	(50-100)
Steel:		
2 cts. Macropoxy 646-100	5.0-10.0	(125-250)
1-2 cts. Tile-Clad HS Epoxy	2.5-4.0	(63-100)
Steel:		
1 ct. Zinc Clad II Plus	3.0-6.0	(75-150)
1 ct. Macropoxy 646-100	5.0-10.0	(125-250)
1-2 cts. Acrolon 218 Polyurethane	3.0-6.0	(75-150)
Steel:		
1 ct. Zinc Clad III HS	3.0-5.0	(75-125)
or Zinc Clad IV	3.0-5.0	(75-125)
1 ct. Macropoxy 646-100	5.0-10.0	(125-250)
1-2 cts. Hi-Solids Polyurethane-100	3.0-6.0	(75-150)
Aluminum:		
2 cts. Macropoxy 646-100	5.0-10.0	(125-250)
Galvanizing:		
2 cts. Macropoxy 646-100	5.0-10.0	(125-250)

The systems listed above are representative of the product's use, other systems may be appropriate.

DISCLAIMER

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SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel	
Atmospheric:	SSPC-SP2/3
Immersion:	SSPC-SP10/NACE 2, 2-3 mil (50-75 micron) profile
Aluminum:	SSPC-SP1
Galvanizing:	SSPC-SP1
Concrete & Masonry	
Atmospheric:	SSPC-SP13/NACE 6, or ICRI No. 310.2, CSP 1-3
Immersion:	SSPC-SP13/NACE 6-4.3.1 or 4.3.2, or ICRI No. 310.2, CSP 1-3

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Rusted	D St 2	D St 2	SP 3	-
Pitted & Rusted	D St 3	D St 3	SP 3	-
Power Tool Cleaning	D St 3	D St 3	SP 3	-

TINTING

Tint Part A with Maxitones at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

Tinting is not recommended for immersion service.

APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 140°F (60°C) maximum (air, surface, and material)
Relative humidity:	At least 5°F (2.8°C) above dew point 85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	
Part A:	1 gallon (3.78L) and 5 gallon (18.9L) containers
Part B:	1 gallon (3.78L) and 5 gallon (18.9L) containers
Weight:	13.24 ± 0.2 lb/gal ; 1.6 Kg/L mixed, may vary by color

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



Protective
&
Marine
Coatings

MACROPOXY® 646-100
FAST CURE EPOXY

PART A
PART B

B58-620
B58V620

SERIES
HARDENER

Revised 5/11

APPLICATION BULLETIN

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SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel, Atmospheric Service:

Minimum surface preparation is Hand Tool Clean per SSPC-SP2. Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. For better performance, use Commercial Blast Cleaning per SSPC-SP6/NACE 3, blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils / 50 microns). Prime any bare steel within 8 hours or before flash rusting occurs.

Iron & Steel, Immersion Service:

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2-3 mils / 50-75 microns). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned.

Aluminum

Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1 (recommended solvent is VM&P Naphtha). When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned.

Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910.

Concrete, Immersion Service:

For surface preparation, refer to SSPC-SP13/NACE 6, Section 4.3.1 or 1.3.2 or ICRI No. 310.2, CSP 1-3.

Follow the standard methods listed below when applicable:

ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2 Concrete Surface Preparation.

Previously Painted Surfaces

If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 140°F (60°C) maximum
(air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up Reducer R7K111 or Oxsol 100

Airless Spray

Pump.....30:1
Pressure.....2800 - 3000 psi
Hose.....1/4" ID
Tip 017" - .023"
Filter 60 mesh
Reduction.....As needed up to 10% by volume

Conventional Spray

Gun DeVilbiss MBC-510
Fluid Tip E
Air Nozzle.....704
Atomization Pressure.....60-65 psi
Fluid Pressure.....10-20 psi
Reduction.....As needed up to 10% by volume
Requires oil and moisture separators

Brush

Brush.....Nylon/Polyester or Natural Bristle
Reduction.....Not recommended

Roller

Cover 3/8" woven with solvent resistant core
Reduction.....Not recommended

If specific application equipment is not listed above, equivalent equipment may be substituted.



Protective
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Marine
Coatings

MACROPOXY® 646-100 FAST CURE EPOXY

PART A
PART B

B58-620
B58V620

SERIES
HARDENER

APPLICATION BULLETIN

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.

If reducer solvent is used, add only after both components have been thoroughly mixed, after sweat-in.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	7.0 (175)	13.5 (338)
Dry mils (microns)	5.0* (125)	10.0* (250)*
~Coverage sq ft/gal (m ² /L)	116 (2.8)	232 (5.7)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1168 (28.6)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

*See Recommended Systems on reverse side. See Performance Tips section also.

Drying Schedule @ 7.0 mils wet (175 microns):

	@ 40°F/4.5°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	4-5 hours	2 hours	1.5 hours
To handle:	48 hours	8 hours	4.5 hours
To recoat:			
minimum:	48 hours	8 hours	4.5 hours
maximum:	1 year	1 year	1 year
Cure for			
service:	10 days	7 days	4 days
immersion:	14 days	7 days	4 days

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Pot Life:	10 hours	4 hours	2 hours
Sweat-in-time:	30 minutes	30 minutes	15 minutes

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer R7K111 or Oxsol 100. Clean tools immediately after use with Reducer R7K111 or Oxsol 100. Follow manufacturer's safety recommendations when using any solvent.

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PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R7K111 or Oxsol 100.

Insufficient ventilation, incomplete mixing, miscatalyzation, and external heaters may cause premature yellowing.

Excessive film build, poor ventilation, and cool temperatures may cause solvent entrapment and premature coating failure.

Tinting is not recommended for immersion service.

Use only Mil White for Immersion service.

Quik-Kick Epoxy Accelerator is acceptable for use. See data page 4.99 for details.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

For Immersion Service: (if required) Holiday test in accordance with ASTM D5162 for steel, or ASTM D4787 for concrete.

When coating over aluminum and galvanizing, recommended dft is 2-4 mils (50-100 microns).

Acceptable for Concrete Floors.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

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Protective
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Coatings

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised 4/12

PRODUCT INFORMATION

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PRODUCT DESCRIPTION

ACROLON 218 HS is a low VOC, polyester modified, aliphatic, acrylic polyurethane formulated specifically for in-shop applications. Also suitable for industrial applications. A fast drying, urethane that provides color and gloss retention for exterior exposure.

- Can be used directly over organic zinc rich primers (epoxy zinc primer and moisture cure urethane zinc primer)
- Color and gloss retention for exterior exposure
- Fast dry
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Gloss or Semi-Gloss
Color:	Wide range of colors available
Volume Solids:	65% ± 2%, mixed, may vary by color
Weight Solids:	78% ± 2%, mixed, may vary by color
VOC (EPA Method 24):	Unreduced: <300 g/L; 2.5 lb/gal mixed Reduced 10% with R7K15: <340 g/L; 2.8 lb/gal mixed Reduced 9% with MEK, R6K10: <340 g/L; 2.8 lb/gal mixed
Mix Ratio:	6:1 by volume, 1 gallon or 5 gallon mixes premeasured components

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	4.5 (112.5)	9.0 (225)
Dry mils (microns)	3.0 (75)	6.0 (150)
~Coverage sq ft/gal (m ² /L)	175 (4.3)	346 (8.5)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1040 (25.5)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.7°C	@ 77°F/25°C	@ 120°F/49°C
		50% RH	
To touch:	4 hours	30 minutes	20 minutes
To handle:	18 hours	6 hours	4 hours
To recoat:			
minimum:	18 hours	8 hours	6 hours
maximum:	3 months	3 months	3 months
To cure:	14 days	7 days	5 days
Pot Life:	4 hours	2 hours	45 minutes
(reduced 5% with Reducer R7K15)			
Sweat-in-Time:	None		

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.
Paint temperature must be at least 40°F (4.5°C) minimum.

Shelf Life*:	Part A - 36 months, unopened Part B - 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
*Aluminum (Part A, Rex # B65SW655) has a shelf life of 12 months.	
Flash Point:	55°F (13°C), Seta, mixed
Reducer/Clean Up:	
Spray:	Reducer R7K15, MEK R6K10, or R7K111
Brush / Roll:	Reducer #132, R7K132 or R7K111

RECOMMENDED USES

Specifically formulated for in-shop applications. For use over prepared metal and masonry surfaces in industrial environments such as:

- Structural steel
- Rail cars and locomotives
- Conveyors
- Bridges
- Wind Towers - onshore and offshore
- Offshore platforms - exploration and production
- Suitable for use in USDA inspected facilities
- Conforms to AWWA D102 Outside Coating Systems #4 (OCS-4), #5 (OCS-5) & #6 (OCS-6)
- Acceptable for use in high performance architectural applications
- A component of INFINITANK
- Tank exteriors
- Pipelines
- Ships

PERFORMANCE CHARACTERISTICS

Substrate*: Steel
Surface Preparation*: SSPC-SP10/NACE 2
System Tested*:
1 ct. Macropoxy 646 @ 6.0 mils (150 microns) dft
1 ct. Acrolon 218 HS Gloss @ 4.0 mils (100 microns) dft
*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance ¹	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	43 mg loss
Adhesion	ASTM D4541	975 psi
Corrosion Weathering ²	ASTM D5894, 9 cycles, 3024 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Direct Impact Resistance ¹	ASTM D2794	50 in. lb.
Dry Heat Resistance ¹	ASTM D2485, Method A	200°F (93°C)
Flexibility ¹	ASTM D522, 180° bend, 1/8" mandrel	Passes
Humidity Resistance ²	ASTM D4585, 100°F (38°C), 1500 hours	Rating 10 per ASTM D610, for rusting; Rating 10 per ASTM D714, for blistering
Pencil Hardness	ASTM D3363	3H
Salt Fog Resistance ²	ASTM B117, 7000 hours	Rating 10 per ASTM D610, for rusting; Rating 9 per ASTM D714, for blistering

Meets the requirements of SSPC Paint No. 36, Level 3 for white and light colors. Dark colors may require a clear coat.

Complies with ISO 12944-5 C5I and C5M requirements.

Footnotes:

¹ Finish coat only tested

² Primer	Zinc-Clad II Plus
Intermediate	Macropoxy 646
Finish	Acrolon 218 HS



Protective
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ACROLON™ 218 HS
ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

PRODUCT INFORMATION

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RECOMMENDED SYSTEMS

Dry Film Thickness / ct.		
	Mils	(Microns)
Steel:		
1 ct. Macropoxy 646	5.0-10.0	(125-250)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:		
1 ct. Zinc Clad II Plus	3.0-5.0	(75-125)
1 ct. Macropoxy 646	5.0-10.0	(125-250)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:		
1 ct. Zinc Clad IV	3.0-5.0	(75-125)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:		
1 ct. Corothane I-GalvaPac Zinc Primer	3.0-4.0	(75-100)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:		
1 ct. Epoxy Mastic Aluminum II	6.0	(150)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Steel:		
1 ct. Recoatable Epoxy Primer	4.0-6.0	(100-150)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Concrete/Masonry:		
1 ct. Kem Cati-Coat HS Epoxy Filler/Sealer	10.0-20.0	(250-500)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
Aluminum/Galvanizing:		
1 ct. DTM Wash Primer	0.7-1.3	(18-32)
1-2 cts. Acrolon 218 HS Polyurethane	3.0-6.0	(75-150)
ISO 12944 C5M System:		
1 ct. Zinc Clad III HS	3.0-5.0	(75-125)
1 ct. Tower Guard Epoxy	5.0-11.5	(125-287.5)
1 ct. Acrolon 218 HS	3.0-6.0	(75-150)

The systems listed above are representative of the product's use, other systems may be appropriate.

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SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

* Iron & Steel: SSPC-SP6/NACE 3, 1-2 mil (25-50 micron) profile

* Galvanizing: SSPC-SP1

* Concrete & Masonry: SSPC-SP13/NACE 6, or ICRI No. 310.2, CSP 1-3

* Primer required

Surface Preparation Standards					
Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE	
White Metal	Sa 3	Sa 3	SP 5	1	
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2	
Commercial Blast	Sa 2	Sa 2	SP 6	3	
Brush-Off Blast	Sa 1	Sa 1	SP 7	4	
Hand Tool Cleaning	C St 2	C St 2	SP 2	-	
Pitted & Rusted	D St 2	D St 2	SP 2	-	
Rusted	C St 3	C St 3	SP 3	-	
Power Tool Cleaning	Pitted & Rusted D St 3	D St 3	SP 3	-	

TINTING

Tint Part A with Maxitoner Colorants.

- Extra white tints at 100% tint strength
- Ultradeep base tints at 150% tint strength

Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface)
	40°F (4.5°C) minimum, 120°F (49°C) maximum (material)
	At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	1 gallon (3.78L) mix: 5 gallon (18.9L) mix:
Part A:	.86 gal (3.25L) 4.29 gal (16.2L)
Part B:	.14 gal (0.53L) 0.71 gal (2.7L)
(premeasured components)	
Weight:	11.2 ± 0.2 lb/gal ; 1.3 Kg/L mixed, may vary with color

SAFETY PRECAUTIONS

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WARRANTY

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Protective
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ACROLON™ 218 HS
ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

Revised 4/12

APPLICATION BULLETIN

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SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1-2 mils / 25-50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Aluminum

Remove all oil, grease, dirt, oxide and other foreign material by Solvent Cleaning per SSPC-SP1. Primer required.

Galvanized Steel

Allow to weather a minimum of six months prior to coating. Solvent Clean per SSPC-SP1. When weathering is not possible, or the surface has been treated with chromates or silicates, first Solvent Clean per SSPC-SP1 and apply a test patch. Allow paint to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments. Rusty galvanizing requires a minimum of Hand Tool Cleaning per SSPC-SP2, prime the area the same day as cleaned or before flash rusting occurs. Primer required.

Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

Follow the standard methods listed below when applicable:
ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2 Concrete Surface Preparation.

Surface Preparation Standards					
Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE	
White Metal	Sa 3	Sa 3	SP 5	1	
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2	
Commercial Blast	Sa 2	Sa 2	SP 6	3	
Brush-Off Blast	Sa 1	Sa 1	SP 7	4	
Hand Tool Cleaning	C St 2	C St 2	SP 2	-	
Pitted & Rusted	D St 2	D St 2	SP 2	-	
Rusted	C St 3	C St 3	SP 3	-	
Power Tool Cleaning	D St 3	D St 3	SP 3	-	

APPLICATION CONDITIONS

Temperature:	35°F (1.7°C) minimum, 120°F (49°C) maximum (air and surface) 40°F (4.5°C) minimum, 120°F (49°C) maximum (material) At least 5°F (2.8°C) above dew point
Relative humidity:	85% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up:

Spray.....	Reducer R7K15, MEK R6K10, or R7K111
Brush/Roll	Reducer #132, R7K132, or R7K111
If reducer is used, reduce at time of catalyzation.	

Airless Spray

Pressure.....	2500 - 2800 psi
Hose.....	3/8" ID
Tip	.013" - .017"
Filter	60 mesh
Reduction.....	As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

Conventional Spray

Gun	Binks 95
Cap	63P
Atomization Pressure.....	50 - 70 psi
Fluid Pressure.....	20 - 25 psi
Reduction.....	As needed up to 10% by volume with R7K15 or R7K111, or up to 9% with MEK, R6K10*

Brush

Brush.....	Natural Bristle
Reduction.....	As needed up to 10% by volume*

Roller

Cover	3/8" woven with solvent resistant core
Reduction.....	As needed up to 10% by volume*

If specific application equipment is not listed above, equivalent equipment may be substituted.

* Note: Reducing more than maximum recommended level will result in VOC exceeding 340g/L



Protective
&
Marine
Coatings

ACROLON™ 218 HS
ACRYLIC POLYURETHANE

PART A	B65-600	GLOSS SERIES
PART A	B65-650	SEMI-GLOSS SERIES
PART B	B65V600	HARDENER

APPLICATION BULLETIN

5.22

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine six parts by volume of Part A with one part by volume of Part B (premeasured components). Thoroughly agitate the mixture with power agitation. Re-stir before using.

If reducer is used, add only after both components have been thoroughly mixed.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	4.5 (112.5)	9.0 (225)
Dry mils (microns)	3.0 (75)	6.0 (150)
~Coverage sq ft/gal (m²/L)	175 (4.3)	346 (8.5)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1040 (25.5)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 6.0 mils wet (150 microns):

	@ 35°F/1.7°C	@ 77°F/25°C 50% RH	@ 120°F/49°C
To touch:	4 hours	30 minutes	20 minutes
To handle:	18 hours	6 hours	4 hours
To recoat:			
minimum:	18 hours	8 hours	6 hours
maximum:	3 months	3 months	3 months
To cure:	14 days	7 days	5 days
Pot Life:	4 hours	2 hours	45 minutes
(reduced 5% with Reducer R7K15)			
Sweat-in-Time:	None		

If maximum recoat time is exceeded, abrade surface before recoating.
Drying time is temperature, humidity, and film thickness dependent.
Paint temperature must be at least 40°F (4.5°C) minimum.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #132, R7K132. Clean tools immediately after use with Reducer #132, R7K132. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.

PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, and adhesion.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15 or MEK, R6K10.

Mixed coating is sensitive to water. Use water traps in all air lines. Moisture contact can reduce pot life and affect gloss and color.

Quick-Thane Urethane Accelerator is acceptable for use. See data page 5.97 for details.

E-Z Roll Urethane Defoamer is acceptable for use. See data page 5.99 for details.

Refer to Product Information sheet for additional performance characteristics and properties.

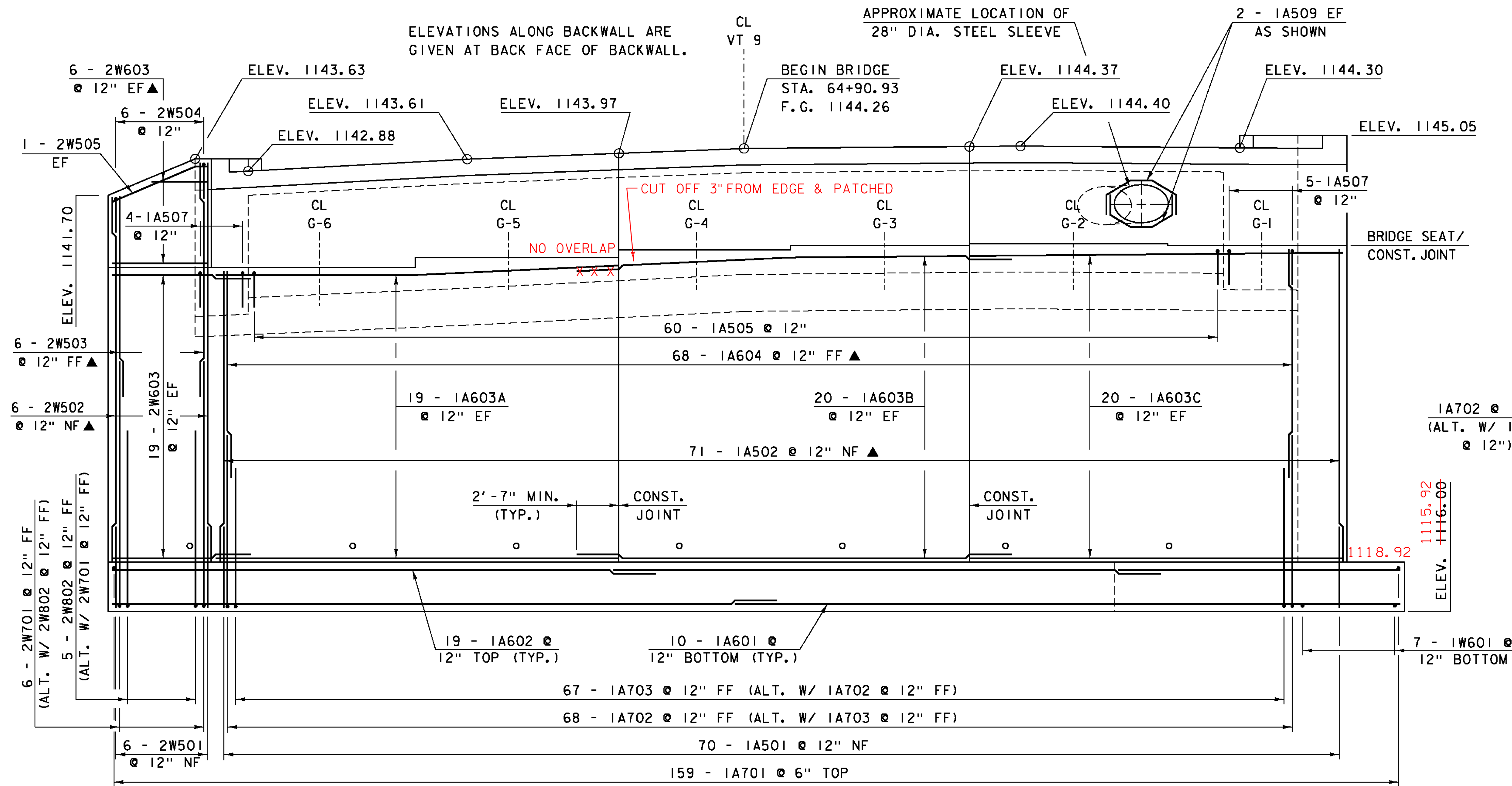
SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

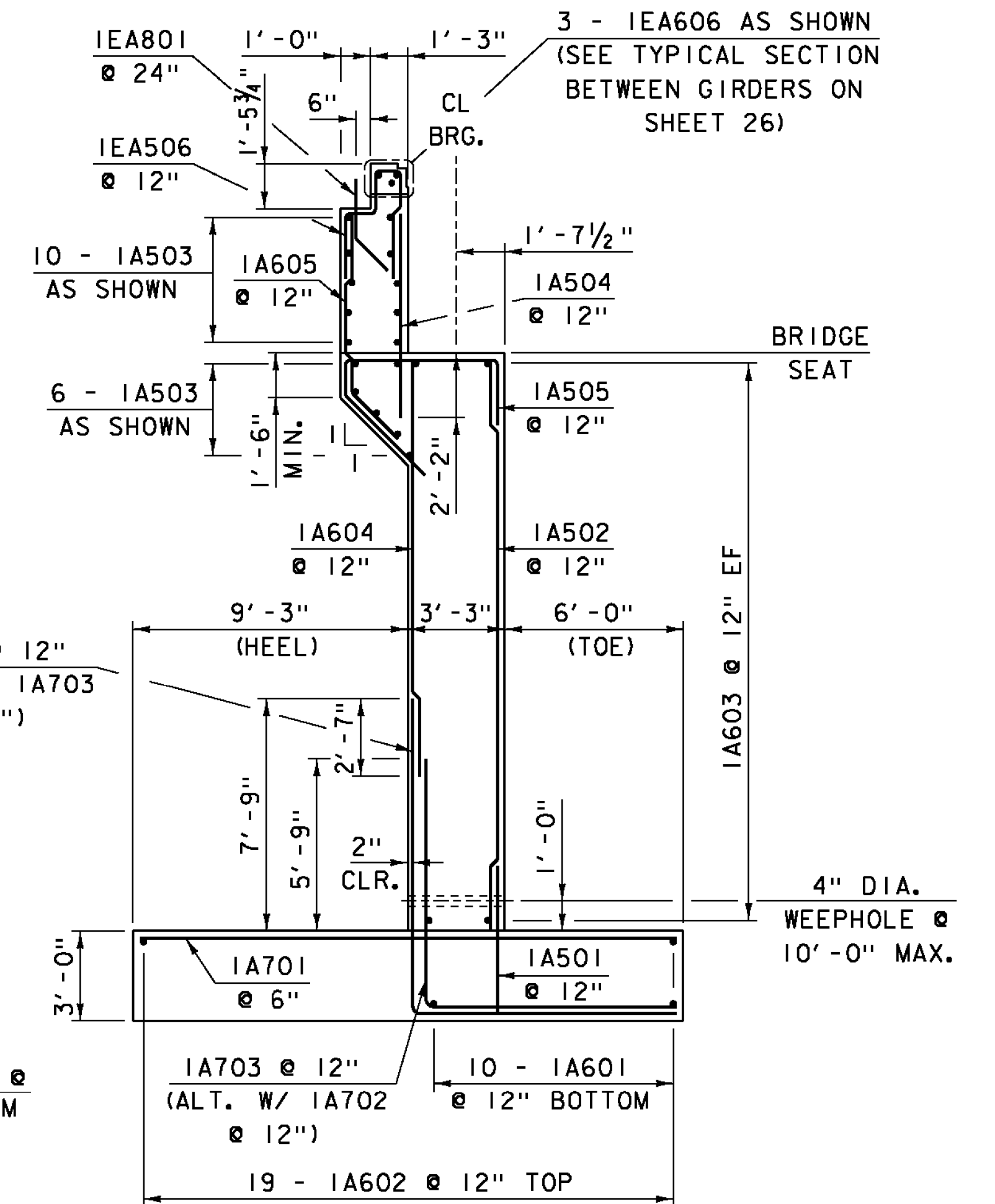
WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



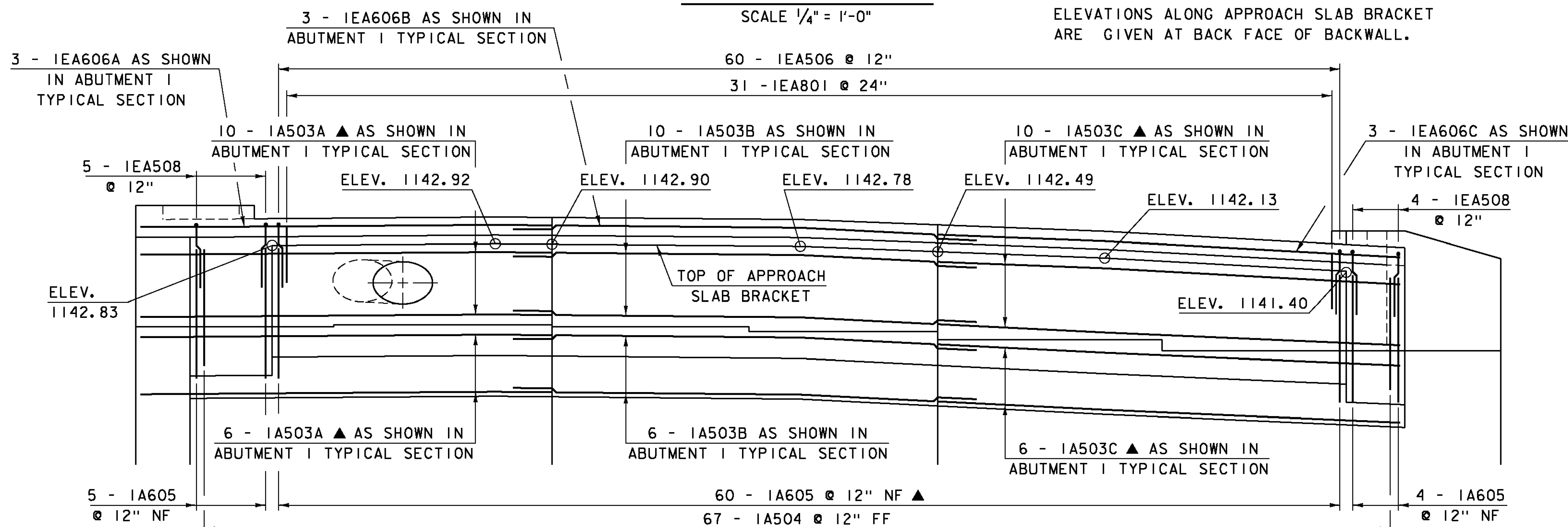
ABUTMENT I ELEVATION

SCALE 1/4" = 1'-0"



ABUTMENT I TYPICAL SECTION

SCALE 1/4" = 1'-0"



ABUTMENT I ELEVATION (LOOKING AT BACK OF ABUTMENT)

SCALE 1/4" = 1'-0"

ELEVATIONS ALONG APPROACH SLAB BRACKET ARE GIVEN AT BACK FACE OF BACKWALL.

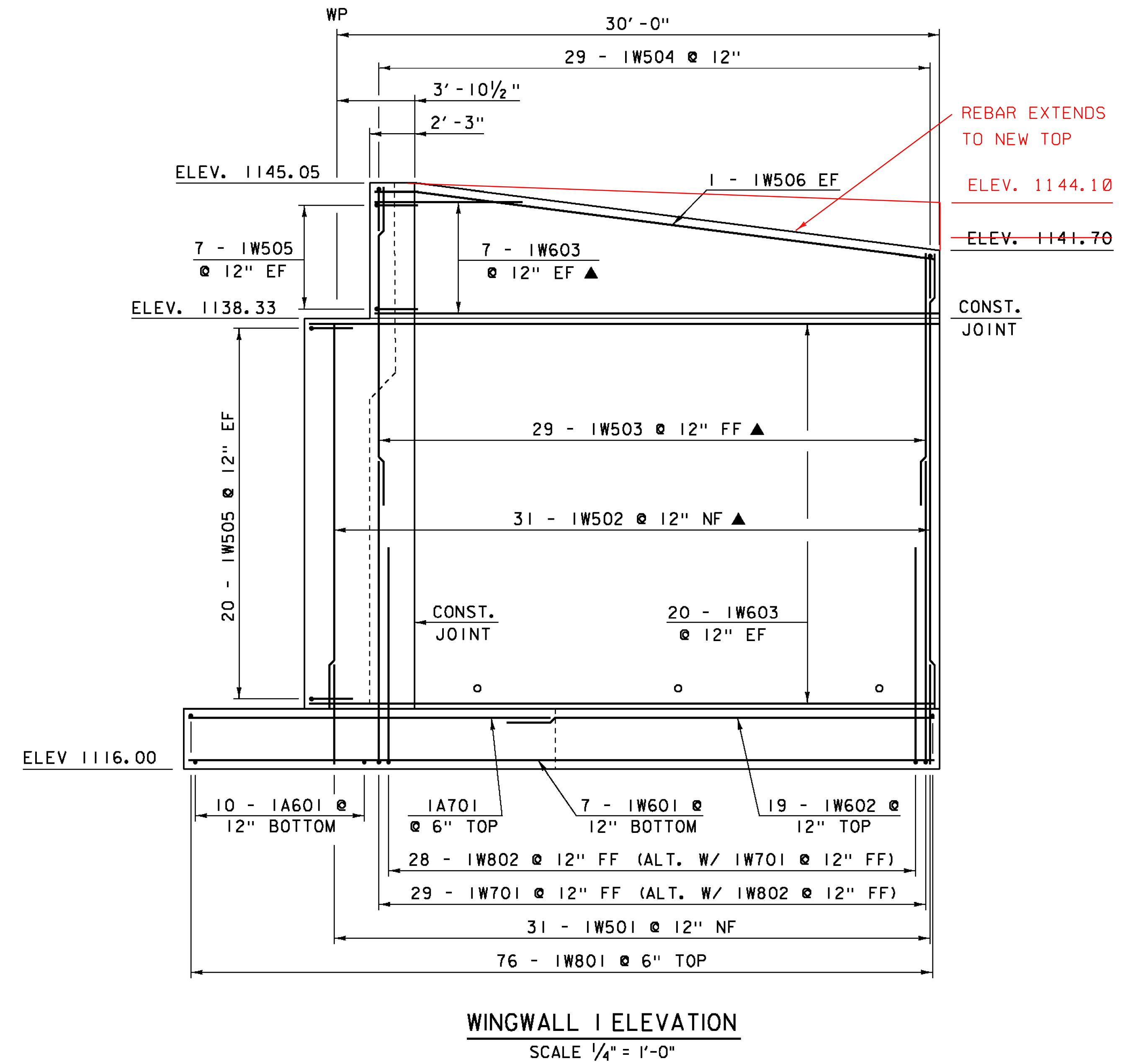
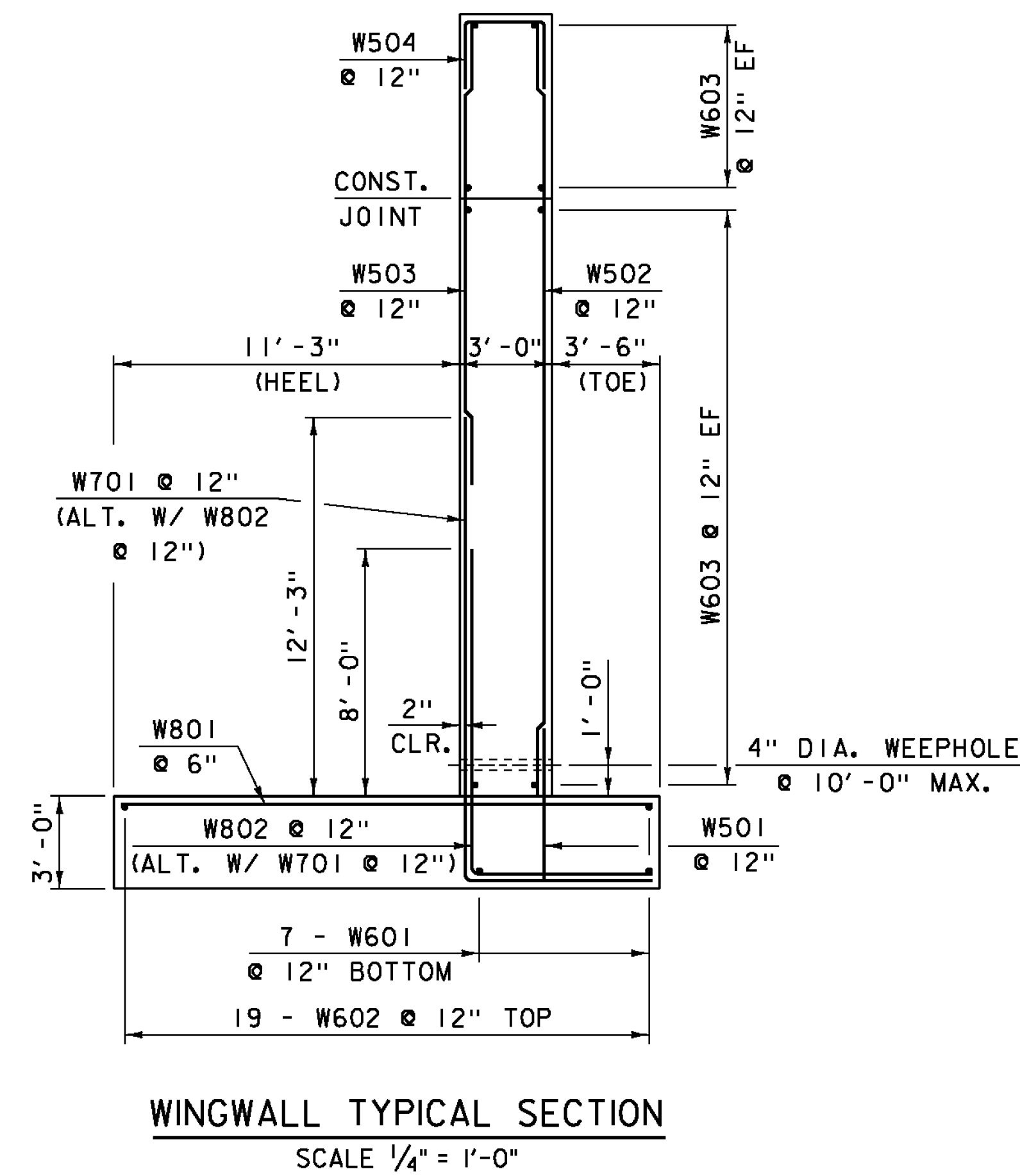
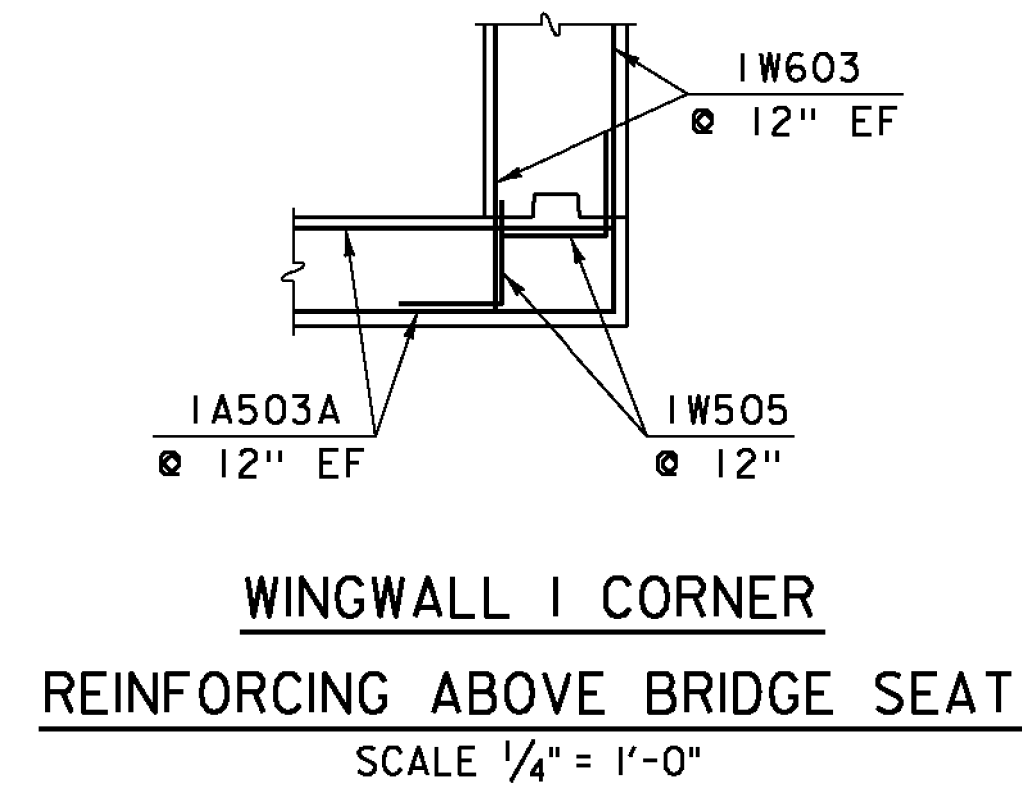
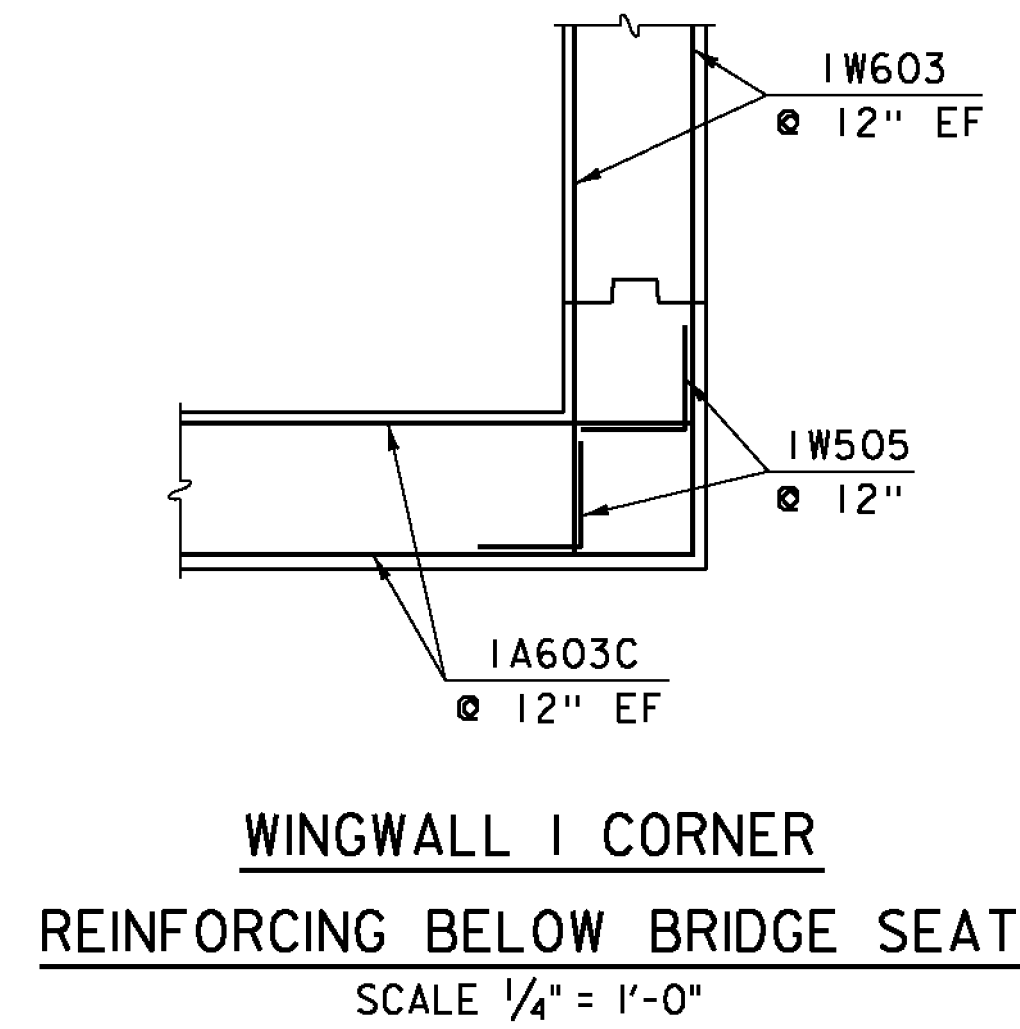
BRIDGE SEAT	ELEVATION
SEAT 1	1138.33
SEAT 2	1138.42
SEAT 3	1138.33
SEAT 4	1138.06
SEAT 5	1137.61
SEAT 6	1136.99

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME: WOODFORD
PROJECT NUMBER: ER BHF 010-1(44)

FILE NAME: slb214sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
ABUTMENT I ELEVATION
PLOT DATE: 23-MAR-2012
DRAWN BY: G. ROY
CHECKED BY: M. EVANS-MONGEON
SHEET 32 OF 58



NOTE:
NF = NEAR FACE
FF = FAR FACE
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3" CLEAR, UNLESS OTHERWISE
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PROJECT NAME: WOODFORD	
PROJECT NUMBER: ER BHF 010-I(44)	
FILE NAME: slb214sub.dgn	PLOT DATE: 23-MAR-2012
PROJECT LEADER: C. CARLSON	DRAWN BY: G. ROY
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. EVANS-MONGEON
WINGWALL DETAILS	SHEET 34 OF 58