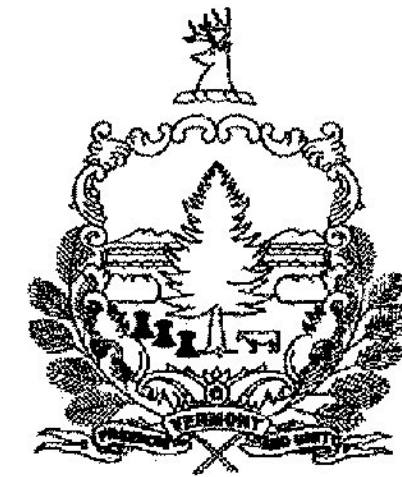
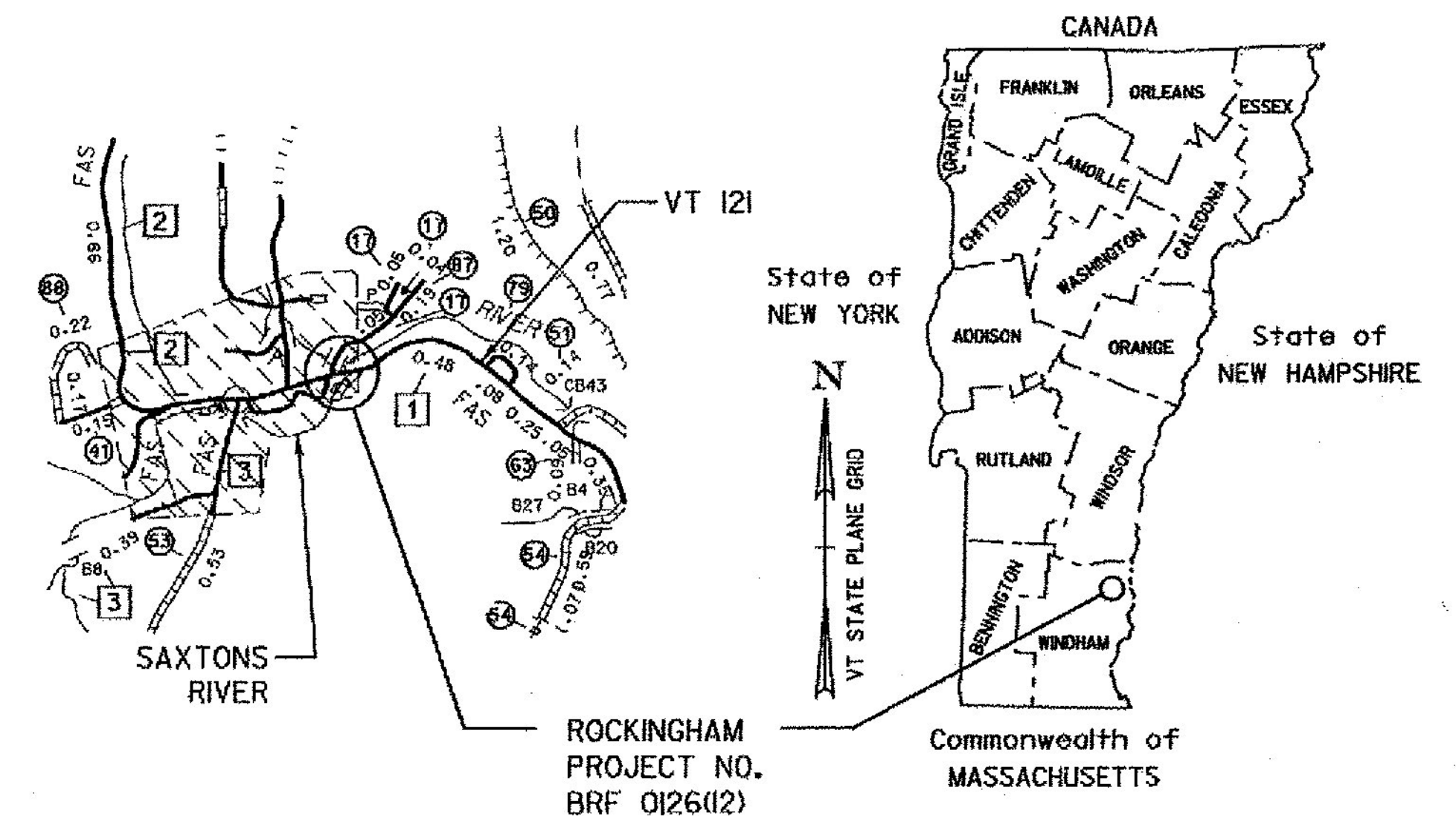


STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF ROCKINGHAM
COUNTY OF WINDHAM
VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR
BRIDGE NO. 11R

THIS PLAN SET HAS BEEN REVISED
DUE TO VALUE ENGINEERING, SEE REVISIONS
BY CALDERWOOD ENGINEERING, ETC.



PROJECT LOCATION: BEGINNING ON VT 121 (CL 2, TH 1) (FAS ROUTE 50126) APPROXIMATELY 4.1 MILES WEST OF THE JUNCTION WITH U.S. ROUTE 5 AND 68.0 FEET EAST OF THE JUNCTION WITH OAK STREET AND EXTENDING EASTERLY ALONG VT 121 APPROXIMATELY 243 FEET (0.04 MILES).

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPLACEMENT OF BRIDGE NO. 11R SUPERSTRUCTURE WITH NEW SUPERSTRUCTURE ON EXISTING ALIGNMENT, PARTIAL REMOVAL OF EXISTING ABUTMENTS AND REPLACEMENT WITH NEW ABUTMENTS, REPAIR OF EXISTING PIERS AND CHANNEL WORK WITH OTHER RELATED HIGHWAY ITEMS.

STRUCTURE LENGTH: 202.69 FEET
ROADWAY LENGTH: 40.00 FEET
PROJECT LENGTH: 242.69 FEET

RECORD PLANS

CONTRACTOR: COLD RIVER BRIDGES, LLC - KEENE, NH
RESIDENT ENGINEER: CHAD GREENWOOD
CONSTRUCTION BEGAN: OCTOBER 29, 2014
CONSTRUCTION COMPLETE: NOVEMBER 3, 2015
RECORD PLANS BY: CHAD GREENWOOD & KEVIN KING

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY *Chad Greenwood* RESIDENT ENGINEER

DATE 3/9/17

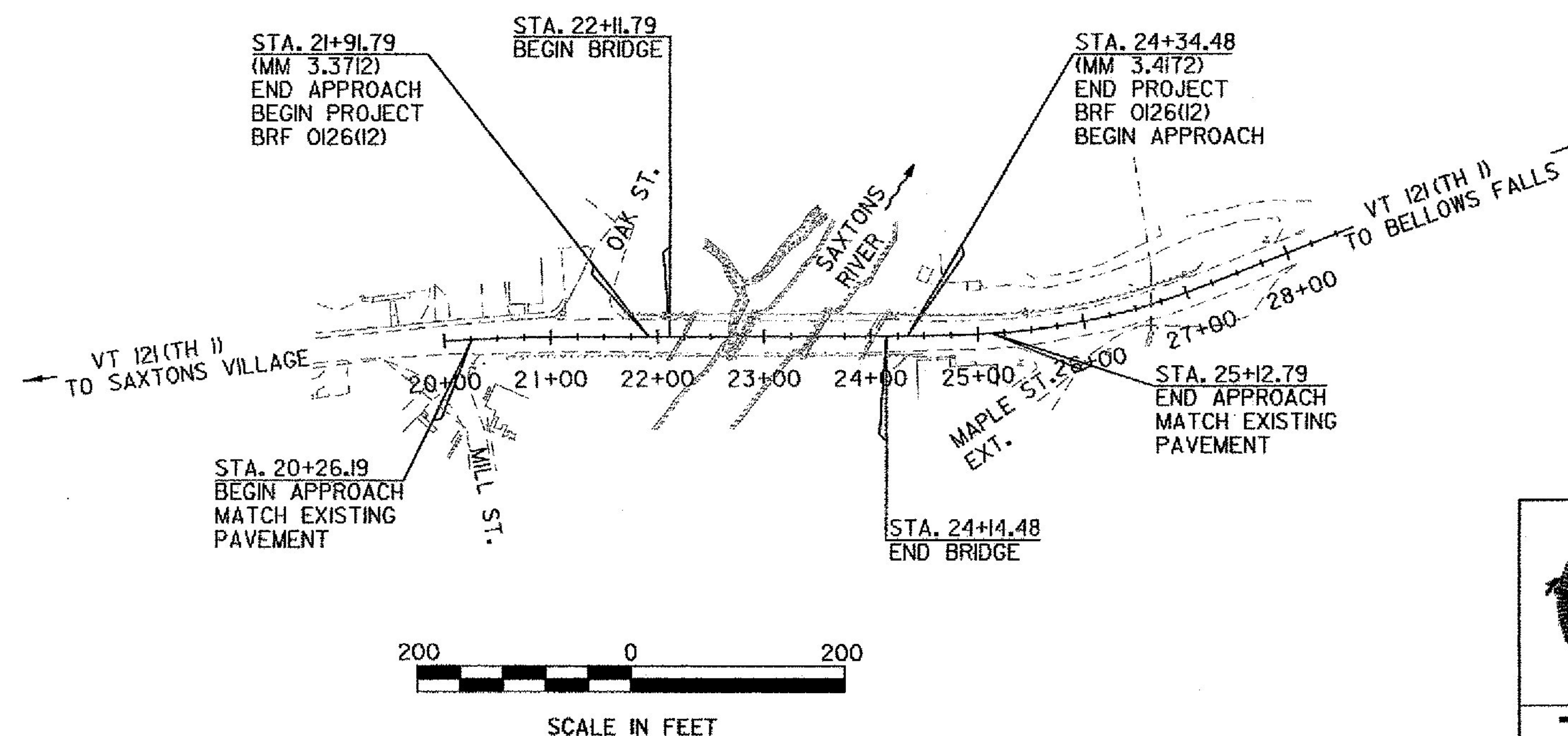
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

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

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : VERMONT SURVEY & ENGINEERING, INC.
SURVEYED DATE : 12/2010

DATUM
VERTICAL NAVD 88(GEOD09)FT
HORIZONTAL NAD 83 (CORS) sFT



TYLIN INTERNATIONAL

DIRECTOR OF PROJECT DELIVERY

APPROVED *Todd Sumner* DATE 7/30/2014

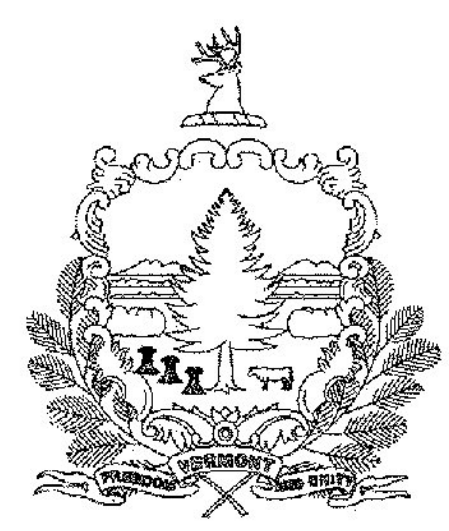
PROJECT MANAGER : TODD SUMNER, P.E.

PROJECT NAME : ROCKINGHAM

PROJECT NUMBER : BRF 0126 (12)

SHEET 1 OF 69 SHEETS

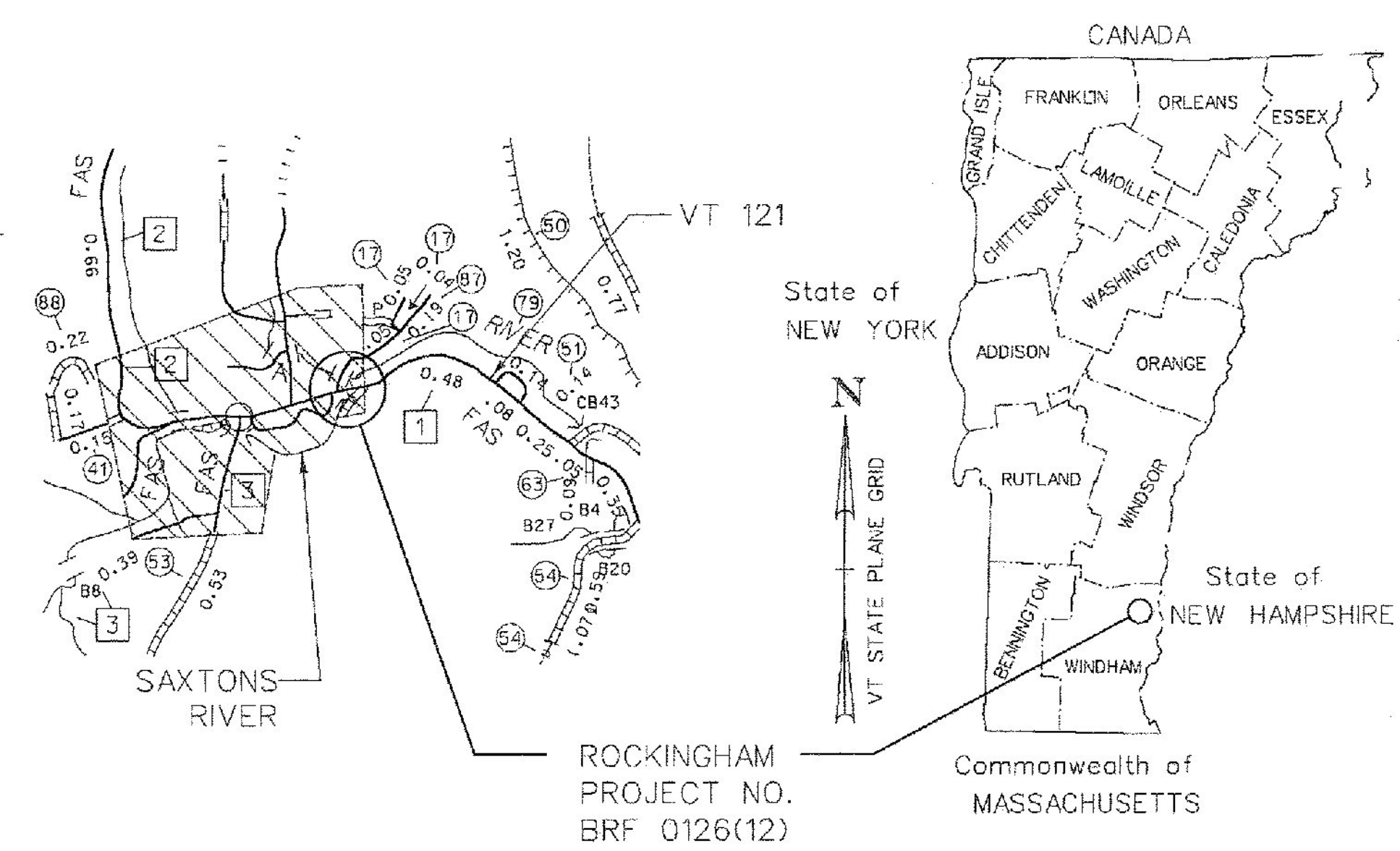
STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF ROCKINGHAM
COUNTY OF WINDHAM

VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR
BRIDGE NO. 11R

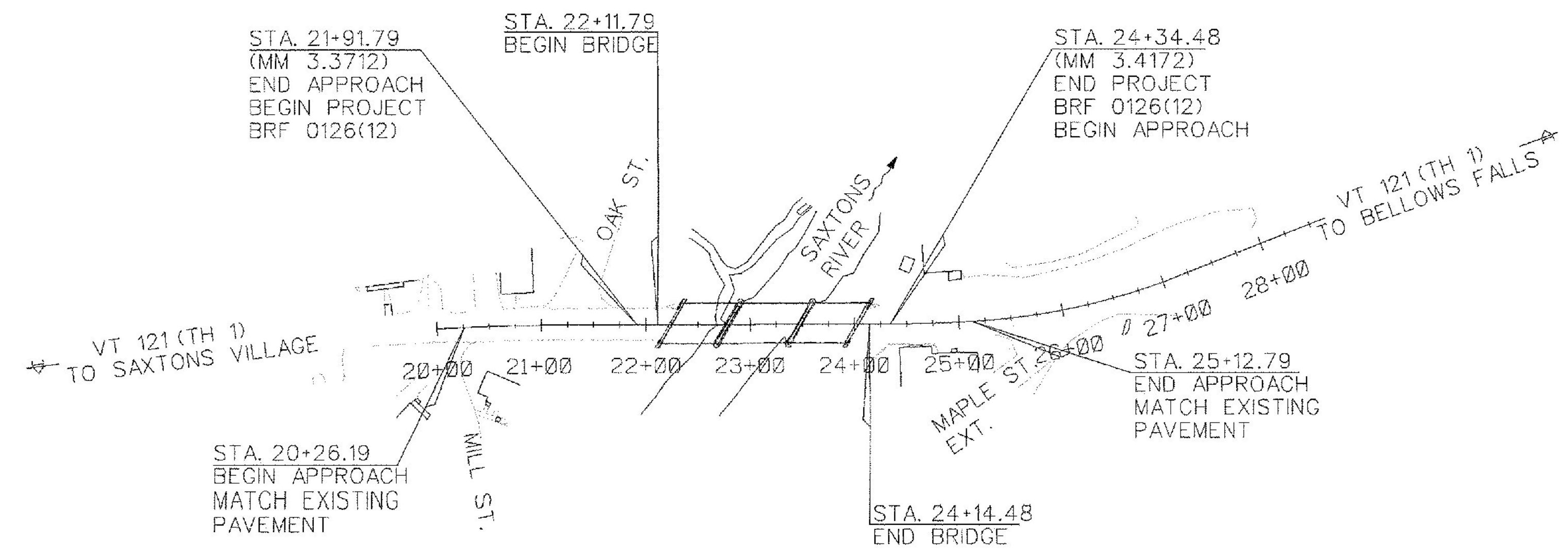
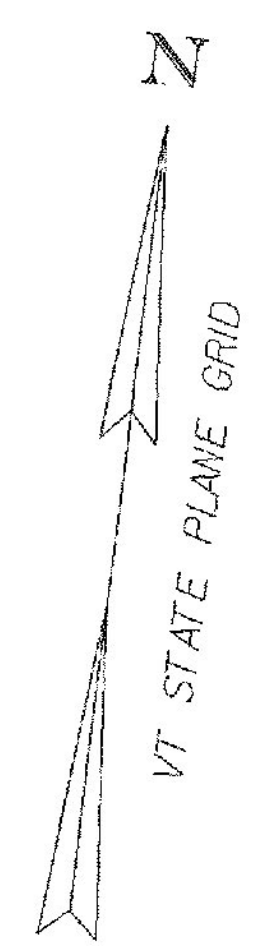
THIS IS A VALUE ENGINEERED PLAN SET. THESE PLANS HAVE BEEN DEVELOPED USING PORTIONS OF THE ORIGINAL VTRANS CONTRACT PLANS FOR BRIDGE NO. 11R, ROCKINGHAM AND MODIFICATIONS MADE BY CALDERWOOD ENGINEERING. IN ORDER TO PROVIDE A COMPLETE SET PACKAGE FOR RECORD KEEPING PURPOSES AND FOR CONSTRUCT, VTRANS HAS PROVIDED THE ORIGINAL PLAN SET SO THEY COULD BE INCORPORATED WITH THE VALUE ENGINEERED PLANS. REPORT ANY DISCREPANCY BETWEEN THESE PLANS AND THE ACTUAL OBSERVED FIELD CONDITIONS TO THE VALUE ENGINEER OF RECORD IMMEDIATELY. DO NOT PROCEED WITH ANY DEPENDENT WORK UNTIL SUCH REPORTED DISCREPANCY HAS BEEN RESOLVED TO THE SATISFACTION OF THE VALUE ENGINEER OF RECORD.



PROJECT LOCATION: BEGINNING ON VT 121 (CL 2, TH 1) (FAS ROUTE S0126) APPROXIMATELY 4.1 MILES WEST OF THE JUNCTION WITH U.S. ROUTE 5 AND 68.0 FEET EAST OF THE JUNCTION WITH OAK STREET AND EXTENDING EASTERLY ALONG VT 121 APPROXIMATELY 243 FEET (0.04 MILES).

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPLACEMENT OF BRIDGE NO. 11R SUPERSTRUCTURE WITH NEW SUPERSTRUCTURE ON EXISTING ALIGNMENT, PARTIAL REMOVAL OF EXISTING ABUTMENTS AND REPLACEMENT WITH NEW ABUTMENTS, REPAIR OF EXISTING PIERS AND CHANNEL WORK WITH OTHER RELATED HIGHWAY ITEMS.

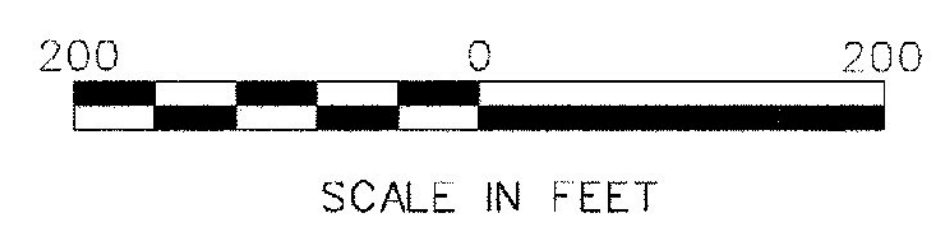
STRUCTURE LENGTH: 202.69 FEET
ROADWAY LENGTH: 40.00 FEET
PROJECT LENGTH: 242.69 FEET



RECORD PLANS	
CONTRACTOR:	COLD RIVER BRIDGES, LLC - KEENE, NH
RESIDENT ENGINEER:	CHAD GREENWOOD
CONSTRUCTION BEGAN:	OCTOBER 29, 2014
CONSTRUCTION COMPLETE:	NOVEMBER 3, 2015
RECORD PLANS BY:	CHAD GREENWOOD & KEVIN KING
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY	<i>Chad Greenwood</i> RESIDENT ENGINEER
DATE	3/9/17
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.	

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

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY : VERMONT SURVEY & ENGINEERING, INC.	
SURVEYED DATE : 12/2010	
DATUM	
VERTICAL	NAVD 88(GEOID09)FT
HORIZONTAL	NAD 83 (CORS) sFT



CALDERWOOD ENGINEERING, ETC. STRUCTURAL ENGINEERING • DETAILING SERVICES 222 RIVER RD, RICHMOND, ME 04357 PH/FX (207) 737-2007/737-2008 PREPARED FOR: COLD RIVER BRIDGES, LLC CEE 106-BR-14	
VE SUPER. DESIGN ROCKINGHAM VT. BRF 0126 (12) TITLE SHEET	
SHEET NUMBER 1	

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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DESIGN VALUES

ADDITIONAL INFORMATION

PROJECT NAME: ROCKINGHAM

PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_pi.xlsm

PROJECT LEADER: R. HEBERT

DESIGNED BY: D. BURHANS

PRELIMINARY INFORMATION SHEET

PLOT DATE: 7/25/2014

DRAWN BY: T. POULIN

CHECKED BY: R. HEBERT

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5/7/2010

SD-502.00

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8/29/2011

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FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

DATE:

DRAINAGE AREA: 70.0 SQ. MI.

CHARACTER OF TERRAIN: HILLY TO MOUNTAINOUS VALLEY SETTING

STREAM CHARACTERISTICS: STRAIGHT TO SINUOUS, ALLUVIAL, LITTLE TO NO FLOOD PLAN

NATURE OF STREAMBED: SAND, GRAVEL, SMALL COBBLES

Q 2.33 = 2850 CFS

Q 50 = 8680 CFS

Q 10 = 5170 CFS

Q 100 = 10550 CFS

Q 25 = 7070 CFS

Q 500 = 16000 CFS

DATE OF FLOOD OF RECORD: AUGUST 28, 2011

ESTIMATED DISCHARGE: 20942 CFS

WATER SURFACE ELEVATION: 414.6 FT AT GAGE STATION DOWNSTREAM OF BRIDGE

NATURAL STREAM VELOCITY: 11.2 FPS @ Q50 = 8680 CFS

ICE CONDITIONS: LIGHT TO MODERATE

DEBRIS: LIGHT TO MODERATE

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? NO

IS ORDINARY RISE RAPID? NO

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO

IF YES, DESCRIBE N/A

WATERSHED STORAGE: <1%

HEADWATERS: -

UNIFORM: X

IMMEDIATELY ABOVE SITE: -

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 3 SPAN STEEL GIRDER BRIDGE

YEAR BUILT: 1954

CLEAR SPAN (NORMAL TO STREAM): 157 FT

VERTICAL CLEARANCE ABOVE STREAMBED: 28.3 FT (AVG.)

WATERWAY OF FULL OPENING: 2220 SQ. FT

DISPOSITION OF STRUCTURE: REMOVE ABUTMENT BACKWALL AND SUPERSTRUCTURE

TYPE OF MATERIAL UNDER SUBSTRUCTURE: GRAVEL

WATER SURFACE ELEVATIONS AT: ONE BRIDGE LENGTH UPSTREAM

Q 2.33 = 428.7 FT

VELOCITY = 10 FT/SEC

Q 10 = 431.0 FT

10.7 FT/SEC

Q 25 = 432.8 FT

11.2 FT/SEC

Q50 = 434.0 FT

12.4 FT/SEC

Q 100 = 435.4 FT

13.6 FT/SEC

LONG TERM STREAMBED CHANGES: LITTLE CHANGE SINCE 1953 PLANS

IS THE ROADWAY OVERTOPPED BELOW Q100? NO

FREQUENCY: >Q500

RELIEF ELEVATION: +/- 448.5 FT

DISCHARGE OVER ROAD @ Q100: N/A

UPSTREAM STRUCTURE

TOWN: ROCKINGHAM

DISTANCE: 0.5 MI

HIGHWAY #: T.H. # 3 (HARTLEY HILL ROAD)

STRUCTURE #: 9

CLEAR SPAN: 128 FT

CLEAR HEIGHT: 15.3 FT

YEAR BUILT: 2004

FULL WATERWAY: 2130 SF

STRUCTURE TYPE: WELDED PLATE GIRDER

DOWNSTREAM STRUCTURE

TOWN: ROCKINGHAM

DISTANCE: 1.0 MI

HIGHWAY #: T.H. # 51 (HALL BRIDGE ROAD)

STRUCTURE #: 43

CLEAR SPAN: 113

CLEAR HEIGHT: +/- 12 FT

YEAR BUILT: 1982

FULL WATERWAY: +/- 1350 SF

LRFR LOAD RATING FACTORS

LOADING LEVELS

TONNAGE

INVENTORY

POSTING

OPERATING

COMMENTS:

TRUCK

H-20

HL-93

3S2

6 AXLE

3A. STR.

4A. STR.

5A. SEMI

20

36

36

66

30

34.5

38

4.136

1.187

5.36

1.54

3.72

1.84

3.67

3.21

3.21

PROJECT NAME: ROCKINGHAM

PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_pi.xlsm

PROJECT LEADER: R. HEBERT

DESIGNED BY: D. BURHANS

PRELIMINARY INFORMATION SHEET

PLOT DATE:

DRAWN BY: T. POULIN

CHECKED BY: R. HEBERT

SHEET OF

TRAFFIC DATA

YEAR

ADT

DHV

% D

% T

ADTT

20 year ESAL for flexible pavement from 2014 to 2034 : 1621000

40 year ESAL for flexible pavement from 2014 to 2054 : 3584000

Design Speed : 25 mph

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 0.00 FT

0.00 FT (MIN)

0.00 FT (MIN)

OPENING 0.00 FT* (MIN)

VE SUPER. DESIGN

ROCKINGHAM VT. BR# 0126 (12)

PRELIMINARY INFORMATION SHEET

SHEET NUMBER

2

CALDERWOOD ENGINEERING, ETC.

STRUCTURAL ENGINEERING • DETAILING SERVICES

222 RIVER RD., RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR: COLD RIVER BRIDGES, LLC

CEE 106-BR-14

DATE:

P.E. NUMBER

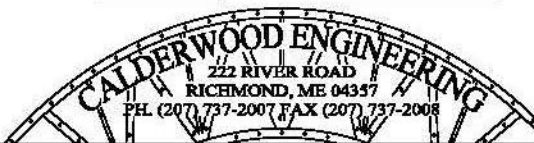
REVISIONS 1

REVISIONS 2

REVISIONS 3

REVISIONS 4

FIELD CHANGES



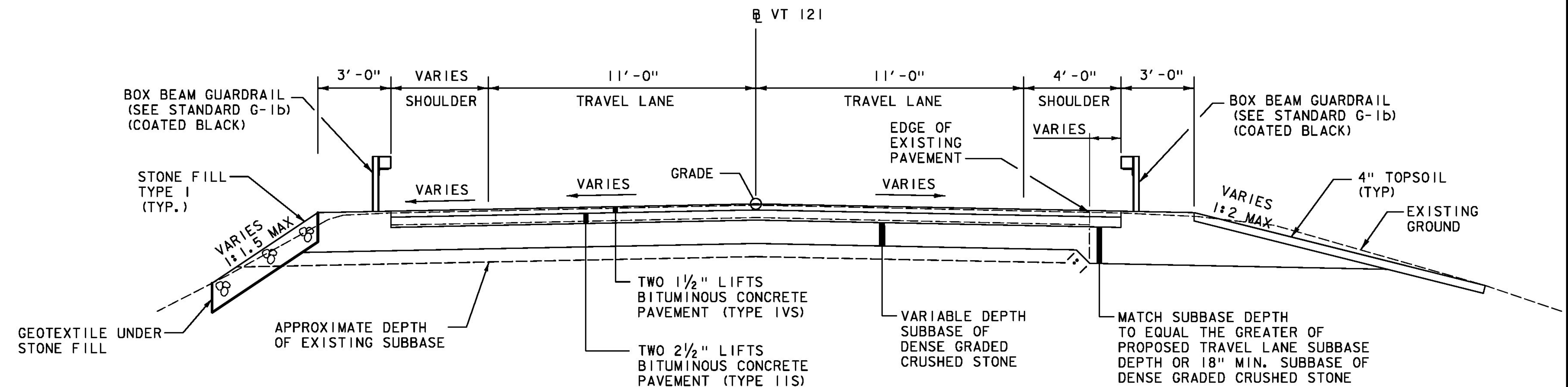
NOTES:

1. SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5.
2. TACK COAT: EMULSIFIED ASPHALT SHALL BE APPLIED TO THE COLD PLANED BITUMINOUS CONCRETE PAVEMENT SURFACE AT THE RATE OF 0.040 GAL./SY. OR AS DIRECTED BY THE ENGINEER. EMULSIFIED ASPHALT SHALL ALSO BE APPLIED BETWEEN ALL LIFTS OF PAVEMENT. THE COST SHALL BE PAID UNDER ITEM 404.65, "EMULSIFIED ASPHALT".

MATERIAL TOLERANCES

(IF USED ON PROJECT)

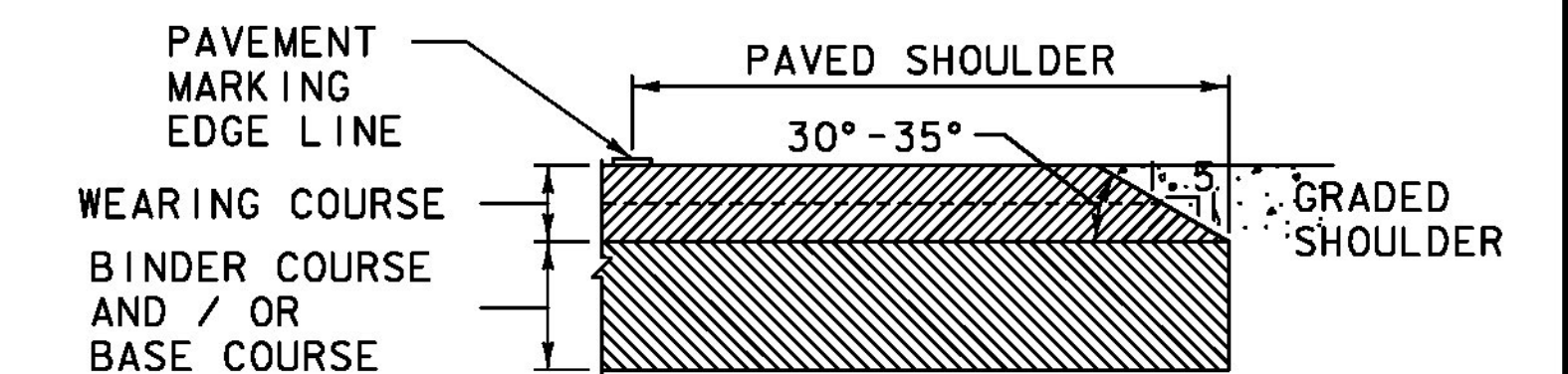
	TOTAL DEPTH
SURFACE - PAVEMENT	+/- 1/4"
SUBBASE	+/- 1"



FULL DEPTH TYPICAL ROADWAY SECTION - VT ROUTE 121

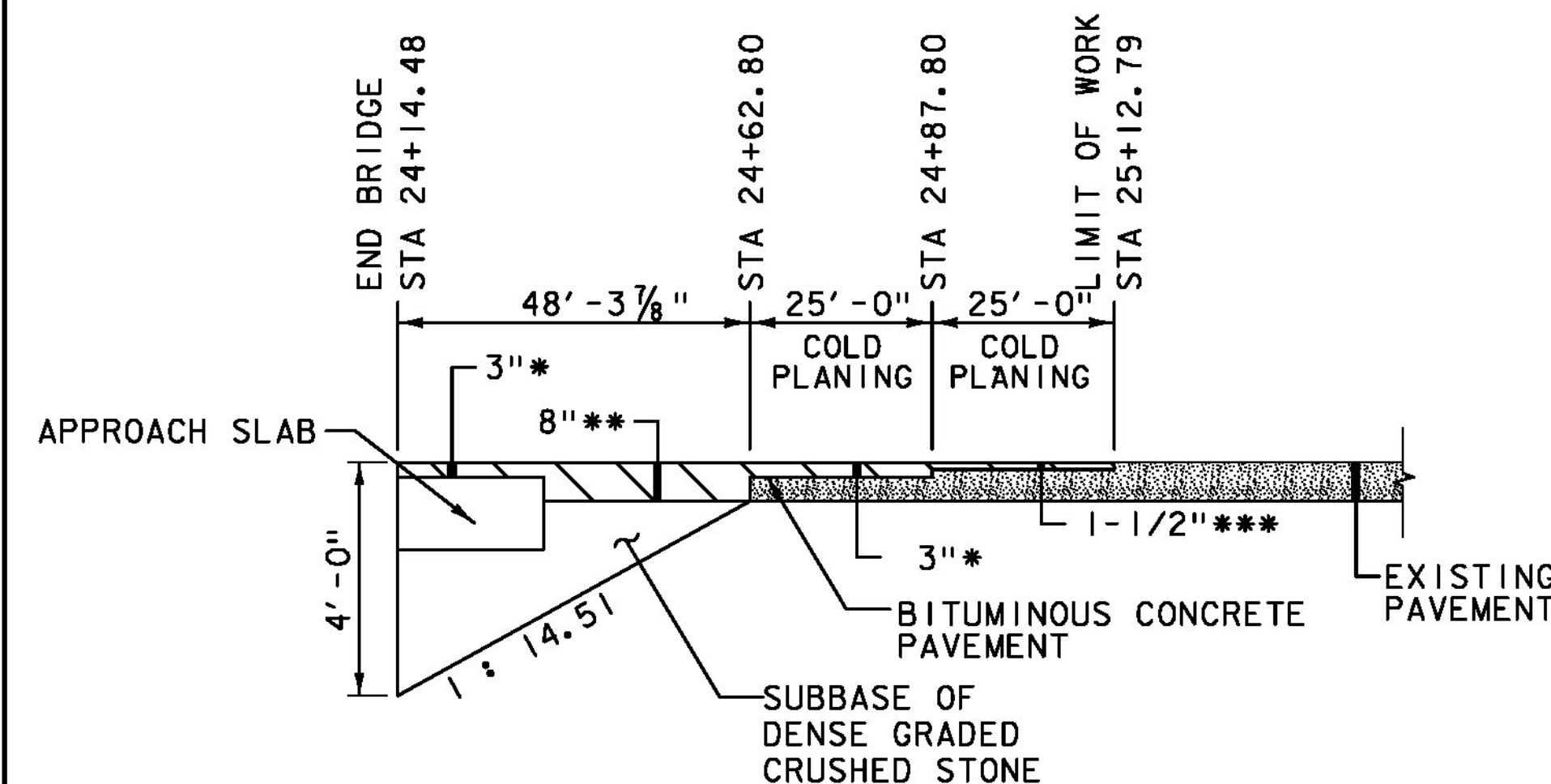
STA 21+61.79 TO STA 22+11.79
STA 24+14.48 TO STA 24+62.80

SCALE 3/8" = 1'-0"



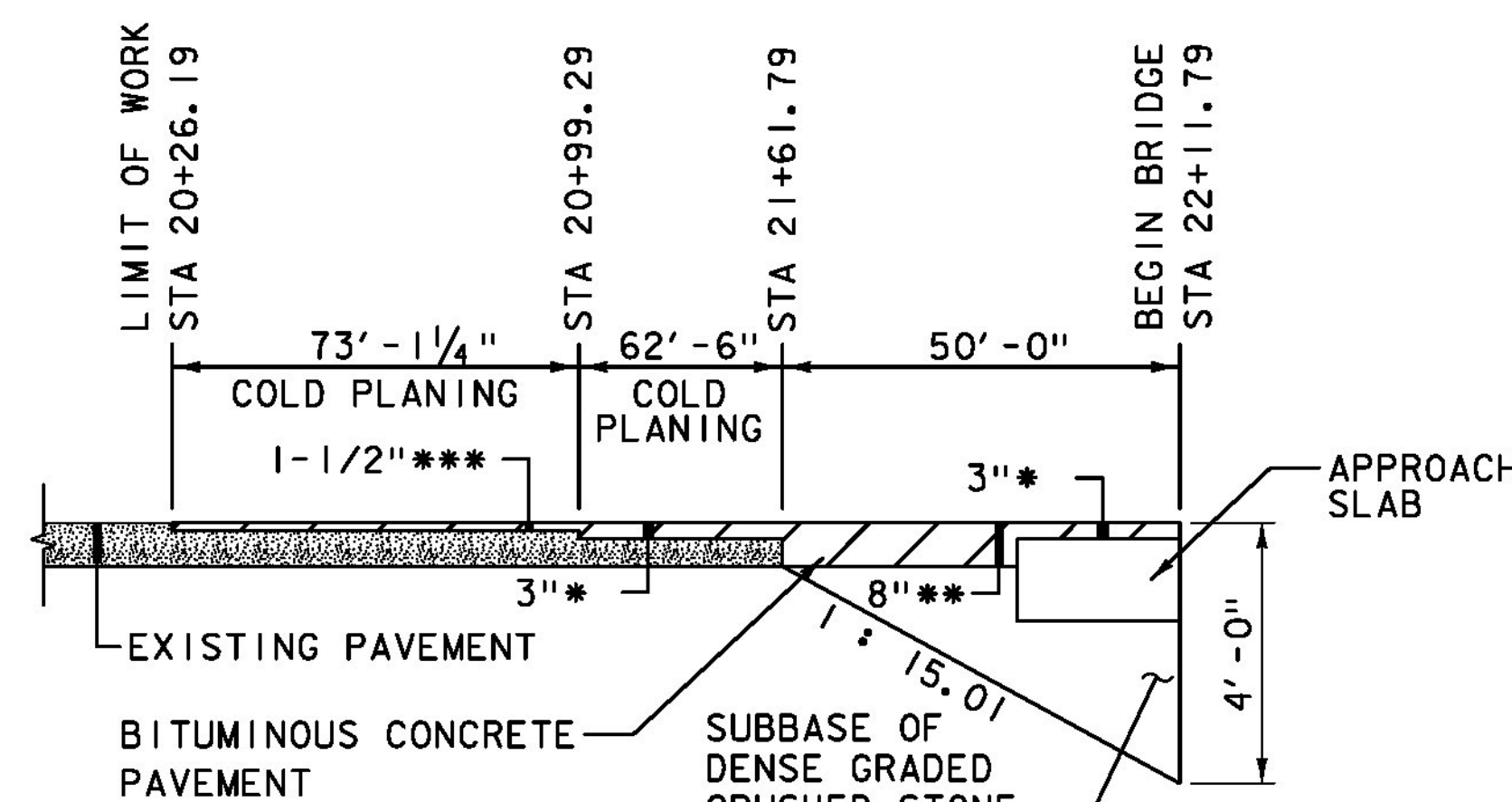
SAFETY EDGE DETAIL

NOT TO SCALE



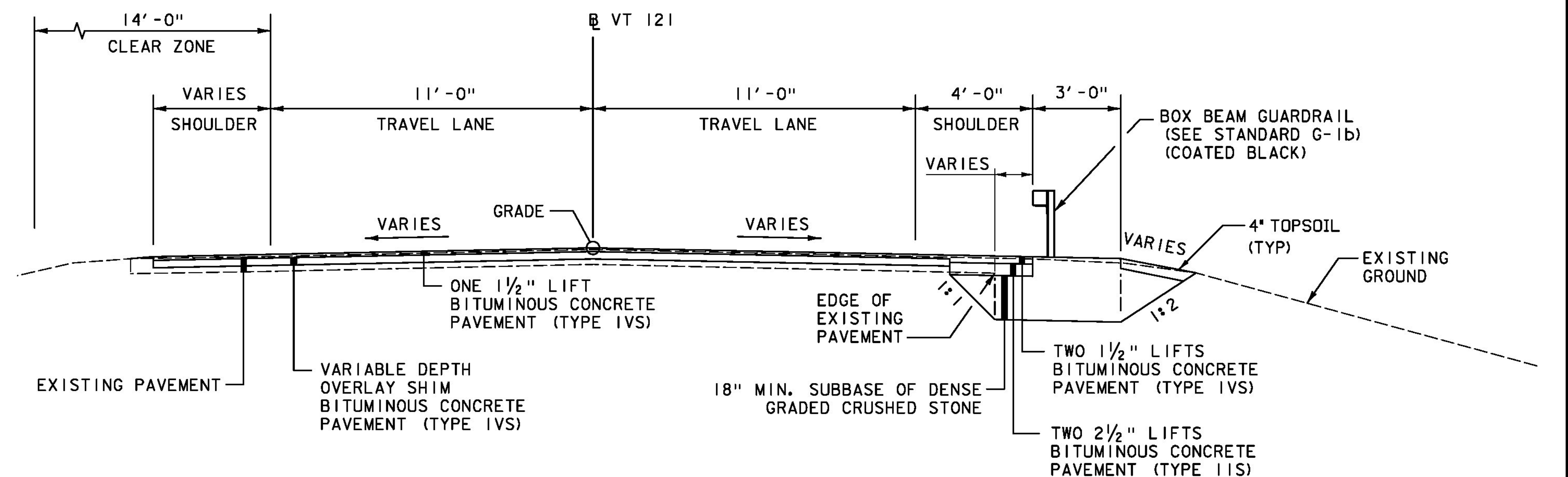
SUBBASE TAPER - EAST APPROACH

ALONG BASELINE
NOT TO SCALE



SUBBASE TAPER - WEST APPROACH

ALONG BASELINE
NOT TO SCALE



COLD PLANE AND WIDENING TYPICAL ROADWAY SECTION - VT ROUTE 121

STA 20+26.19 TO STA 21+61.79
STA 24+62.80 TO STA 25+12.79

SCALE 3/8" = 1'-0"

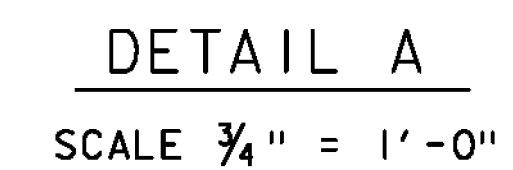
- * TWO 1 1/2" LIFTS BITUMINOUS CONCRETE PAVEMENT (TYPE IVS)
- ** TWO 1 1/2" LIFTS BITUMINOUS CONCRETE PAVEMENT (TYPE IVS) OVER TWO 2 1/2" LIFTS BITUMINOUS CONCRETE PAVEMENT (TYPE IIS)
- *** ONE 1 1/2" LIFT BITUMINOUS CONCRETE PAVEMENT (TYPE IVS)

TYLIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_typ.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: C. SARGEANT
ROADWAY TYPICAL SECTIONS

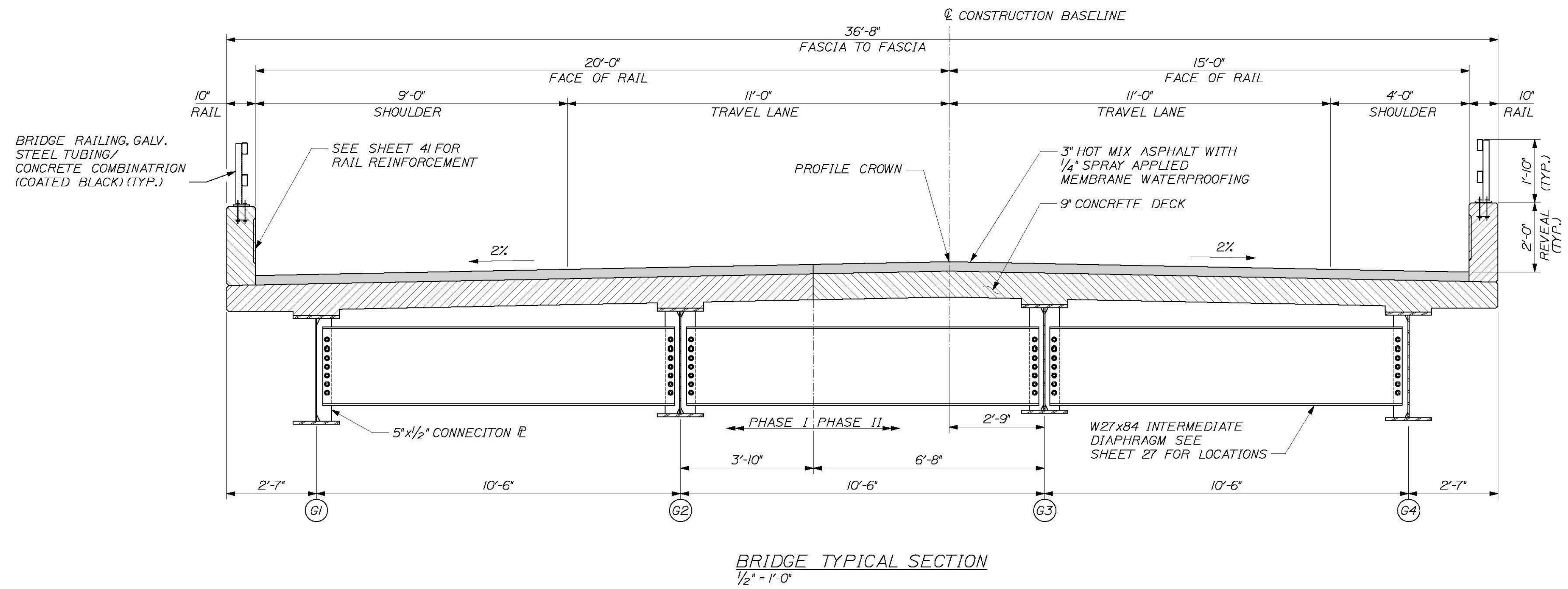
PLOT DATE: 8/26/2014
DRAWN BY: C. SARGEANT
CHECKED BY: D. BURHANS
SHEET 3 OF 69



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

PLOT DATE: 8/26/2014
DRAWN BY: D. AXTELL
CHECKED BY: T. POULIN
SHEET 4 OF 69

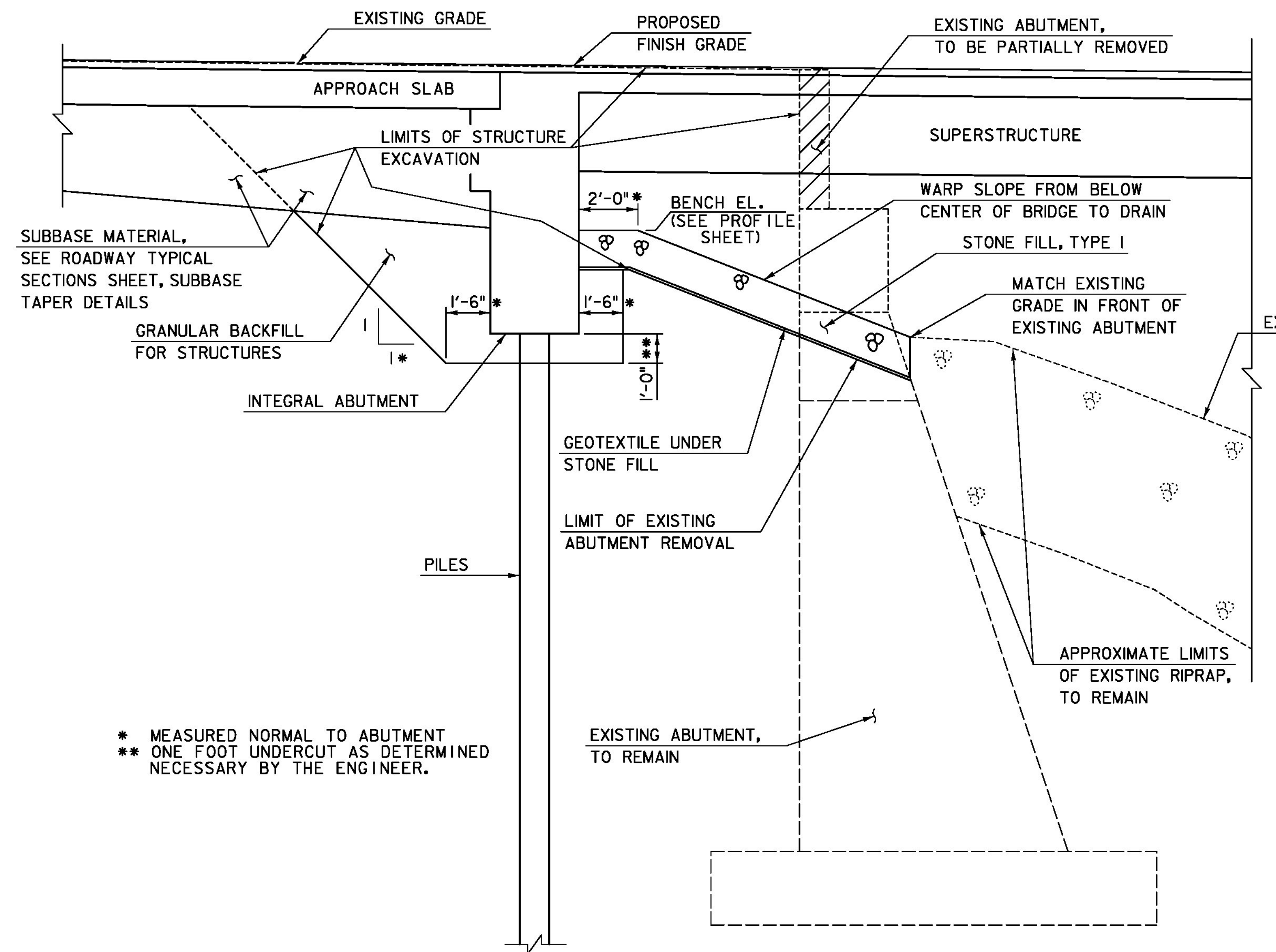
SEE SHEET 4 VE



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



PRELIM VE SUPER. DESIGN ROCKINGHAM VT. BR# 0126 (12)	SHEET NUMBER 4	
	TYPICAL SECTION	
REVISIONS 1 2 3 4 FIELD CHANGES		DATE 2014
BY ETC		DATE 2014
DESIGN-DETAILED CHECKED-REVIEWED		DATE 2014
P.E. NUMBER		DATE
COLD RIVER BRIDGES, LLC		CEE 106-BR-14
PREPARED FOR: COLD RIVER BRIDGES, LLC		DATE
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207) 737-2008		DATE
STRUCTURAL ENGINEERING • DETAILING SERVICES		DATE
CALDERWOOD ENGINEERING, ETC.		DATE



TYPICAL ABUTMENT SECTION

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

PROJECT NAME: ROCKINGHAM
 PROJECT NUMBER: BRF 0126(12)

TYLIN INTERNATIONAL

FILE NAME: z10j072bdr_bew.dgn
 PROJECT LEADER: R. HEBERT
 DESIGNED BY: S. KELLER
 EARTHWORK TYPICAL SECTIONS

PLOT DATE: 8/26/2014
 DRAWN BY: S. KELLER
 CHECKED BY: D. MYERS
 SHEET 5 OF 69

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

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

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

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

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

— — — CZ — — —	—	CLEAR ZONE
— — —	—	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

▲ — — — — — ▲	—	TOP OF CUT SLOPE
○ — — — — — ○	—	TOE OF FILL SLOPE
⦿ ⦿ ⦿ ⦿ ⦿ ⦿	—	STONE FILL
— — — — —	—	BOTTOM OF DITCH &
— — — — —	—	CULVERT PROPOSED
— — — — —	—	STRUCTURE SUBSURFACE
PDF — — — — — PDF	—	PROJECT DEMARCATION FENCE
BF — — — — — BF	—	BARRIER FENCE
XXXXXXXXXXXXXXXXXXXX	—	TREE PROTECTION ZONE (TPZ)
//////	—	STRIPING LINE REMOVAL
~~~~~	—	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

ONNOONNOONNO	—	FILTER CURTAIN
— — — — —	—	SILT FENCE
— — — — —	—	SILT FENCE WOVEN WIRE
— — — — —	—	CHECK DAM
— — — — —	—	DISTURBED AREAS REQUIRING RE-VEGETATION
— — — — —	—	EROSION MATTING
— — — — —	—	AREA OF ARCHAEOLOGICAL SIGNIFICANCE
— — — — —	—	STABILIZED CONSTRUCTION ENTRANCE
— — — — —	—	SURFACE ROUGHENING

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

— — — — —	—	ARCHEOLOGICAL BOUNDARY
— — — — —	—	HISTORIC DISTRICT BOUNDARY
— — — — —	—	HISTORIC AREA
— — — — —	—	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

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

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)
FILE NAME:	z10J072bdr_legend.dgn
PROJECT LEADER:	R. HEBERT
DESIGNED BY:	R. HEBERT
CONVENTIONAL SYMBOLGY LEGEND	
PLOT DATE:	8/26/2014
DRAWN BY:	S. MORGAN
CHECKED BY:	R. HEBERT
SHEET	6 OF 69



STATE OF VERMONT AGENCY OF TRANSPORTATION												QUANTITY SHEET 1											
SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS						DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS			
							1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				507.11 REINFORCING STEEL, LEVEL I			
							620					620		CY	COMMON EXCAVATION	203.15		8200 LB		APPROACH SLAB			
							20					20		CY	SOLID ROCK EXCAVATION	203.16		8200 LB		TOTAL			
							20					20		CY	SAND BORROW	203.31				507.12 REINFORCING STEEL, LEVEL II			
							20					20		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22							
										635		635		CY	STRUCTURE EXCAVATION	204.25		11720 LB		DECK CLOSURE POURS			
										130		130		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		1340 LB		DIAPHRAMS			
							625					625		SY	COLD PLANING-BIT.PAVEMENT	210.10		7110 LB		ABUTMENTS			
							450					450		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		1330 LB		PIERS			
							4.8			1.8		6.6		CWT	EMULSIFIED ASPHALT	404.65		21500 LB		TOTAL			
							1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50							
										56		56		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33							
										124		124		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34							
										1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10							
										960		960		LF	STEEL PILING, HP 10 X 57	505.12							
										2740		2740		SF	TEMPORARY STEEL SHEET PILING	505.36							
										2		2		EACH	DYNAMIC PILE LOADING TEST	505.45							
										8200		8200		LB	REINFORCING STEEL, LEVEL I	507.11							
										21500		21500		LB	REINFORCING STEEL, LEVEL II	507.12							
										384		384		LF	DRILLING AND GROUTING DOWELS	507.16							
										84		84		EACH	MECHANICAL BAR CONNECTOR	507.19							
										80		80		GAL	WATER REPELLENT, SILANE	514.10							
										82		82		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10							
										790		790		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10							
										82		82		LF	JOINT SEALER, HOT POURED	524.11							
										406		406		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)	525.45							
										1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10							
										600		600		SY	REMOVAL OF BRIDGE PAVEMENT	529.10							
										1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20							
										16		16		EACH	BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD	531.16							
										32		32		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17							
										50		50		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13							
										8		8		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14							
										2		2		CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15							
									20			20		HR	POWER GRADER RENTAL	608.15							
									20			20		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25							
									20			20		HR	TRUCK RENTAL	608.37							
									20			20		HR	LOADER RENTAL, TYPE I	608.40							
							40					40		MGAL	DUST CONTROL WITH WATER	609.10							
							50			50		100		CY	STONE FILL, TYPE I	613.10							
																		PROJECT NAME: <b>ROCKINGHAM</b>					
																		PROJECT NUMBER: <b>BRF 0126(12)</b>					
																		FILE NAME: <b>z10j072bdr_qnty.xlsm</b>					
																		PROJECT LEADER: <b>R. HEBERT</b>					
																		DESIGNED BY: <b>D. BURHANS</b>					
																		CHECKED BY: <b>R. HEBERT</b>					
																		QUANTITY SHEET #1					
																		PLOT DATE: <b>07/28/2014</b>					
																		DRAWN BY: <b>D. BURHANS</b>					
																		SHEET <b>7</b> OF <b>69</b>					



QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS	
							1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				507.11 REINFORCING STEEL, LEVEL I	
							620					620		CY	COMMON EXCAVATION	203.15		8200	LB	APPROACH SLAB	
							20					20		CY	SOLID ROCK EXCAVATION	203.16		8200	LB	TOTAL	
							20					20		CY	SAND BORROW	203.31				507.12 REINFORCING STEEL, LEVEL II	
							20					20		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22					
										635		635		CY	STRUCTURE EXCAVATION	204.25		11720	LB	DECK CLOSURE POURS	
										130		130		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		1340	LB	DIAPHRAMS	
							625					625		SY	COLD PLANING-BIT PAVEMENT	210.10		7110	LB	ABUTMENTS	
							450					450		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		1330	LB	PIERS	
							4.8			1.8		6.6		CWT	EMULSIFIED ASPHALT	404.65		21500	LB	TOTAL	
							1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50					
										56		56		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33					
										124		124		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34					
										1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10					
										960		960		LF	STEEL PILING, HP 10 X 57	505.12					
										2740		2740		SF	TEMPORARY STEEL SHEET PILING	505.36					
										2		2		EACH	DYNAMIC PILE LOADING TEST	505.45					
										8200		8200		LB	REINFORCING STEEL, LEVEL I	507.11					
										21500		21500		LB	REINFORCING STEEL, LEVEL II	507.12					
										384		384		LF	DRILLING AND GROUTING DOWELS	507.16					
										84		84		EACH	MECHANICAL BAR CONNECTOR	507.19					
										80		80		GAL	WATER REPELLENT, SILANE	514.10					
										82		82		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10					
										790		790		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10					
										82		82		LF	JOINT SEALER, HOT POURED	524.11					
										406		406		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)	525.45					
										1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10					
										600		600		SY	REMOVAL OF BRIDGE PAVEMENT	529.10					
										1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20					
										8		8		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17					
										50		50		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13					
										8		8		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14					
										2		2		CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15					
								20				20		HR	POWER GRADER RENTAL	608.15					
								20				20		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25					
								20				20		HR	TRUCK RENTAL	608.37					
								20				20		HR	LOADER RENTAL, TYPE I	608.40					
							40					40		MGAL	DUST CONTROL WITH WATER	609.10					
							50			50		100		CY	STONE FILL, TYPE I	613.10					

CALDERWOOD ENGINEERING, ETC.  
STRUCTURAL ENGINEERING • DETAILING SERVICES  
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:  
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

VE SUPER. DESIGN  
ROCKINGHAM VT. BR# 0126 (12)

QUANTITY SHEET #1

DESIGN-DETAILED  
CHECKED-REVIEWED

BY  
ETC

DATE  
2014

REVISIONS 1  
REVISIONS 2  
REVISIONS 3  
REVISIONS 4  
FIELD CHANGES

P.E. NUMBER  
DATE:

SHEET NUMBER  
2





STATE OF VERMONT AGENCY OF TRANSPORTATION													QUANTITY SHEET 2									
SUMMARY OF ESTIMATED QUANTITIES													TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	TRAINING	EROSION CONTROL	BRIDGE		FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS	
							440						440		LF	BOX BEAM GUARDRAIL (COATED BLACK)	621.30					
							1						1		EACH	MANUFACTURED TERMINAL SECTION, TANGENT (COATED BLACK)	621.51					
							4						4		EACH	ENERGY ABSORPTION ATTENUATOR	621.56					
							4						4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM (COATED BLACK)	621.72					
							570						570		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80					
							380						380		LF	TEMPORARY TRAFFIC BARRIER	621.90					
							360						360		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95					
							160						160		HR	UNIFORMED TRAFFIC OFFICERS	630.10					
							500						500		HR	FLAGGERS	630.15					
												1	1		LS	FIELD OFFICE-ENGINEERS	631.10					
												1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16					
												1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17					
												3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26					
								520					520		HR	EMPLOYEE TRAINEESHIP	634.10					
							1						1		LS	MOBILIZATION / DEMOBILIZATION	635.11					
							1						1		LS	TRAFFIC CONTROL	641.10					
							2						2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15					
							960						960		LF	DURABLE 4 INCH WHITE LINE	646.400					
							900						900		LF	DURABLE 4 INCH YELLOW LINE	646.410					
							570						570		LF	DURABLE 12 INCH WHITE LINE	646.460					
							20						20		LF	DURABLE 24 INCH STOP BAR	646.480					
							4						4		EACH	DURABLE LETTER OR SYMBOL	646.490					
							130			150			280		SY	GEOTEXTILE UNDER STONE FILL	649.31					
									180				180		SY	GEOTEXTILE FOR SILT FENCE	649.51					
									18				18		LB	SEED	651.15					
									10				10		LB	SEED, WINTER RYE	651.17					
									55				55		LB	FERTILIZER	651.18					
									0.25				0.25		TON	AGRICULTURAL LIMESTONE	651.20					
									0.25				0.25		TON	HAY MULCH	651.25					
							60						60		CY	TOPSOIL	651.35					
									1				1		LS	EROSION PREVENTION & SEDIMENT CONTROL PLAN	652.10					
									80				80		HR	MONITORING EROSION PREVENTION & SEDIMENT CONTROL PLAN	652.20					
									1				1		LU	MAINTENANCE OF EROSION PREVENTION & SEDIMENT CONTROL PLAN (N.A.B.I.)	652.30					
									180				180		SY	TEMPORARY EROSION MATTING	653.20					
									30				30		CY	VEHICLE TRACKING PAD	653.35					
									310				310		LF	BARRIER FENCE	653.50					
									220				220		LF	PROJECT DEMARCATION FENCE	653.55					
							10						10		SF	TRAFFIC SIGNS, TYPE A	675.20					
							60						60		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341					
							4						4		EACH	REMOVING SIGNS	675.50					
																			PROJECT NAME: ROCKINGHAM			
																			PROJECT NUMBER: BRF 0126(12)			
																			FILE NAME: z10j072bdr_qnty.xlsm			
																			PLOT DATE: 07/28/2014			
																			PROJECT LEADER: R. HEBERT			
																			DRAWN BY: D. BURHANS			
																			DESIGNED BY: D. BURHANS			
																			CHECKED BY: R. HEBERT			
																			QUANTITY SHEET #2			
																			SHEET 8 OF 69			







# QUANTITY SHEET 3

[illegible]



GENERAL

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, WITH ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION, AND THE PCI NORTHEAST GUIDELINES FOR NEXT BEAM 1ST EDITION.
- THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOADING.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE BASED ON 68" F OR AS NOTED OTHERWISE.
- THE CONTRACTOR IS RESPONSIBLE FOR FIELD CHECKING ANY AND ALL DIMENSIONS AND ELEVATIONS APPLICABLE TO THIS WORK PRIOR TO COMMENCING WORK OR ORDERING MATERIAL.
- NO ADJUSTMENT TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE ON THE BRIDGE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF ADJACENT BEAMS AND TO FORM THE ROADWAY CROWN.
- THE TOWN WILL MAINTAIN RESPONSIBILITY FOR SNOW REMOVAL ON THE EXISTING BRIDGE THROUGHOUT THE DURATION OF THE PROJECT.
- ALL WORK SHALL TAKE PLACE WITHIN THE EXISTING RIGHT-OF-WAY. NO PROVISIONS HAVE BEEN MADE FOR THE CONTRACTOR TO PERFORM WORK OR SETUP STAGING OUTSIDE THE EXISTING RIGHT-OF-WAY.
- EXISTING AERIAL ELECTRIC AND TELEPHONE LINES AND POLES SHALL BE REMOVED AND PERMANENTLY RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE ALL BRIDGE REPLACEMENT AND APPROACH RECONSTRUCTION WORK WITH UTILITY RELOCATION WORK AS REQUIRED. SEE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- EXISTING UTILITY CONDUIT ON THE BRIDGE IS ABANDONED AND WILL BE REMOVED TO LIMITS REQUIRED TO PERFORM THE WORK.
- THE CONTRACTOR IS HEREBY NOTIFIED THAT AGENCY PERSONNEL WILL PERFORM A VIDEO INSPECTION OF THE NEARBY BUILDINGS AND STUCTURES ADJACENT TO THE PROJECT AND APPROACH LIMITS. A VIDEO INSPECTION WILL BE PERFORMED PRIOR TO THE BEGINNING OF CONSTRUCTION AND FOLLOWING THE COMPLETION OF CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE BUILDINGS AND STRUCTURES AS A RESULT OF THE CONTRACTOR'S ACTIVITIES AT NO ADDITIONAL COMPENSATION.
- THE CONTRACTOR SHALL CONDUCT CONSTRUCTION VIBRATION AND CRACK MONITORING IN ACCORDANCE WITH SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING). THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO ADJACENT STRUCTURES OR BUILDINGS CAUSED BY THE CONTRACTOR'S ACTIVITIES. NO SEPARATE PAYMENT WILL BE MADE FOR ANY REPAIRS OF EXISTING STRUCTURES OR BUILDINGS. PAYMENT FOR CONSTRUCTION VIBRATION AND CRACK MONITORING SHALL BE MADE UNDER CONTRACT ITEM 900.645 SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING).

EARTHWORK

- ITEM 613.10, "STONE FILL, TYPE I", UNDER THE BRIDGE AT THE ABUTMENTS AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW BEAMS ARE SET.
- ITEM 613.10, "STONE FILL, TYPE I" SHALL BE USED TO REPAIR AREAS OF EMBANKMENT AND SLOPE EROSION AS ORDERED BY THE ENGINEER.

REMOVAL OF EXISTING STRUCTURE

- PARTIAL REMOVAL OF THE EXISTING STRUCTURE SHALL BE UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF THE SUPERSTRUCTURE AND PARTIAL REMOVAL OF EXISTING ABUTMENTS. THE CONTRACTOR'S METHODS FOR PARTIAL REMOVAL OF THE EXISTING STRUCTURE SHALL BE APPROVED BY THE ENGINEER PRIOR TO ANY REMOVAL WORK.
- THE EXISTING BRIDGE SUPERSTRUCTURE AND REMOVED PORTIONS OF THE SUBSTRUCTURE AND APPROACH SHALL BECOME THE PROPERTY OF THE CONTRACTOR AFTER DEMOLITION. RECORD PLANS HAVE BEEN INCLUDED AS PART OF THIS PLAN SET.
- THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.
- THE EXISTING PAVEMENT ON THE BRIDGE DECK SHALL BE REMOVED UNDER ITEM 529.10, REMOVAL OF BRIDGE PAVEMENT.
- PAYMENT FOR MAINTAINING THE EXISTING STRUCTURE AND ROADWAY FOR ACCEPTABLE USE DURING PHASED CONSTRUCTION WILL BE MADE UNDER CONTRACT ITEM 527.10 "MAINTENANCE OF STRUCTURES AND APPROACHES".

CONCRETE

- THE ABUTMENTS BELOW THE BRIDGE SEAT CONSTRUCTION JOINT, PIER PEDESTALS, AND APPROACH SLABS SHALL BE ITEM 501.34 "CONCRETE, HIGH PERFORMANCE - CLASS B".
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1", UNLESS NOTED OTHERWISE.
- ITEM 514.10 "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, INCLUDING EXISTING PIERS, EXCEPT THE UNDERSIDE OF THE NEXT D BEAMS BETWEEN DRIP NOTCHES.
- ALL REINFORCING STEEL IN THE NEXT D BEAMS, CLOSURE POURS, CONCRETE BRIDGE RAILING, ABUTMENTS AND PIERS SHALL BE LEVEL II IN ACCORDANCE WITH SECTION 507. APPROACH SLAB REINFORCING SHALL BE LEVEL I (EPOXY COATED) IN ACCORDANCE WITH SECTION 507. PAYMENT FOR STEEL REINFORCEMENT IN BRIDGE RAILING WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 525.45. PAYMENT FOR STEEL REINFORCEMENT IN NEXT D BEAMS WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.640. PAYMENT FOR STEEL REINFORCEMENT IN APPROACH SLABS WILL BE MADE UNDER CONTRACT ITEM 507.11. PAYMENT FOR STEEL REINFORCEMENT IN DECK CLOSURE POURS, CONCRETE DIAPHRAGMS, ABUTMENTS, AND PIERS WILL BE MADE UNDER CONTRACT ITEM 507.12.
- REINFORCEMENT PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
  - SPACING +/- 1"
  - CLEARANCE +/- ¼"
- MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
  - CONCRETE BRIDGE RAILING 3.0 INCH
  - SURFACES CAST AGAINST EARTH 3.0 INCH
  - ELSEWHERE, UNLESS NOTED OTHERWISE 2.0 INCH
- THE KEY-IN CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINTS.
- JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- JOINTS IN CONCRETE BRIDGE RAILING SHALL BE SPACED AT 15' - 0" MAXIMUM. POUR SEQUENCE SHALL BE IN ALTERNATING SECTIONS.
- REINFORCING STEEL SHALL CONFORM TO AASHTO M 31, GRADE 420 (GRADE 60) AND SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).
- PIER CONCRETE REPAIRS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. A THOROUGH INSPECTION BY THE ENGINEER WILL BE MADE OF ALL PIER SUBSTRUCTURE AREAS PRIOR TO COMMENCING ANY WORK AND THOSE AREAS FOUND TO HAVE SPALLED, DELAMINATED, OR TO OTHERWISE BE UNSOUND CONCRETE WILL BE REPAIRED. THE CONTRACTOR SHALL SUPPLY ANY STAGING REQUIRED FOR THIS INSPECTION, THE COST FOR WHICH SHALL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.
- ALL REINFORCING STEEL LAP LENGTHS WERE DESIGNED ASSUMING DUAL-COATED STEEL.
- MECHANICAL CONNECTORS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING.
- UNLESS OTHERWISE NOTED, ALL CAST-IN-PLACE PORTIONS OF THE SUPERSTRUCTURE AND THE PORTION OF THE ABUTMENTS ABOVE THE HORIZONTAL CONSTRUCTION JOINT LOCATED BELOW THE BEAMS SHALL BE ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".
- FORM A 1" V-GROOVE ON THE FASCIAS AT THE HORIZONTAL JOINT BETWEEN THE CONCRETE BRIDGE RAILING AND THE PRECAST PRESTRESSED CONCRETE NEXT D BEAM FLANGE
- CONSTRUCTION JOINTS SHALL BE PROVIDED IN THE CONCRETE PARAPET PORTION OF THE BRIDGE RAILING CONSISTENT WITH THE REQUIREMENTS AND DETAILS FOR CONCRETE CURBS AS SHOWN ON STRUCTURES DETAIL SHEET SD-502.00

NEXT D BEAMS

- NEXT D BEAMS ARE A NONPROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT WWW.PCINE.ORG.
- DESIGN VALUES
  - CONCRETE COMPRESSIVE STRENGTH:  $f'_c$  =8000 PSI.
  - CONCRETE COMPRESSIVE STRENGTH AT RELEASE:  $f'_{ci}$  =6000 PSI.
  - PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION, 7-WIRE STRANDS.
  - APPARENT MODULUS OF ELASTICITY = 28,500 KSI.
  - JACKING FORCE PER STRAND = 44 KIPS.
- EXCEPT AS NOTED OTHERWISE FLANGE CLOSURE POURS SHALL BE HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)." CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI.

- FLANGE KEYWAYS SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR THE ERECTION OF THE BEAMS.
- METHOD OF FORMING THE FLANGE CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER. FORM SUPPORTS SHALL NOT PENETRATE THROUGH THE TOP OF THE POUR UNLESS APPROVED BY THE ENGINEER.
- THE DRILLING OF HOLES IN THE PRECAST BEAMS AND THE USE OF POWER ARTICULATED TOOLS ON THE BEAMS WILL NOT BE PERMITTED.
- PRODUCT DIMENSIONAL TOLERANCES FOR THE PRESTRESSED CONCRETE NEXT D BEAMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS FOR B-11 BOX BEAMS OF THE LATEST EDITION OF PCI MNL-116 MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF PRECAST AND PRESTRESSED PRODUCTS.

PILE FOUNDATIONS

- THE PILES SHALL BE HP ~~10x57~~. **12x74 (NEW DESIGN)**.
- PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(F) OF THE STANDARD SPECIFICATIONS.
- THE TOPS OF PILES AFTER DRIVING SHALL NOT VARY FROM THE PLAN POSITION BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW THE TOLERANCES WILL BE MET TO THE SATISFACTION OF THE ENGINEER REGARDLESS OF INSTALLATION METHOD.
- TO ENSURE THAT THE NOMINAL RESISTANCE HAS BEEN ATTAINED AND TO PREVENT THE OVERSTRESSING OF THE PILES DURING DRIVING OPERATIONS, DYNAMIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04(D)-2 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR ONE PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN AT EACH ABUTMENT, FOR A TOTAL OF 2 TESTS. MORE TESTS MAY BE REQUIRED BY THE ENGINEER. PAY ITEM FOR TESTING, INCLUDING ANY ADDITIONAL TESTS ORDERED BY THE ENGINEER IS 505.45 "DYNAMIC PILE LOAD TEST."
- THE PILES SHALL BE DRIVEN TO A REQUIRED NOMINAL RESISTANCE OF 265 KIPS AS DETERMINED BY THE RESULTS OF DYNAMIC TESTING, AS INTERPRETED BY THE ENGINEER PROVIDED A MINIMUM PENETRATION OF 15 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.
- FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL LENGTHS MAY VARY.

ELASTOMERIC BEARINGS

- ELASTOMER COMPOUND SHALL HAVE A NOMINAL HARDNESS OF 60 ON THE SHORE A SCALE, AND SHALL CONFORM TO SUBSECTION 731.03.
- STEEL REINFORCEMENT FOR THE ELASTOMERIC BEARING PADS SHALL CONFORM TO SECTION 506 FOR GRADE 50 STEEL.
- THE ELEVATION OF THE BEARING PEDESTALS ARE DETAILED CONSIDERING PREDICTED BEAM CAMBER AND BEAM END ROTATIONS AT ERECTION (30-60 DAYS AFTER STRESSING).
- THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 32 - ¼" X 11 ½" X 1'-0 ½", 16 - 1/8" X 11 ½" X 1'-0 ½", AND 32 - TAPERED 1/8" TO 3/8" X 11 ½" X 1'-0 ½" (TAPERED ALONG 1'-0 ½" DIRECTION) RECTANGULAR GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON SETTING OF THE SUPERSTRUCTURE UNITS AT THE PIER LOCATIONS. A 1/8" THICK NEOPRENE SHEET WILL BE PROVIDED BETWEEN CONCRETE SURFACES AND THE STEEL SHIMS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 531.17, 'BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".
- THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 16 - ¼" X 10" X 1'-2", 8 - 1/8" X 10" X 1'-2", AND 16 - TAPERED 1/8" TO 3/8" X 10" X 1'-2" (TAPERED ALONG 1'-2" DIRECTION) RECTANGULAR GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON SETTING OF THE SUPERSTRUCTURE UNITS AT THE ABUTMENT LOCATIONS . A 1/8" THICK NEOPRENE SHEET WILL BE PROVIDED BETWEEN CONCRETE SURFACES AND THE STEEL SHIMS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 531.16, 'BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD".

BRIDGE RAILING, APPROACH RAILING, AND GUARDRAIL

- ALL STEEL COMPONENTS OF THE BRIDGE RAILING, APPROACH RAILING, AND GUARDRAIL SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.

TYLIN INTERNATIONAL	PROJECT NAME: ROCKINGHAM PROJECT NUMBER: BRF 0126(12)	
	FILE NAME: z10J072bdr_notes.dgn PROJECT LEADER: R. HEBERT DESIGNED BY: S. KELLER PROJECT NOTES	PLOT DATE: 8/26/2014 DRAWN BY: D. AXTELL CHECKED BY: T. POULLIN SHEET 10 OF 69

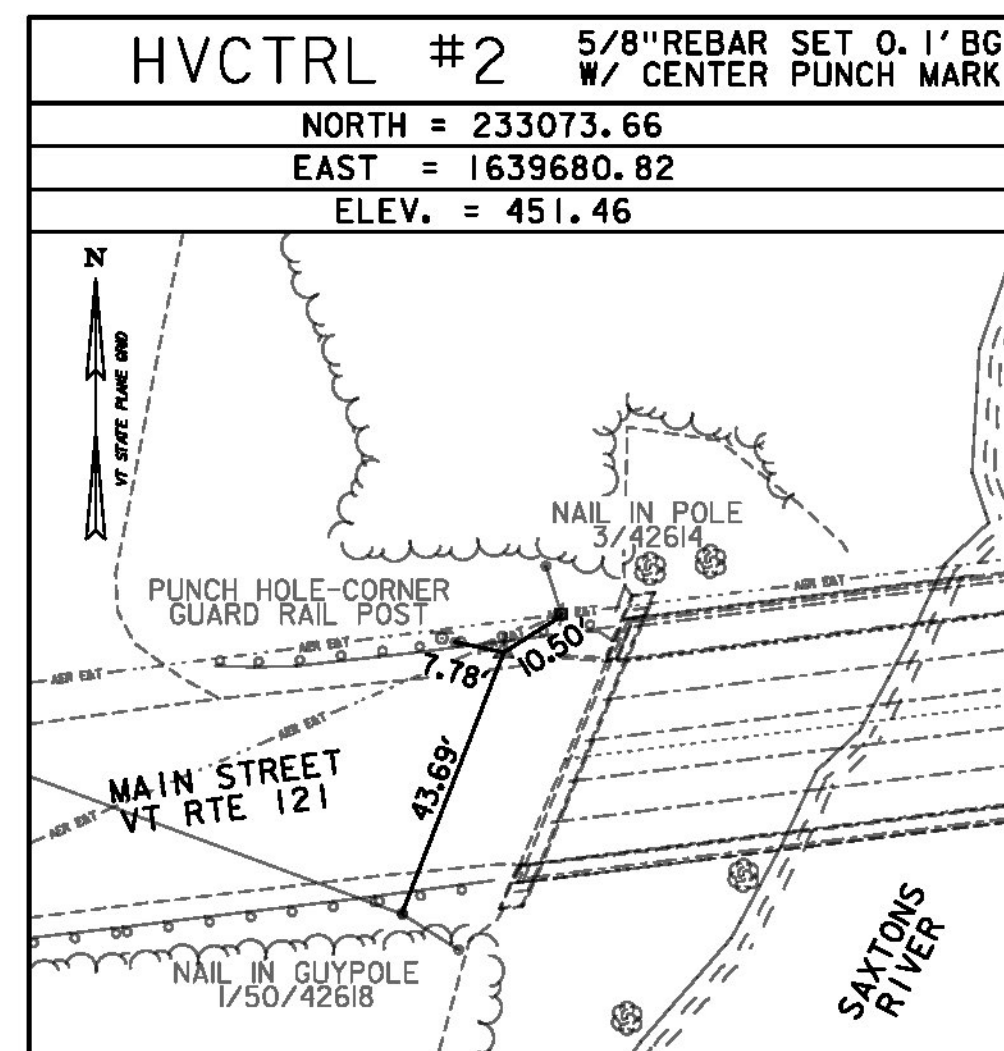


## TRAVERSE TIES

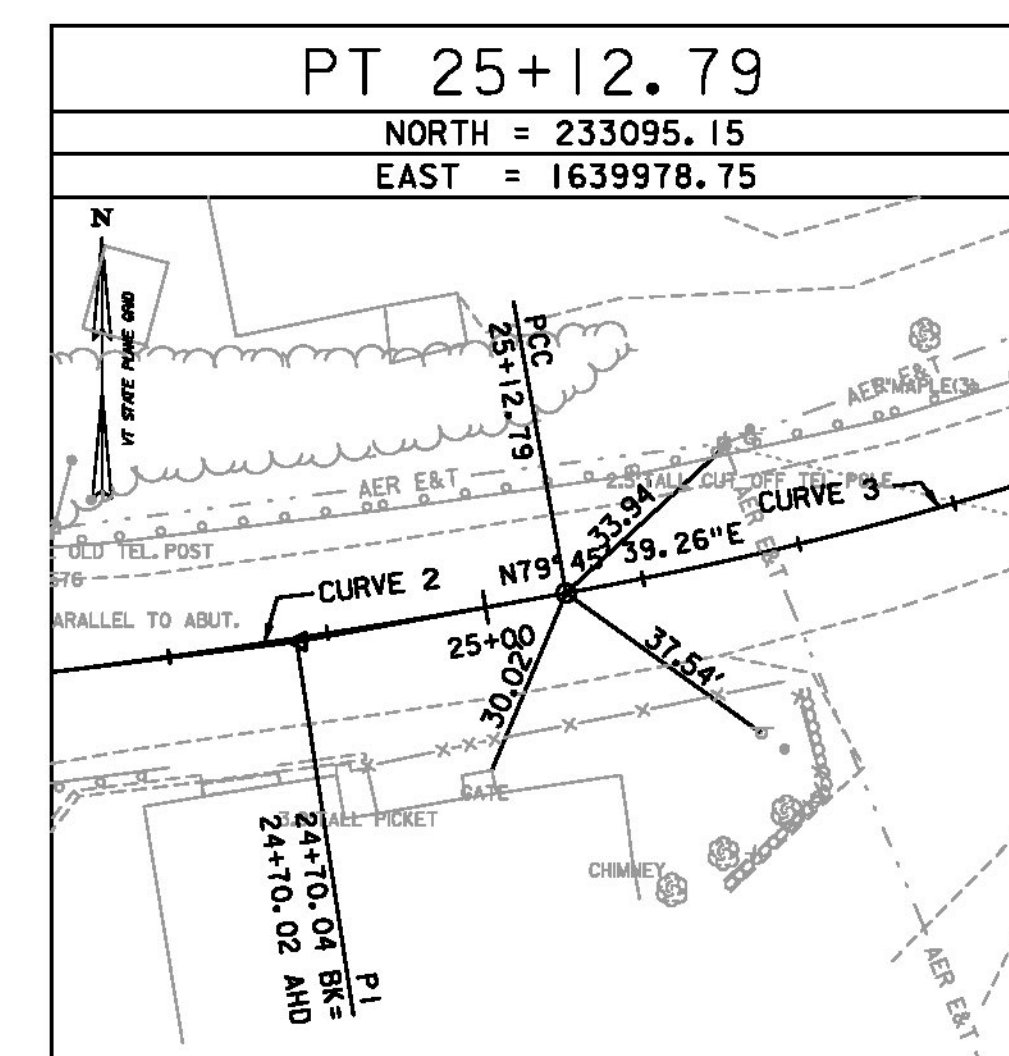
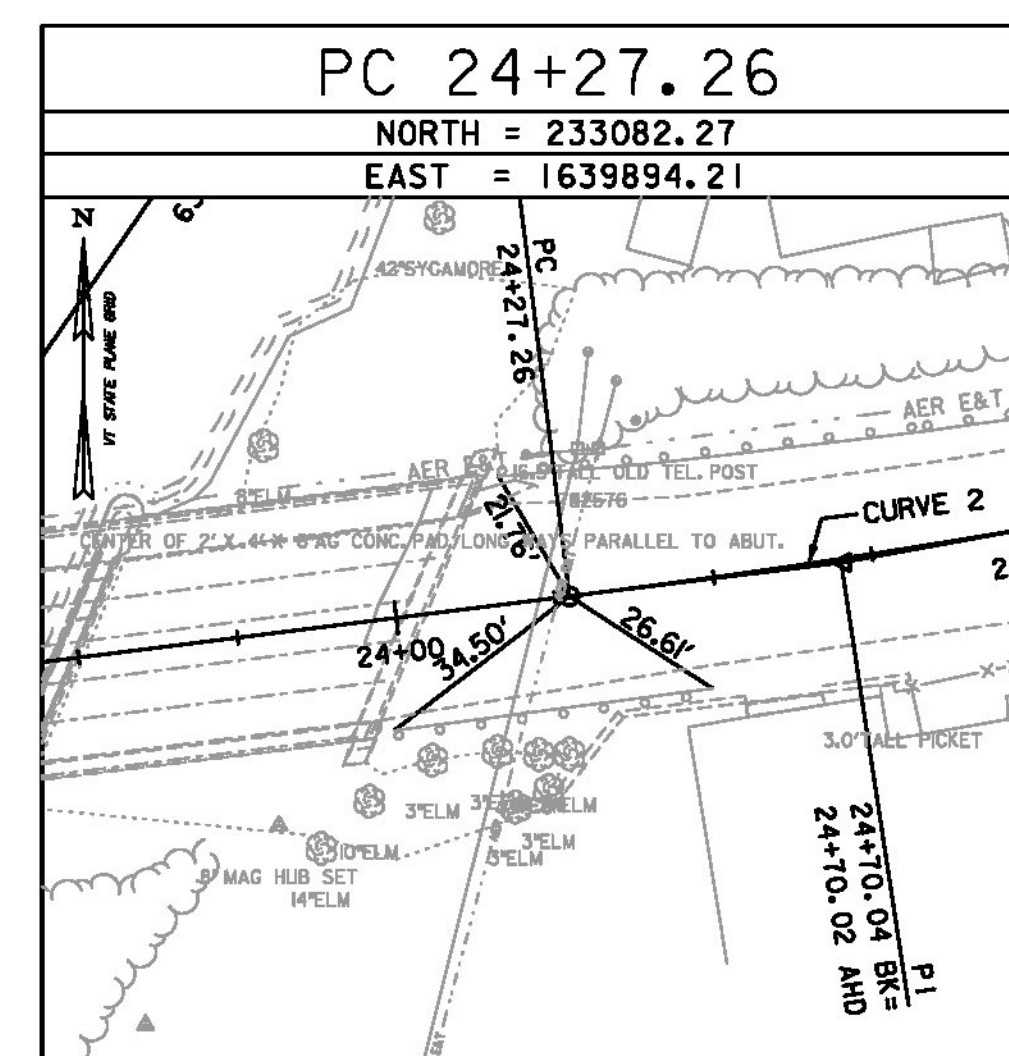
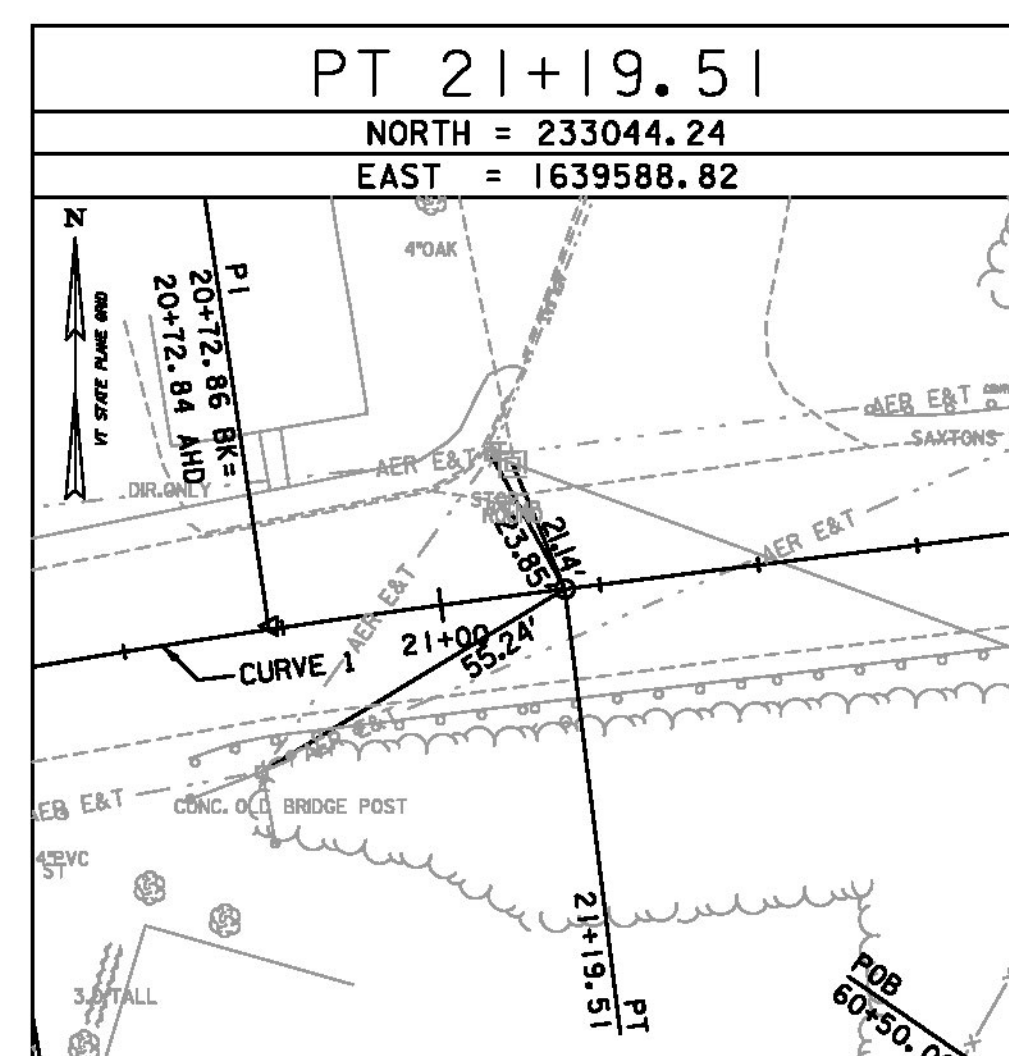
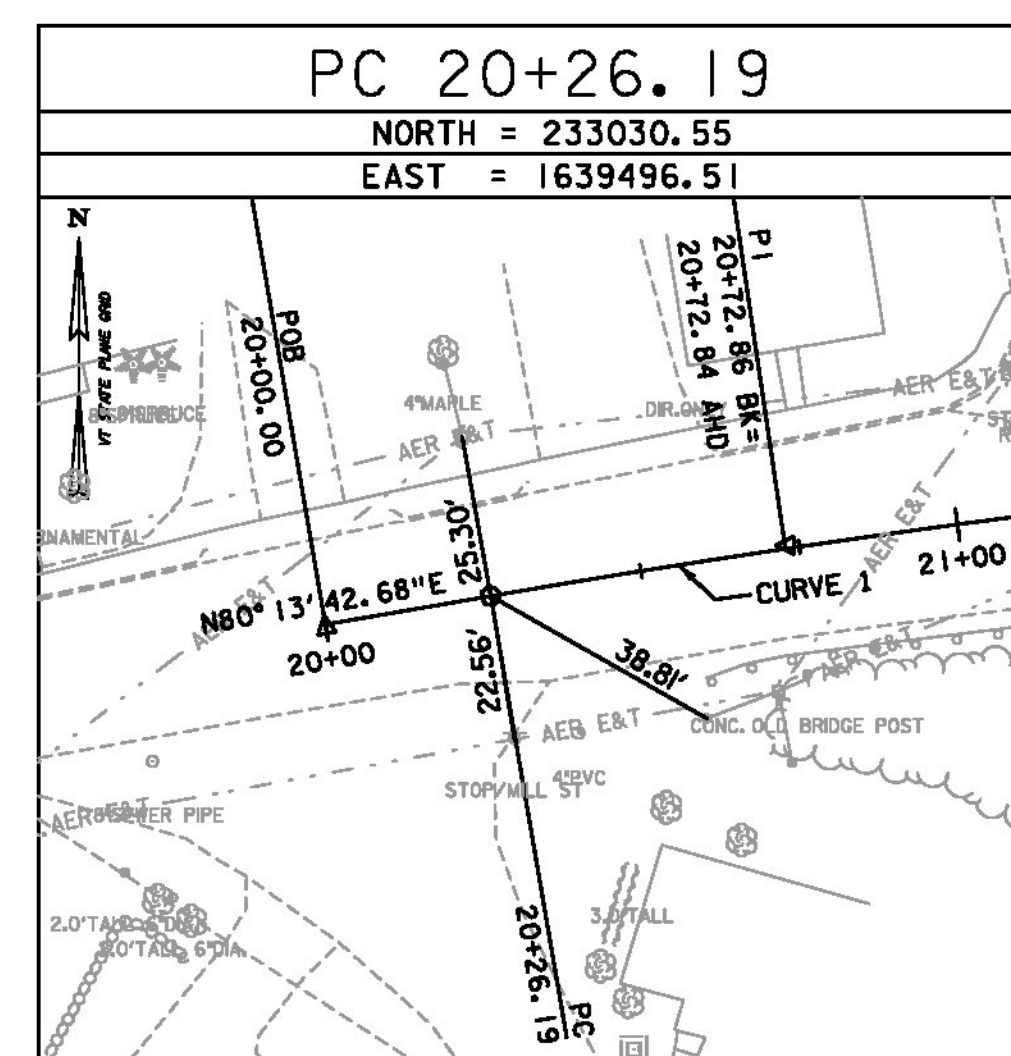
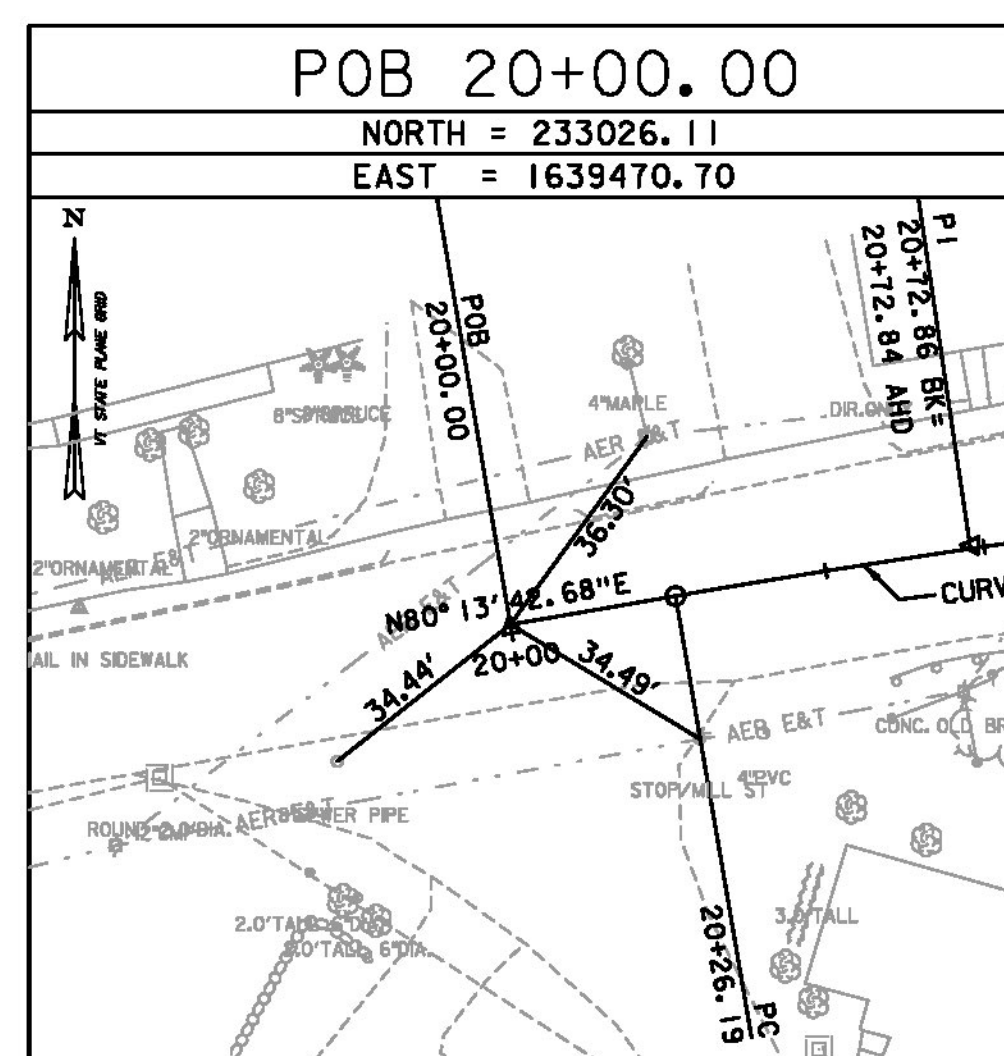
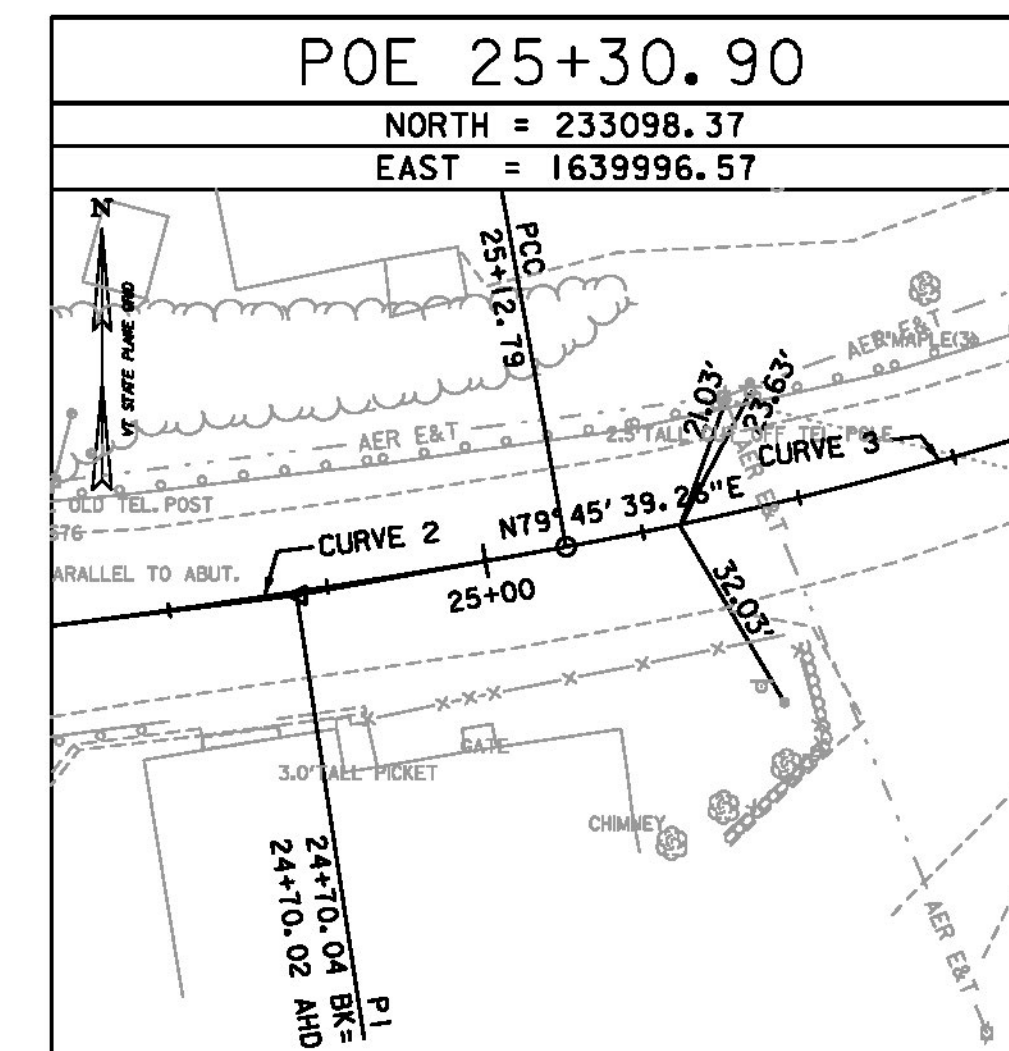
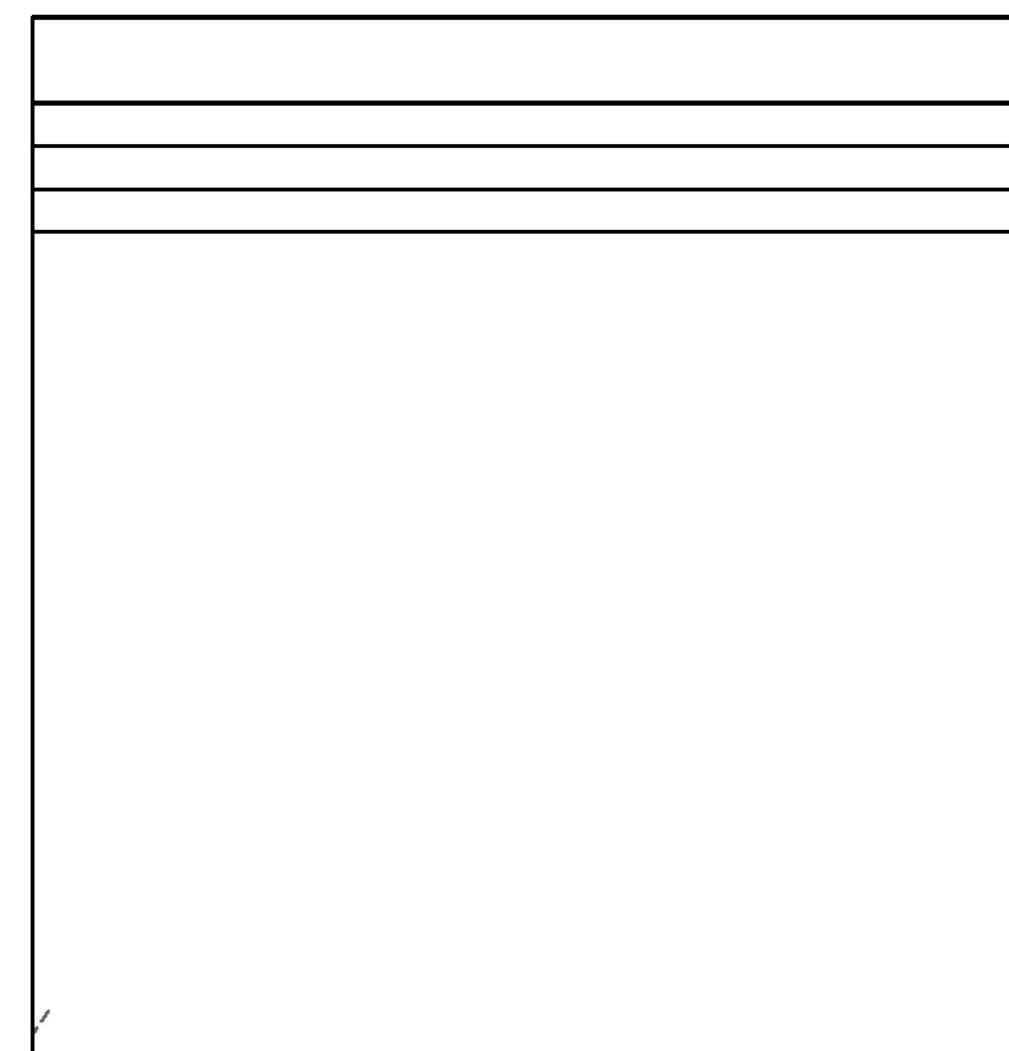
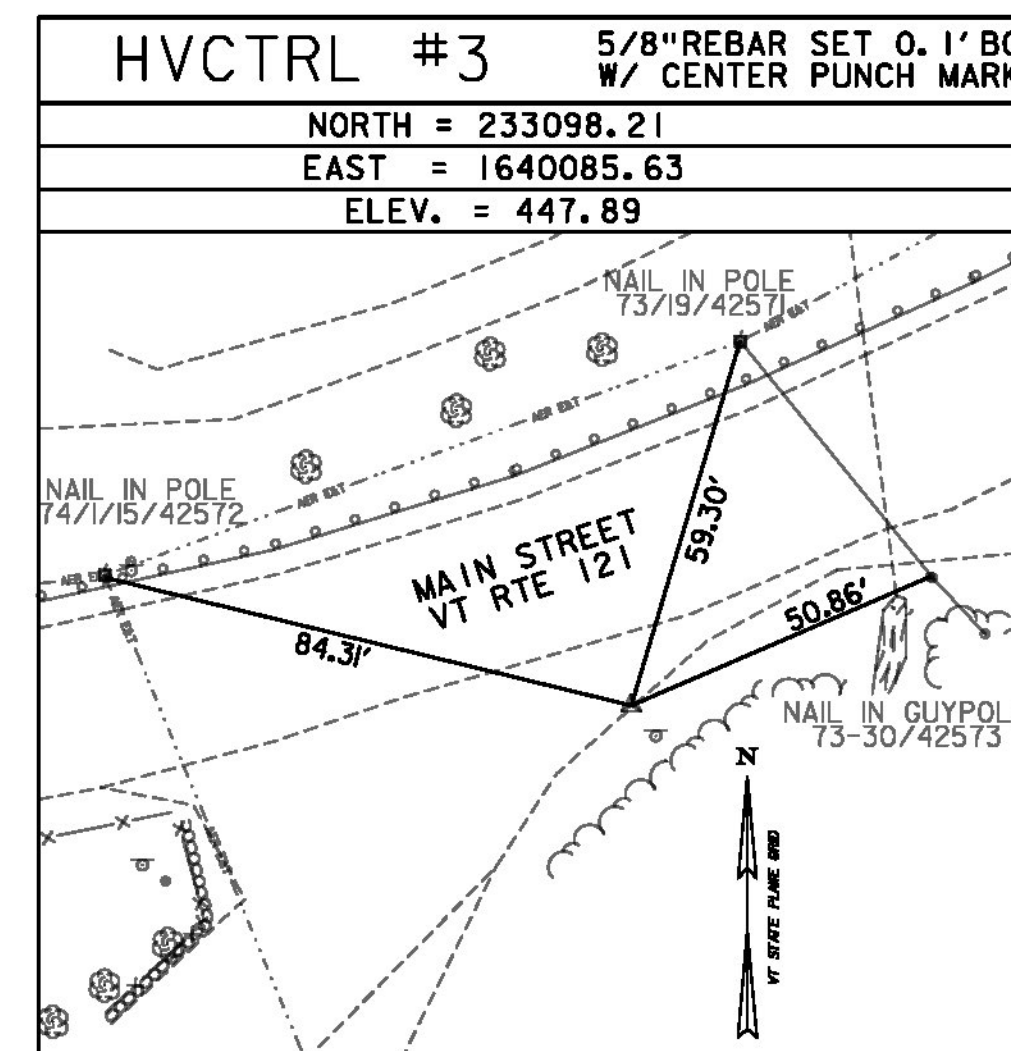
## ALIGNMENT TIES

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N = 284807.69  
E = 1646390.48  
ELLIP HEIGHT = 513.30

STATION IS A GPS CONTINUOUSLY OPERATING REFERENCE STATION. STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA. LOCATED AT THE SPRINGFIELD, VERMONT HIGH SCHOOL, THE MONUMENT IS ATTACHED TO A TWO STORY CONCRETE & BRICK BUILDING WITH AN 8 FT CONCRETE FOUNDATION BUILT IN 1967. THE MAST IS A 1.75 INCH DIA. GALV PIPE THAT IS 108 INCHES LONG. THE MAST IS ATTACHED TO A STEEL MOUNTING FRAME WITH THREE ATTACHMENTS CONSISTING OF 3/8 INCH SS THROUGH BOLTS. THE MOUNTING FRAME IS ATTACHED TO THE BUILDING USING 8 ATTACHMENT POINTS. THE TOP 2 AND THIRD 2 ARE 1/2 INCH SS BOLTS SECURED TO THE BRICK OR CONC WITH LEAD ANCHORS. THE SECOND 2 AND BOTTOM 2 ATTACHMENTS ARE THROUGH BOLTED AND CONSIST OF 1/2 INCH SS THREADED ROD AND NUTS.



* MAIN TRAVERSE COMPLETED: DECEMBER 1, 2011 BY VSE, M. HUDSON-PC, M. YEFCHAK



DATUM	
VERTICAL	<u>NAVD 88(GEIOD09) FT</u>
HORIZONTAL	<u>NAD 83(CORS) sFT</u>
ADJUSTMENT	<u>LSQ</u>

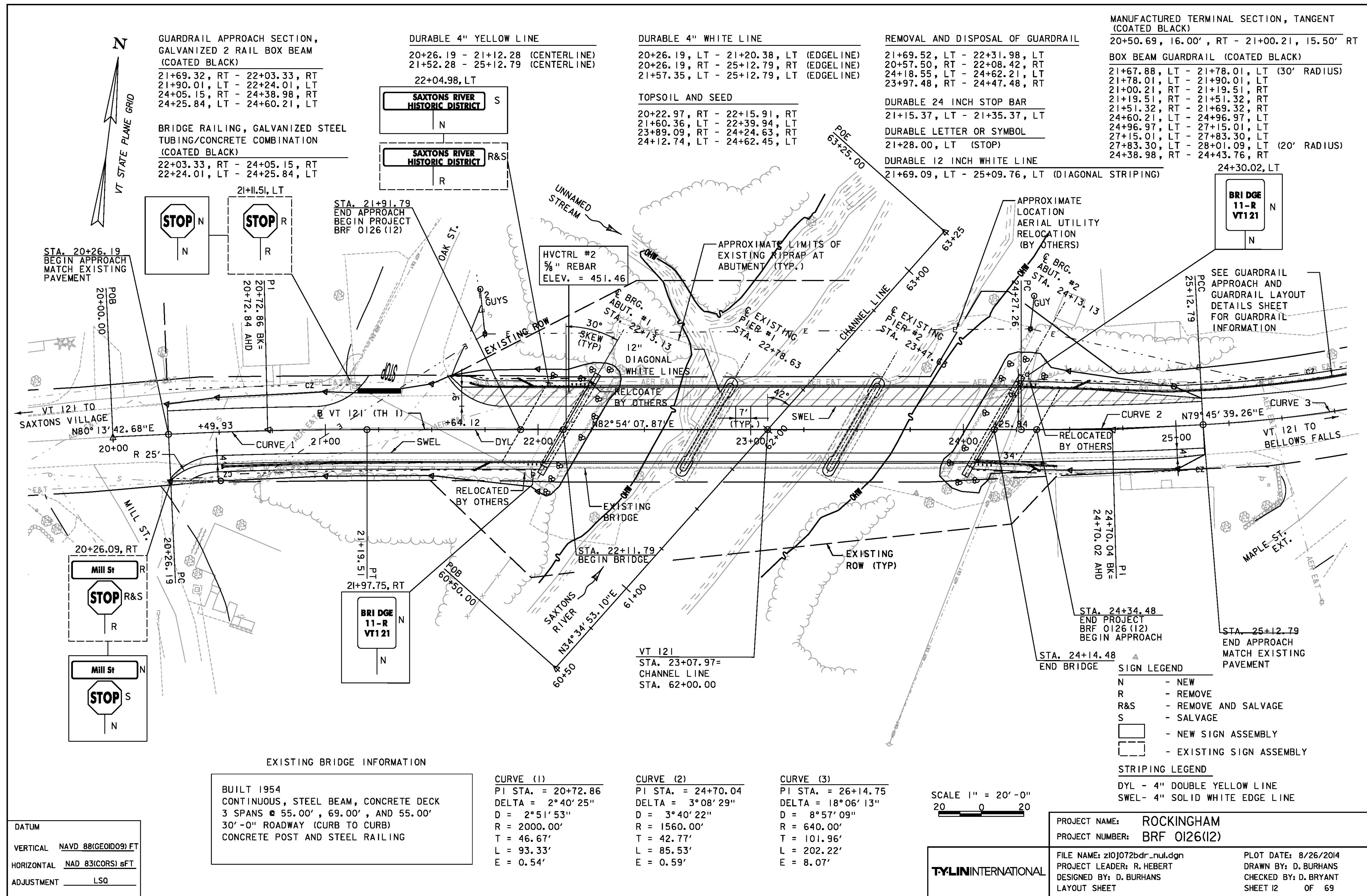


PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

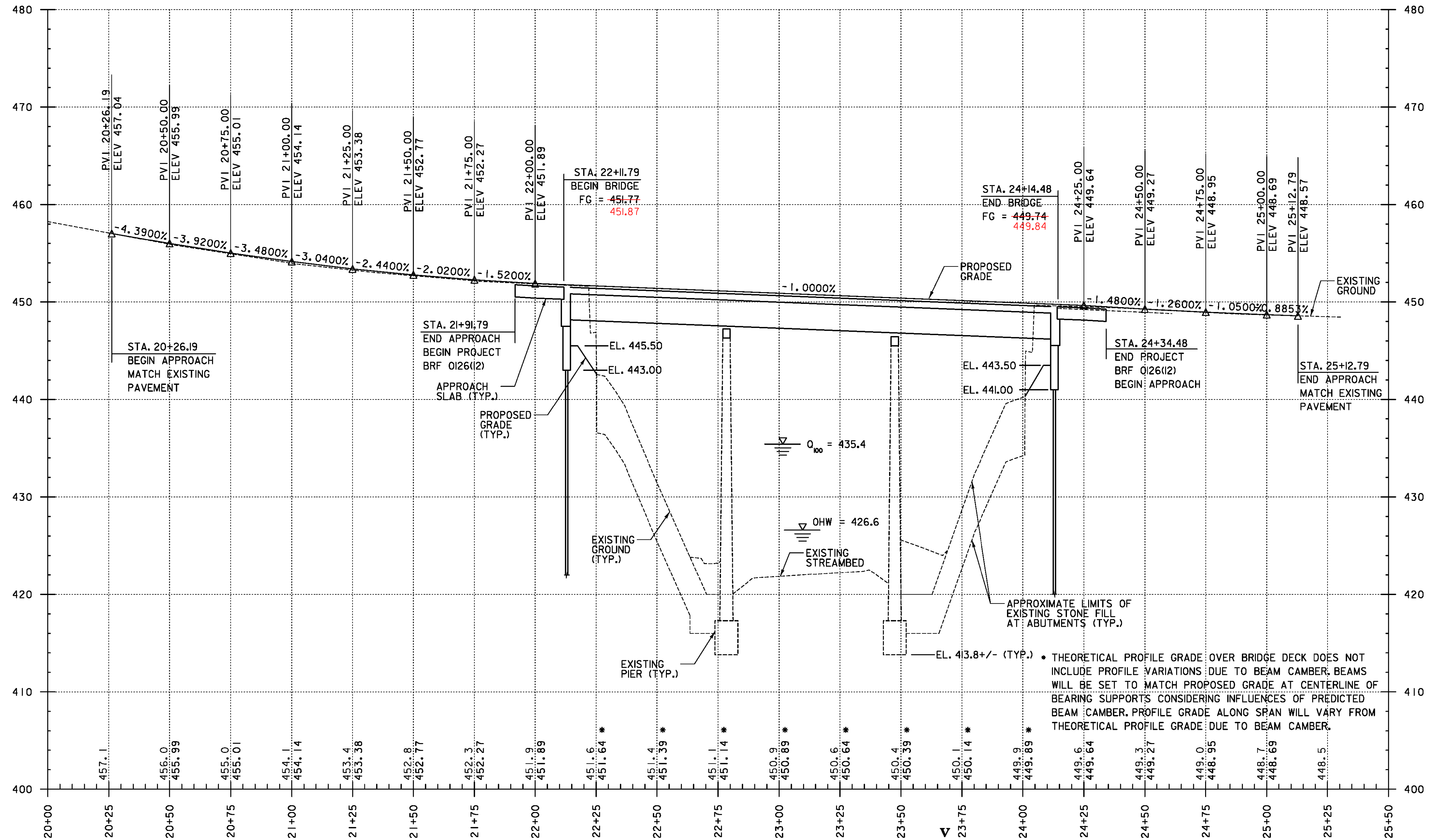
FILE NAME: z10j072bdr_+1.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: D. BURHANS  
TIE SHEET

PLOT DATE: 8/26/2014  
DRAWN BY: D. BURHANS  
CHECKED BY: R. HEBERT  
SHEET 11 OF 69







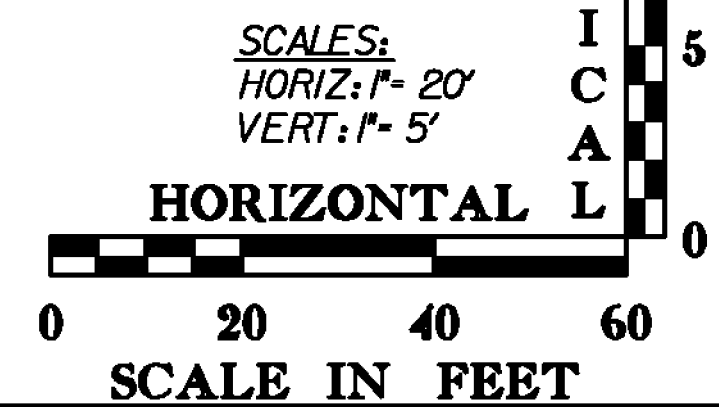


PROFILE: VT ROUTE 121

DATUM  
VERTICAL NAVD 88(GEOD09) FT  
HORIZONTAL NAD 83(CORS) sFT  
ADJUSTMENT LSQ

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL  
GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT

THE GRADES SHOWN TO THE NEAREST HUNDRETH ARE THE PROPOSED  
GRADES FOR THE NEW ALIGNMENT

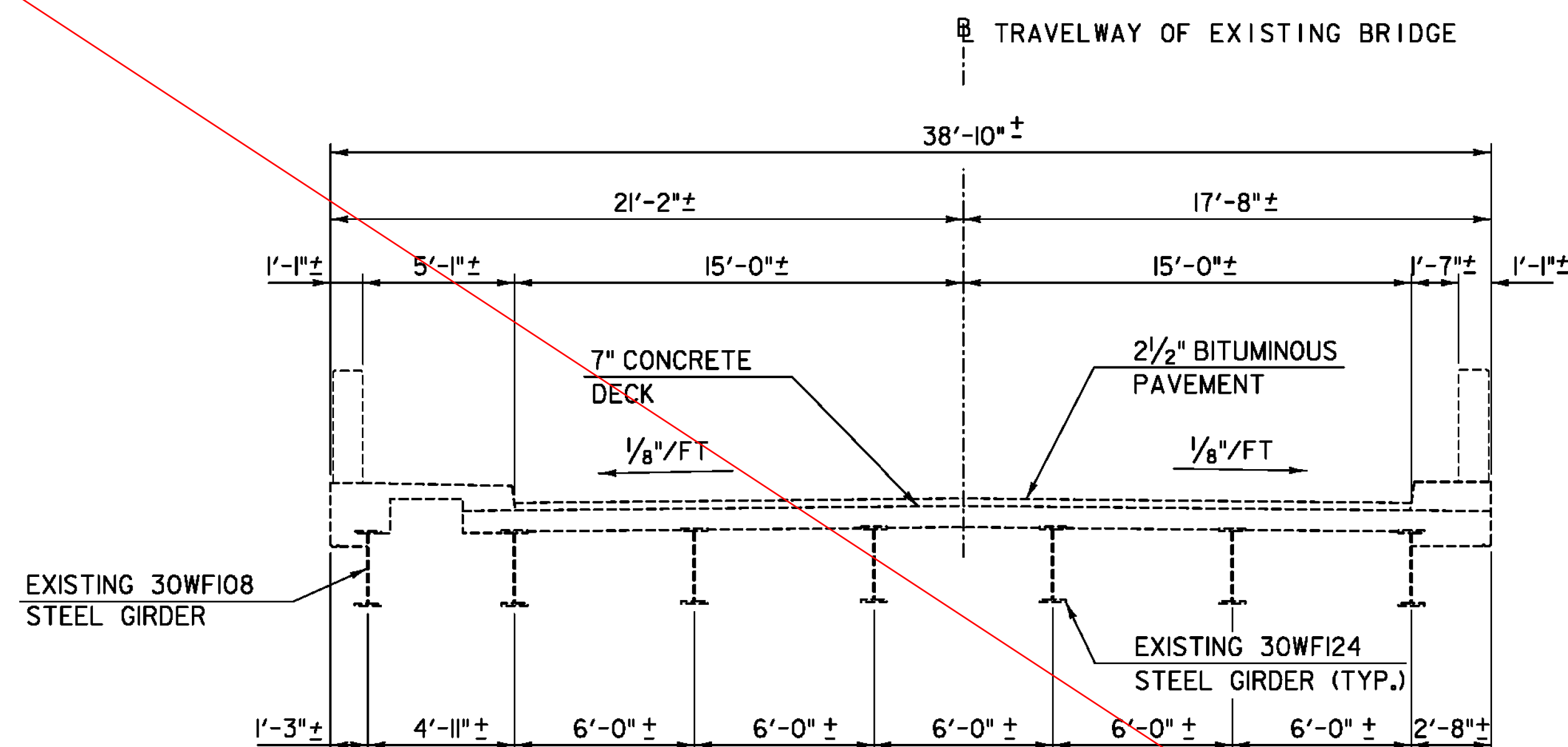


PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_pro.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: D. BURHANS  
PROFILE SHEET

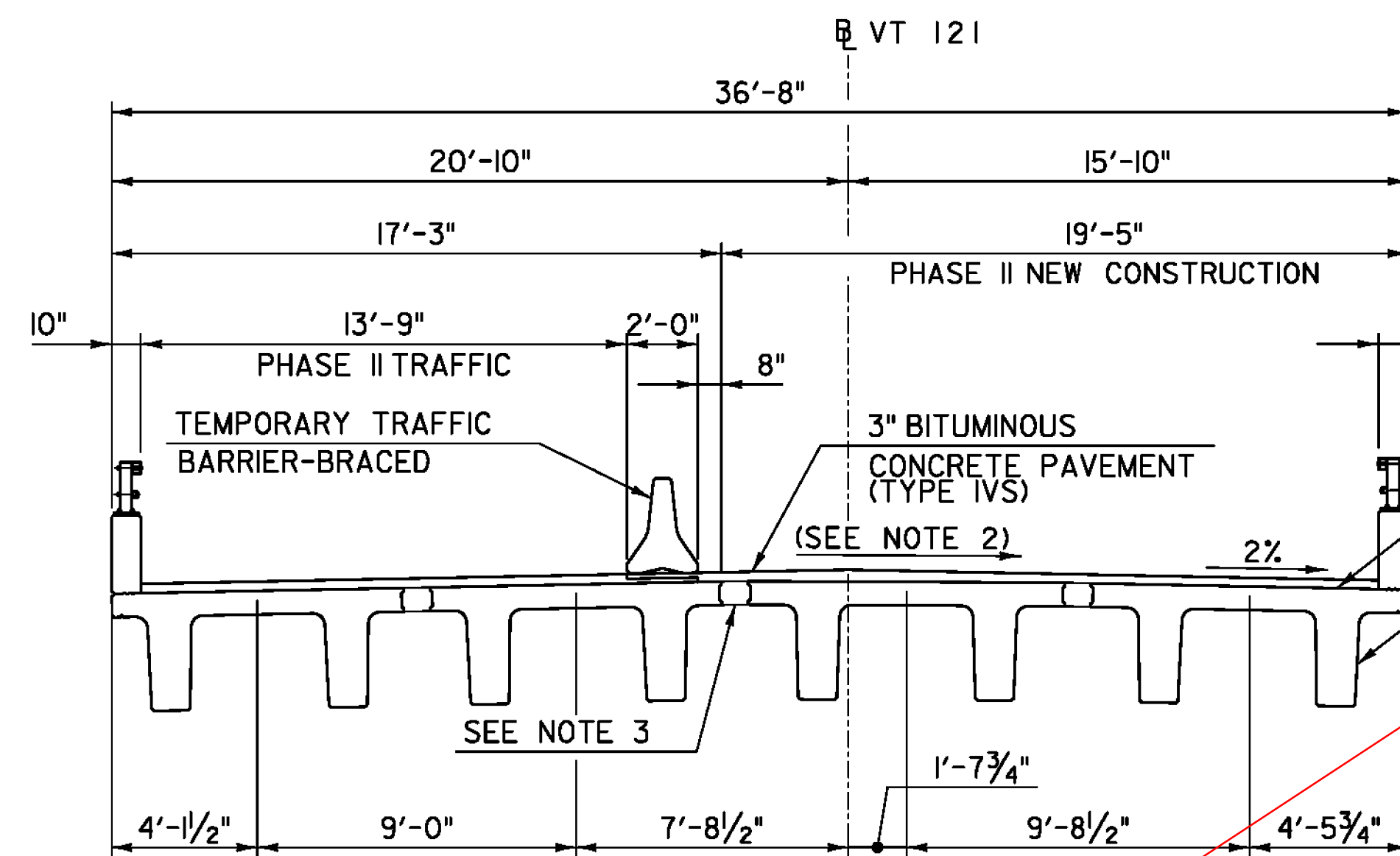
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DRAWN BY: J. DAVIS  
CHECKED BY: D. BRYANT  
SHEET 13 OF 69





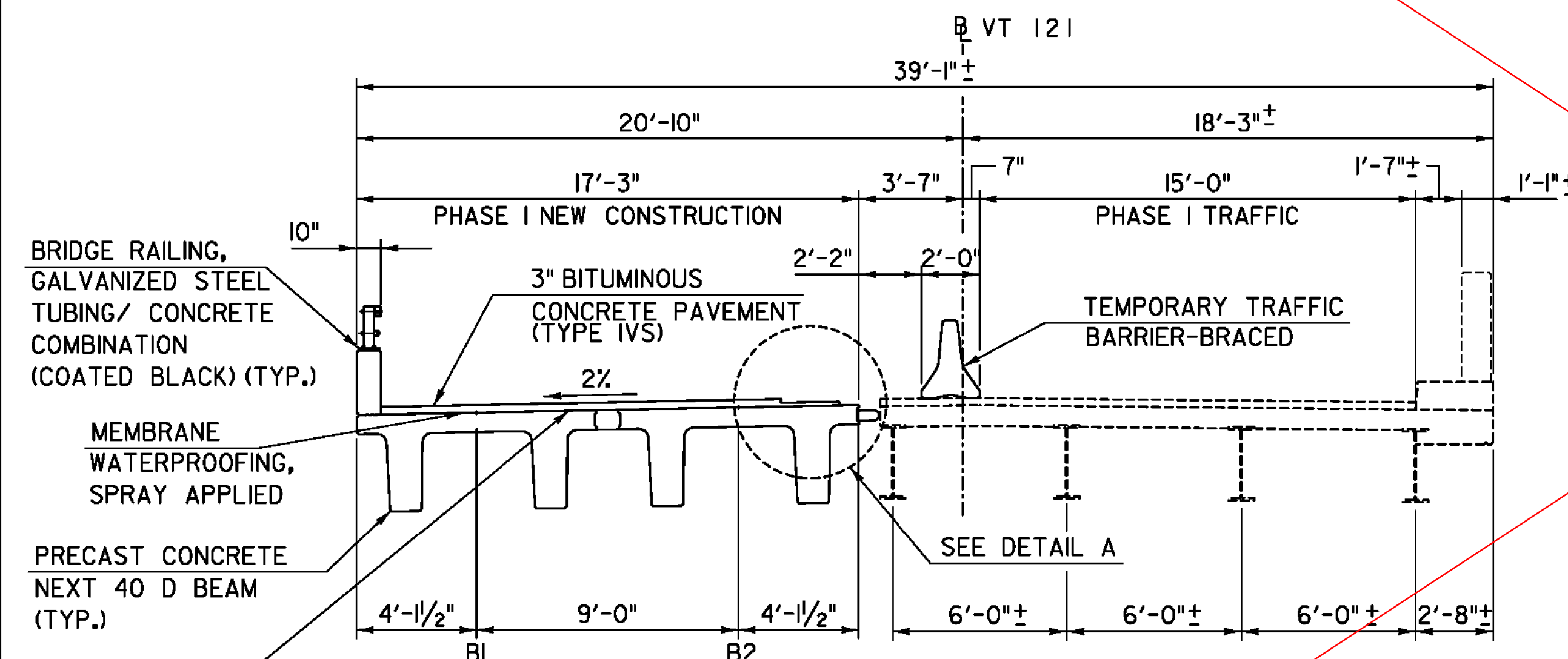
TYPICAL SECTION - EXISTING

SCALE 1/4" = 1'-0"



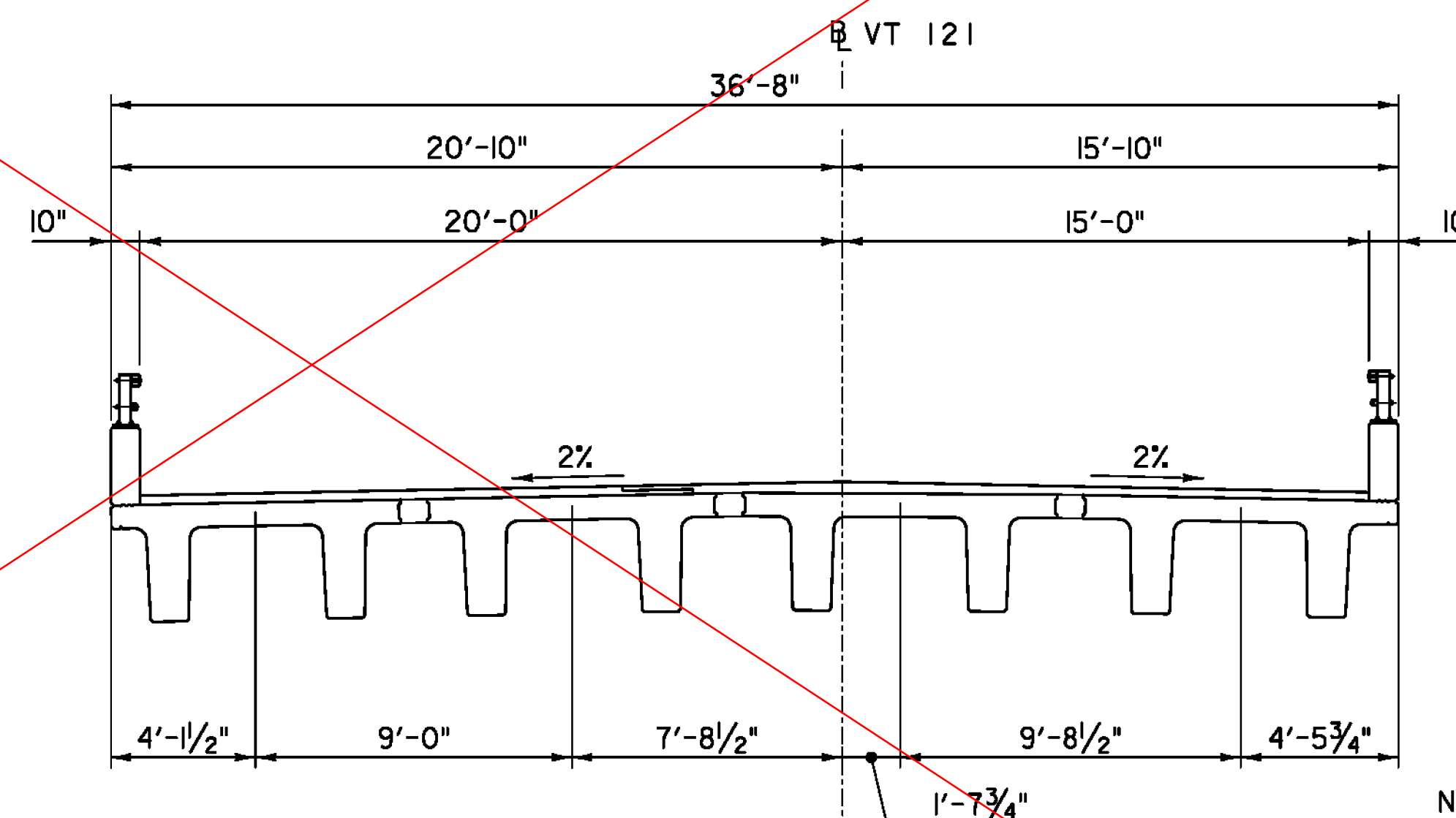
TYPICAL SECTION - CONSTRUCTION PHASE II

SCALE 1/4" = 1'-0"



TYPICAL SECTION - CONSTRUCTION PHASE I

SCALE 1/4" = 1'-0"



TYPICAL SECTION - FINAL BUILD

SCALE 1/4" = 1'-0"

BRIDGE RAILING, GALVANIZED STEEL TUBING/ CONCRETE COMBINATION (COATED BLACK) (TYP.)

MEMBRANE WATERPROOFING, SPRAY APPLIED

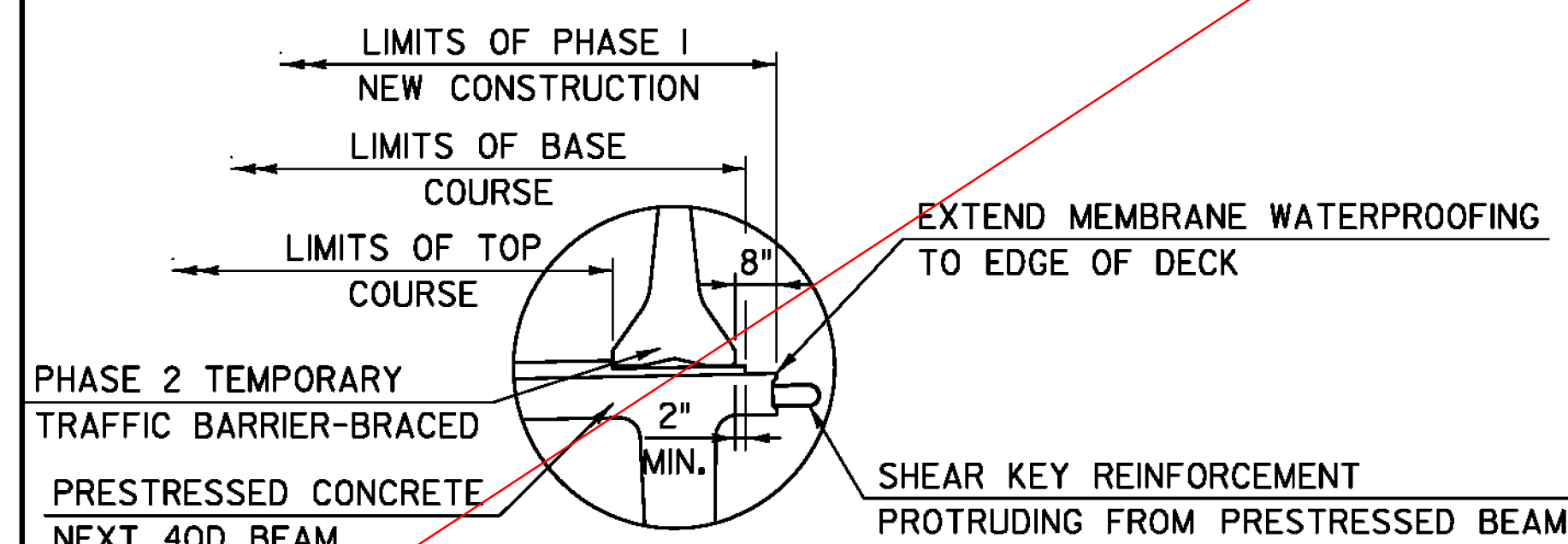
PRESTRESSED CONCRETE NEXT 40 D BEAM (TYP.)

### SUGGESTED BRIDGE CONSTRUCTION SEQUENCE NOTES:

- PHASE I - NORTH HALF OF BRIDGE:
1. REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND ABUTMENT BACKWALLS DOWN TO TOP OF EXISTING ABUTMENT BRIDGE SEATS.
  2. INSTALL ABUTMENT PILES AND CONSTRUCT ABUTMENTS UP TO HORIZONTAL JOINT BELOW BEAMS.
  3. CONSTRUCT ABUTMENT AND PIER PEDESTALS.
  4. INSTALL BEARINGS AND PRESTRESSED CONCRETE BEAMS.
  5. CONSTRUCT DIAPHRAGMS AT PIERS AND ABUTMENTS ABOVE HORIZONTAL JOINT BELOW BEAMS.
  6. PLACE CLOSURE POURS OVER PIERS.
  7. PLACE CLOSURE POUR BETWEEN BEAM LINES 1 AND 2.
  8. CONSTRUCT APPROACH SLABS, BRIDGE RAILING, INSTALL SHEET MEMBRANE WATERPROOFING, AND PAVEMENT.
- PHASE 2 - SOUTH HALF OF BRIDGE:
1. REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND ABUTMENT BACKWALLS DOWN TO TOP OF EXISTING ABUTMENT BRIDGE SEATS.
  2. INSTALL ABUTMENT PILES AND CONSTRUCT ABUTMENTS UP TO HORIZONTAL JOINT BELOW BEAMS.
  3. CONSTRUCT ABUTMENT AND PIER PEDESTALS.
  4. INSTALL BEARINGS AND PRESTRESSED CONCRETE BEAMS.
  5. CONSTRUCT DIAPHRAGMS AT PIERS AND ABUTMENTS ABOVE HORIZONTAL JOINT BELOW BEAMS.
  6. PLACE CLOSURE POURS OVER PIERS.
  7. PLACE CLOSURE POUR BETWEEN BEAM LINES 3 AND 4.
  8. PLACE CLOSURE POUR BETWEEN BEAM LINES 2 AND 3.
  9. CONSTRUCT APPROACH SLABS, BRIDGE RAILING, INSTALL SHEET MEMBRANE WATERPROOFING, AND PAVEMENT.

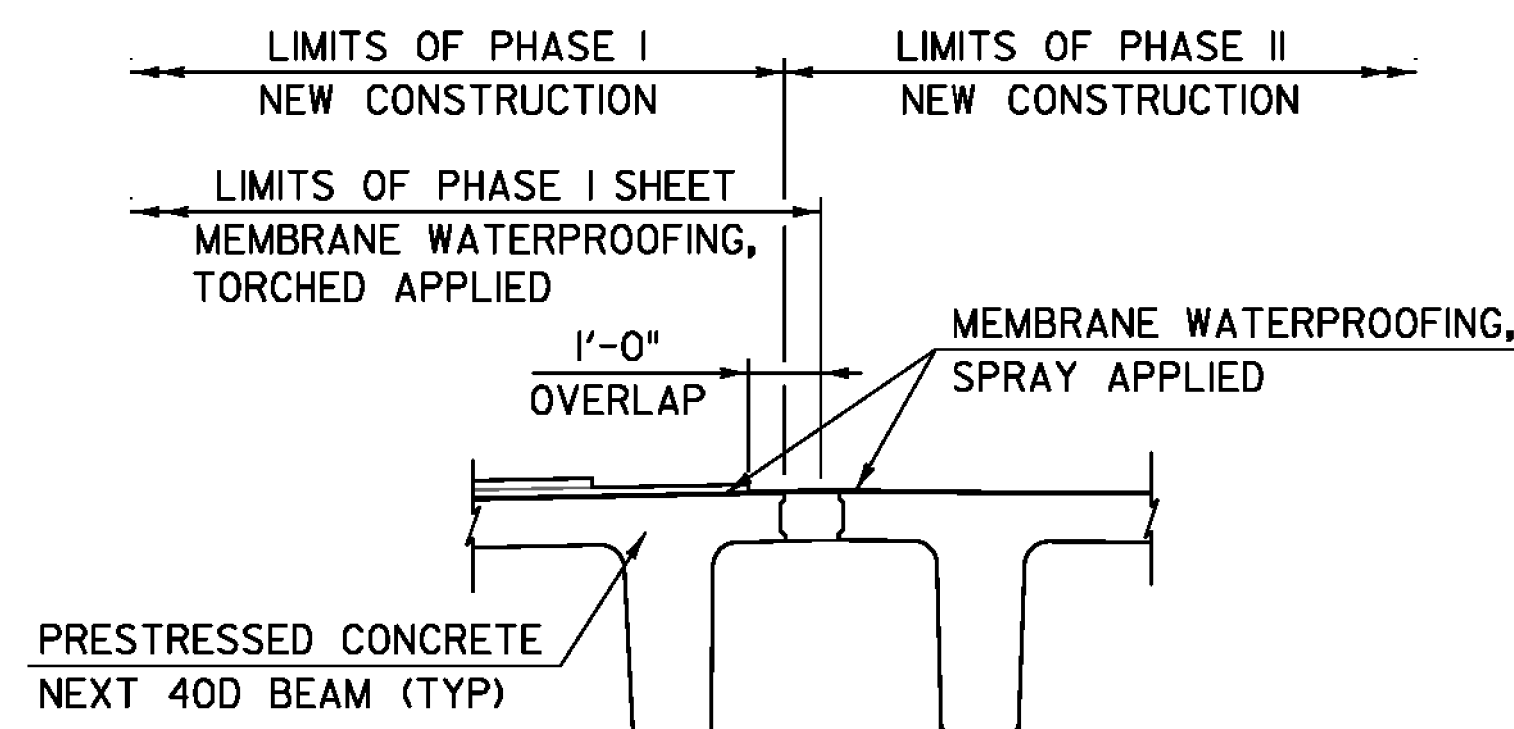
### NOTES:

1. TEMPORARY TRAFFIC BARRIER SHALL MEET THE REQUIREMENTS FOR BRIDGE RAIL PERFORMANCE LEVEL TL3 OF NCHRP 350. TEMPORARY BARRIER CONNECTIONS SHALL BE DEVELOPED BY CONTRACTOR AND SHALL BE SUBMITTED TO VTRANS FOR REVIEW AND APPROVAL. TEMPORARY TRAFFIC BARRIER MAY BE ANCHORED TO EXISTING DECK BUT NOT TO PROPOSED DECK.
2. BEAM 3 SHALL BE SLOPED TRANSVERSELY TO MATCH ADJACENT BEAMS AND SHEAR KEYS. SEE "BRIDGE TYPICAL SECTION" SHEET FOR DETAIL.
3. HIGH PERFORMANCE CONCRETE, RAPID SET BETWEEN BEAMS B2 AND B3 SHALL MEET A 3 HOUR COMPRESSIVE STRENGTH OF 3000 PSI AND A 28 DAY COMPRESSIVE STRENGTH OF 7000 PSI.
4. PAYMENT FOR TEMPORARY TRAFFIC BARRIER-BRACED SHALL BE MADE UNDER ITEM 621.90 TEMPORARY TRAFFIC BARRIER.



DETAIL A

SCALE 3/8" = 1'-0"



MEMBRANE OVERLAP DETAIL

SCALE 3/8" = 1'-0"

TYLIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(I2)

FILE NAME: z10j072bdr_bphase.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BRIDGE CONSTRUCTION STAGING

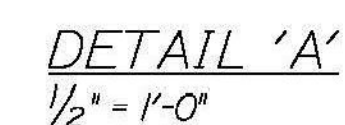
PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 14 OF 69

SEE SHEET 14 VE





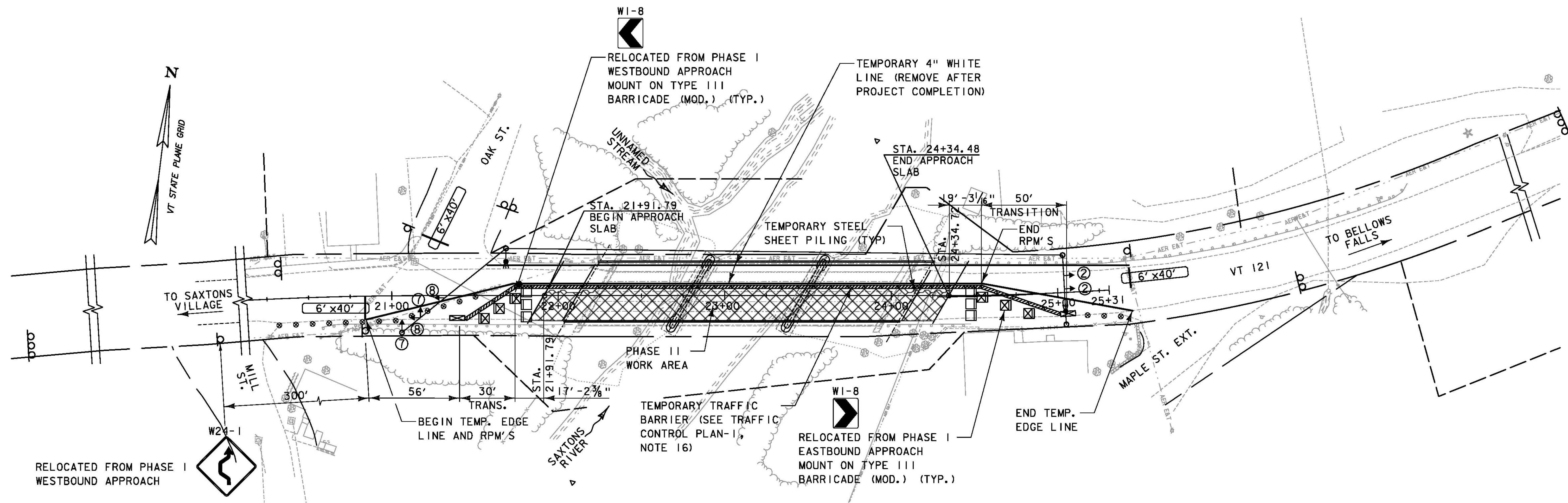
PAYMENT FOR TEMPORARY TRAFFIC BARRIER-BRACED SHALL BE MADE UNDER ITEM 621.90 TEMPORARY TRAFFIC BARRIER.

14









## PHASE II

### NOTES:

1. FOR ADDITIONAL NOTES SEE TRAFFIC CONTROL PLAN - I.
2. SEE TRAFFIC CONTROL PLAN - I FOR CONSTRUCTION APPROACH SIGNING.

SIGN #	DESCRIPTION	SIZE	QTY	SUPPORT
W20-1	ROAD WORK AHEAD	48x48	4	8 - POSTS (2/SIGN ASSEMBLY)
W13-1P	25 M.P.H.	24x30	2	
W20-1	ROAD WORK 1000 FT	48x48	2	4 - POSTS (2/SIGN)
W20-4	ONE LANE ROAD AHEAD	48x48	4	8 - POSTS (2/SIGN)
W3-3	TRAFFIC SIGNAL	48x48	2	4 - POSTS (2/SIGN)
R10-6	STOP HERE ON RED	36x48	2	2 - POSTS (1/SIGN)
G20-2	END ROAD WORK	48x24	4	8 - POSTS (2/SIGN)
W1-8	CHEVRON	24x30	2	ON BARRICADE
W24-1	DOUBLE REVERSE CURVE (1/2 LANE)	48x48	1	1 - POSTS (1/SIGN ASSEMBLY)
W13-1P	25 M.P.H.	24x30	1	
SQUARE SIGN POSTS			35	
POST ANCHORS			35	

REMOVE AND RESET  
 TEMPORARY TRAFFIC BARRIER  
 21+40.71 RT - 24+88.45 RT  
 TEMPORARY TRAFFIC BARRIER  
 24+88.45 RT - 25+00.71 RT

SCALE 1" = 30'-0"  
 30 0 30

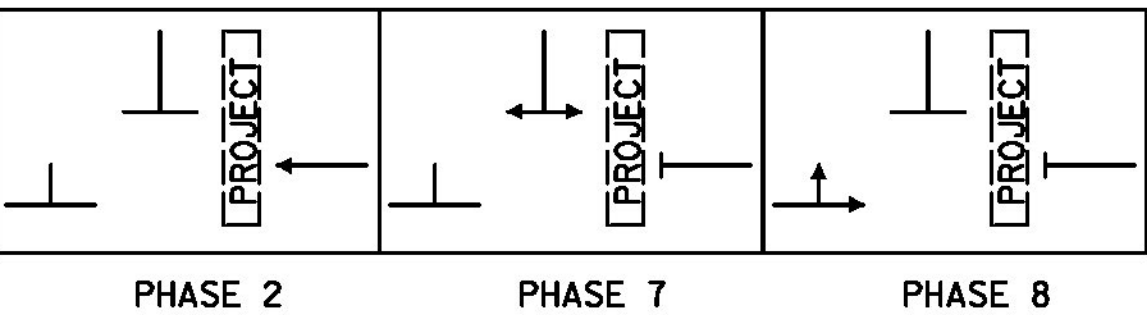
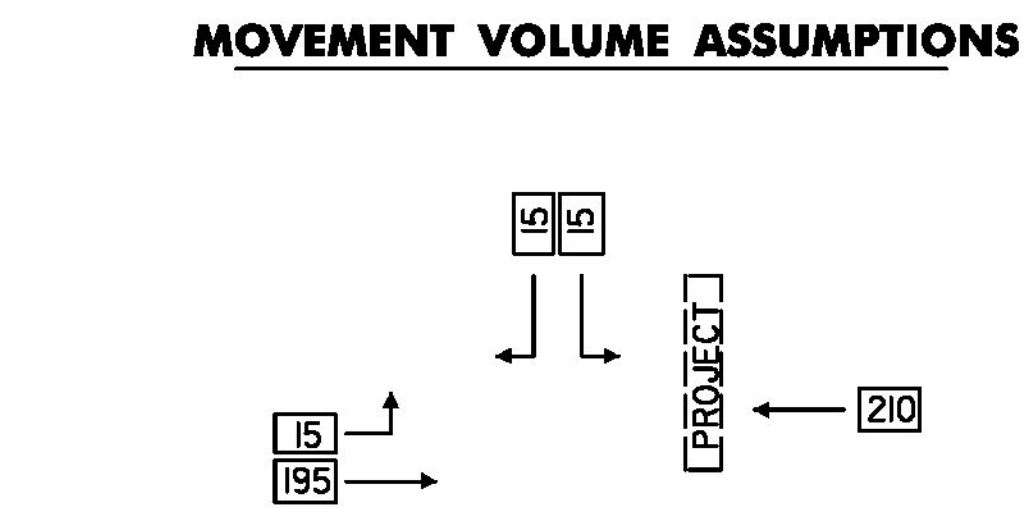
TYLIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM  
 PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_mot_02.dgn  
 PROJECT LEADER: R. HEBERT  
 DESIGNED BY: C. SARGEANT  
 TRAFFIC CONTROL PLAN - 2

PLOT DATE: 8/26/2014  
 DRAWN BY: C. SARGEANT  
 CHECKED BY: D. BURHANS  
 SHEET 16 OF 69





1. DESIGN OF THE SIGNAL SUPPORT(S) AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL BE COMPLETED WITHIN THE EXISTING ROW.
  2. SIGNAL TIMING/TIMING ADJUSTMENTS REQUESTED BY THE ENGINEER SHALL BE ACCOMPLISHED AS DIRECTED BY THE ENGINEER AND PAYMENT SHALL BE INCIDENTAL TO THE TRAFFIC SIGNAL ITEM. THE ALL-RED CLEARANCE INTERVAL IS BASED ON AN ASSUMED SPEED OF 10-20 MPH, THE ENGINEER SHALL MAKE SEVERAL TRIAL RUNS TO DETERMINE THE PROPER ALL-RED CLEARANCE INTERVAL.
  3. SIGNAL FACES SHALL CONSIST OF 12" LENSES. (RED, YELLOW, AND GREEN)
  4. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16½ FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY, SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO ENSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
  5. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER OF FACES.
  6. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE NO GREATER THAN 14½ FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE M.U.T.C.D. FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
  7. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
  8. THE CONTRACTOR SHALL PROVIDE AN ACTUATED CONTROLLER. THE APPROACHES NOTED SHALL HAVE A TEMPORARY VEHICLE DETECTOR (VIA MICROWAVE EQUIPMENT). LOOPS ARE SHOWN FOR PLACEMENT PURPOSES ONLY. THE CONTROLLER, DETECTOR AND ALL OTHER SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL NEMA STANDARDS.
  9. VEHICLE DETECTION SHALL BE VIA MICROWAVE DETECTION AND SHALL BE 6' X 40' FOR PRESENCE DETECTION AT THE STOP BAR WITH THE NEAR PORTION LOCATED 5 FEET BEYOND THE STOP BAR.
  10. INTERVAL TIMING SHOWN IN SECONDS.
  11. INTERCONNECT BETWEEN SIGNAL POLES BY WHATEVER MEANS POSSIBLE OR CONVENIENT TO PROVIDE FOR A SAFE INSTALLATION.
  12. PLACE TEMPORARY POLES BEHIND GUARDRAIL WHERE POSSIBLE.
  13. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELLING PUBLIC.
  14. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL, INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
  15. A 250 WATT MER/150 WATT HPS LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 30' ABOVE ROADWAY CENTERLINE. THE INTENT IS TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT.
  16. STOP BARS SHALL BE LOCATED A MINIMUM OF 40' AND A MAXIMUM OF 120' FROM THE NEAREST SIGNAL HEAD.
  17. PAYMENT FOR THE VEHICLE DETECTORS SHALL BE FOR EACH UNIT INSTALLED UNDER ITEM 678.42.
  18. SEE STANDARDS E-171A, E171B, AND E-171C FOR ADDITIONAL INFORMATION ON SIGNALS AND DETECTORS.
  19. A "SIGNAL AHEAD" SIGN SHALL BE PLACED AT LEAST 500' FROM THE SIGNAL OR AT A POSITION TO BE DETERMINED BY THE ENGINEER. THE COST OF THIS SIGN SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 678.40.
  20. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER PER STANDARDS T-10, T-28, T-29 AND T-30. PAYMENT FOR THESE SIGNS, THE REFLECTORIZED PLASTIC DRUMS, ETC., SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10.
  21. THE "TO GET GREEN LIGHT" SIGN IS TO BE USED ONLY ON APPROACHES WITH VEHICLE DETECTORS.
  22. WHEN TEMPORARY BARRIER IS USED, BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE, OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROAD WAY.
  23. THE CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO ACTIVATING THE TRAFFIC SIGNALS SUCH THAT THEY CAN FIELD REVIEW CONDITIONS. THE SIGNAL SYSTEM SHALL BE PAID FOR UNDER ITEM 678.40 AND SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGNS, LUMINAIRES (IF USED) AND SIGNAL EQUIPMENT TO PROVIDE FOR AN ADEQUATE DESIGN. ALSO INCLUDED ARE PERMITS AND COSTS ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
  24. PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES NOT ASSOCIATED DIRECTLY WITH THE TEMPORARY TRAFFIC SIGNAL SYSTEM, INCLUDING BUT NOT LIMITED TO CONSTRUCTION APPROACH SIGNING, SHALL BE MADE UNDER ITEM 641.10.
  25. SIGNS, POSTS, TEMPORARY PAVEMENT MARKINGS, RAISED PAVEMENT MARKINGS AND PAVEMENT MARKING REMOVAL RELATED TO THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLATION AS SHOWN ON THE TRAFFIC CONTROL PLAN ("STOP HERE ON RED", "SIGNAL AHEAD", "TO GET GREEN LIGHT", ETC.) ARE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 678.40.
  26. PAYMENT FOR TEMPORARY TRAFFIC BARRIER, REMOVING AND RESETTING TEMPORARY TRAFFIC BARRIER, AND ASSOCIATED ENERGY ABSORPTION ATTENUATORS USED, SHALL BE MADE UNDER THE APPROPRIATE ITEMS. PAYMENT FOR THE REMOVING AND RESETTING OF THE ENERGY ABSORPTION ATTENUATORS SHALL BE INCIDENTAL TO THE ENERGY ABSORPTION ATTENUATOR ITEM.

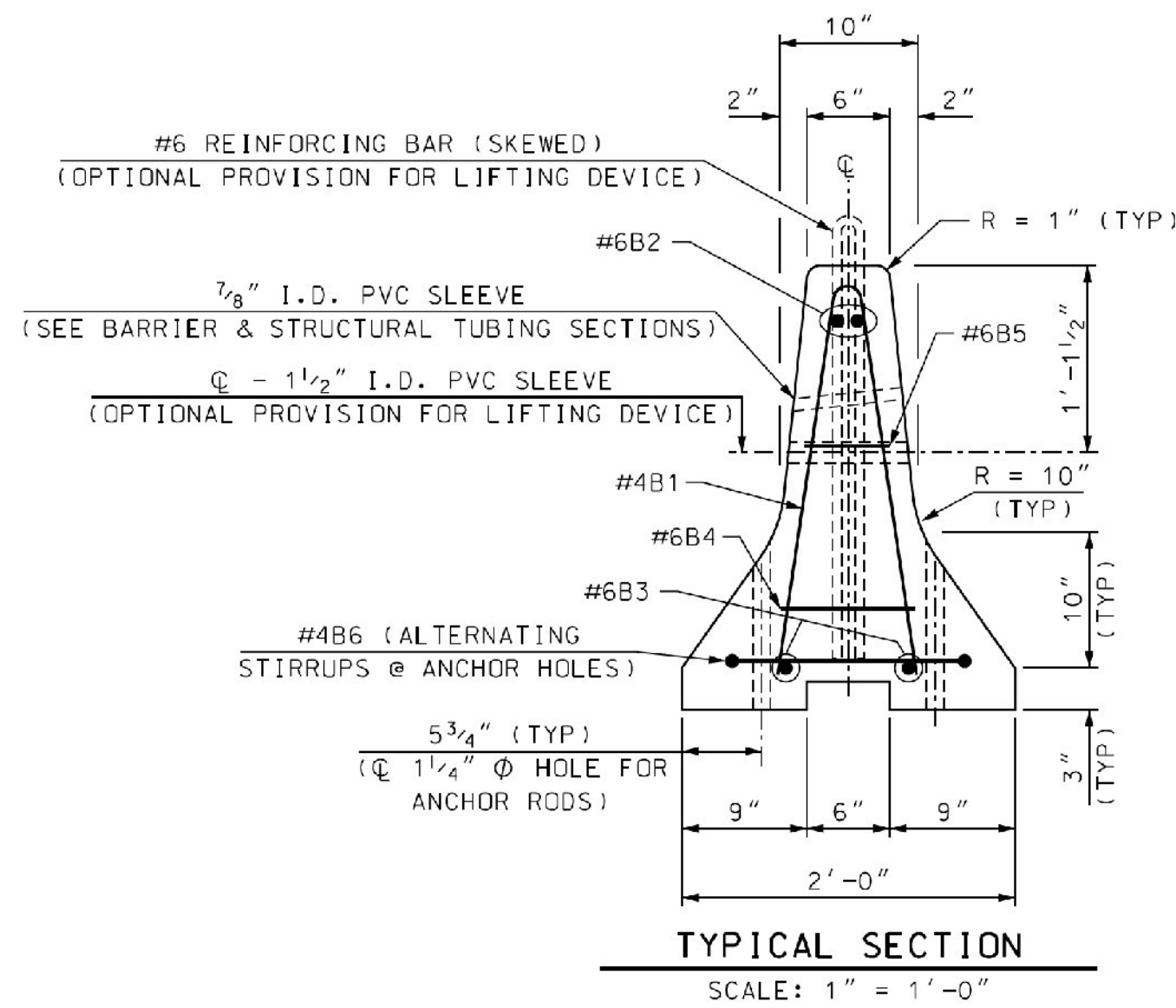
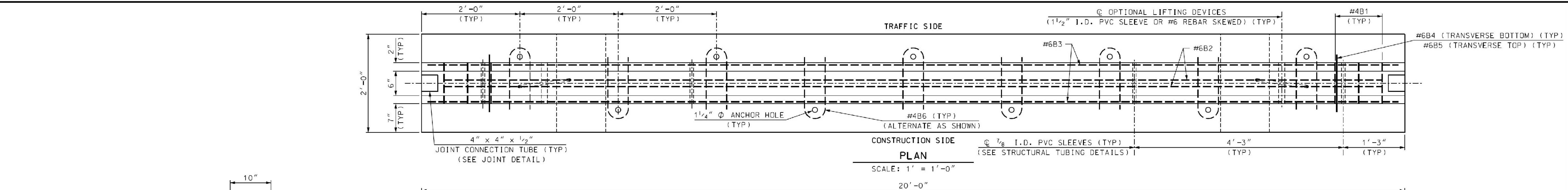
**TY·LIN**INTERNATIONAL

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10J072bdr_mot_03.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: C. SARGEANT  
TRAFFIC CONTROL NOTES

PLOT DATE: 8/26/2014  
DRAWN BY: C. SARGEANT  
CHECKED BY: D. BRYANT  
SHEET 17 OF 69



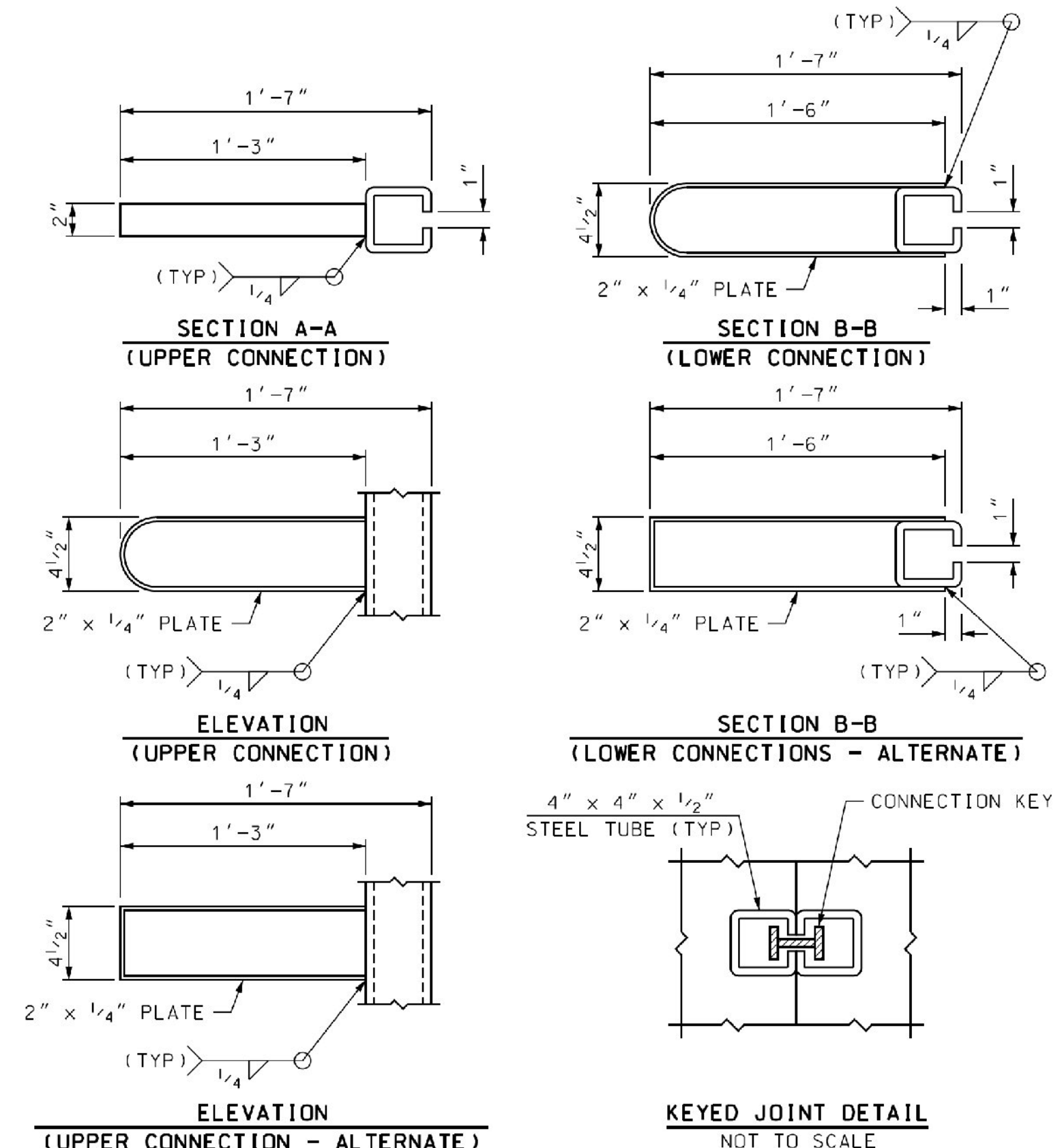
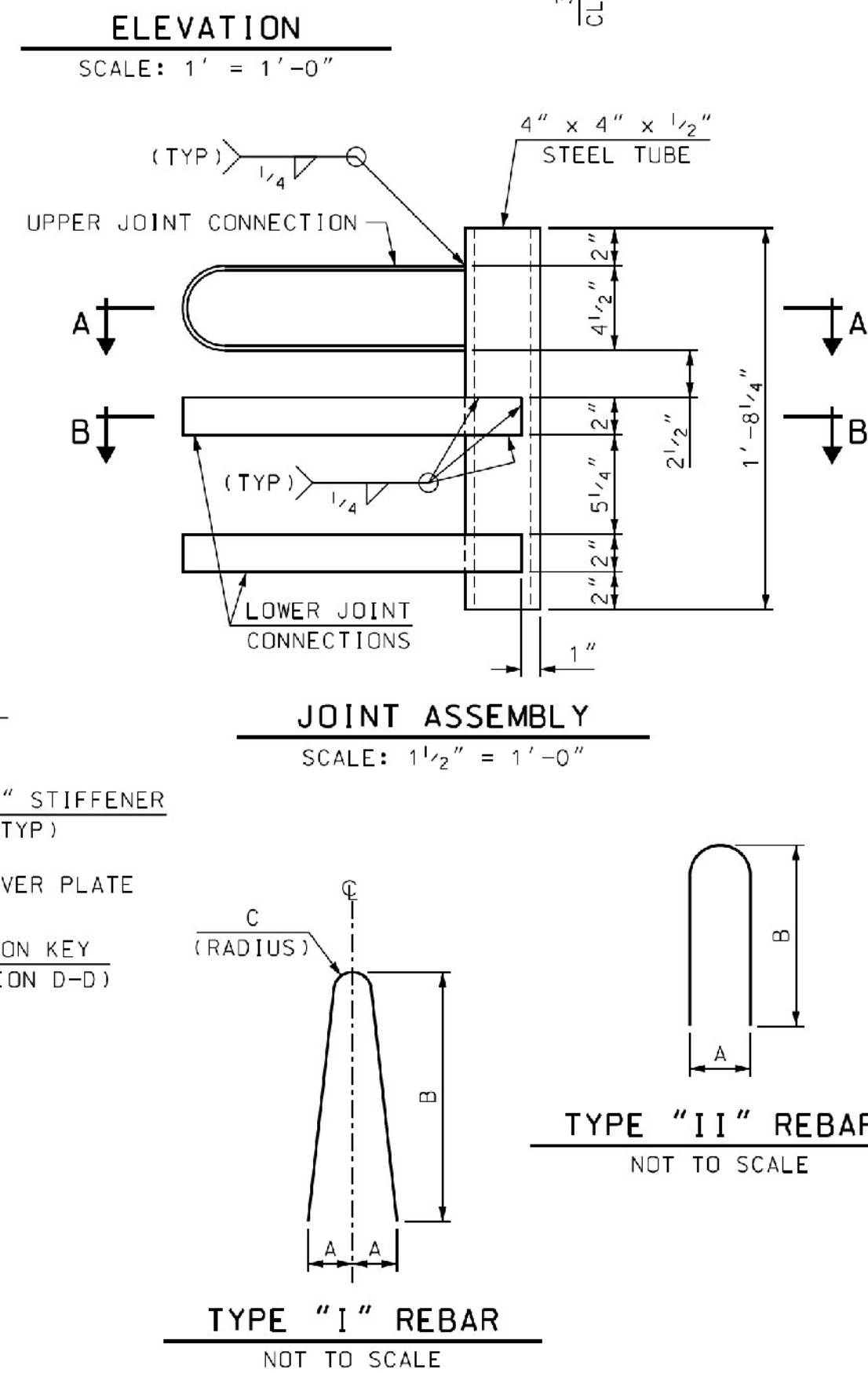
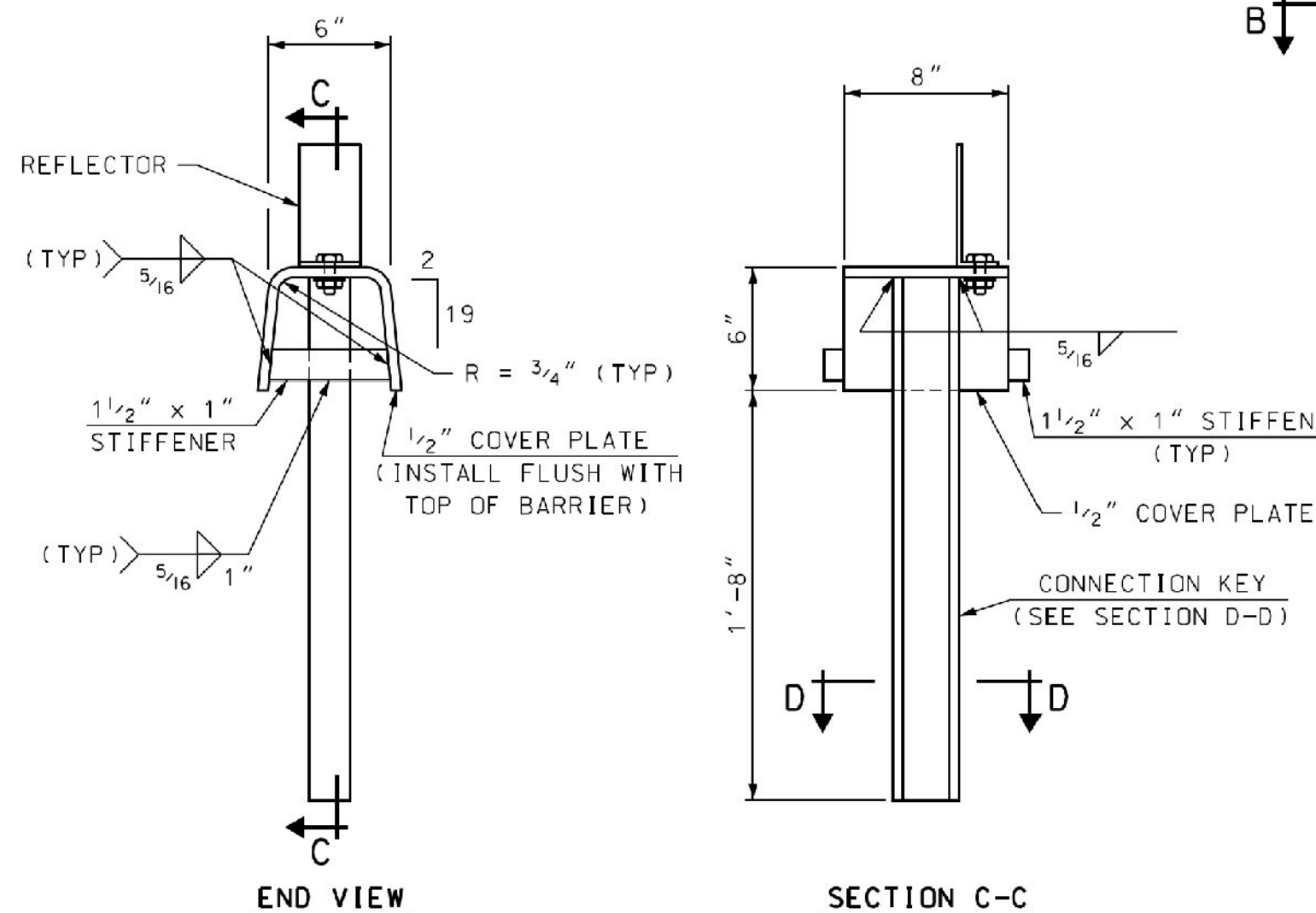
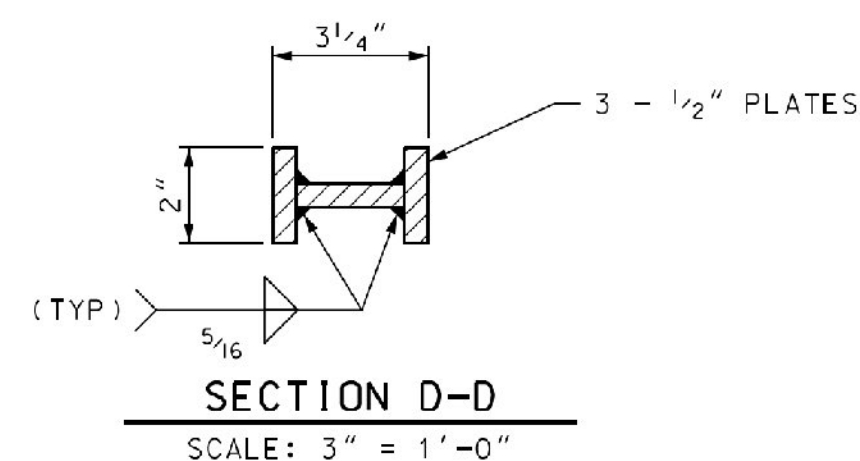
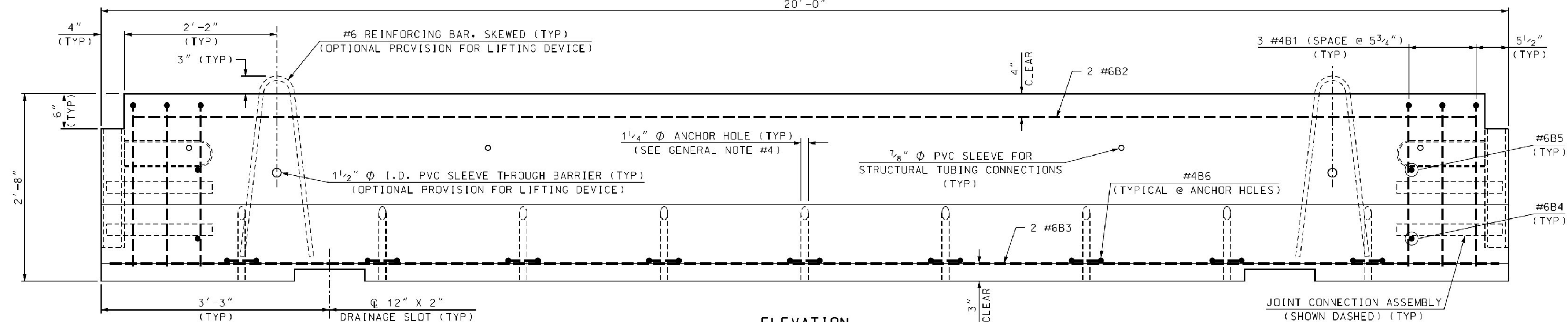


### GENERAL NOTES

- TEMPORARY TRAFFIC BARRIER-BRACED SHALL BE FURNISHED BY THE CONTRACTOR AND PAID FOR AS ITEM 621.90 TEMPORARY TRAFFIC BARRIER. CONCRETE BARRIER AND ALL ATTACHMENTS SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 621. ALL BARRIER UNITS FOR BRACED SYSTEMS SHALL BE 20' LONG.
- TEMPORARY TRAFFIC BARRIER-BRACED DETAILS, AS SHOWN IN THESE PLANS, ARE IN COMPLIANCE WITH REQUIREMENTS PER UPDATED NCHRP REPORT 350 FOR TEST NO. 3-II, TL-3 CRASH TESTED BY MIDWEST ROADSIDE SAFETY, NY BOX BEAM STIFFENING OF UNANCHORED TCB, MARCH 2008. THE BARRIER SYSTEM TESTED WITH A 27.6" DYNAMIC DEFLECTION AND ALLOWS FOR PLACEMENT AT A MINIMUM 12" DISTANCE BETWEEN BARRIERS AND EDGE OF BRIDGE DECK.
- A MINIMUM OF TWO BARRIER UNITS WITH BRACED JOINTS ARE REQUIRED TO BE PLACED BEYOND BOTH ENDS OF THE BRIDGE WORK AREA FOR SPEED GREATER THAN 45 MPH. FOR SPEEDS  $\leq$  45 MPH, A MINIMUM OF ONE BRACED BARRIER IS REQUIRED TO BE FULLY SET BEYOND EACH END OF BRIDGE WORK AREA.
- THE LAST CONCRETE BARRIER UNIT, AT EACH END OF BARRIER LAYOUT, SHALL BE ANCHORED A MINIMUM 18" BELOW THE ROADWAY SURFACE. REQUIRED 1" DIA. ANCHOR RODS (A36 STEEL) SHALL BE INSTALLED WITH 5 ANCHORS ON THE TRAFFIC SIDE OF BARRIER AND 4 ON THE CONSTRUCTION SIDE. IF THE ENDS OF THE BRACED CONCRETE BARRIER SYSTEM EXTENDS 50' OR MORE BEYOND LIMITS OF BRIDGE WORK THE LAST BARRIER UNIT DOES NOT REQUIRE ANCHORAGE.
- TEMPORARY TRAFFIC BARRIER - BRACED, MAY BE INSTALLED WITH A 230' MINIMUM RADIUS. GAPS CREATED BETWEEN STRUCTURAL TUBES AND CONCRETE BARRIER, DURING A RADIAL LAYOUT, SHALL BE SHIMMED WITH 8"x8"x1/2" PLATES & FENDER WASHERS TO FIRMLY ATTACH STRUCTURAL TUBING TO BARRIER.
- THE CONTRACTOR SHALL FURNISH AND INSTALL APPROVED RETROREFLECTIVE DELINEATORS AT 25-FOOT INTERVALS ALONG TOP AND/OR ONE FOOT DOWN THE SIDE OF PORTABLE CONCRETE BARRIER. PAYMENT FOR DELINEATORS SHALL BE MADE UNDER ITEM 621.90 TEMPORARY TRAFFIC BARRIER. THE COLOR OF DELINEATORS SHALL, IN ALL INSTANCES, CONFORM TO THE COLOR OF EDGE LINE MARKINGS. DELINEATORS SUPPLEMENT, BUT DO NOT REPLACE, THE NEED FOR RETROREFLECTIVE SOLID EDGE LINE MARKINGS.

### MATERIAL NOTES

- BARRIERS SHALL BE LIGHT COLORED CLASS AA CONCRETE, WITH MINIMUM COMPRESSIVE STRENGTH OF 4000 psi, AND SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARITIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS OTHERWISE NOTED.
- ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM A615) GRADE 60. ALL REINFORCEMENT SHALL HAVE 1/2" MINIMUM CLEAR COVER, UNLESS OTHERWISE NOTED.
- STRUCTURAL STEEL, EXCEPT THE STEEL TUBES, SHALL BE ASTM A36 GRADE 345. ALL STEEL SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 506.
- STEEL TUBES, 6x6x3/8 & 4x4x1/2, SHALL BE ASTM A 500 GRADE B OR C. THE 6x6x3/8 TUBES SHALL BE 12' LONG AND GALVANIZED IN ACCORDANCE WITH SUBSECTION 726.08.
- A MINIMUM OF 2 RECESSED LIFTING DEVICES, EACH WITH THE CAPACITY TO LIFT A MASS OF 6 TONS (MINIMUM), SHALL BE INSTALLED TO EACH BARRIER UNIT. TWENTY FOOT LONG CONCRETE BARRIER UNITS ARE APPROXIMATELY 400 LBS./FT.
- DELINERATORS SHALL BE ATTACHED TO BARRIER USING AN APPROVED ADHESIVE MATERIAL OR AS SHOWN ON THIS SHEET.



REINFORCING SCHEDULE (PER 20' BARRIER UNIT)							
MARK	SIZE	LENGTH	# PIECES	TYPE	A	B	C
B1	#4	4'-10"	6	I	5"	2'-4"	1"
B2	#6	19'-1"	2	—			
B3	#6	19'-9"	2	—			
B4	#6	1'-2"	2	—			
B5	#6	6"	2	—			
B6	#4	2'-9"	9	II	5"	1'-3"	

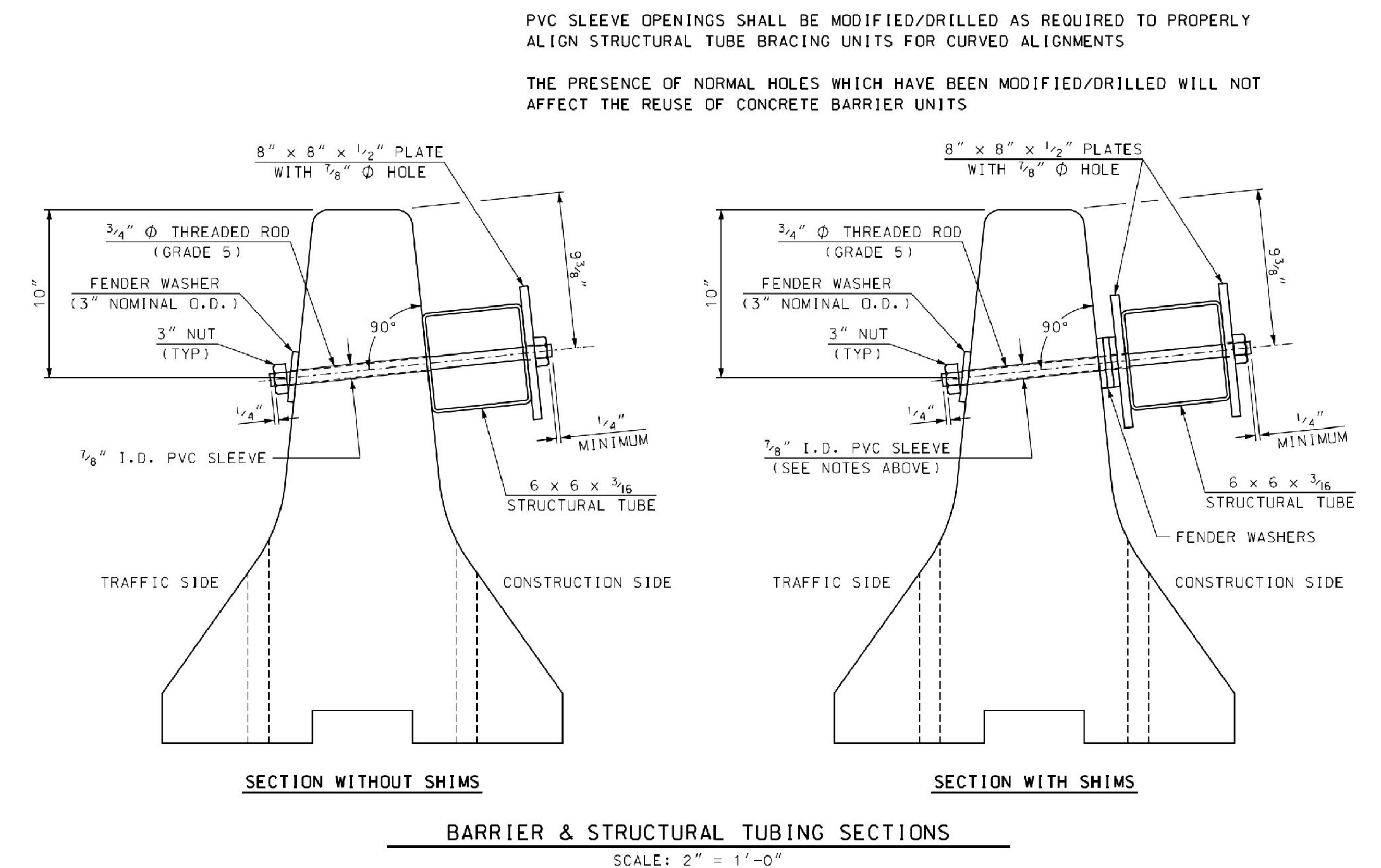
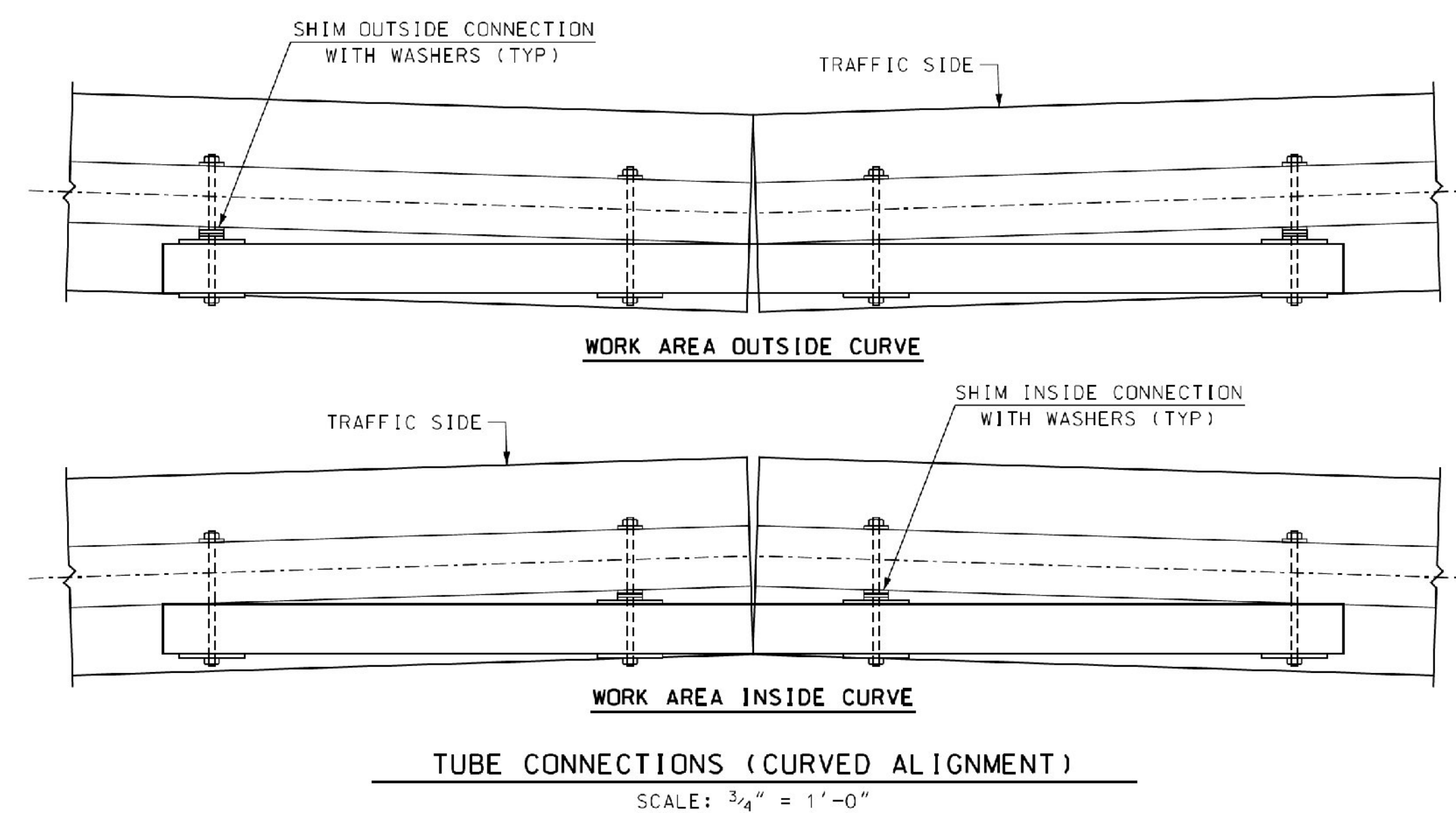
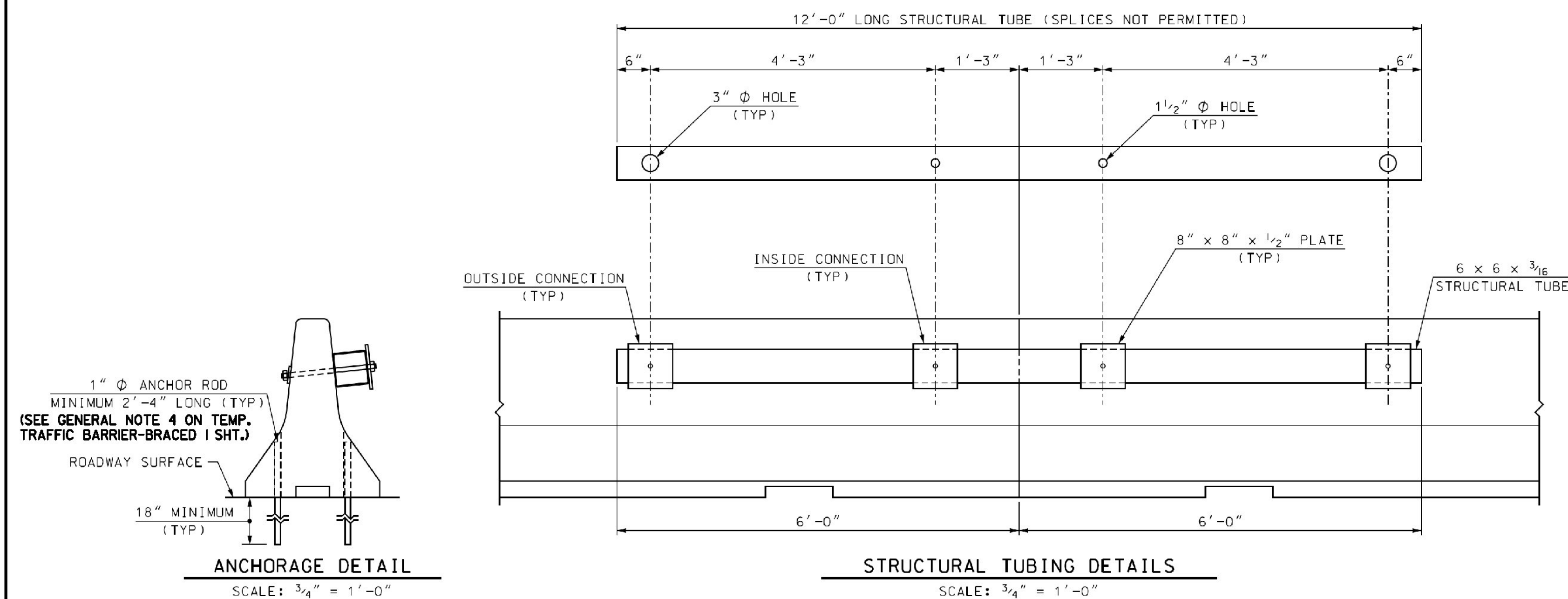
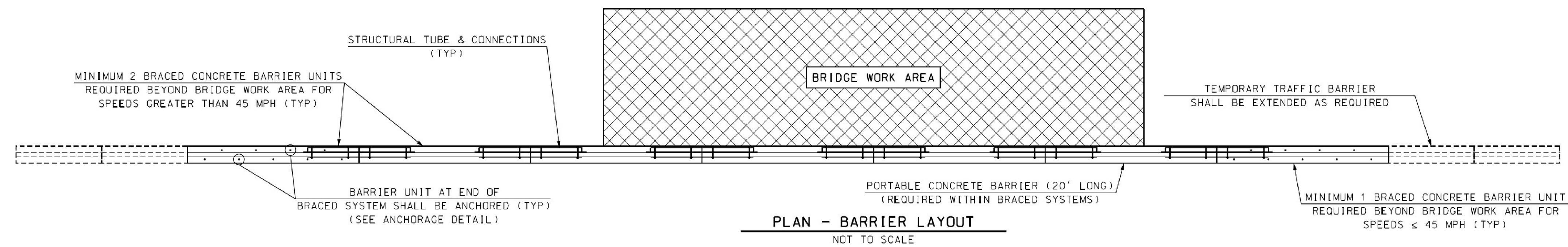
TYLIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(I2)

FILE NAME: x10j072bdr.ttb.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: -  
TEMPORARY TRAFFIC BARRIER-BRACED (1 OF 2) SHEET 18 OF 69

PLOT DATE: 8/26/2014  
DRAWN BY: P. MCCLURE  
CHECKED BY: D. BURHANS





TYLIN INTERNATIONAL	PROJECT NAME: ROCKINGHAM	
	PROJECT NUMBER: BRF 0126(12)	
	FILE NAME: x10j072bdr-+tb.dgn	PLOT DATE: 8/26/2014
	PROJECT LEADER: R. HEBERT	DRAWN BY: P. MCLURE
	DESIGNED BY: -	CHECKED BY: D. BURHANS
	TEMPORARY TRAFFIC BARRIER-BRACED (2 OF 2) SHEET 19 OF 69	



# TRAFFIC SIGN SUMMARY SHEET

DOUBLE-SIDED STREET SIGN;;  
 1.500" Radius, 0.500" Border, White on Green;  
 [Mill] D; [St] D;

D3-1 STREET NAME SIGN DETAIL

PROJECT NAME: ROCKINGHAM	
PROJECT NUMBER: BRF 0126(12)	
FILE NAME: z10J072bdr_TSS.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: B.TOOHTAKER
DESIGNED BY: B. TOOHTAKER	CHECKED BY: D. BURHANS
SIGN SUMMARY SHEET	SHEET 20 OF 69



SOIL CLASSIFICATION

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

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

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

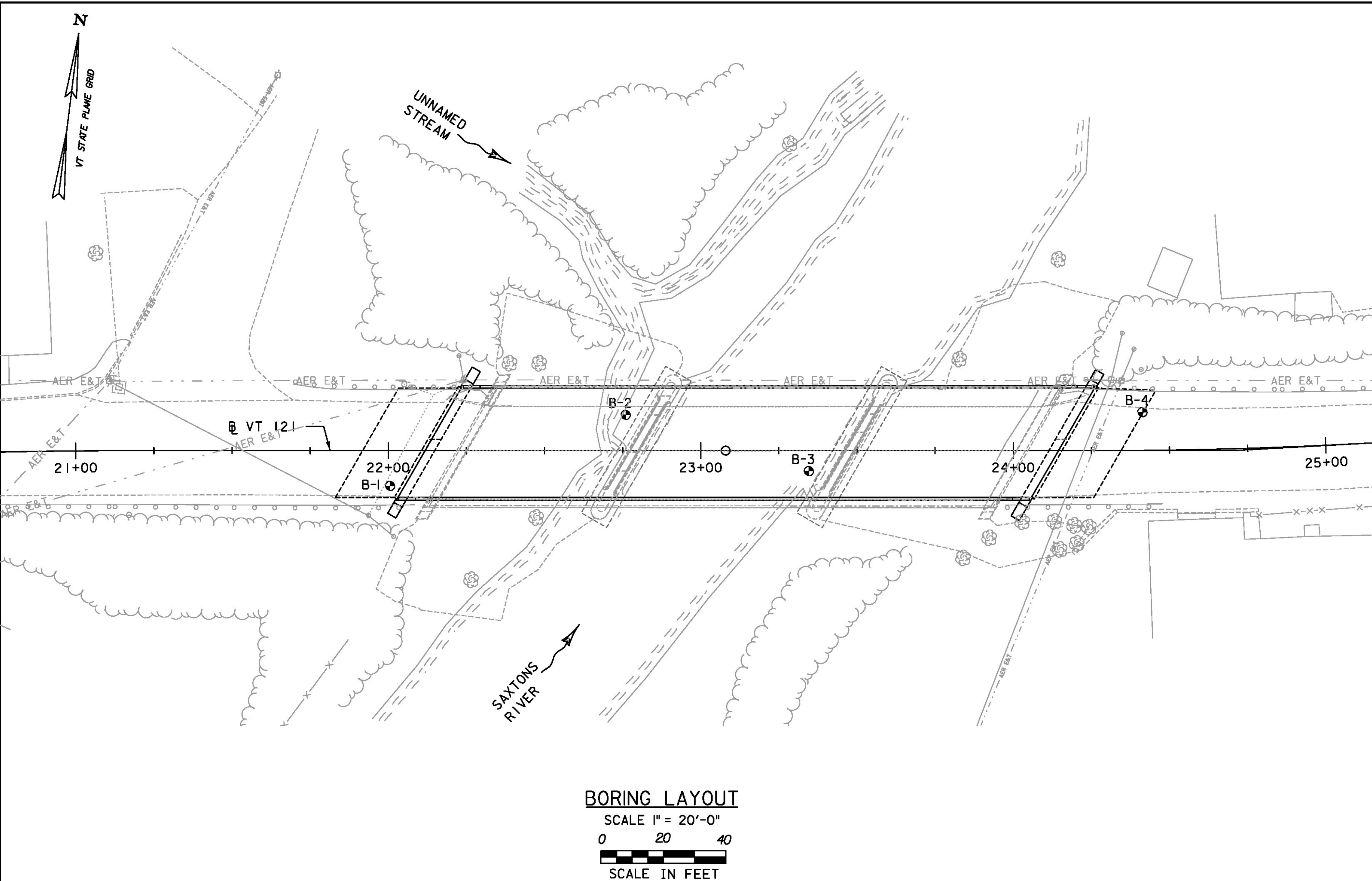
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COMMONLY USED SYMBOLS

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

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



BORING LAYOUT  
SCALE 1" = 20'-0"  
0 20 40  
SCALE IN FEET

GENERAL NOTES

- The subsurface explorations shown herein were made between November 11, 2011 and November 12, 2011 and between December 15, 2011 and December 16, 2011 by S.W. Cole Engineering, Inc.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by S.W. Cole Engineering and may not necessarily reflect actual variations in sub-surface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

BORING LAYOUT

HOLE NO.	STATION	OFFSET	NORTHING	EASTING	GROUND ELEVATION	ELEVATION TLOB
B-1	22+00.6	11.3 RT	233043.05	1639670.68	452.0	356.0
B-2	22+76.0	11.4 LT	233074.93	1639742.67	451.0	-
B-3	23+34.6	6.6 RT	233064.31	1639803.06	450.0	-
B-4	24+41.5	12.3 LT	233096.24	1639906.66	449.0	-

DEFINITIONS (AASHTO)

**BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.  
**Boulder** - A rock fragment with an average dimension > 12 inches.  
**COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.  
**GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).  
**SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).  
**SILT** - Soil < 0.0025" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.  
**CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

**VARVED** - Alternate layers of silt and clay.  
**HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.  
**MUCK** - Soft organic soil (containing > 10% organic material).  
**MOISTURE CONTENT** - Weight of water divided by dry weight of soil.  
**FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.  
**STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.  
**DIP** - Inclination of bed with a horizontal plane.

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

TYLIN INTERNATIONAL

FILE NAME: z10j072bdr_bor_Inf.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: T. POULIN  
BORING INFORMATION & LAYOUT SHEET

PLOT DATE: 8/26/2014  
DRAWN BY: S. MORGAN  
CHECKED BY: R. HEBERT  
SHEET 21 OF 69



BOTTOM OF  
ABUT. NO. I  
ELEV. = 443.00

  STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS &amp; RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-1				
BRF 0126(12) Bridge Replacement Proj. Route 121 over the Saxton River Rockingham, Vermont		Page No.: 1 of 3		Pin No.: Checked By:				
Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)		Casing Sampler		Groundwater Observations				
Date Started: 11/11/11 Date Finished: 11/15/11		Type: PW SS		Date Depth Notes				
VTSPG NAD83: N 233043.05 ft E 1639670.68 ft		I.D.: 5 in 1.25 in						
Station: Offset:		Hammer Wt: N.A. 140 lb						
Ground Elevation: 452.0 ft		Hammer Fall: N.A. 30 in						
		Hammer/Rod Type: Auto/AWJ						
		Rig: Truck Mount D-120 C _e =						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Bowleg (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5		BITUMINOUS PAVEMENT, 0.0 ft - 0.3 ft Dark brown silty gravelly SAND, Rec. = 0.5 ft, 0.3 ft - 0.6 ft Brown SAND with some gravel and silt, 0.6 ft - 3.0 ft Brown Silty SAND with some gravel, 3.0 ft - 8.0 ft Rec. = 1.0 ft	12-10-10-9 (20)					
10		Brown silty gravelly SAND, 8.0 ft - 21.0 ft Rec. = 0.25 ft	4-3-4-3 (7)					
15		Rec. = 0.8 ft	8-9-10-7 (19)					
20		Rec. = 0.7 ft	9-7-7-11 (14)					
25		Brown gravelly silty SAND, 21.0 ft - 28.0 ft, (NATIVE) Rec. = 1.2 ft	20-13-19-27 (32)					
30		Gray silty gravelly SAND, 28.0 ft - 33.0 ft, (TILL) Rec. = 1.5 ft	30-48-31-34 (79)					
35		Gray silty SAND with some gravel, 33.0 ft - 68.0 ft, (TILL) Rec. = 1.3 ft	24-35-53-79 (88)					
40		Rec. = 1.5 ft	32-34-41-46 (75)					
45		Rec. = 1.5 ft	44-48-76-50-4 (124)					
		Rec. = 1.5 ft	41-36-					
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _e is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.								

ESTIMATED PILE TIP  
@ ABUT. NO. I  
ELEV. = 367.00

  STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS &amp; RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-1				
BRF 0126(12) Bridge Replacement Proj. Route 121 over the Saxton River Rockingham, Vermont		Page No.: 2 of 3		Pin No.: Checked By:				
Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)		Casing Sampler		Groundwater Observations				
Date Started: 11/11/11 Date Finished: 11/15/11		Type: PW SS		Date Depth Notes				
VTSPG NAD83: N 233043.05 ft E 1639670.68 ft		I.D.: 5 in 1.25 in						
Station: Offset:		Hammer Wt: N.A. 140 lb						
Ground Elevation: 452.0 ft		Hammer Fall: N.A. 30 in						
		Hammer/Rod Type: Auto/AWJ						
		Rig: Truck Mount D-120 C _e =						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Bowleg (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
55		Rec. = 0.5 ft	47-50-42-4 (83)					
60		Rec. = 0.3 ft	21-50-42-					
65		Rec. = 0.8 ft	71-6"					
70		Gray silty gravelly SAND with occasional cobbles, 68.0 ft - 95.0 ft, (TILL) Rec. = 0.3 ft	22-36-50-5"					
75		Rec. = 0.25 ft	50-6"					
80		Rec. = 0.3 ft	50-5"					
85		Rec. = 0.2 ft	30-37-72-25-1"					
90		Rec. = 0.3 ft	50-3"					
95		Rec. = 0.3 ft	94-6"					
		Weathered ROCK, 95.0 ft - 96.0 ft BEDROCK, 96.0 ft - 106.0 ft	70-82					
			R-1	Top of Bedrock @ 96.0 ft				
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _e is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.								

  STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS &amp; RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-1				
BRF 0126(12) Bridge Replacement Proj. Route 121 over the Saxton River Rockingham, Vermont		Page No.: 3 of 3		Pin No.: Checked By:				
Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)		Casing Sampler		Groundwater Observations				
Date Started: 11/11/11 Date Finished: 11/15/11		Type: PW SS		Date Depth Notes				
VTSPG NAD83: N 233043.05 ft E 1639670.68 ft		I.D.: 5 in 1.25 in						
Station: Offset:		Hammer Wt: N.A. 140 lb						
Ground Elevation: 452.0 ft		Hammer Fall: N.A. 30 in						
		Hammer/Rod Type: Auto/AWJ						
		Rig: Truck Mount D-120 C _e =						
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Bowleg (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
105		Hole stopped @ 106.0 ft						
110								
115								
120								
125								
130								
135								
140								
145								
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _e is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.								

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10J072bdr_bor1.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BORING LOG (1 OF 4)

PLOT DATE: 8/26/2014  
DRAWN BY: T. KELLEY  
CHECKED BY: S. KELLER  
SHEET 22 OF 69

TYLIN INTERNATIONAL



BOTTOM OF EXISTING  
 PIER. NO. 1  
 ELEV. = 413.8 ±

		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: <b>B-2</b>				
				BRF 0126(12) Bridge Replacement Proj. Route 121 over the Saxton River Rockingham, Vermont		Page No.: <b>1 of 2</b>				
						Pin No.: _____				
						Checked By: _____				
Boring Crew: <u>Nate Seguin (SWCE), Tony Martinehl (CDS)</u>				Casing		Sampler				
Date Started: <u>11/17/11</u> Date Finished: <u>11/17/11</u>				Type: <u>HW</u> <u>SS</u>						
VTSPG NAD83: <u>N 233074.93 ft E 1639742.67 ft</u>				I.D.: <u>4 in</u> <u>1.25 in</u>						
Station: _____ Offset: _____				Hammer Wt: <u>N.A.</u> <u>140 lb.</u>						
Ground Elevation: <u>451.0 ft</u>				Hammer Fall: <u>N.A.</u> <u>30 in.</u>						
				Hammer/Rod Type: <u>Auto/AWJ</u>						
				Rig: <u>Truck Mount D-120</u> <u>C_u =</u>						
Depth (ft)		Serial (1)		CLASSIFICATION OF MATERIALS (Description)		Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0				BITUMINOUS PAVEMENT, 0.0 ft - 0.3 ft						
5				REINFORCED CONCRETE, 0.3 ft - 0.8 ft						
10				Open air, 0.8 ft - 26.0 ft						
15										
20										
25										
30				River Bottom Alluvial soils, cobbles, 26.0 ft - 32.0 ft						
35				Gray silty SAND with some gravel, 32.0 ft - 63.0 ft, (TILL)						
40				Rec. = 0.4 ft		82-63-56 (119)				
45				Rec. = 1.5 ft		25-33-37-25 (70)				
50				Rec. = 0.75 ft		30-44-50-5				
55				Rec. = 1.0 ft		20-26-				
60										
65										
70										
75										
80										
85										
90										
95										
100										
105										
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1145										
1150										



		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: <b>B-3</b>		
				BRF 0126(12) Bridge Replacement Proj. Route 121 over the Saxton River Rockingham, Vermont		Page No.: <b>1 of 2</b>		
						Pin No.: _____		
						Checked By: _____		
Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)		Casing		Sampler		Groundwater Observations		
Date Started: 11/16/11 Date Finished: 11/16/11		Type: HW SS				Date Depth Notes		
VTSPG NAD83: N 233064.31 ft E 1639803.06 ft		I.D.: 4 in 1.25 in						
Station: _____ Offset: _____		Hammer Wt: N.A. 140 lb.						
Ground Elevation: 450.0 ft		Hammer Fall: N.A. 30 in.						
		Hammer/Rod Type: Auto(AWJ)						
		Rig: Truck Mount D-120 C _s = _____						
Depth (ft)	Strata (t)	CLASSIFICATION OF MATERIALS (Description)		Blows/ft ² (N Value)	Moisture Content %	Grave %	Sand %	Fines %
0		BITUMINOUS PAVEMENT, 0.0 ft - 0.3 ft						
		REINFORCED CONCRETE, 0.3 ft - 0.8 ft						
		Open air, 0.8 ft - 27.0 ft						
5								
10								
15								
20								
25								
30		Alluvial Soils? (silty sands), 27.0 ft - 33.0 ft						
		Rec. = 0.0 ft		8-3-4-4 (7)				
35		Gray silty SAND with some gravel, 33.0 ft - 68.0 ft, (TILL)						
		Rec. = 0.6 ft		19-25-17-23 (42)				
40		Rec. = 0.7 ft		15-29-50 (79)				
45		Rec. = 0.8 ft		31-48-50-4				
Notes:		1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _s is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.						

BOTTOM OF EXISTING  
PIER, NO. 2  
ELEV. = 413.8 ±

		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: <b>B-3</b>		
				BRF 0126(12) Bridge Replacement Proj. Route 121 over the Saxton River Rockingham, Vermont		Page No.: <b>2 of 2</b>		
						Pin No.: _____		
						Checked By: _____		
Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)		Casing		Sampler		Groundwater Observations		
Date Started: 11/16/11 Date Finished: 11/16/11		Type: HW SS				Date Depth Notes		
VTSPG NAD83: N 233064.31 ft E 1639803.06 ft		I.D.: 4 in 1.25 in						
Station: _____ Offset: _____		Hammer Wt: N.A. 140 lb.						
Ground Elevation: 450.0 ft		Hammer Fall: N.A. 30 in.						
		Hammer/Rod Type: Auto(AWJ)						
		Rig: Truck Mount D-120 C _s = _____						
Depth (ft)	Strata (t)	CLASSIFICATION OF MATERIALS (Description)		Blows/ft ² (N Value)	Moisture Content %	Grave %	Sand %	Fines %
55		Rec. = 1.5 ft		19-31-37-41 (68)				
		Rec. = 0.6 ft		56-70				
60		Gray gravelly silty SAND, 58.0 ft - 68.0 ft, (TILL)						
		Rec. = 0.3 ft		100-5"				
65		Rec. = 0.25 ft		78-5"				
70		Gray silty fine SAND with some gravel, 68.0 ft - 71.5 ft, (TILL)						
		Rec. = 0.88 ft		21-37-50 (87)				
		Hole stopped @ 71.5 ft						
75								
80								
85								
90								
95								
Notes:		1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _s is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.						

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

TYLIN INTERNATIONAL

FILE NAME: z10j072bdr_bor3.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BORING LOG (3 OF 4)

PLOT DATE: 8/26/2014  
DRAWN BY: T. KELLEY  
CHECKED BY: S. KELLER  
SHEET 24 OF 69



BOTTOM OF  
ABUT. NO. 2  
ELEV. = 441.00

		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: <b>B-4</b> Page No.: <b>1 of 2</b> Pin No.: Checked By:	
Boring Crew: <u>Nate Seguin (SWCE), Tony Martinelli (CDS)</u>		Casing Type: <u>HW</u> <u>SS</u> I.D.: <u>4 in</u> <u>1.25 in</u> Hammer Wt: <u>N/A</u> <u>140 lb</u> Hammer Fall: <u>N/A</u> <u>30 in</u> Hammer/Rod Type: <u>Auto/AWJ</u> Rig: <u>Truck Mount D-120</u> <u>C_u =</u>		Sampler		Groundwater Observations	
Date Started: <u>12/15/11</u> Date Finished: <u>12/16/11</u>				Date		Depth (ft)	
VTSPG NAD83: <u>N 233096.24 ft E 1639906.66 ft</u>							
Station: <u></u> Offset: <u></u>							
Ground Elevation: <u>449.0 ft</u>							
Depth (ft)	Strata (')	CLASSIFICATION OF MATERIALS (Description)		Blow(s) (N Value)	Moisture Content %	Gravel %	Sand %
0	0	BITUMINOUS PAVEMENT, Rec. = 1.0 ft, 0.0 ft - 0.3 ft		17-15-16-19			
5	5	Dark brown silty gravelly Sand, 0.3 ft - 1.0 ft					
		Brown silty SAND with some gravel, 1.0 ft - 18.0 ft (FILL)					
		Rec. = 0.8 ft		10-7-7-6			
10	10	Rec. = 0.8 ft		6-2-3-3			
15	15	Rec. = 0.8 ft		9-5-6-6			
20	20	Gray-brown silty gravelly SAND, 18.0 ft - 36.0 ft, (TILL)		23-13-18-50-5			
		Rec. = 0.66 ft					
25	25	Rec. = 0.8 ft		13-15-17-17			
30	30	Rec. = 1.3 ft		23-24-30-39			
35	35	Rec. = 1.0 ft		22-28-37-37			
		With occasional cobbles, 36.0 ft - 46.0 ft					
40	40	Rec. = 0.8 ft		24-26-24-26			
45	45	Rec. = 0.66 ft		58-50-4			
		Changing to brown, 46.0 ft - 58.0 ft					
		Rec. = 0.66 ft		44-25-			
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _u is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.							

ESTIMATED PILE TIP  
@ ABUT. NO. 2  
ELEV. = 367.00

		STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: <b>B-4</b> Page No.: <b>2 of 2</b> Pin No.: Checked By:	
Boring Crew: <u>Nate Seguin (SWCE), Tony Martinelli (CDS)</u>		Casing Type: <u>HW</u> <u>SS</u> I.D.: <u>4 in</u> <u>1.25 in</u> Hammer Wt: <u>N/A</u> <u>140 lb</u> Hammer Fall: <u>N/A</u> <u>30 in</u> Hammer/Rod Type: <u>Auto/AWJ</u> Rig: <u>Truck Mount D-120</u> <u>C_u =</u>		Sampler		Groundwater Observations	
Date Started: <u>12/15/11</u> Date Finished: <u>12/16/11</u>				Date		Depth (ft)	
VTSPG NAD83: <u>N 233096.24 ft E 1639906.66 ft</u>							
Station: <u></u> Offset: <u></u>							
Ground Elevation: <u>449.0 ft</u>							
Depth (ft)	Strata (')	CLASSIFICATION OF MATERIALS (Description)		Blow(s) (N Value)	Moisture Content %	Gravel %	Sand %
55	55	Rec. = 0.2 ft		1"			
60	60	Gray-brown silty SAND with some gravel, 58.0 ft - 63.0 ft, (TILL)		50-6"			
		Rec. = 0.0 ft		50-5"			
65	65	Gray-brown silty gravelly SAND, 63.0 ft - 69.6 ft, (TILL)		50-5"			
		Rec. = 0.0 ft					
70	70	Rec. = 0.0 ft		47-25-1			
		Hole stopped @ 69.6 ft					
75	75						
80	80						
85	85						
90	90						
95	95						
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. C _u is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.							

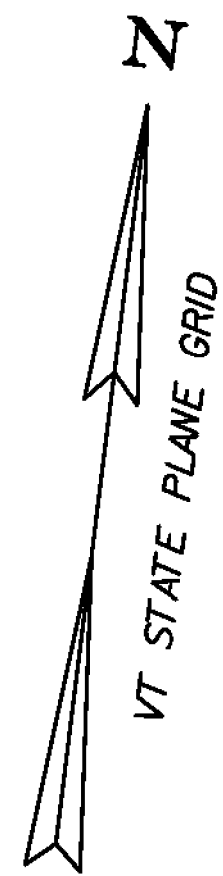
PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

TYLIN INTERNATIONAL

FILE NAME: z10j072bdr_bor4.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BORING LOG (4 OF 4)

PLOT DATE: 8/26/2014  
DRAWN BY: T. KELLEY  
CHECKED BY: S. KELLER  
SHEET 25 OF 69





STA. 22+11.79  
BEGIN BRIDGE  
END APPROACH  
SLAB NO. 1  
F.G. EL. = ~~451.77~~  
451.87

STA. 21+91.79  
BEGIN PROJECT  
END APPROACH  
BEGIN APPROACH  
SLAB NO. 1  
F.G. EL. = ~~451.97~~  
452.02

TO  
SAXTONS VILLAGE

APPROACH  
SLAB (TYP.)

STONE FILL,  
TYPE I (TYP.)

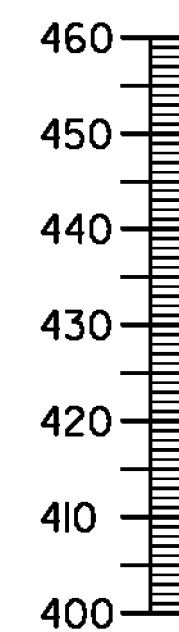
EXISTING  
BRIDGE

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

202'-8³/₈" BRIDGE LENGTH

201'-10" PAY LIMIT, BRIDGE RAILING,  
GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)  
65'-6" 69'-0" 65'-6"  
SPAN 1 SPAN 2 SPAN 3

34' PAY LIMIT, GUARDRAIL APPROACH SECTION,  
GALVANIZED 2 RAIL BOX BEAM (COATED BLACK) (TYP)



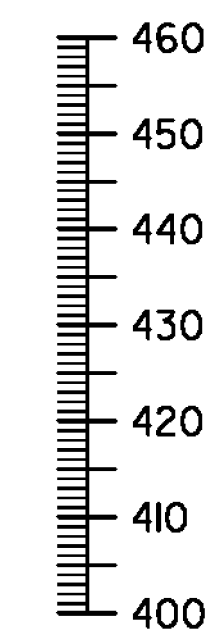
STONE FILL, TYPE I  
12" THICK (TYP.)

EXISTING RIPRAP  
SLOPE (TYP.)

EXISTING  
PIER (TYP.)

EXISTING  
GROUND

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



EXISTING  
ROW (TYP.)

STA. 24+14.48  
END BRIDGE  
BEGIN APPROACH  
SLAB NO. 2  
F.G. EL. = ~~449.74~~  
449.84

STA. 24+34.48  
END PROJECT  
BEGIN APPROACH  
END APPROACH  
SLAB NO. 2  
F.G. EL. = ~~449.54~~  
449.59

TO  
BELLOWS FALLS

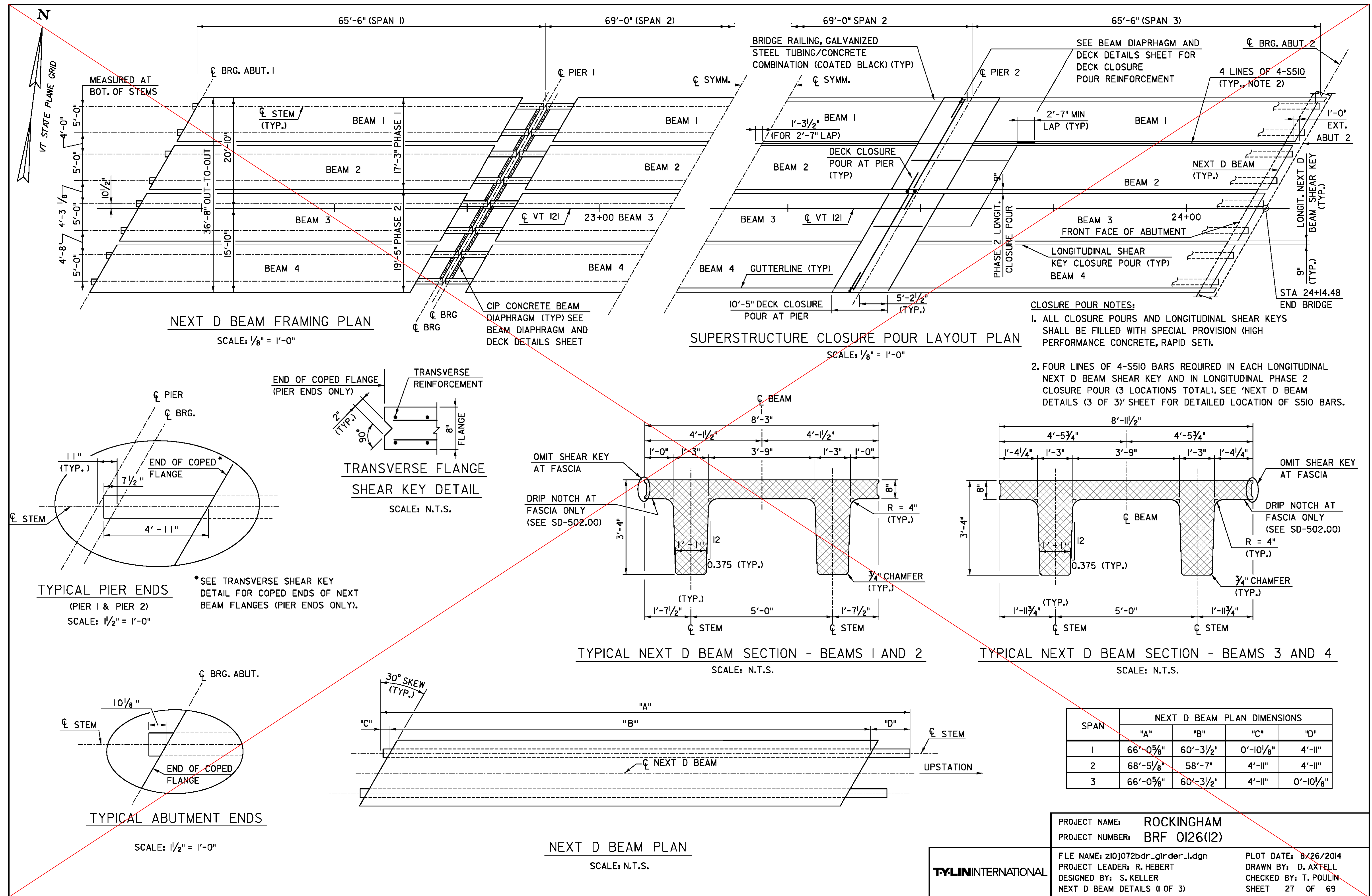
TYLIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_gpe.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BRIDGE PLAN AND ELEVATION

PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 26 OF 69





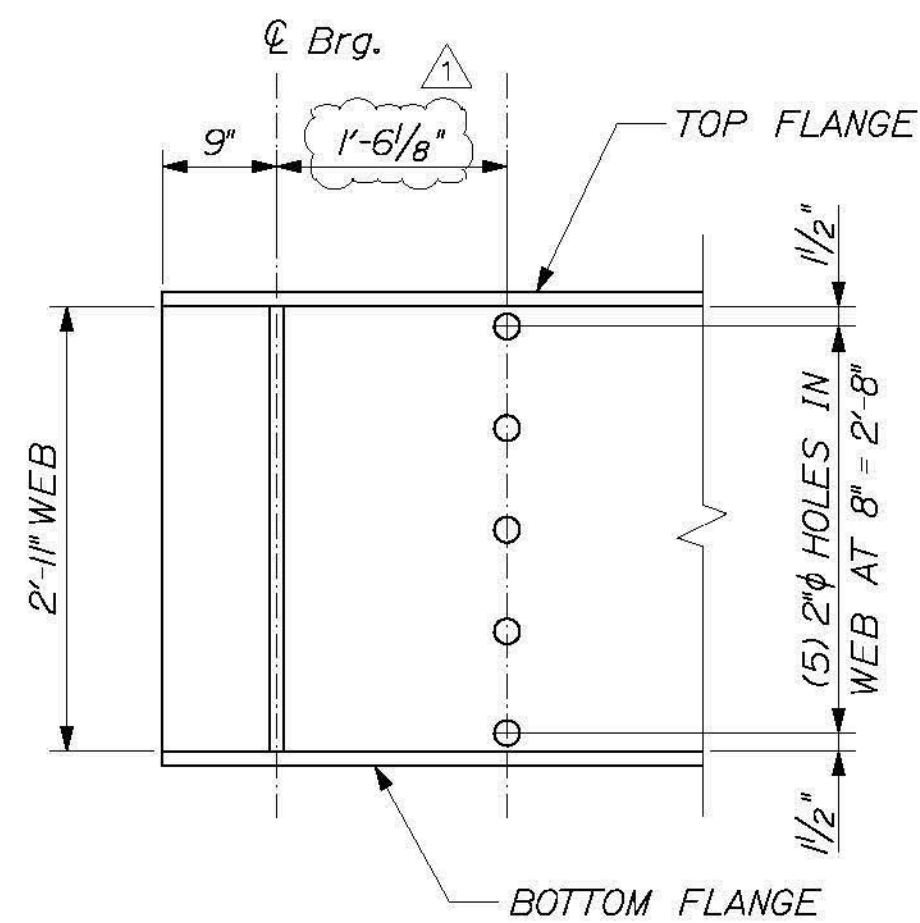




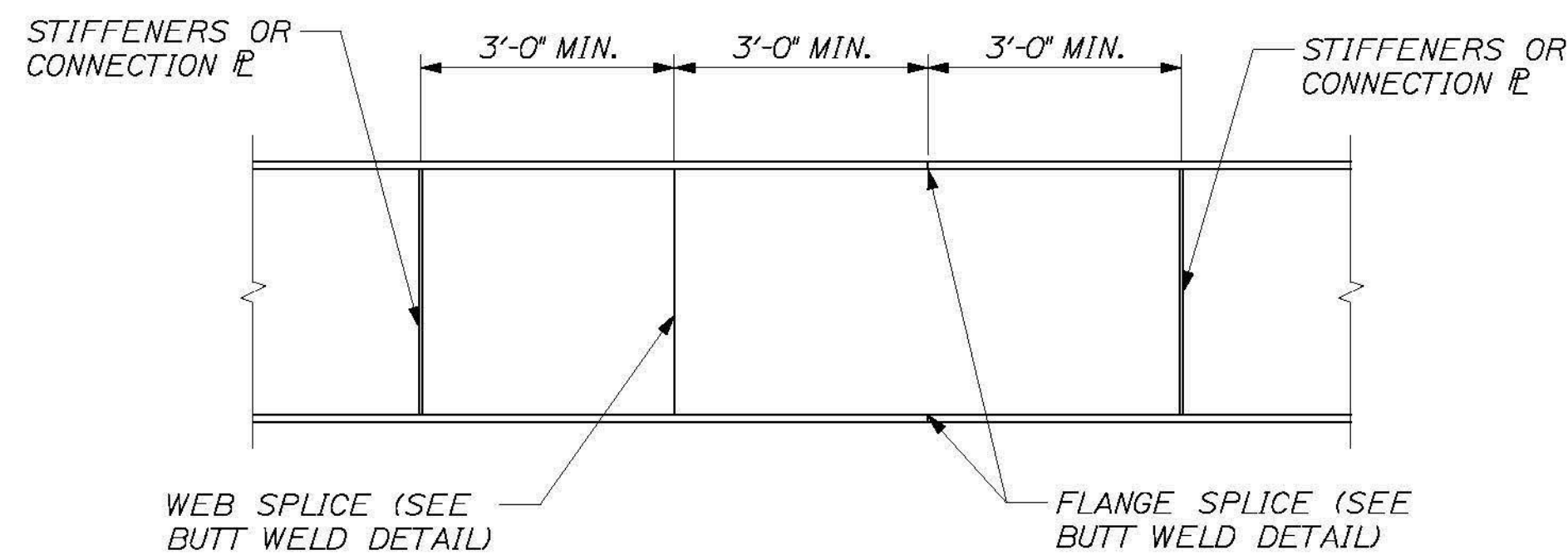




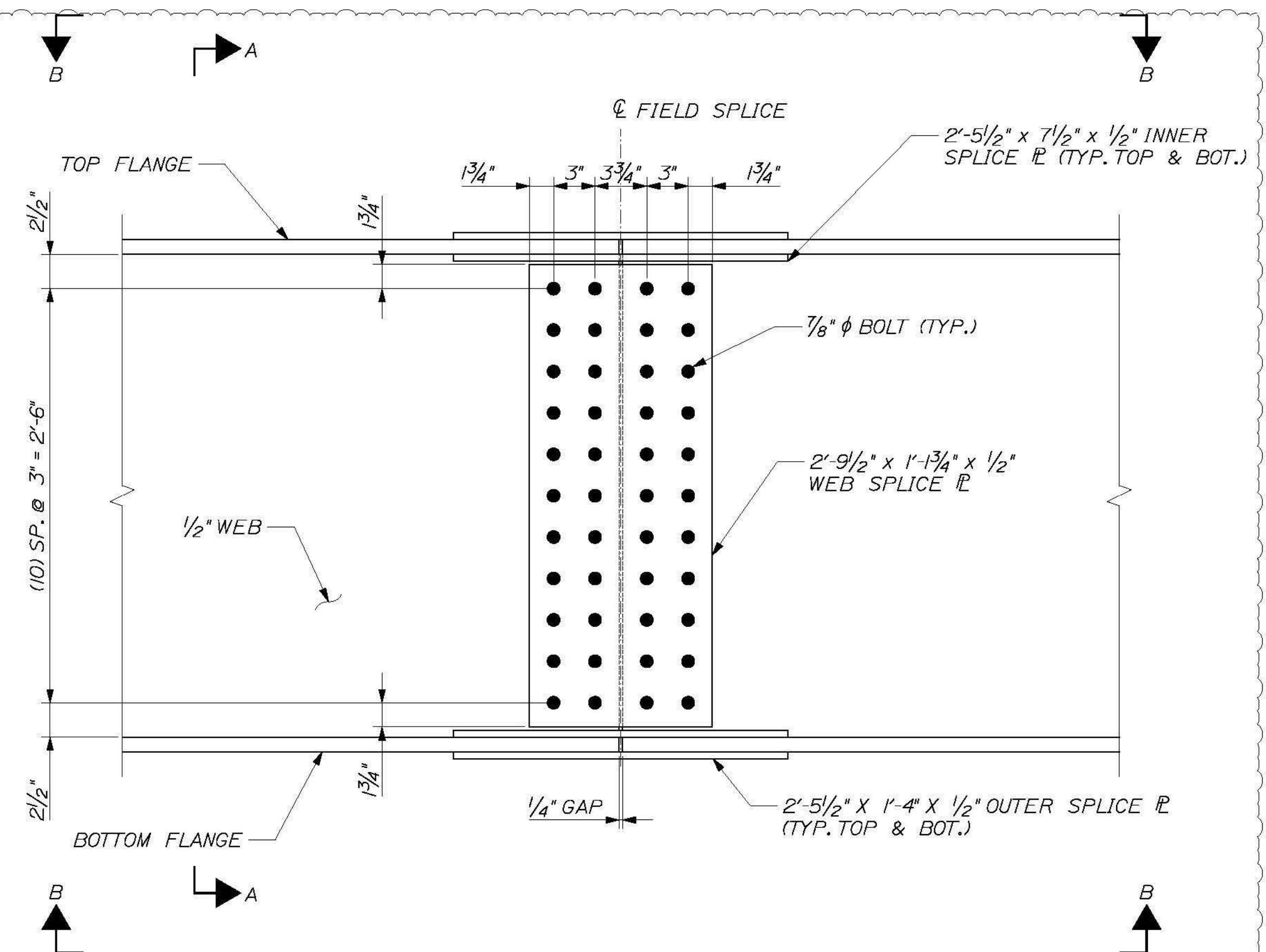




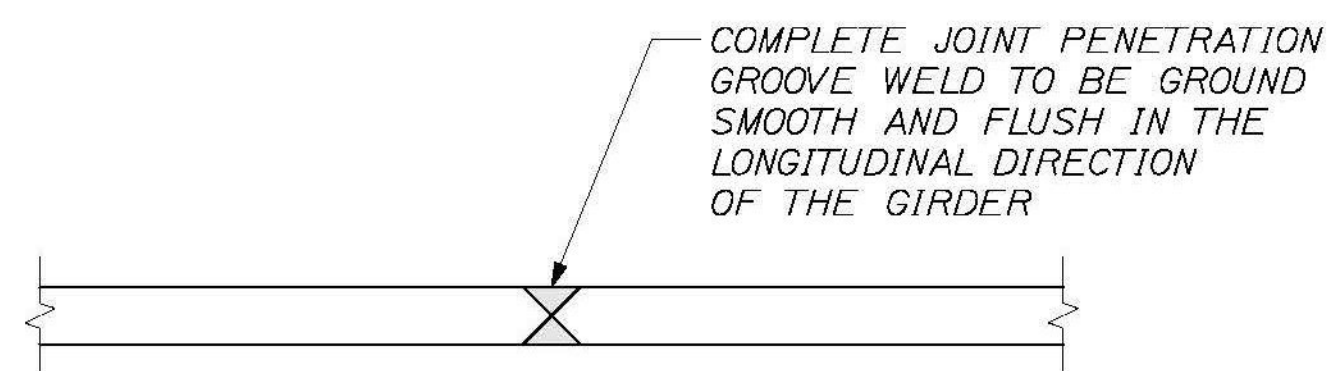
GIRDER END DETAIL  
SCALE: 3/4" = 1'-0"



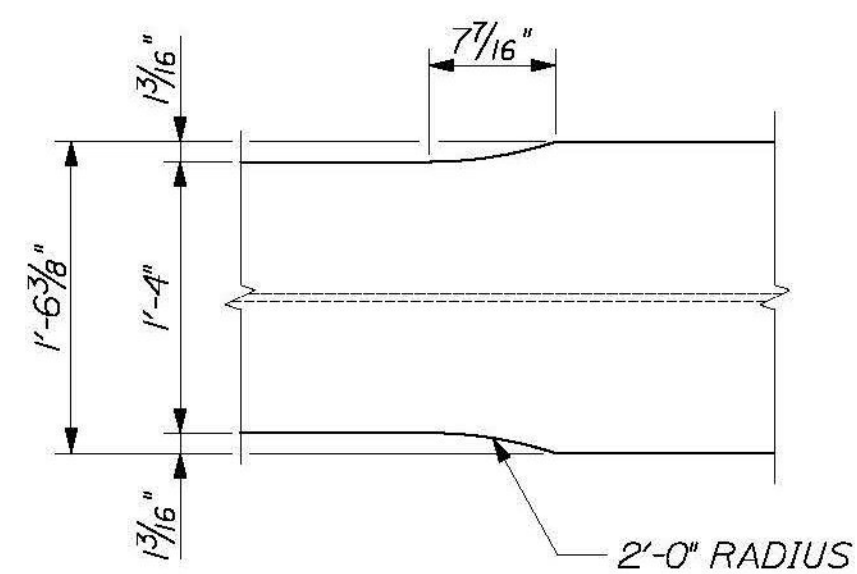
WELDED SPlice TRANSITION  
1/2" = 1'-0"



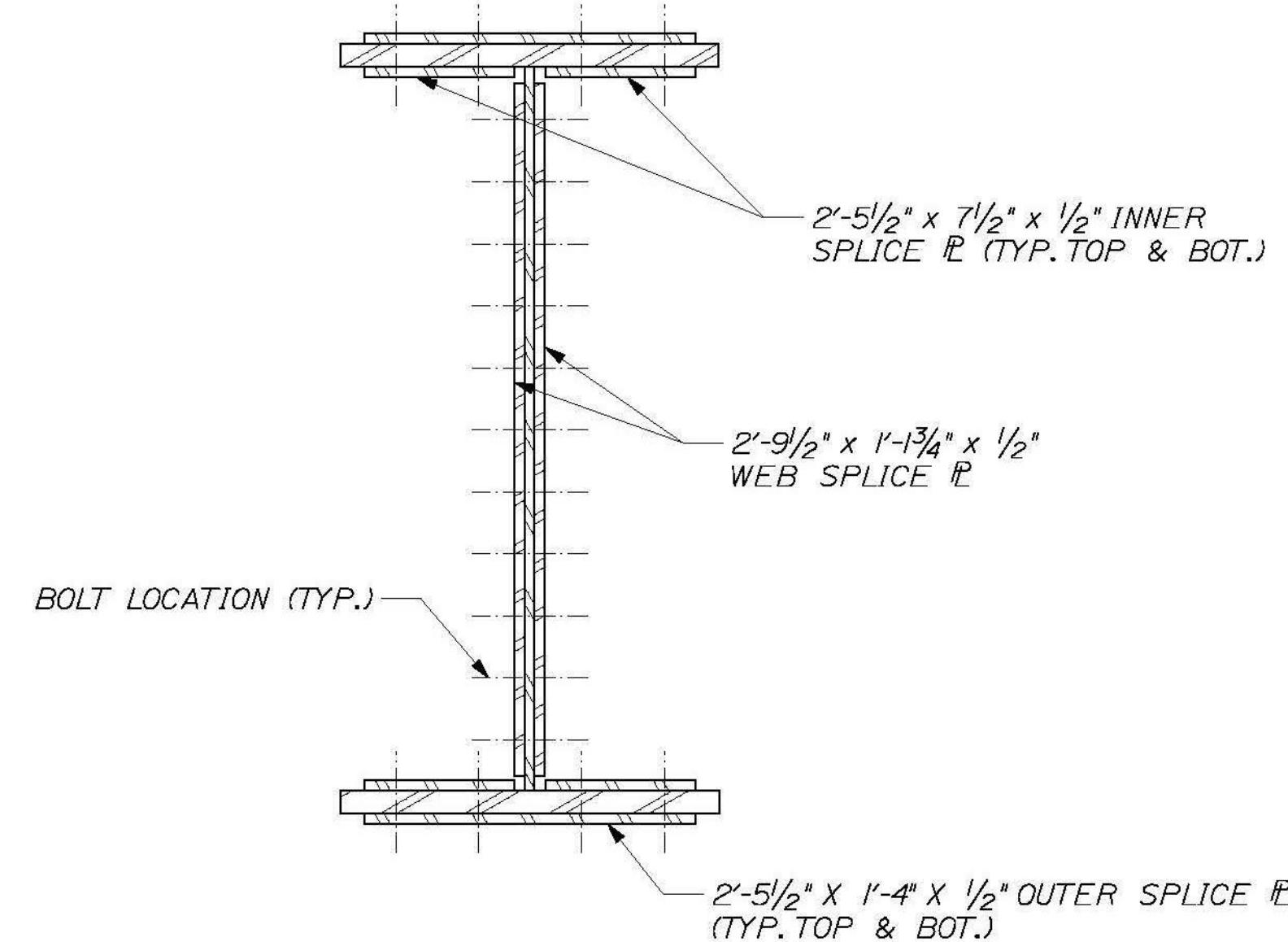
BOLTED FIELD SPlice ELEVATION  
1/2" = 1'-0"



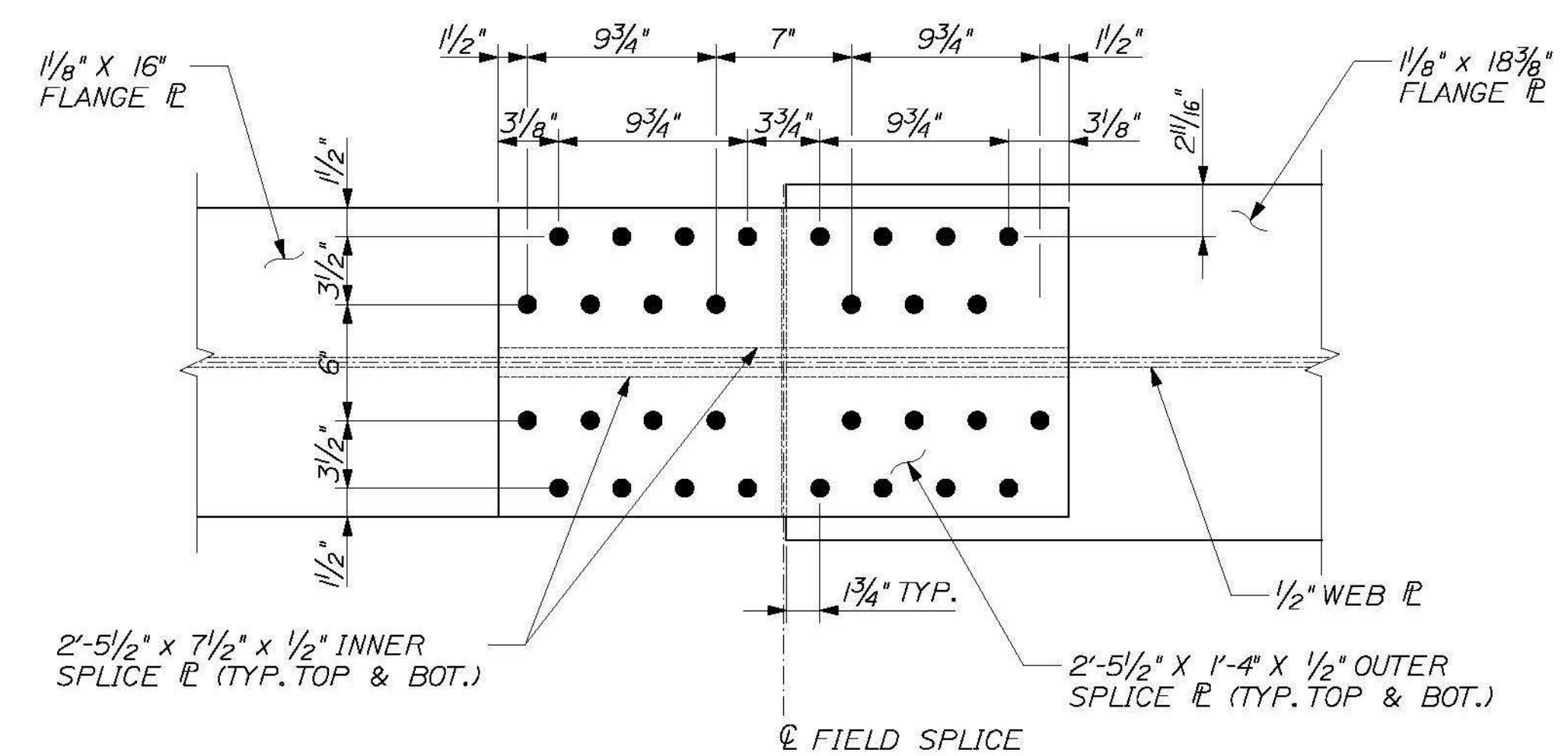
FLANGE OR WEB BET WELD  
3" = 1'-0"



FLANGE WIDTH TRANSITION DETAIL  
1" = 1'-0"



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

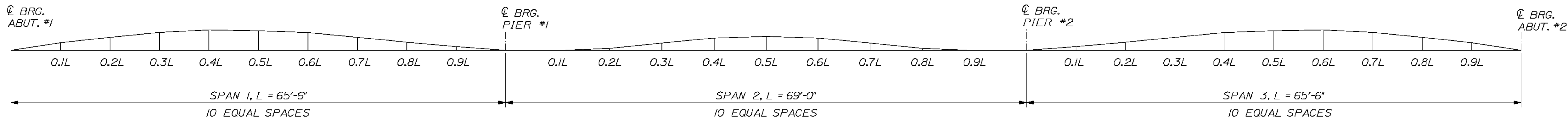


SECTION B-B  
1 1/2" = 1'-0"

DESIGN-DETAILED	BY	DATE	P.E. NUMBER
CHECKED-REVIEWED	ETC	2014	
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			







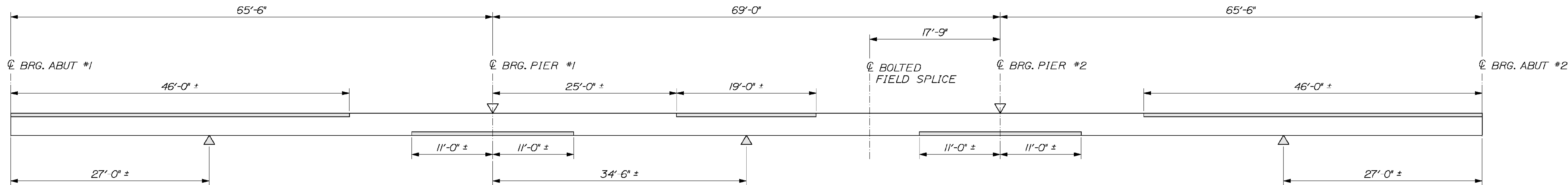
CAMBER DIAGRAM  
N.T.S

	Table of Camber -Exterior Girders (Inches)																														
	CL Brg Abut #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #2	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Abut. #2
Steel Dead Load	0.00	0.04	0.07	0.10	0.11	0.11	0.09	0.07	0.04	0.02	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.02	0.04	0.07	0.09	0.11	0.11	0.10	0.07	0.04	0.00
Fluid Exterior	0.00	0.18	0.33	0.44	0.49	0.49	0.43	0.32	0.20	0.08	0.00	-0.02	0.01	0.05	0.08	0.09	0.08	0.05	0.01	-0.02	0.00	0.08	0.20	0.32	0.43	0.49	0.49	0.44	0.33	0.18	0.00
SIDL Ext	0.00	0.04	0.07	0.09	0.10	0.10	0.09	0.07	0.05	0.02	0.00	0.01	0.03	0.04	0.05	0.06	0.05	0.04	0.03	0.01	0.00	0.02	0.05	0.07	0.09	0.10	0.10	0.09	0.07	0.04	0.00
Residual Camber	0.00	0.38	0.63	0.88	1.00	0.94	0.88	0.63	0.38	0.19	0.00	0.00	0.13	0.50	0.88	1.00	0.88	0.50	0.13	0.00	0.00	0.19	0.38	0.63	0.88	0.94	1.00	0.88	0.63	0.38	0.00
Total Camber Ext	0.00	0.63	1.09	1.50	1.70	1.63	1.48	1.09	0.67	0.31	0.00	-0.02	0.16	0.60	1.03	1.17	1.03	0.60	0.16	-0.02	0.00	0.31	0.67	1.09	1.48	1.63	1.70	1.50	1.09	0.63	0.00

	Table of Camber -Interior Girders (Inches)																														
	CL Brg Abut #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #2	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Abut. #2
Steel Dead Load	0.00	0.04	0.07	0.10	0.11	0.11	0.09	0.07	0.04	0.02	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.02	0.04	0.07	0.09	0.11	0.11	0.10	0.07	0.04	0.00
Fluid Interior	0.00	0.24	0.44	0.59	0.66	0.65	0.57	0.44	0.27	0.11	0.00	-0.03	0.01	0.06	0.11	0.12	0.11	0.06	0.01	-0.03	0.00	0.11	0.27	0.44	0.57	0.65	0.66	0.59	0.44	0.24	0.00
SIDL Int	0.00	0.04	0.07	0.09	0.11	0.11	0.10	0.08	0.05	0.02	0.00	0.01	0.03	0.05	0.06	0.06	0.06	0.05	0.03	0.01	0.00	0.02	0.05	0.08	0.10	0.11	0.11	0.09	0.07	0.04	0.00
Residual Camber	0.00	0.38	0.63	0.88	1.00	0.94	0.88	0.63	0.38	0.19	0.00	0.00	0.13	0.50	0.88	1.00	0.88	0.50	0.13	0.00	0.00	0.19	0.38	0.63	0.88	0.94	1.00	0.88	0.63	0.38	0.00
Total Camber Int	0.00	0.69	1.21	1.65	1.87	1.80	1.64	1.21	0.74	0.34	0.00	-0.02	0.16	0.62	1.06	1.21	1.06	0.62	0.16	-0.02	0.00	0.34	0.74	1.21	1.64	1.80	1.87	1.65	1.21	0.69	0.00

* ALL GRADES RAISED 0.1' TO ADJUST FOR NEGATIVE HAUNCH DEPTH PER DESIGNER

												Bottom of Slab Elevations																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													</
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GIRDER STRESS DIAGRAM  
▽= MAXIMUM NEGATIVE MOMENT  
△= MAXIMUM POSITIVE MOMENT  
SHADED AREAS ARE ALWAYS IN COMPRESSION  
OTHER AREAS ARE IN TENSION OR HAVE STRESS REVERSAL

CALDERWOOD ENGINEERING, ETC.  
STRUCTURAL ENGINEERING • DETAILING SERVICES  
222 RIVER RD, RICHMOND, ME 04857 PH/FX (207)737-3007/(207) 737-2008

PREPARED FOR:  
**COLD RIVER BRIDGES, LLC**

CEE 106-BR-14

DATE: 2/14/2014  
BY: ETC

DESIGN-DETAILED  
CHECKED-REVIEWED

REVISIONS  
1  
2  
3  
4  
FIELD CHANGES

P.E. NUMBER  
DATE:

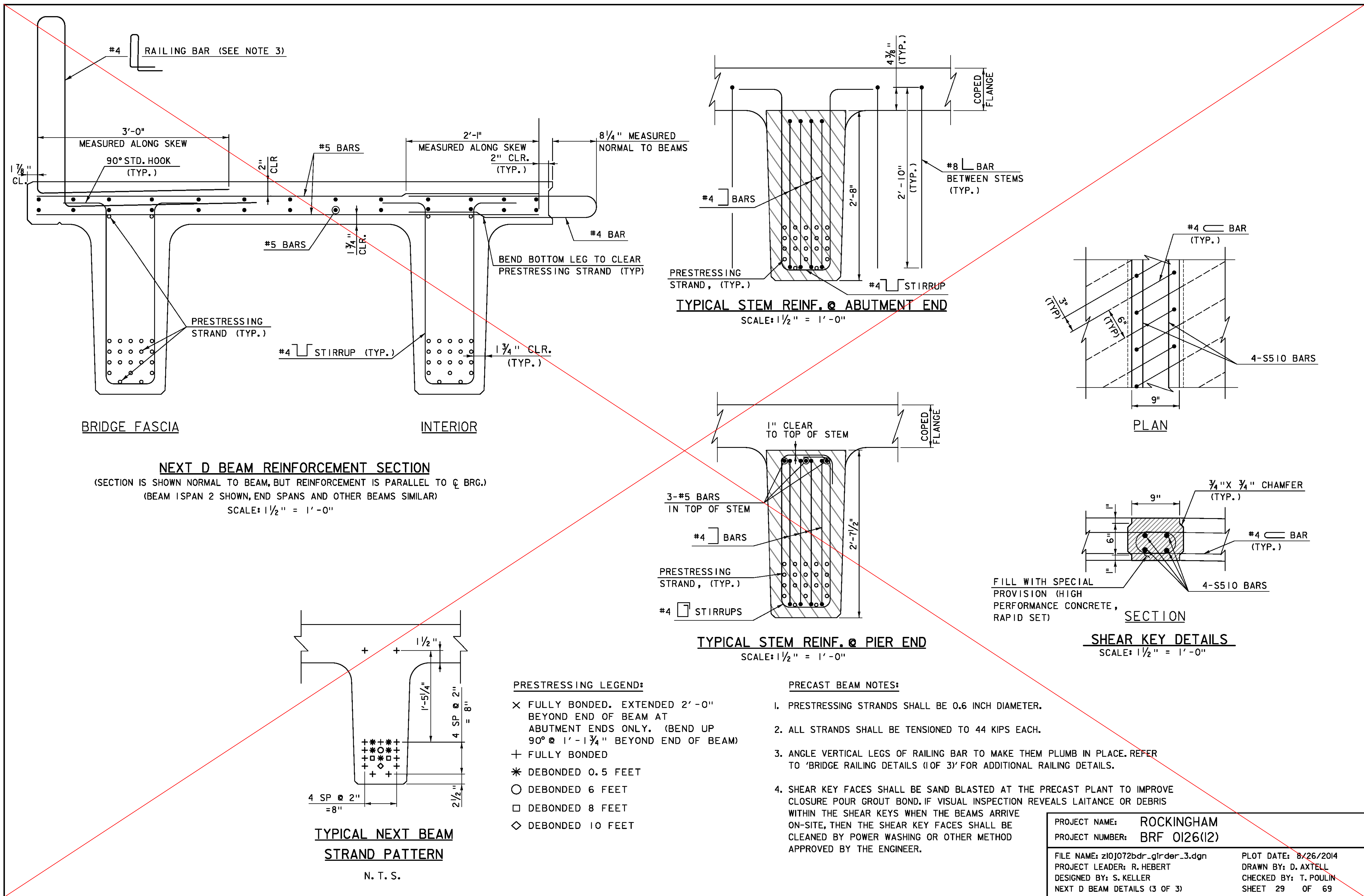
VE SUPER. DESIGN  
ROCKINGHAM VT. BR# 0126 (12)

STEEL GIRDER DETAILS (3 OF 3)

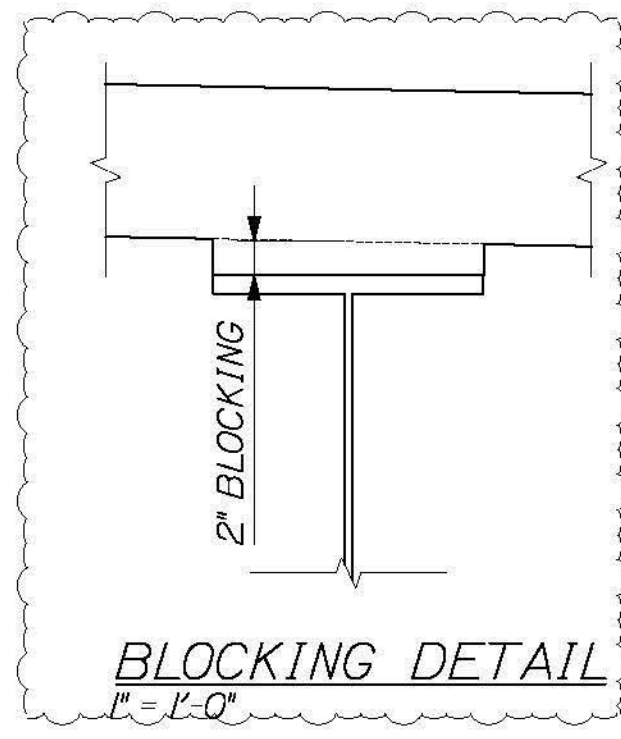
SHEET NUMBER

28a



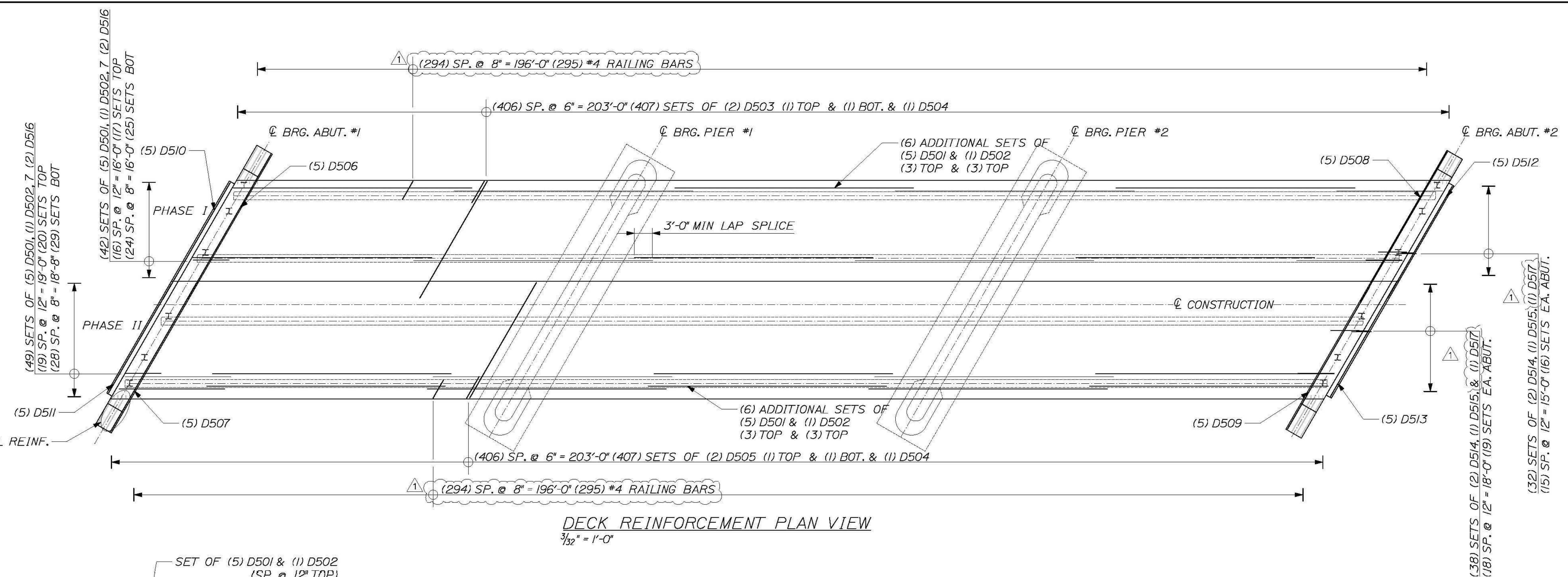




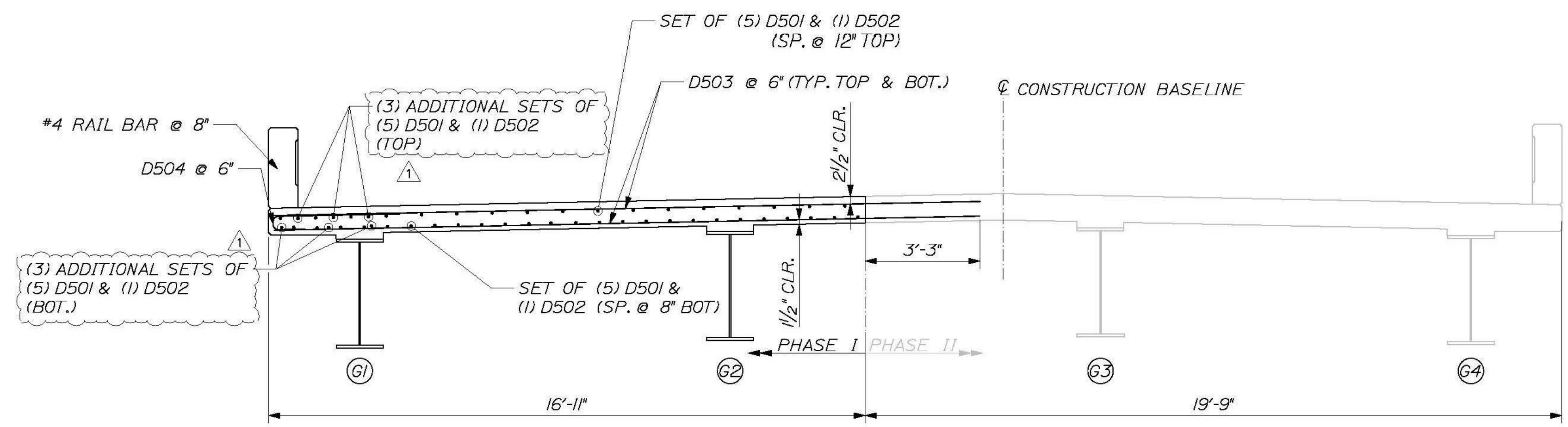


BLOCKING DETAIL  
1'-0"

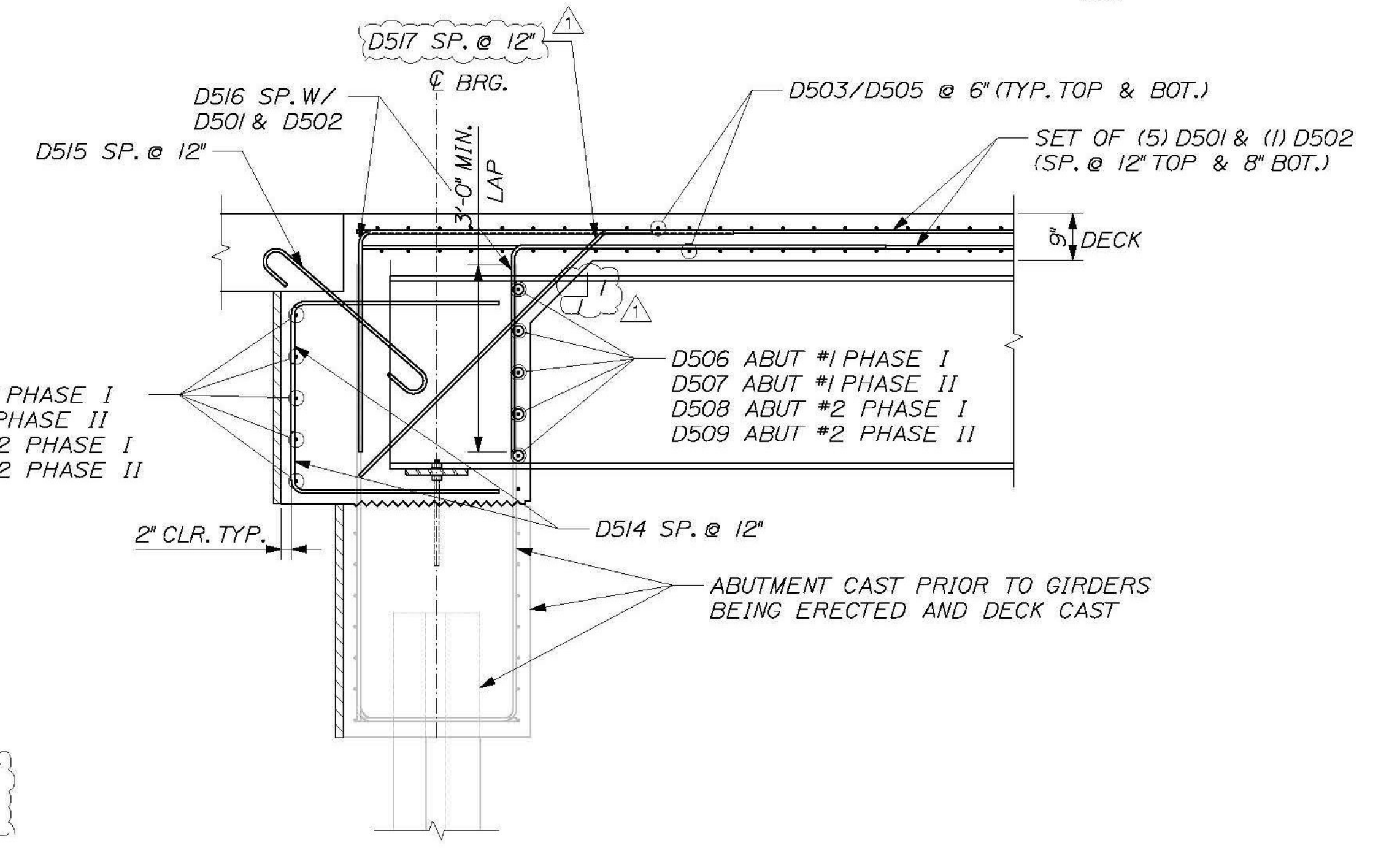
SEE SHEET 33-35a FOR WINGWALL REINF.  
(TYP. ALL (4) WINGS)



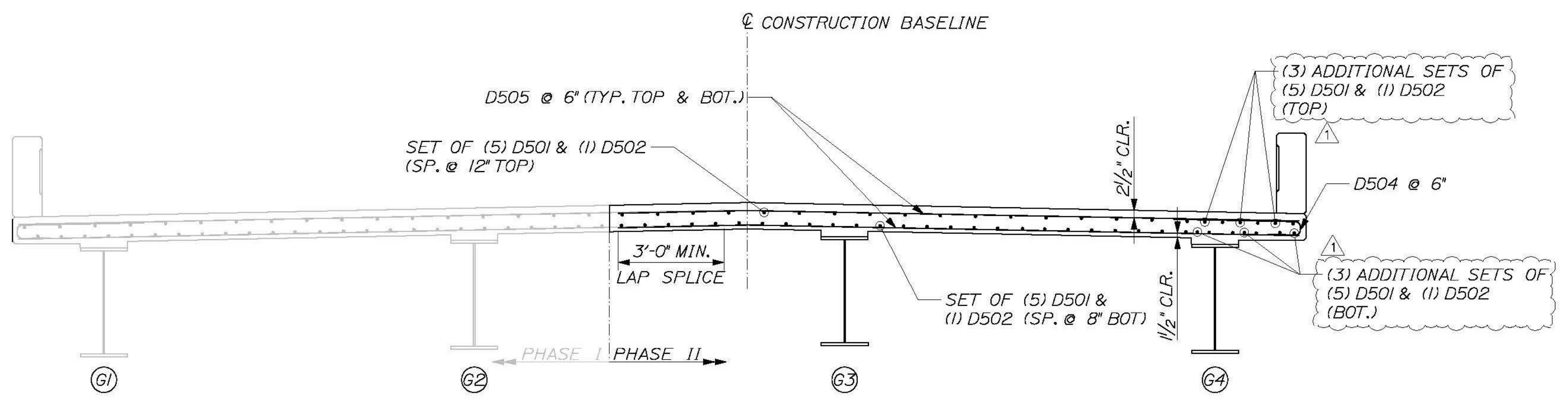
DECK REINFORCEMENT PLAN VIEW  
3/32" = 1'-0"



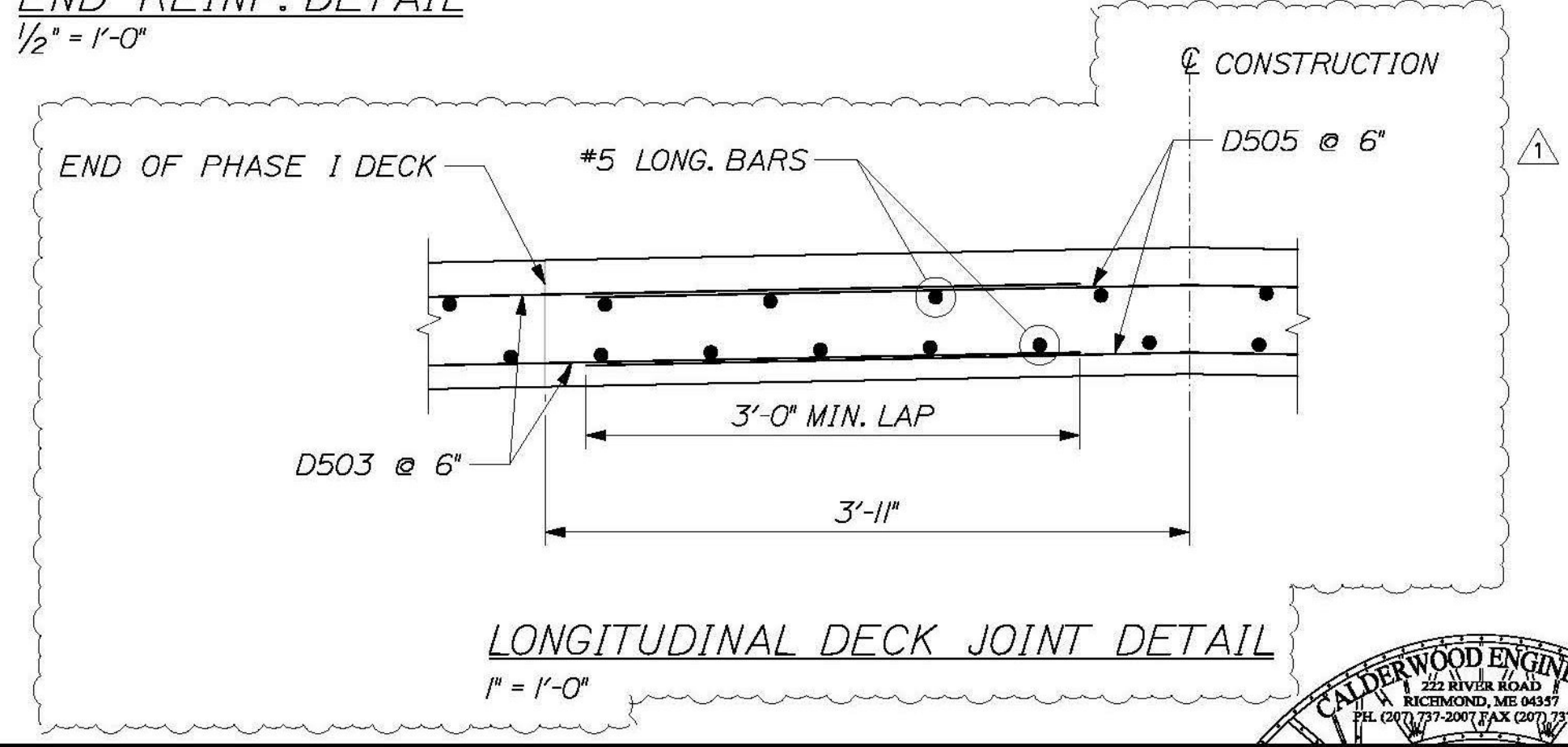
PHASE I DECK REINF. SECTION  
3/8" = 1'-0"



END REINF. DETAIL  
1/2" = 1'-0"



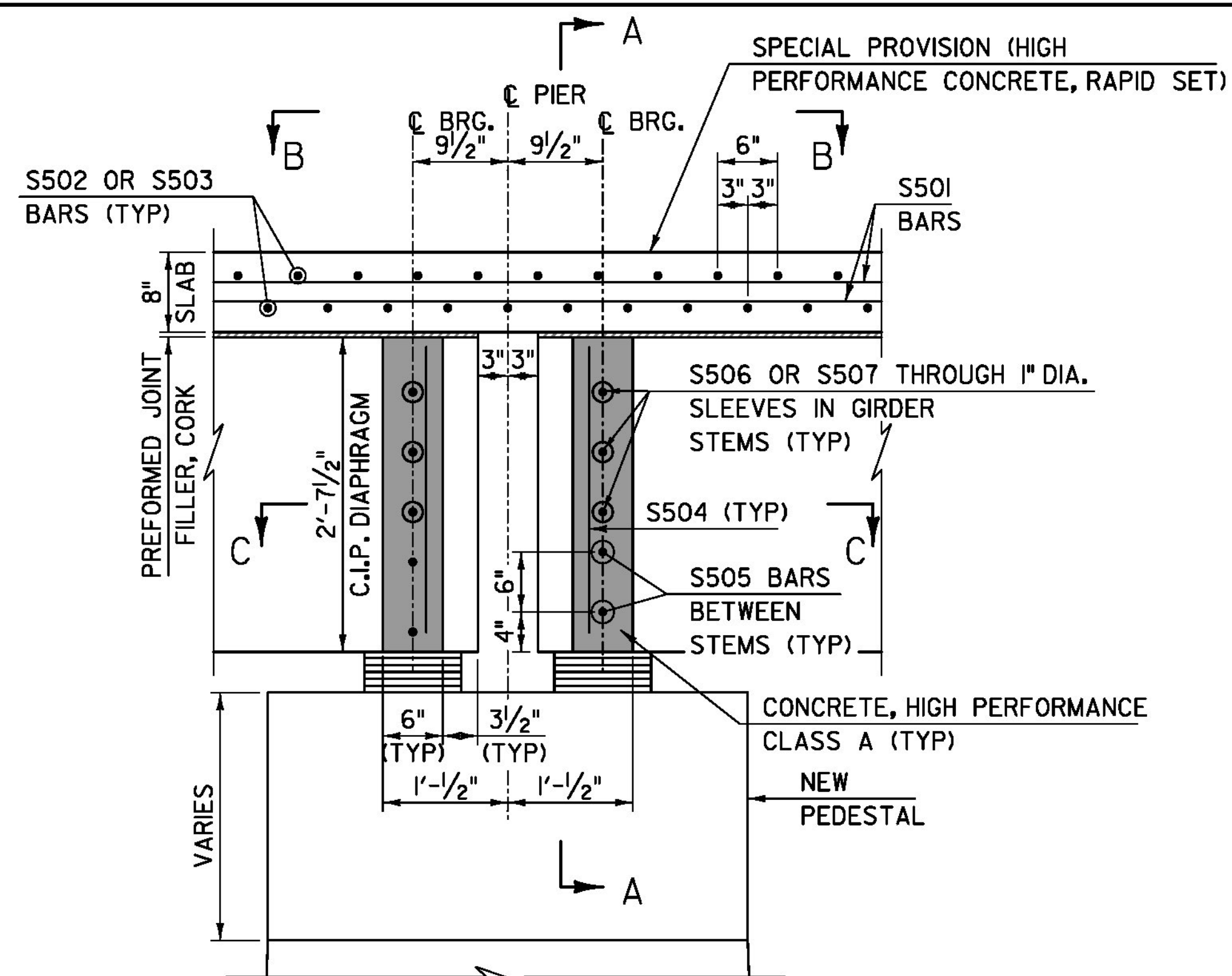
PHASE II DECK REINF. SECTION  
3/8" = 1'-0"



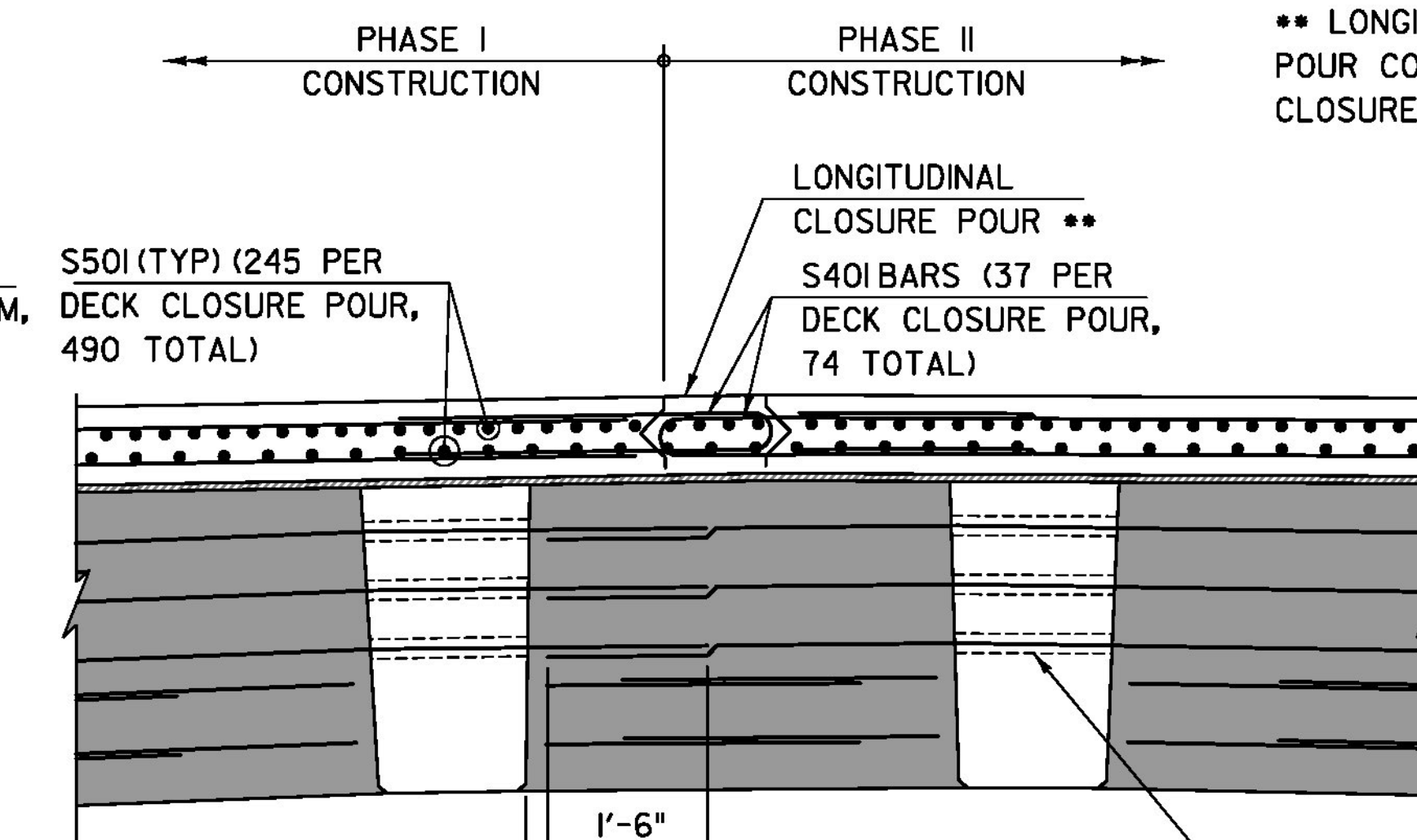
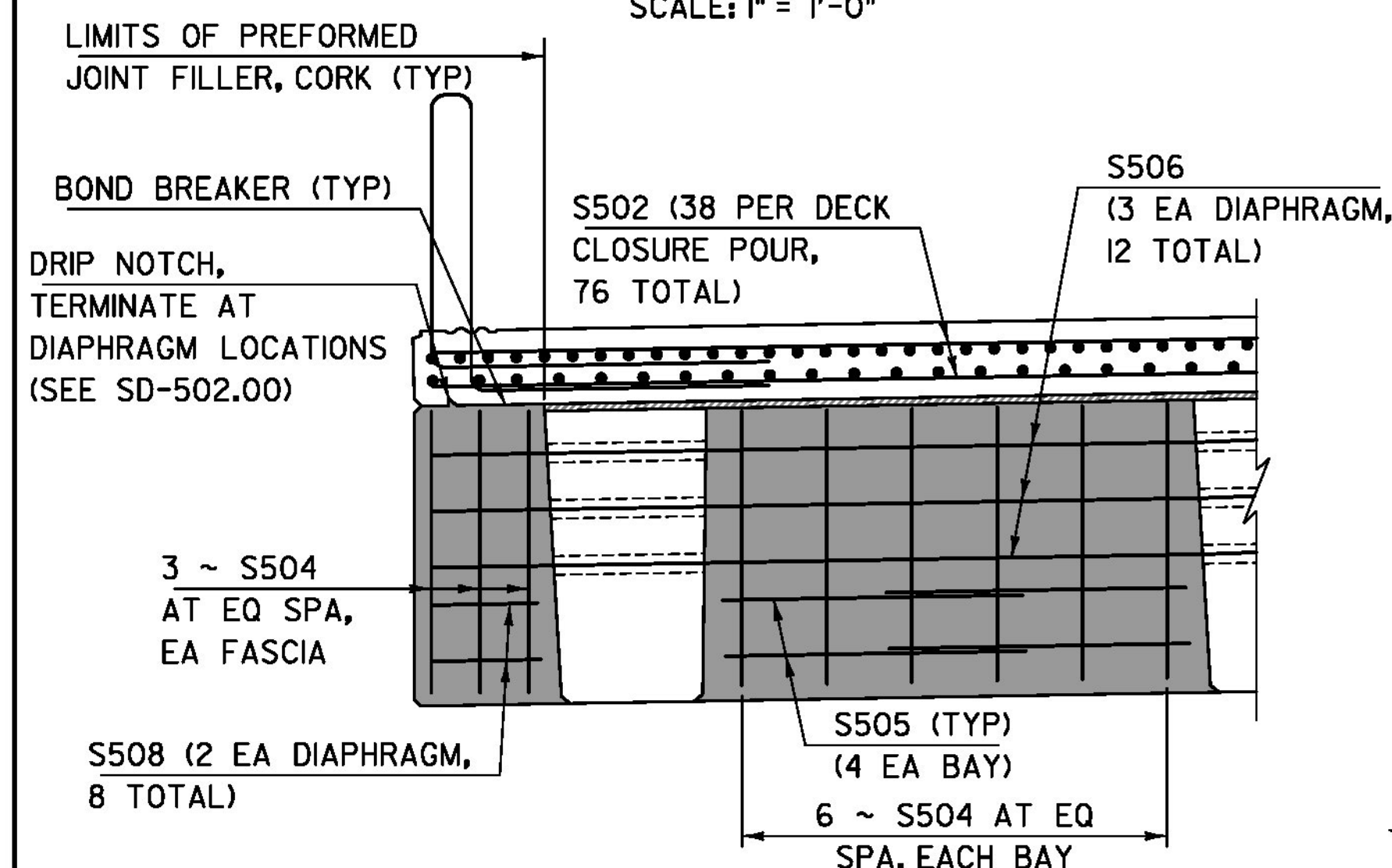
LONGITUDINAL DECK JOINT DETAIL  
1" = 1'-0"

CALDERWOOD ENGINEERING, ETC. STRUCTURAL ENGINEERING • DETAILING SERVICES 222 RIVER RD., RICHMOND, ME 04373 PH/FX (207) 737-2007/2008				PREPARED FOR: <b>COLD RIVER BRIDGES, LLC</b>				CEE 106-BR-14			
VE SUPER. DESIGN ROCKINGHAM VT. BR# 0126 (12)				SUPERSTRUCTURE REINF. DETAILS				SHEET NUMBER <b>29</b>			
DESIGN-DETAILED	DATE	BY	DATE	DESIGN-DETAILED	DATE	BY	DATE	DESIGN-DETAILED	DATE	BY	DATE
CHECKED-REVIEWED	2014	ETC		CHECKED-REVIEWED		ETC		CHECKED-REVIEWED		ETC	
REVISIONS 1				REVISIONS 1				REVISIONS 1			
REVISIONS 2				REVISIONS 2				REVISIONS 2			
REVISIONS 3				REVISIONS 3				REVISIONS 3			
REVISIONS 4				REVISIONS 4				REVISIONS 4			
FIELD CHANGES				FIELD CHANGES				FIELD CHANGES			



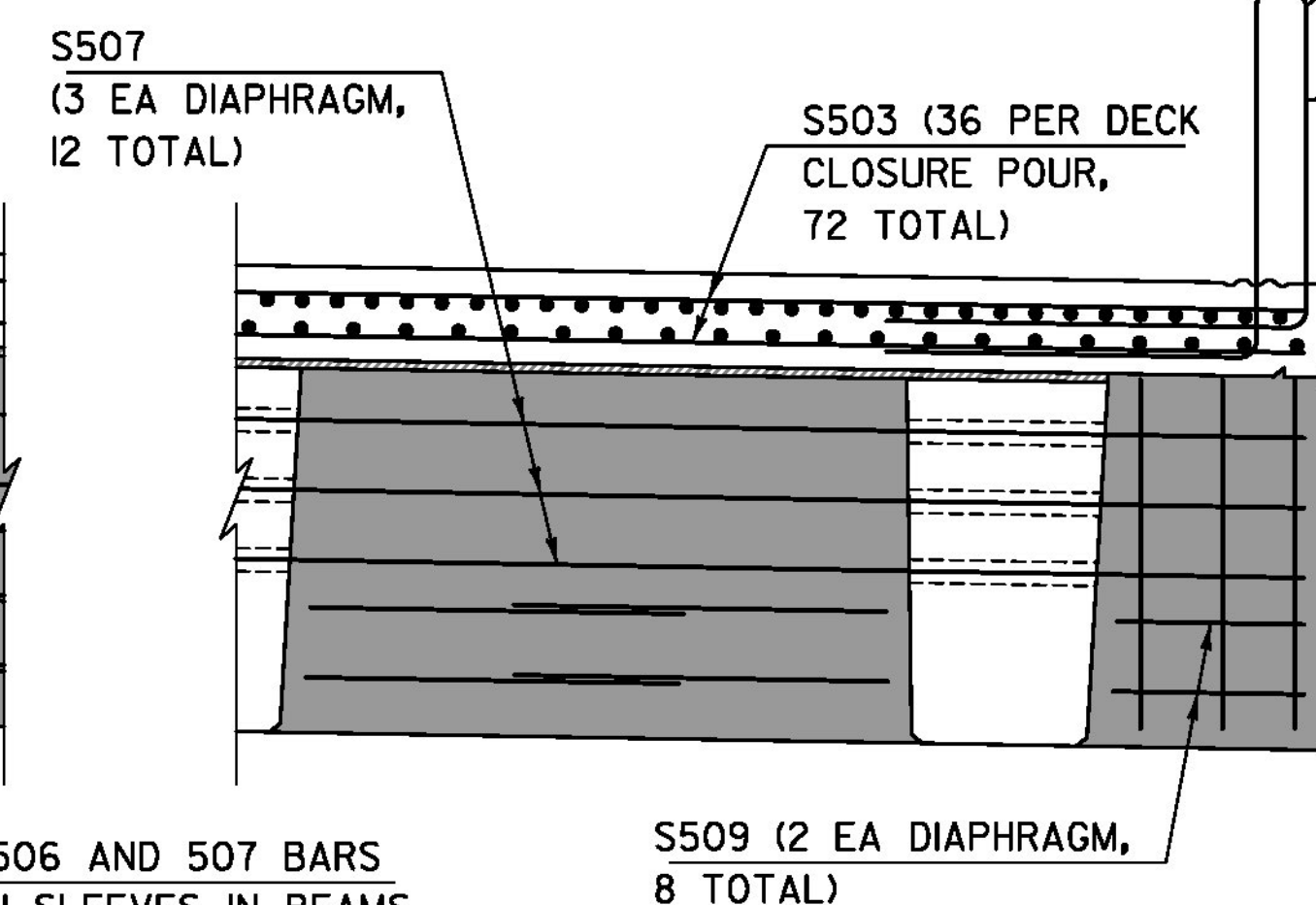


SECTION NORMAL TO PIER  
SCALE: 1" = 1'-0"



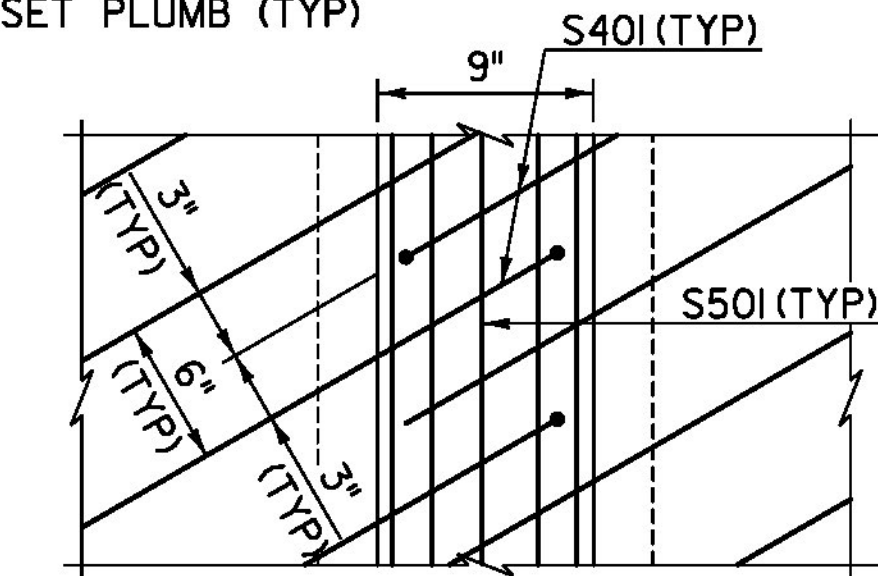
SECTION A-A: DIAPHRAGM ELEVATION  
SCALE: 3/4" = 1'-0"

** LONGITUDINAL CLOSURE POUR BETWEEN PHASED DECK CLOSURE POUR CONSTRUCTION TO BE CAST SIMULTANEOUSLY WITH FLANGE CLOSURE POUR BETWEEN PHASED NEXT BEAM CONSTRUCTION.

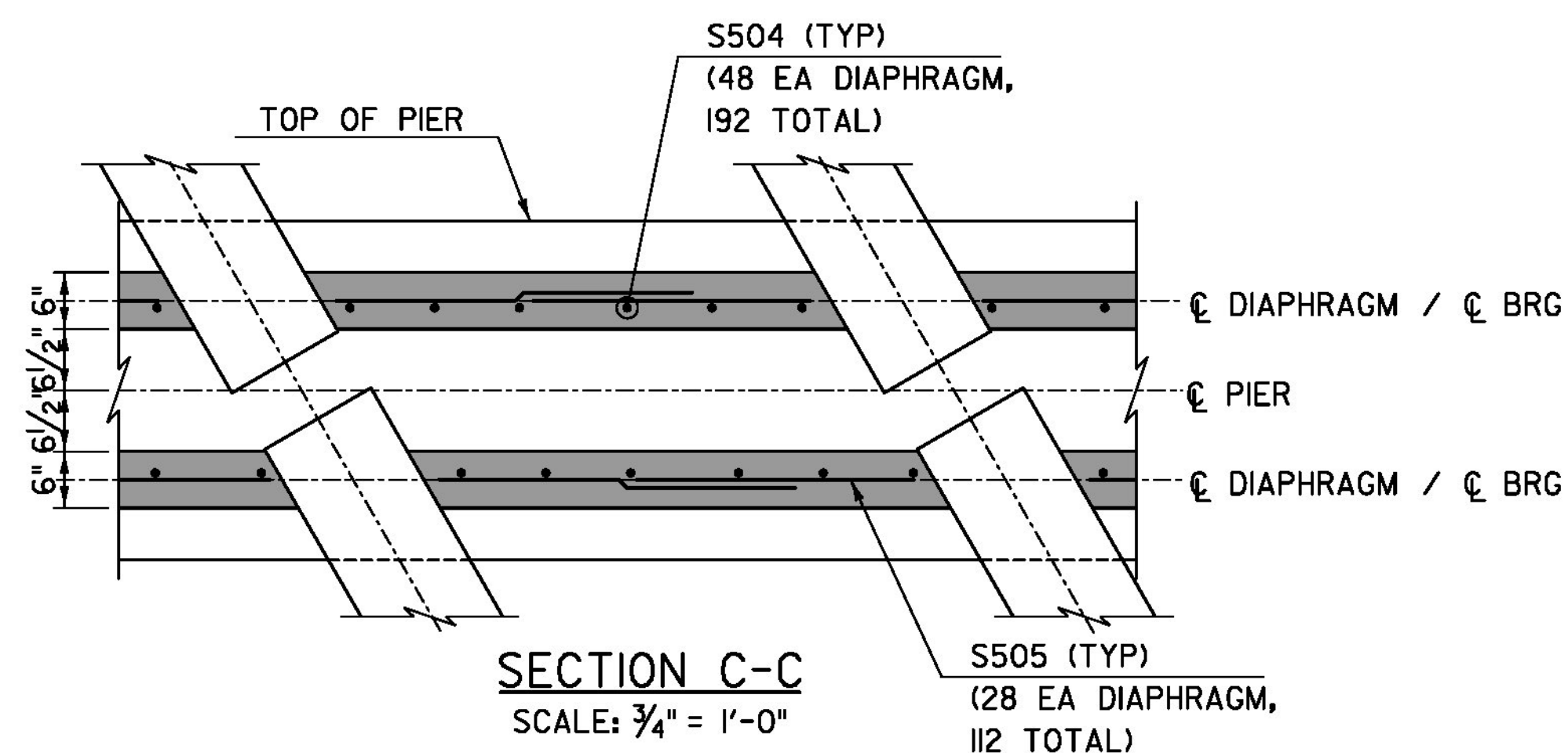


S402 BARS @ 8" MAX MEASURED ALONG FASCIA THROUGH DECK CLOSURE POUR REGIONS, EA SIDE (68 TOTAL)

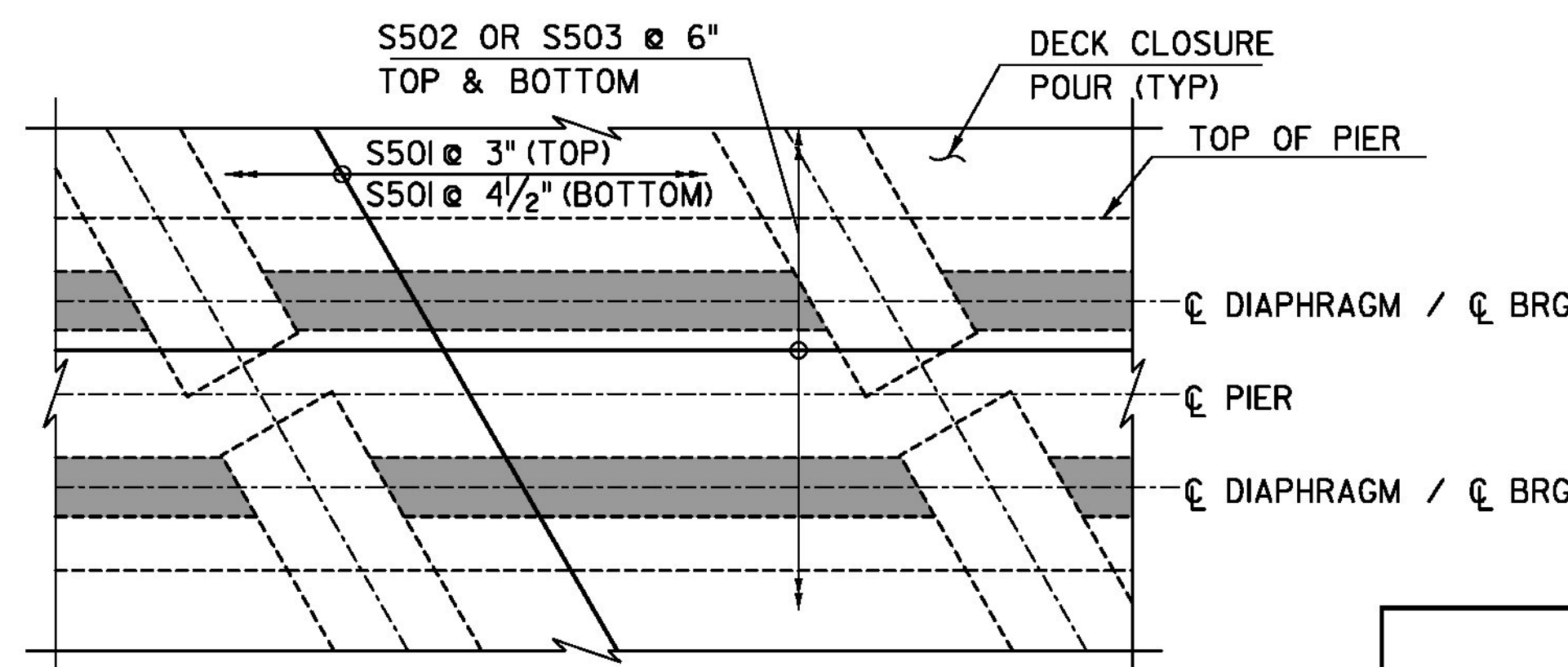
VERTICAL LEGS TO BE SET PLUMB (TYP)



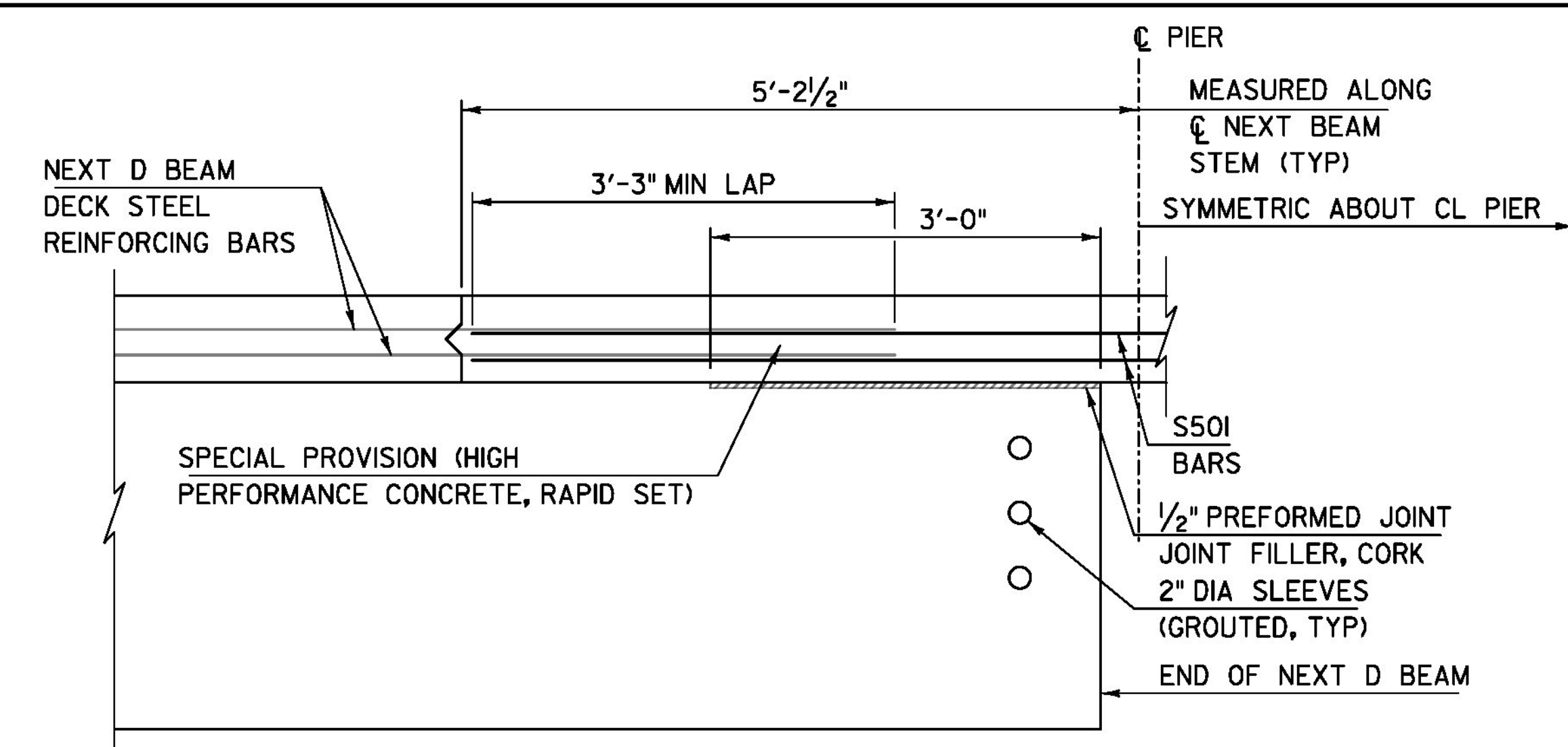
LONGITUDINAL CLOSURE POUR PLAN THROUGH DECK CLOSURE POUR REGIONS  
SCALE: 1 1/2" = 1'-0"



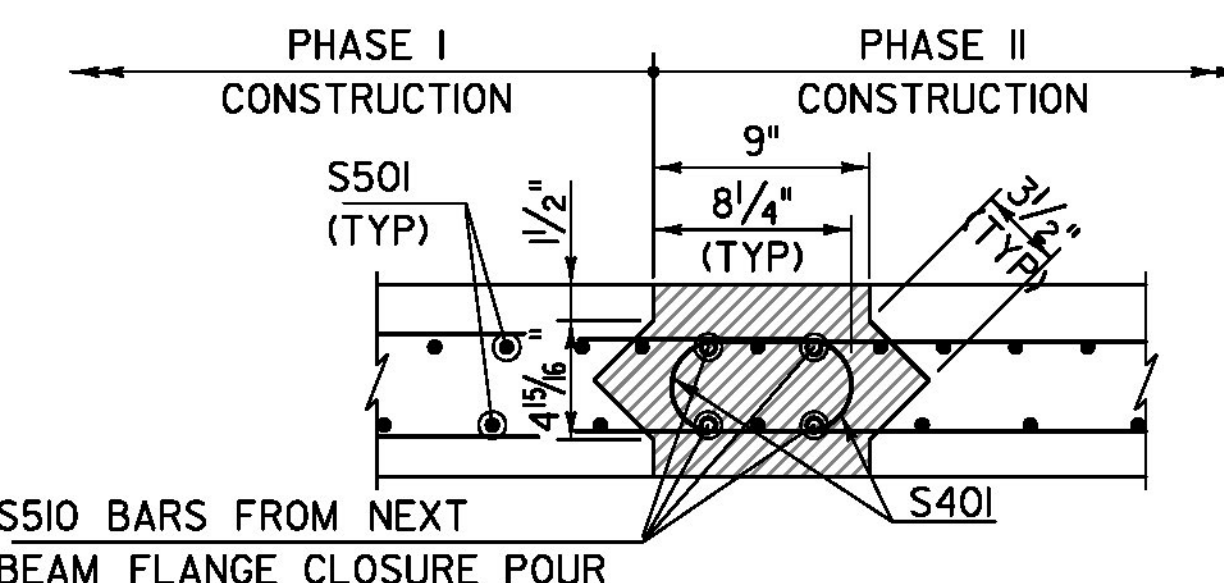
SECTION C-C  
SCALE: 3/4" = 1'-0"



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



DECK CLOSURE POUR AT PIERS  
SCALE: 1" = 1'-0"



LONGITUDINAL CLOSURE POUR SECTION THROUGH DECK CLOSURE POUR REGIONS  
SCALE: 1 1/2" = 1'-0"

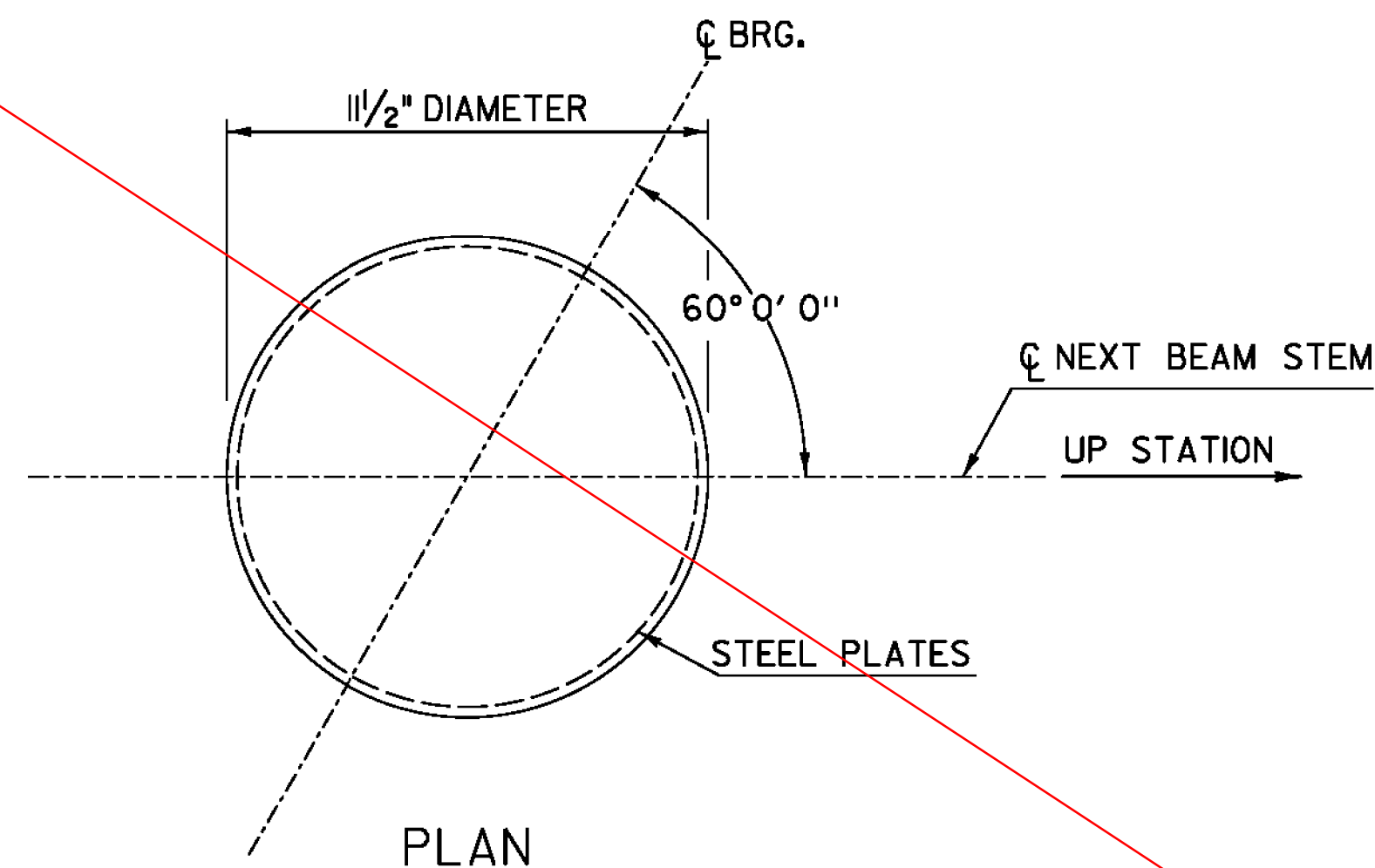
PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_Pierd1aph.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: J. OLUND  
BEAM DIAPHRAGM AND DECK DETAILS

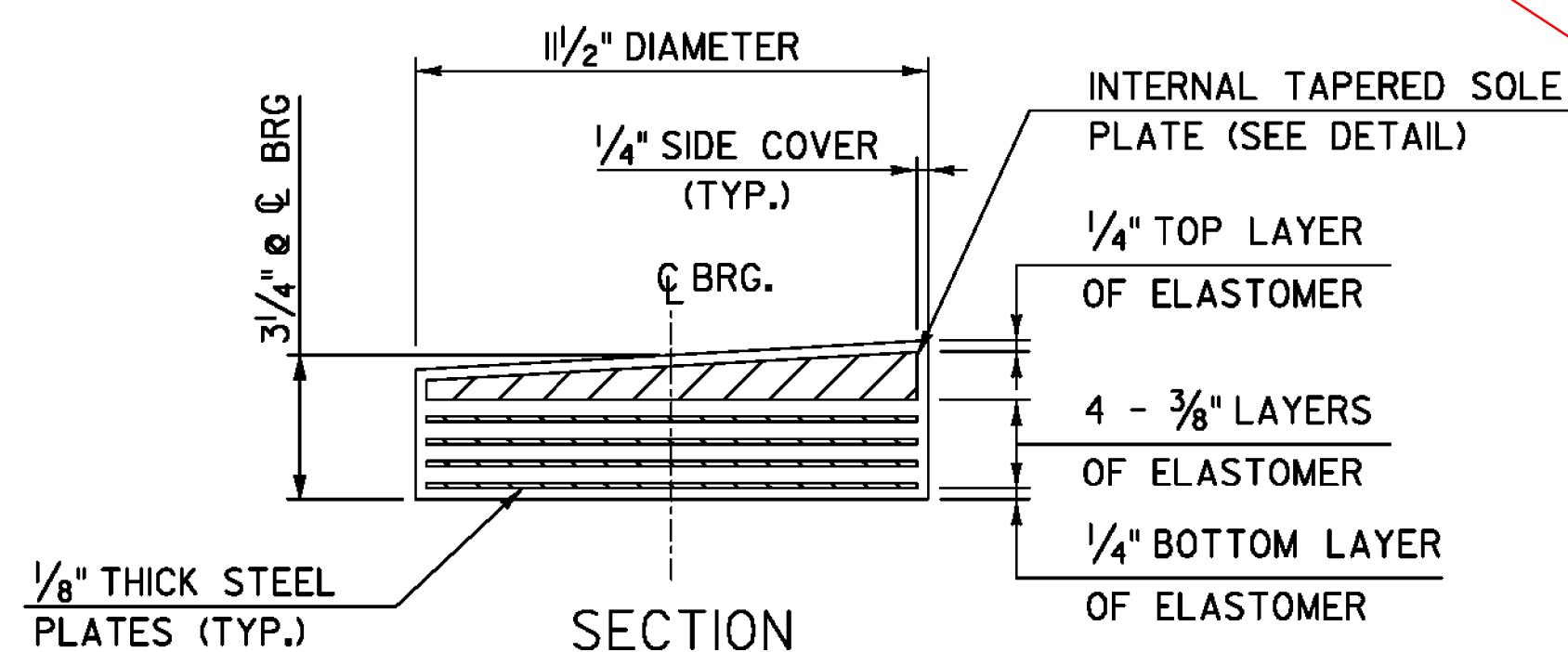
PLOT DATE: 8/26/2014  
DRAWN BY: S. MORGAN  
CHECKED BY: S. KELLER  
SHEET 30 OF 69

TYLIN INTERNATIONAL





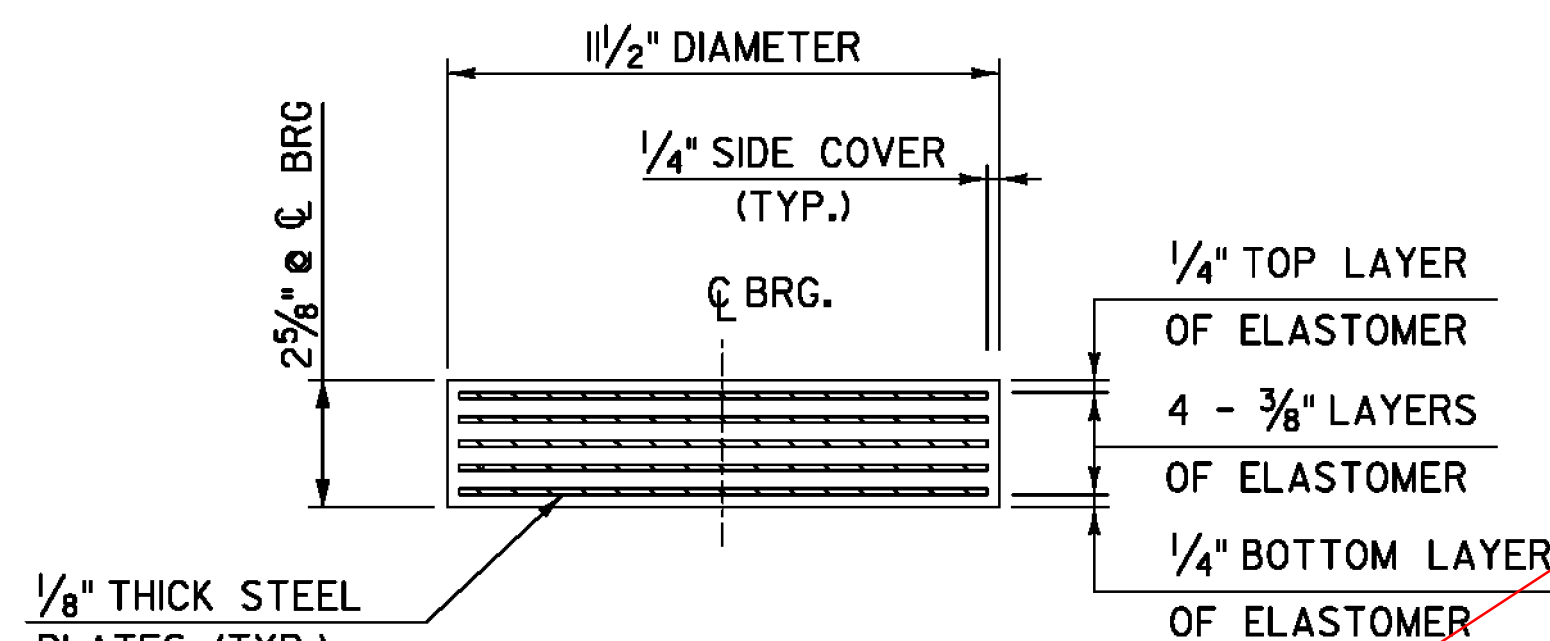
PLAN



SECTION

REINFORCED ELASTOMERIC PAD - PIERS (TYPE B-F)

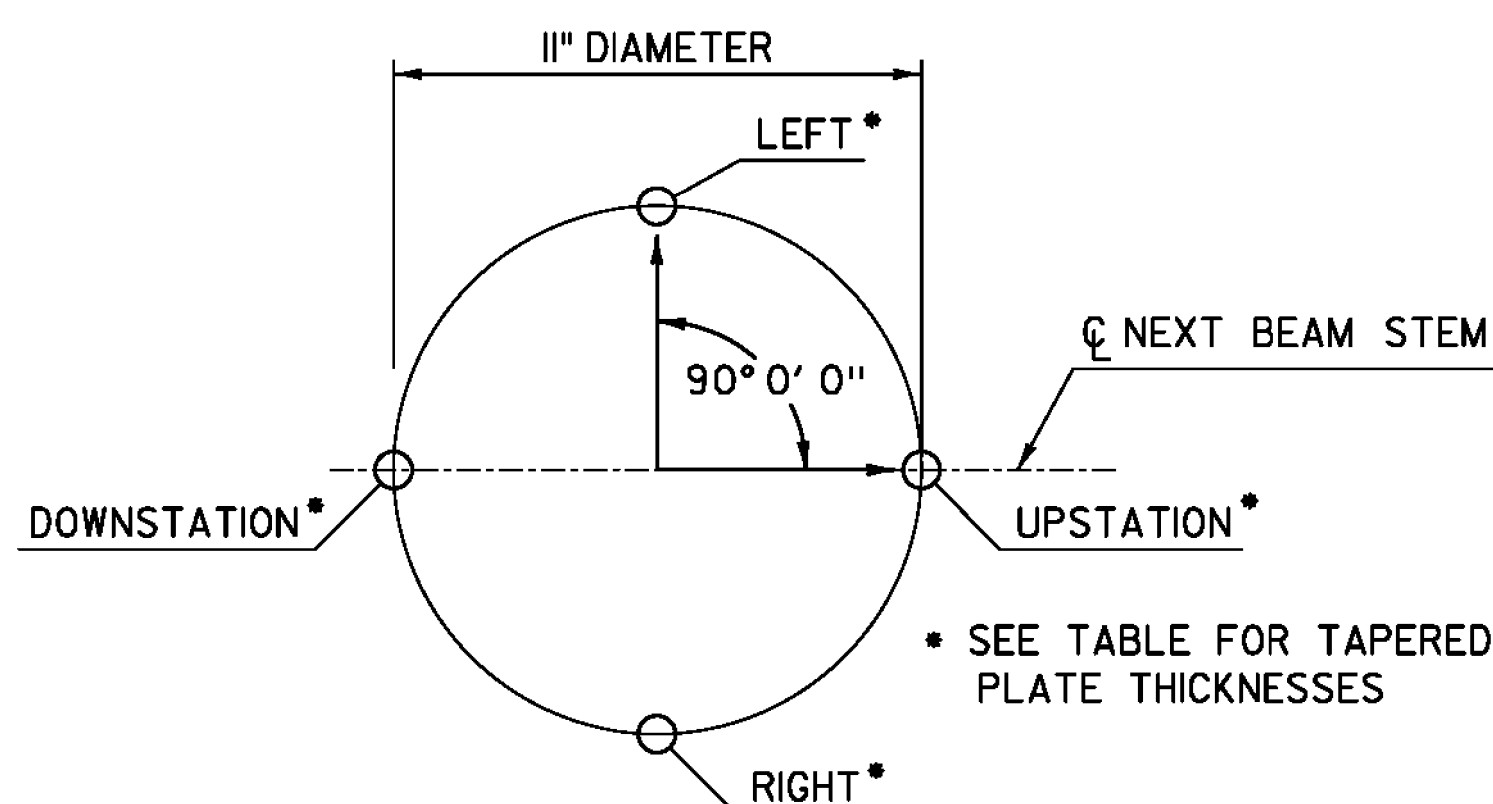
SCALE: 3" = 1'-0"



SECTION

REINFORCED ELASTOMERIC PAD - PIERS (TYPE A)

SCALE: 3" = 1'-0"



TAPERED SOLE PLATE DETAIL

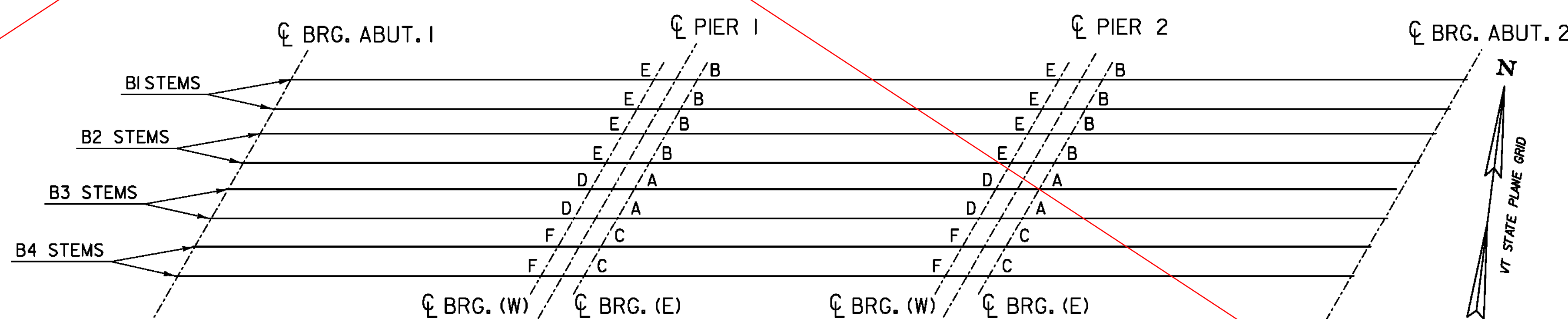
SCALE: 3" = 1'-0"

BEARING	INTERNAL SOLE PLATE THICKNESS (INCHES)				QUANTITY
	UPSTATION	DOWNSTATION	LEFT	RIGHT	
A	-	-	-	-	4
B	0.750	0.750	0.640	0.860	8
C	0.750	0.750	0.860	0.640	4
D	0.876	0.624	0.750	0.750	4
E	0.876	0.624	0.640	0.860	8
F	0.876	0.624	0.860	0.640	4

TAPERED PLATE ELEVATIONS

NOTES:

1. INTERNAL TAPERED SOLE PLATES ARE DETAILED CONSIDERING THE INFLUENCES OF BRIDGE CROSS SLOPE, PROFILE GRADE, AND PREDICTED BEAM CAMBER AND END ROTATION AT ERECTION.
2. THE CENTER ELEVATION OF THE BEARINGS ARE DETAILED CONSIDERING PREDICTED BEAM CAMBER AND BEAM END ROTATIONS AT ERECTION (30-60 DAYS AFTER STRESSING).



BEARING LAYOUT

NOT TO SCALE

TYLIN INTERNATIONAL

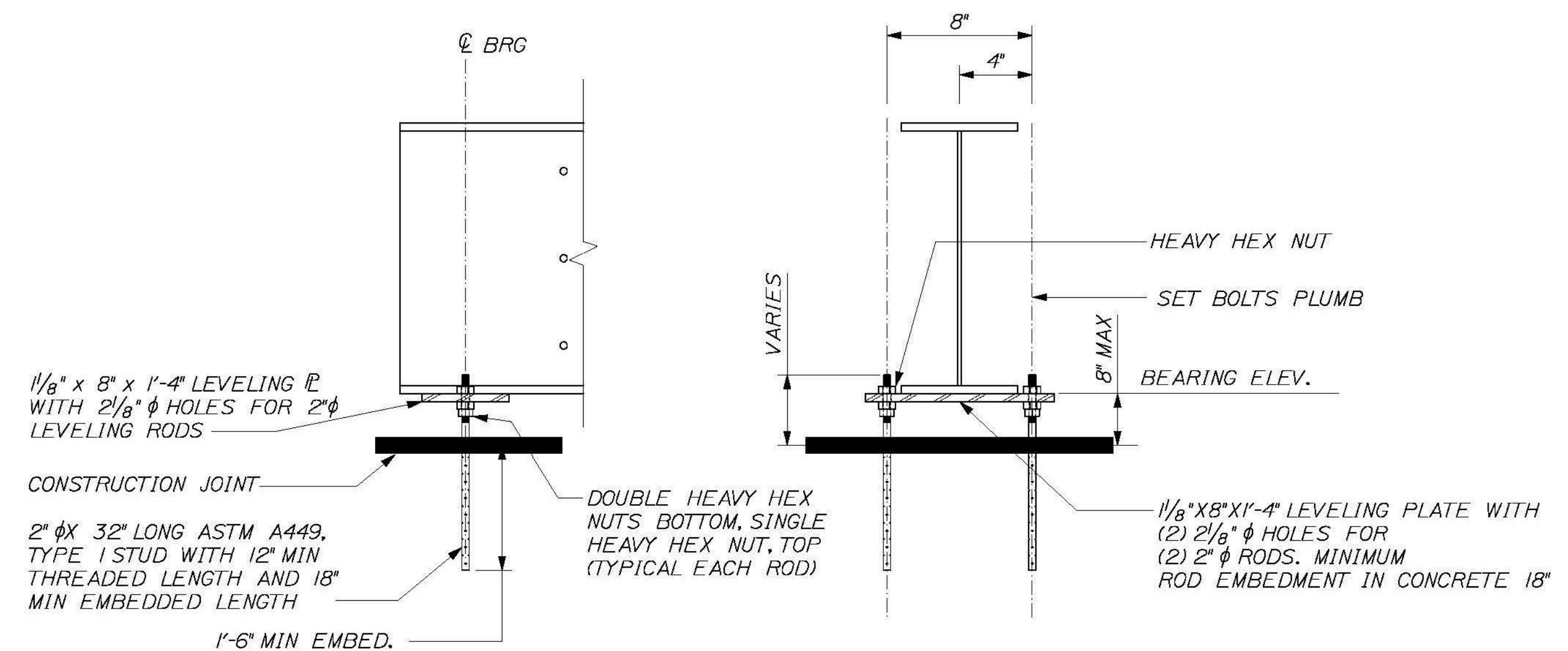
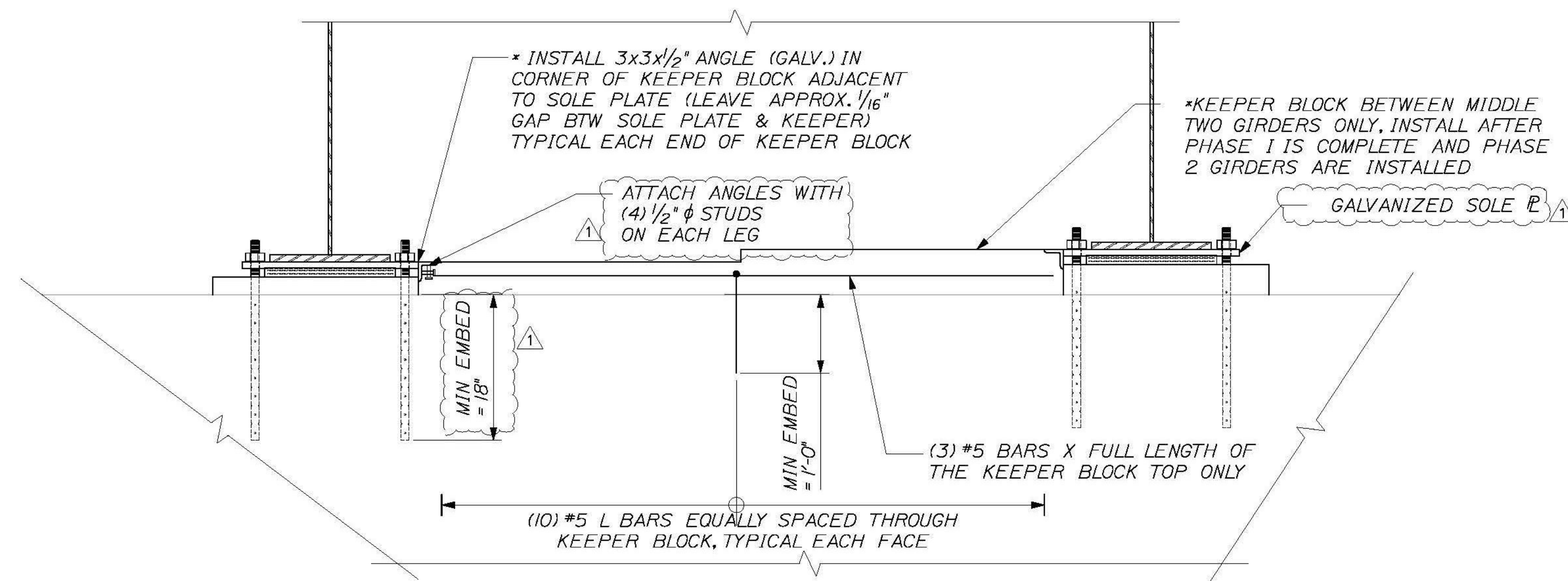
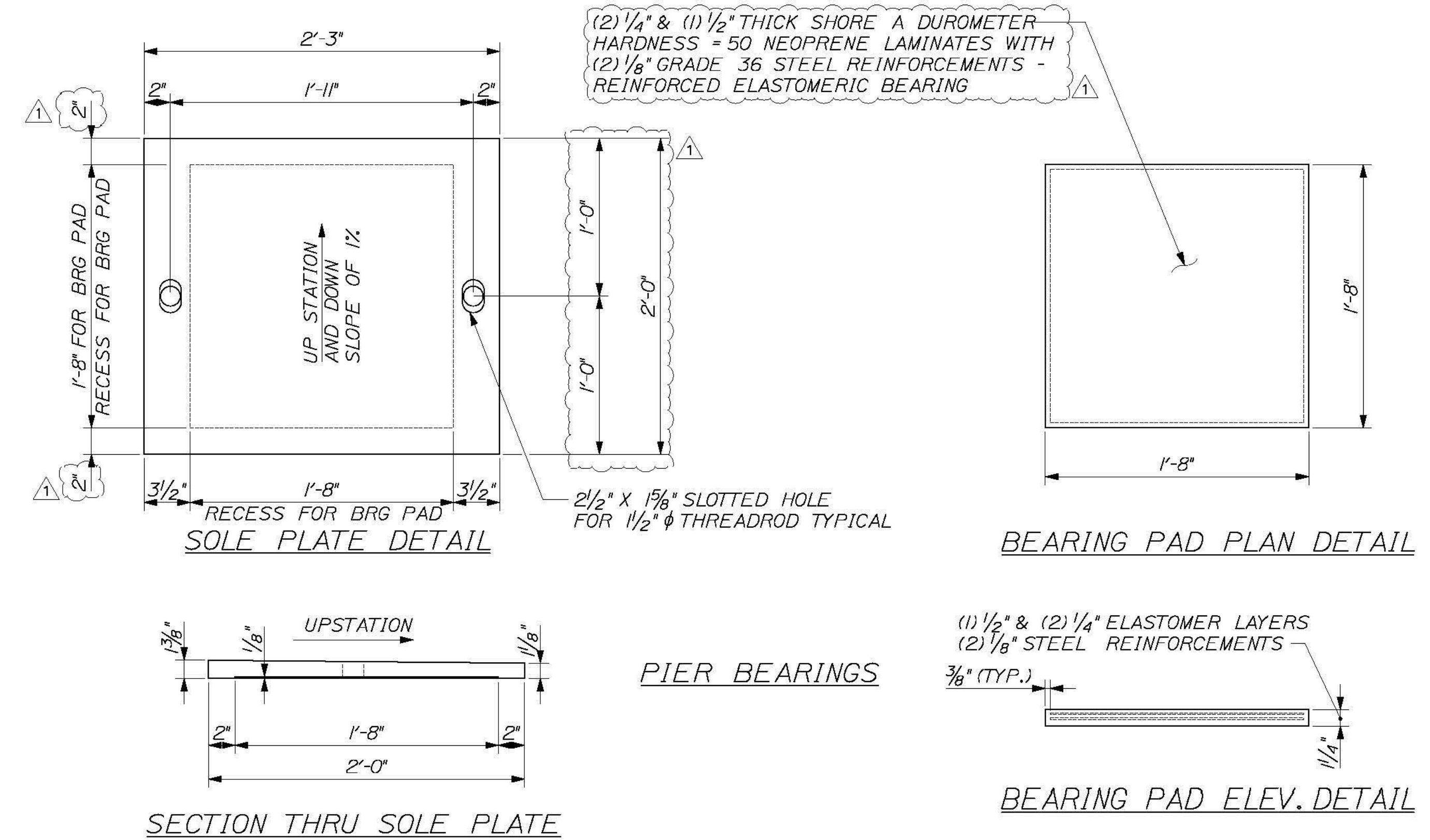
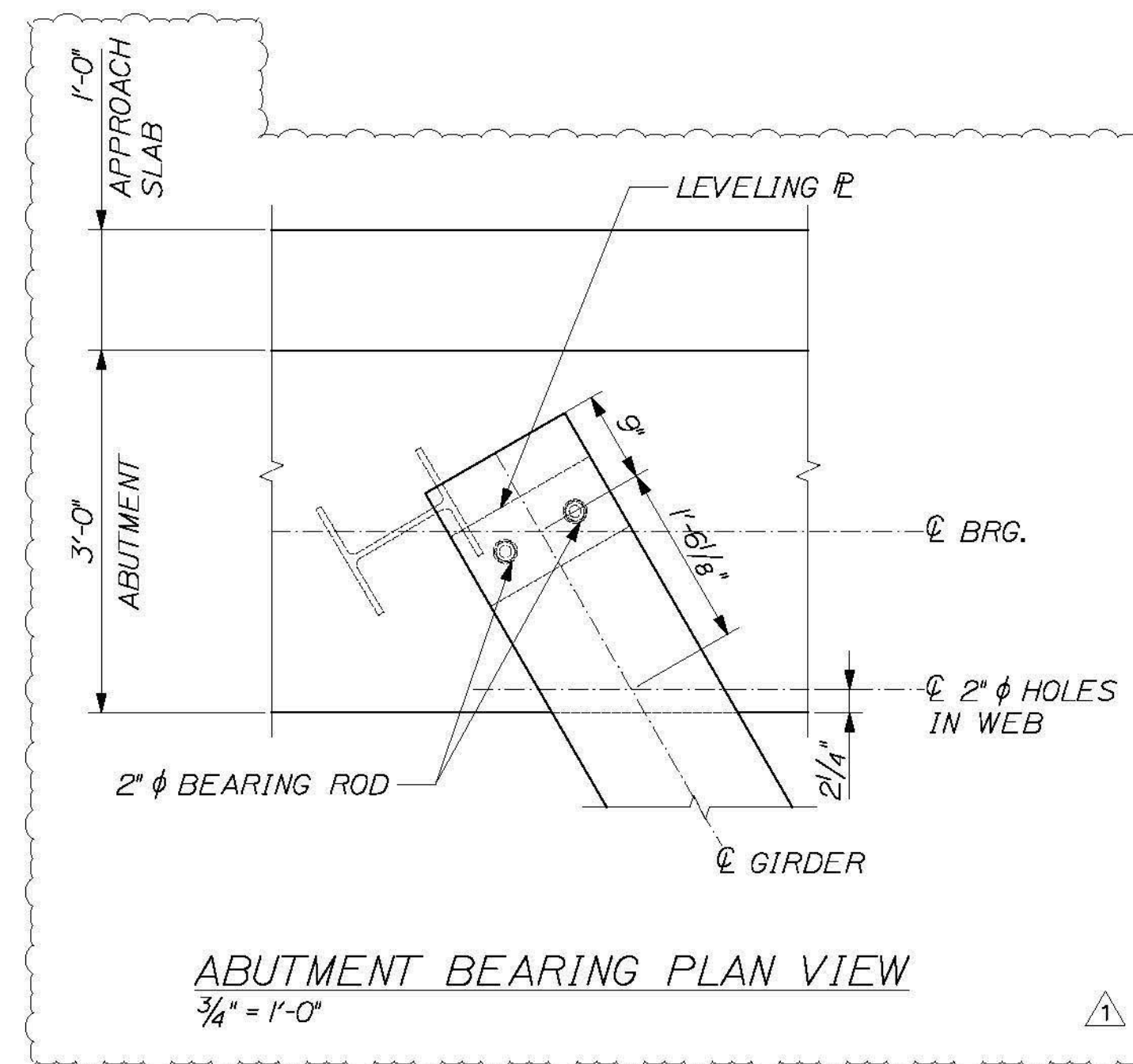
PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_brgdets.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
ELASTOMERIC BEARING DETAILS

PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 31 OF 69

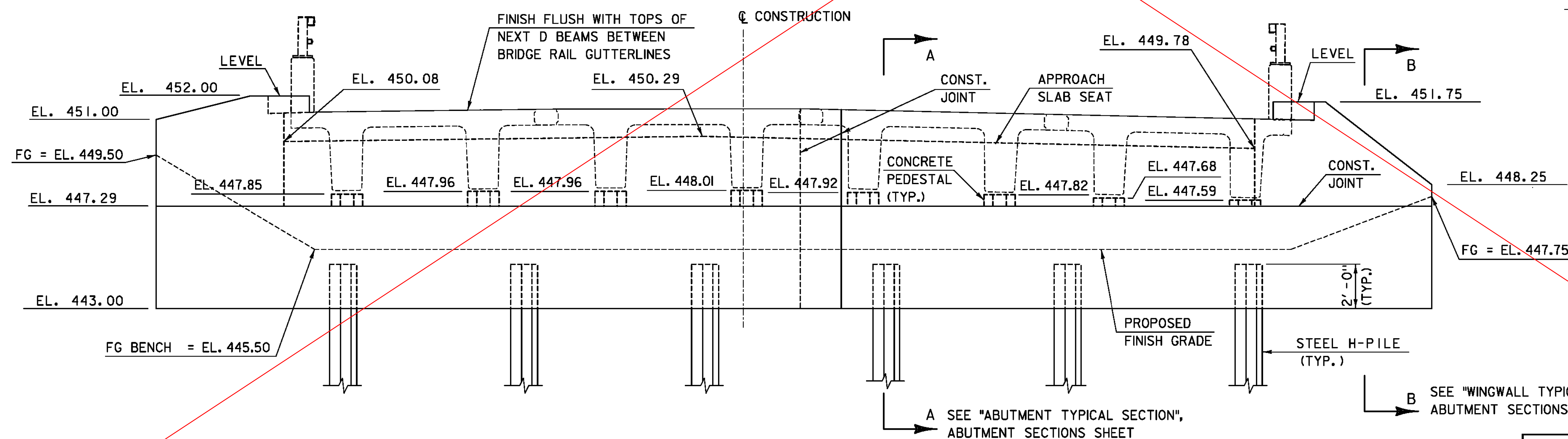
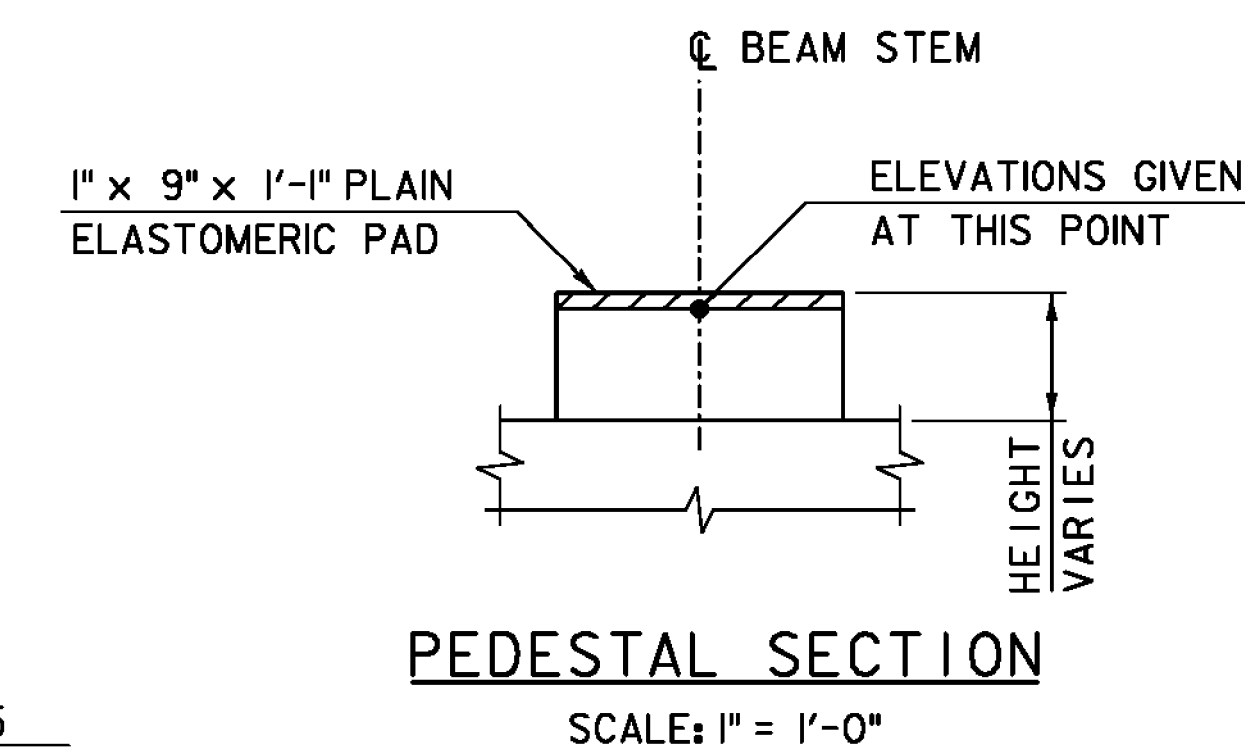
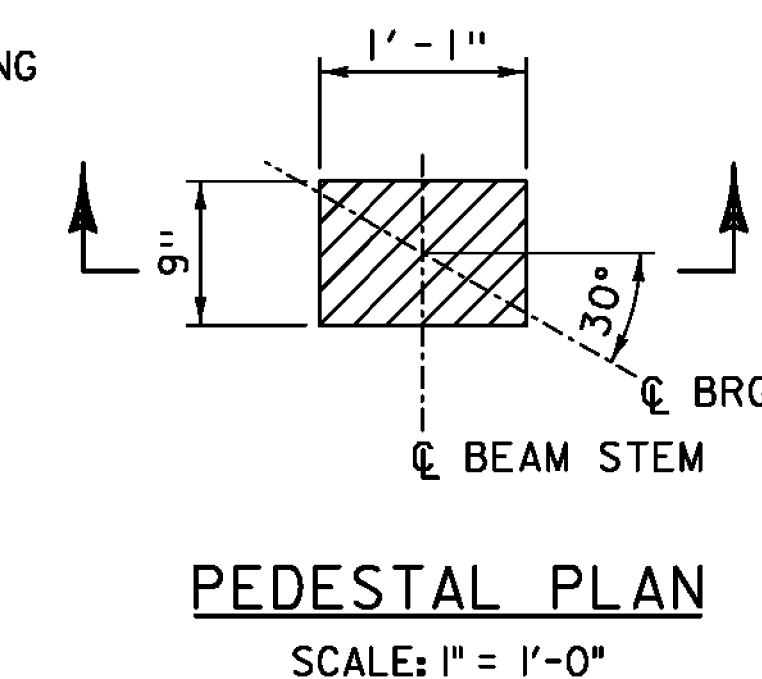
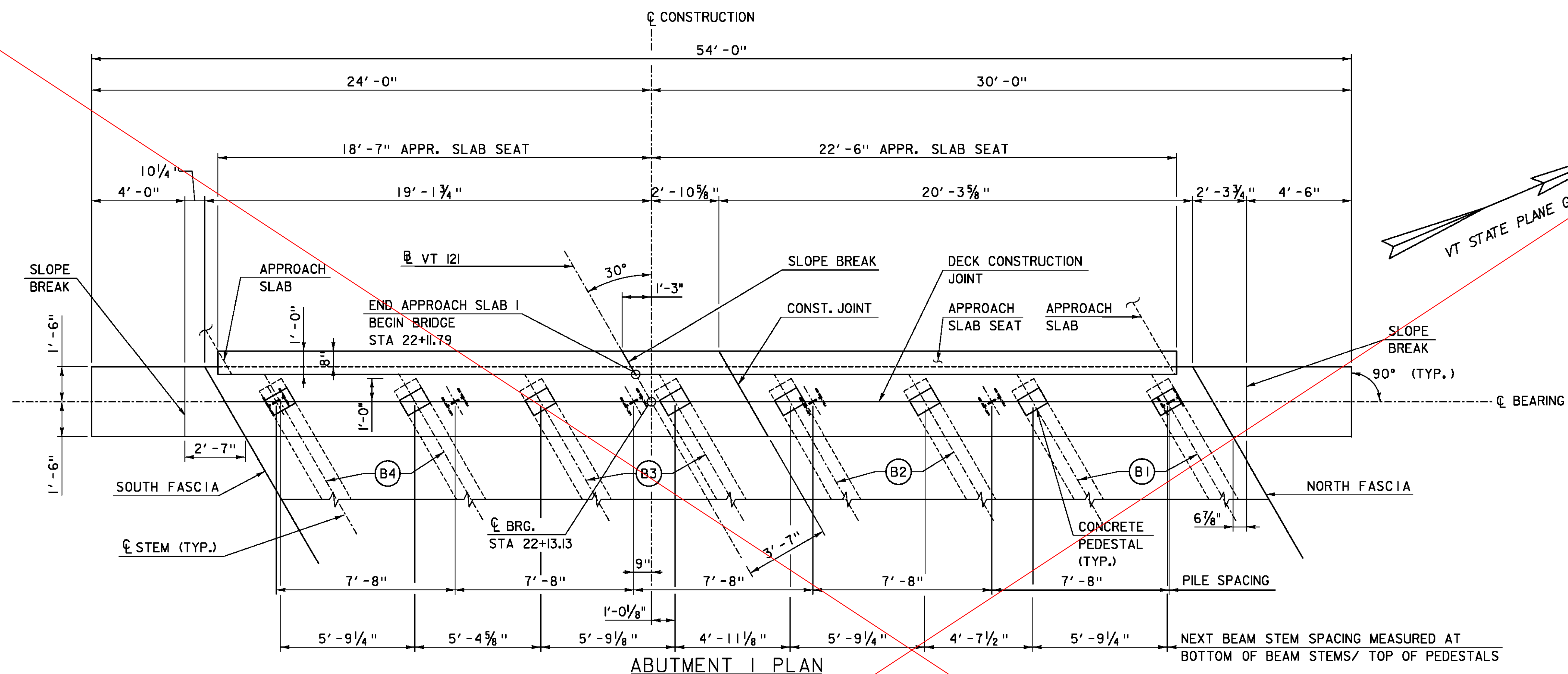
SEE SHEET 31 VE





DESIGN-DETAILED	CHECKED-REVIEWED	BY	DATE
		ETC	2014
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			





PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

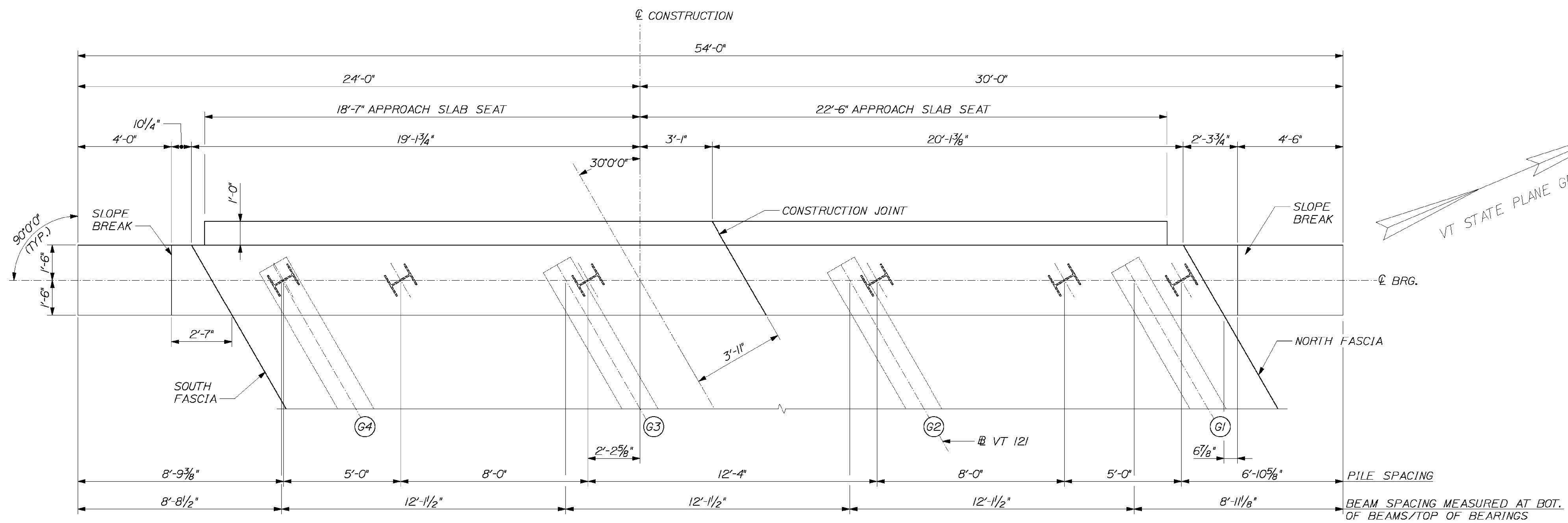
FILE NAME: z10j072bdr_abut1.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
ABUTMENT I MASONRY

PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 32 OF 69

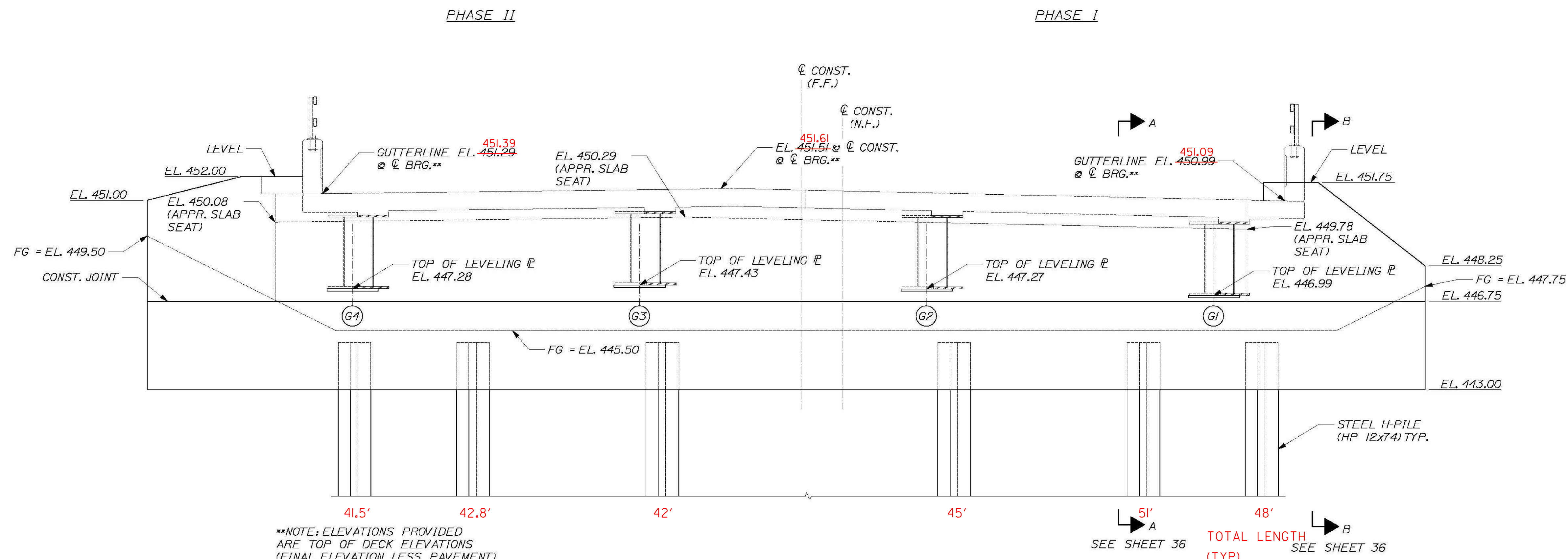
TYLIN INTERNATIONAL

SEE SHEET 32 VE



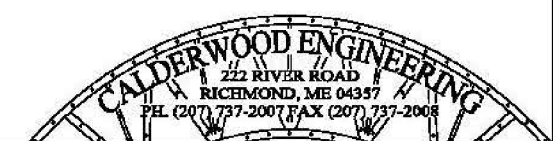
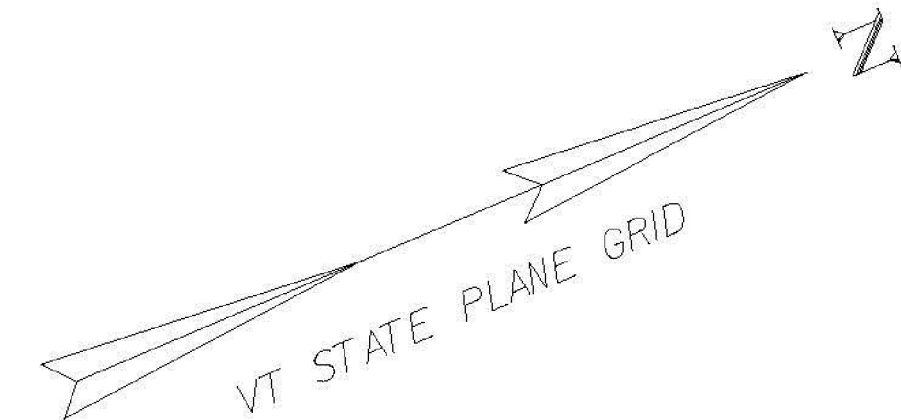


ABUTMENT #1 PLAN



ABUTMENT #1 ELEVATION

NOTE: FRONT FACE OF DECK & RAIL ONLY SHOWN FOR CLARITY



CALDERWOOD ENGINEERING, ETC.  
STRUCTURAL ENGINEERING • DETAILING SERVICES  
222 RIVER RD. RICHMOND, ME 04357 PH/FX (207) 337-2007/2007 737-2008  
PREPARED FOR  
**COLD RIVER BRIDGES, LLC**  
CEE 106-BR-14

DATE	BY	DESIGN	CHECKED	REVIEWED	REVISIONS	P.E. NUMBER	DATE
2014	ETC				1		
					2		
					3		
					4		
					FIELD CHANGES		

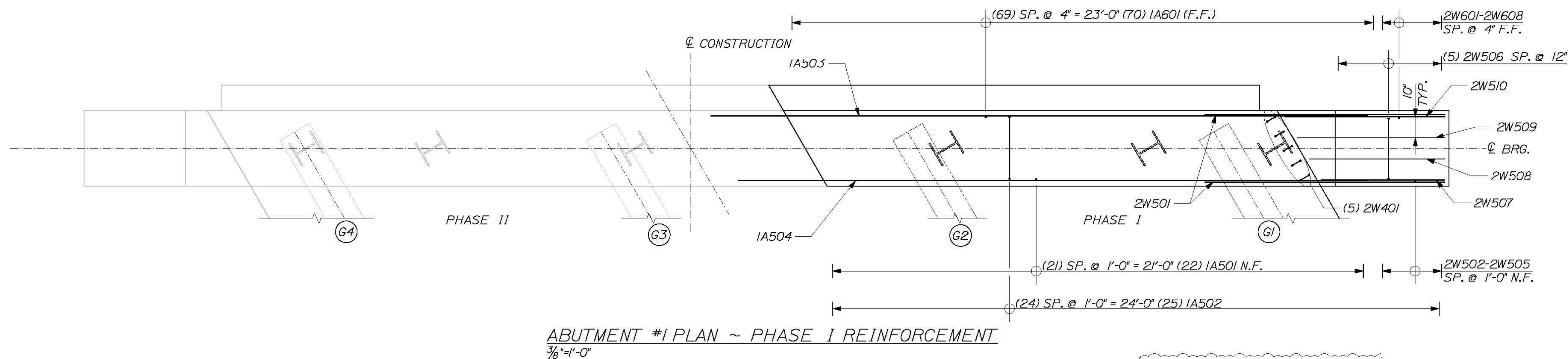
VE SUPER. DESIGN  
ROCKINGHAM VT. BR# 0126 (12)  
ABUTMENT 1 MASONRY

SHEET NUMBER  
32



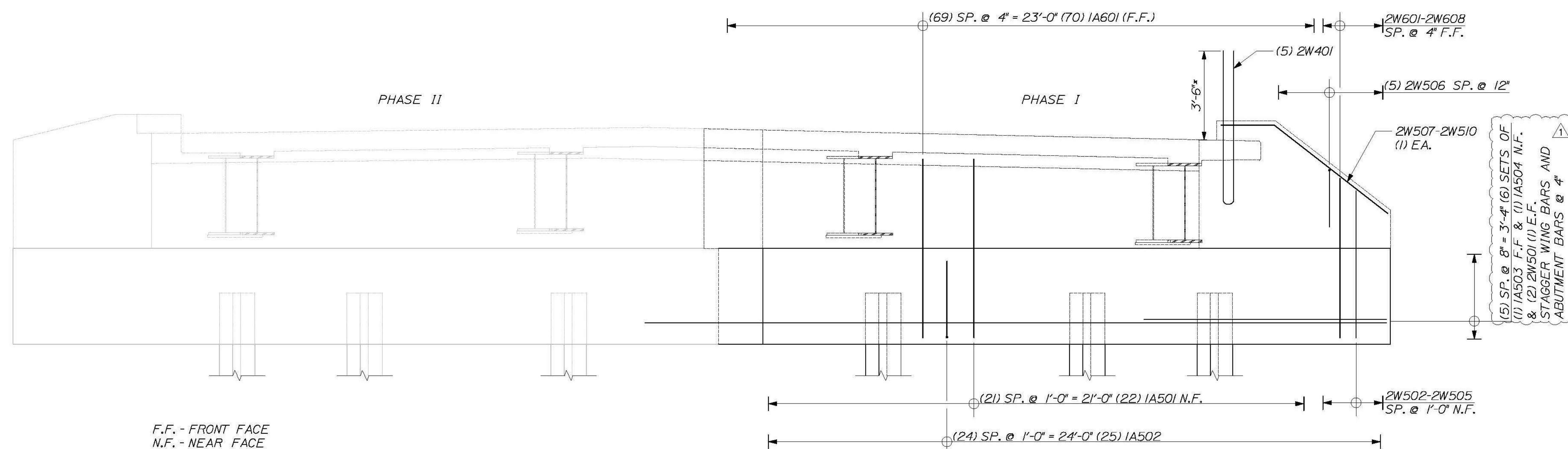






ABUTMENT #1 PLAN ~ PHASE I REINFORCEMENT  
3/8" = 1'-0"

NOTE: ADJUST 1A501 BARS IN FIELD  
AS REQ'D TO AVOID GIRDERS



ABUTMENT #1 ELEVATION ~ PHASE I REINFORCEMENT  
3/8" = 1'-0"

* TRIM 2W401 BARS IN FIELD AS NEEDED  
TO MAINTAIN COVER TO TOP OF CONCRETE  
BRIDGE RAILING END POST

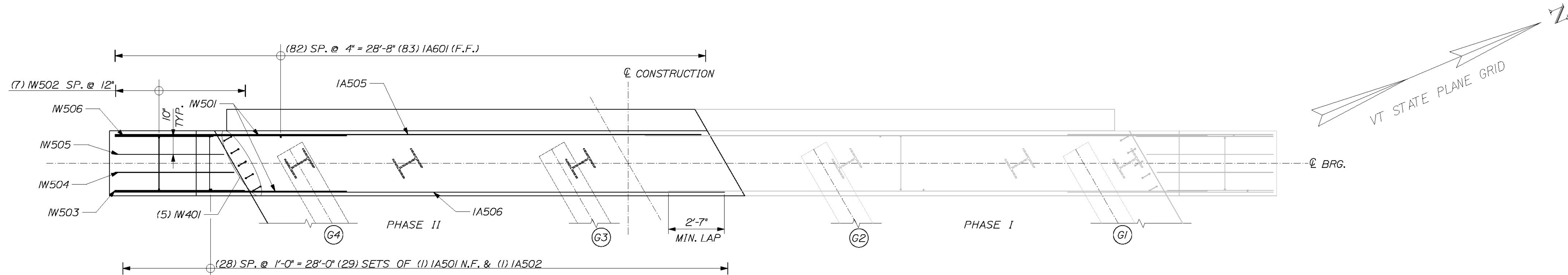
F.F. - FRONT FACE  
N.F. - NEAR FACE

DESIGN-DETAILED	CHECKED-REVIEWED	BY	DATE
		ETC	2014
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

VE SUPER. DESIGN  
ROCKINGHAM VT. BR# 0126 (12)  
ABUTMENT 1 PHASE I REINFORCEMENT

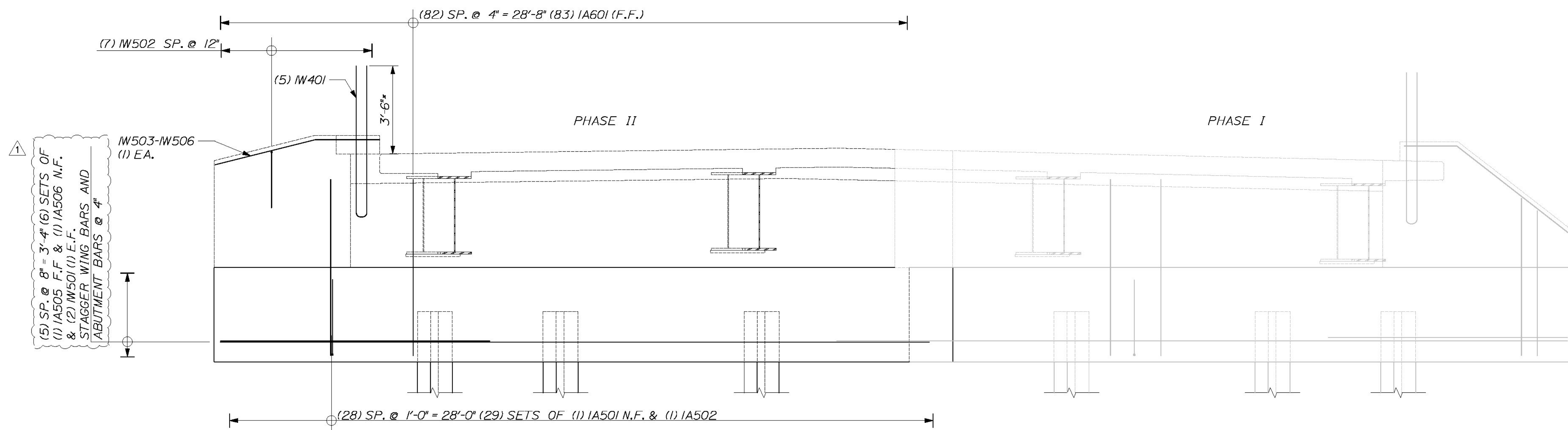






NOTE: ADJUST 1A501 BARS IN FIELD AS REQ'D TO AVOID GIRDERS

ABUTMENT #1 PLAN ~ PHASE II REINFORCEMENT  
3/8" = 1'-0"



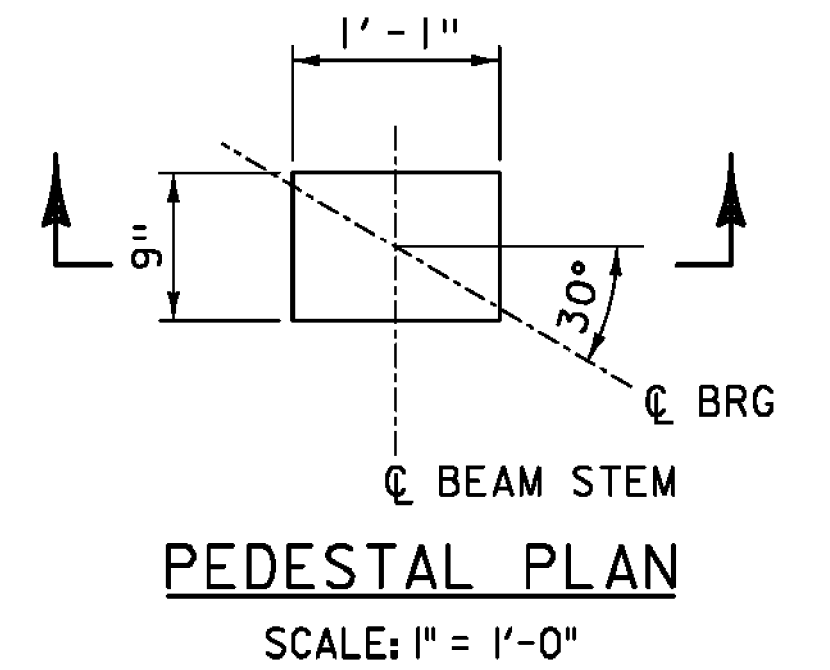
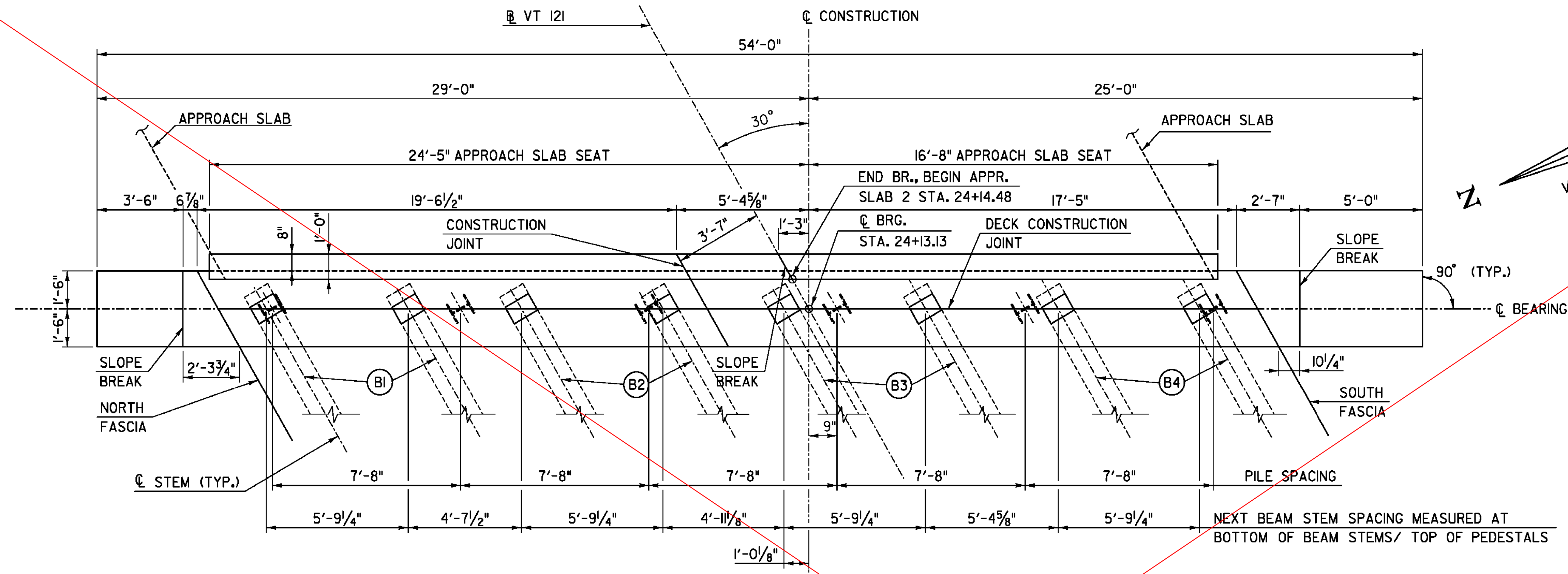
*TRIM W401 BARS IN FIELD AS NEEDED TO MAINTAIN COVER TO TOP OF CONCRETE BRIDGE RAILING END POST

ABUTMENT #1 ELEVATION ~ PHASE II REINFORCEMENT  
3/8" = 1'-0"

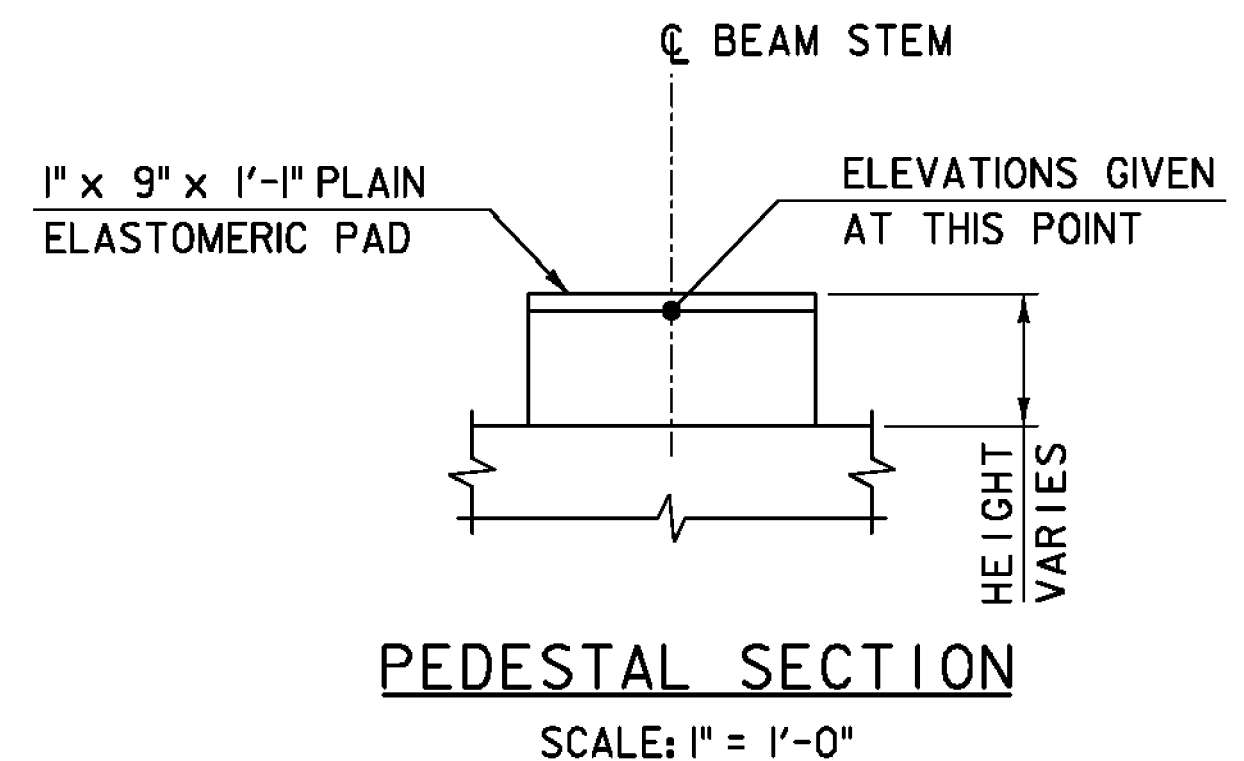
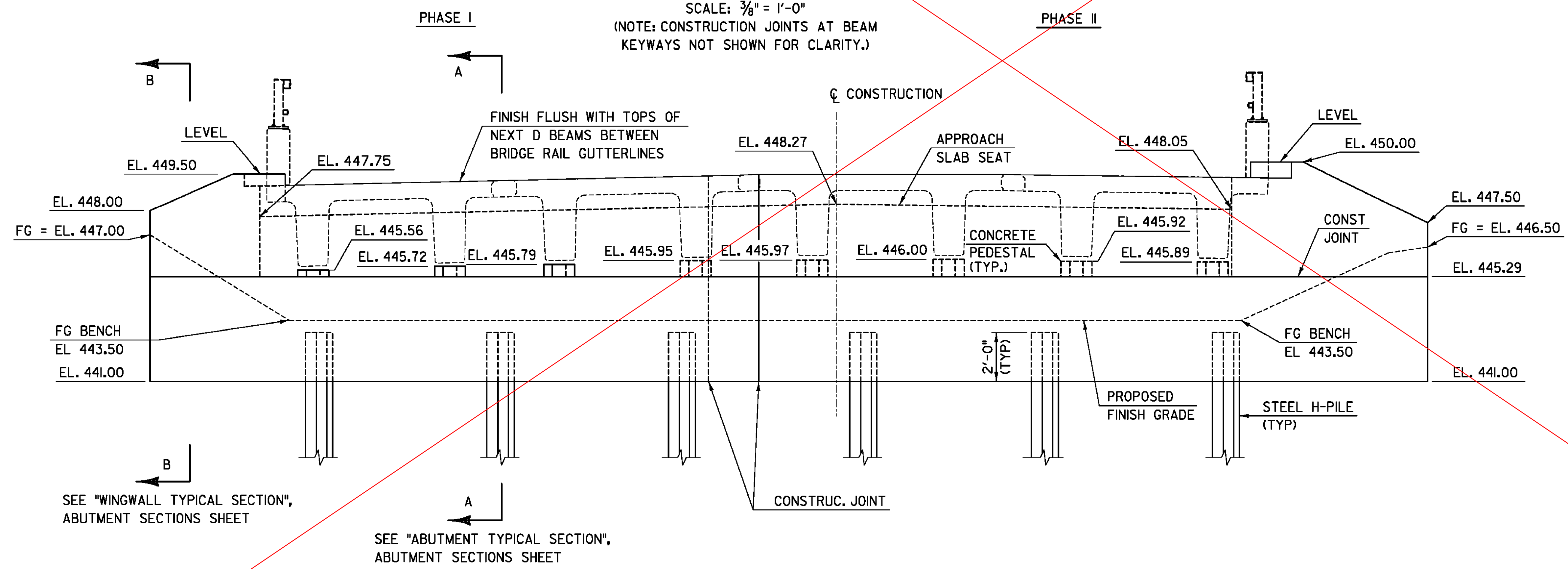
F.F. - FRONT FACE  
N.F. - NEAR FACE

CALDERWOOD ENGINEERING, ETC. STRUCTURAL ENGINEERING • DETAILING SERVICES 222 RIVER RD, RICHMOND, ME 04357 PH/FX (207) 737-2007 FAX (207) 737-2008		PREPARED FOR: <b>COLD RIVER BRIDGES, LLC</b>		CEE 106-BR-14	
VE SUPER. DESIGN ROCKINGHAM VT. BR# 0126 (12)		ABUTMENT 1 PHASE II REINFORCEMENT		SHEET NUMBER <b>33a</b>	
DESIGN-DETAILED	BY	DATE	P.E. NUMBER	DATE:	
CHECKED-REVIEWED	ETC	2014			
REVISIONS 1					
REVISIONS 2					
REVISIONS 3					
REVISIONS 4					
FIELD CHANGES					





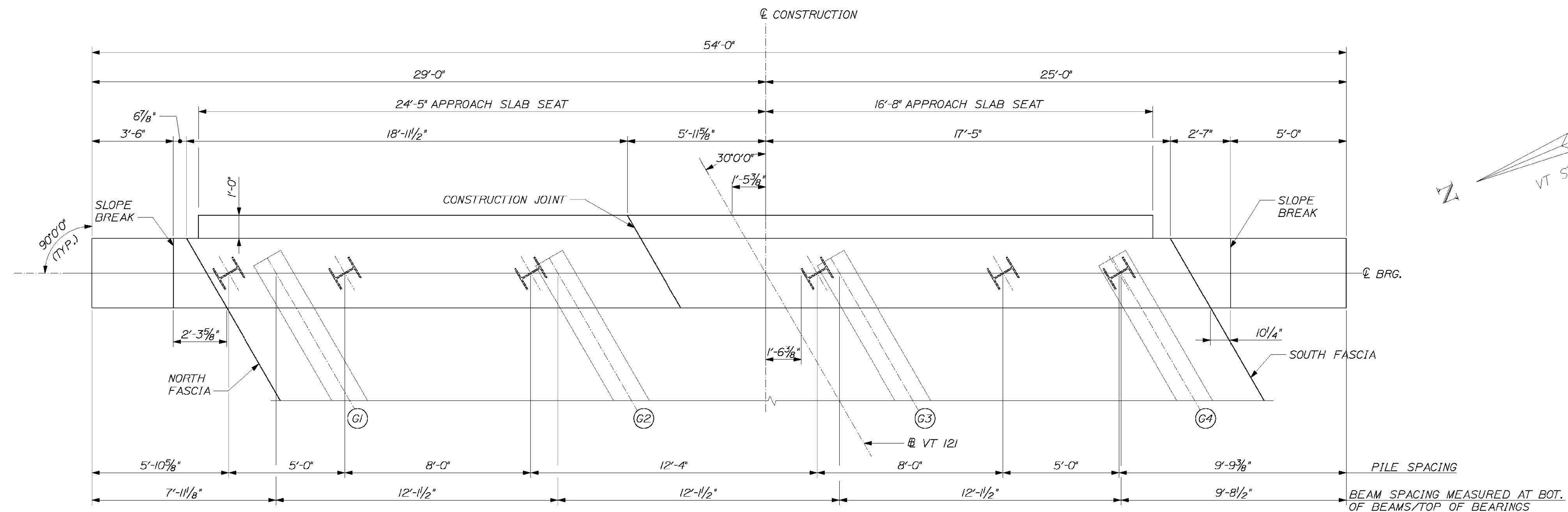
**ABUTMENT 2 PLAN**  
SCALE:  $\frac{3}{8}$ " = 1'-0"  
(NOTE: CONSTRUCTION JOINTS AT BEAM  
KEYWAYS NOT SHOWN FOR CLARITY.)



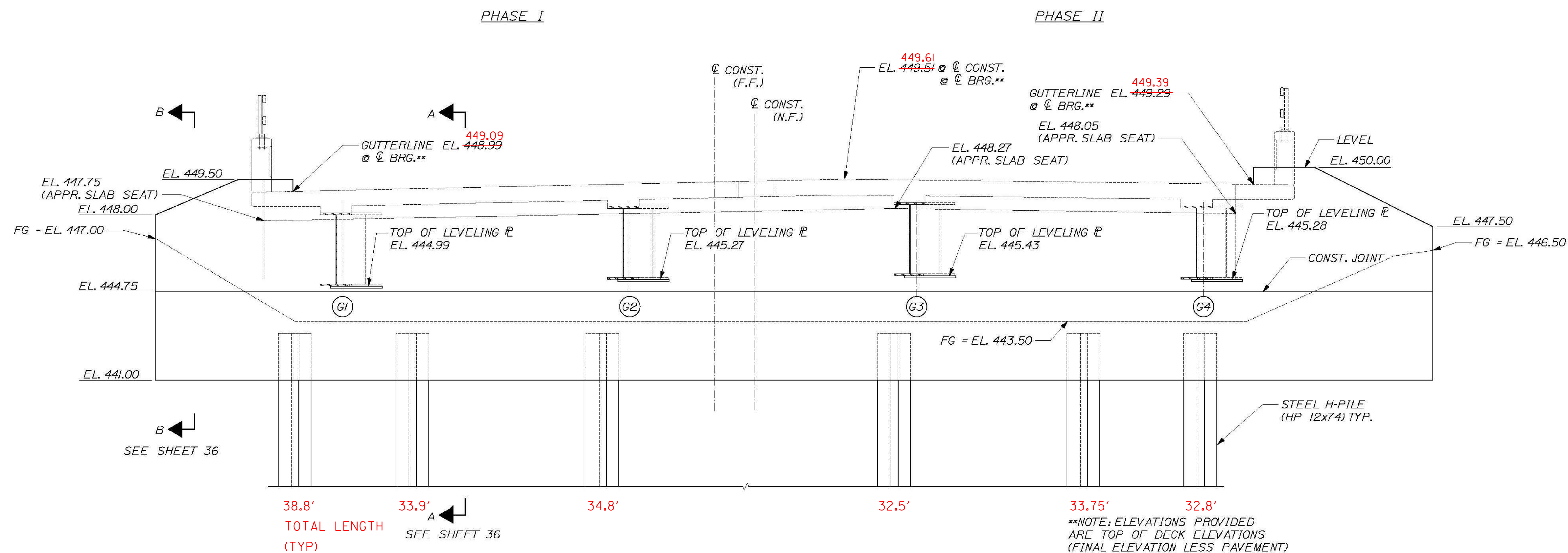
**ABUTMENT 2 ELEVATION**  
SCALE:  $\frac{3}{8}$ " = 1'-0"

TYLIN INTERNATIONAL	PROJECT NAME:	ROCKINGHAM
	PROJECT NUMBER:	BRF 0126(12)
	FILE NAME:	z10j072bdr_abut2.dgn
	PROJECT LEADER:	R. HEBERT
	DESIGNED BY:	S. KELLER
	ABUTMENT 2 MASONRY	
	PLOT DATE:	8/26/2014
	DRAWN BY:	B. CARTER
	CHECKED BY:	T. POULIN
	SHEET	34 OF 69





ABUTMENT #2 PLAN



ABUTMENT #2 ELEVATION

NOTE: FRONT FACE OF DECK & RAIL ONLY SHOWN FOR CLARITY

****NOTE: ELEVATIONS PROVIDED  
ARE TOP OF DECK ELEVATIONS  
(FINAL ELEVATION LESS PAVEMENT)**

**CALDERWOOD ENGINEERING, ETC.**  
**STRUCTURAL ENGINEERING • DETAILING SERVICES**  
222 RIVER RD. RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:  
**COLD RIVER BRIDGES, LLC**

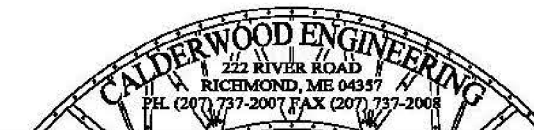
		BY	DATE
		ETC	2014
DESIGN-DETAILED			
CHECKED-REVIEWED			
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REVISIONS 134			

VE SUPER. DESIGN  
ROCKINGHAM VT. BRF 0126 (12)

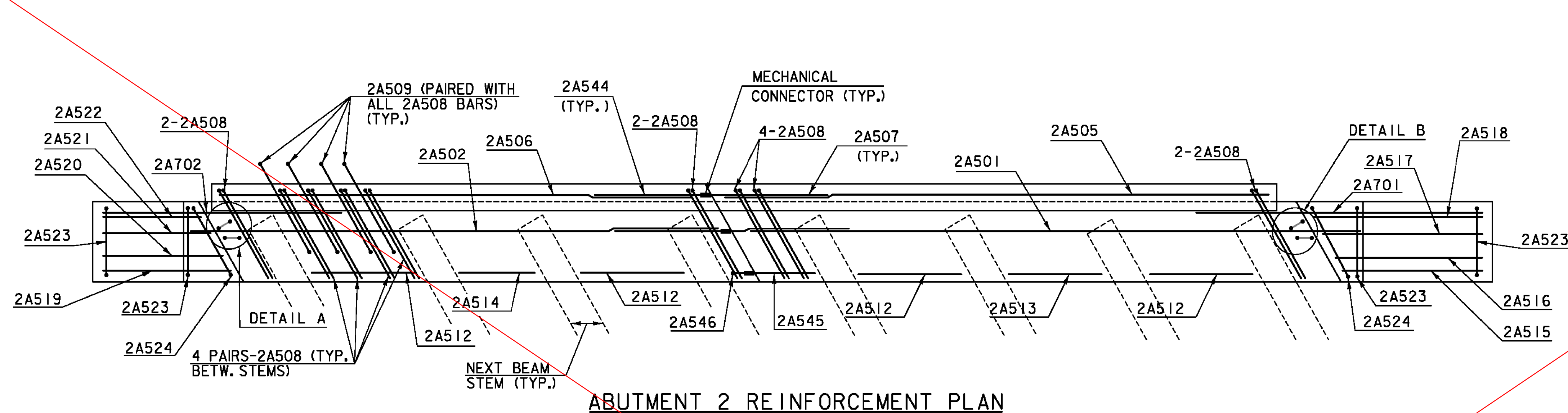
ABUTMENT 2 MASONRY

SHEET NUMBER

34





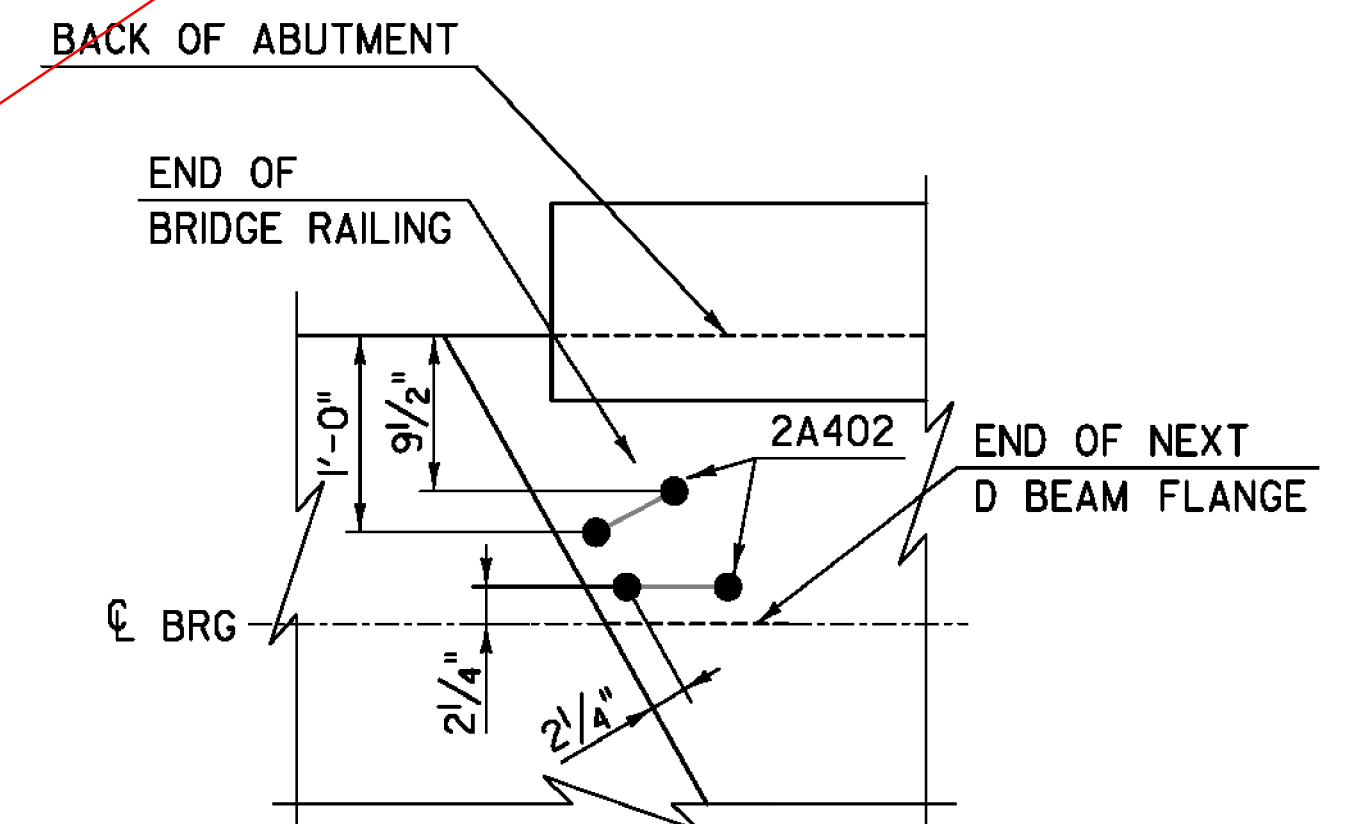


ABUTMENT 2 REINFORCEMENT PLAN

SCALE: N.T.S.  
NOTE: PLAN VIEW IS FOR LAYOUT OF SPECIFIC BARS.  
NOT ALL ABUTMENT BARS ARE SHOWN IN PLAN VIEW.

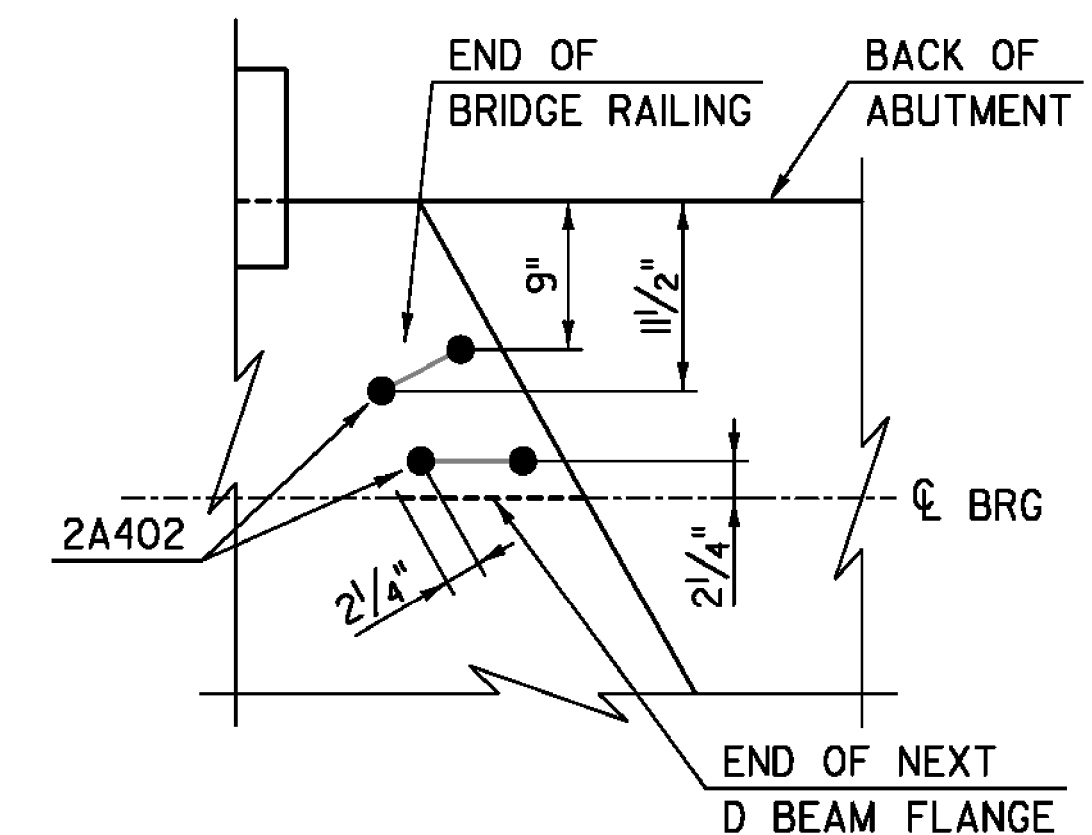
TYPICAL PEDESTAL REINFORCEMENT PLAN

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



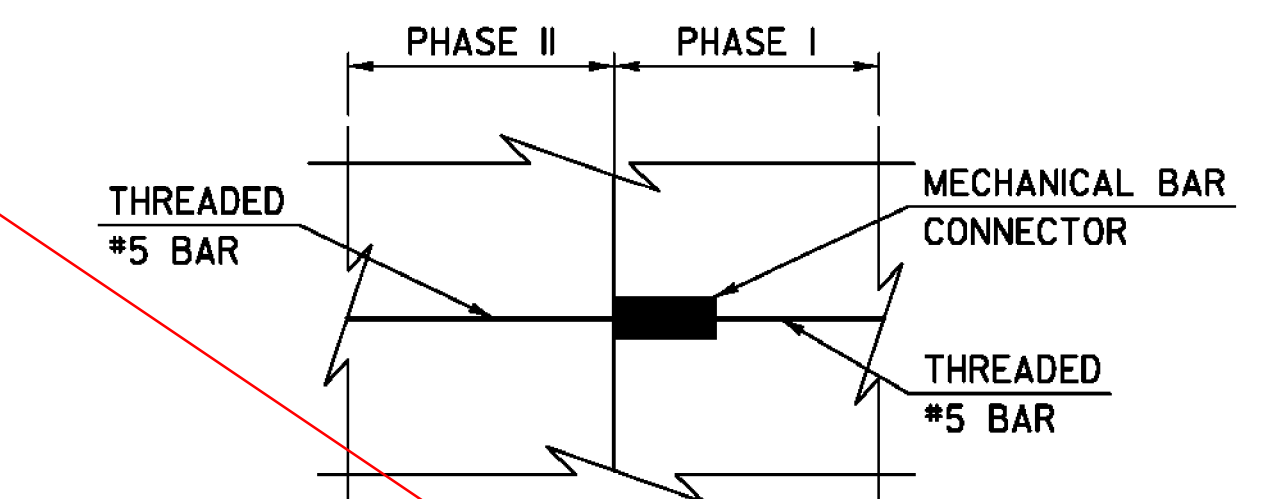
DETAIL A

SCALE: 1" = 1'-0"



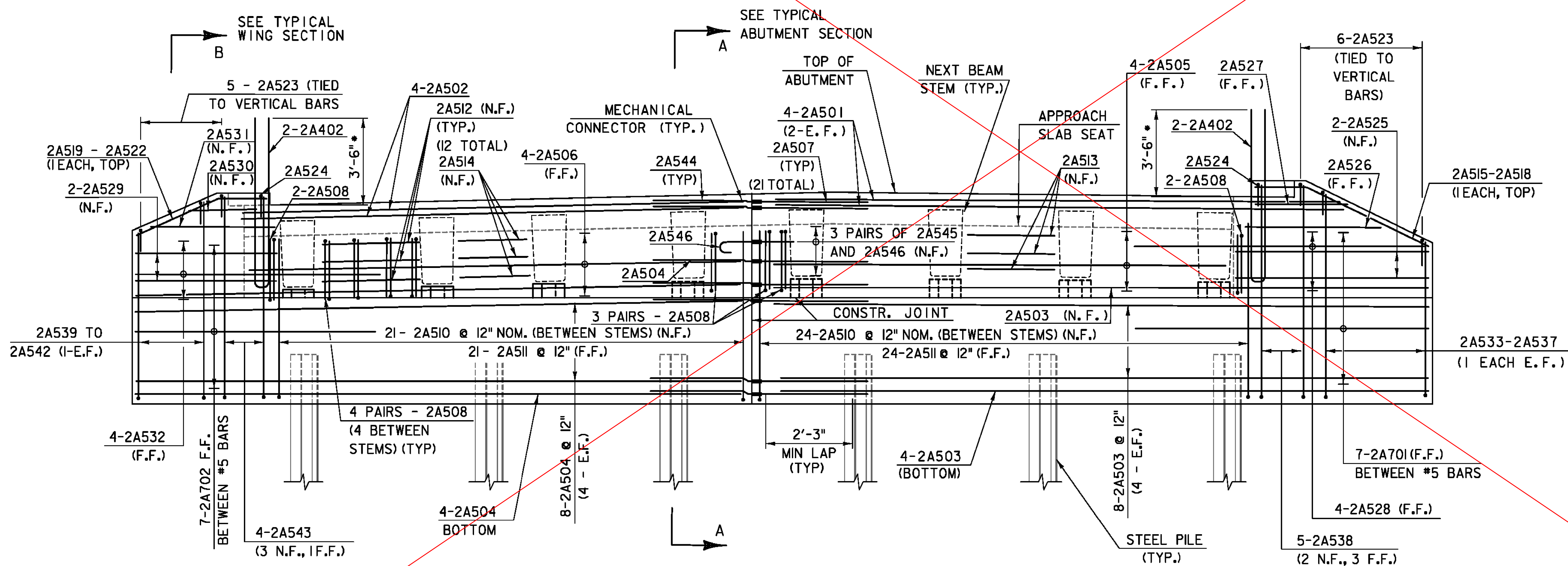
DETAIL B

SCALE: 1" = 1'-0"



TYPICAL MECHANICAL CONNECTOR DETAIL

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



ABUTMENT 2 REINFORCEMENT ELEVATION

SCALE: N.T.S.

NOTE: 2A509 BARS (APPROACH SLAB DOWELS) NOT SHOWN  
IN ELEVATION VIEW FOR CLARITY.

* TRIM 1A402 BARS IN FIELD AS NEEDED TO MAINTAIN COVER  
TO TOP OF CONCRETE BRIDGE RAILING END POST.

LEGEND

N.F. = NEAR FACE  
F.F. = FAR FACE  
E.F. = EACH FACE

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

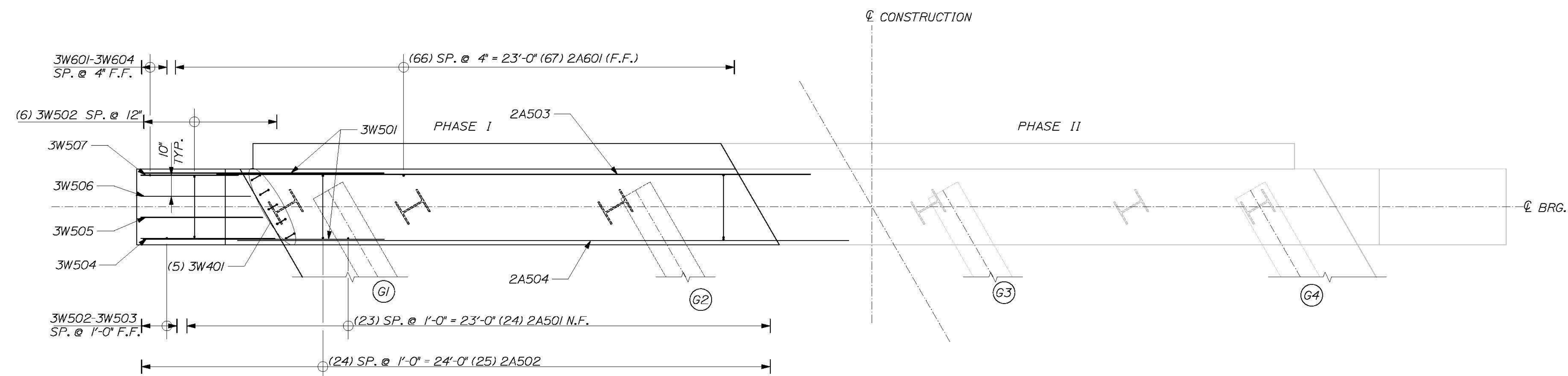
FILE NAME: z10j072bdr_abut2R.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
ABUTMENT 2 REINFORCEMENT

PLOT DATE: 8/26/2014  
DRAWN BY: B. CARTER  
CHECKED BY: T. POULIN  
SHEET 35 OF 69

TYLIN INTERNATIONAL

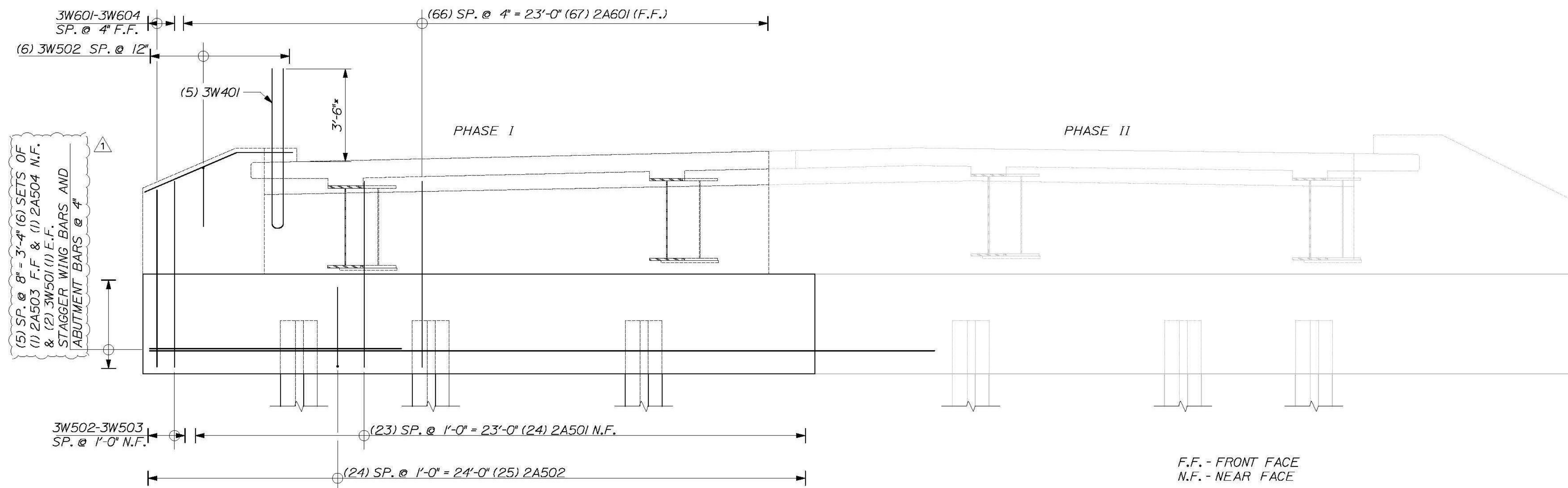
SEE SHEET 35 VE





NOTE: ADJUST 2A501 BARS IN FIELD  
AS REQ'D TO AVOID GIRDERS

ABUTMENT #2 PLAN ~ PHASE I REINFORCEMENT  
3/8"=1'-0"



* TRIM 3W401 BARS IN FIELD AS NEEDED  
TO MAINTAIN COVER TO TOP OF CONCRETE  
BRIDGE RAILING END POST

ABUTMENT #2 ELEVATION ~ PHASE I REINFORCEMENT  
3/8"=1'-0"

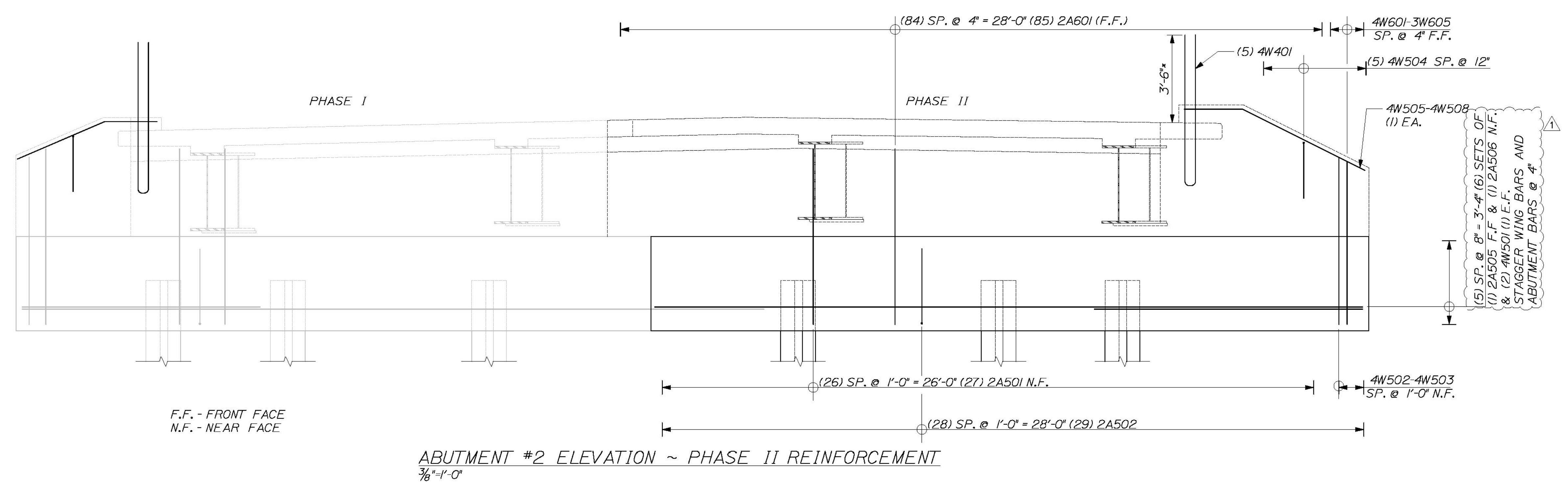
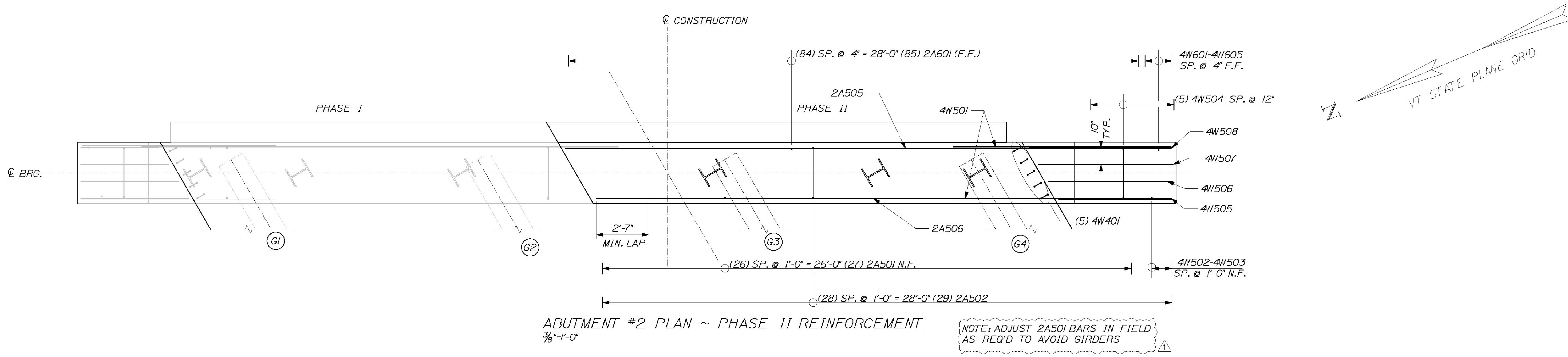
F.F. - FRONT FACE  
N.F. - NEAR FACE

DESIGN/DETAILED	CHECKED/REVIEWED	BY	DATE
		ETC	2014
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

VE SUPER. DESIGN  
ROCKINGHAM VT. BR# 0126 (12)  
ABUTMENT 2 PHASE I REINFORCEMENT







VE SUPER. DESIGN

ROCKINGHAM VT. BR# 0126 (12)

ABUTMENT 2 PHASE 2 REINFORCEMENT

SHEET NUMBER

35a

CALDERWOOD ENGINEERING, ETC.

STRUCTURAL ENGINEERING • DETAILING SERVICES

222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007 FAX (207) 737-2008

PREPARED FOR:

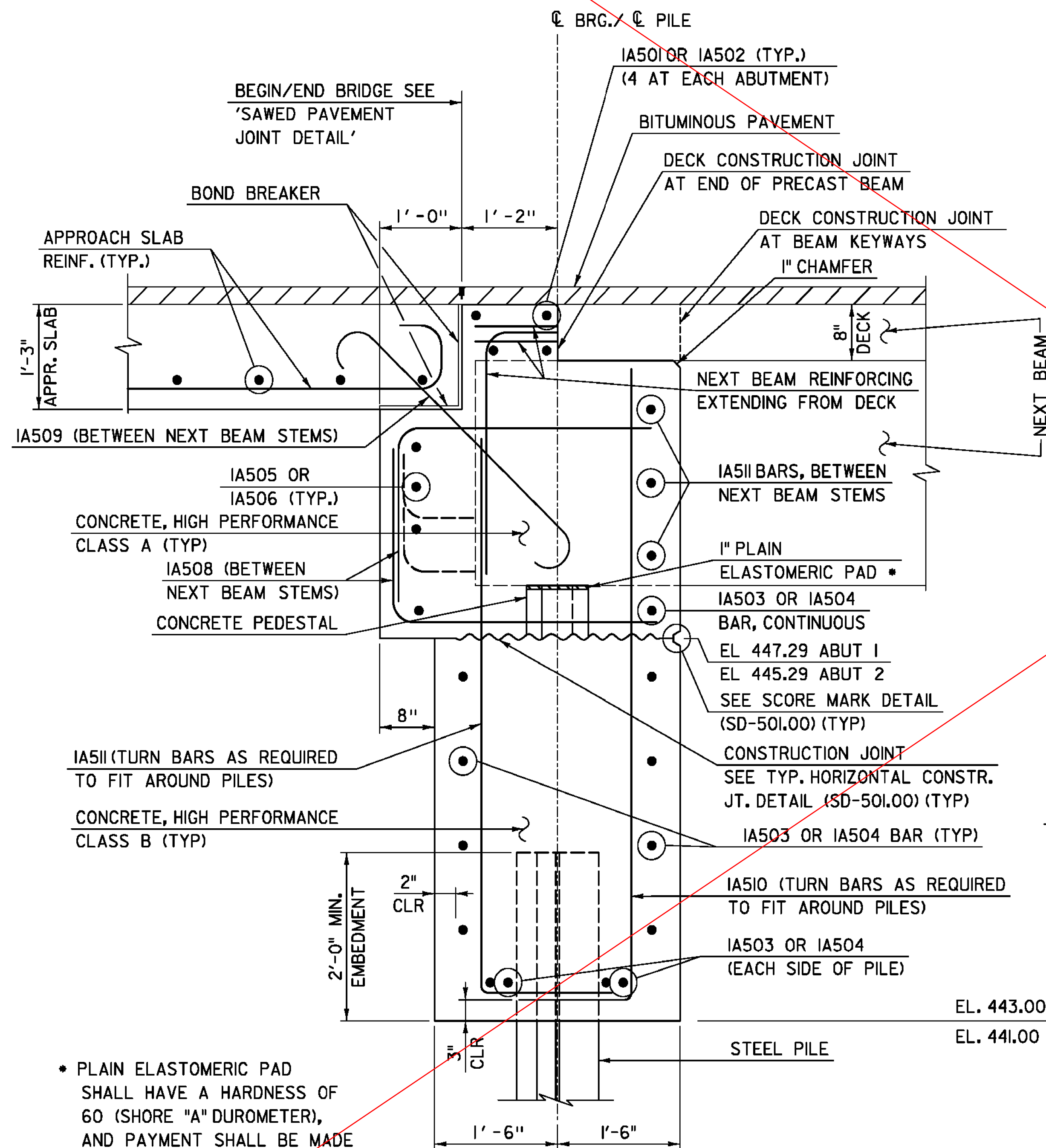
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

DESIGN-DETAILED	CHECKED-REVIEWED	BY	DATE
		ETC	2014

REVISIONS	P.E. NUMBER	DATE
1		
2		
3		
4		
FIELD CHANGES		

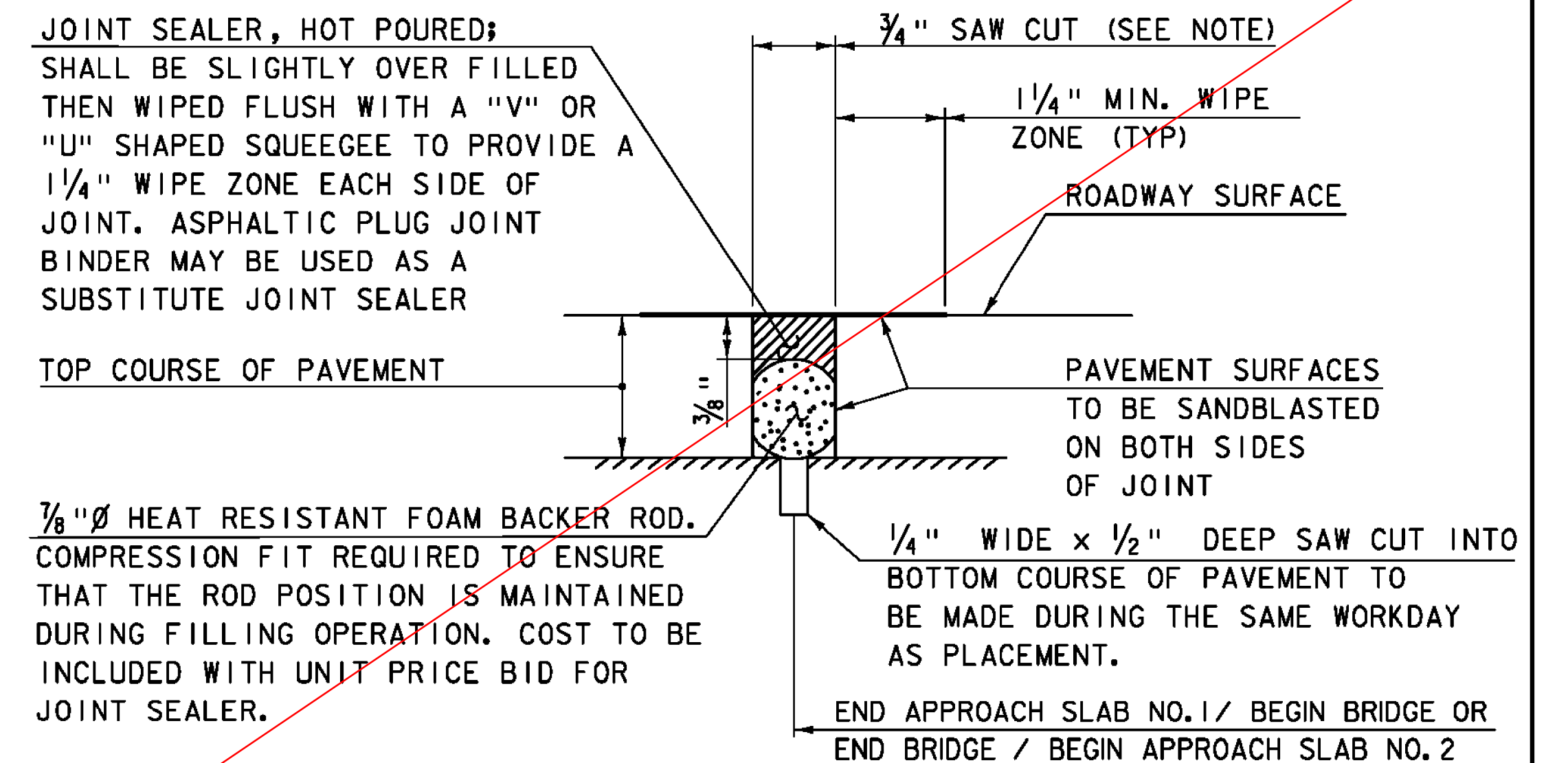




• PLAIN ELASTOMERIC PAD  
SHALL HAVE A HARDNESS OF  
60 (SHORE "A" DUROMETER),  
AND PAYMENT SHALL BE MADE  
UNDER ITEM 531.16.

4 - IA702 (BETWEEN  
IA504 BARS)

WINGWALL TYPICAL SECTION  
NOT TO SCALE  
(REINFORCEMENT FOR NW WINGWALL SHOWN.  
REINFORCEMENT FOR OTHER WINGWALLS SIMILAR.)



ITEM 524.11, "JOINT SEALER, HOT POURED"  
SAWED PAVEMENT JOINT DETAIL  
N. T. S.

NOTE: JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR  
OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE  
MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE  
CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR  
PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR  
TO APPLYING THE JOINT SEALER.

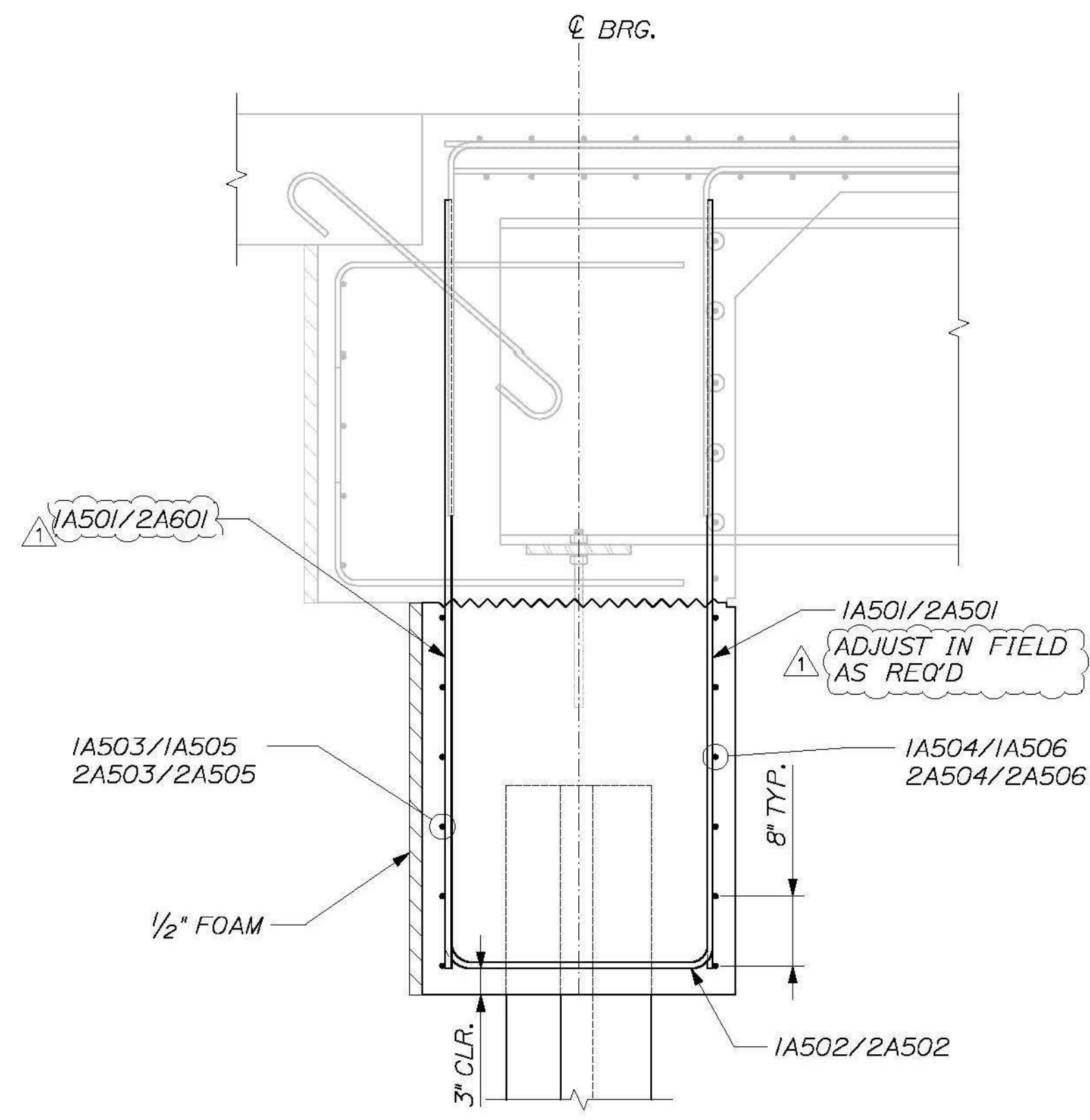
PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_abutsect.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
ABUTMENT SECTIONS

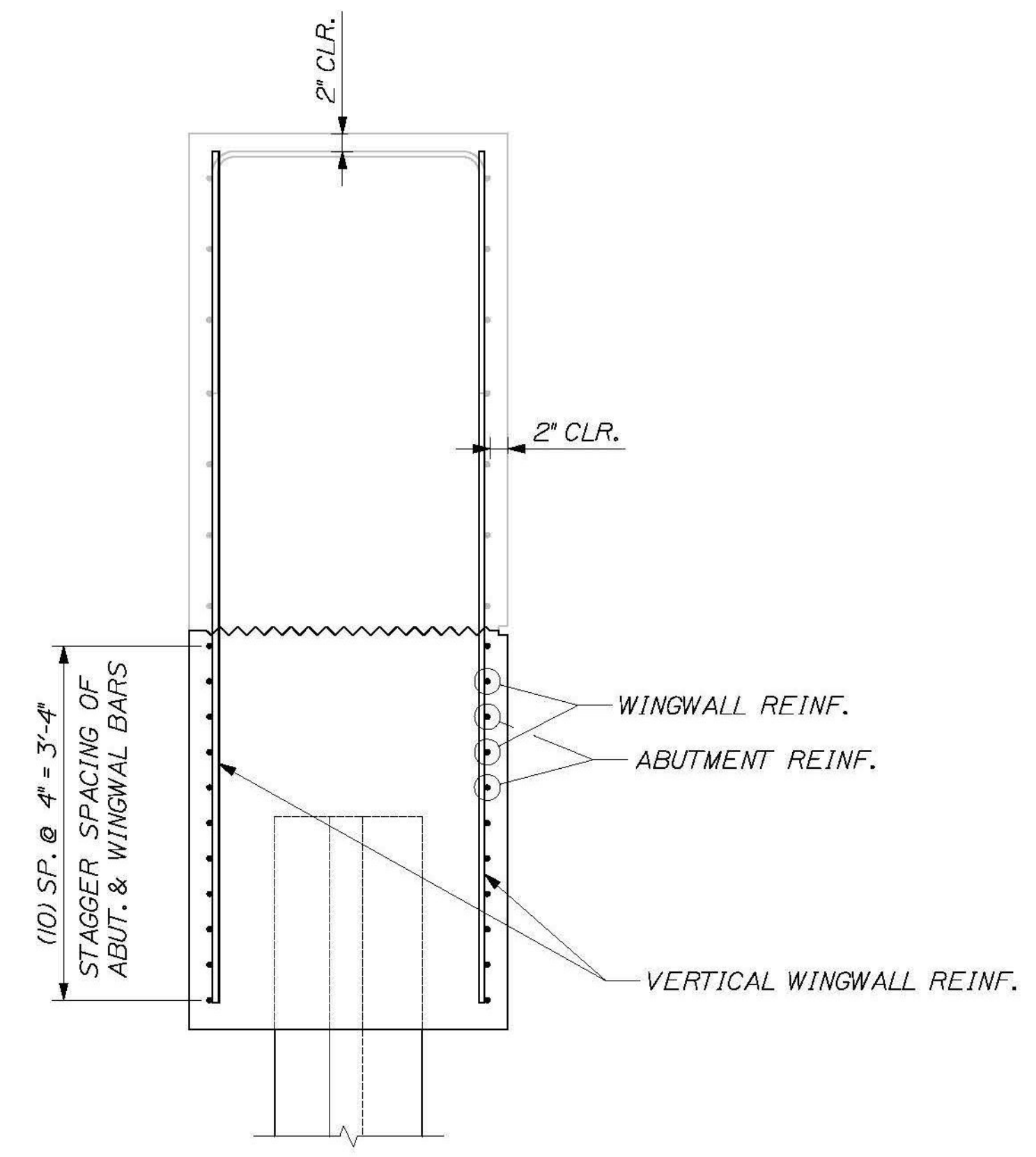
PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 36 OF 69

TYLIN INTERNATIONAL





ABUTMENT REINFORCING SECTION  
3/4" = 1'-0"



WINGWALL REINFORCING SECTION  
3/4" = 1'-0"



VE SUPER. DESIGN  
ROCKINGHAM VT. BR# 0126 (12)

ABUTMENT SECTIONS

SHEET NUMBER  
36

DESIGN-Detailed	BY	DATE
CHECKED-Reviewed	ETC	2014
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

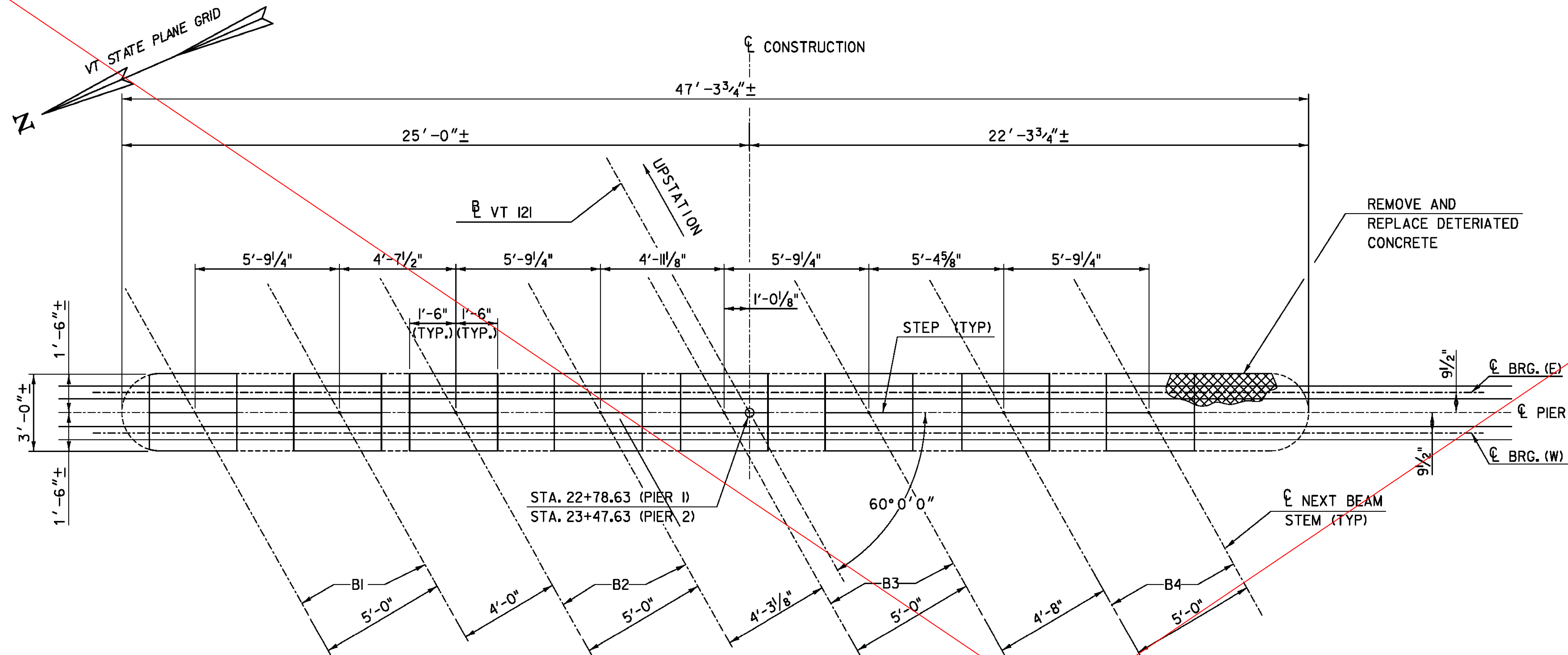
PREPARED FOR:  
**COLD RIVER BRIDGES, LLC**

DATE:

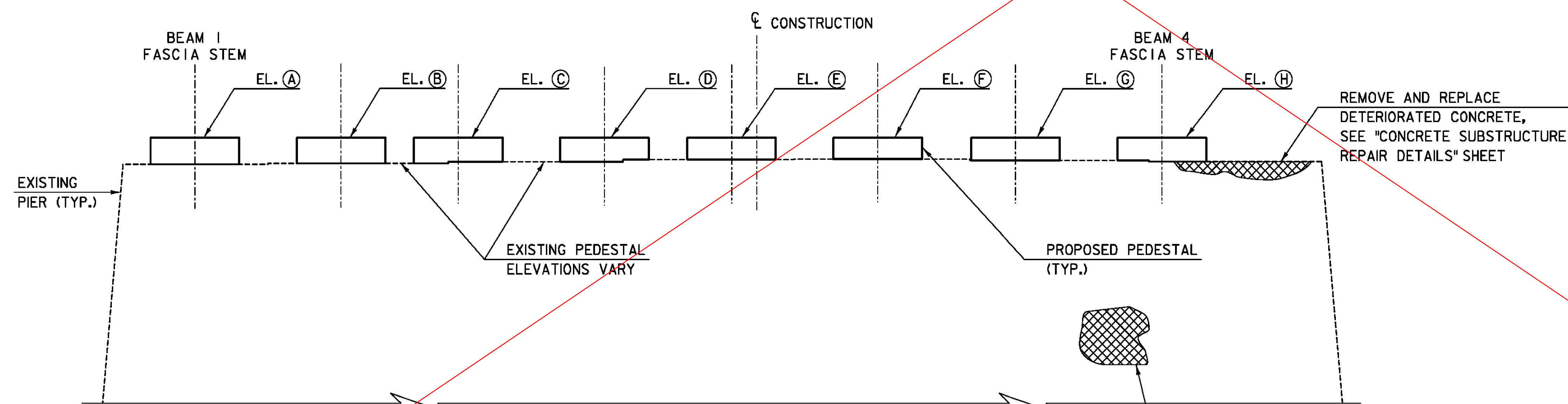
CALDERWOOD ENGINEERING, ETC.  
STRUCTURAL ENGINEERING • DETAILING SERVICES  
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

CEE 106-BR-14



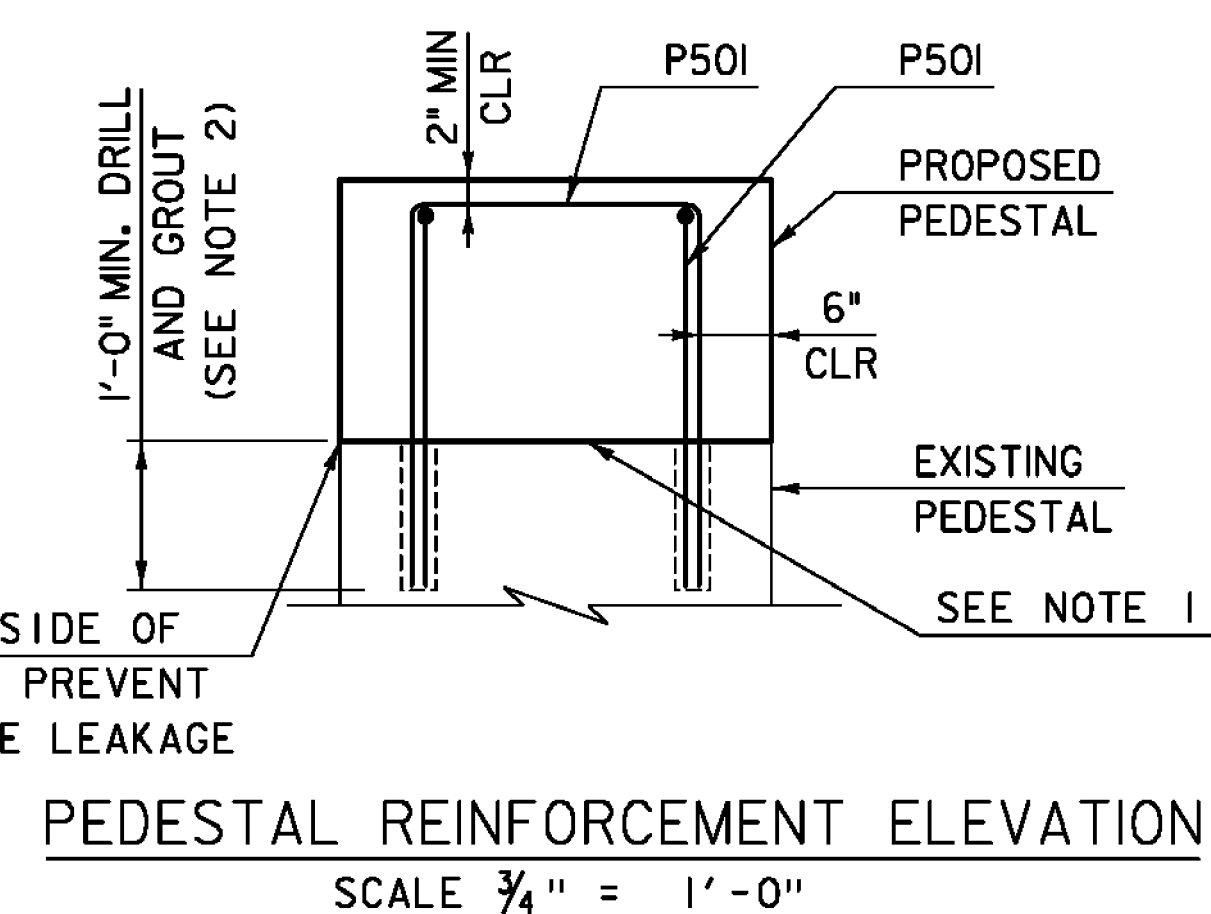
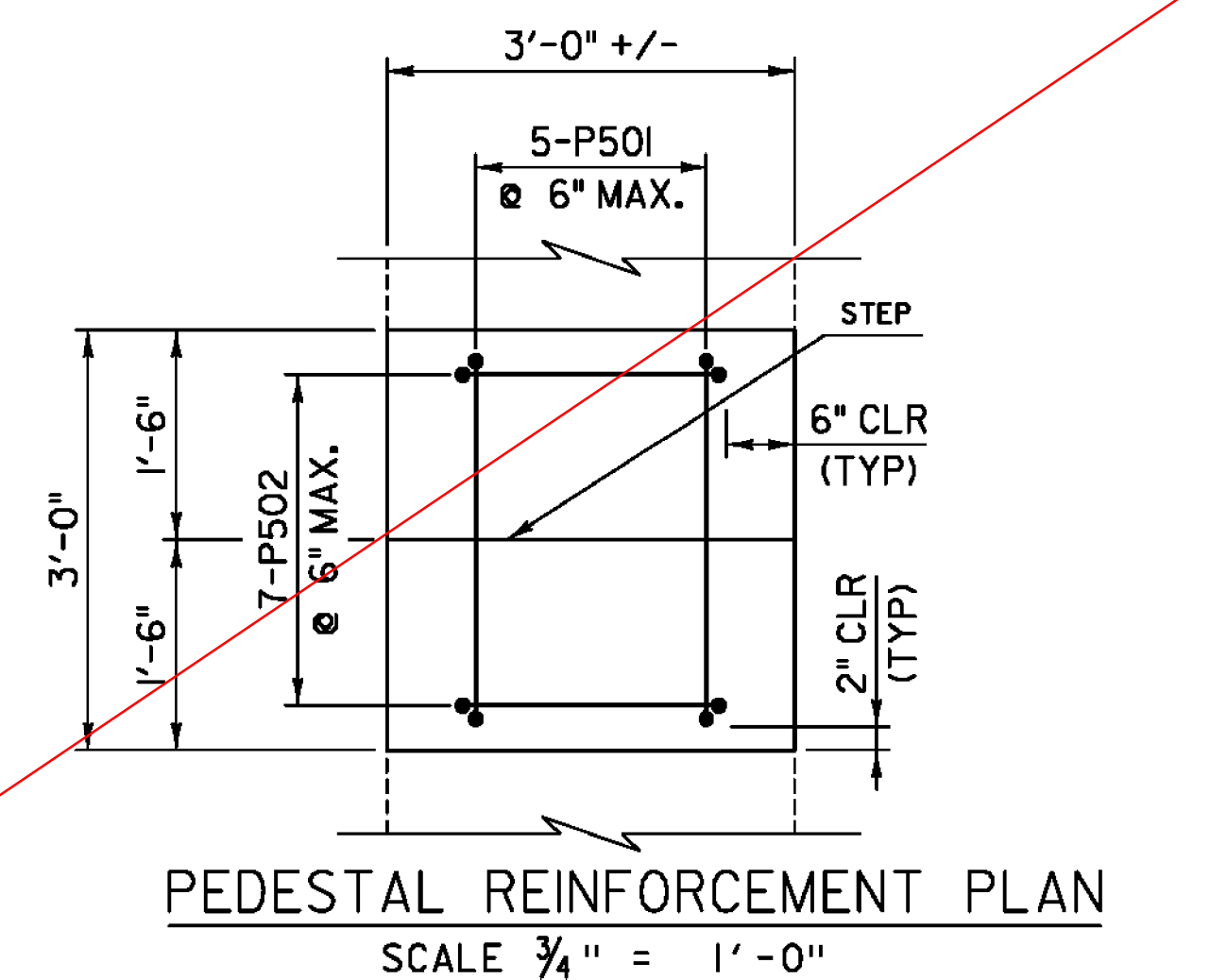


PIERS 1 AND 2 - PLAN  
SCALE 3/8" = 1'-0"



PIERS 1 AND 2 - PARTIAL ELEVATION  
SCALE 3/8" = 1'-0"

- NOTES:**
- FOR A PERIOD OF AT LEAST ONE HOUR BEFORE THE PLACEMENT OF PEDESTAL CONCRETE MATERIAL, THE PREPARED SURFACE SHALL BE FLOODED WITH WATER. AFTER REMOVAL OF ALL FREE WATER, THE PEDESTAL CONCRETE MATERIAL SHALL BE DEPOSITED ON THE DAMPENED SURFACE.
  - DIAMETER OF DRILLED HOLE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

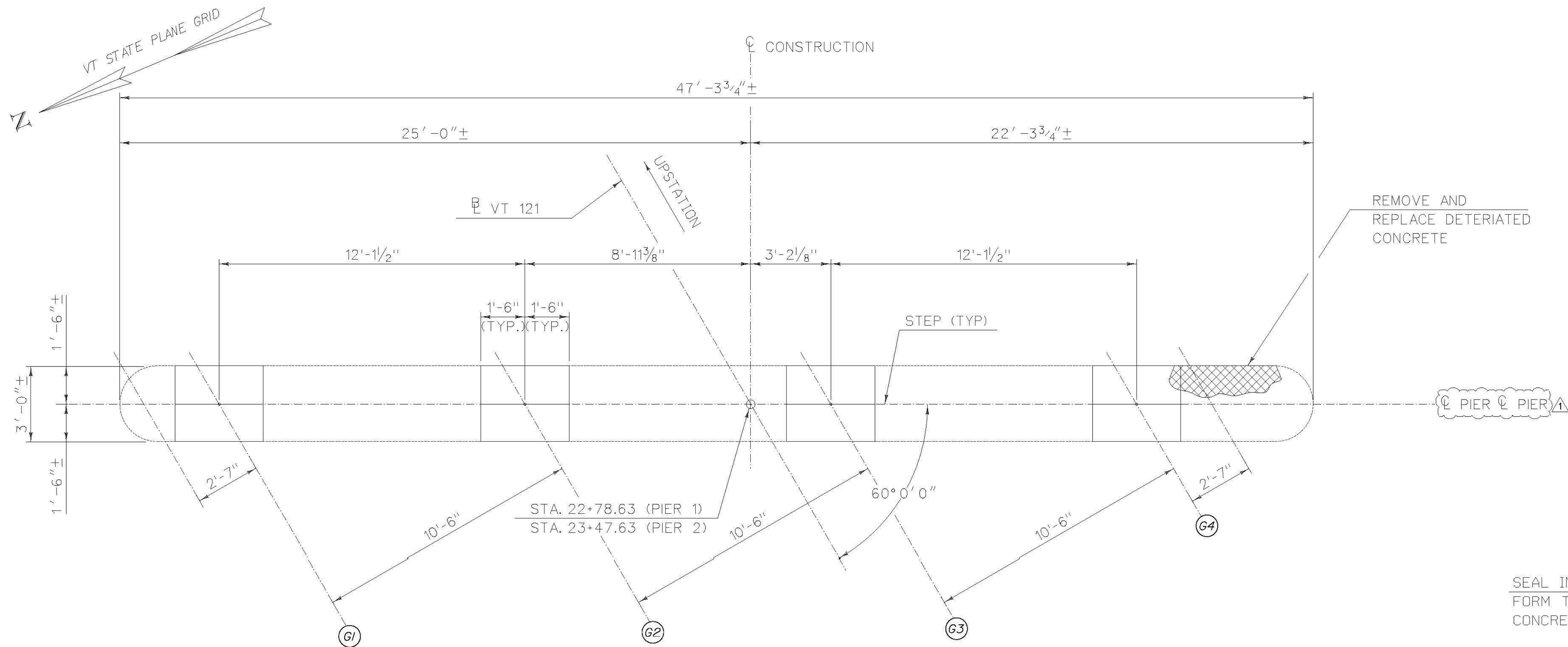


ELEVATION TABLE				
LOCATION	PIER 1 WEST	PIER 1 EAST	PIER 2 WEST	PIER 2 EAST
A	446.72	446.74	446.03	446.05
B	446.89	446.83	446.20	446.14
C	446.95	446.97	446.26	446.28
D	447.12	446.06	446.43	446.37
E	447.14	447.21	446.45	446.52
F	447.17	447.17	446.48	446.48
G	447.09	447.11	446.40	446.42
H	447.06	447.00	446.37	446.31
EXISTING PEDESTAL ELEVATIONS VARY	446.0* TO 446.3*	445.2* TO 445.5*	445.2* TO 445.5*	445.2* TO 445.5*

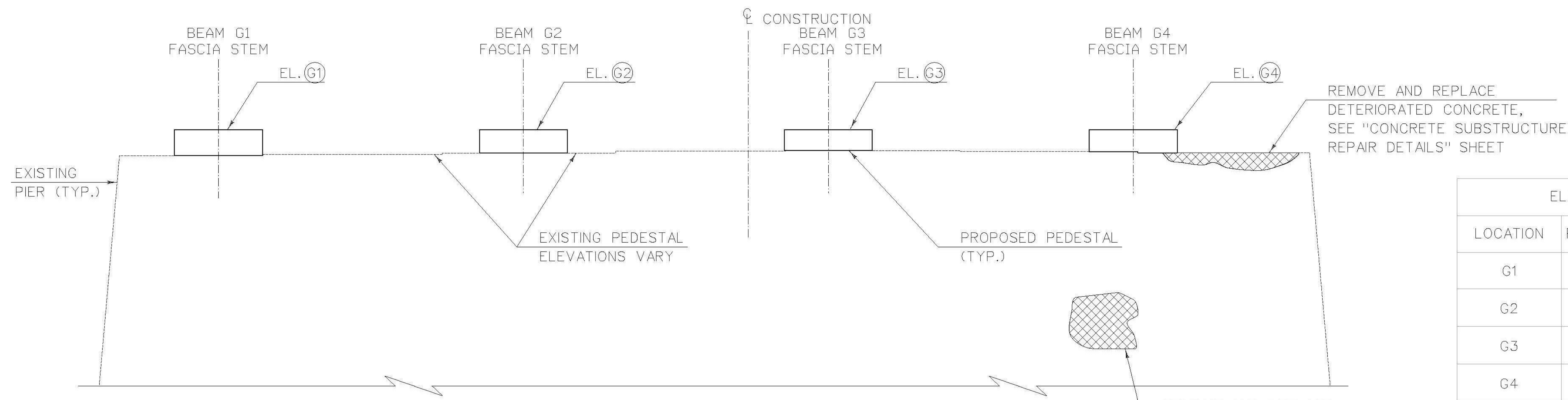
TYLIN INTERNATIONAL	PROJECT NAME: ROCKINGHAM	
	PROJECT NUMBER: BRF 0126(I2)	
FILE NAME: z10J072bdr_Pier1.dgn	PLOT DATE: 8/26/2014	
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL	
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN	
PIER MODIFICATION	SHEET 37 OF 69	

SEE SHEET 37 VE





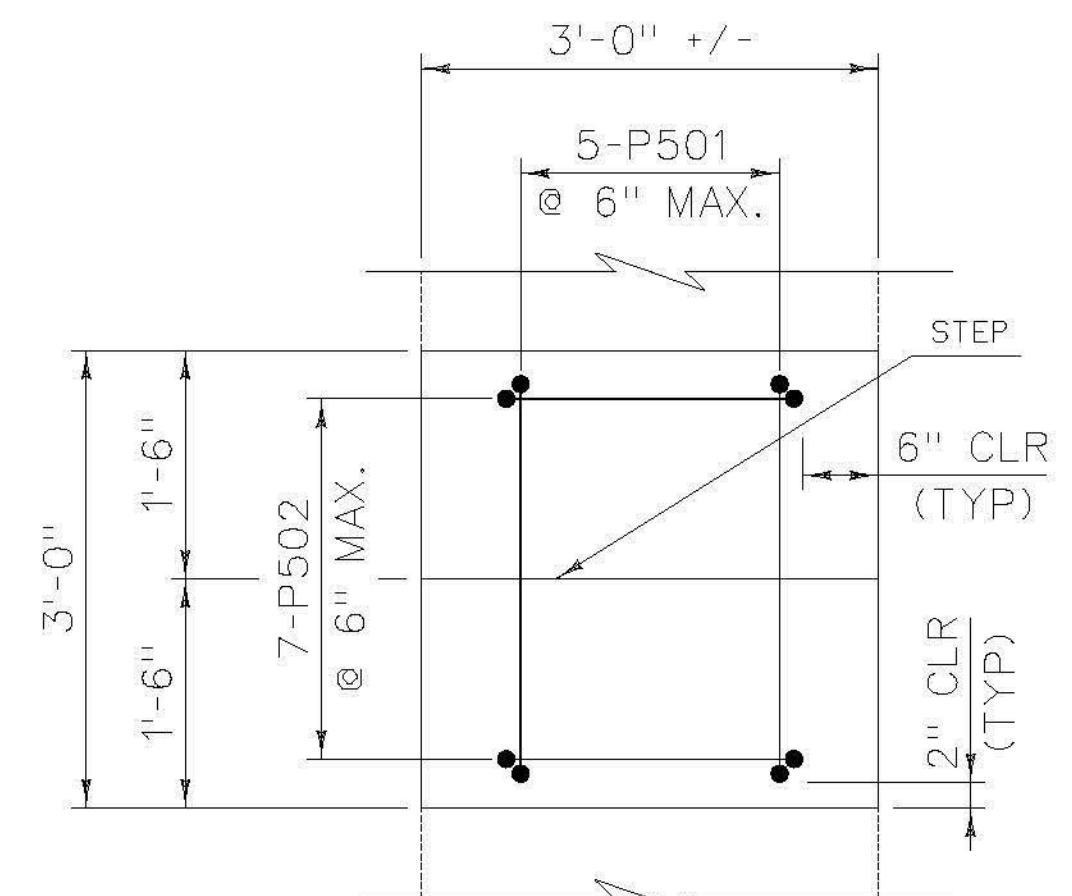
PIERS 1 AND 2 - PLAN  
SCALE  $\frac{3}{8}" = 1'-0"$



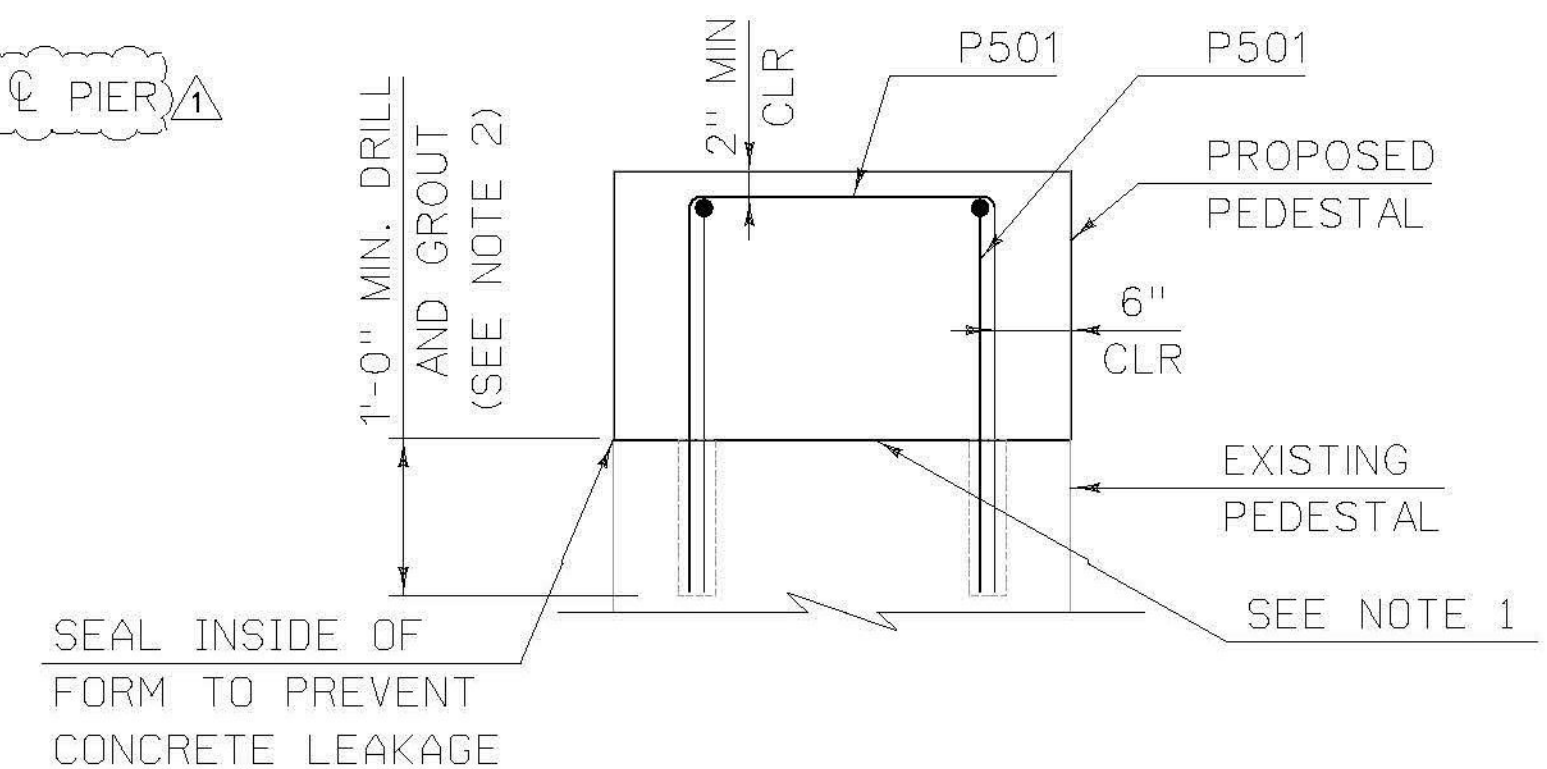
PIERS 1 AND 2 - PARTIAL ELEVATION  
SCALE  $\frac{3}{8}" = 1'-0"$

NOTES:

- FOR A PERIOD OF AT LEAST ONE HOUR BEFORE THE PLACEMENT OF PEDESTAL CONCRETE MATERIAL, THE PREPARED SURFACE SHALL BE FLOODED WITH WATER. AFTER REMOVAL OF ALL FREE WATER, THE PEDESTAL CONCRETE MATERIAL SHALL BE DEPOSITED ON THE DAMPENED SURFACE.
- DIAMETER OF DRILLED HOLE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.



PEDESTAL REINFORCEMENT PLAN  
SCALE  $\frac{3}{4}" = 1'-0"$



PEDESTAL REINFORCEMENT ELEVATION  
SCALE  $\frac{3}{4}" = 1'-0"$

ELEVATION TABLE		
LOCATION	PIER 1 WEST	PIER 2 WEST
G1	446.15	445.46
G2	446.42	445.73
G3	446.58	445.89
G4	446.43	445.74
EXISTING PEDESTAL ELEVATIONS VARY	446.0± TO 446.3±	445.2± TO 445.5±

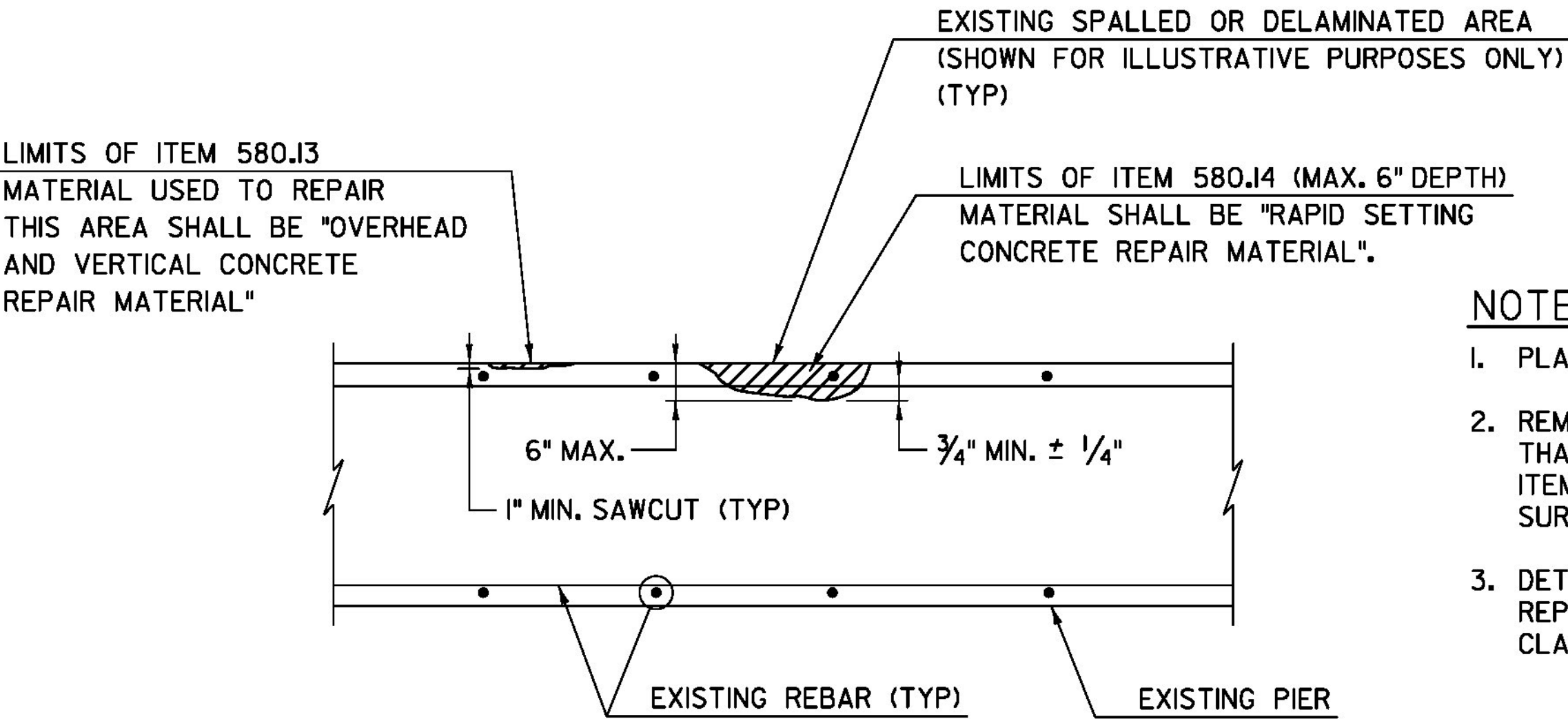
DESIGN-DETAILED		BY		DATE
CHECKED-REVIEWED		ETC		2014
			</	





EXISTING SUBSTRUCTURE CONCRETE REPAIR NOTES:

1. WHEN "OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL" CONFORMING TO SUBSECTION 780.02 IS USED, THE BONDING AGENT, (IF ANY REQUIRED) AND ITS APPLICATION PROCEDURE SHALL COMPLY WITH THE REQUIREMENTS OF THE PATCHING MATERIAL MANUFACTURER. PAYMENT FOR BONDING AGENT WILL BE INCIDENTAL TO ITEM 580.I3, 580.I4 OR 580.I5.
2. ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING IT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 580.I3, 580.I4 OR 580.I5
3. ITEM 580.I4 FILLING MATERIAL SHALL BE "RAPID SETTING CONCRETE REPAIR MATERIAL" CONFORMING TO SUBSECTION 780.03.
4. ITEM 580.I5 FILLING MATERIAL SHALL BE "RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE" CONFORMING TO SUBSECTION 780.04.
5. IF PNEUMATICALLY APPLIED CONCRETE IS SELECTED FOR REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II OR III, THEN THIS TYPE OF CONCRETE REPAIR SHALL BE CONFINED ONLY TO VERTICAL AND OVERHEAD SURFACES OF THE SUBSTRUCTURE. ALSO, THE BRIDGE AND BEAMS SHOULD BE COMPLETELY PROTECTED FROM REBOUND MATERIAL DURING PNEUMATICALLY APPLIED CONCRETE APPLICATION PROCEDURES.
6. THE ENGINEER SHALL ORDER REPLACEMENT OF ANY SUBSTRUCTURE REINFORCING STEEL THAT IS DETERIORATED (WITH MORE THAN 25% SECTION LOSS) WITH NEW REINFORCING STEEL OF THE SAME SIZE. ALL REINFORCING STEEL SHALL HAVE AN APPROPRIATE LAP SPLICE. SUBSTRUCTURE REINFORCING STEEL REPLACED WILL BE PLAIN BAR REINFORCING STEEL, LEVEL I OR BETTER AND WILL BE INCIDENTAL TO ITEM 580.I4 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II" OR ITEM 580.I5 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS III".



NOTES:

1. PLAN VIEW OF EXISTING PIER SHOWN.
2. REMOVAL OF EXISTING CONCRETE TO A DEPTH GREATER THAN SPECIFIED FOR ITEM 580.I4 SHALL BE PAID UNDER ITEM 580.I5, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III".
3. DETAIL SHOWS LIMIT OF ITEMS 580.I3, 580.I4 AND 580.I5 REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I, CLASS II, OR CLASS III.

CONCRETE SUBSTRUCTURE REPAIR DETAIL  
NOT TO SCALE

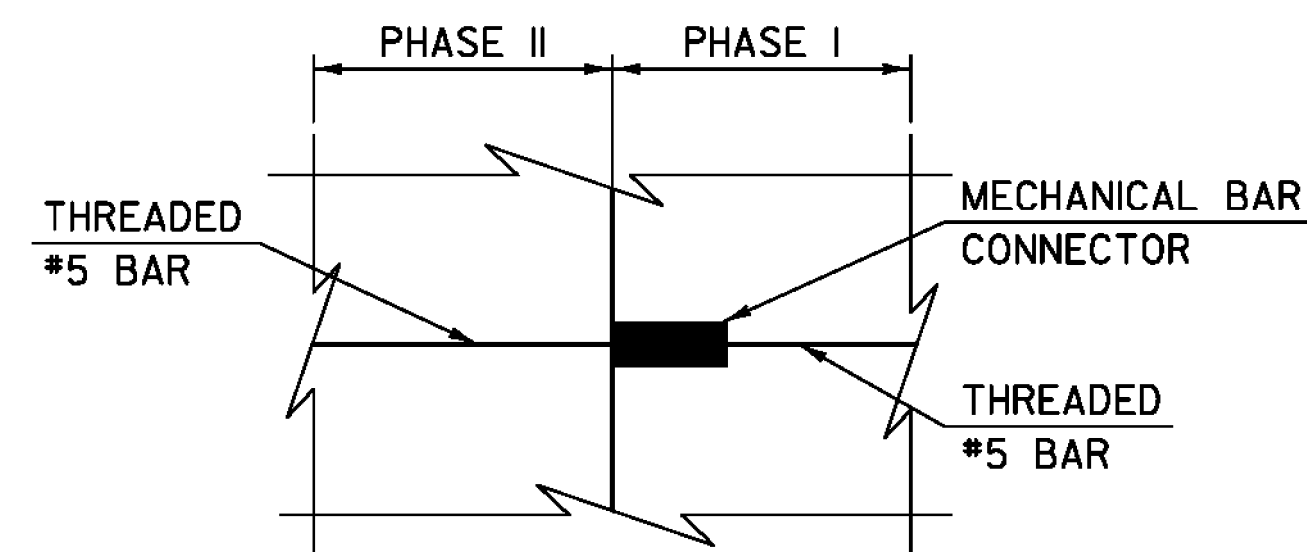
PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

TYLIN INTERNATIONAL

FILE NAME: z10j072bdr_repair.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
CONCRETE SUBSTRUCTURE REPAIR DETAILS

PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 38 OF 69





TYPICAL MECHANICAL CONNECTOR DETAIL

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

ITEM 516.10 ASPHALTIC PLUG -  
TYPE JOINT (SEE  
STRUCTURES DETAIL  
SHEET SD516.10)

TWO LAYERS 10 MIL  
POLY SHEETING  
(PAYMENT INCIDENTAL  
TO ITEM 501.34)

3" BITUMINOUS CONCRETE  
PAVEMENT (TYPE IVS) PLACED  
IN TWO  $\frac{1}{2}$ " LIFTS

SAW CUT PAVEMENT JOINT  
(SEE DETAILS ABUTMENT  
SECTIONS SHEET)

BOND BREAKER

END APPROACH SLAB No.1

BEGIN BRIDGE  
STA. 22+11.79

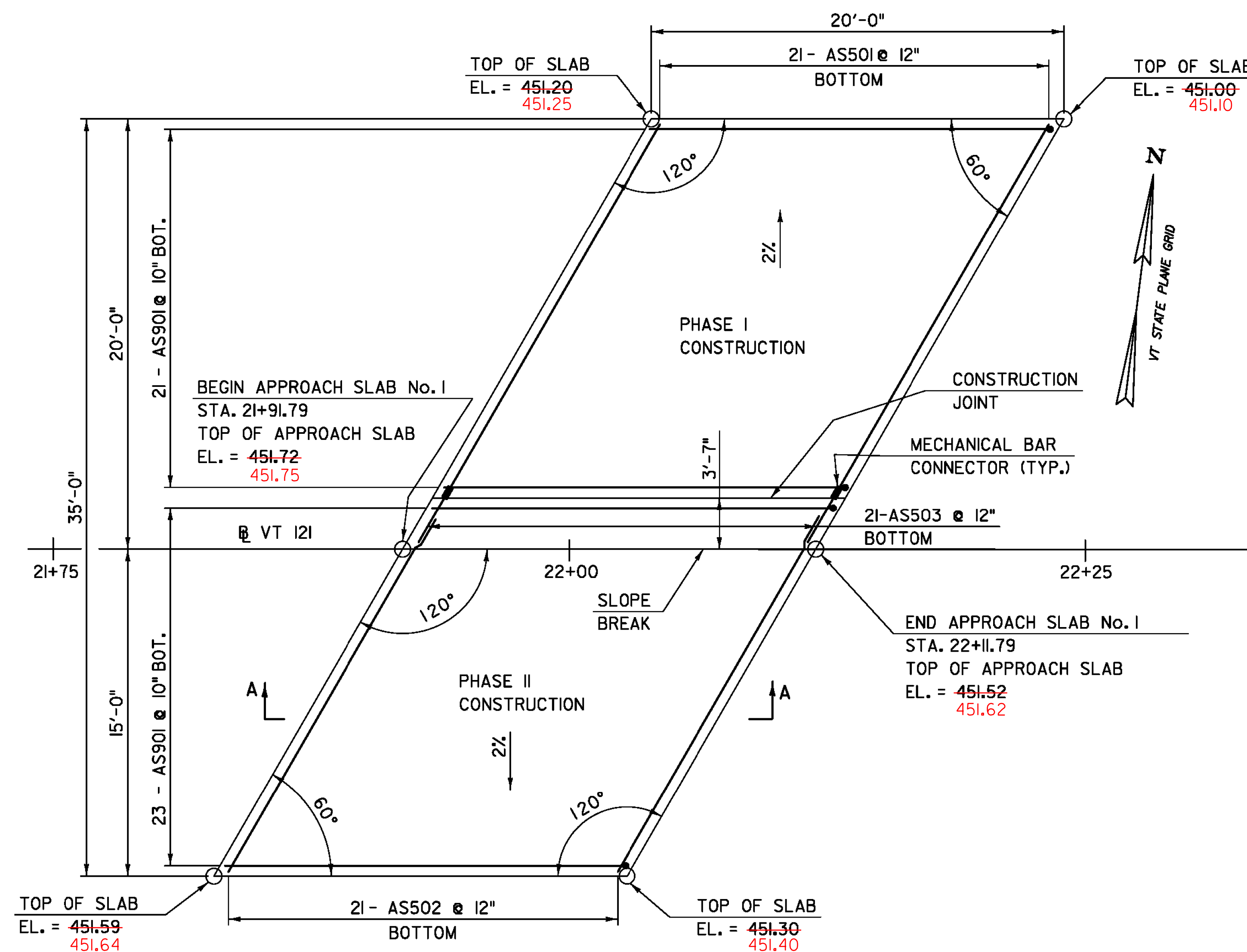
OR  
END BRIDGE

BEGIN APPROACH SLAB No.2

STA. 24+14.48

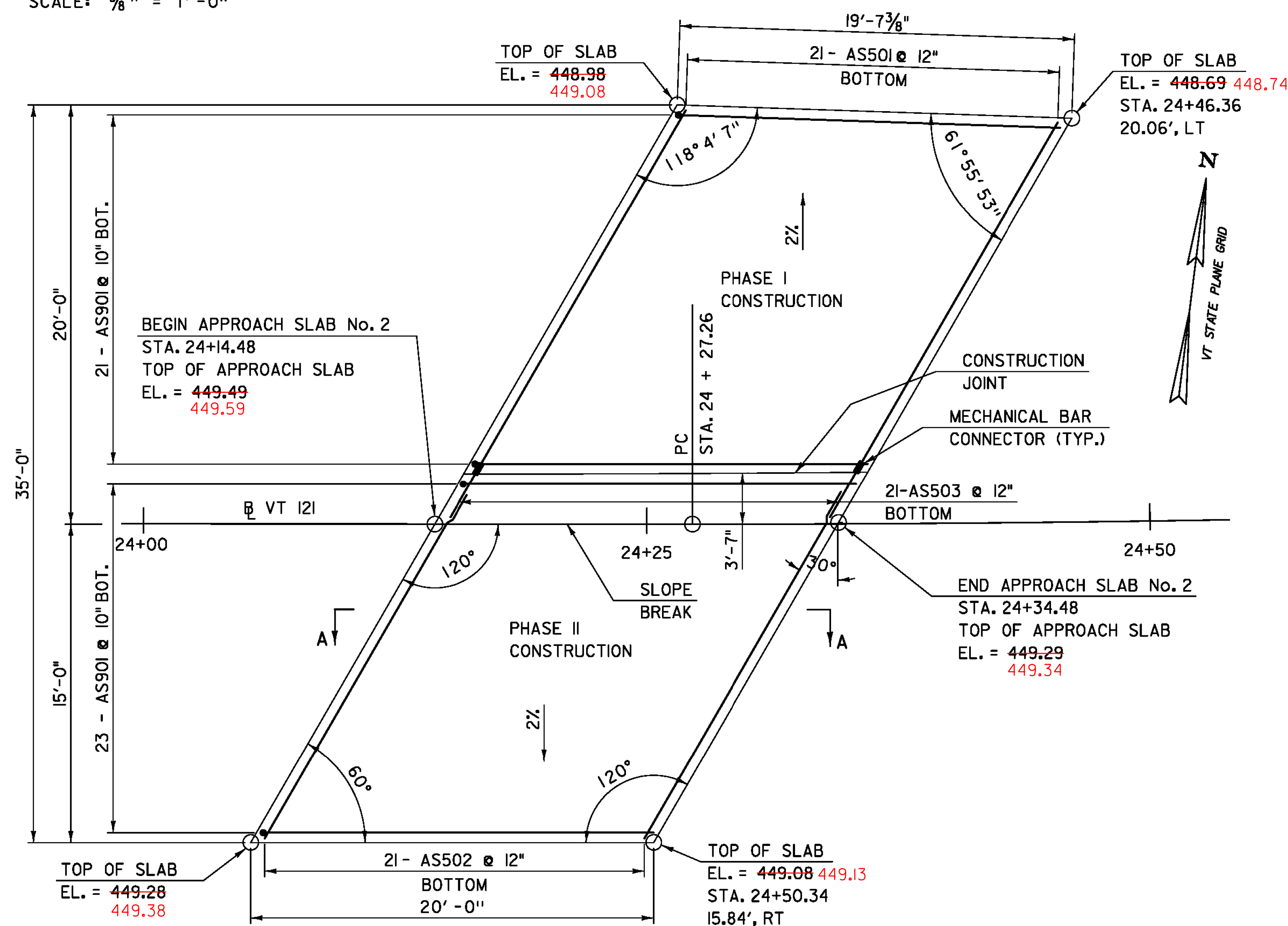
TYPICAL APPROACH SLAB  
SECTION A-A

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



APPROACH SLAB No. 1 PLAN

SCALE:  $\frac{1}{4}$ " = 1'-0"



APPROACH SLAB No. 2 PLAN

SCALE:  $\frac{1}{4}$ " = 1'-0"

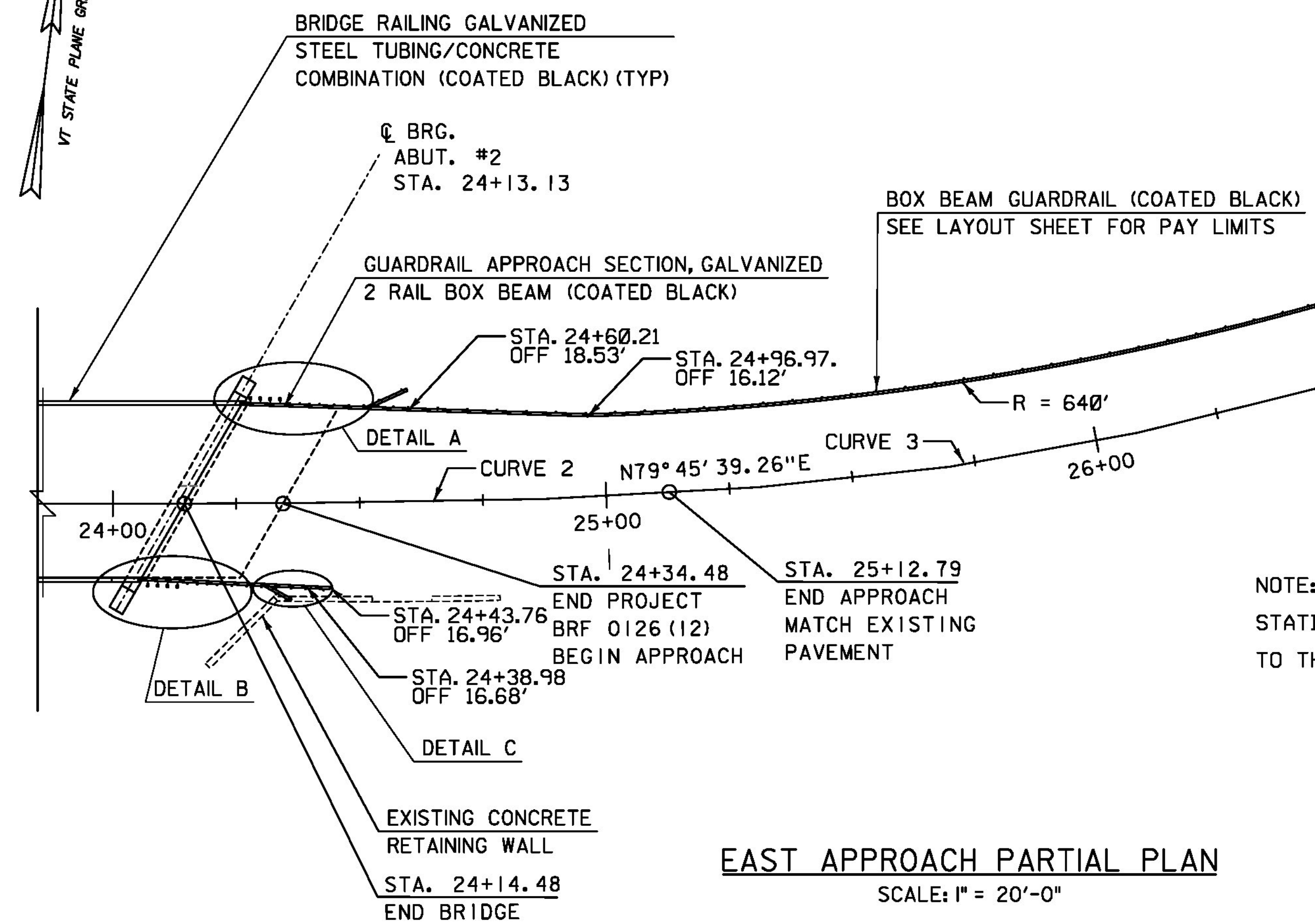
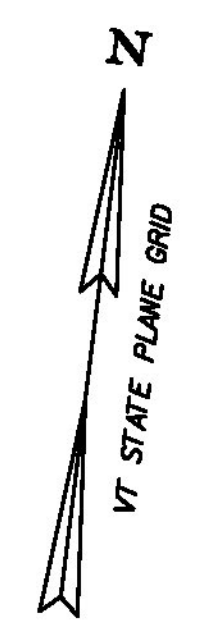
PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

TYLIN INTERNATIONAL

FILE NAME: z10j072bdr_apprslab.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
APPROACH SLAB DETAILS

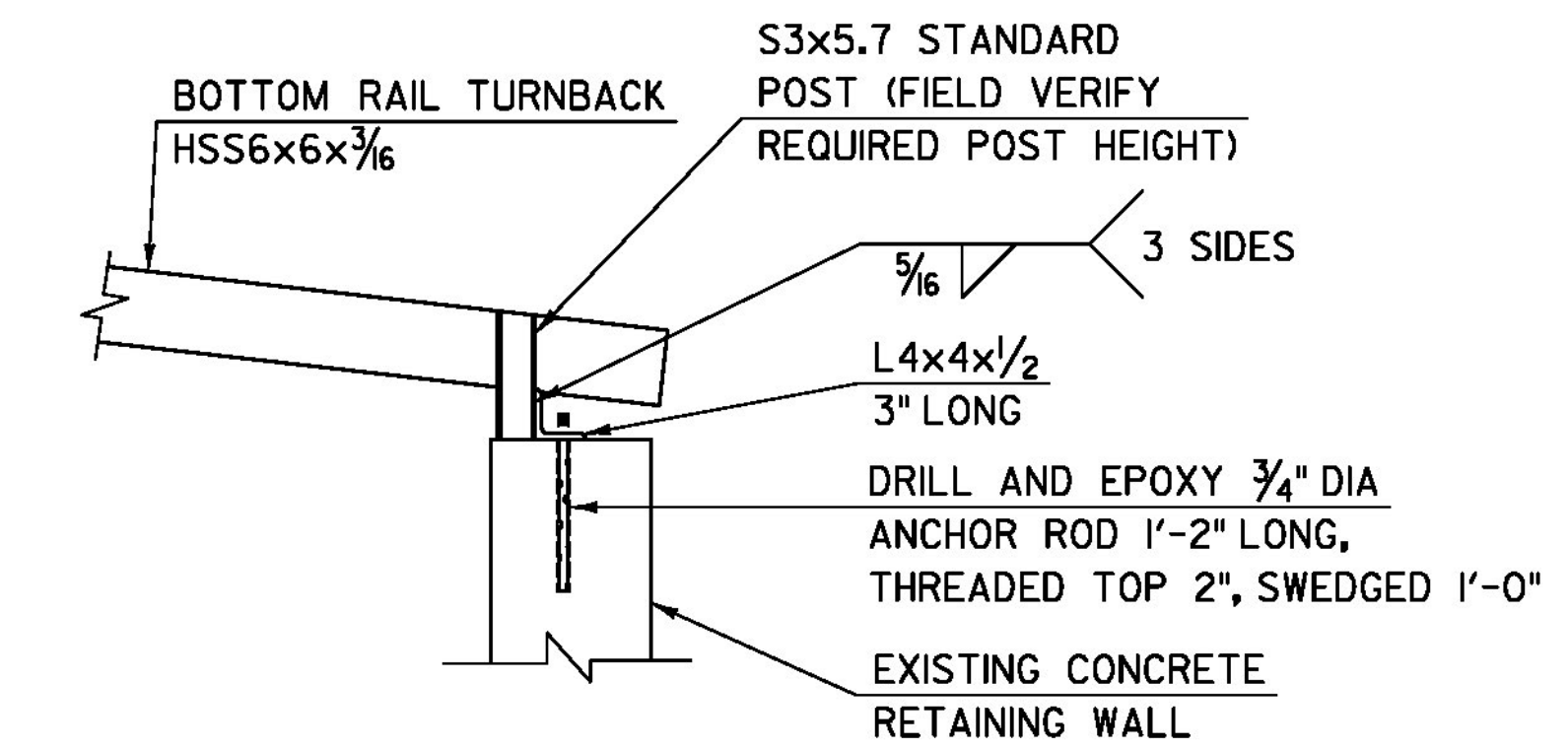
PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 39 OF 69





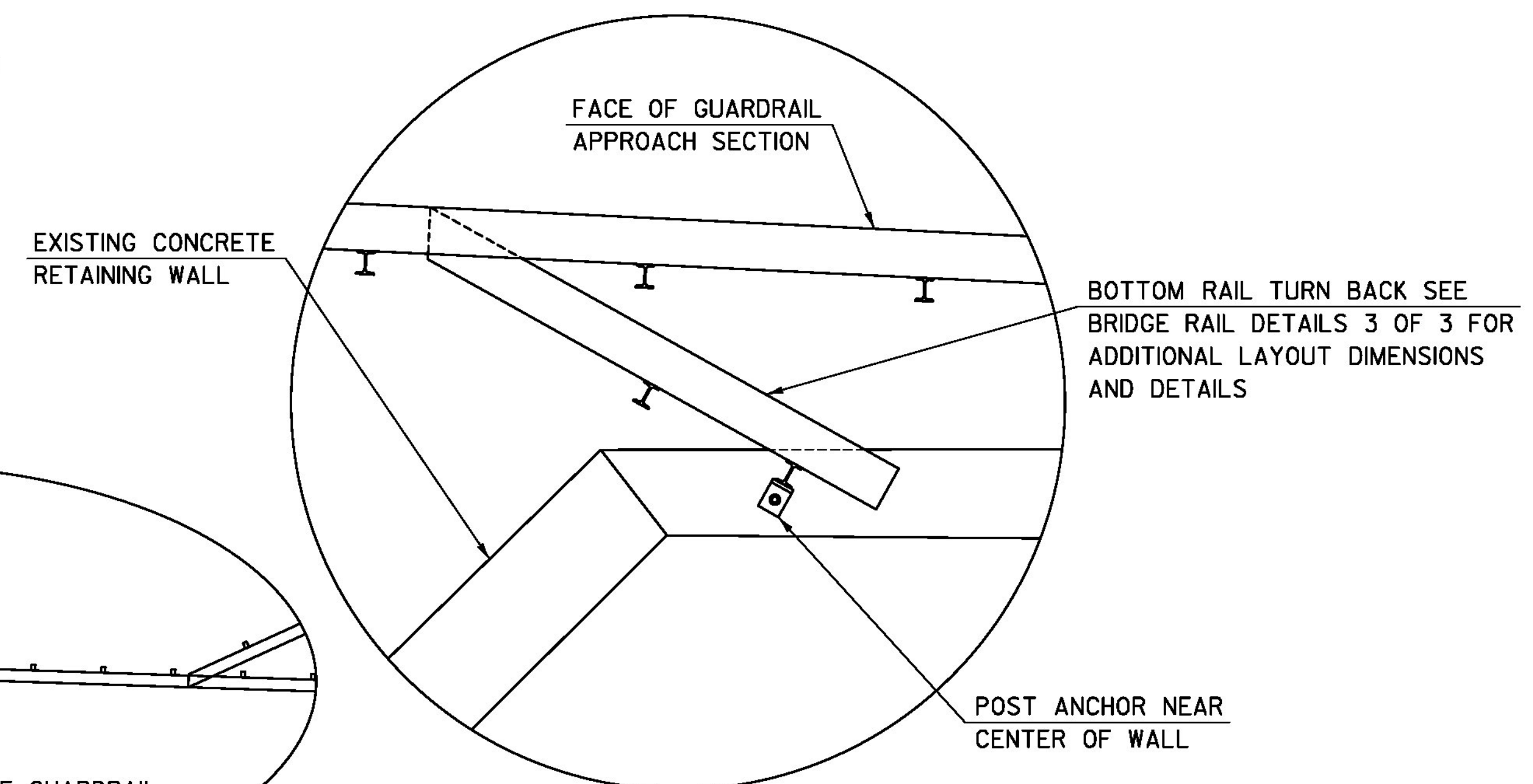
**EAST APPROACH PARTIAL PLAN**  
SCALE: 1" = 20'-0"

NOTE:  
STATIONS AND OFFSETS GIVEN ARE MEASURED  
TO THE FACE OF THE BOX BEAM GUARDRAIL

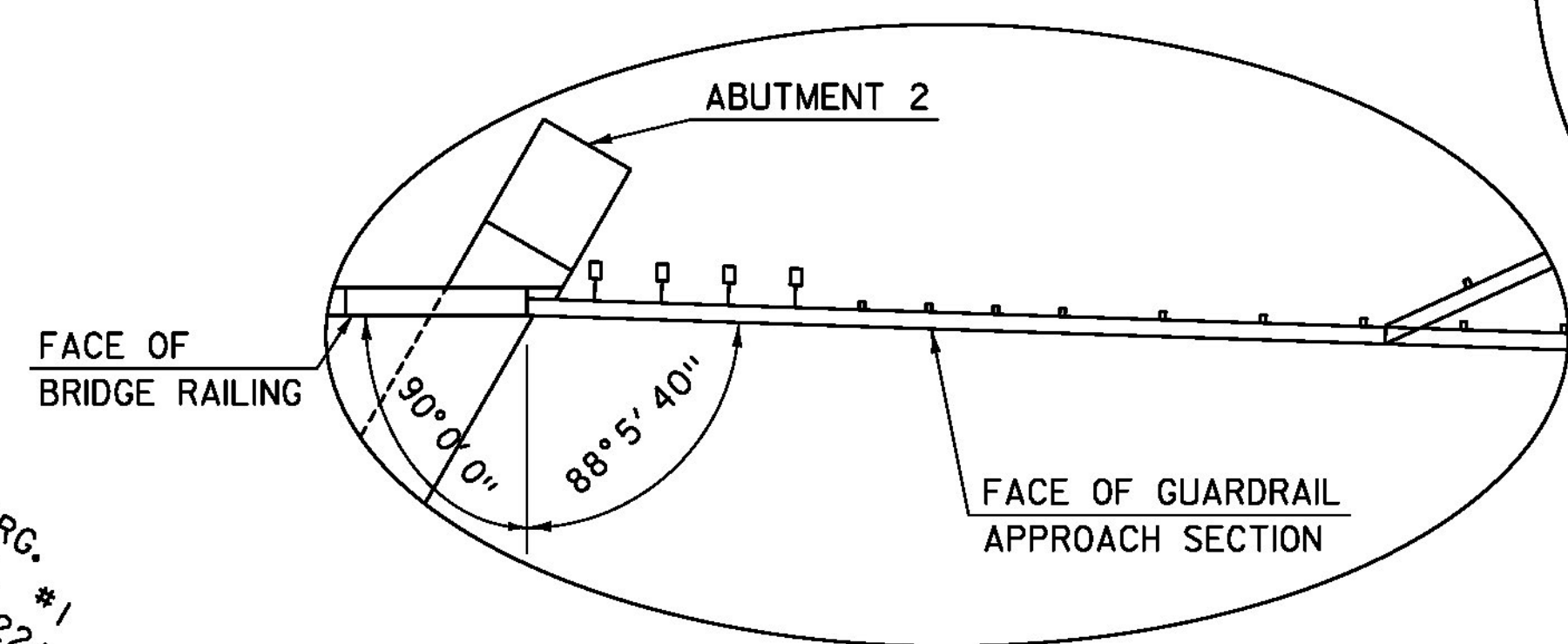


**POST ANCHOR DETAIL**  
N.T.S.

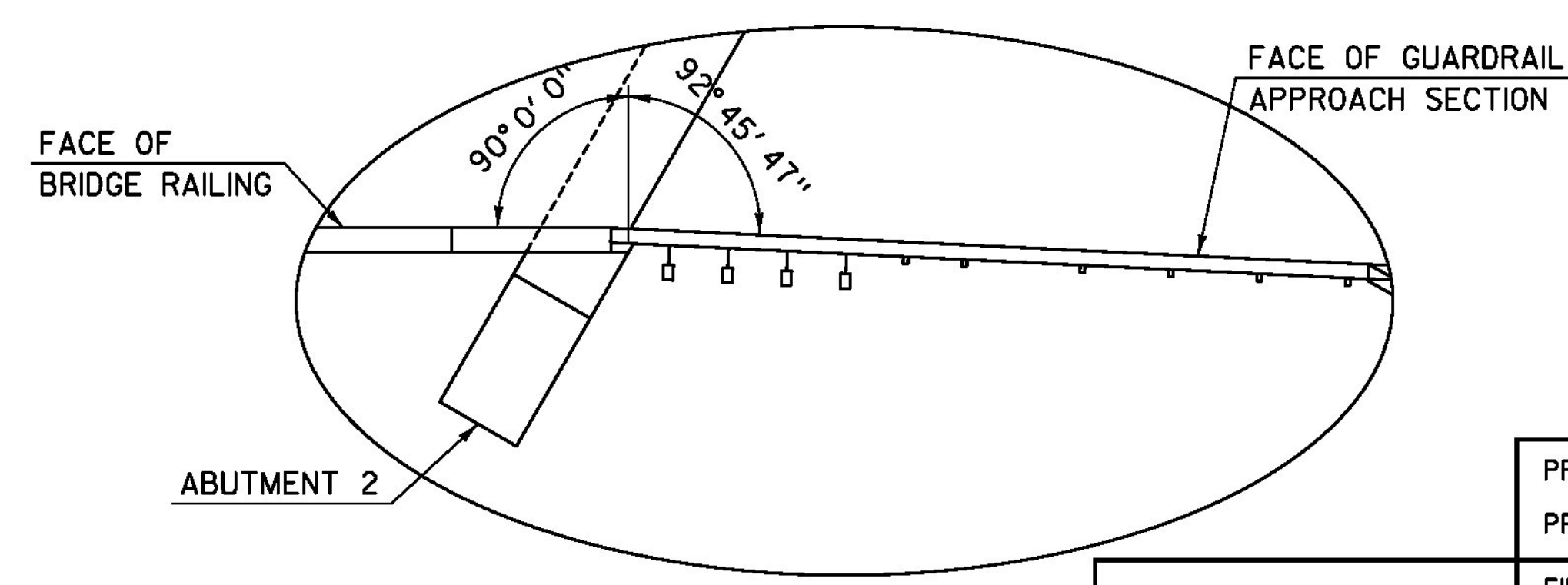
NOTE: PAYMENT FOR POST ANCHOR SHALL BE INCLUDED  
IN THE UNIT PRICE BID FOR CONTRACT ITEM 621.72.



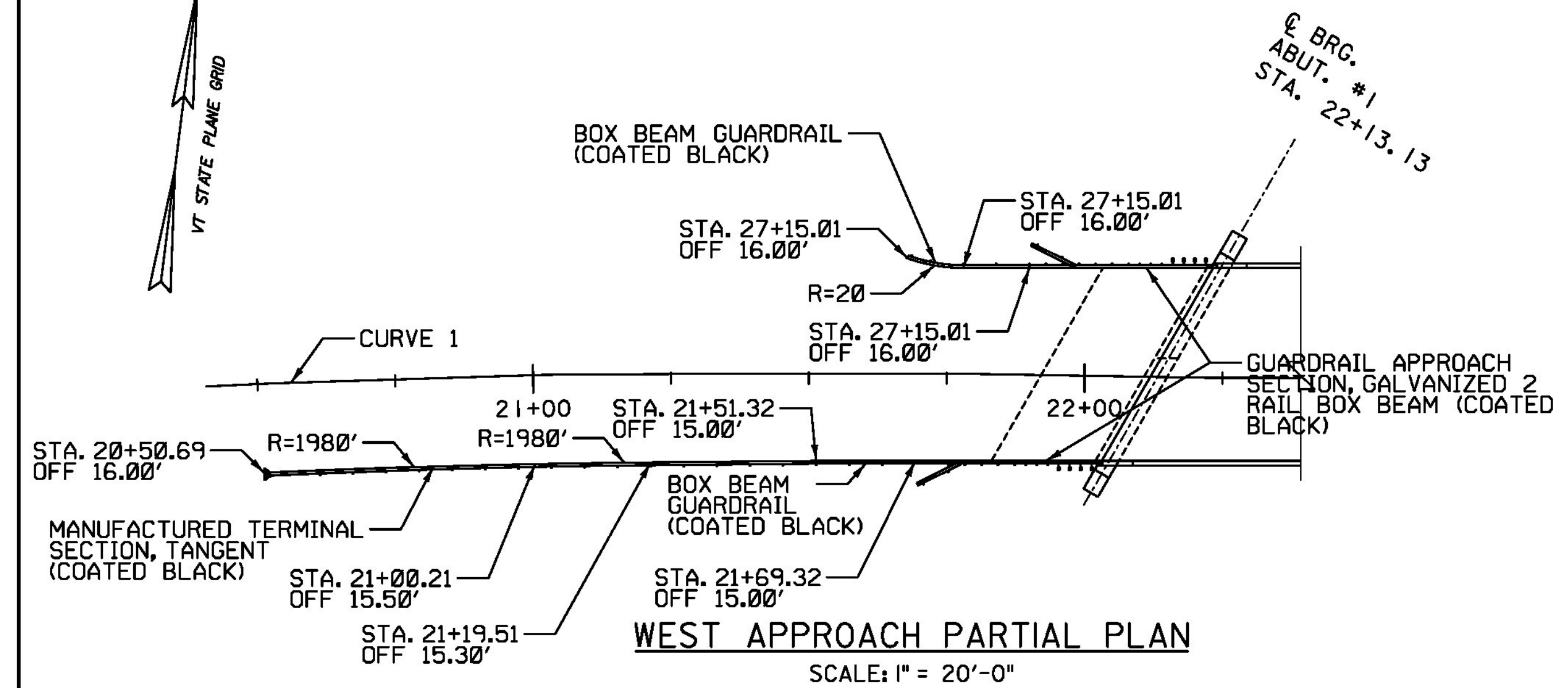
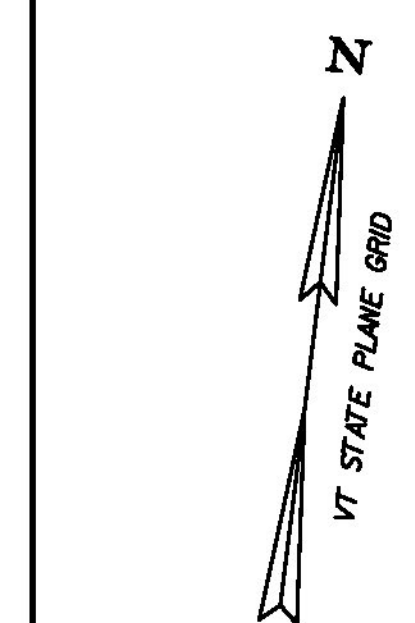
**DETAIL C**  
N.T.S.



**DETAIL A**  
N.T.S.



**DETAIL B**  
N.T.S.

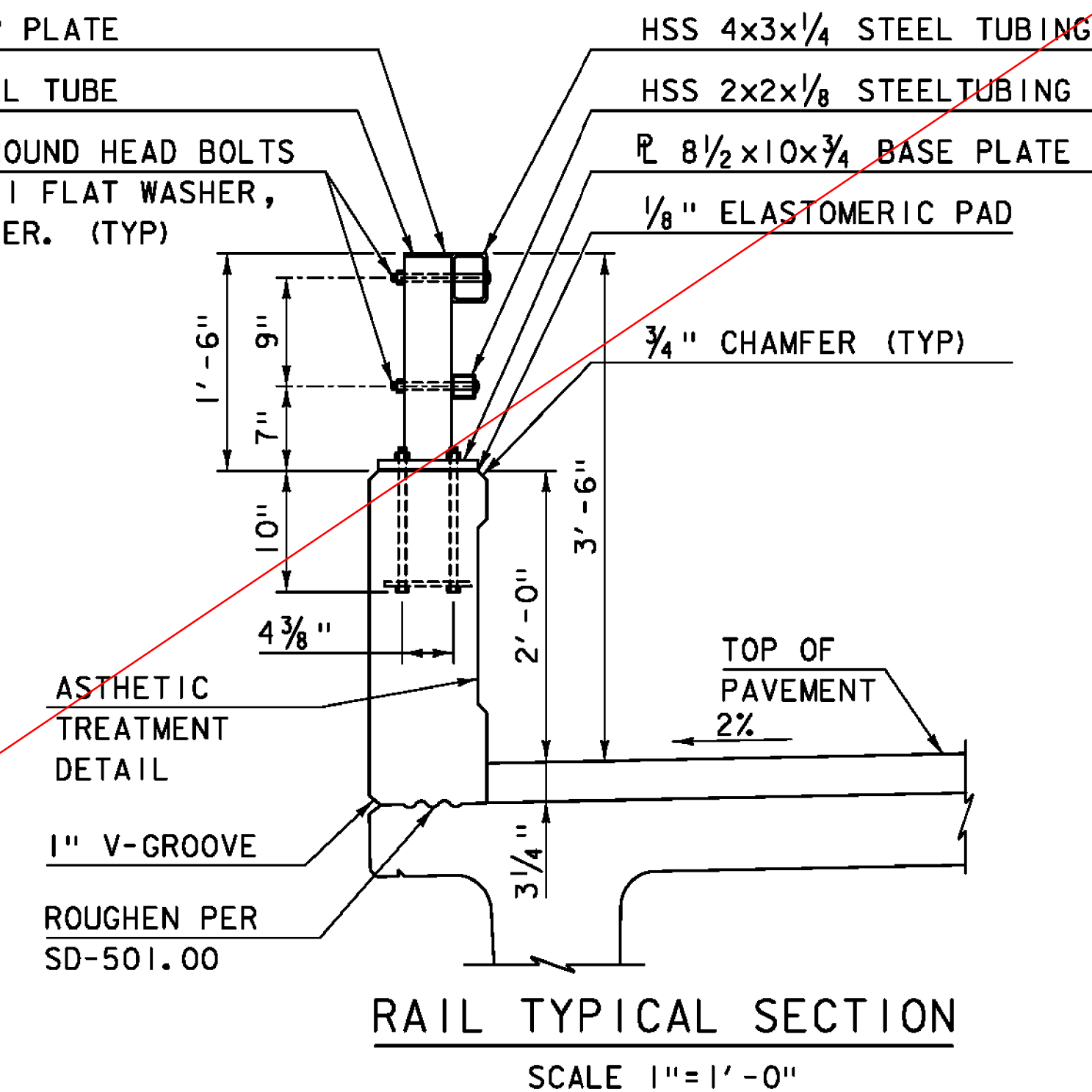
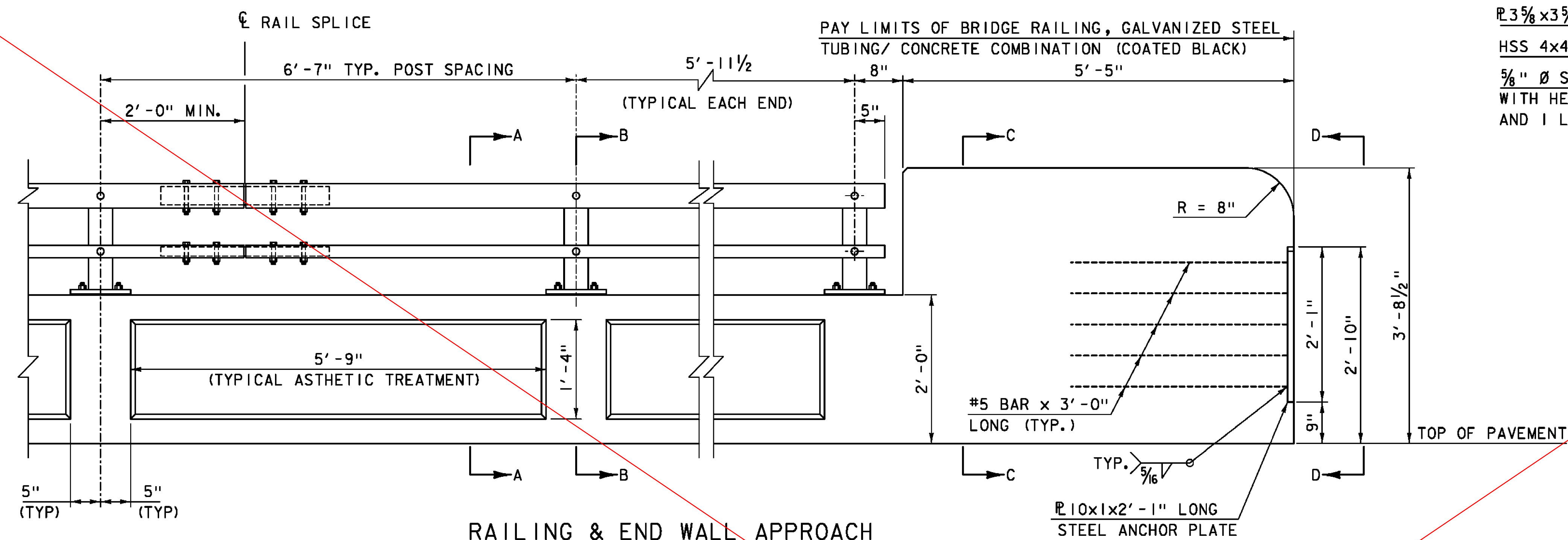


**WEST APPROACH PARTIAL PLAN**  
SCALE: 1" = 20'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)
FILE NAME:	z10j072bdr_rail_pln.dgn
PROJECT LEADER:	R. HEBERT
DESIGNED BY:	S. KELLER
GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS	
PLOT DATE:	8/26/2014
DRAWN BY:	S. KELLER
CHECKED BY:	D. BURHANS
SHEET	40 OF 69

**TYLIN INTERNATIONAL**





- NOTES:

I. BRIDGE RAIL SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.

2. HOLES AND RECESSES ARE TO BE FORMED OR CORED, PERCUSSION DRILLING IS NOT ALLOWED.

3. ALL STEEL COMPONENTS SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.

4. ALL REINFORCEMENT SHALL BE LEVEL II.

5. ALL LONGITUDINAL BARS SHALL HAVE A MINIMUM LAP LENGTH OF 2'-1".

6. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.

7. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF  $\frac{1}{16}$ ".

8. ALL POSTS SHALL BE SET NORMAL TO GRADE.

9. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.

10. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.

II. BOLTS SHALL BE TORQUED ~~SNUG~~ TIGHT (APPROXIMATELY 100 FT-LB).

12. RAIL TUBES SHALL BE ATTACHED USING  $\frac{5}{8}$ " FULL DIAMETER BODY ASTM A 449 (TYPE I) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.

13. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.

14. SEE "GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS" SHEET FOR ADDITIONAL EAST APPROACH CONNECTION TUBE DETAILS.

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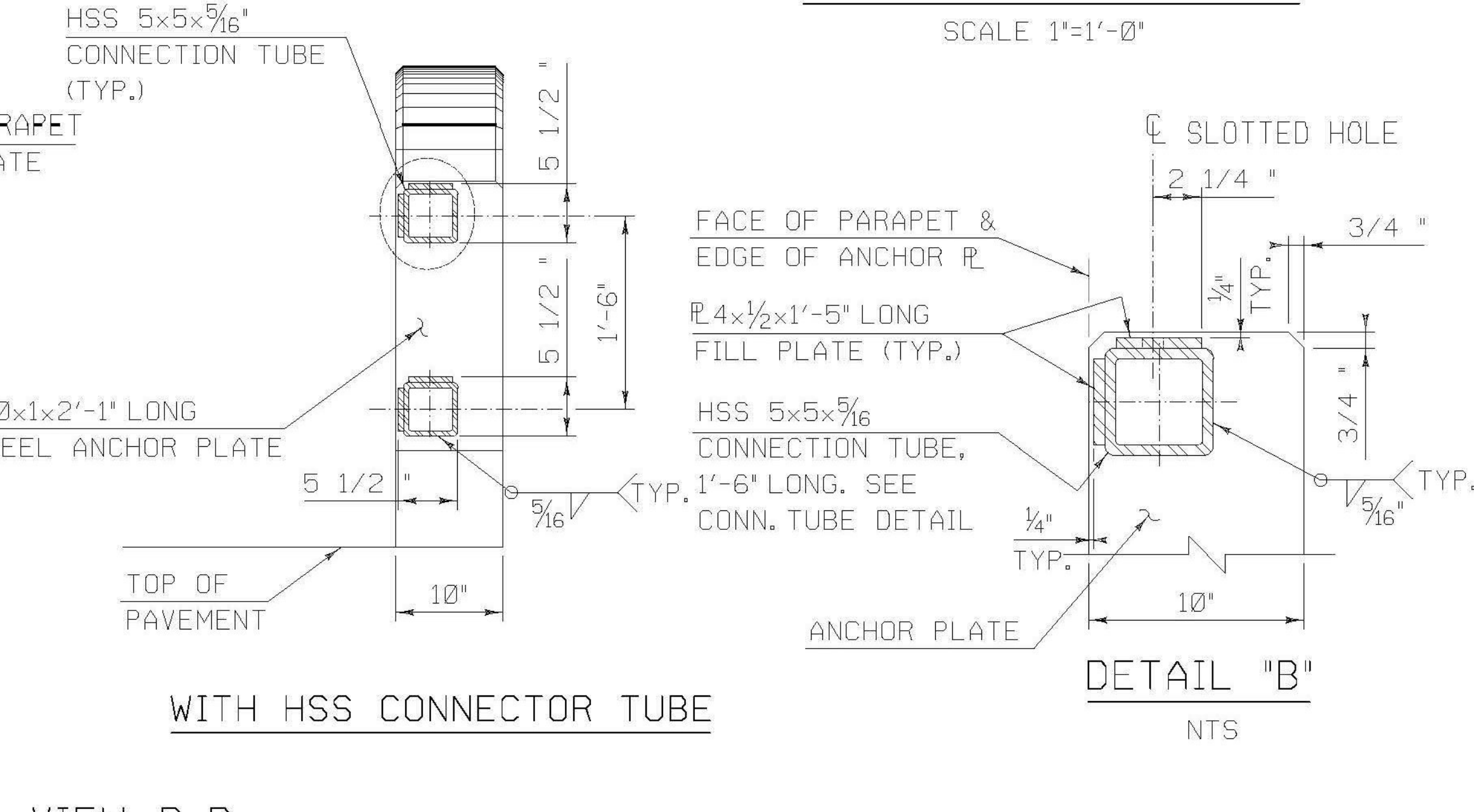
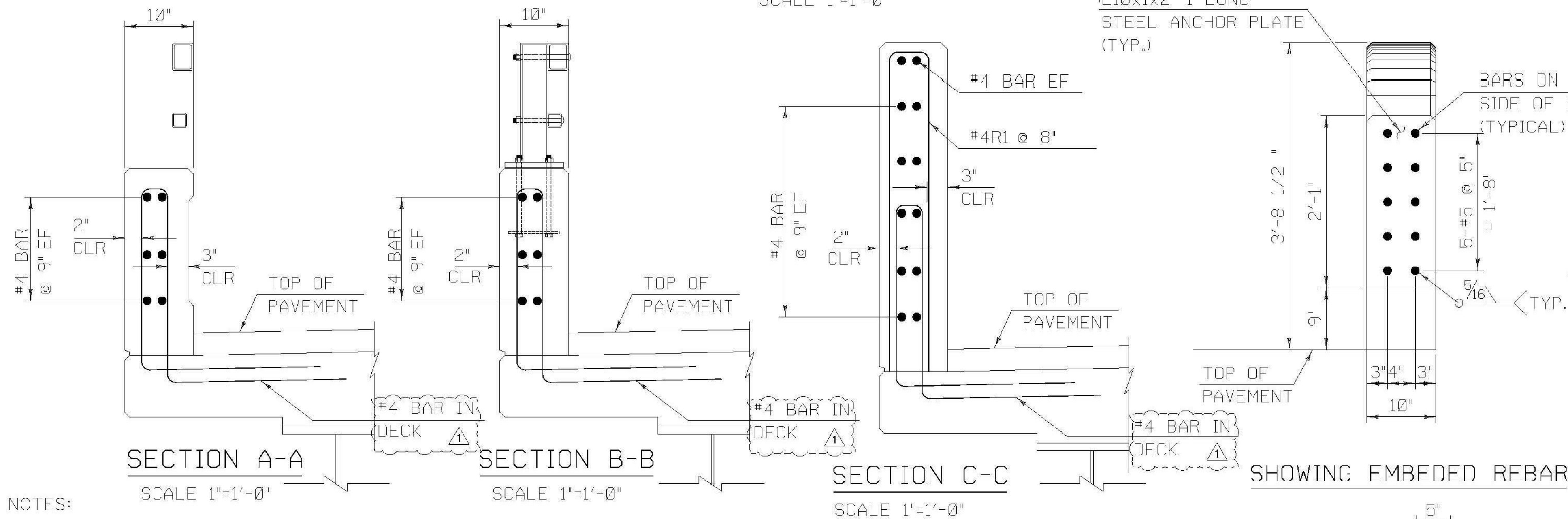
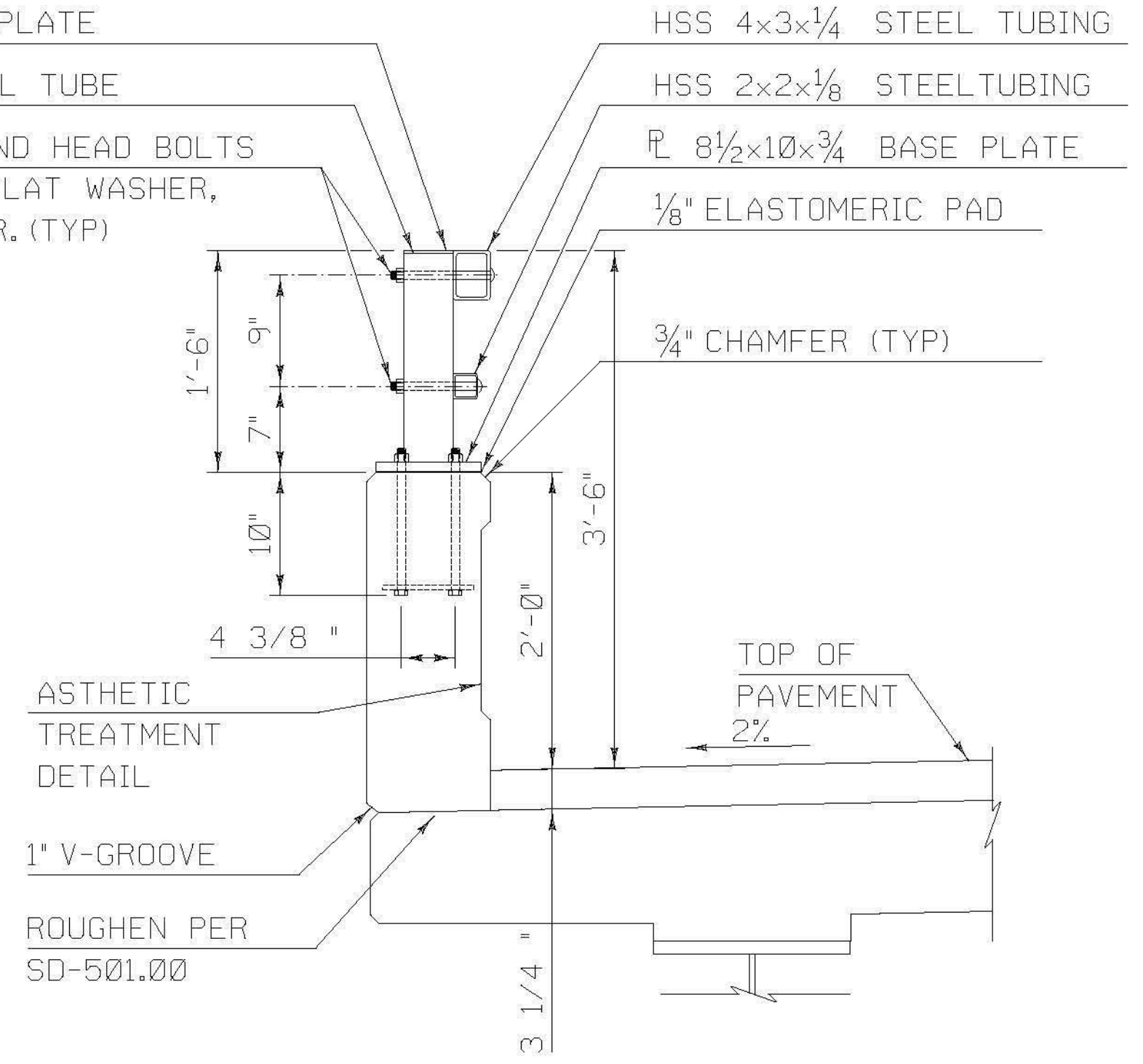
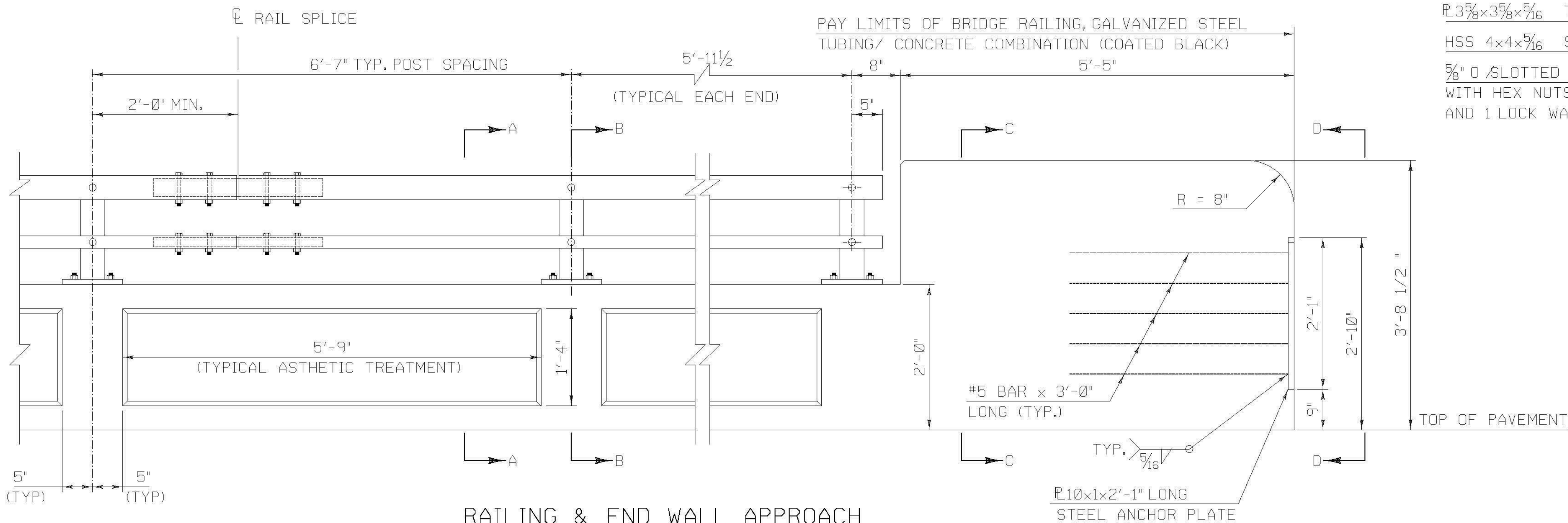
PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

FILE NAME: z10J072bdr_rail_01.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BRIDGE RAILING DETAILS (1 OF 3)

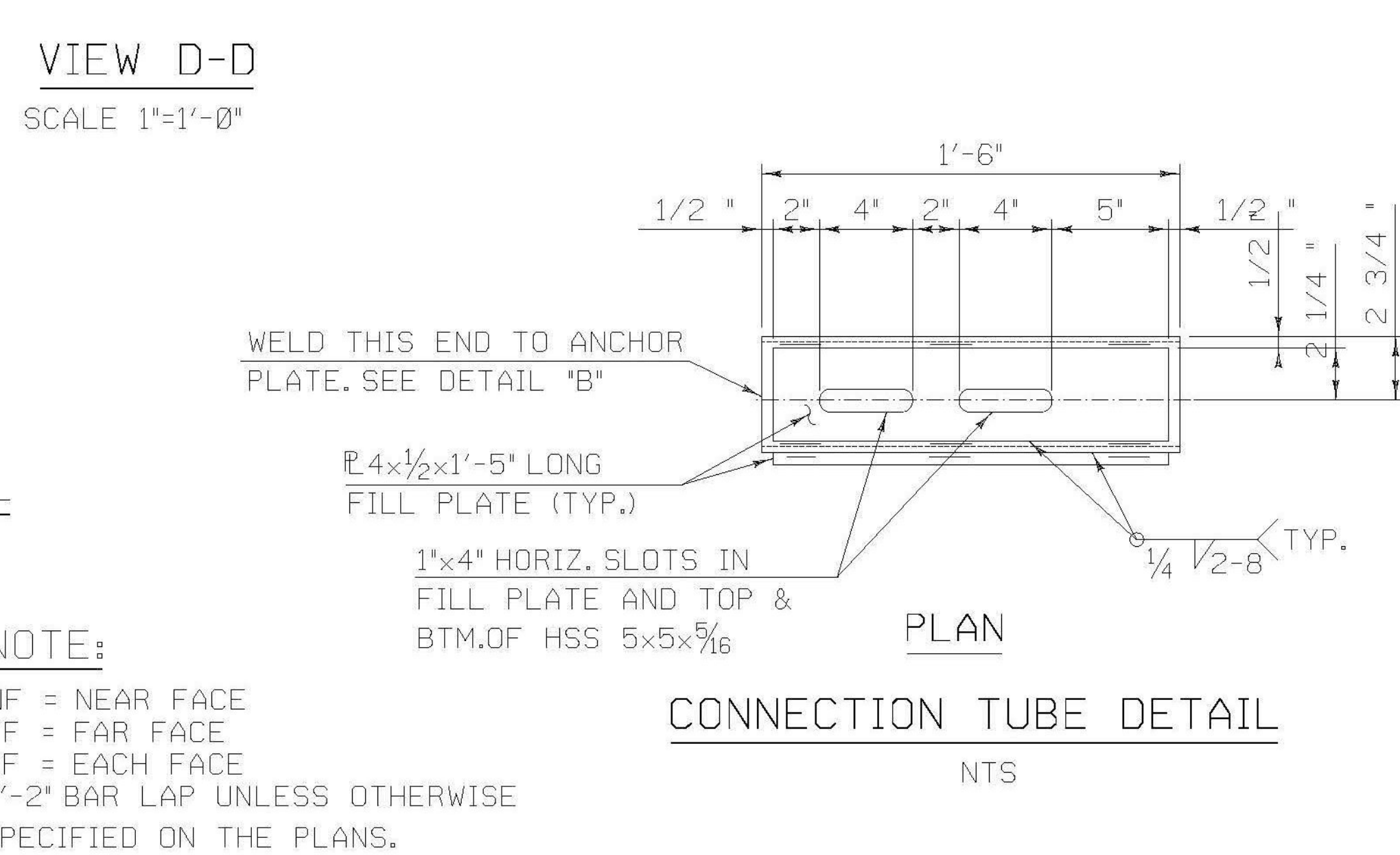
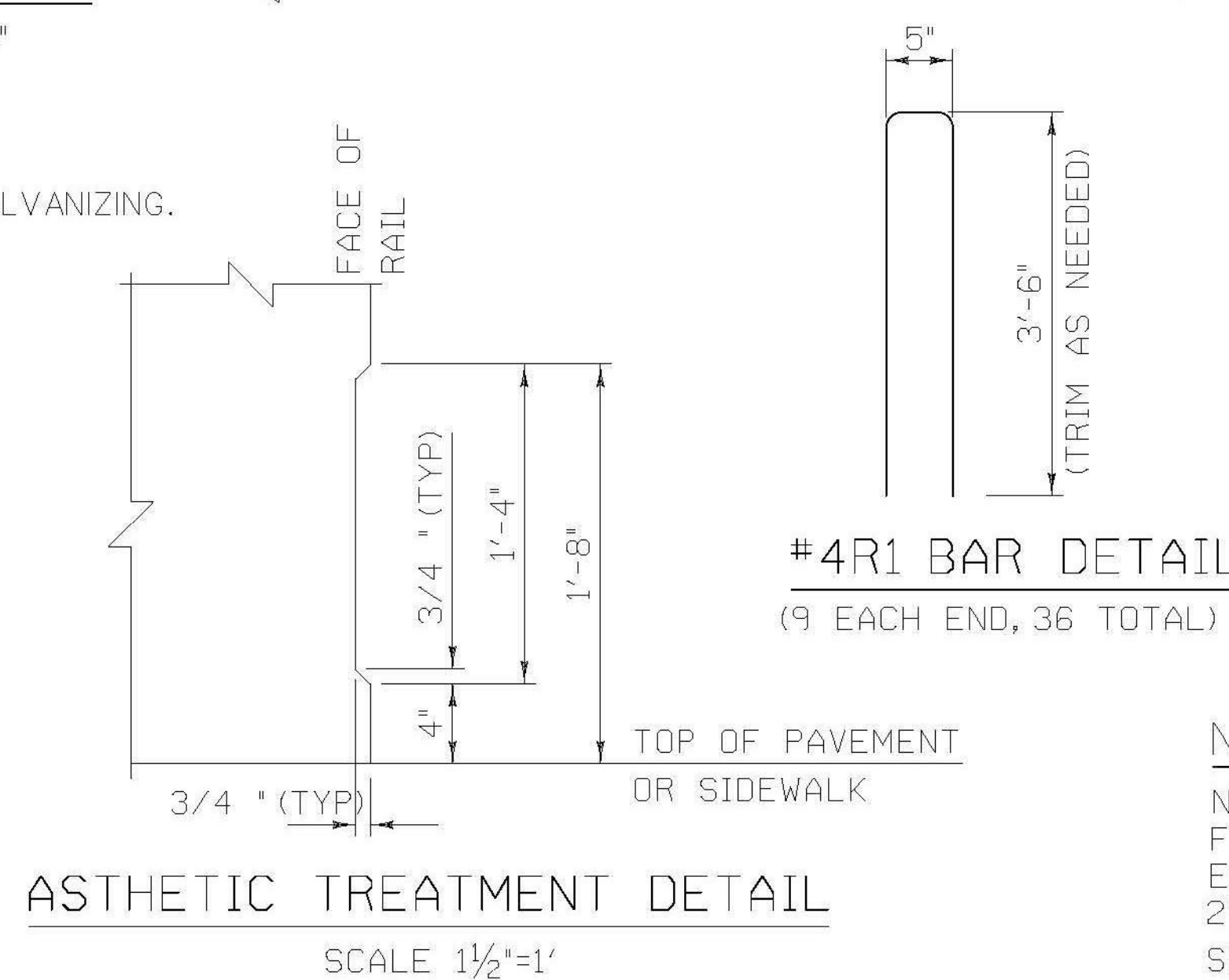
PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 41 OF 69

SEE SHEET 41 VE



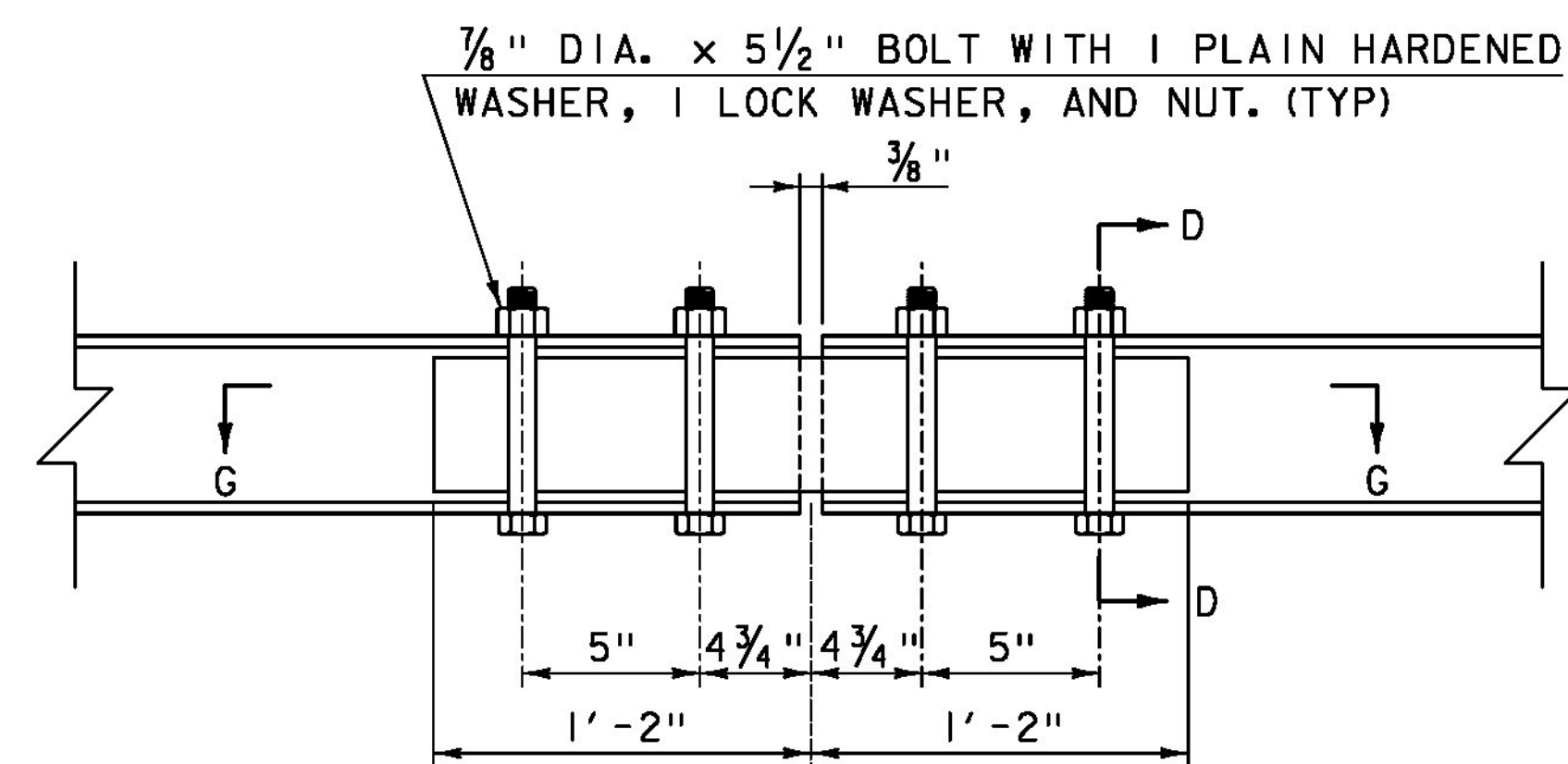


- NOTES:
- BRIDGE RAIL SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.
  - HOLES AND RECESSES ARE TO BE FORMED OR CORED, PERCUSSION DRILLING IS NOT ALLOWED.
  - ALL STEEL COMPONENTS SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.
  - ALL REINFORCEMENT SHALL BE LEVEL II.
  - ALL LONGITUDINAL BARS SHALL HAVE A MINIMUM LAP LENGTH OF 2'-1".
  - ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
  - PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
  - ALL POSTS SHALL BE SET NORMAL TO GRADE.
  - SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
  - HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
  - BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
  - RAIL TUBES SHALL BE ATTACHED USING 5/8" FULL DIAMETER BODY ASTM A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
  - SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.
  - SEE "GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS" SHEET FOR ADDITIONAL EAST APPROACH CONNECTION TUBE DETAILS.

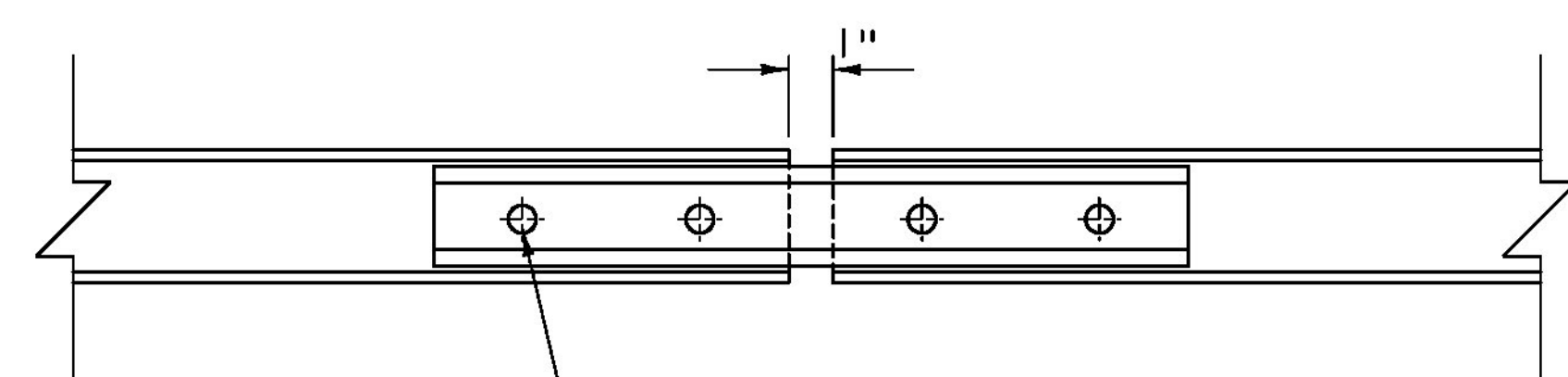


<b>CALDERWOOD ENGINEERING, ETC.</b> <b>STRUCTURAL ENGINEERING • DETAILING SERVICES</b> 222 RIVER RD, RICHMOND, ME 04371 PH/FX (207) 737-2008				<b>PREPARED FOR:</b> <b>COLD RIVER BRIDGES, LLC</b> <b>CEE 106-BR-14</b>			
<b>VE SUPER. DESIGN</b> <b>ROCKINGHAM VT. BR# 0126 (12)</b>				<b>BRIDGE RAILING DETAILS (1 OF 3)</b>			
<b>SHEET NUMBER</b> <b>41</b>				<b>P.E. NUMBER</b> <b>DATE:</b>			
DESIGN/DETAILED	DATE	BY	DATE	DESIGN/DETAILED	DATE	BY	DATE
CHECKED/REVISED	2014	ETC		CHECKED/REVISED			
REVISIONS 1				REVISIONS 1			
REVISIONS 2				REVISIONS 2			
REVISIONS 3				REVISIONS 3			
REVISIONS 4				REVISIONS 4			
FIELD CHANGES				FIELD CHANGES			

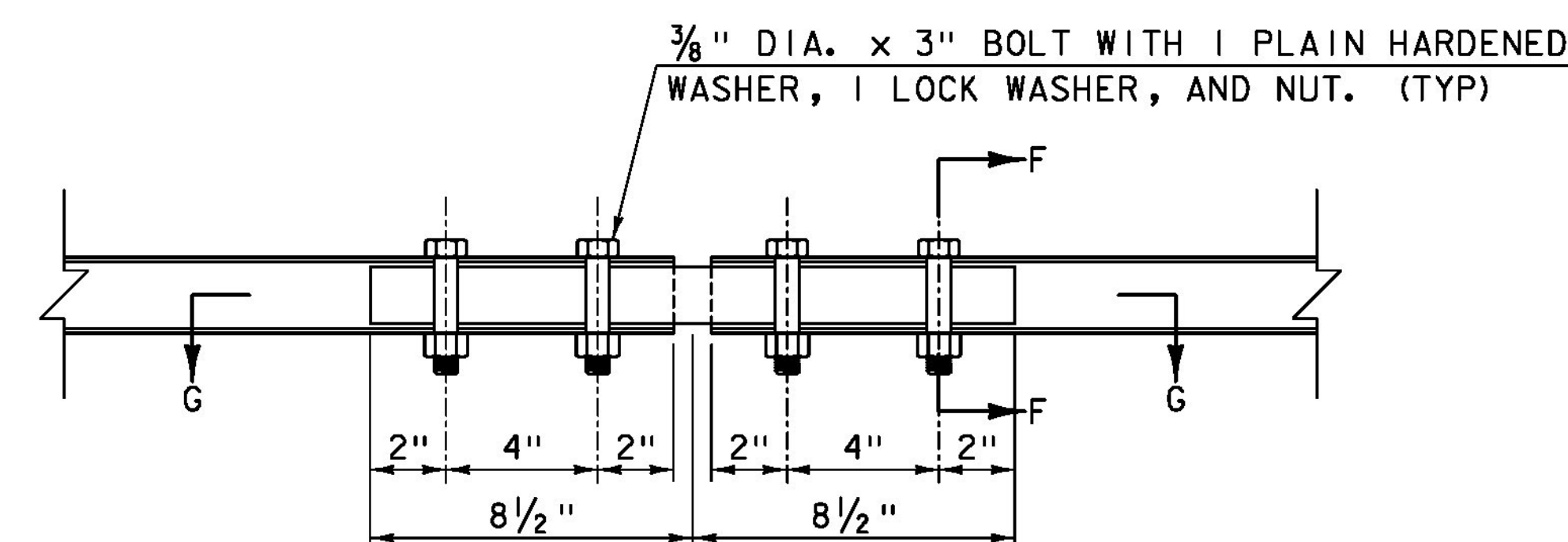




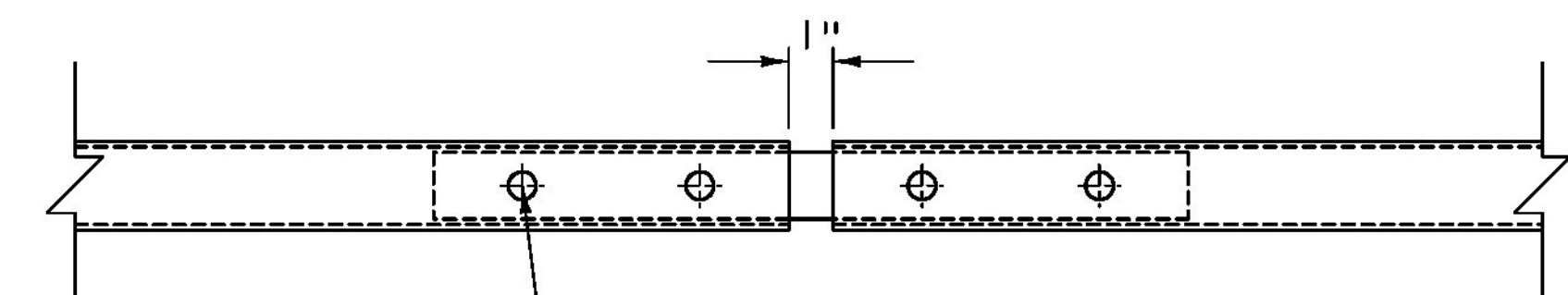
TOP RAIL SPLICE DETAIL  
N. T. S.



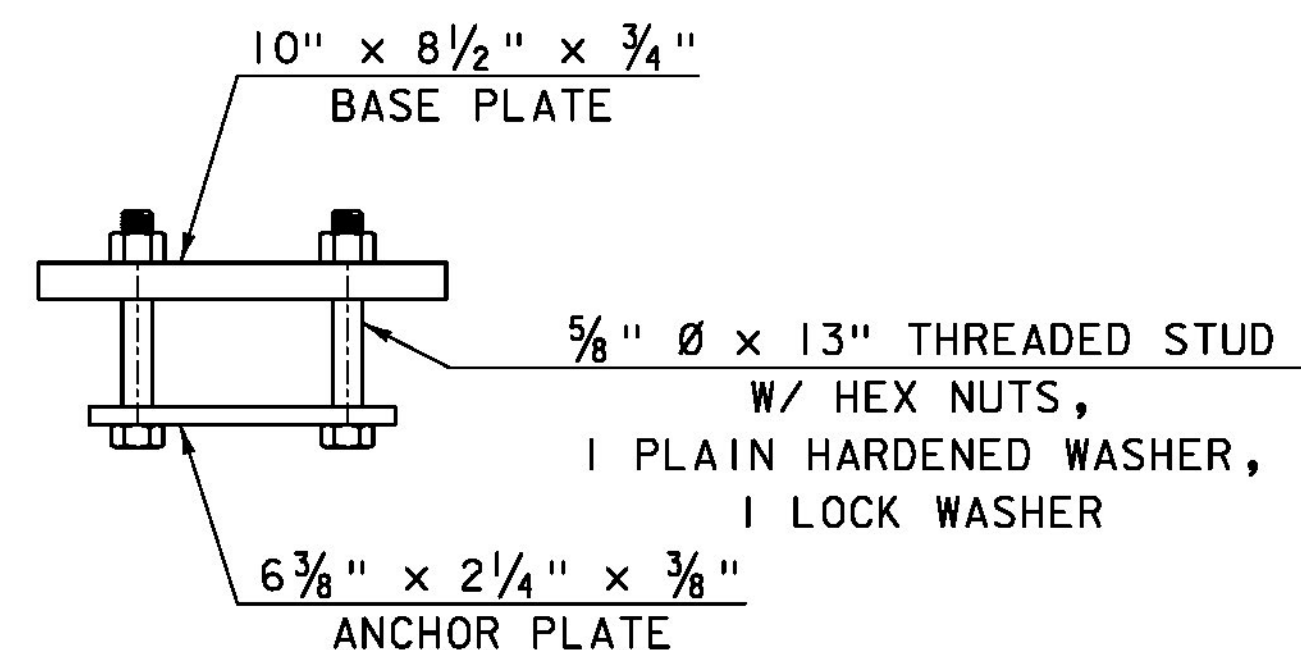
1/2" DIA. HOLE IN SPLICE ELEMENT  
AND HSS 4" x 3" x 1/4". (TYP)  
SECTION E-E  
N. T. S.



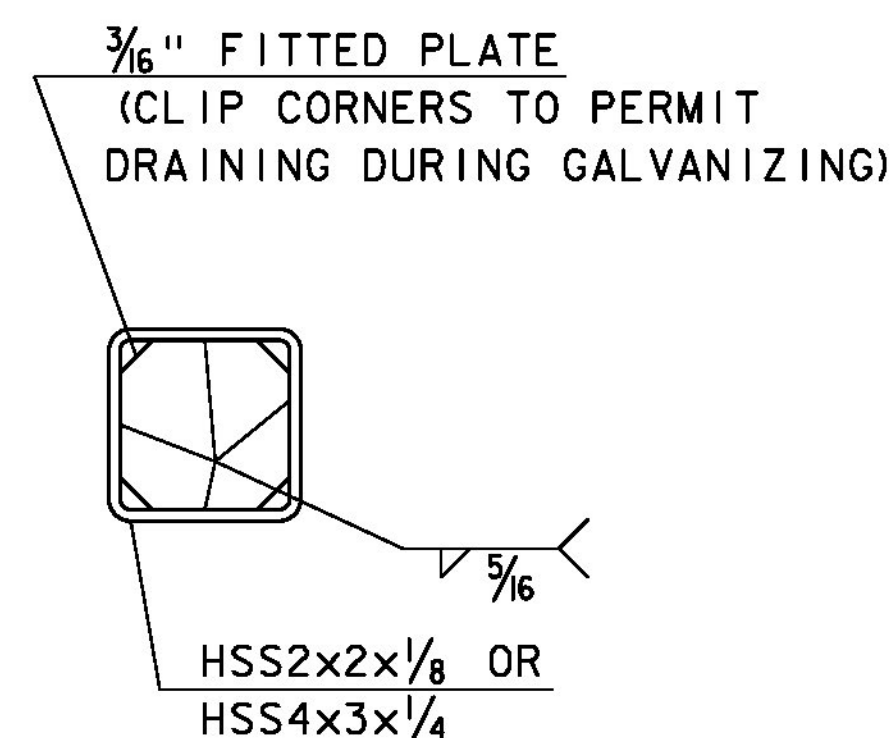
BOTTOM RAIL SPLICE DETAIL  
ELEVATION VIEW  
N. T. S.



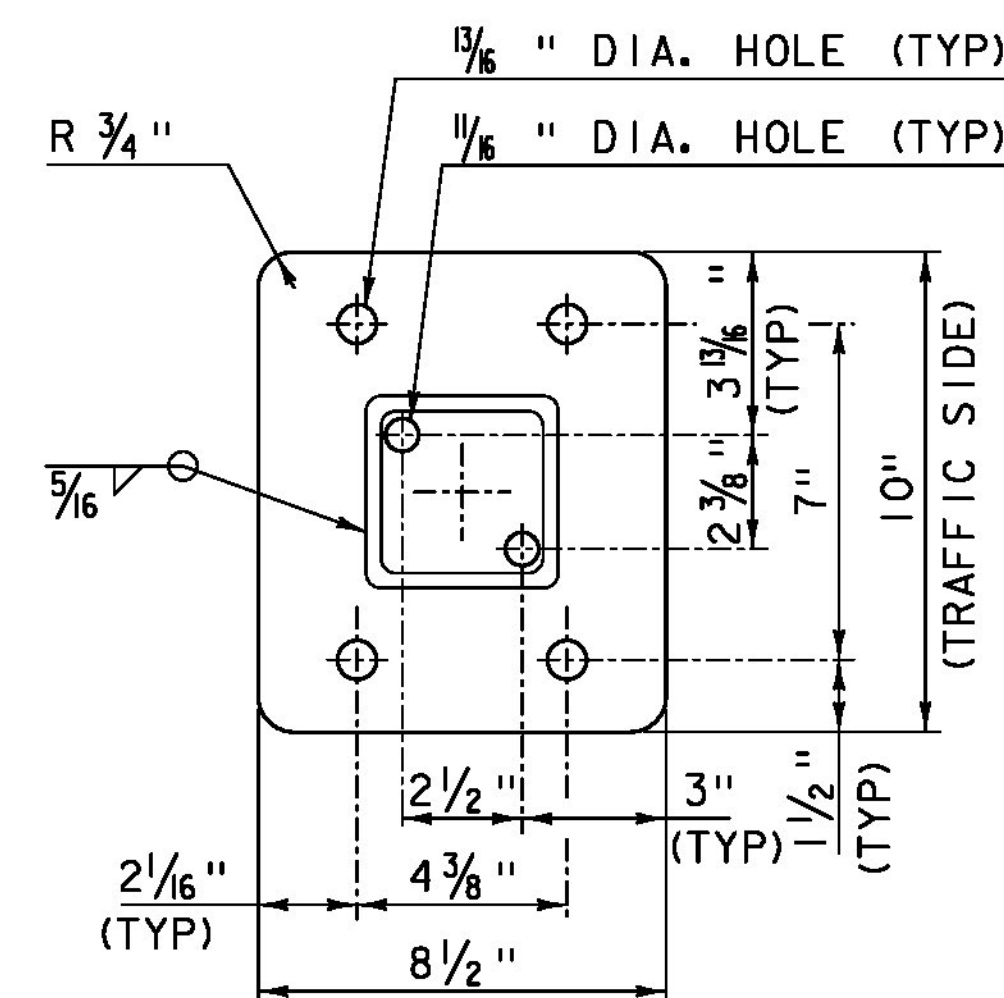
1/2" DIA. HOLE IN SPLICE ELEMENT  
AND HSS 2" x 2" x 1/8". (TYP)  
SECTION G-G  
N. T. S.



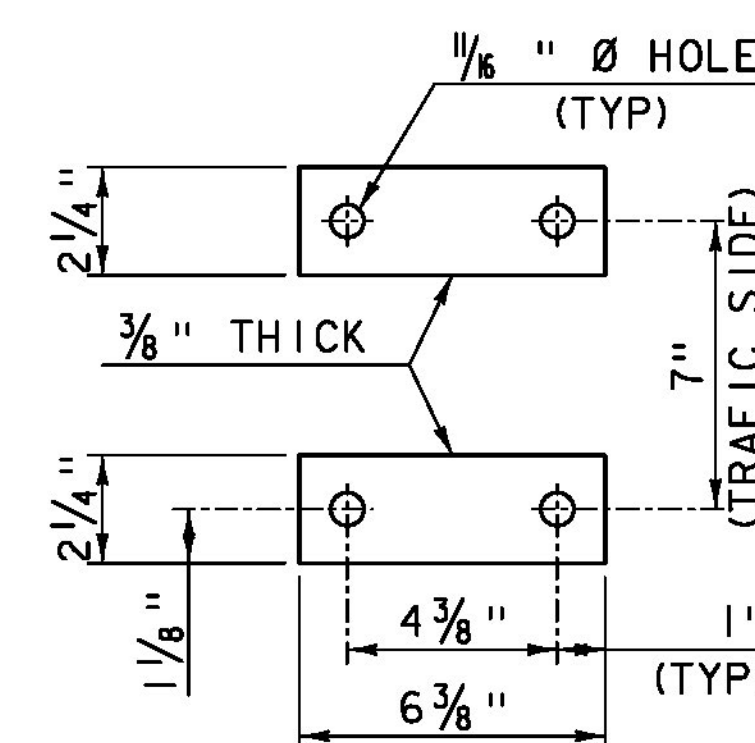
RAIL POST ANCHORAGE  
N. T. S.



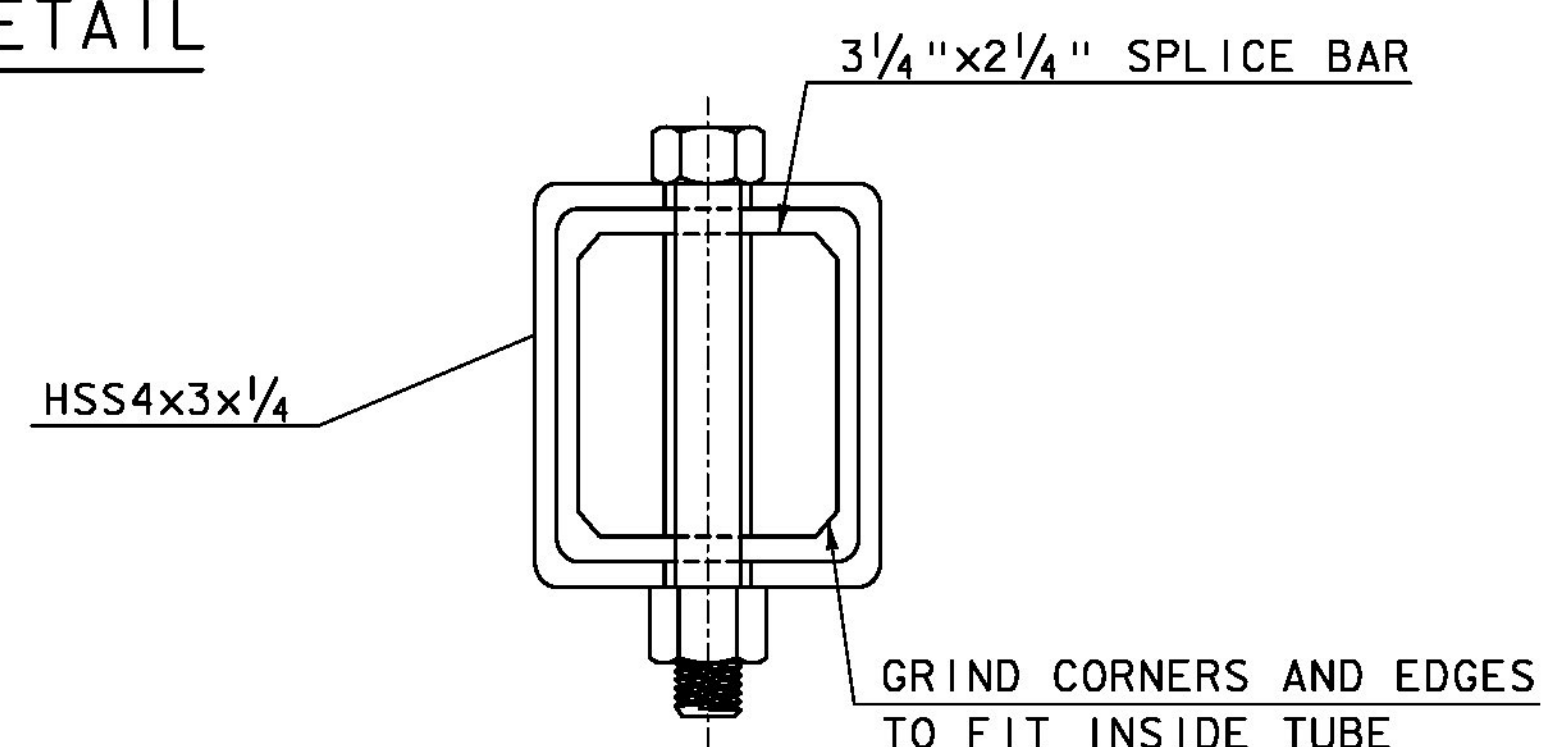
END OF RAIL DETAIL  
N. T. S.



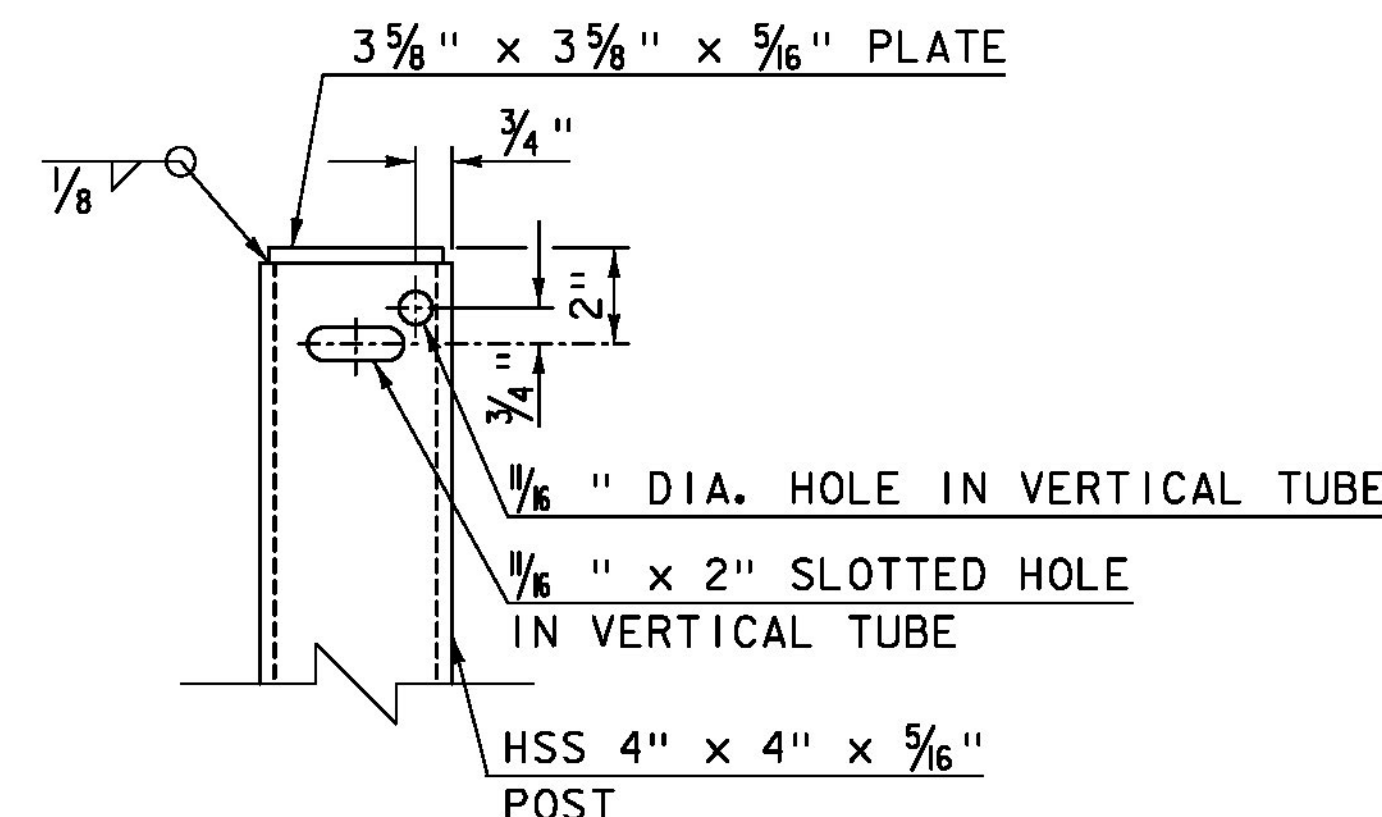
BASE PLATE  
N. T. S.



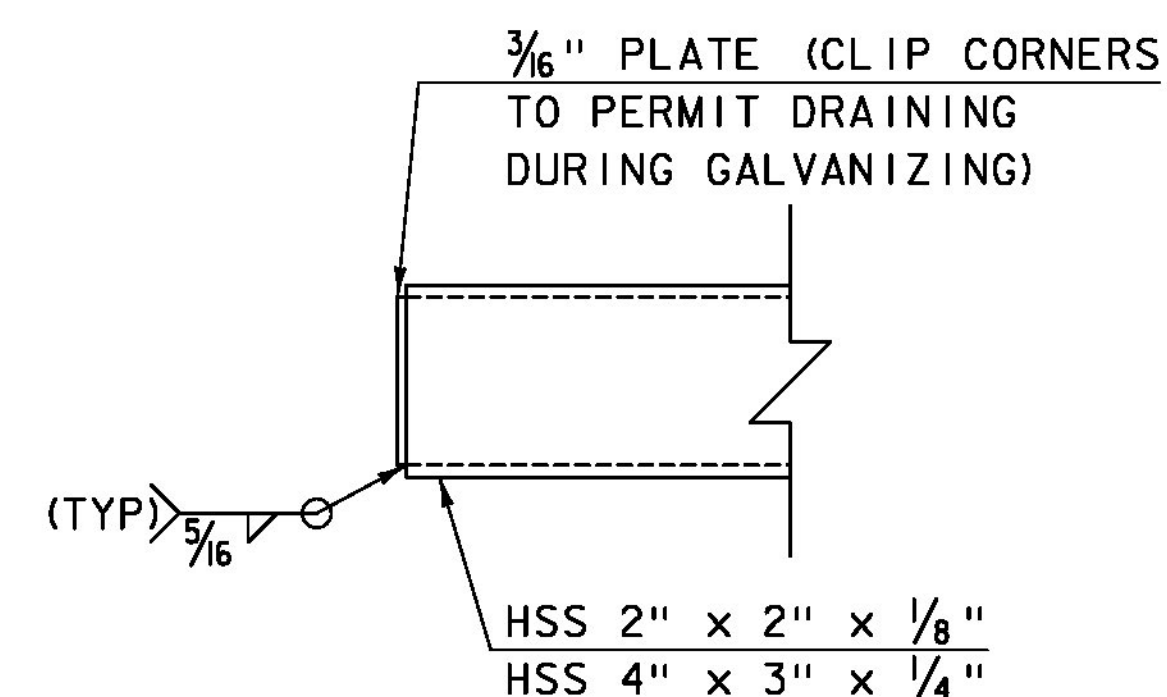
ANCHOR PLATES  
N. T. S.



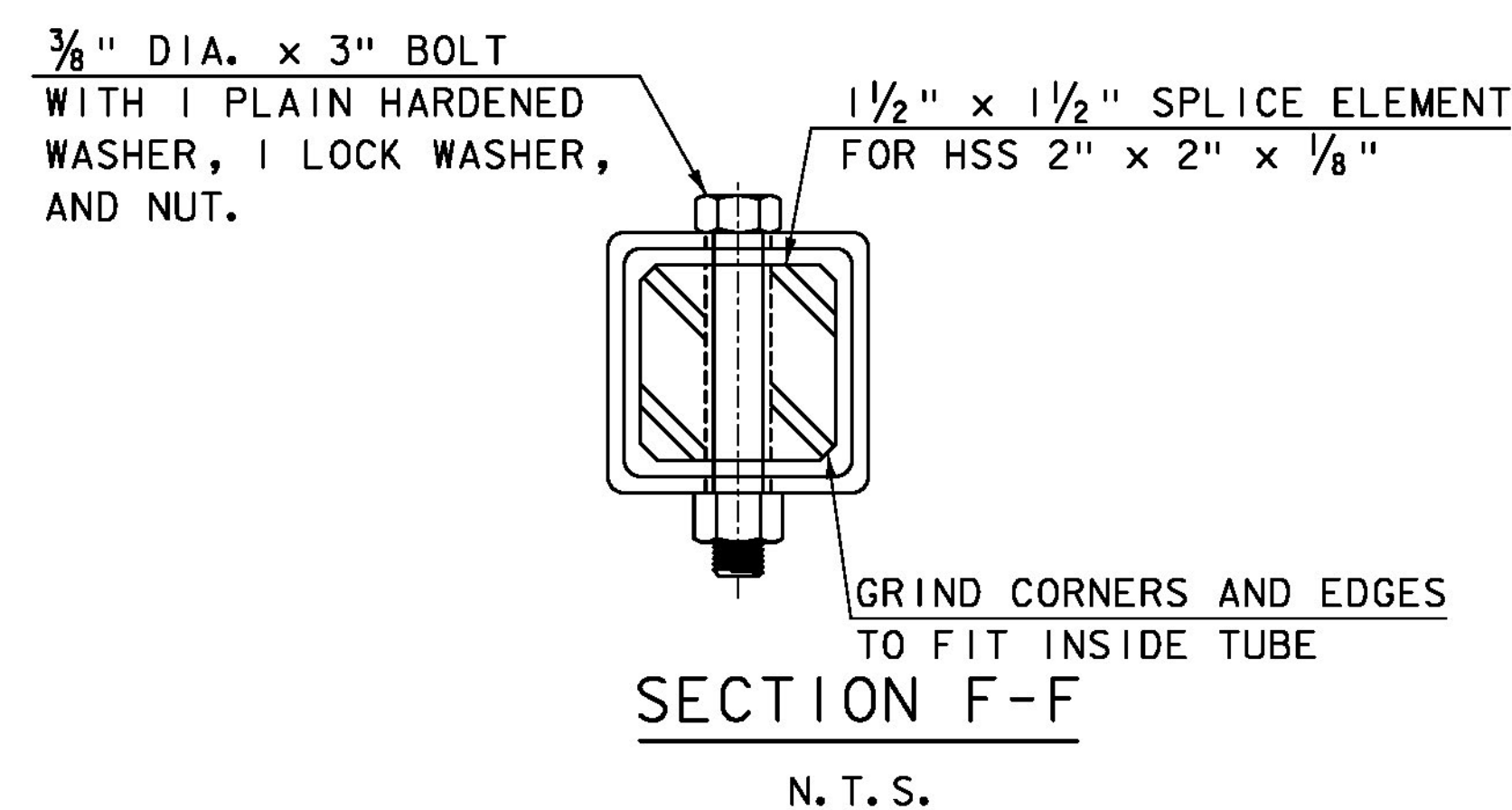
SECTION D-D  
N. T. S.



VERTICAL TUBE DETAIL  
(FRONT VIEW)  
N. T. S.



END OF RAIL DETAIL  
N. T. S.



SECTION F-F  
N. T. S.

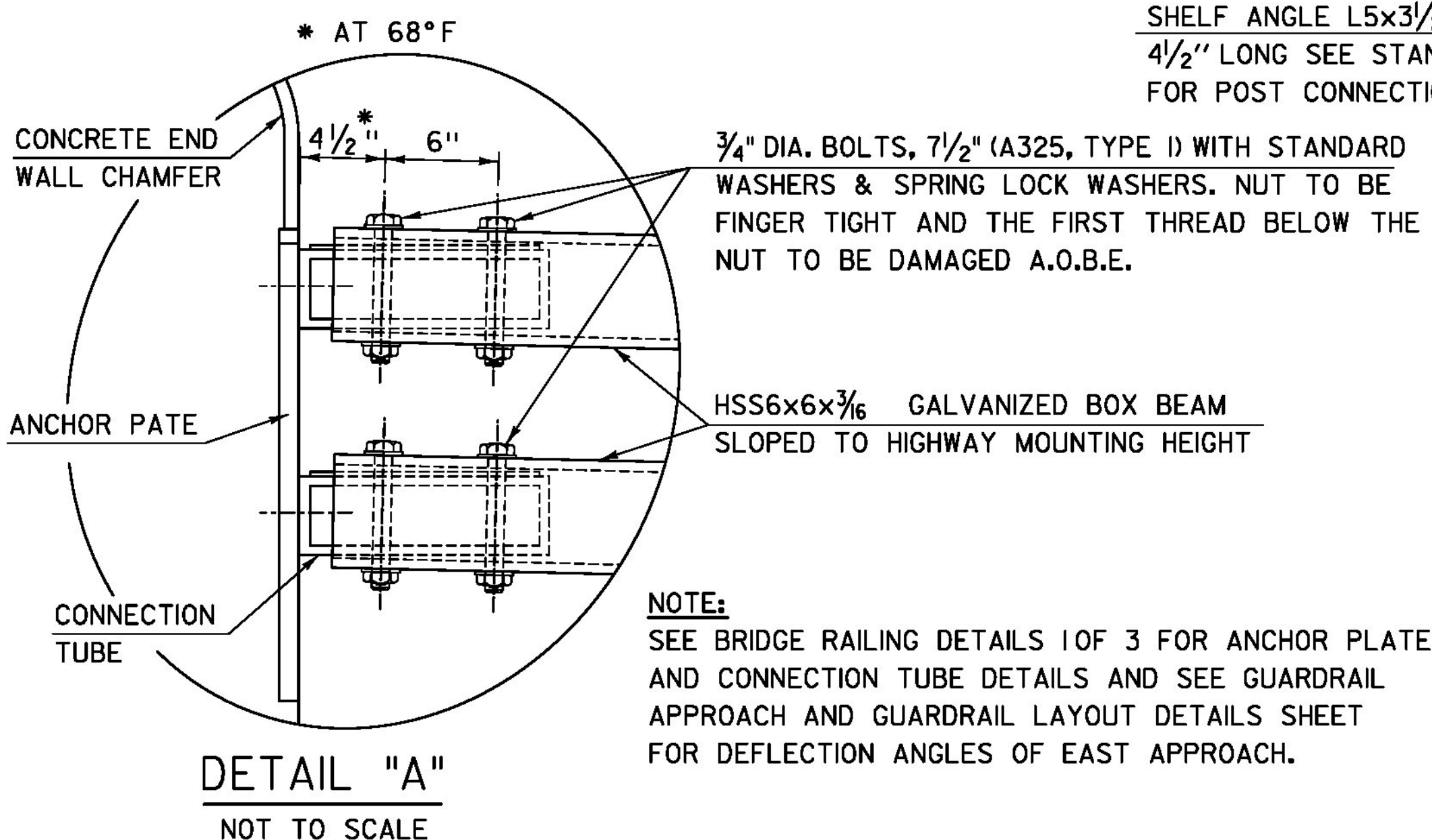
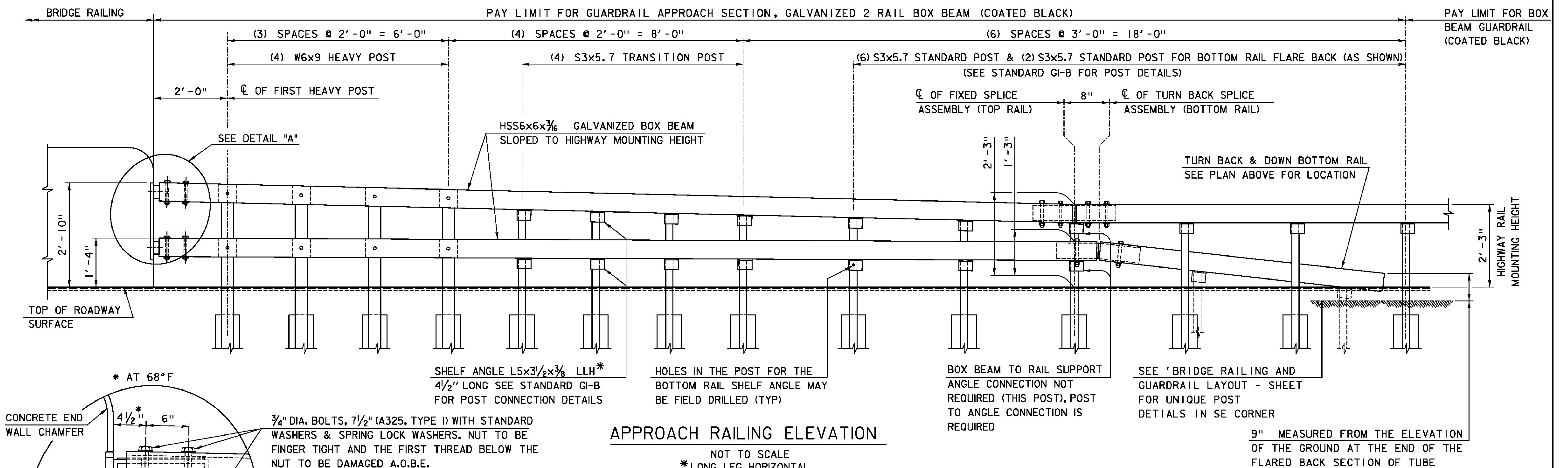
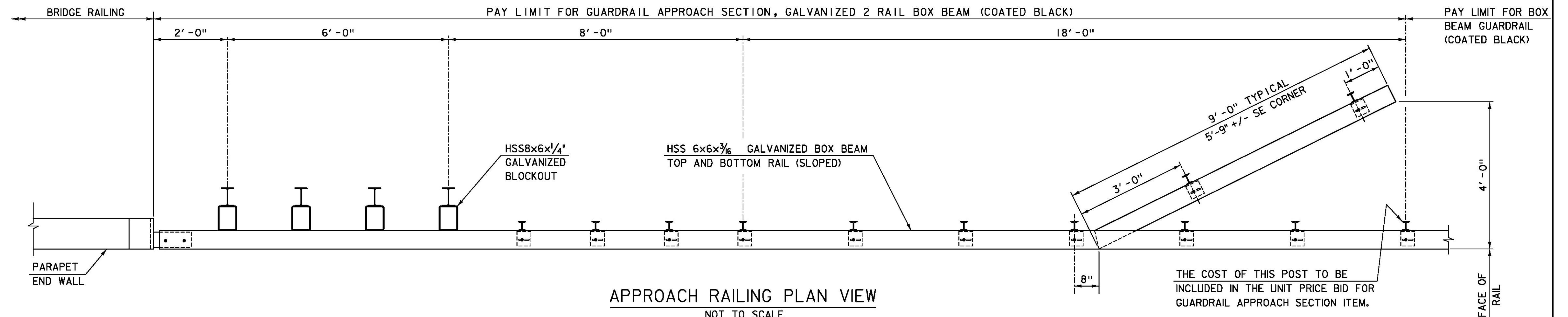
PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(I2)

FILE NAME: z10j072bdr_rail_02.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BRIDGE RAILING DETAILS (2 OF 3)

PLOT DATE: 8/26/2014  
DRAWN BY: B. CARTER  
CHECKED BY: T. POULIN  
SHEET 42 OF 69

TYLIN INTERNATIONAL





#### NOTES:

- ALL STEEL COMPONENTS SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.
- FOR "FIXED SPLICE TUBE", "FIXED SPLICE BAR", "FIXED SPLICE TUBE ASSEMBLY", AND "FIXED SPLICE BAR ASSEMBLY" DETAILS, SEE STANDARD S-364C.
- FOR "TURN BACK SPLICE TUBE DETAIL" AND "TURN BACK SPLICE TUBE ASSEMBLY" DETAILS, SEE STANDARD S-364D.
- FOR "HEAVY POST DETAIL" AND "TRANSITION POST DETAIL", SEE STANDARD S-364D.
- FOR SE CORNER MODIFICATION DETAILS, SEE 'BRIDGE RAILING AND GUARDRAIL LAYOUT' SHEET.
- SEE "GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS" SHEET FOR ADDITIONAL EAST APPROACH RAILING DETAILS.

TYLIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(I2)

FILE NAME: z10j072bdr_rail_03.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: S. KELLER  
BRIDGE RAILING DETAILS (3 OF 3)

PLOT DATE: 8/26/2014  
DRAWN BY: D. AXTELL  
CHECKED BY: T. POULIN  
SHEET 43 OF 69



## REINFORCING STEEL SCHEDULE

~ NOTES ~

1. 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 DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
0. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.

1. SUPERSTRUCTURE, ABUTMENT, AND PIER REINFORCEMENT SHALL BE LEVEL II.  
 APPROACH SLAB REINFORCEMENT SHALL BE LEVEL I.

**ASTM STANDARD REINFORCING BARS**

WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
	DIAMETER INCHES	AREA INCHES ²	PERIMETER INCHES
0.376	0.375	0.11	1.178
0.668	0.500	0.20	1.571
1.043	0.625	0.31	1.963
1.502	0.750	0.44	2.356
2.044	0.875	0.60	2.749
2.670	1.000	0.79	3.142
3.400	1.128	1.00	3.544
4.303	1.270	1.27	3.990
5.313	1.410	1.56	4.430
7.65	1.693	2.25	5.32
13.60	2.257	4.00	7.09

PROJECT NAME: **ROCKINGHAM**

PROJECT NUMBER: **BRF 0126(12)**

FILE NAME: z10j072bdr_rss.dgn

PROJECT MANAGER: R. HEBERT

DESIGNED BY: S. KELLER

REINFORCING STEEL SCHEDULE

PLOT DATE: 5/14/2011

DRAWN BY: T. POUL

CHECKED BY: R. HEBERT

SHEET 44 OF 44

PROJECT NAME: <b>ROCKINGHAM</b>	
PROJECT NUMBER: <b>BRF 0126(12)</b>	
FILE NAME: <b>z10j072bdr_rss.dgn</b>	PLOT DATE: <b>5/14/2014</b>
PROJECT MANAGER: <b>R. HEBERT</b>	DRAWN BY: <b>T. POULIN</b>
DESIGNED BY: <b>S. KELLER</b>	CHECKED BY: <b>R. HEBERT</b>
<b>REINFORCING STEEL SCHEDULE</b>	SHEET <b>44</b> OF <b>69</b>



ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES ²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

- |   |  |    |  |    |  |    |  |     |  |
|---|--|----|--|----|--|----|--|-----|--|
| 1 |  | 10 |  | 17 |  | S2 |  | S10 |  |
| 2 |  | 11 |  | 18 |  | S3 |  | S11 |  |
| 3 |  | 12 |  | 19 |  | S4 |  | T1  |  |
| 4 |  | 13 |  | 20 |  | S5 |  | T2  |  |
| 5 |  | 14 |  | 21 |  | S6 |  | T3  |  |
| 6 |  | 15 |  | 22 |  | S7 |  | T4  |  |
| 7 |  | 16 |  | 23 |  | S8 |  |     |  |
| 8 |  |    |  | 27 |  | S9 |  |     |  |
| 9 |  |    |  | SI |  |    |  |     |  |

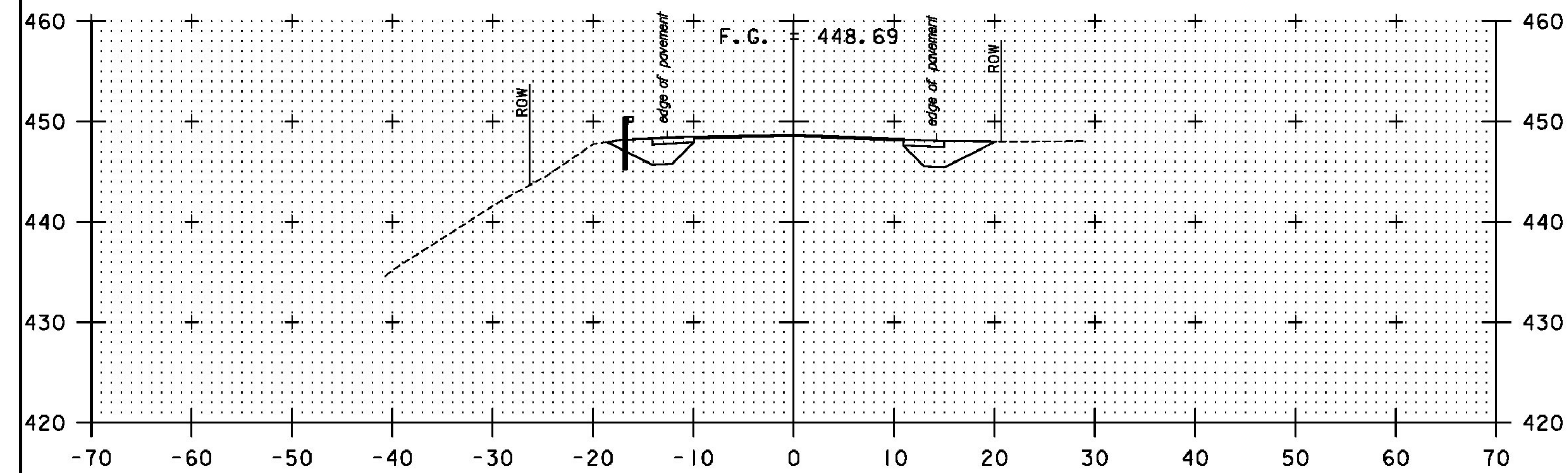
PROJECT NAME: <b>ROCKINGHAM</b>	
PROJECT NUMBER: <b>BRF 0126(12)</b>	
FILE NAME:	PLOT DATE:
PROJECT MANAGER:	DRAWN BY:
DESIGNED BY:	CHECKED BY:
<b>REINFORCING STEEL SCHEDULE</b>	SHEET <b>44</b> OF <b>69</b>



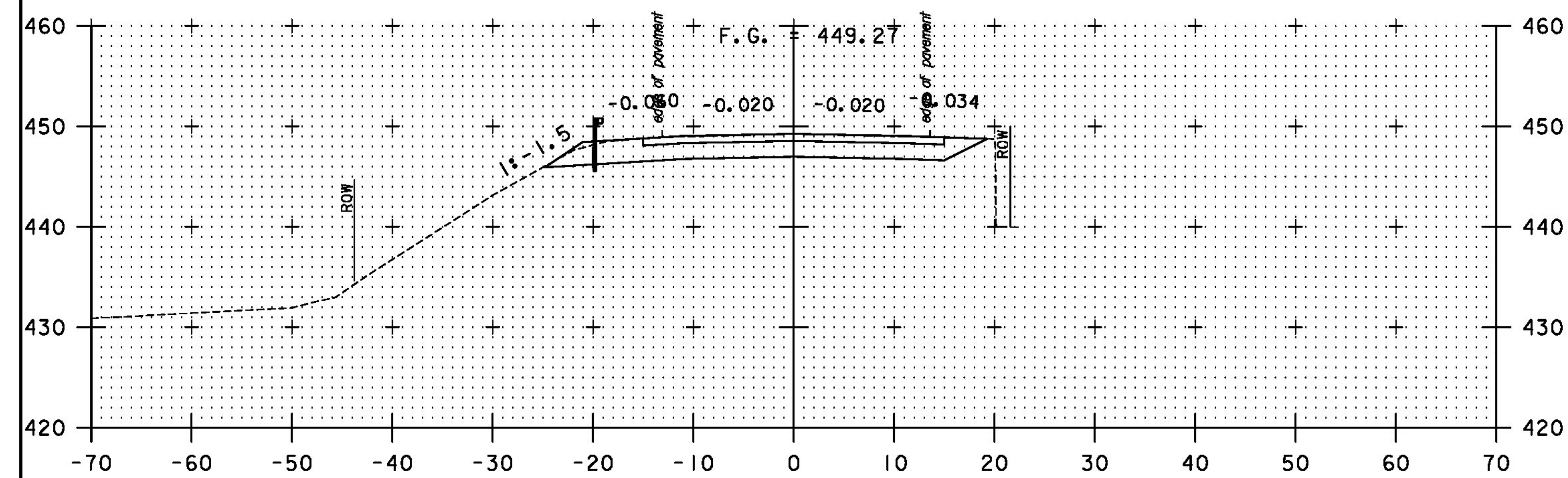




STA. 25+12.79  
END APPROACH  
MATCH EXISTING PAVEMENT



25+00

 $24+50$ 

STA. 24+34.48  
END PROJECT BR/ 0126 (12)  
BEGIN APPROACH

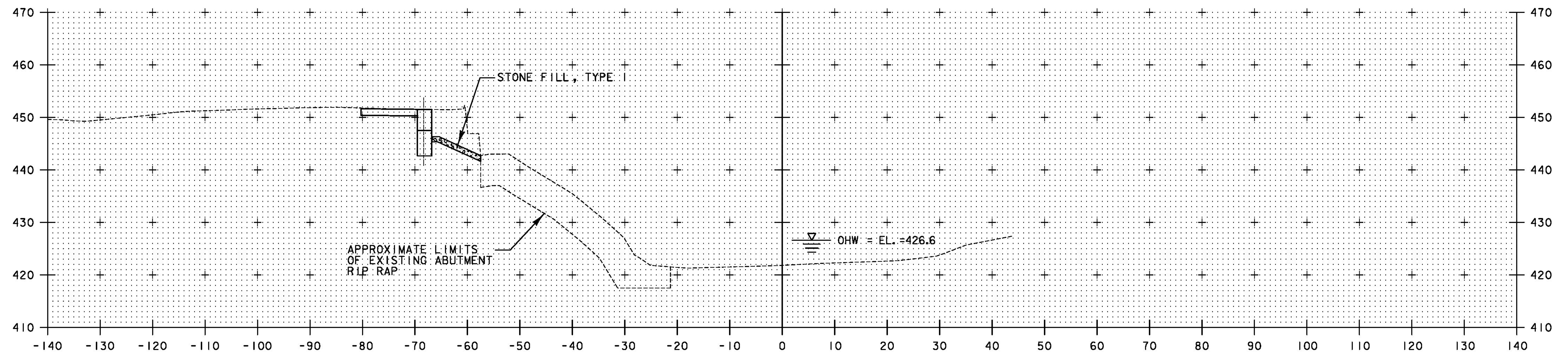
STA. 24+14.48  
END BRIDGE

SCALE 1" = 10' - 0"

TY·LIN INTERNATIONAL

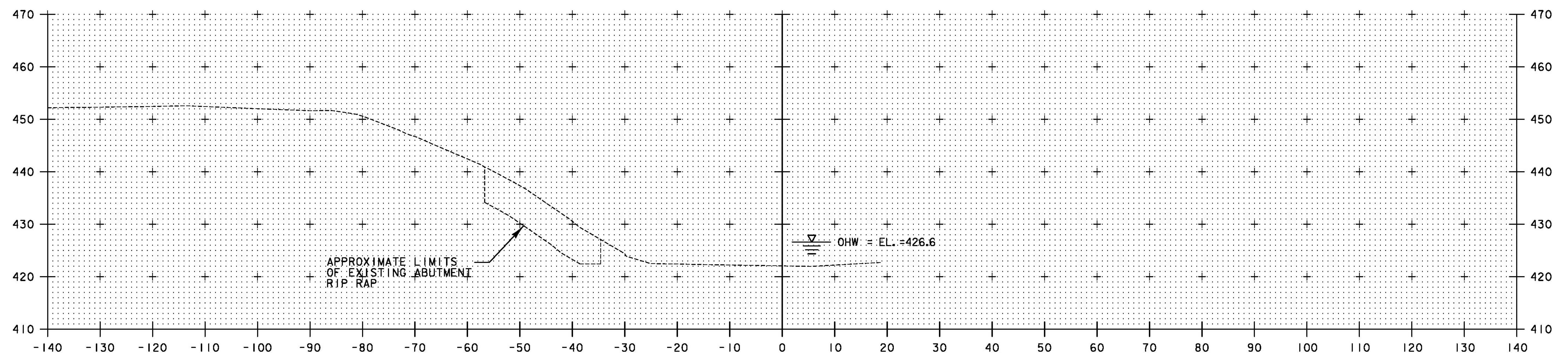
STA. 24+50 TO STA. 25+00	
PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)
FILE NAME: z10J072bdr_xs.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. BRYANT
DESIGNED BY: D. BRYANT	CHECKED BY: D. BURHANS
VT ROUTE 121 - CROSS SECTIONS - 2	SHEET 46 OF 69





STA 61+07.38 LEFT  
BEGIN GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE I

61+25



61+00

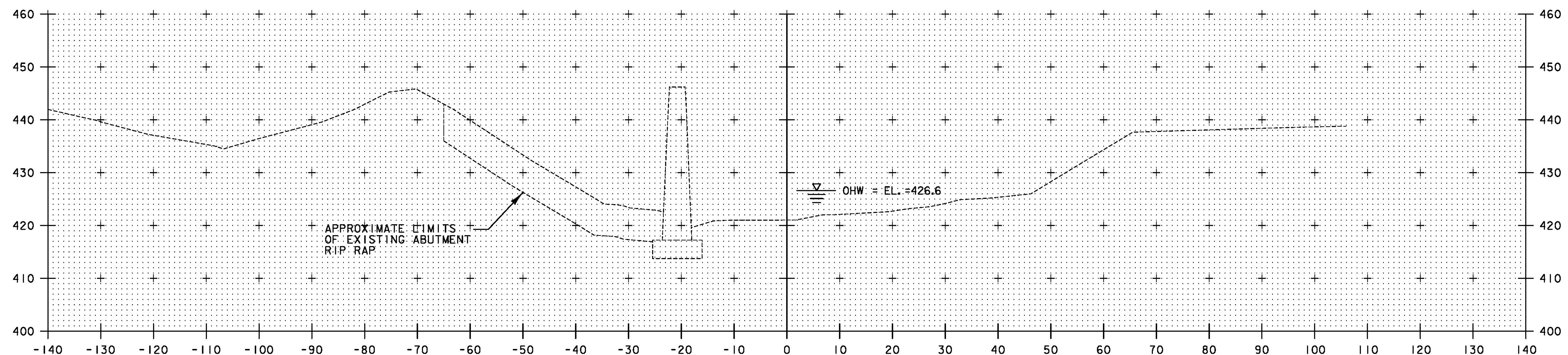
STA. 61+00 TO STA. 61+25

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)
FILE NAME:	z10j072bdr_xs02.dgn
PROJECT LEADER:	R. HEBERT
DESIGNED BY:	D. BURHANS
CHECKED BY:	D. BRYANT
CHANNEL CROSS SECTIONS - I	
PLOT DATE:	8/26/2014
DRAWN BY:	D. BURHANS
SHEET 47	OF 69

SCALE 1" = 10' - 0"

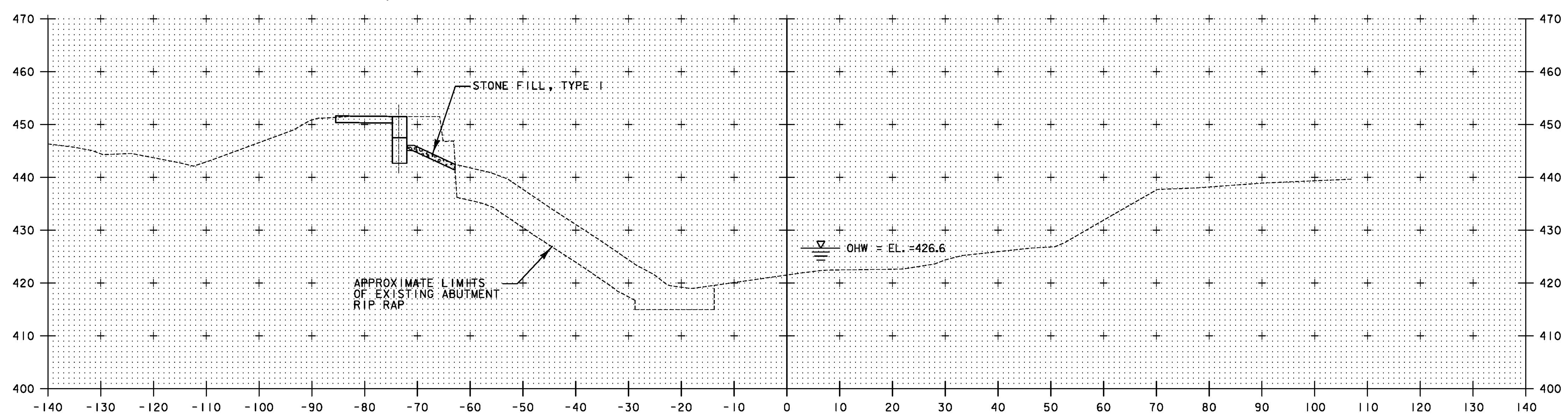
**TYLIN**INTERNATIONAL





STA 61+74.48 LEFT  
END GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE I

61+75



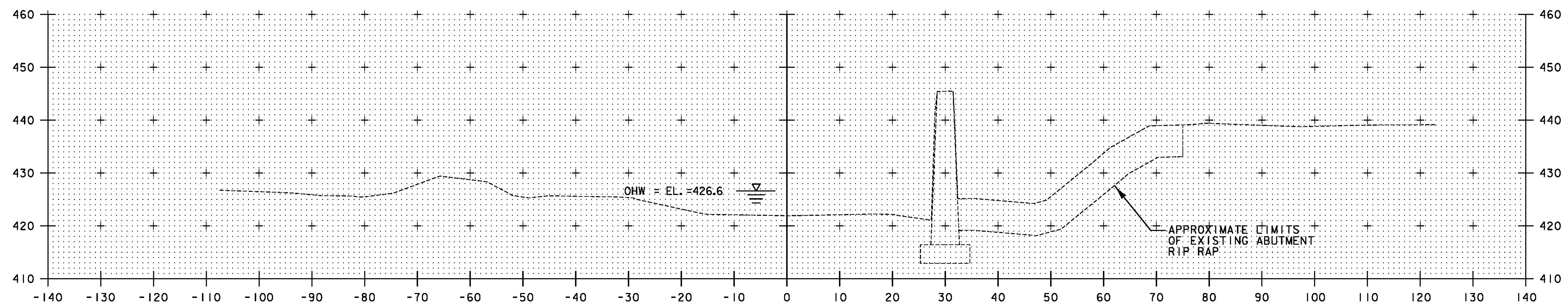
61+50

STA. 61+50 TO STA. 61+75

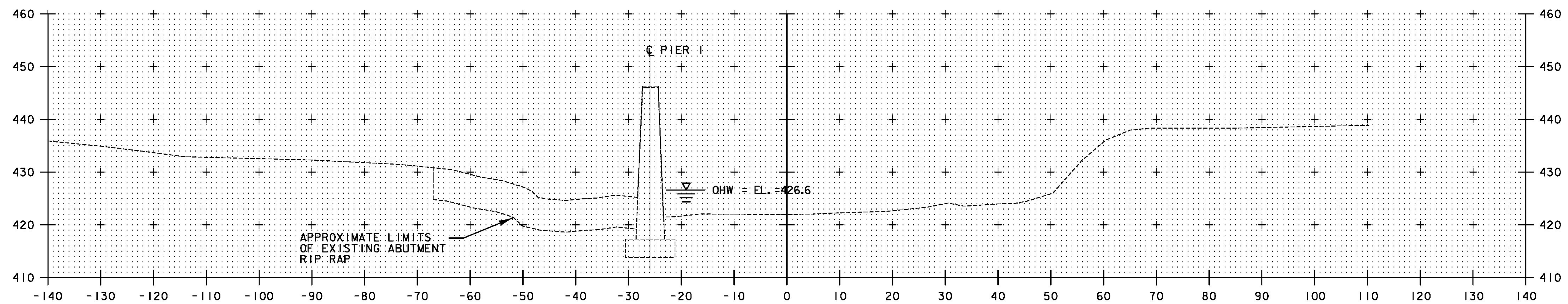
SCALE 1" = 10' - 0"

<b>TYLIN</b> INTERNATIONAL	PROJECT NAME: ROCKINGHAM	
	PROJECT NUMBER: BRF 0126(12)	
	FILE NAME: z10j072bdr_xs02.dgn	PLOT DATE: 8/26/2014
	PROJECT LEADER: R. HEBERT	DRAWN BY: D. BURHANS
	DESIGNED BY: D. BURHANS	CHECKED BY: D. BRYANT
	CHANNEL CROSS SECTIONS - 2	SHEET 48 OF 69





62+25

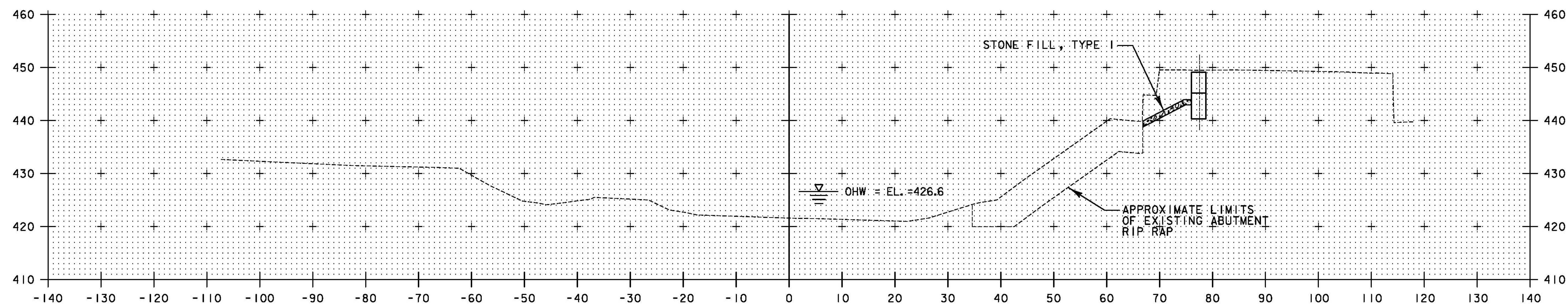


62+00

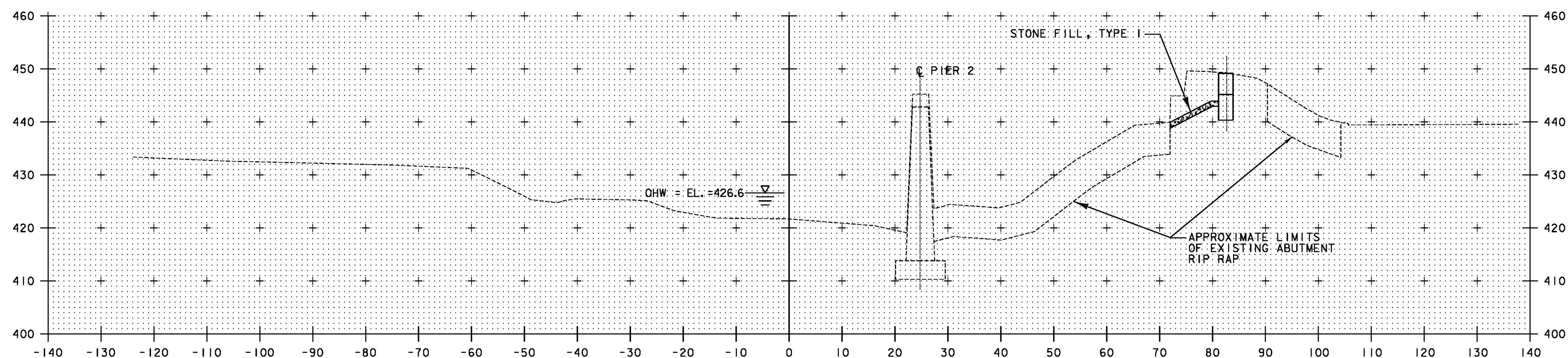
SCALE 1" = 10' - 0"

<b>TYLIN</b> INTERNATIONAL	STA. 62+00 TO STA. 62+25	
	PROJECT NAME:	ROCKINGHAM
	PROJECT NUMBER:	BRF 0126(12)
	FILE NAME:	z10j072bdr_xs02.dgn
	PROJECT LEADER:	R. HEBERT
	DESIGNED BY:	D. BURHANS
	CHANNEL CROSS SECTIONS -	3
		PLOT DATE: 8/26/2014
		DRAWN BY: D. BURHANS
		CHECKED BY: D. BRYANT
		SHEET 49 OF 69





62+75



62+50

STA 62+37.05 RIGHT  
BEGIN GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE I

STA. 62+50 TO STA. 62+75

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

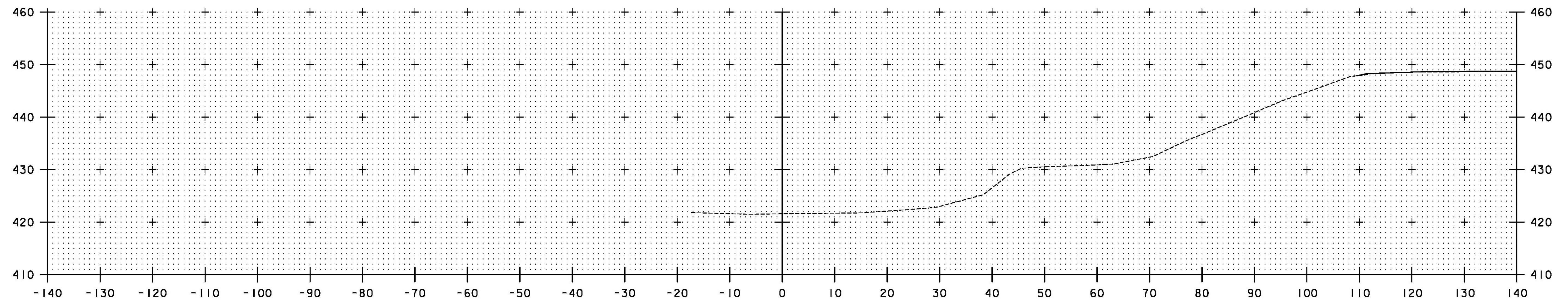
FILE NAME: z10j072bdr_xs02.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: D. BURHANS  
CHANNEL CROSS SECTIONS - 4

PLOT DATE: 8/26/2014  
DRAWN BY: D. BURHANS  
CHECKED BY: D. BRYANT  
SHEET 50 OF 69

SCALE 1" = 10' - 0"

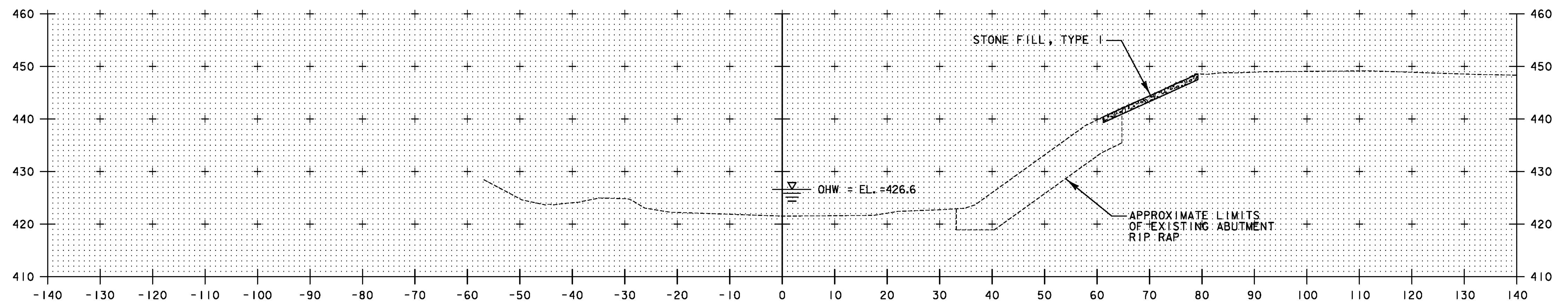
TYLIN INTERNATIONAL





63+25

STA 63+12.02 RIGHT  
END GEOTEXTILE UNDER STONE FILL  
STONE FILL, TYPE I



63+00

STA. 63+00 TO STA. 63+25

PROJECT NAME: ROCKINGHAM  
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_xs02.dgn  
PROJECT LEADER: R. HEBERT  
DESIGNED BY: D. BURHANS  
CHANNEL CROSS SECTIONS - 5

PLOT DATE: 8/26/2014  
DRAWN BY: D. BURHANS  
CHECKED BY: D. BRYANT  
SHEET 51 OF 69

SCALE 1" = 10' - 0"

TYLIN INTERNATIONAL



EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF THE BRIDGE ON STATE ROUTE 121 SPANNING OVER THE BODY OF WATER KNOWN AS SAXTONS RIVER IN THE TOWN OF ROCKINGHAM. WORK WILL INVOLVE REPLACEMENT OF BOTH ABUTMENTS AND THE BRIDGE SUPERSTRUCTURE ON THE EXISTING ALIGNMENT. EXISTING ABUTMENTS WILL BE PARTIALLY REMOVED TO THE LIMITS SHOWN ON THE EARTHWORK TYPICAL SECTION SHEET. ALSO INCLUDED WILL BE RELATED CHANNEL AND APPROACH WORK. THE LENGTH OF THE PROJECT IS APPROXIMATELY 243 FEET ALONG VT ROUTE 121. THE SITE IS LOCATED, BASED ON NAD 83/92 AT 233073.66 N, 1639680.82 E (POINT HVCTRL #2- SEE TIE SHEET).

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA AS SHOWN ON THE ATTACHED EPSC PLAN. THE AREA OF DISTURBANCE DOES NOT INCLUDE WASTE, BORROW AND STAGING AREAS. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING TO VTRANS ENVIRONMENTAL SECTION FOR APPROVAL, THE LOCATION OF THE WASTE, BORROW AND STAGING AREAS, AS WELL AS THE MATERIAL STOCKPILE, REFUELING AND MAINTENANCE AREAS. A MAP SHALL BE ATTACHED IF NECESSARY.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 17,067 SF (0.39 ACRES).

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY, EXISTING ROADS, UTILITIES

THE TOPOGRAPHY SURROUNDING THE PROJECT SITE CONSISTS MOSTLY OF LIGHTY WOODED AREAS AND RESIDENTIAL PROPERTIES WITH WELL ESTABLISHED LAWNS. PORTIONS NEAR THE WATER BODY INCLUDE LIGHTLY WOODED AREAS WITH MODERATE SLOPES. THE GENERAL TOPOGRAPHY OF THE AREA SLOPES FROM THE SOUTH TO THE NORTH. ALL ROAD SURFACES IN THE PROJECT AREA ARE BITUMINOUS CONCRETE PAVEMENT. THERE IS ONE COMMERICAL BUILDING AND ONE RESIDENTIAL BUILDING ON THE SOUTH AND NORTH SIDES OF THE EAST APPROACH ROADWAY RESPECTIVELY. THERE IS ONE RESIDENTIAL BUILDING ON EACH SIDE OF THE WEST APPROACH ROADWAY.

THERE ARE OVERHEAD ELECTRICAL AND TELEPHONE LINES ON THE EAST AND WEST ENDS OF THE PROJECT THAT SPAN THE FULL LENGTH OF THE BRIDGE ON THE NORTH SIDE. OVERHEAD LINES ALSO CROSS ROUTE 121 ON THE EAST AND WEST ENDS OF THE PROJECT.

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

THE BRIDGE SPANS THE BODY OF WATER KNOWN AS SAXTONS RIVER. THE STREAM IS CHARACTERIZED AS STRAIGHT TO SINUOUS, ALLUVIAL, PROBABLY INCISED AND STABLE WITH A GRAVEL AND COBBLE STREAMBED. THERE IS ALSO AN UNNAMED STREAM NEAR THE NORTHWEST CORNER OF THE BRIDGE.

THE FOLLOWING DESCRIPTIONS ARE FOR THE EXISTING SITE PLANS: SURFACE DRAINAGE FROM STATE ROUTE 121 FLOWS DOWN EXISTING VEGETATED AND WOODED SIDESLOPES AND INTO SAXTONS RIVER.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS MOSTLY OF LIGHTLY WOODED AREAS. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS REQUIRED FOR REPLACEMENT OF THE EXISTING BRIDGE. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES OR REPLACED WITH STONE FILL.

1.2.4 SOILS

SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE FOR THE COUNTY OF WINDHAM, VERMONT. SOILS ON THE PROJECT SITE ARE:

THROUGHOUT THE PROJECT THE SOIL TYPE IS QUONSET AND WARWICK, 2 TO 8 PERCENT SLOPE, “K FACTOR” = 0.16. THE EROSION HAZARD IS “LOW” DUE TO ITS K FACTOR.

1.2.4 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: SAXTONS RIVER IS DEFINED AS ESSENTIAL FISH HABITAT.  
HISTORICAL OR ARCHAEOLOGICAL AREAS: THERE ARE SEVERAL AREAS OF ARCHAEOLOGICAL SIGNIFICANCE ON BOTH THE EAST AND WEST ENDS OF THE PROJECT. THE WEST BANK OF THE RIVER IS A NATIONAL REGISTERED LANDMARK DESIGNATED HISTORIC VILLAGE DISTRICT.  
PRIME AGRICULTURE LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: SAXTONS RIVER AND UNNAMED BROOK  
WETLANDS: NO

1.3 RISK EVALUATION

THE PROJECT DOES NOT FALL 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 CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT TO AVOID 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 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.

THE SITE BOUNDARIES SHALL BE PHYSICALLY MARKED. THE CONTRACTOR MAY CHOOSE PROJECT DEMARCATION FENCING (PDF) AND/OR BARRIER FENCE TO MARK THE SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR’S PROGRESS SCHEDULE. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED 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 SHOULD BE INSTALLED PRIOR TO ANY UPSLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN OR AS NECESSARY.

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.

DIVERSION OF UPLAND RUNOFF NOT ANTICIPATED.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

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

THE USE OF STONE CHECK DAMS IS NOT ANTICIPATED FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STOMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS.

SEED AND MULCH WILL BE USED AS PERMANENT CONTROLS TO STABILIZE EXPOSED SOIL. STONE FILL WILL BE USED TO STABILIZE THE STREAMBED SLOPES AROUND ABUTMENTS.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

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 COFFERDAM IS NOT ANTICIPATED.

1.4.12 INSPECT YOUR SITE

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

1.5 SEQUENCE AND STAGING

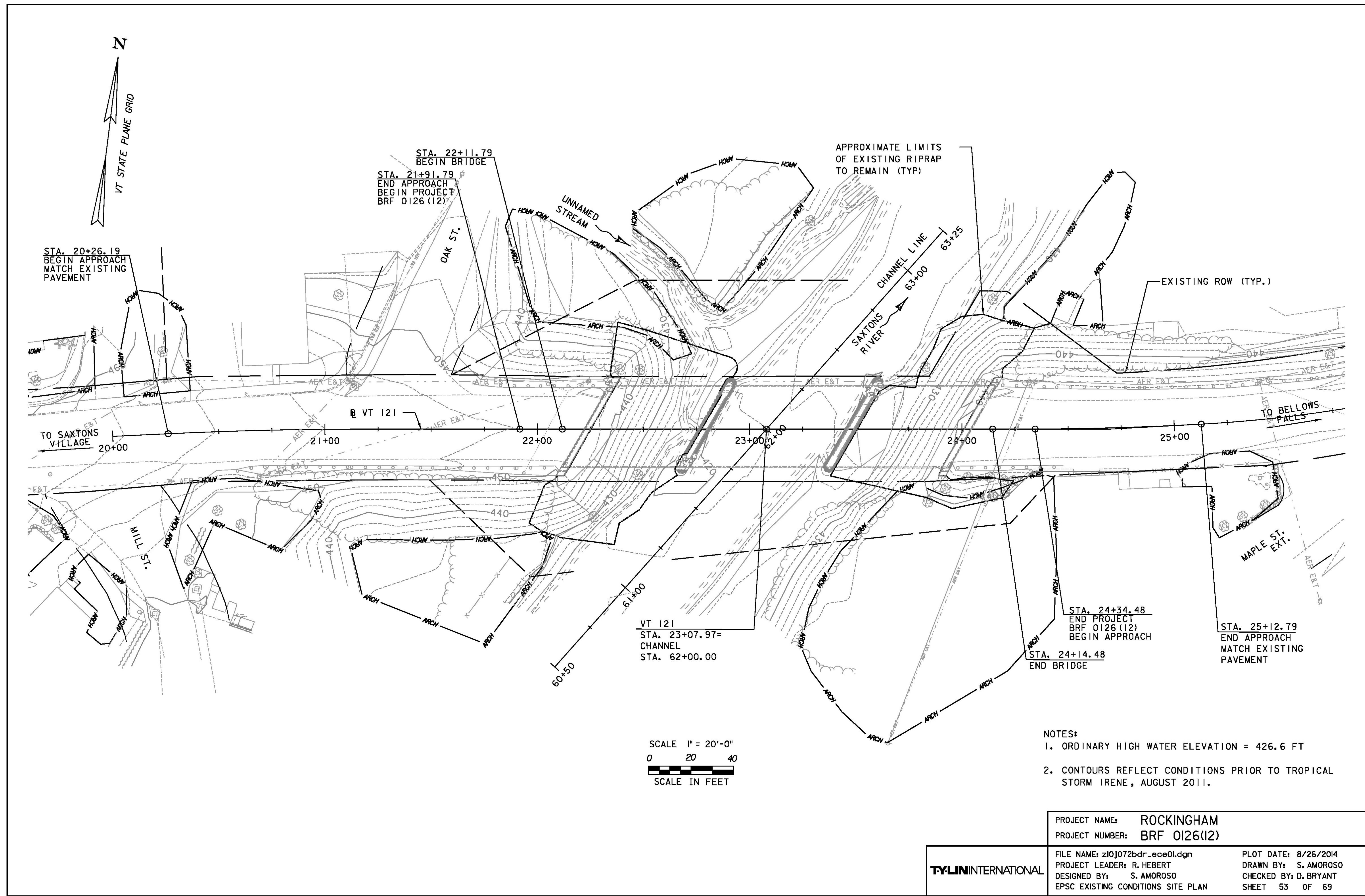
THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.2 OFF-SITE ACTIVITIES

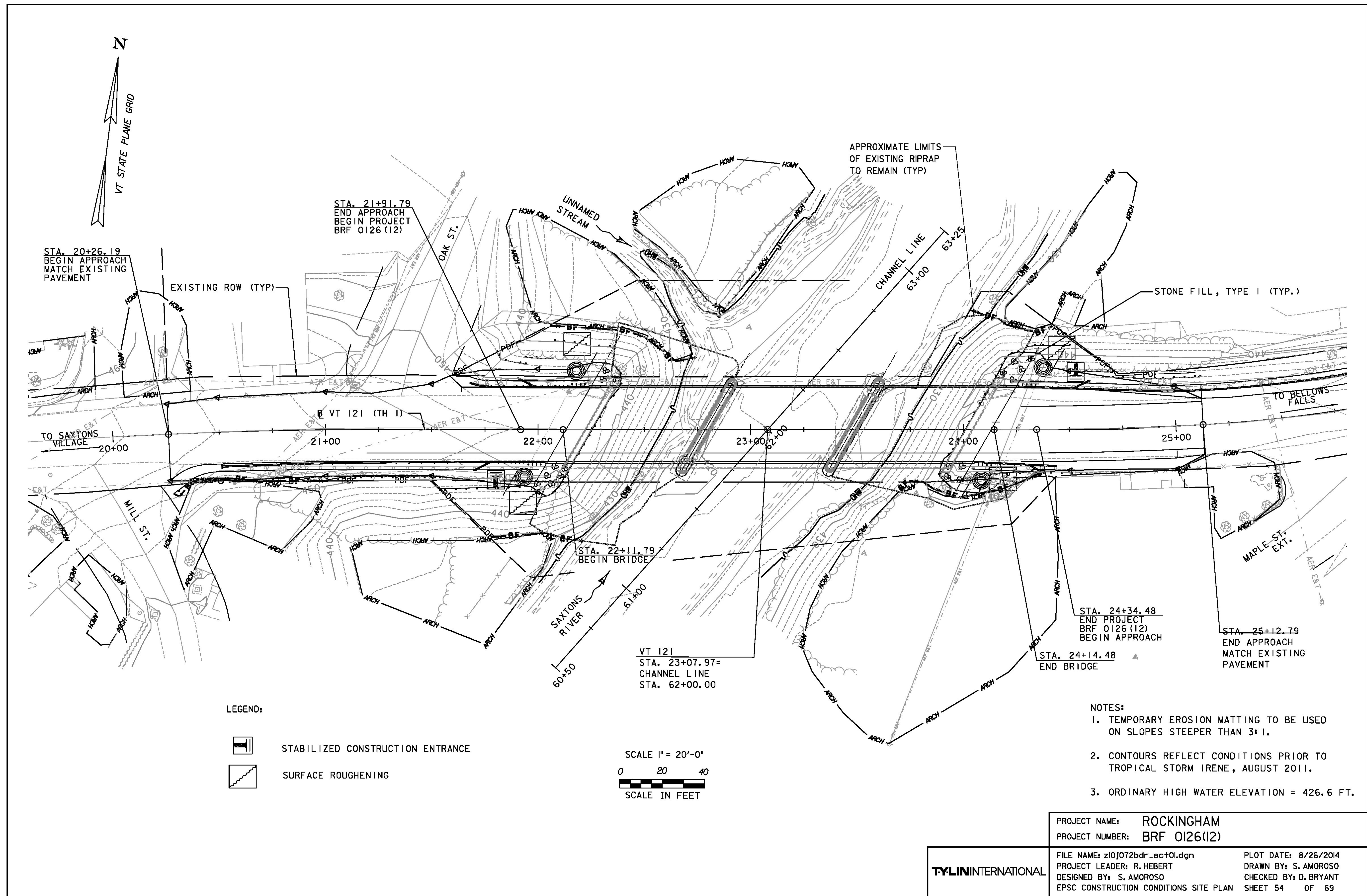
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

TYLININTERNATIONAL	PROJECT NAME: ROCKINGHAM PROJECT NUMBER: BRF 0126(I2)	
	FILE NAME: z10J072bdr_epson.dgn PROJECT LEADER: R. HEBERT DESIGNED BY: S. AMOROSO EPSC NARRATIVE	PLOT DATE: 8/26/2014 DRAWN BY: S. AMOROSO CHECKED BY: D. BRYANT SHEET 52 OF 69

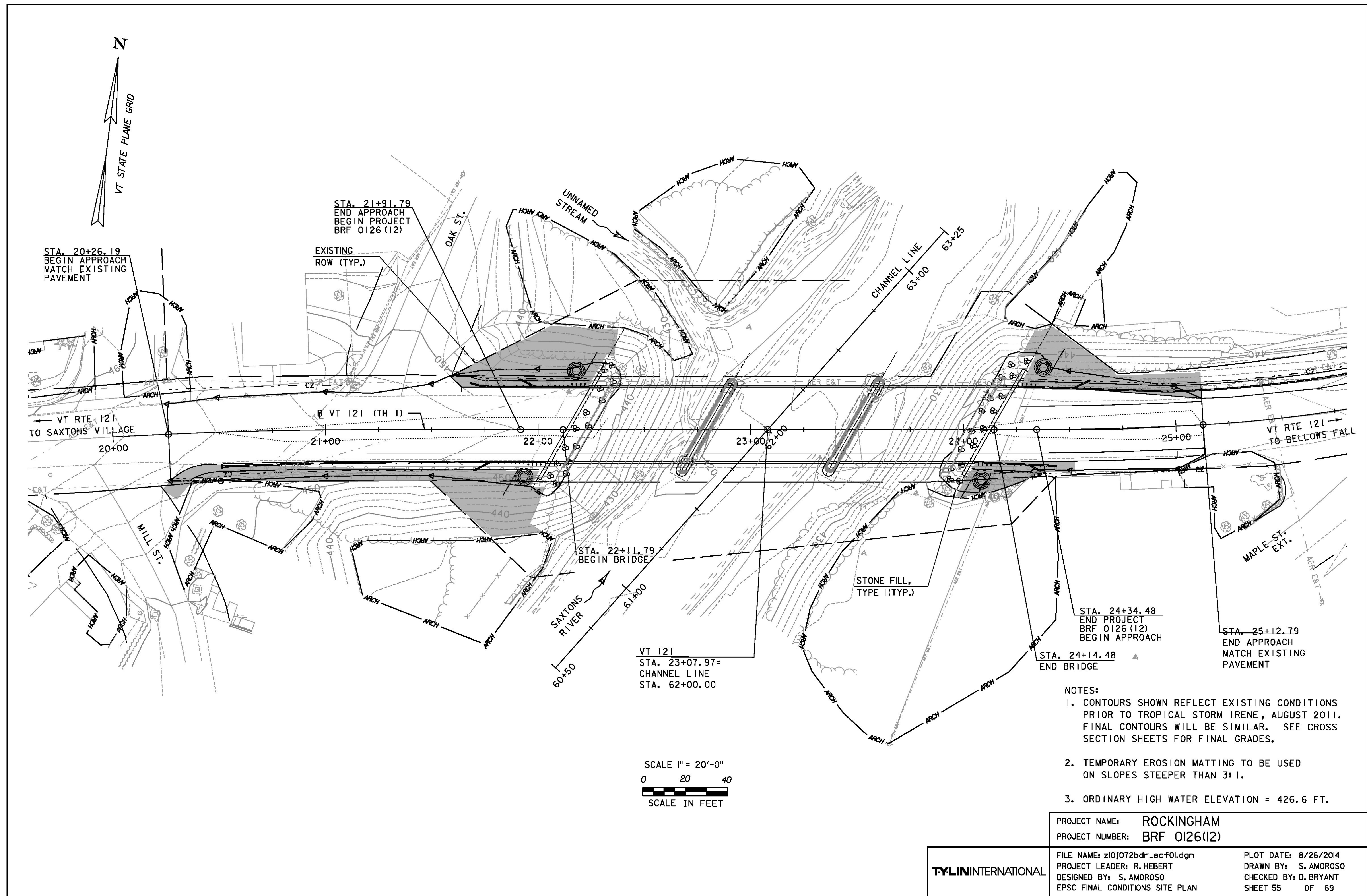




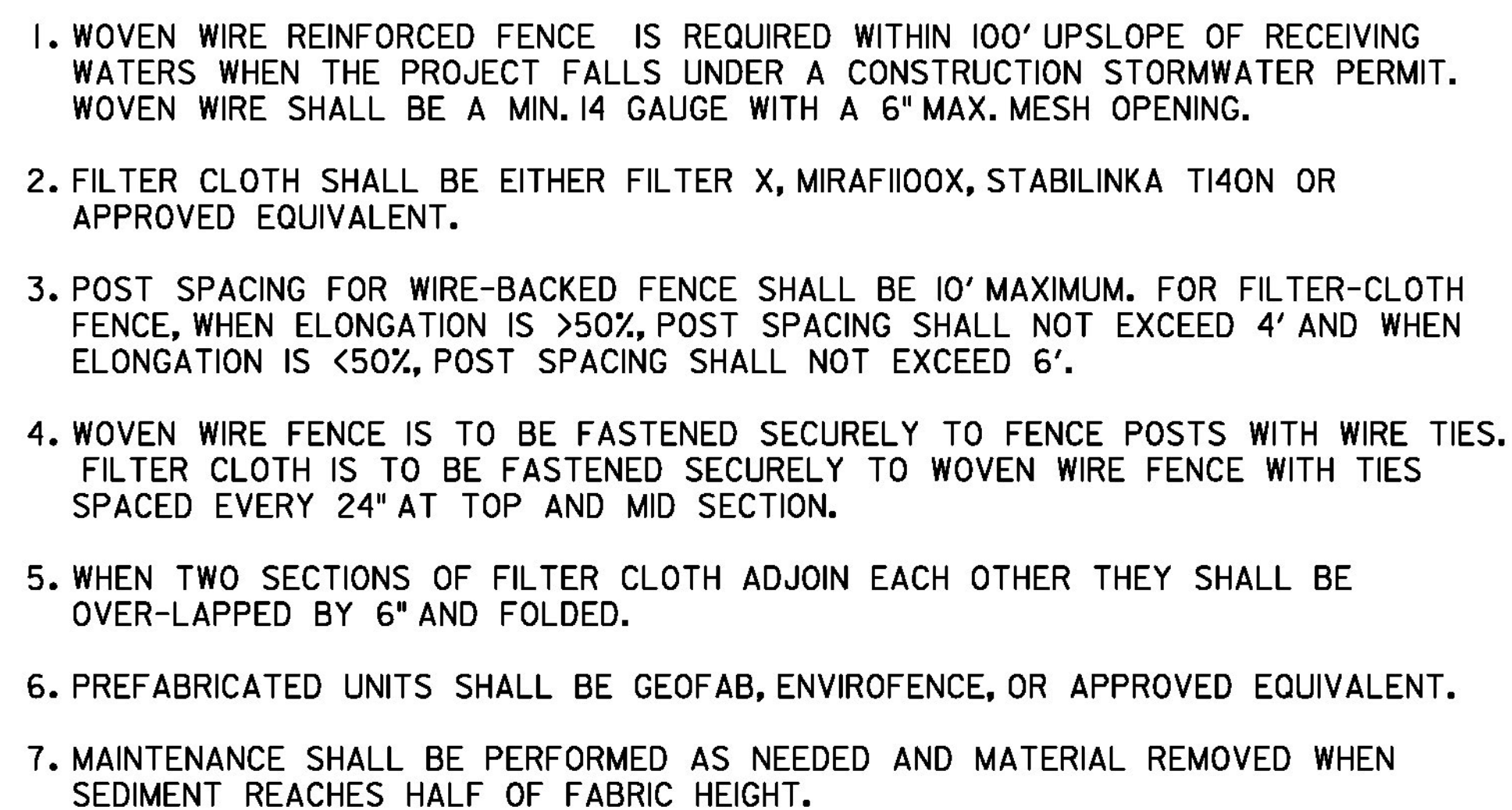












SILT FENCE

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.5I) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.5J).

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



1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ROLLED EROSION  
CONTROL PRODUCT  
(RECP) SIDE SLOPE

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

PLOT DATE: 8/26/2014  
DRAWN BY: S. AMOROSO  
CHECKED BY: D. BRYANT  
SHEET 56 OF 69







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

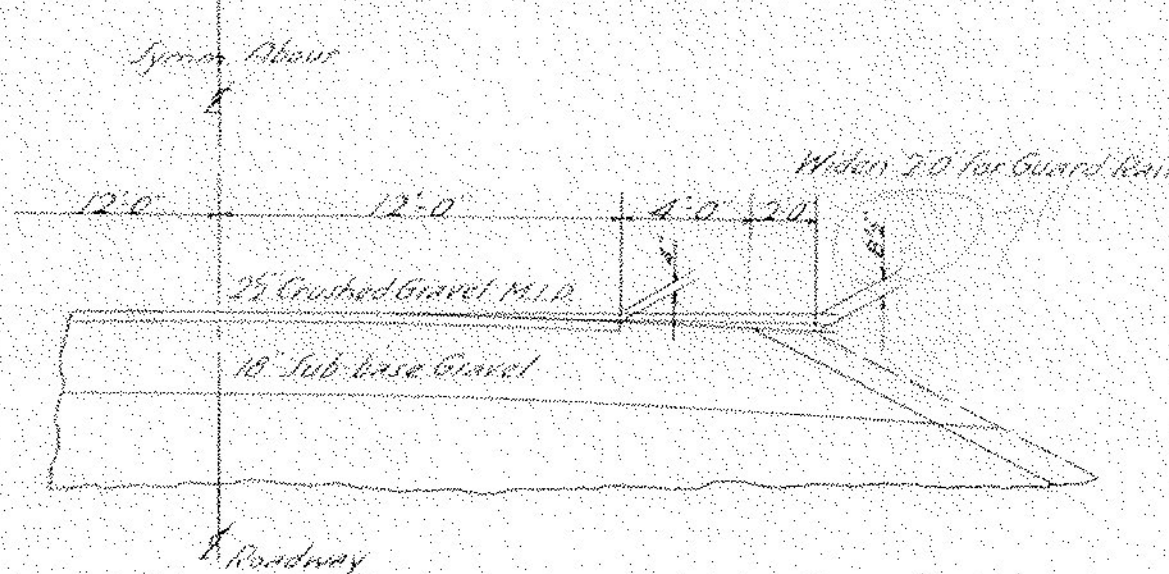
CONSTRUCTION GUIDANCE

- 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.

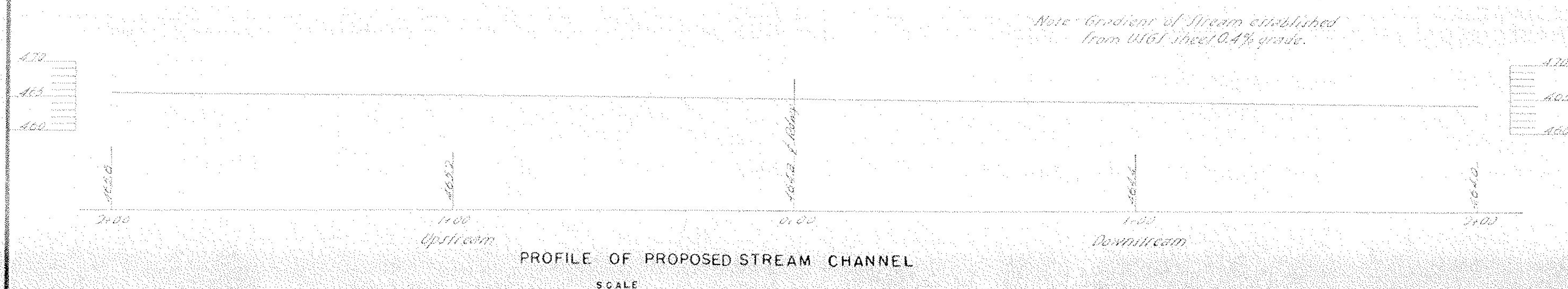
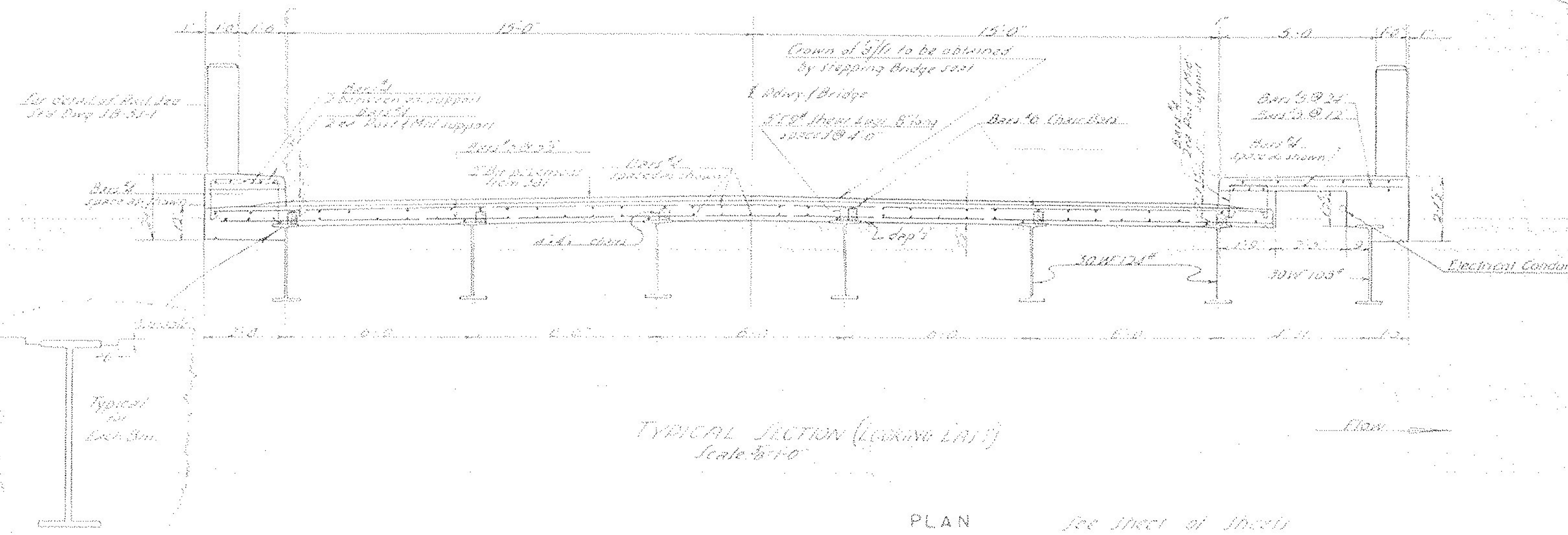
ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES	TURF ESTABLISHMENT
REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF

PROJECT NAME: ROCKINGHAM	
PROJECT NUMBER: BRF 0126(12)	
FILE NAME: z10J072bdr_erodet.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY:
DESIGNED BY: Const.Env. Section	CHECKED BY:
EPSC DETAIL SHEET 3 OF 3	SHEET 58 OF 69





See Plan & Profile Sheet



Highway No. VT 121 Name of Highway _____  
Structure No. 11 County WINDHAM Town ROCKINGHAM  
Approved _____ Date _____  
Bridge Engineer, Dist No 9

EXISTING STRUCTURE

1. Posted loading of existing structure 20,000 lbs.

2. Location and type of existing structure 1.66 Miles from Westminster Town Line - Steel Truss

3. Underclearance elevation of existing structure 25'-0"

4. What disposition should be made of the existing structure and probable cost of removal 1400

5. Should existing structure be utilized to maintain traffic during construction of new structure No

6. Should new temporary structure be built Yes

7. Ordinary high water surface elevation of existing structure 479.0'

8. Extreme high water of existing structure 480.0'

9. Span and waterway area below ordinary high water surface elevation of existing structure or structures up or down stream Up to 3 spans @ 50'-0" to 1650'-0" Down to 1/2 mile span 100' to 2100'

10. Type of foundation under existing abutments Gravel with Clay Filler - Nearly Hardpan

11. If existing structure is to be widened or extended, attach sketch containing complete data to prepare plans for widening or extending and to determine safe loading capacity, substructure, and superstructure No

and Superstructure. NO  
NEW STRUCTURE

1. Recommended type of structure. Standard W Beam Bridge Continuous  
2. Recommended clear span or spans. 32'-1 1/2", 65'-6 1/2", 32'-1 1/2"  
3. Measured parallel to E. new highway. 32'-1 1/2", 65'-9", 45'-1 1/2"  
4. Measured at right angles to E. stream. 45'-1 1/2", 36'-9", 45'-1 1/2"  
5. Are there objections to a pier in the stream, under, yes or no. No  
6. Ordinary high water elevation at new structure. 179.0'  
7. Ordinary elevation of water at new structure. 167.5'  
8. Extreme high water elevation at new structure. 169.0'  
9. Does stream reach its maximum high water elevation rapidly. No Is ordinary rise rapid. No  
10. Low water elevation at new structure. 163.0'  
11. Drainage area in acres above structure 45.46 Character of terrain. Hilly  
12. Is stream ever dry. No  
13. Velocity of stream at high water stage. 6 1/2 f.p.s.  
14. Recommended waterway area below ordinary high water elevation measured at 1/2 mile of stream. No  
15. Does erosion occur. No  
16. Does stream carry light, medium or heavy drift and ice. Light  
17. Should roadway be banked? If so how much per foot. No  
18. Are sidewalks required? If so, on what side. Downstream both sides No  
19. Recommended type of pavement. Reinforced Conc. Slab with Bituminous Surface  
20. Traffic to be maintained under wharf. Item no. 1441 one or two ways One Probable cost. \$200,000  
21. Probable cost of clearing and grubbing stream channel of structure site. ~~~~~  
22. Should provisions be made for public utilities. Yes  
23. Estimated allowable load on foundations of piers. Should piles be used? No Est. left

FOUNDATION INFORMATION

Obtained for design purposes only and  
State assumes no responsibility whatsoever  
for sufficiency or accuracy of the information  
shown. Boulders may be encountered at either  
Abutment location.

See Sheet 7 of 4 Sheets for Boring Information

STATE OF VERMONT  
DEPT. OF HIGHWAYS

FOR REFERENCE ONLY

RECOMMENDED FOR APPROVAL

Senior Engineer  
Public Works Administration  
Federal Works Agency

APPROVED

ADMINISTRATIVE  
SIOUX FALLS, S.D.  
SIOUX FALLS, S.D.

CORRECT _____

BRIDGE ENGINEER _____

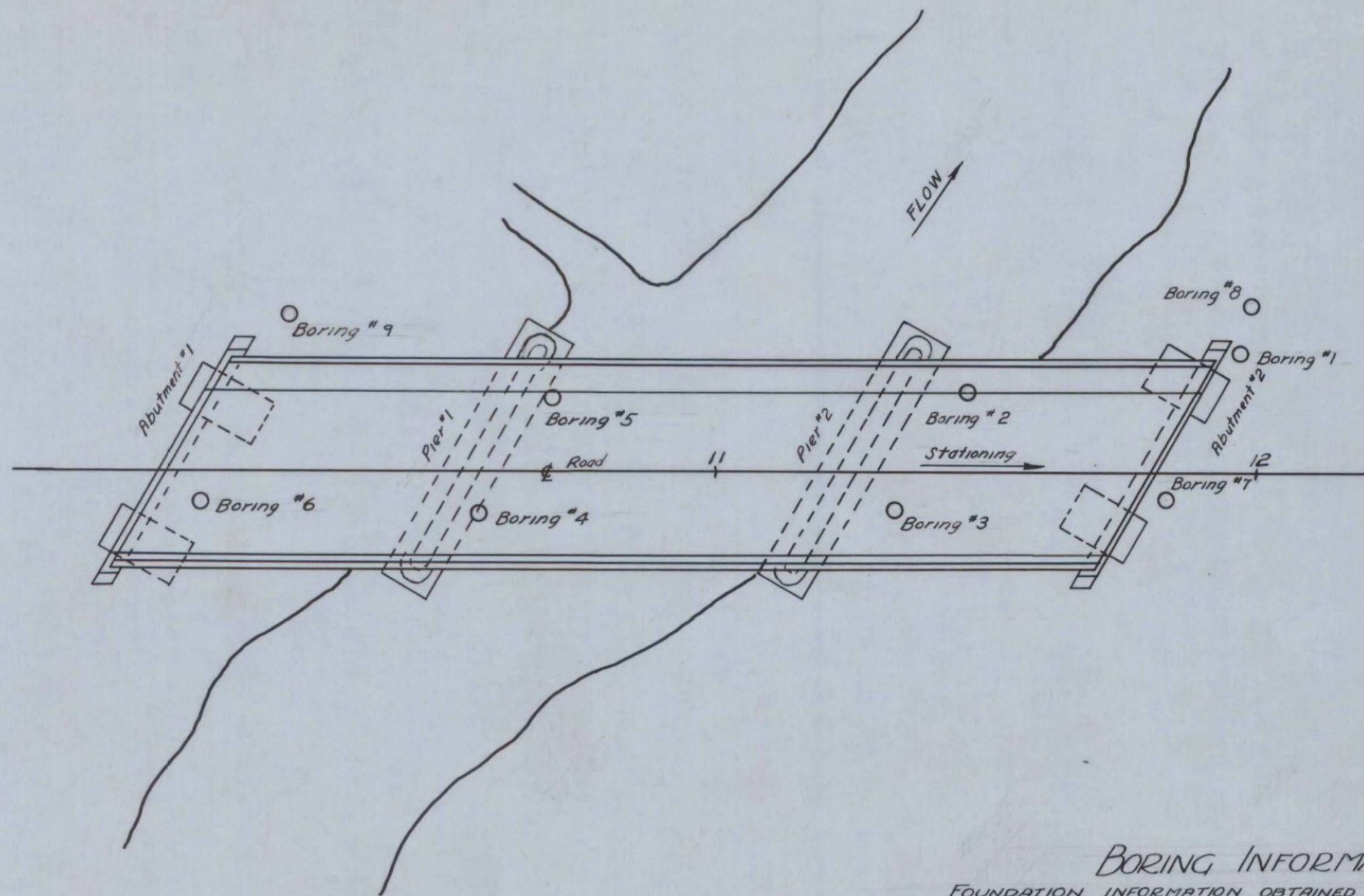
APPROVED  
CHIEF ENGINEER

ROCKINGHAM 5156(3)  
Sheet 6 of 49



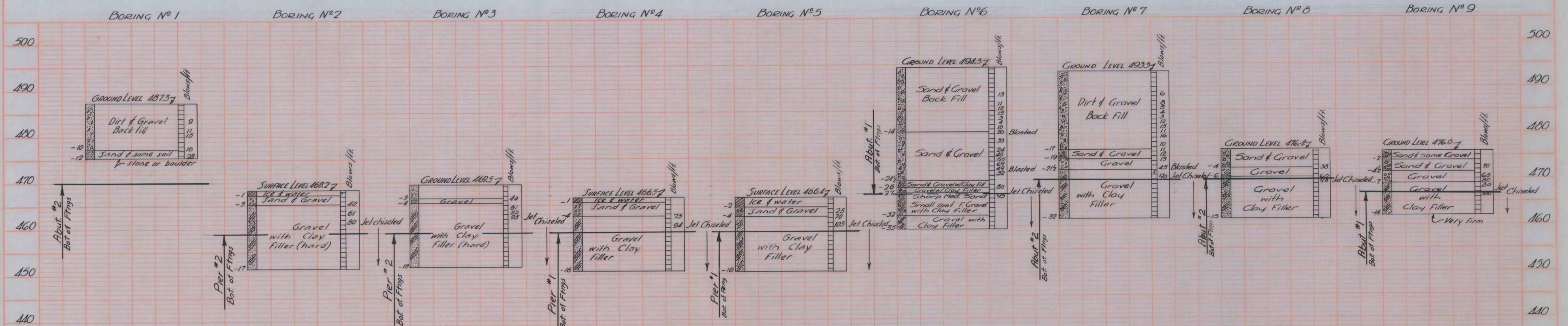
PLAN  
 DATE  
 DRAWN BY  
 CHECKED BY  
 IN CHARGE  
 NO.

FILE  
 PROJECT  
 DRAWING NO.  
 SHEET NO.  
 DATE  
 NO.



### BORING INFORMATION

FOUNDATION INFORMATION OBTAINED FOR DESIGN PURPOSES ONLY,  
 AND THE STATE ASSUMES NO RESPONSIBILITY WHATSOEVER FOR  
 THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN.  
 BOULDERS MAY BE ENCOUNTERED AT ANY PIER OR ABUT-  
 TMENT LOCATION.



OUTSIDE DIAMETER OF PIPE CASING = 2 1/2"  
 THICKNESS OF SHELL = 3/8"  
 WEIGHT OF HAMMER = 350#  
 DROP OF HAMMER = 24"

ROCKINGHAM  
 5-156 (3)

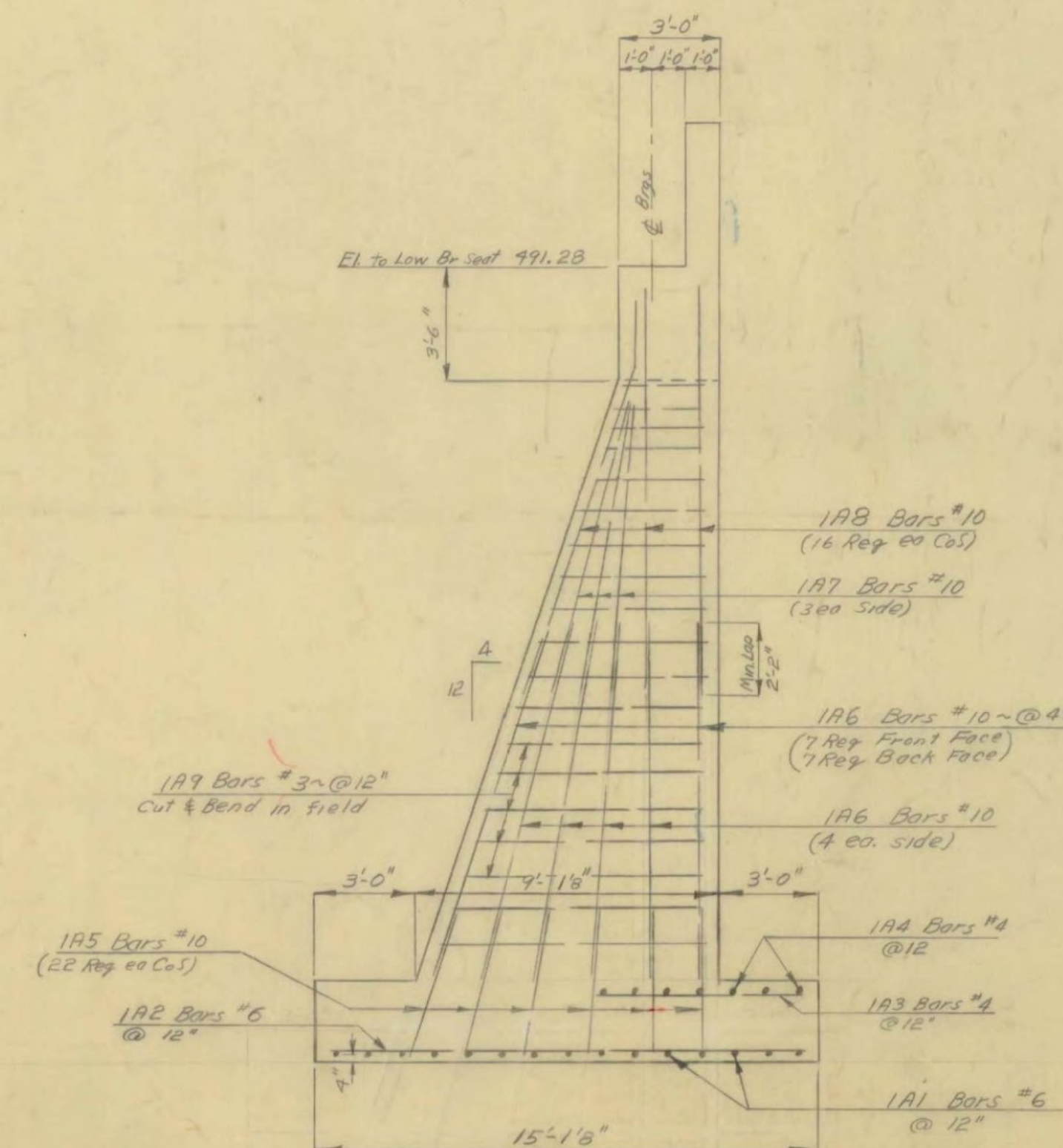
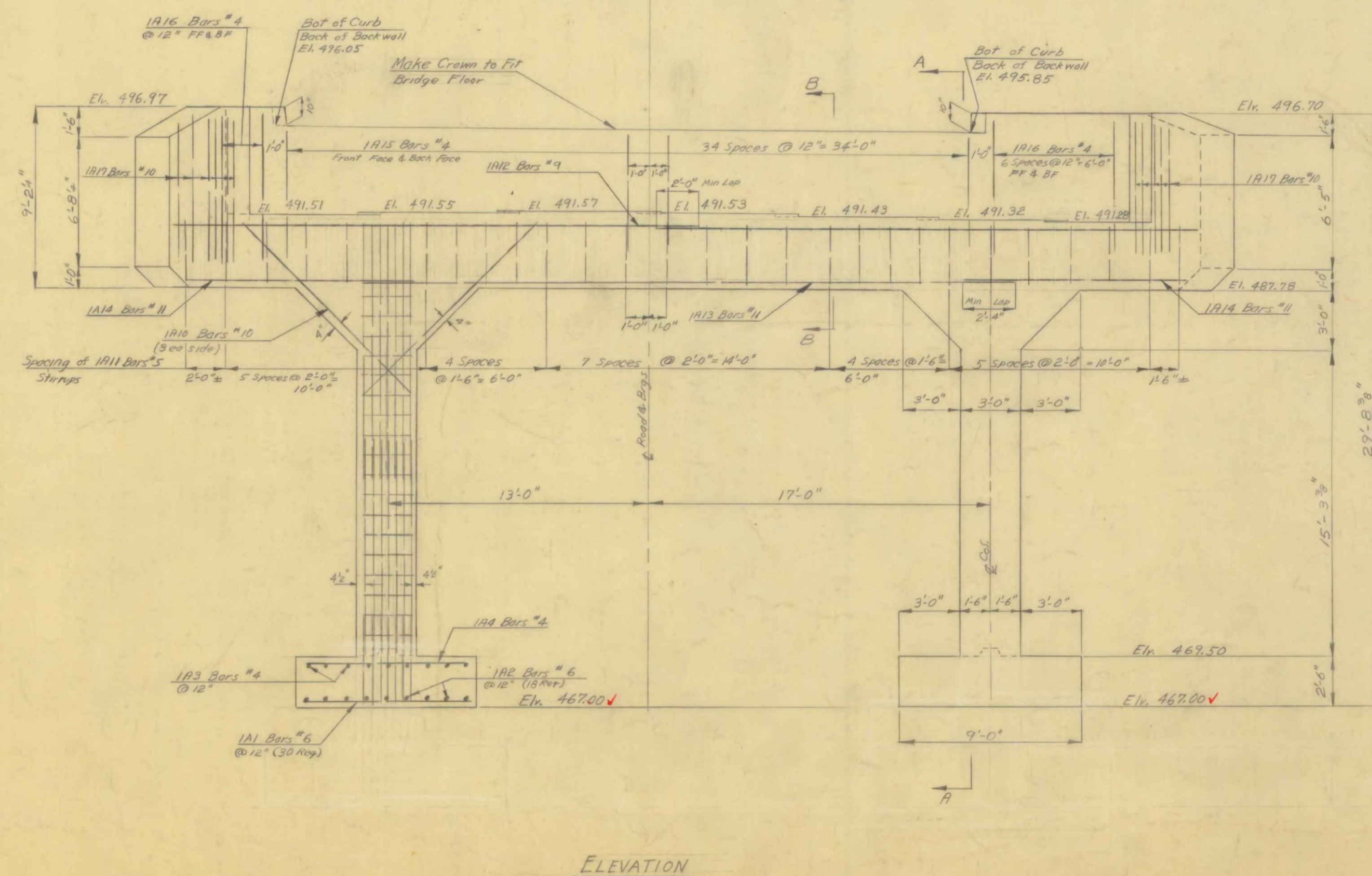
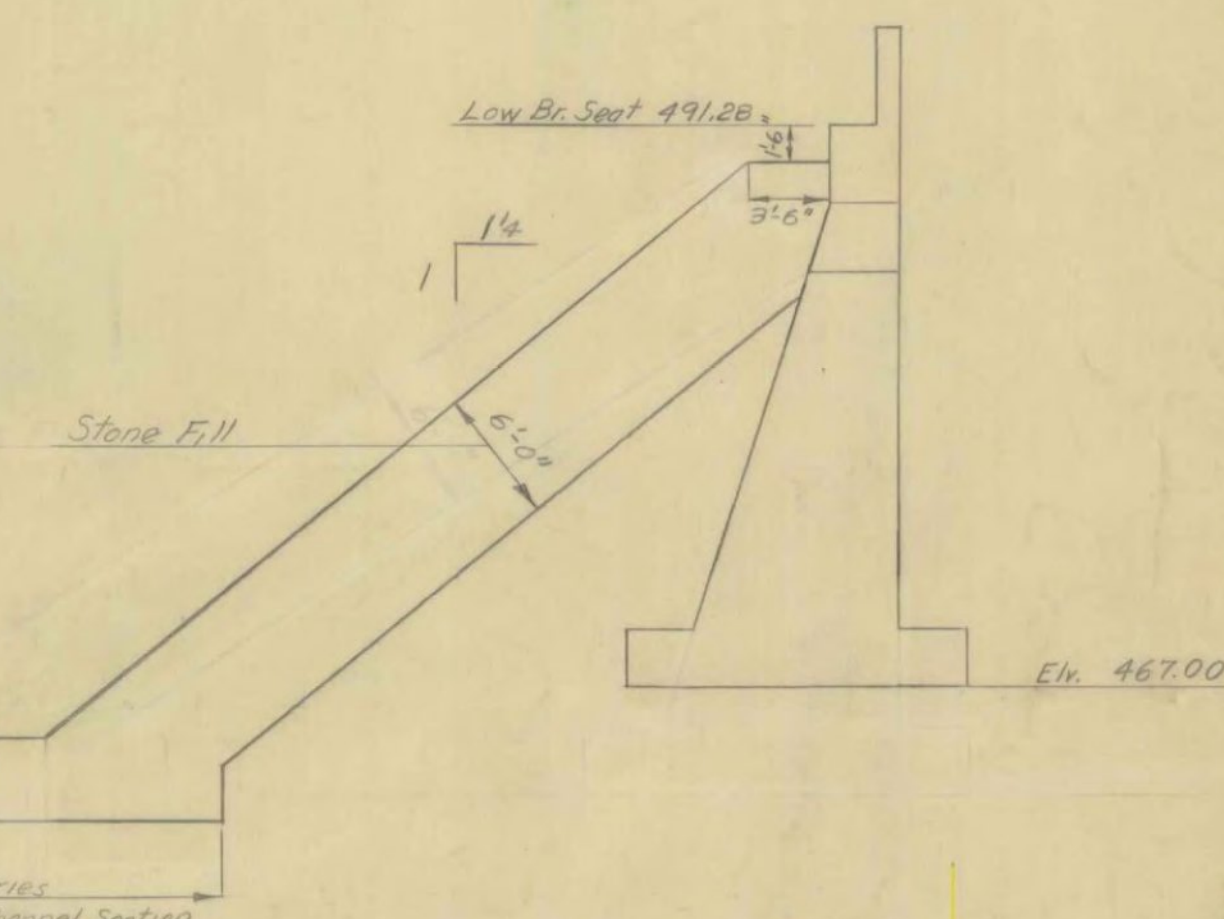
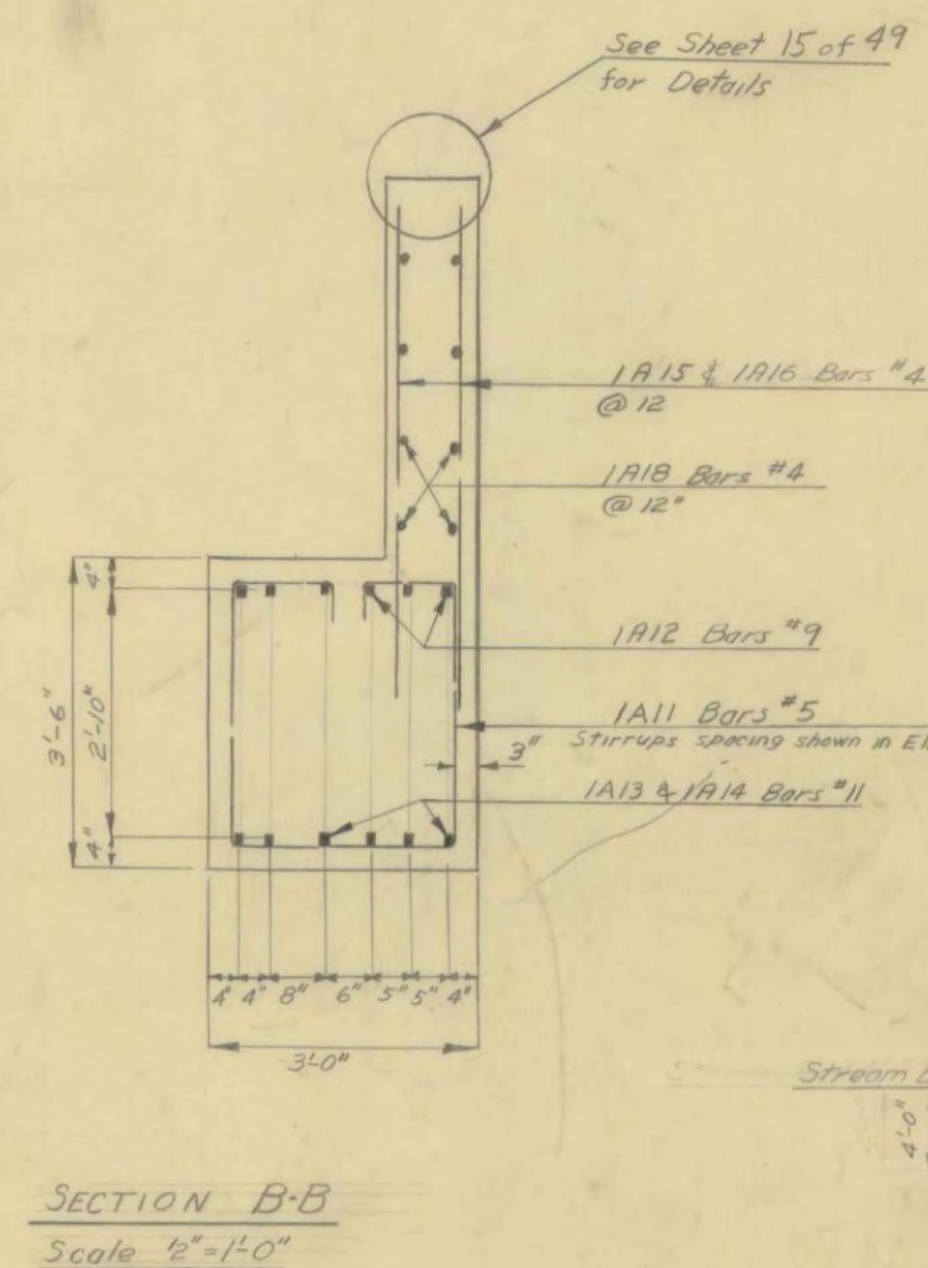
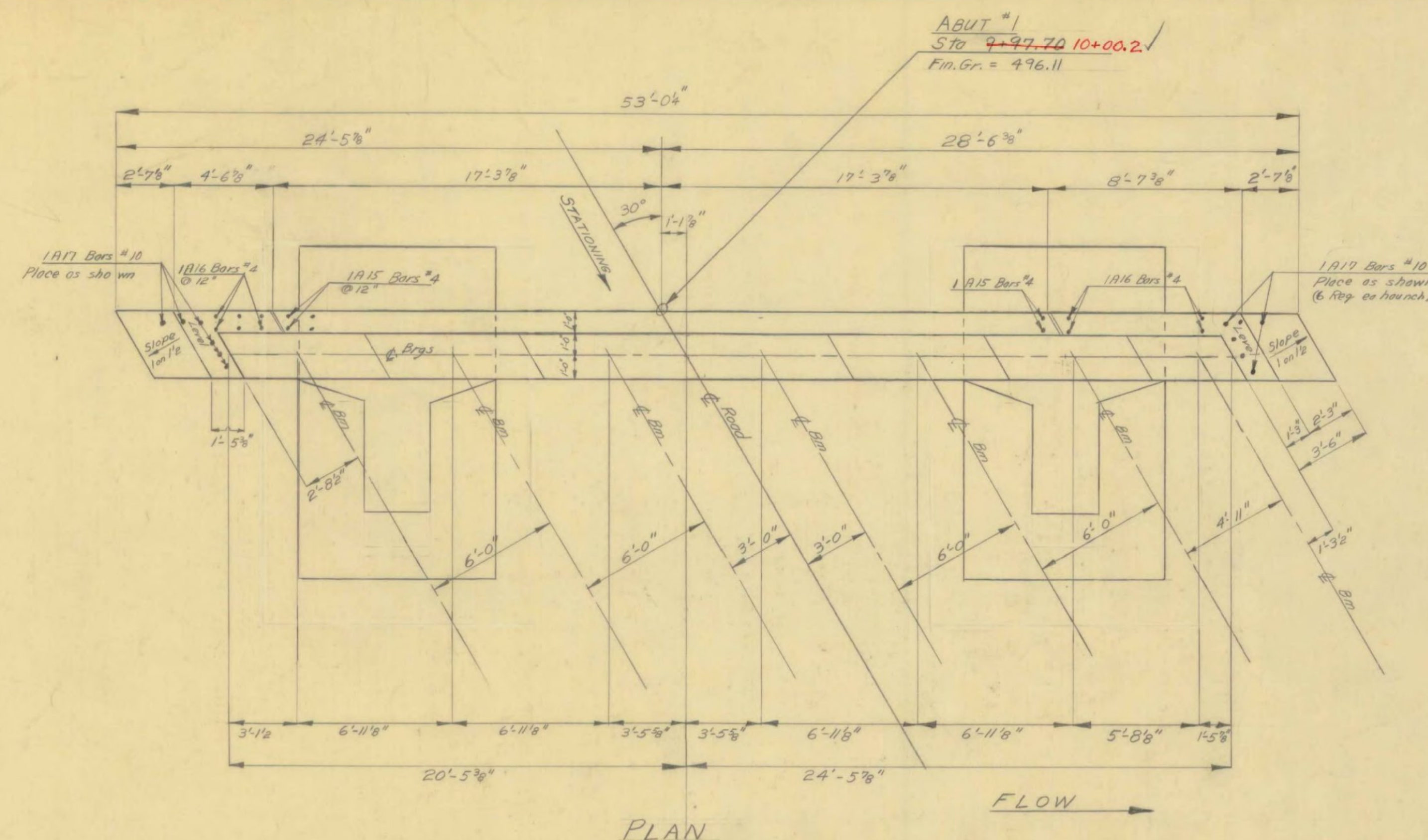
Sheet 7 of 49 Sheets





SHEET 61 OF 69





Note: All Laps 2'-0" except as noted.  
Max. foundation Pressure = 3.7 kips per sq. ft.

ESTIMATED QUANTITIES		
106C	Unclassified Channel Excavation	1,700 C.Y.
107	Structure Excavation	275 C.Y.
401B	Concrete Class B	86 C.Y.
521	Stone Fill	1,200 C.Y.

STATE OF VERMONT  
DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM

ROAD No. VT 121 BRIDGE No. 11

DETAILS of ABUTMENT #1

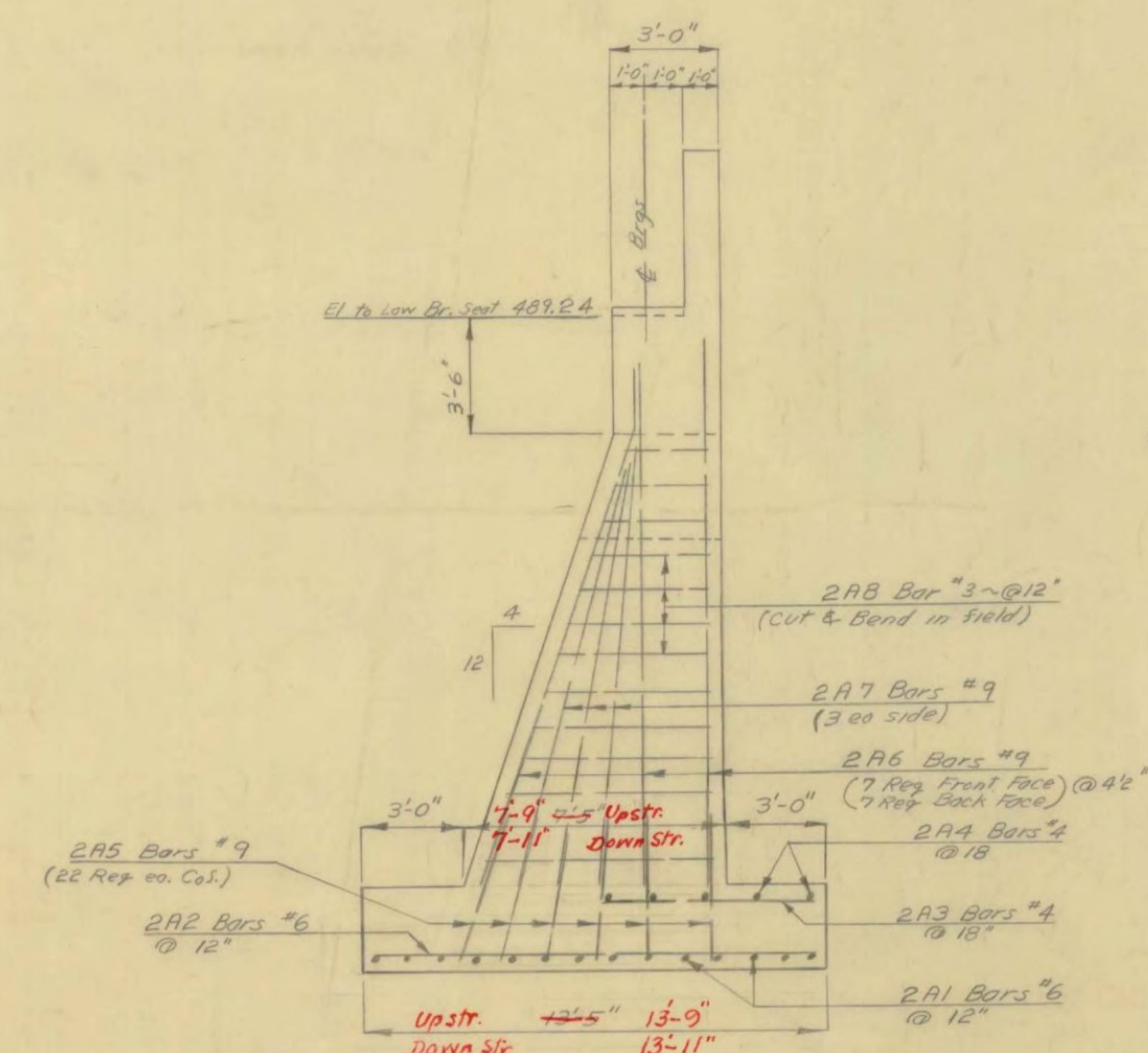
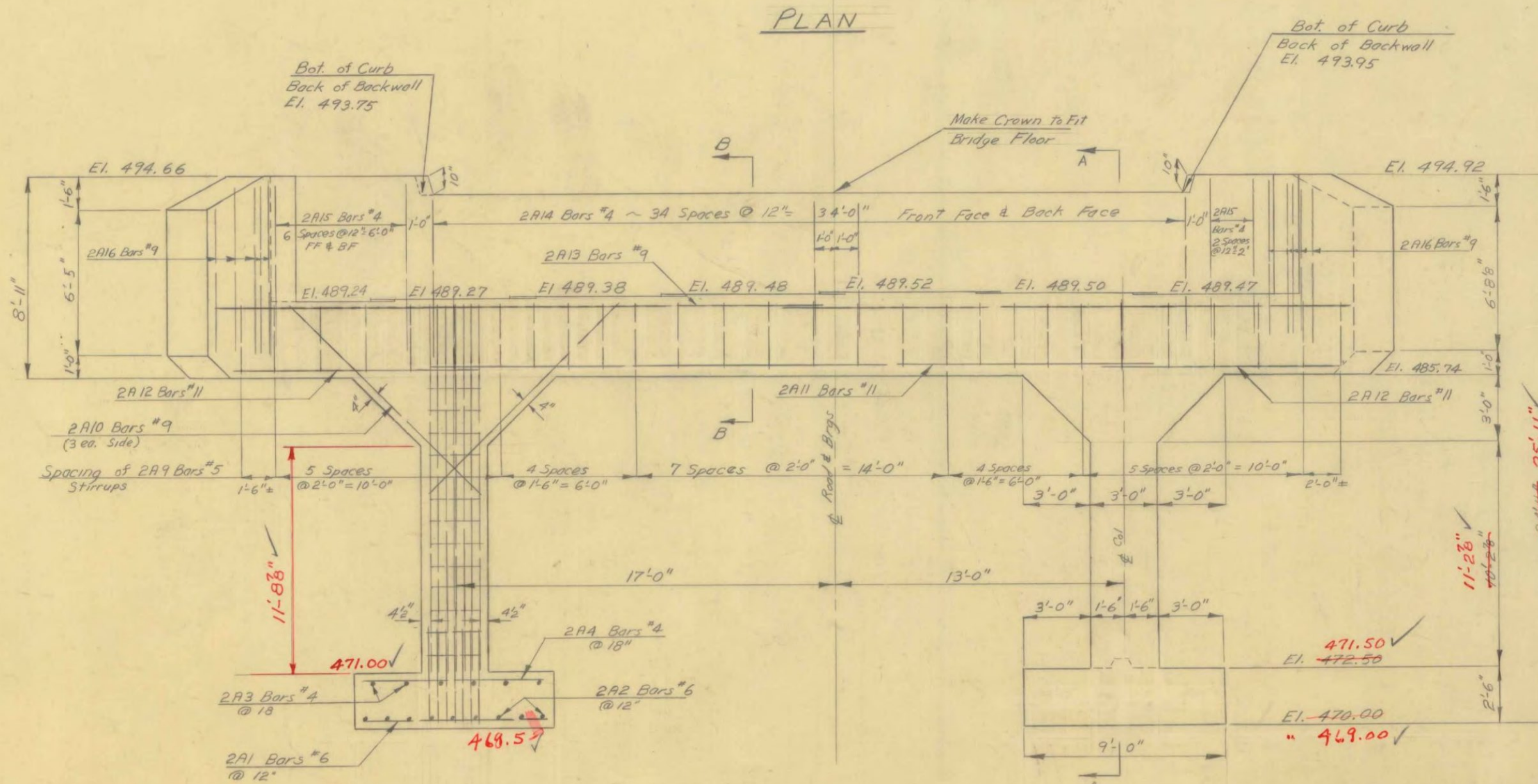
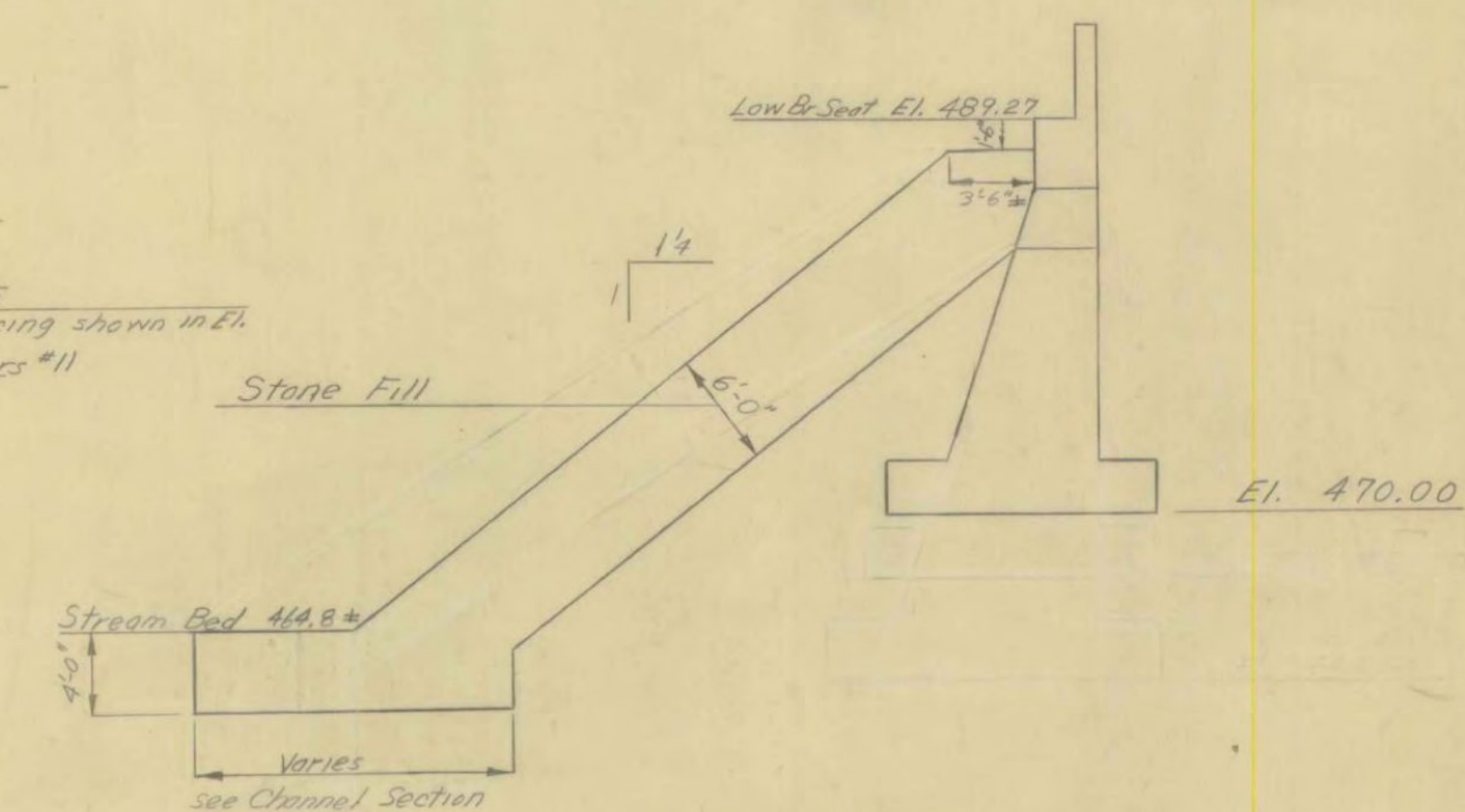
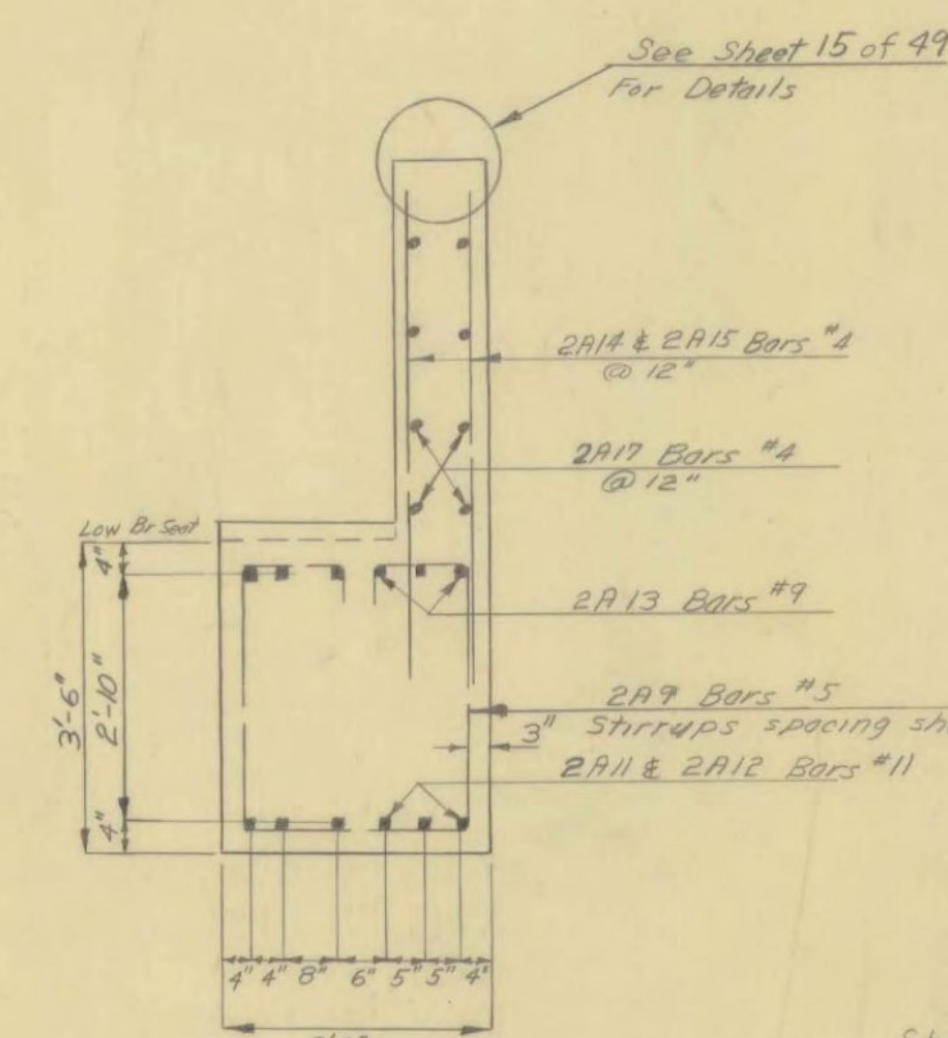
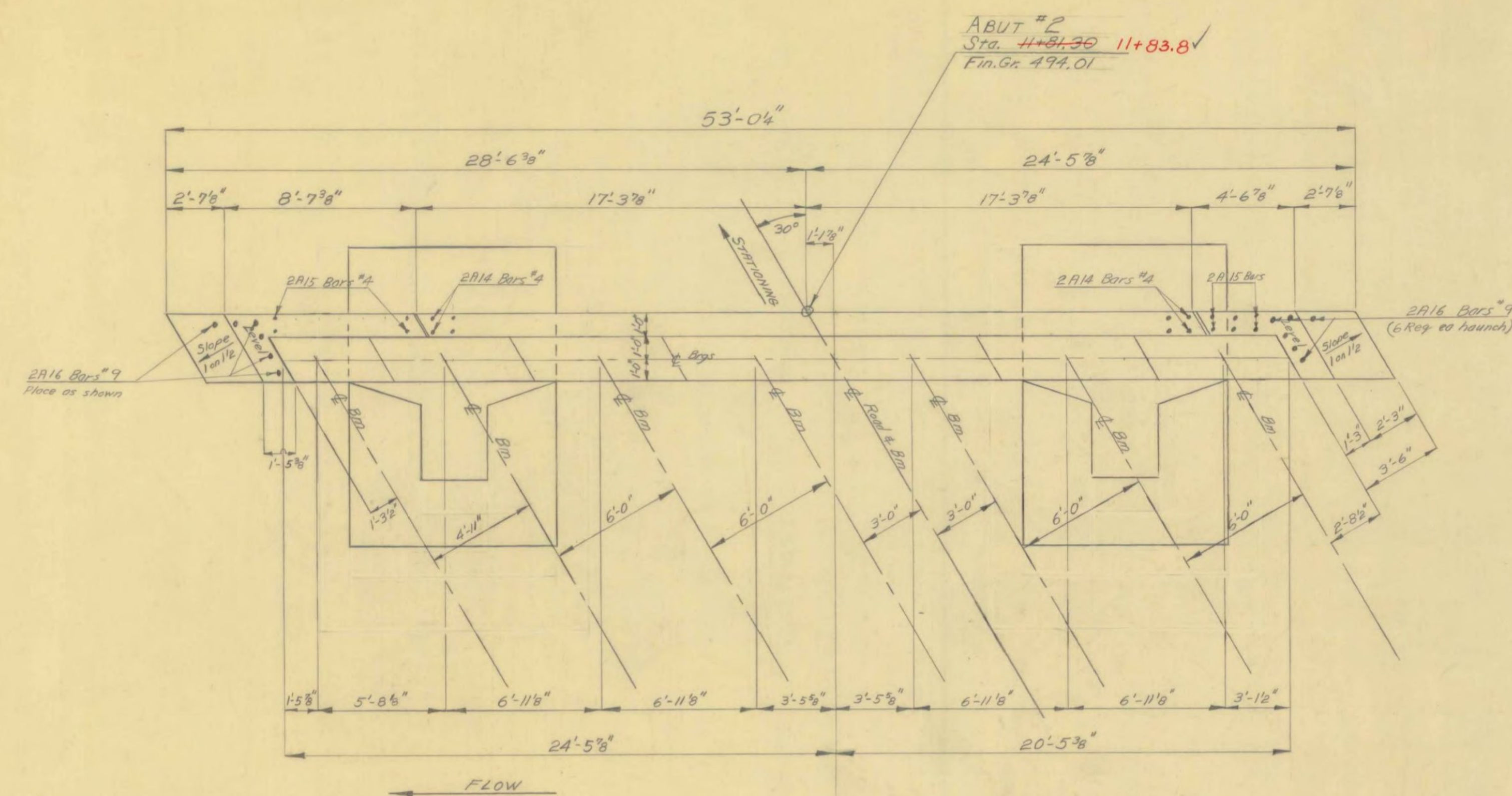
SCALE 1/4"=1'-0" or as noted  
SURVEYED BY Pagar  
DRAWN BY C.F.H. CHECKED BY Des. V.H.M.  
PROJECT No. 5 156 (3)  
SHEET 9 OF 49

FOR REFERENCE ONLY









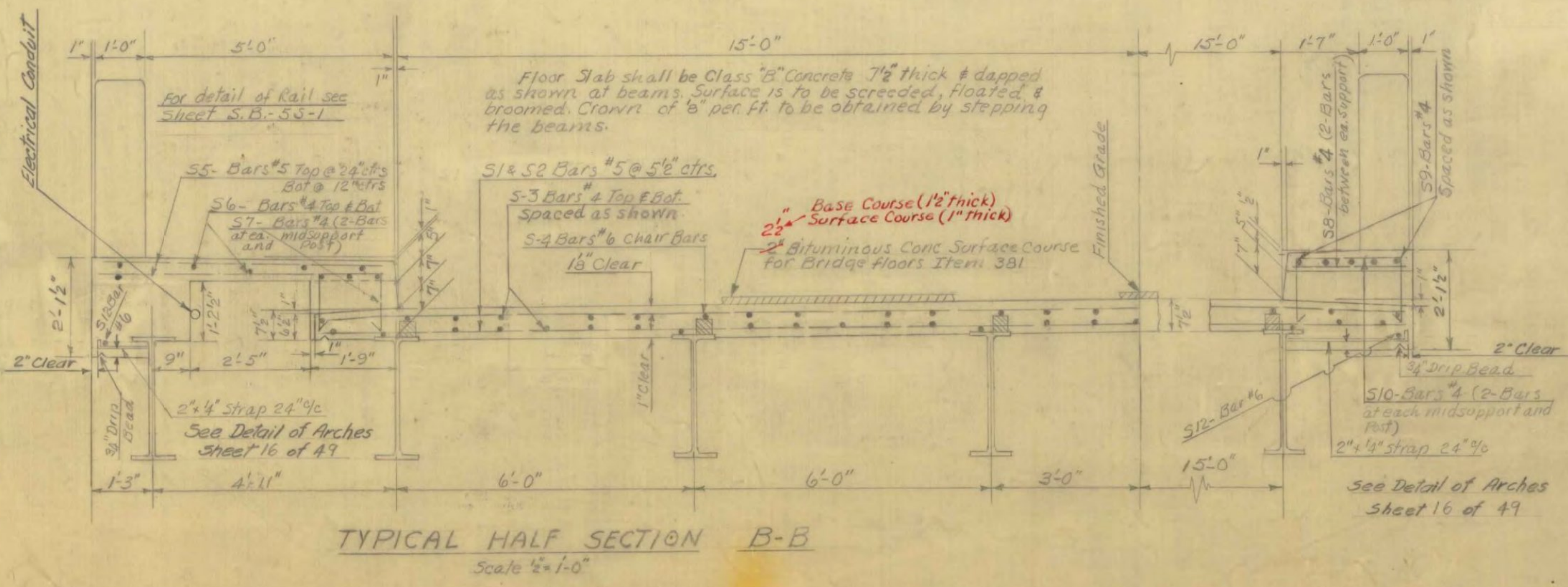
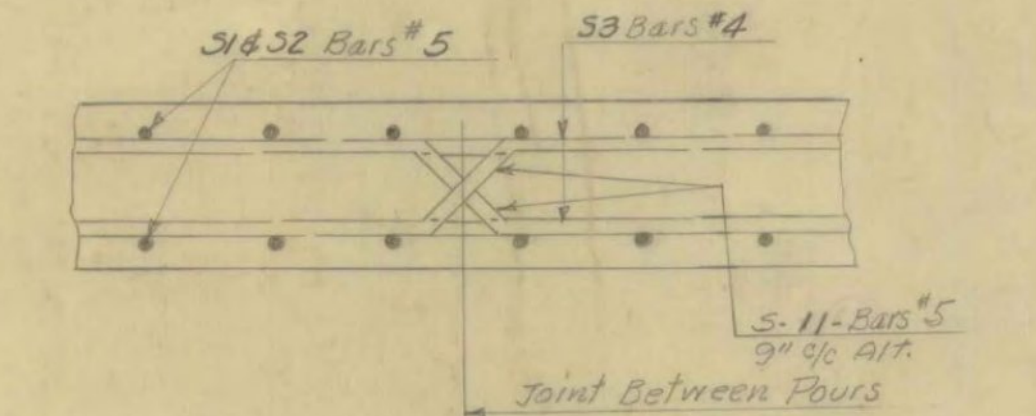
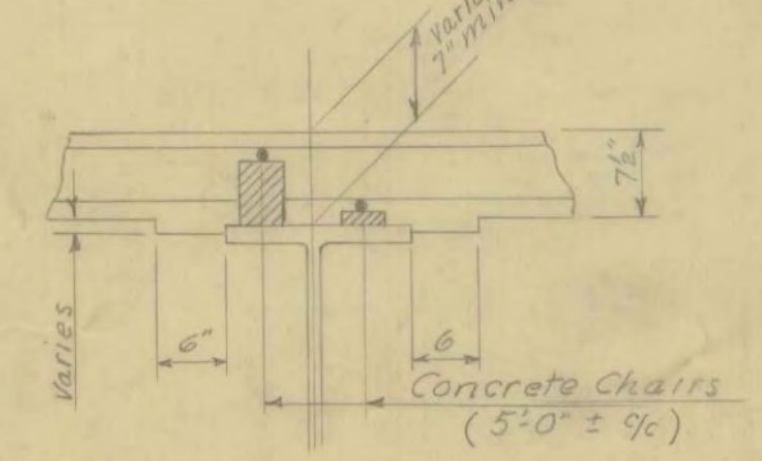
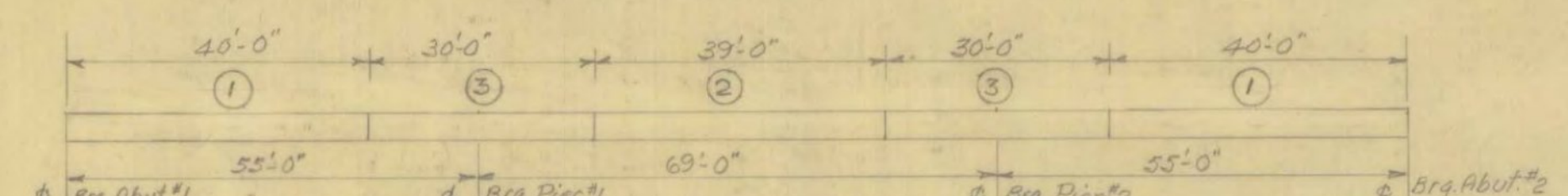
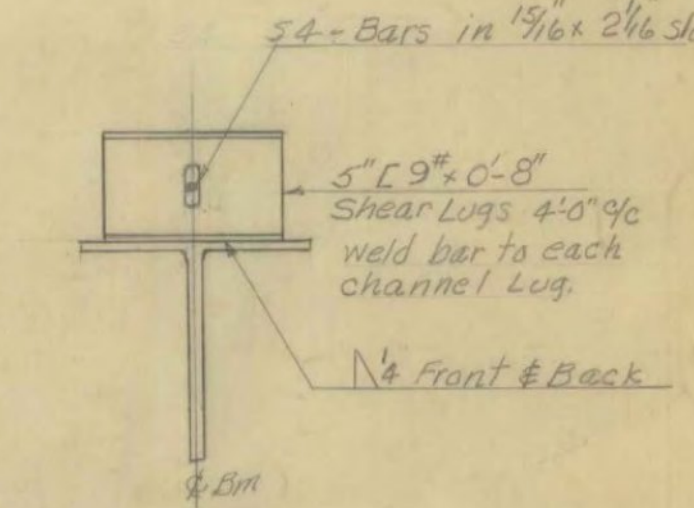
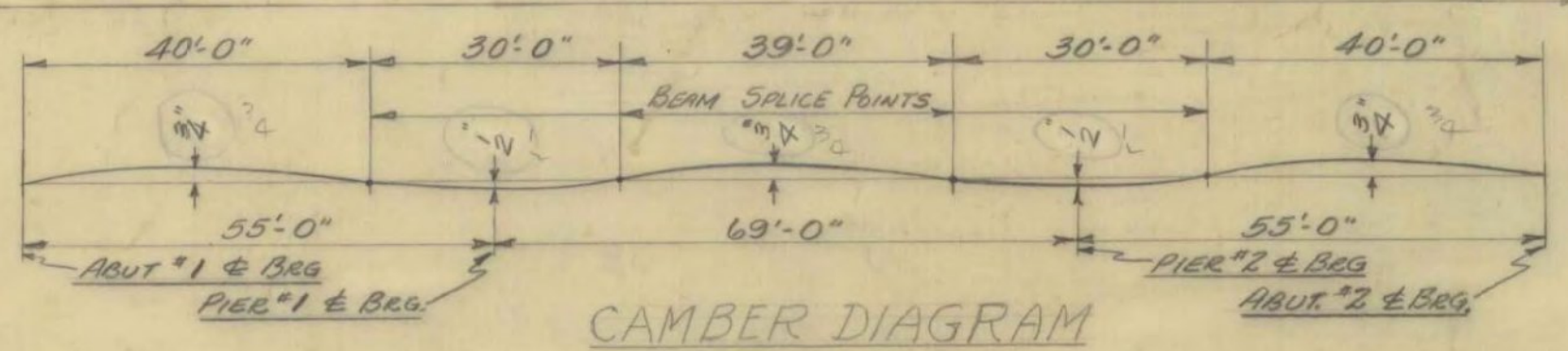
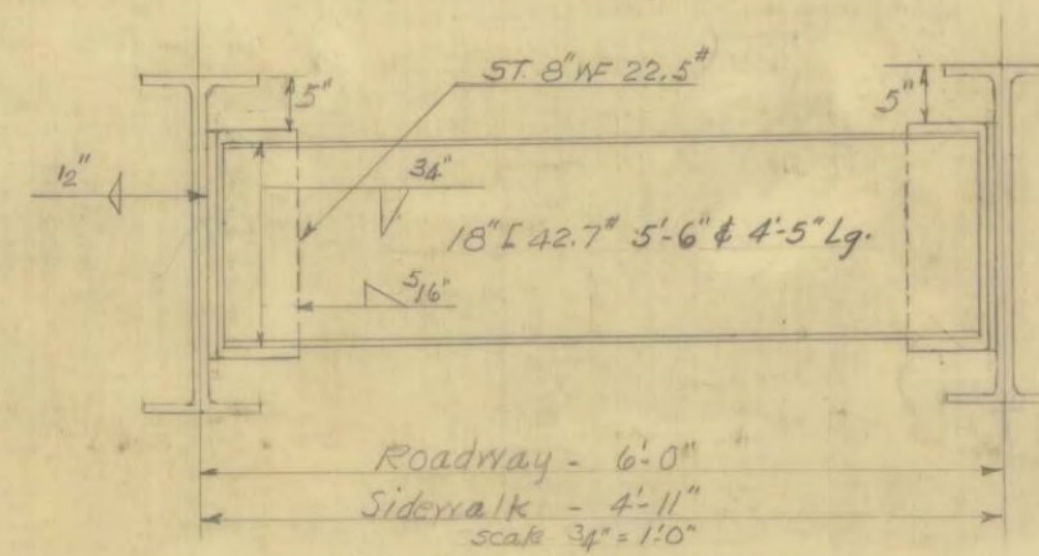
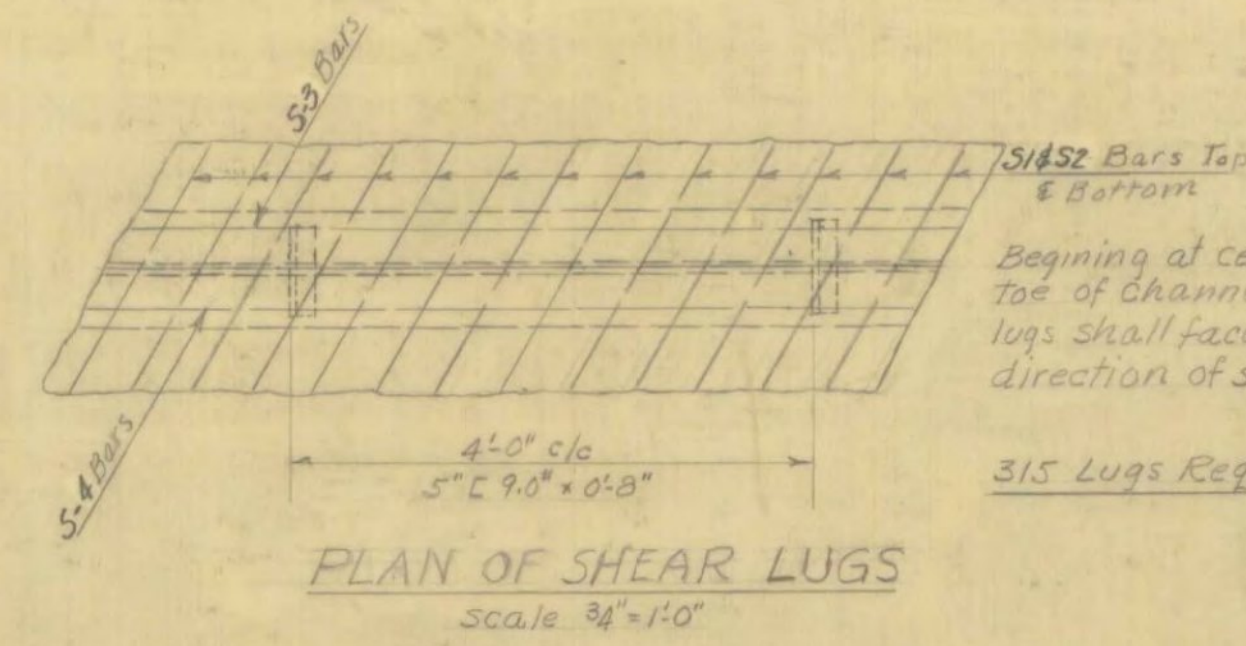
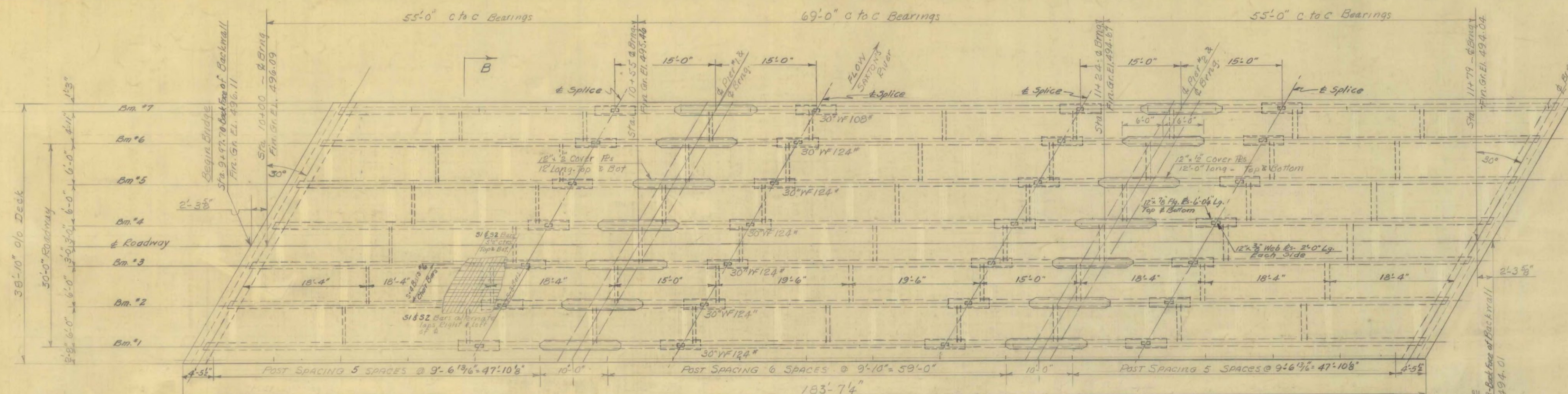
ESTIMATED QUANTITIES			
106C	Unclassified Channel Excavation	715	CY
107	Structure Excavation	196	CY
401B	Concrete Class B	75	CY
521	Stone Fill	1050	CY

STATE OF VERMONT  
DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM  
ROAD NO. Vt 121 BRIDGE NO. 11  
DETAILS of ABUTMENT # 2

SCALE  $\frac{1}{4}'' = 1'-0''$  or as noted  
SURVEYED BY Pegor  
DRAWN BY C.F.H. CHECKED BY Geo. L.H.  
PROJECT NO. S-156 (3)  
SHEET 11 OF 49





Rev. 7/30/53 AmB.  
Camber revised to conform with Min. Camber likely to remain permanent.

Estimated Quantities on this sheet for structural steel include Bearing Devices, Cover Plates and all Structural Steel on Expansion Plate Detail Sheet 16 of 49. Does NOT include Bridge Railing Steel.

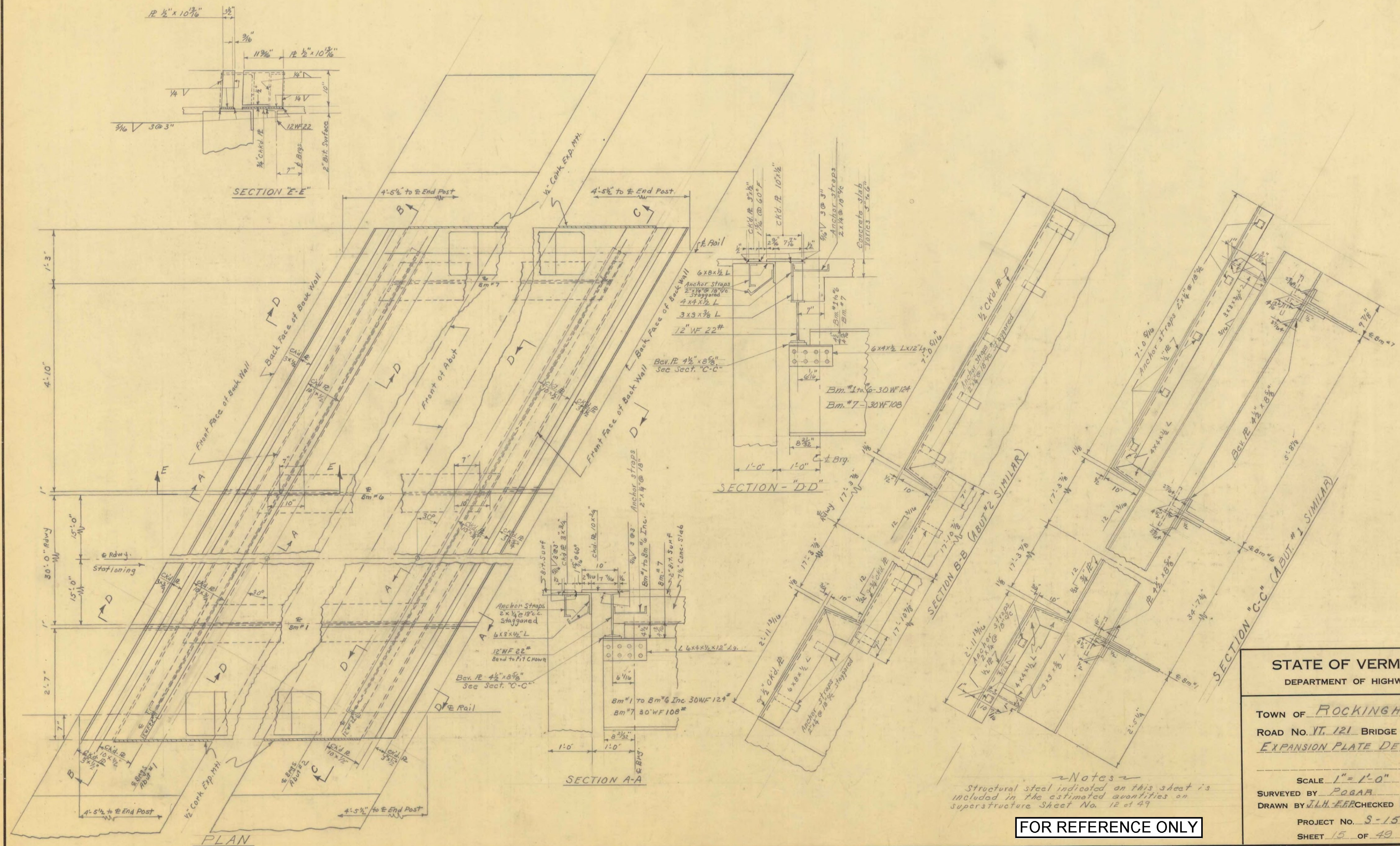
NOTE: ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, DEPT. OF HIGHWAYS, STD. SPEC. FOR ROAD & BRIDGE CONSTRUCTION, DATED NOVEMBER 1948, AND THE A.A.S.H.O. SPEC. FOR 1949, DESIGNED FOR H-20(44) LINE LOADING, 25% PAYING ALLOWANCE. DEAD LOAD INCLUDES WEIGHT OF BEAMS, SLABS & RAIL.

FOR REFERENCE ONLY

ESTIMATED QUANTITIES	
Bituminous Conc. Pavement	68 Tons
Concrete Class "B"	224 cu. yd.
Structural Steel	210,196 lbs.
Asphaltic Asbestos Coating	42 sq. yd.
Bridge Railing	364 L.F.

STATE OF VERMONT DEPARTMENT OF HIGHWAYS	
TOWN OF <u>ROCKINGHAM</u>	
ROAD NO. <u>VI. 121</u> BRIDGE NO. <u>11</u>	
SUPERSTRUCTURE DETAILS	
SCALE <u>as shown</u>	
SURVEYED BY <u>POGAR</u>	DESIGNED BY <u>JLH</u>
DRAWN BY <u>D.W.P.</u>	CHECKED BY <u>EFP</u>
PROJECT NO. <u>S-156 (3)</u>	
SHEET <u>12</u> OF <u>49</u>	





FOR REFERENCE ONLY

STATE OF VERMONT  
DEPARTMENT OF HIGHWAYS

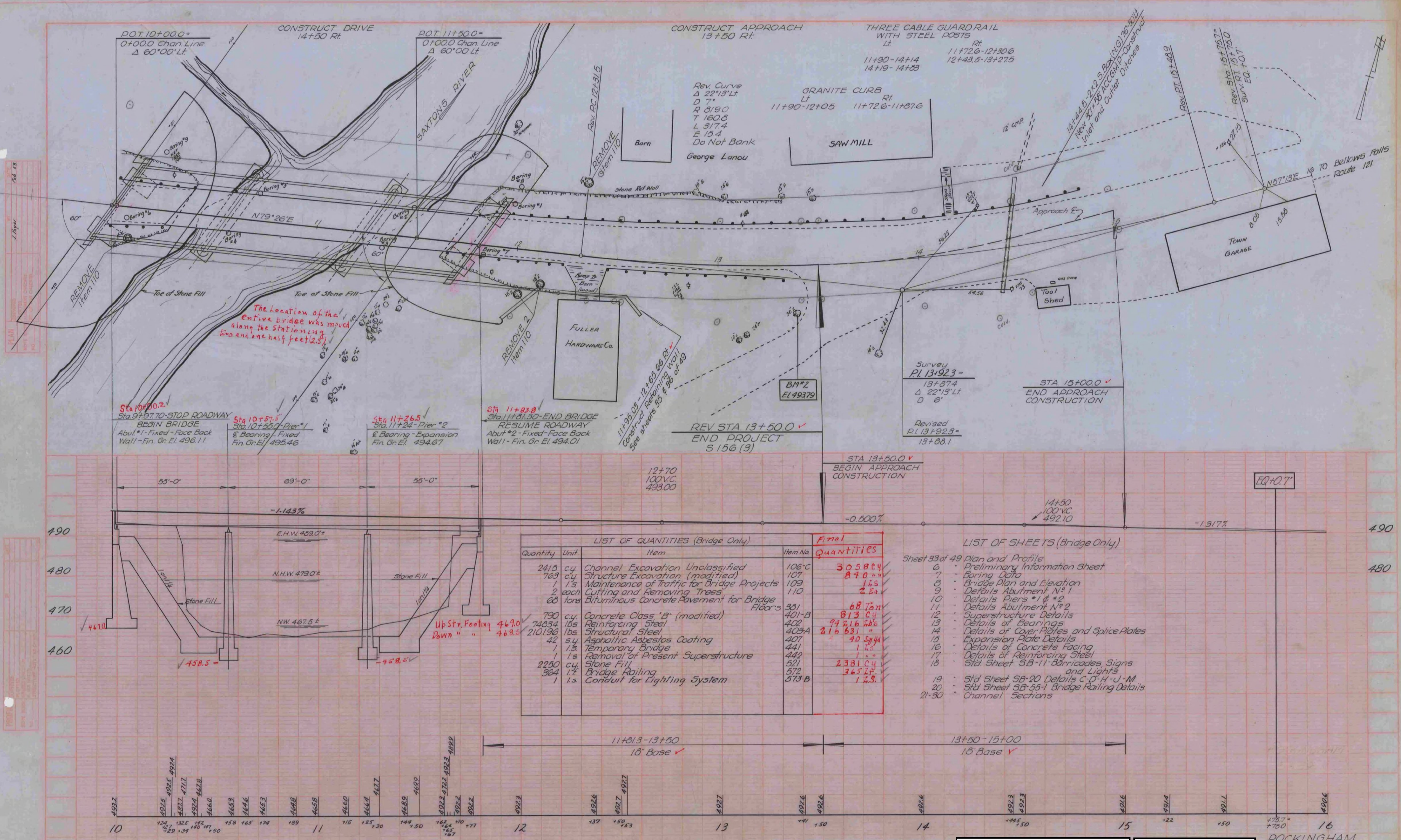
TOWN OF ROCKINGHAM  
ROAD No. VT. 121 BRIDGE No. 11  
EXPANSION PLATE DETAILS

SCALE 1" = 1'-0"  
SURVEYED BY POGAR  
DRAWN BY J.L.H. E.E.R. CHECKED BY E.T.B.  
PROJECT No. S-156 (3)  
SHEET 15 OF 49









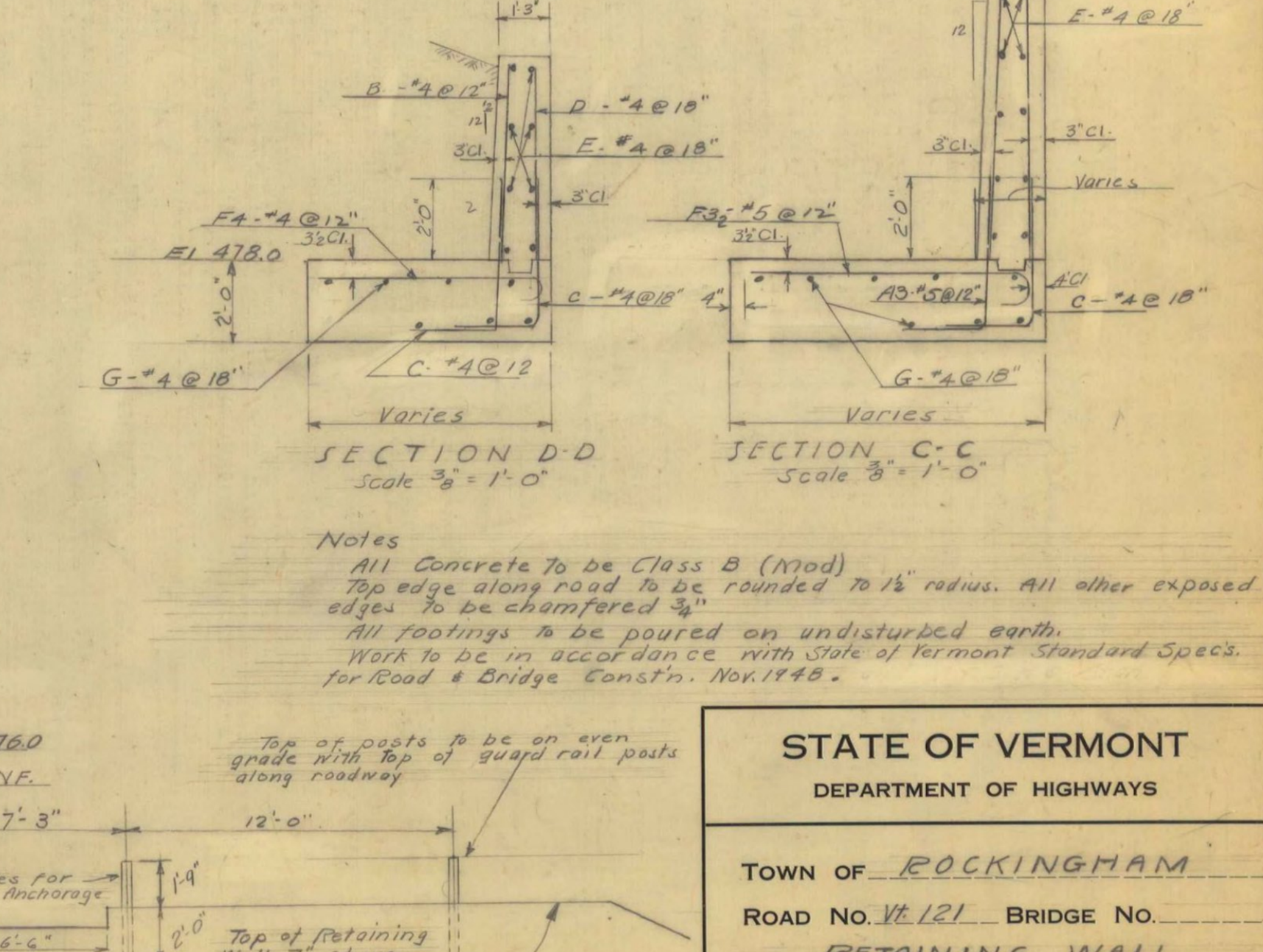
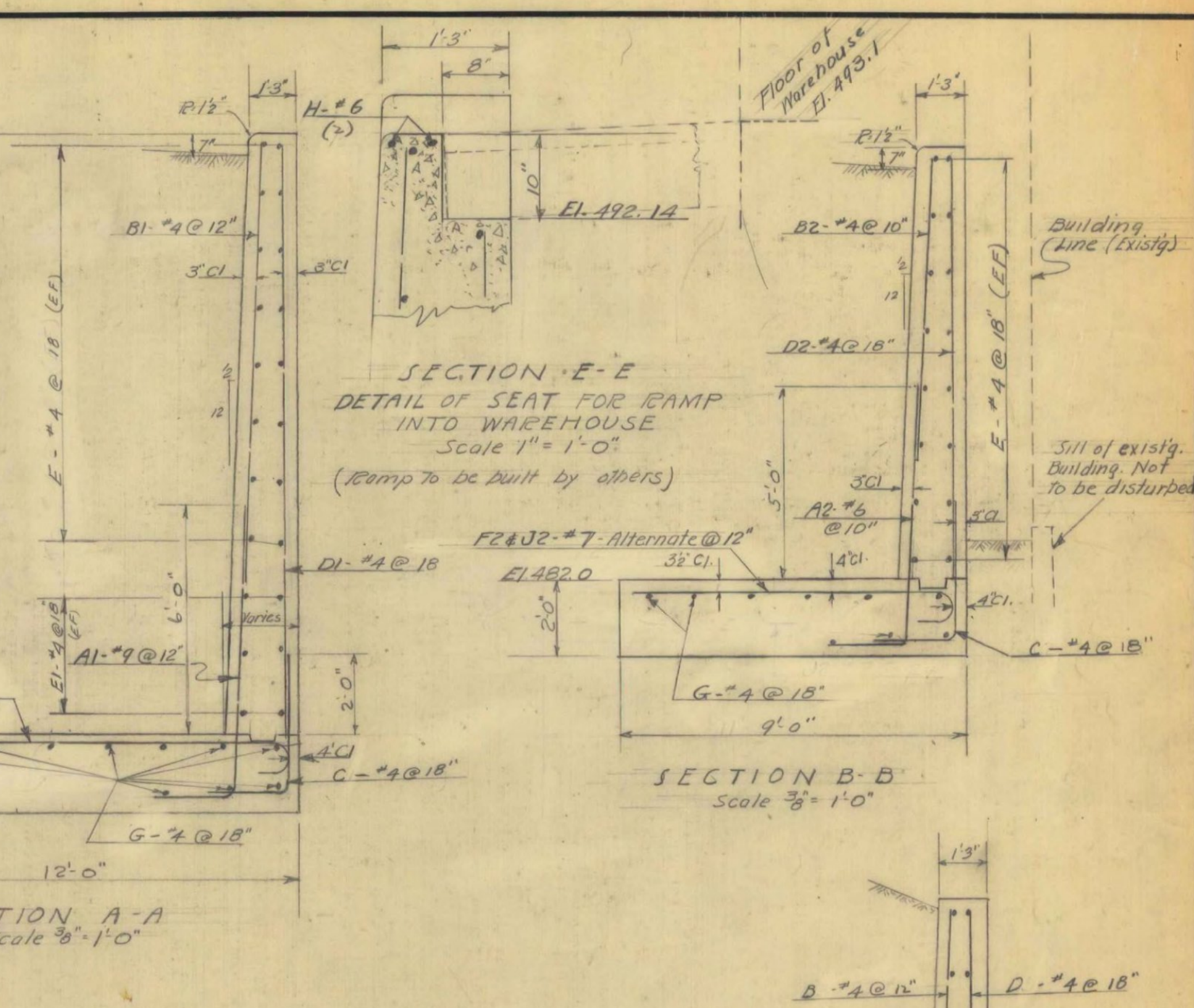
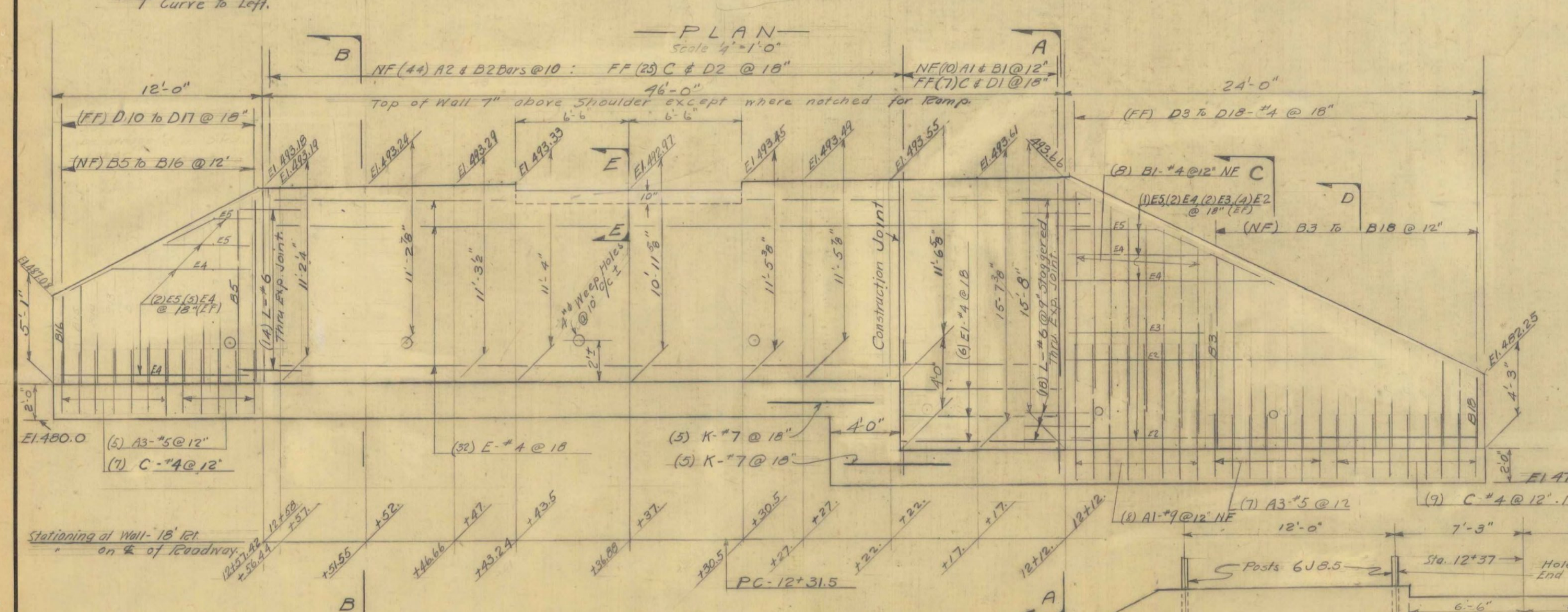
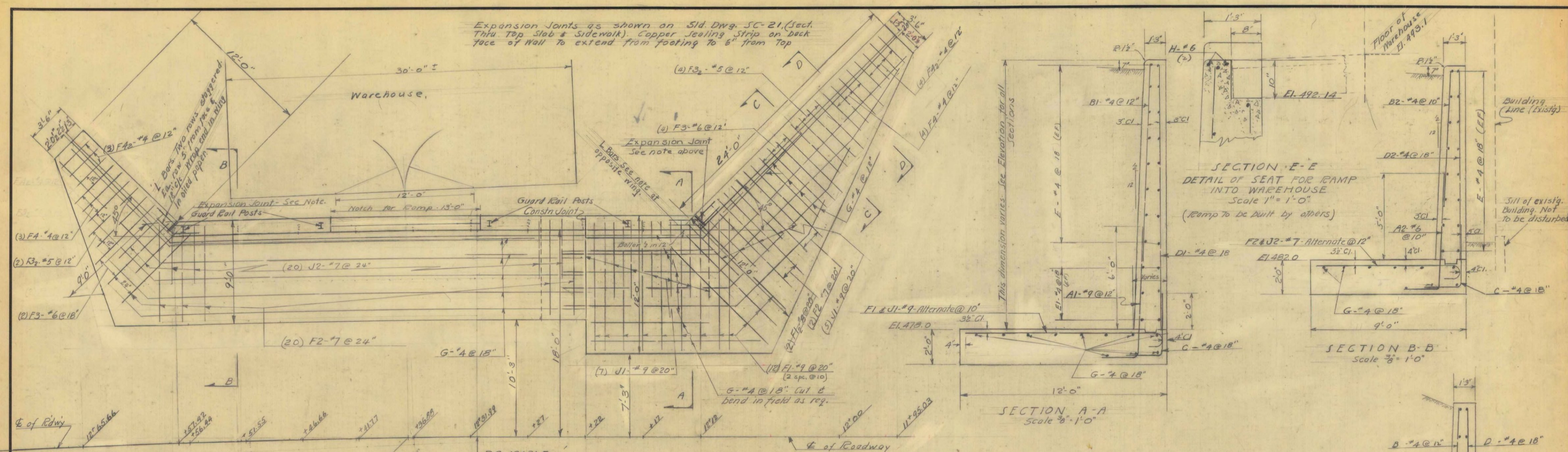
LIST OF QUANTITIES (Bridge Only)					Final	
Quantity	Unit	Item	Item No.		Quantities	
2415	c.y.	Channel Excavation Unclassified	106-C		3058.4	
163	c.y.	Structure Excavation (modified)	107		87.0	
1	l.s.	Maintenance of Traffic for Bridge Projects	109		1.5	
2	each	Cutting and Removing Trees	110		2 Ea	
60	tons	Bituminous Concrete Pavement for Bridge Floors	381		68.70m	
790	c.y.	Concrete Class "B" (modified)	401-B		813.04	
74834	lbs	Reinforcing Steel	402		94216.286	
210196	lbs	Structural Steel	403A		216631	
42	s.y.	Asphaltic Asbestos Coating	407		40 Sq yd	
1	l.s.	Temporary Bridge	441		1 l.s.	
1	l.s.	Removal of Present Superstructure	442		1 l.s.	
2250	c.y.	Stone Fill	521		2381.04	
364	l.f.	Bridge Railing	572		365.17	
1	l.s.	Conduit for Lighting System	573-B		1 l.s.	

- LIST OF SHEETS (Bridge Only)**
- Sheet 33 of 49 Plan and Profile
  - 6 Preliminary Information Sheet
  - 7 Boring Data
  - 8 Bridge Plan and Elevation
  - 9 Details Abutment No 1
  - 10 Details Piers #1 & #2
  - 11 Details Abutment No 2
  - 12 Superstructure Details
  - 13 Details of Bearings
  - 14 Details of Cover Plates and Splice Plates
  - 15 Expansion Plate Details
  - 16 Details of Concrete Facing
  - 17 Details of Reinforcing Steel
  - 18 Std. Sheet SB-11 Barricades Signs and Lights
  - 19 Std. Sheet SB-20 Details C-D-H-U-M
  - 20 Std. Sheet SB-55-1 Bridge Railing Details
  - 21-30 Channel Sections

BM #2 - S.I.R. 30" Elm. 26 ft. rt. Sta 13+33 Elevation 493.79



Expansion Joints as shown on Std. Dwg. 5C-21, (Sect. Thru Top Slab & Sidewalk). Copper Sealing Strip on back face of wall to extend from footing to 6" from top.



Notes  
 All Concrete to be Class B (Mod)  
 Top edge along road to be rounded to 1/2" radius. All other exposed edges to be chamfered 3/4"  
 All footings to be poured on undisturbed earth.  
 Work to be in accordance with State of Vermont Standard Specs. for Road & Bridge Const'n. Nov. 1948.

Four 6x8.5 posts for Guard Rail to be supplied & installed under Retaining Wall participation. 2 posts to be drilled for dead end anchorage & 2 posts for offset brackets, all as shown on Std. Dwg. 548-46, details of Steel Posts & Dead End Anchorage.  
 Guard Rail Cable, Brackets, Cable Ends & Hardware to be supplied & installed under Road participation. Spacing and height of posts may be changed by Engineer in field to correspond with guard rail on Roadway.

ESTIMATED QUANTITIES

Item 107	Structure Excavation (Mod)	250 CY
222	Gravel Backfill	280 CY
401-B	Concrete, Class B (Mod)	116 CY
403-A	Structural Steel (G.R. Posts)	120 Lbs.

STATE OF VERMONT  
 DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM

ROAD NO. Vt. 121 BRIDGE NO. _____

RETAINING WALL

Between Stas. 11+95.03 & 12+65.66

SCALE As Noted

SURVEYED BY _____

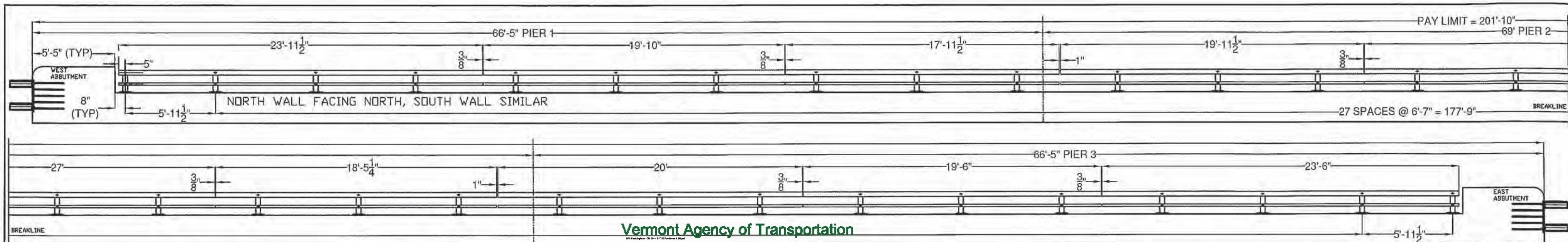
DRAWN BY NIXEN CHECKED BY FFP

PROJECT NO. 5-156 (3)

SHEET 35 OF 49

FOR REFERENCE ONLY





COATED BLACK - ASTM D7803

Vermont Agency of Transportation

**RECEIVED**  
ON: December 29, 2014  
and Checked for  
**CONFORMANCE**  
BY: TAS DATE: 01/20/2015

BILL OF MATERIAL				
ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	60	0033.90402	TWO RAIL POST & BASE PLATE ASSEMBLY	A572 Gr. 50, A500 Gr. B
2	2	0033.91331	4" X 3" X 1/4" RAIL @ 23'-11 1/2' W/ END PLATES	A500 Gr. B
3	2	0033.91332	4" X 3" X 1/4" RAIL @ 19'-10"	A500 Gr. B
4	2	0033.91333	4" X 3" X 1/4" RAIL @ 17'-11 1/2'	A500 Gr. B
5	2	0033.91334	4" X 3" X 1/4" RAIL @ 19'-11 1/2'	A500 Gr. B
6	2	0033.91335	4" X 3" X 1/4" RAIL @ 27'-0"	A500 Gr. B
7	2	0033.91336	4" X 3" X 1/4" RAIL @ 18'-5 1/4'	A500 Gr. B
8	2	0033.91337	4" X 3" X 1/4" RAIL @ 20'-0"	A500 Gr. B
9	2	0033.91338	4" X 3" X 1/4" RAIL @ 19'-6"	A500 Gr. B
10	2	0033.91339	4" X 3" X 1/4" RAIL @ 23'-6" W/ END PLATES	A500 Gr. B
11	2	0033.91340	2" X 2" X 1/8" RAIL @ 23'-11 1/2' W/ END PLATES	A500 Gr. B
12	2	0033.91341	2" X 2" X 1/8" RAIL @ 19'-10"	A500 Gr. B
13	2	0033.91342	2" X 2" X 1/8" RAIL @ 17'-11 1/2'	A500 Gr. B
14	2	0033.91343	2" X 2" X 1/8" RAIL @ 19'-11 1/2'	A500 Gr. B
15	2	0033.91344	2" X 2" X 1/8" RAIL @ 27'-0"	A500 Gr. B
16	2	0033.91345	2" X 2" X 1/8" RAIL @ 18'-5 1/4'	A500 Gr. B
17	2	0033.91346	2" X 2" X 1/8" RAIL @ 20'-0"	A500 Gr. B
18	2	0033.91347	2" X 2" X 1/8" RAIL @ 19'-6"	A500 Gr. B
19	2	0033.91348	2" X 2" X 1/8" RAIL @ 23'-6" W/ END PLATES	A500 Gr. B
20	12	0033.90405	1-1/2" X 1-1/2" FIX. SPL. BAR @ 2' 4"	A572 Gr. 50
21	12	0033.90406	2-1/4" X 3-1/4" FIX. SPL. BAR @ 2' 4"	A572 Gr. 50
22	4	0033.90407	1-1/2" X 1-1/2" EXP. SPL. BAR @ 1' 5"	A572 Gr. 50
23	4	0033.90408	2-1/4" X 3-1/4" EXP. SPL. BAR @ 1' 5"	A572 Gr. 50
24	120	0033.00295	3/8" X 2 1/4" X 7 3/8" ANCHOR PLATES	A36
25	242*	0042.05813	Ø 5/8" X 13" ANCHOR STUDS	A449
26	482*	0080.15901	Ø 5/8" HEAVY HEX NUTS	A563
27	240	0080.15911	Ø 5/8" FLAT WASHERS	F436
28	240	0080.15920	Ø 5/8" LOCK WASHERS	ASME D18.2
29	60	0080.05565	Ø 5/8" X 7 1/2" SLOTTED, ROUND HEAD BOLT, NU	
30	60	0080.05585	Ø 5/8" X 8 1/2" SLOTTED, ROUND HEAD BOLT, NU	
31	64	0080.03103	Ø 3/8" X 3" HEX BOLT, NUT, F.W., & L.W.	
32	64	0080.07330	Ø 7/8" X 5 1/2" HEX BOLT, NUT, F.W., & L.W.	
33	60	0033.90068	1/8" ELASTOMERIC PAD	
34	2	0033.90403	APPROACH WALL CONNECTORS	
35	2	0033.90404	TRAILING WALL CONNECTORS	
36	14	-	DELINEATORS (SUPPLIED BY F.R. LAFAYETTE)	

T.Y. LIN INTERNATIONAL

THE STAMPED DOCUMENTS ARE HEREBY:

☐ APPROVED  
☒ APPROVED AS NOTED  
☐ REVISE AND RESUBMIT

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE

THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.

RICK HEBERT  
REVIEWER

1/16/2015  
DATE

HARDWARE	
ITEM #	DESCRIPTION
29	BOLT BOTTOM RAIL TO POST
30	BOLT TOP RAIL TO POST (1)
31	BOLT BOTTOM SPLICE BARS
32	BOLT TOP SPLICE BARS TO TOP RAIL

ITEM #: 525.45

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:  
FRACTIONS =  $\pm 1/16"$   
ANGLES =  $\pm 1/2"$   
DIAMETERS =  $\pm 1/32"$

BRIDGE RAIL DETAILS SHEET

VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE 11R  
ROCKINGHAM, PROJECT BR 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT.



ELDERLEE, INC.

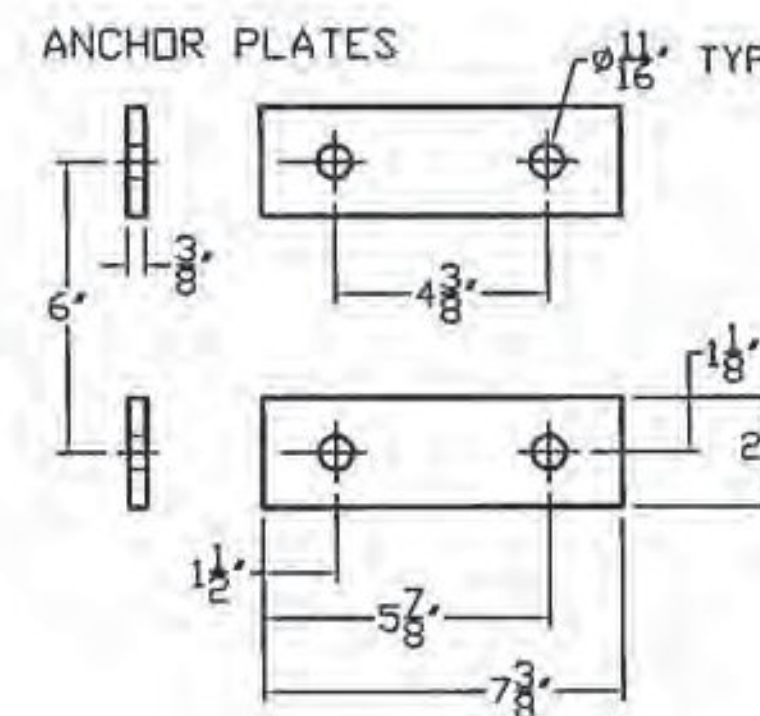
OAKS CORNERS, NEW YORK 14518  
E-Mail: dlong@elderlee.com / epeek@elderlee.com  
Tel: 315-789-6670 Fax: 315-789-6615



CERTIFIED  
FABRICATOR

DRAWN  
CHECKED  
APPROVED  
SCALE  
SCHEMATIC  
DRAWING NO. FR-L - ROCKINGHAM

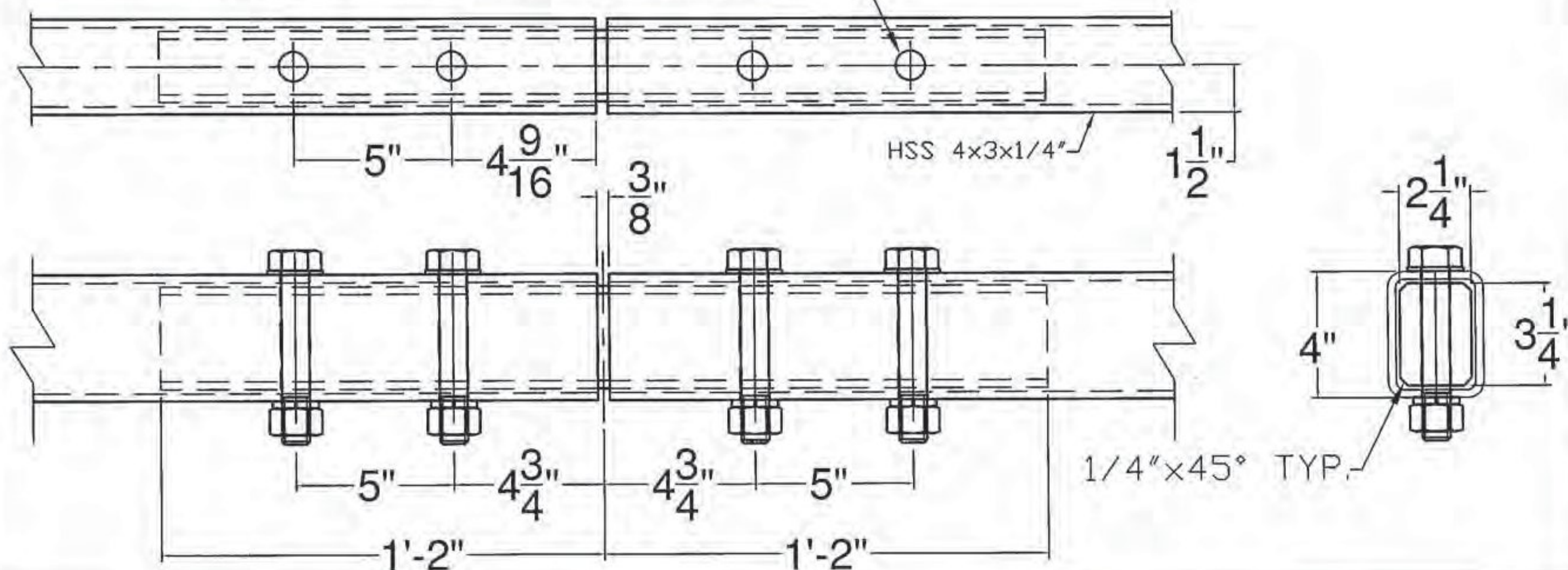
SHEET 1 OF 3





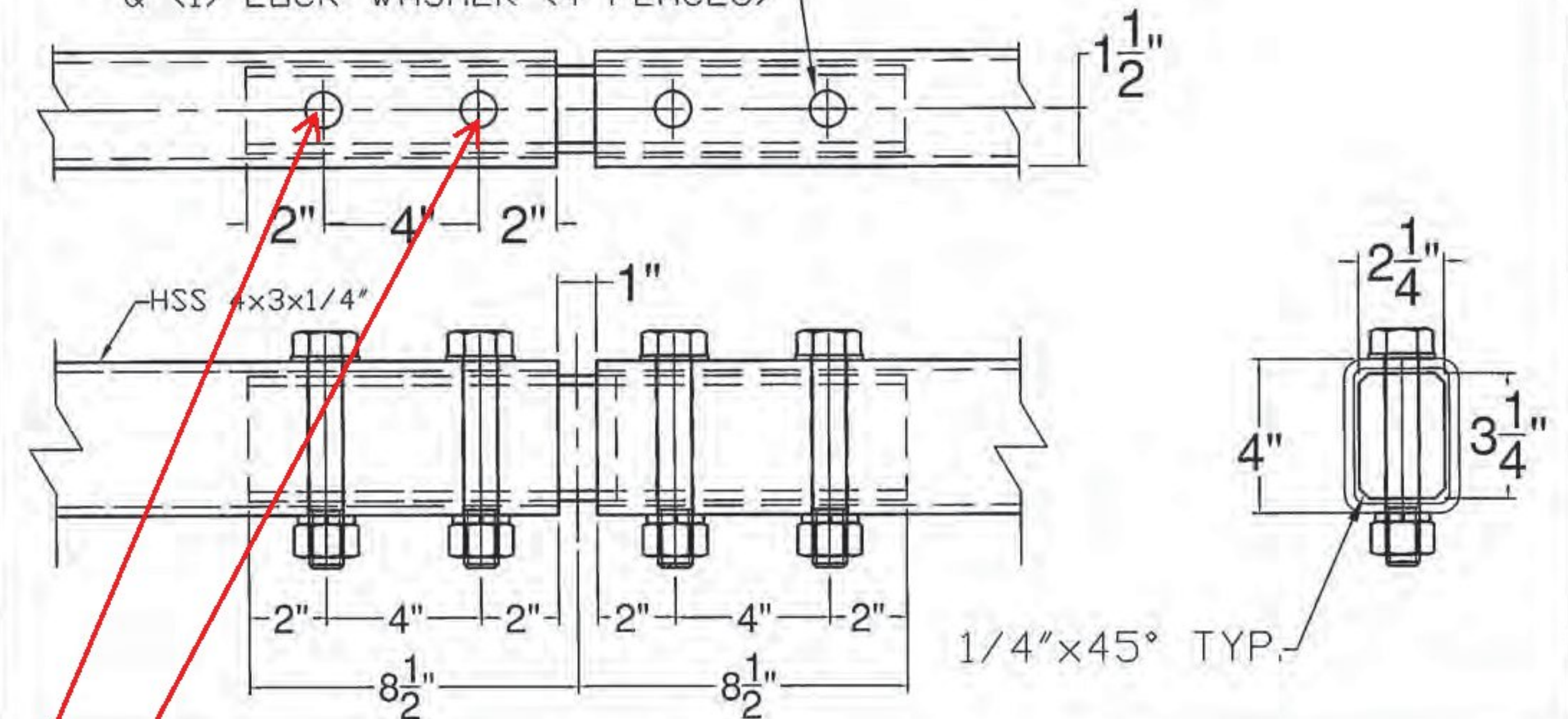
Ø15/16" THRU TUBE & SPLICE BAR,  
Ø7/8"X5 1/2" HEX BOLT & NUT,  
W/ (1) PLAIN HARDENED WASHER &  
(1) LOCK WASHER (4 PLACES)

TOP RAIL FIXED SPLICE DETAIL



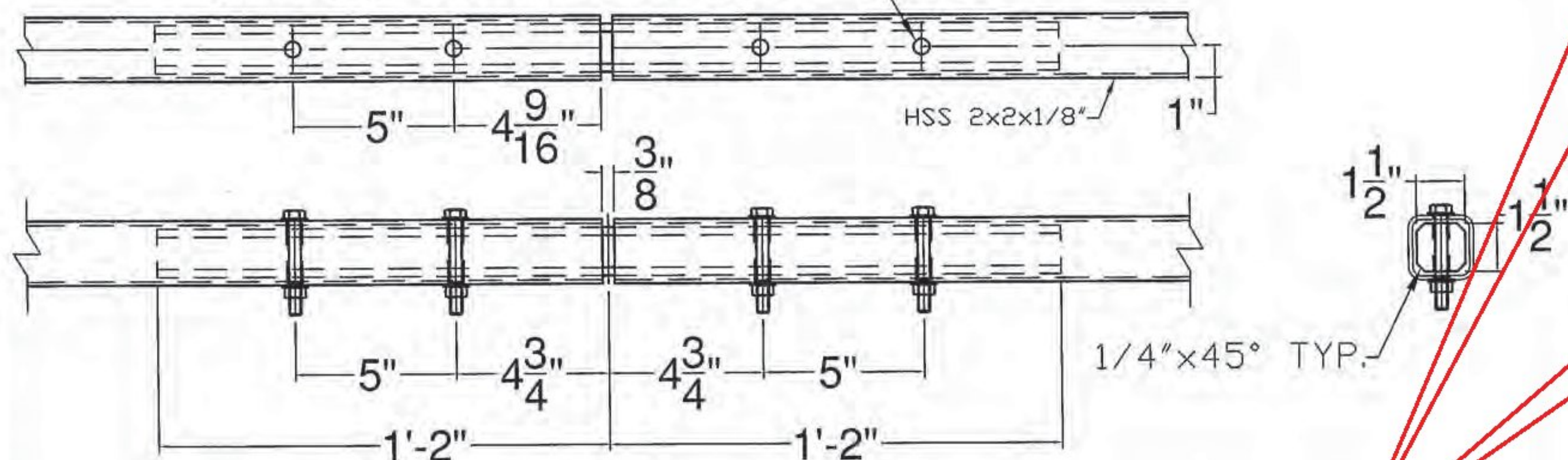
Ø15/16" THRU TUBE & SPLICE BAR,  
Ø7/8"X5 1/2" HEX BOLT & NUT,  
W/ (1) PLAIN HARDENED WASHER &  
(1) LOCK WASHER (4 PLACES)

TOP RAIL EXPANSION  
SPLICE DETAIL



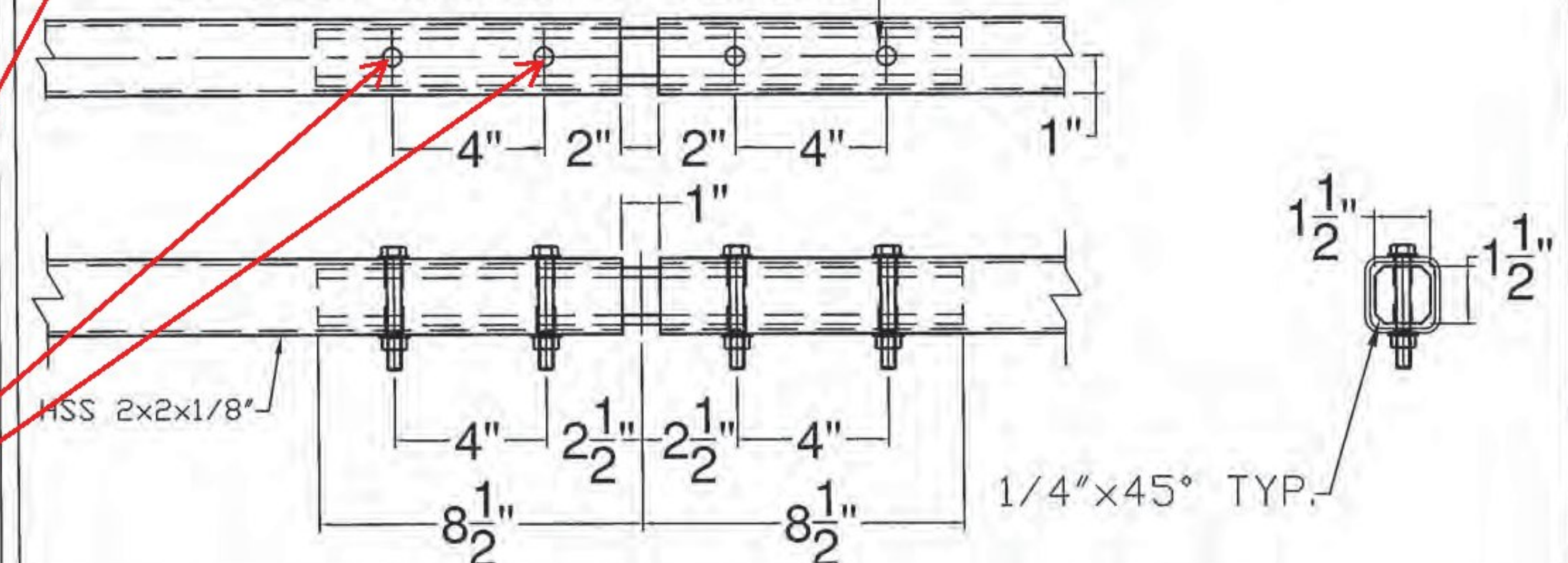
Ø1/2" THRU TUBE & SPLICE BAR,  
Ø3/8"X3" HEX BOLT & NUT,  
W/ (1) PLAIN HARDENED WASHER &  
(1) LOCK WASHER (4 PLACES)

BOTTOM RAIL FIXED SPLICE DETAIL



Ø1/2" THRU TUBE & SPLICE BAR,  
Ø3/8"X3" HEX BOLT & NUT,  
W/ (1) PLAIN HARDENED WASHER &  
(1) LOCK WASHER (4 PLACES)

BOTTOM RAIL EXPANSION  
SPLICE DETAIL



# T.Y. LIN INTERNATIONAL

THE STAMPED DOCUMENTS ARE HEREBY:

APPROVED  
X APPROVED AS NOTED  
REVISE AND RESUBMIT

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE

THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.

RICK HEBERT  
REVIEWER

1/16/2015  
DATE

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

and Checked for  
CONFORMANCE

BY: TAS DATE: 01/20/2015

Provide 15/16" x 2" slotted holes in top rail splice bar and 1/2" x 1 1/2" slotted holes in bottom rail splice bars to accommodate movements at expansion rail splices. (Typ)

ITEM #: 525.45

STRUCTURAL STEEL TO  
COMPLY W/ ASTM A6

TOLERANCE UNLESS  
OTHERWISE NOTED:  
FRACTIONS = ± 1/16"  
ANGLES = ± 1/2"  
DIAMETERS = ± 1/32"

SHEET 2 OF 3

## BRIDGE RAIL DETAILS SHEET

VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE 11R  
ROCKINGHAM, PROJECT BR 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT.

R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E					E				
V					V				
DRAWN					E.P.				
CHECKED					D.L.				
APPROVED					12/19/14				
SCALE					SCHEMATIC				
DRAWING NO. FR L - ROCKINGHAM									



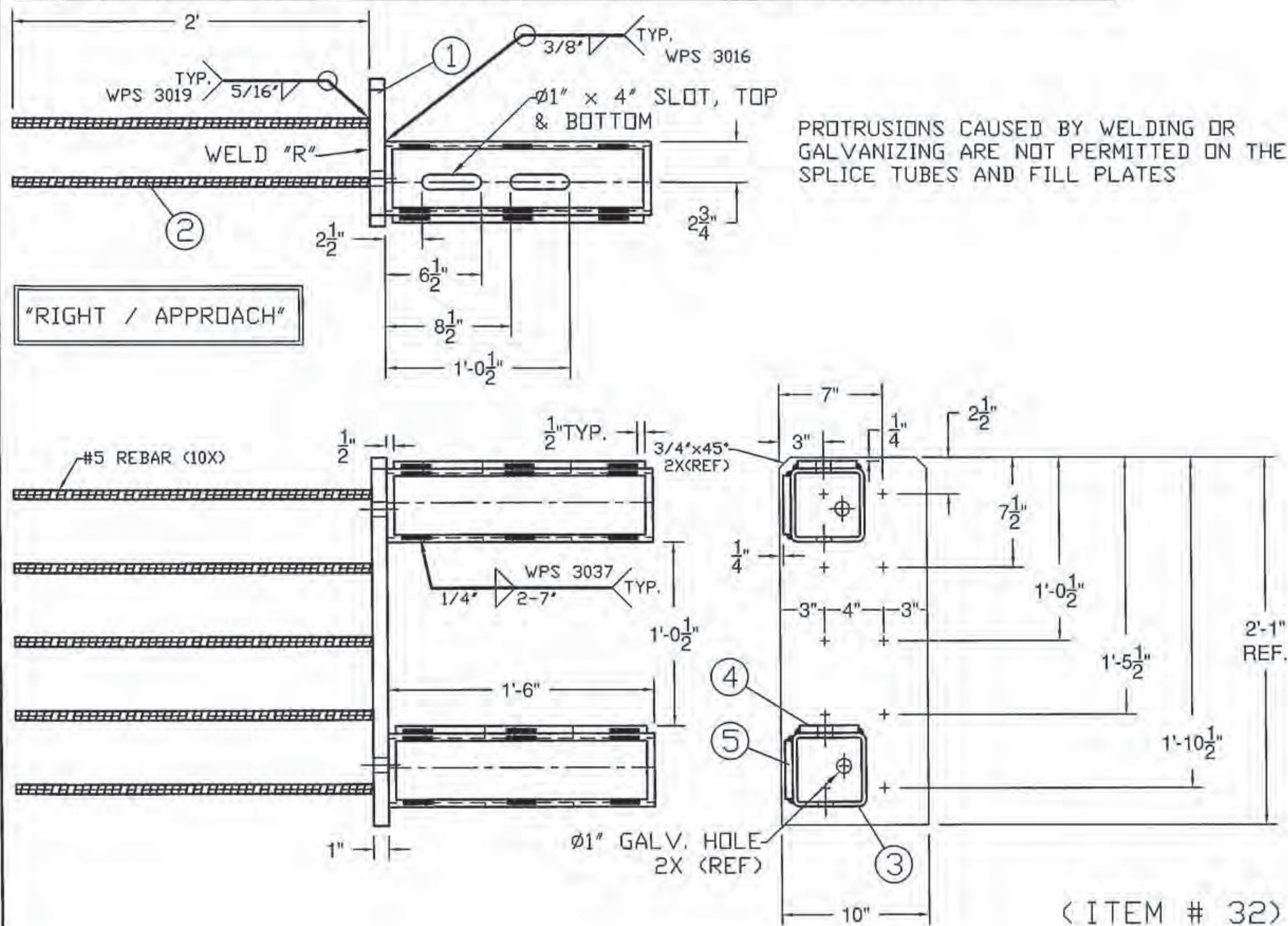
ELDERLEE, INC.

OAKS CORNERS, NEW YORK 14518  
E-Mail: dlong@elderlee.com / epeek@elderlee.com  
Tel: 315-789-6670 Fax: 315-789-6615

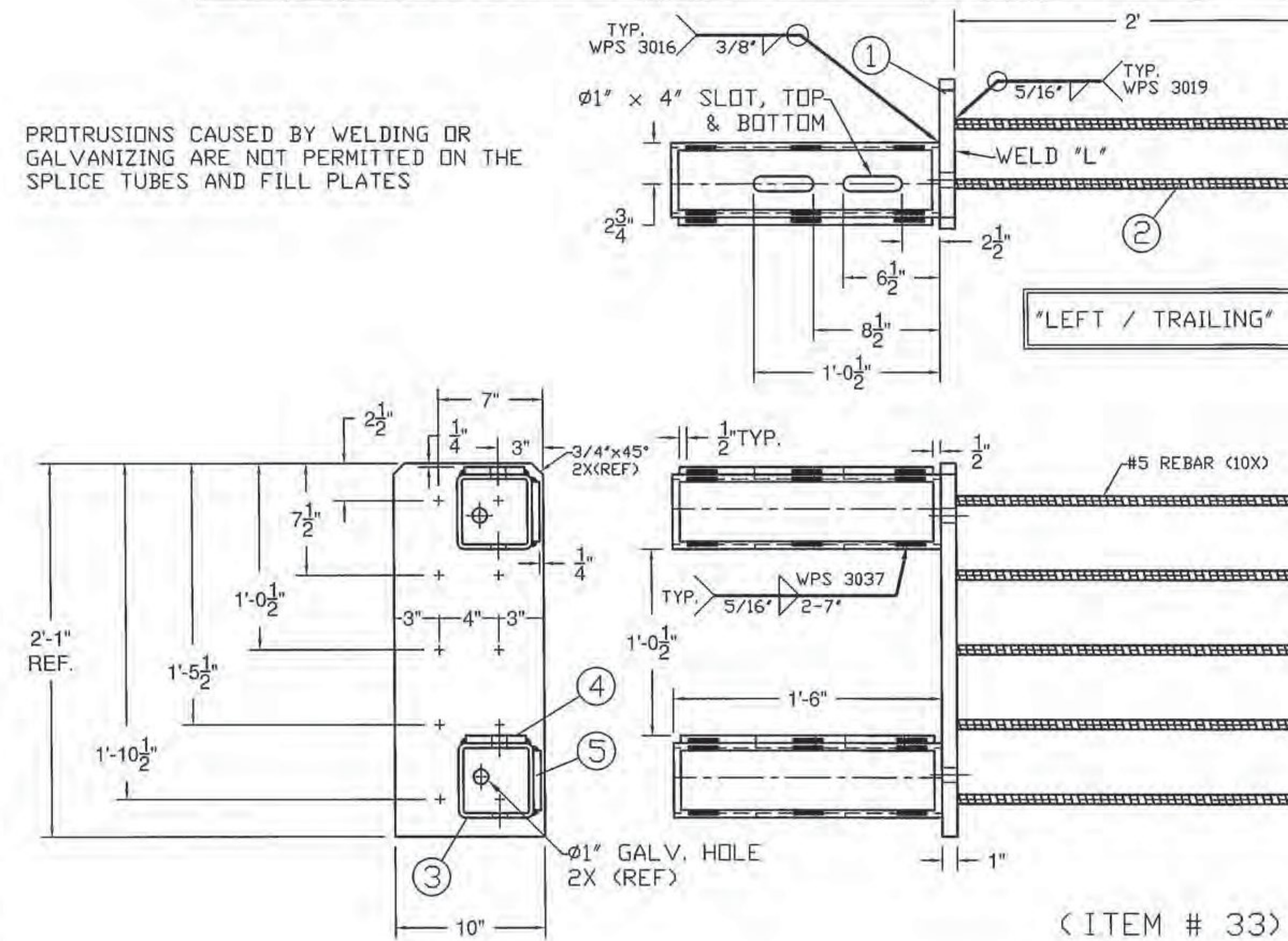




BILL OF MATERIALS			
ITEM #	QTY	DESCRIPTION	ASTM #
1	1	DBL TUBE WALL PLATE - 1' X 10' x 25'	ASTM A572 Gr. 50
2	10	RAW, Ø5/8" REBAR @ 36"	A615, Gr. 60
3	2	5' X 5' X 5/16" TUBE W/ SLOTS @ 18"	ASTM A500 Gr. B
4	2	SHIM PL 1/2" X 4" X 17" W/ SLOTS	ASTM A36 (ASTM A709 Gr. 36)
5	2	SHIM PL 1/2" X 4" X 17" (W/O SLOTS)	ASTM A36 (ASTM A709 Gr. 36)



BILL OF MATERIALS			
ITEM #	QTY	DESCRIPTION	ASTM #
1	1	DBL TUBE WALL PLATE - 1' X 10' x 25'	ASTM A572 Gr. 50
2	10	RAW, Ø5/8" REBAR @ 36"	A615, Gr. 60
3	2	5' X 5' X 5/16" TUBE W/ SLOTS @ 18"	ASTM A500 Gr. B
4	2	SHIM PL 1/2" X 4" X 17" W/ SLOTS	ASTM A709 Gr. 36
5	2	SHIM PL 1/2" X 4" X 17" (W/O SLOTS)	ASTM A709 Gr. 36



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 REVISE AND RESUBMIT

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RICK HEBERT  
 REVIEWER

1/16/2015  
 DATE

ITEM #: 525.45

STRUCTURAL STEEL TO  
 COMPLY W/ ASTM A6

TOLERANCE UNLESS  
 OTHERWISE NOTED:  
 FRACTIONS = ± 1/16"  
 ANGLES = ± 1/2"  
 DIAMETERS = ± 1/32"

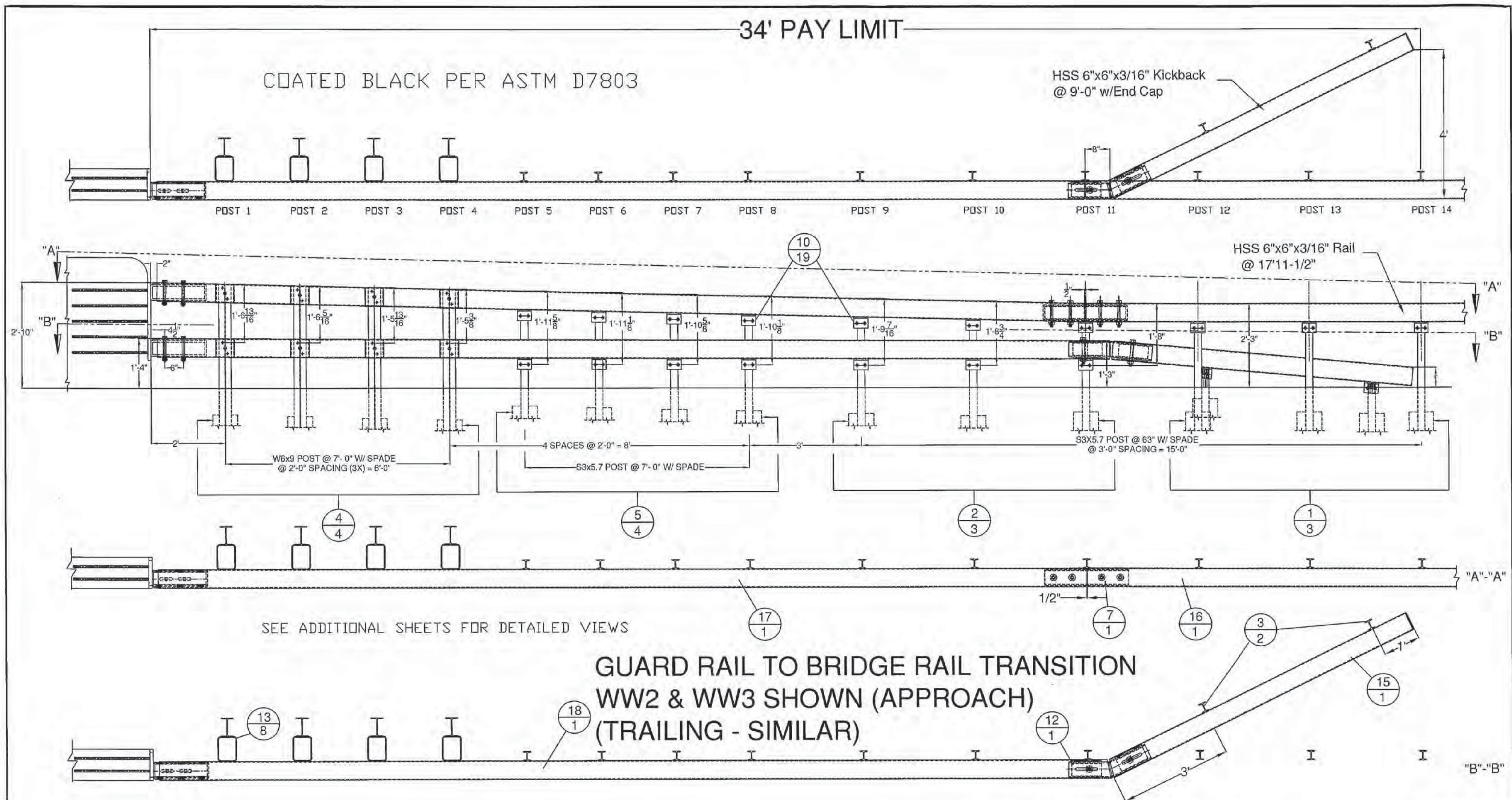
SHEET 3 OF 3

#### BRIDGE RAIL DETAILS SHEET

VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE 11R  
 ROCKINGHAM, PROJECT BR 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT.

R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E					E				
V					V				
ELDERLEE, INC.					DRAWN E.P. 12/19/14				
OAKS CORNERS, NEW YORK 14518					CHECKED D.L. 12/19/14				
E-Mail: dlong@elderlee.com / epeek@elderlee.com					APPROVED				
Tel: 315-789-6670 Fax: 315-789-6615					SCALE SCHEMATIC				
					DRAWING NO. P.L. - ROCKINGHAM				





Vermont Agency of Transportation

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BY: TAS DATE: 01/20/2015

ITEM #: 621.72

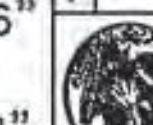
STRUCTURAL STEEL TO  
COMPLY W/ ASTM A6

TOLERANCE UNLESS  
OTHERWISE NOTED:  
FRACTIONS =  $\pm 1/16"$   
ANGLES =  $\pm 1/2"$   
DIAMETERS =  $\pm 1/32"$

GRAS, GLV 2 RAIL BOX BEAM

EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO: 11R  
PROJECT: ROCKINGHAM BR 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION	BY
1				1			
2				2			
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			
13				13			
14				14			
15				15			
16				16			
17				17			
18				18			
19				19			
20				20			



ELDERLEE, INC.

OAKS CORNERS, NEW YORK 14518  
E-Mail: dlong@elderlee.com / epeek@elderlee.com  
Tel: 315-789-6670 Fax: 315-789-6616



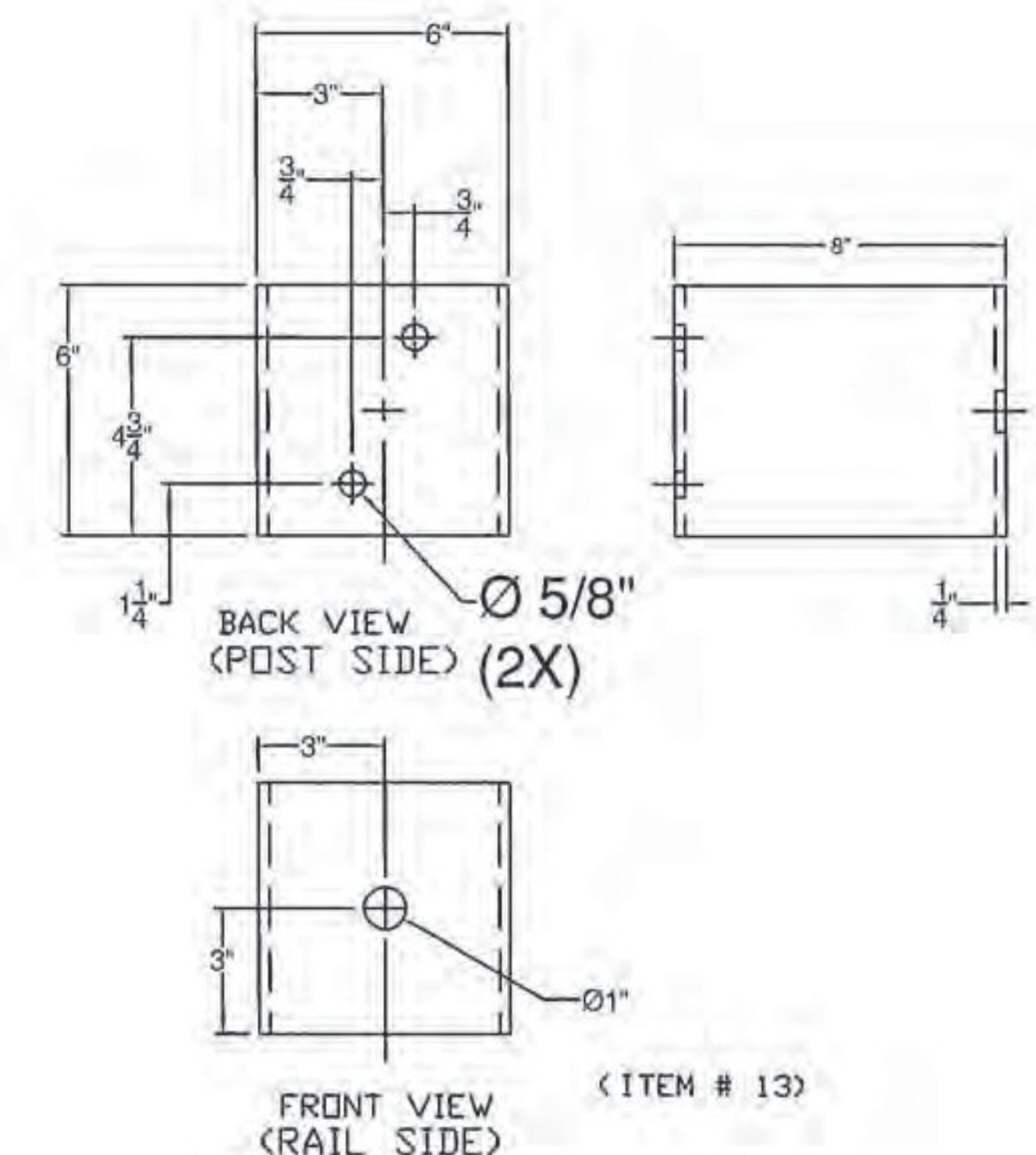
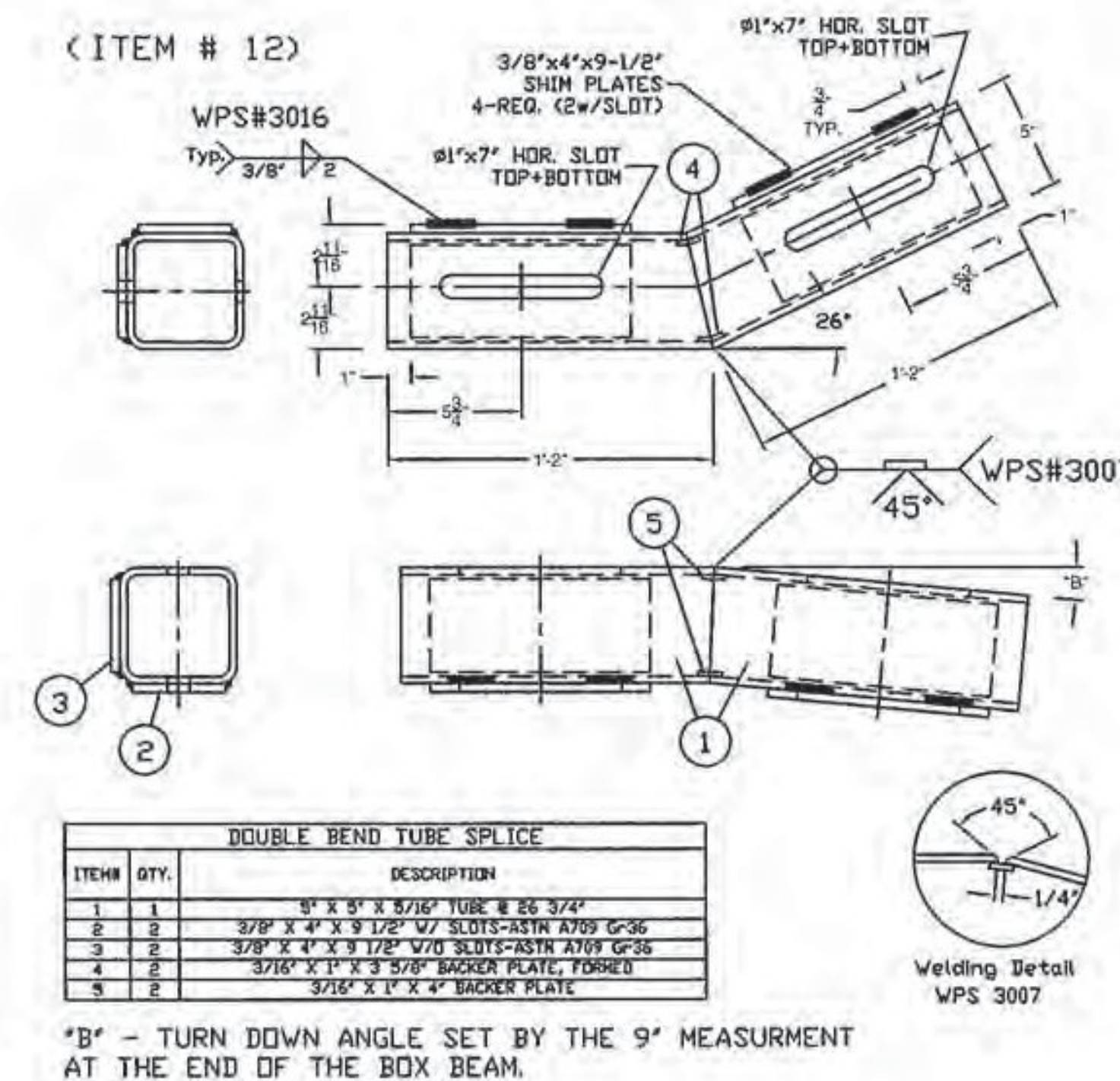
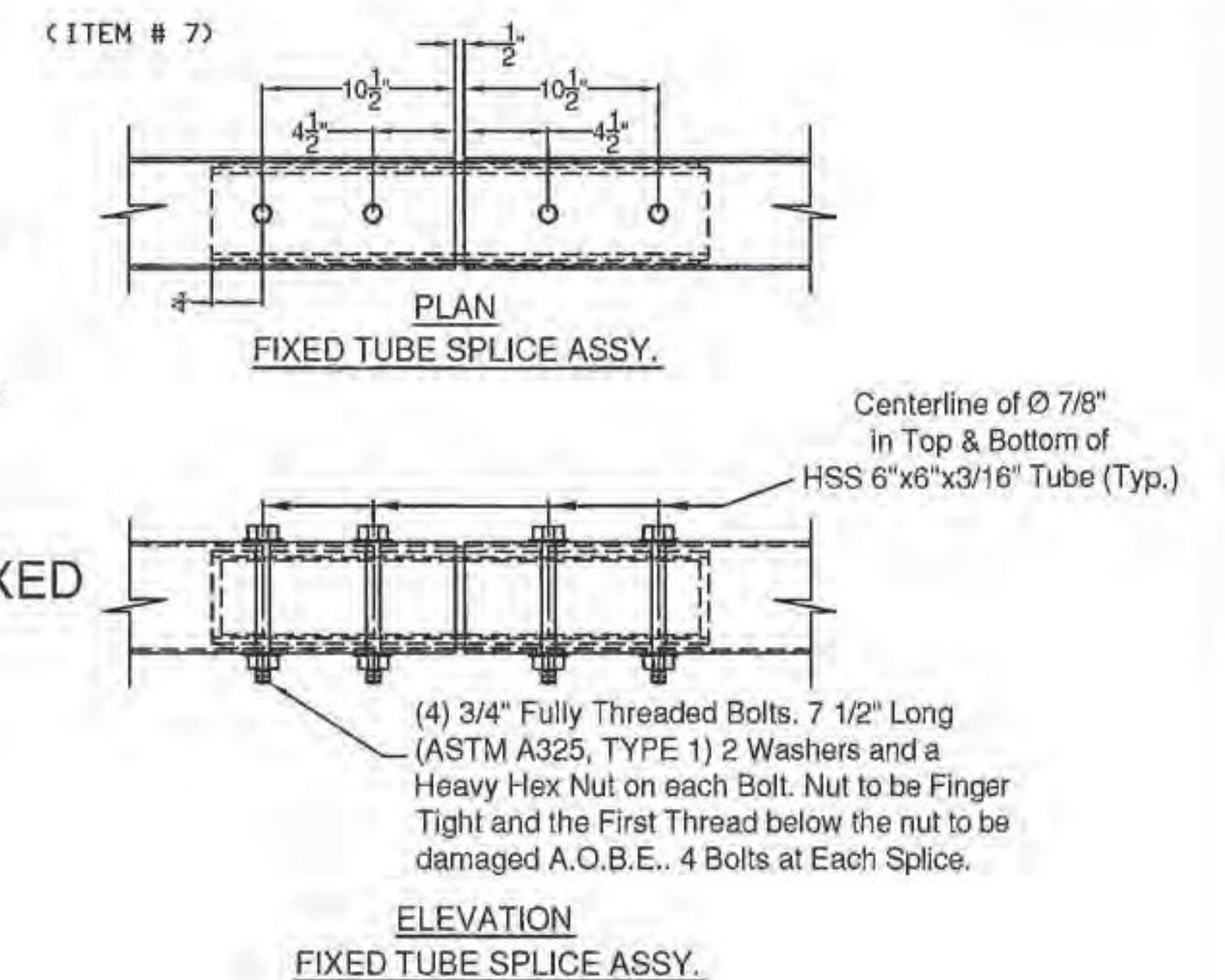
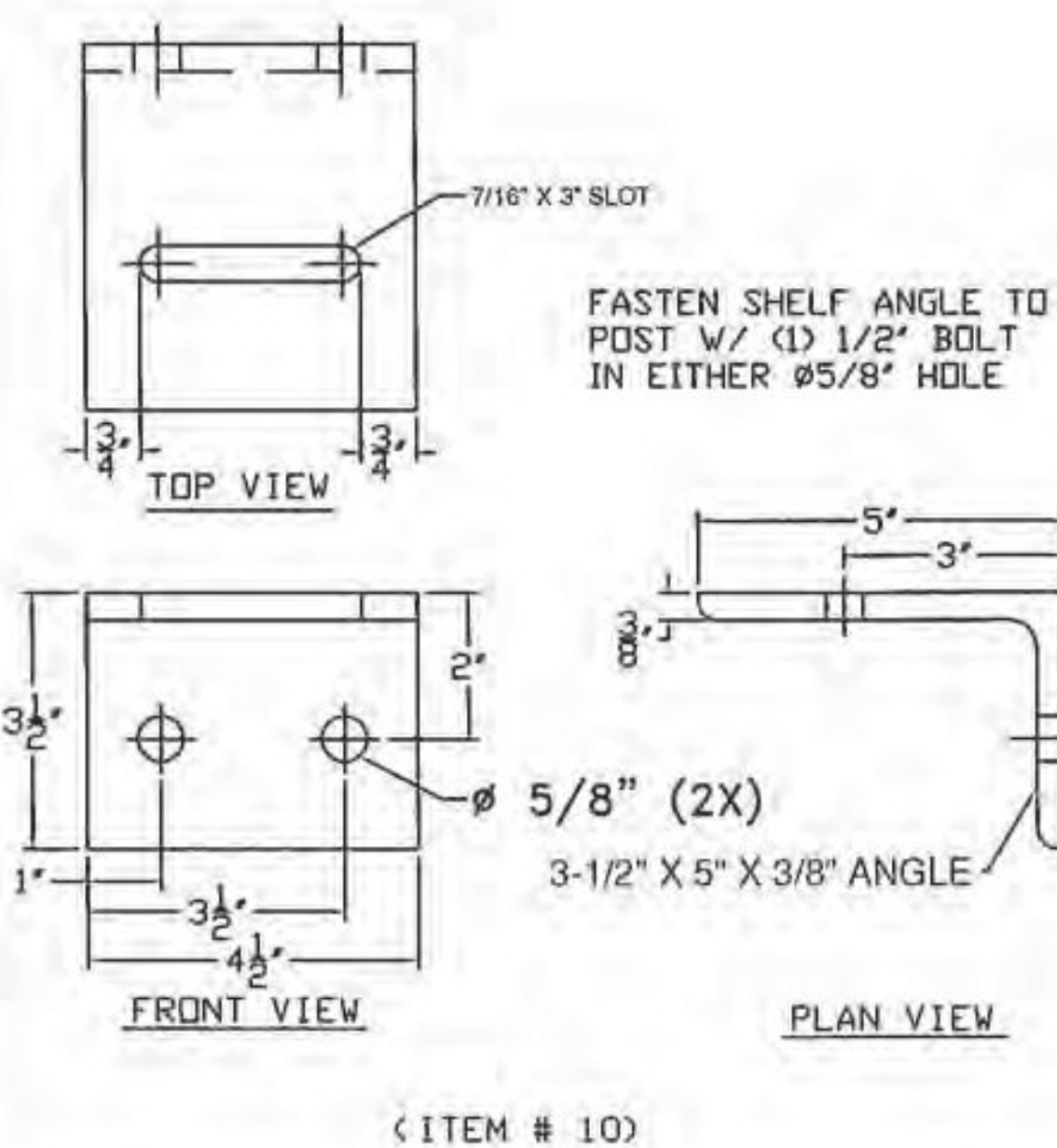
DRAWN E.P. 12/24/14  
CHECKED D.L.  
APPROVED M.V.  
SCALE SCHEMATIC  
DRAWING NO. FR L - ROCKINGHAM-T

SHEET 1 OF 5



BY: TAS      DATE: 01/20/2015





BY: TAS      DATE: 01/20/2015

TOLERANCE UNLESS  
OTHERWISE NOTED:  
FRACTIONS =  $\pm 1/16''$   
ANGLES =  $\pm 1/2^\circ$   
DIAMETERS =  $\pm 1/32''$

R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E					E				
V					V				

## ELDERLEE, INC.

OAKS CORNERS, NEW YORK 14518

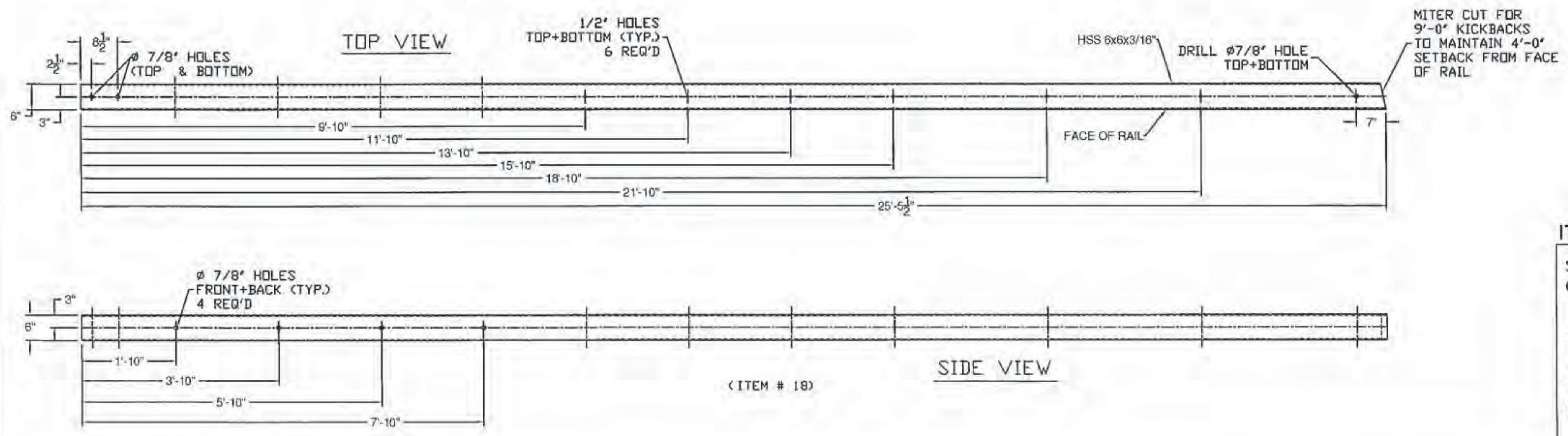
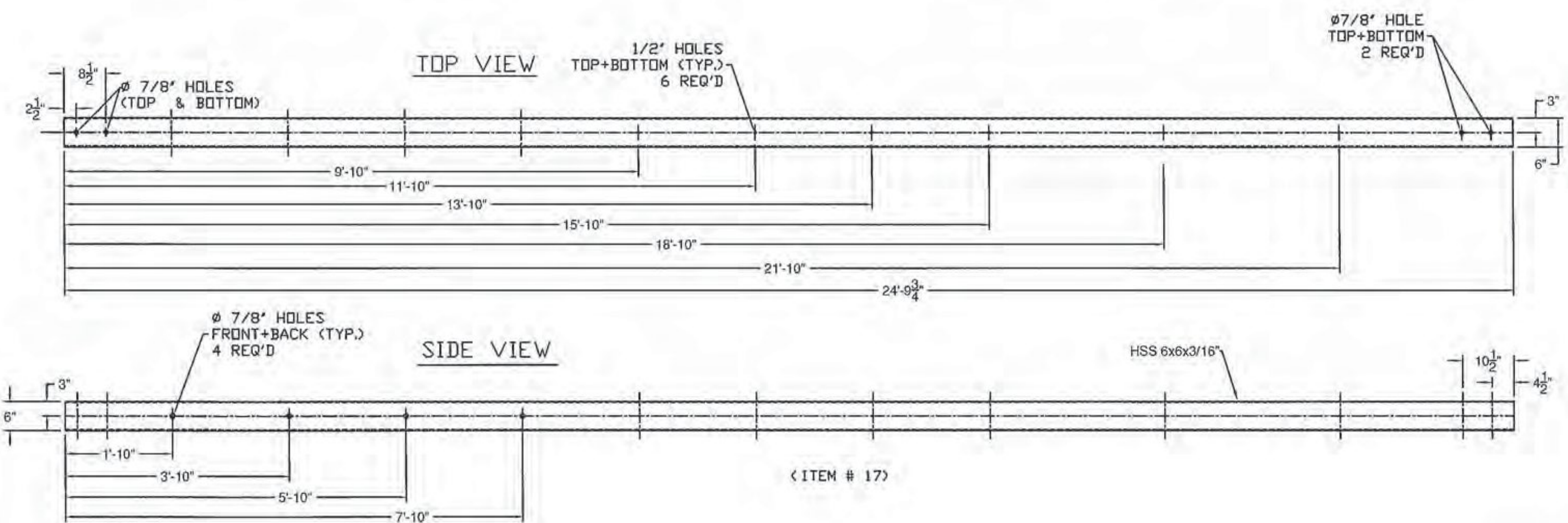
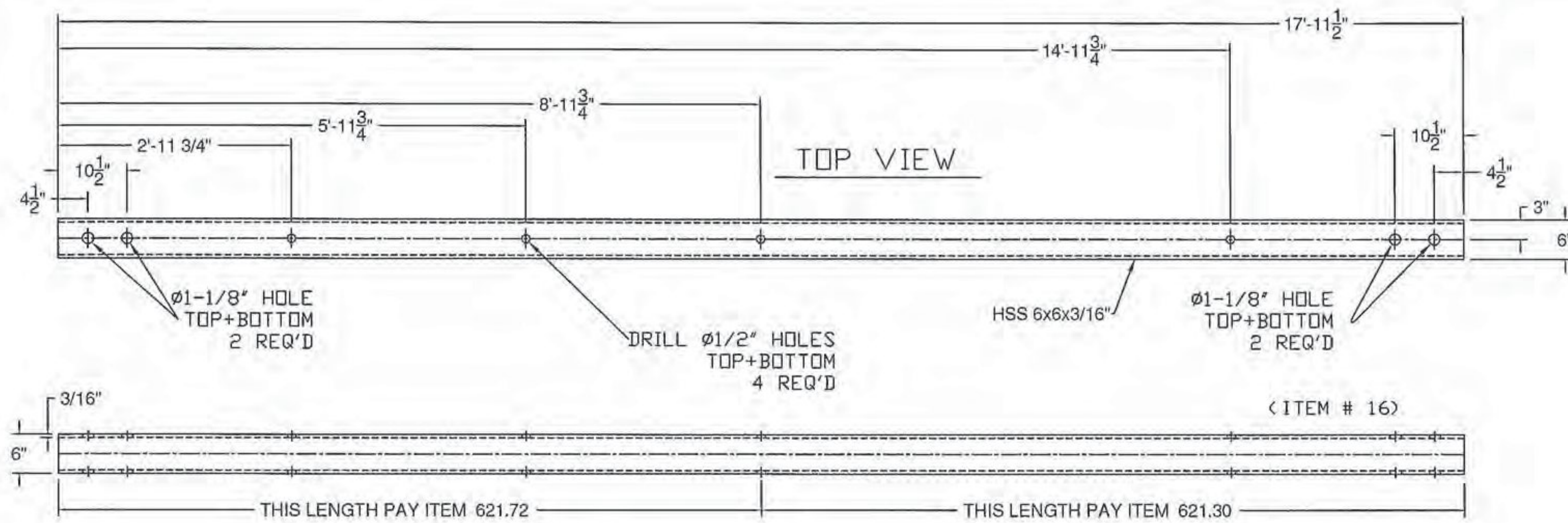
E-Mail: [dlong@elderlee.com](mailto:dlong@elderlee.com) / [espek@elderlee.com](mailto:espek@elderlee.com)

Tel: 315-789-8670 Fax: 315-789-6615

DRAWN	E.P.	12/24/14
CHECKED	D.L.	
APPROVED	M.V.	
SCALE	SCHEMATIC	
DRAWING NO. F1-L-ROCKINGHAM-T		





Vermont Agency of Transportation  
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 BY: TAS DATE: 01/20/2015

ITEM #: 621.72

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:  
 FRACTIONS =  $\pm 1/16"$   
 ANGLES =  $\pm 1/2"$   
 DIAMETERS =  $\pm 1/32"$

**GRAS, GLV 2 RAIL BOX BEAM**  
 EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO: 11R  
 PROJECT: ROCKINGHAM BRIDGE 0128(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION	BY
1				1			

**ELDERLEE, INC.**  
 OAKS CORNERS, NEW YORK 14518  
 E-Mail: dlong@elderlee.com / epeek@elderlee.com  
 Tel: 315-789-6670 Fax: 315-789-6616

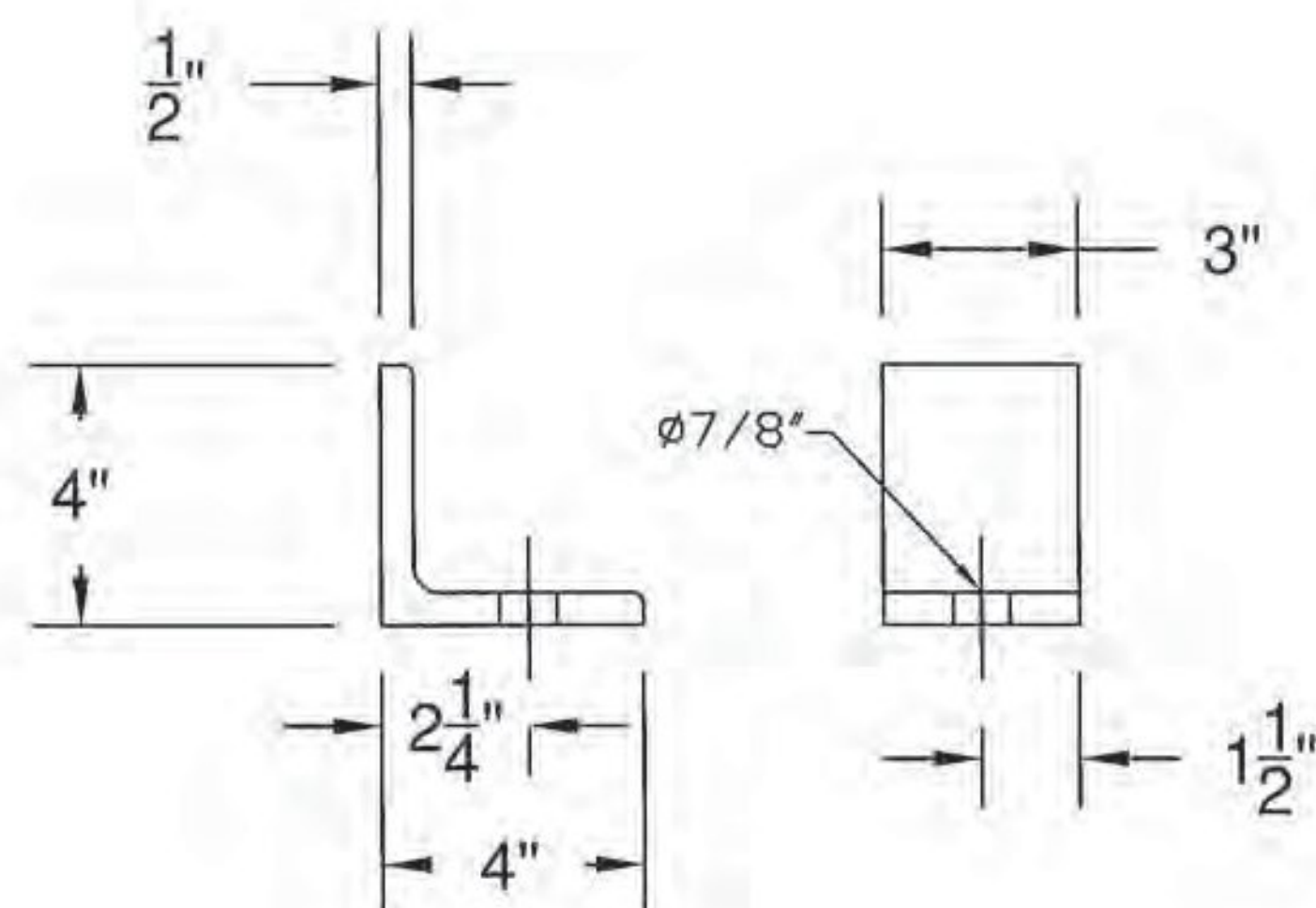
**CERTIFIED FABRICATOR**

DRAWN	E.P.	12/24/14
CHECKED	D.L.	
APPROVED	M.V.	
SCALE	SCHEMATIC	
DRAWING NO. FR L - ROCKINGHAM-T		

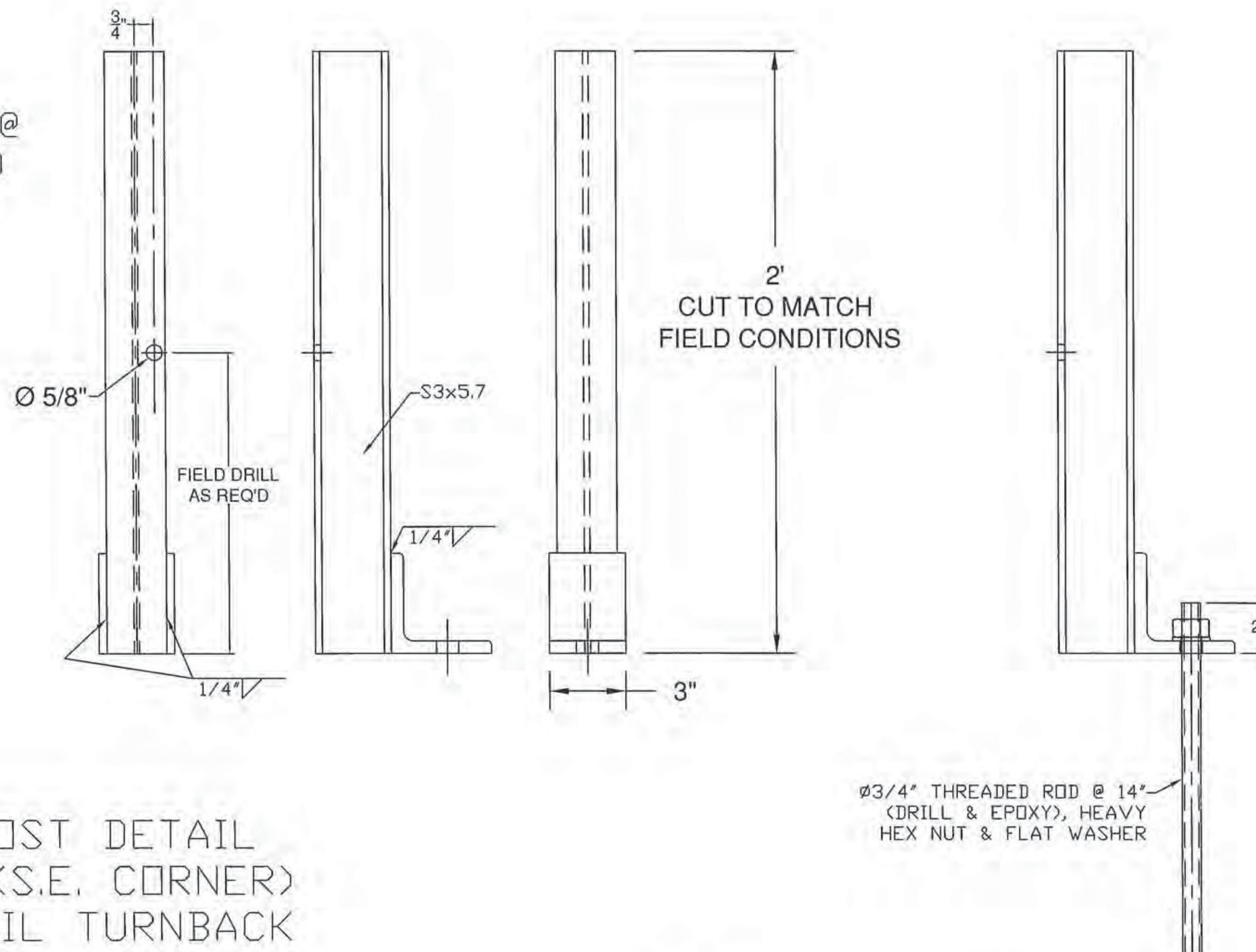
SHEET 4 OF 5



NOTE: S.E. CORNER, BOTTOM RAIL  
TURNBACK (ITEM #15) - SUPPLIED @  
STD 9'-0" LENGTH W/ WELDED END  
CAP, CUT & DRILL SPLICE END TO  
MATCH FIELD REQUIREMENTS.



SPECIAL POST DETAIL  
FOR WW3 (S.E. CORNER)  
BOTTOM RAIL TURNBACK



Ø3/4" THREADED ROD @ 14"  
(DRILL & EPOXY), HEAVY  
HEX NUT & FLAT WASHER

Vermont Agency of Transportation

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ON: December 29, 2014

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BY: TAS DATE: 01/20/2015

ITEM #: 621.72

STRUCTURAL STEEL TO  
COMPLY W/ ASTM A6

TOLERANCE UNLESS  
OTHERWISE NOTED:  
FRACTIONS =  $\pm 1/16"$   
ANGLES =  $\pm 1/2"$   
DIAMETERS =  $\pm 1/32"$

**GRAS, GLV 2 RAIL BOX BEAM**

EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO: 11R  
PROJECT: ROCKINGHAM BR 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E					E				
V					V				

	<b>ELDERLEE, INC.</b> OAKS CORNERS, NEW YORK 14518 E-Mail: dlong@elderlee.com / epeek@elderlee.com Tel: 315-789-6670 Fax: 315-789-6616		CERTIFIED FABRICATOR	DRAWN	E.P.	12/24/14
				CHECKED	D.L.	
				APPROVED	M.V.	
				SCALE	SCHEMATIC	
				DRAWING NO.	FR L - ROCKINGHAM-T	

SHEET 5 OF 5

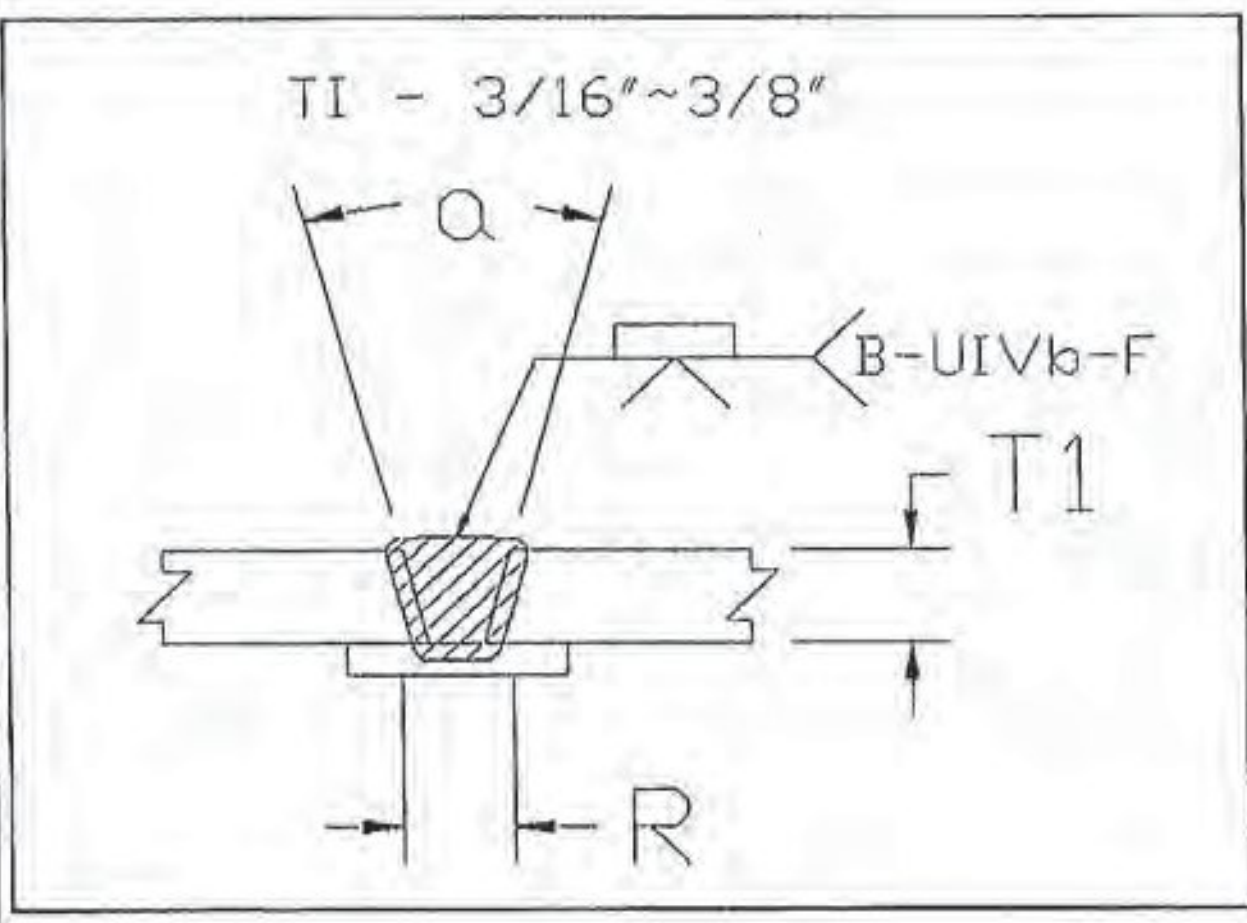


# WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE#3

Material Specification	A500 GR B to A572 GR 50		
Welding Process	FCAW-G		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT/HORIZONTAL		
Filler Metal Specification	A5.29		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE ELECTRODE POSITIVE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

## WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO	TO	TO	
		269	23	10	

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

Procedure No. 3007

Revision No.

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

and Checked for

CONFORMANCE

BY: TAS DATE: 01/20/2015

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 7/28/2014

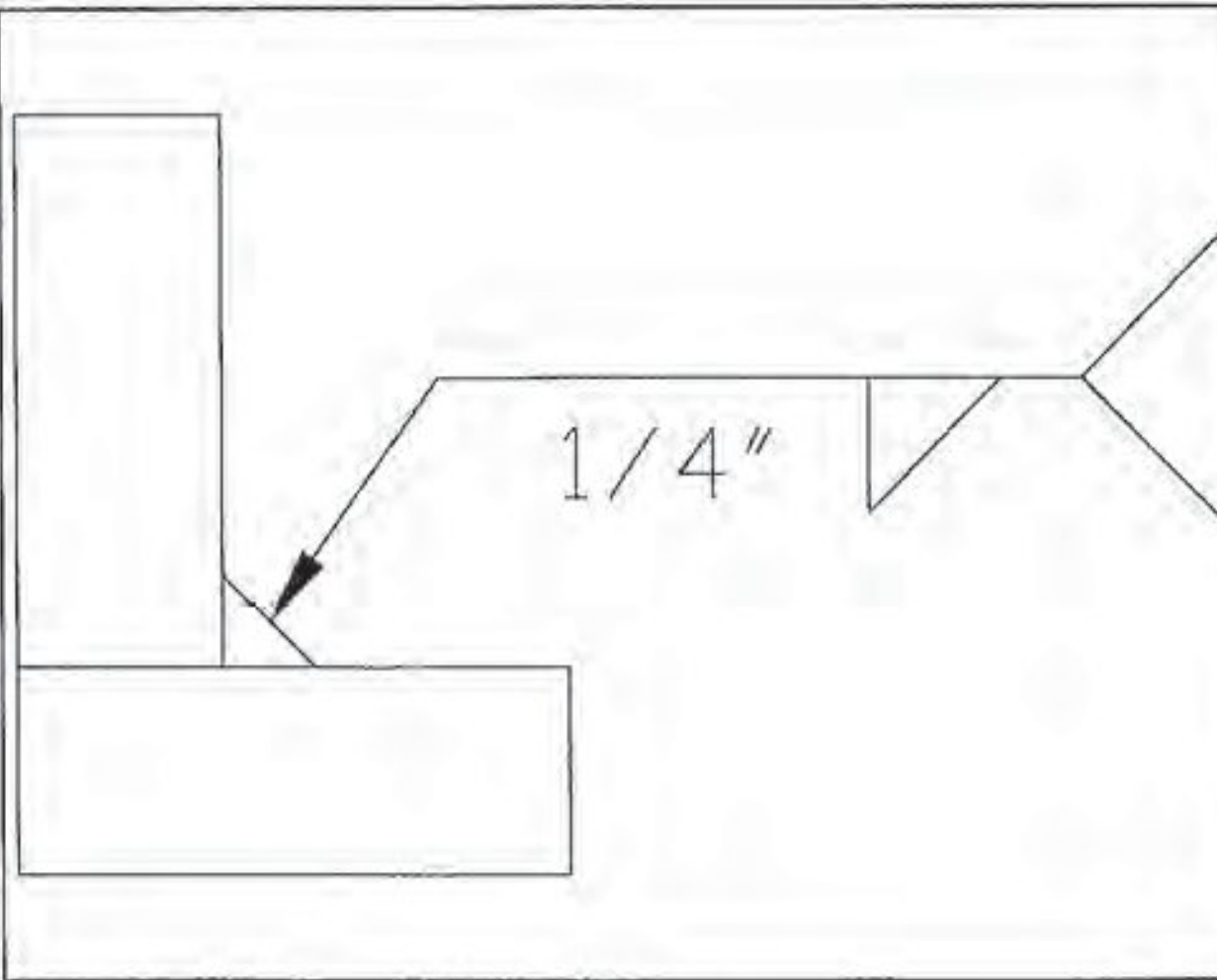


**WELDING PROCEDURE SPECIFICATION**

PQR ELDERLEE #3

Material Specification	A709 TO A500 GR B		
Welding Process	FCAW-G		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT/HORIZONTAL		
Filler Metal Specification	A5.29		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE ELECTRODE POSITIVE		
Welding Progression	STRINGER		
Root Treatment	D1.5		
Preheat and Interpass Temperature	D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

**WELDING PROCEDURE**

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO	TO	TO	
		269	23	10	

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

Procedure No. 3009

Revision No.

Vermont Agency of Transportation

**RECEIVED**

ON: December 29, 2014

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**CONFORMANCE**

BY: TAS DATE: 01/20/2015

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 3/20/2014

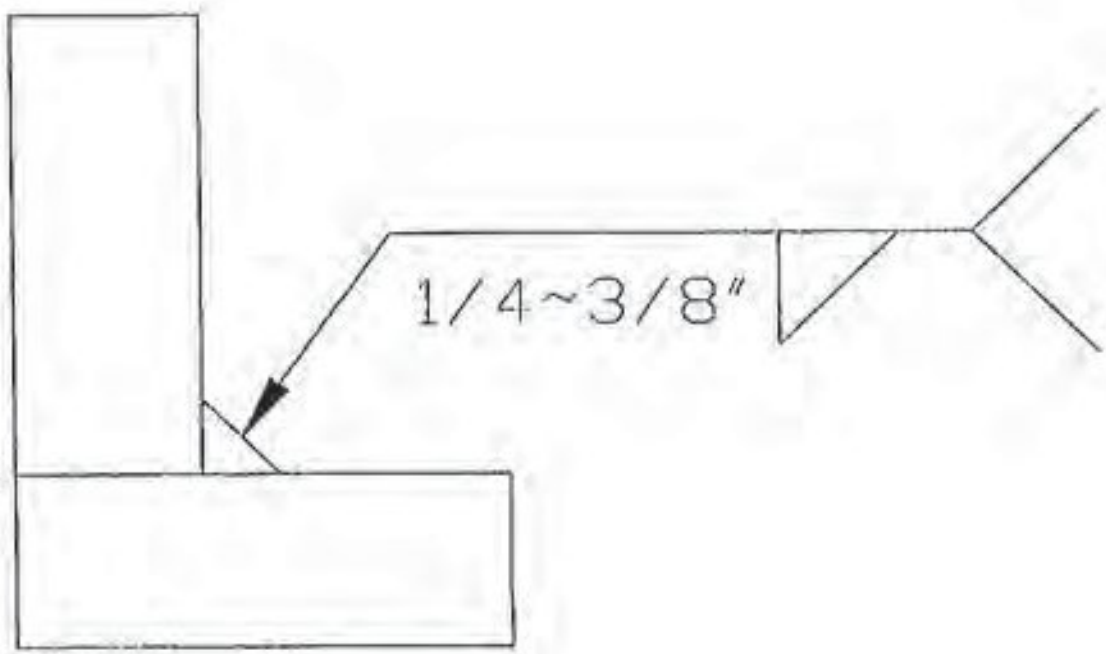


WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	A500 TO A572 GR 50		
Welding Process	FCAW-G		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT/HORIZONTAL		
Filler Metal Specification	A5.29		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO	TO	TO	
		269	23	10	

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

Procedure No. 3016

Contractor Elderlee, Inc.

Revision No. Vermont Agency of Transportation

Authorized By RANDY SCOTT

Date 8/4/2014

RECEIVED

ON: December 29, 2014

and Checked for  
CONFORMANCE

BY: TAS DATE: 01/20/2015



# WELDING PROCEDURE SPECIFICATION

Material Specification	A572 GR 50		
Welding Process	GMAW		
Manual or Machine	SEMIAUTOMATIC/ROBOTIC		
Position of Welding	FLAT/HORIZONTAL		
Filler Metal Specification	A5.18		
Filler Metal Classification	L-56 LINCOLN		
Flux	N/A		
Shielding Gas	90% ARGON /10% CO2 Dew Point -40DEG F Flow Rate 45CFH		
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

## WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
Variable	LIMITS	190	22	19	
		171	20	17	
		TO 209	TO 24	TO 21	

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

Procedure No. 3022

Revision No.

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

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CONFORMANCE

BY: TAS DATE: 01/20/2015

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 3/20/2014



WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	A572 TO A572		
Welding Process	FCAW-G		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT/HORIZONTAL		
Filler Metal Specification	A5.29		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC	ELECTRODE POSITIVE	
Polarity	REVERSE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO 269	TO 23	TO 10	

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

Procedure No. 3002

Revision No.

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

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CONFORMANCE

BY: TAS DATE: 01/20/2015

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

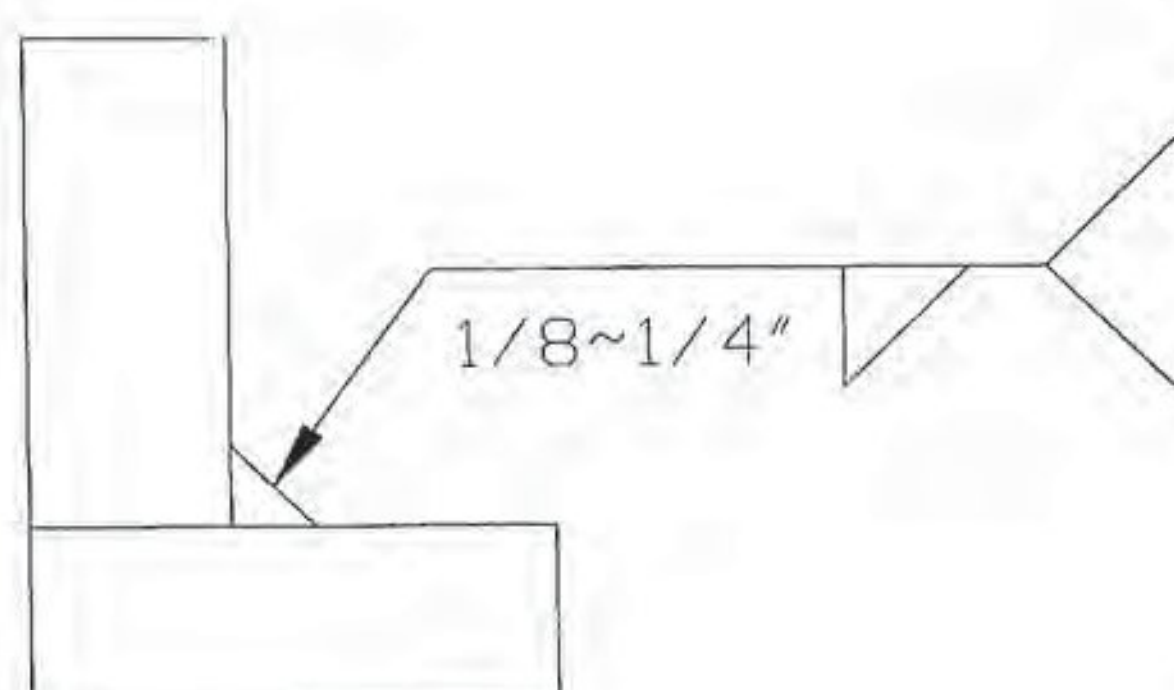
Date 3/20/2014



# WELDING PROCEDURE SPECIFICATION

Material Specification	A36 TO A500		
Welding Process	FCAW		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT / HORIZONTAL		
Filler Metal Specification	A5.20 - 95		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE ELECTRODE POSITIVE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

## WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	300	26	14	
Variable	LIMITS	270	24	12.6	
		TO 330	TO 28	TO 15.4	

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

Procedure No. 3006

Contractor Elderlee, Inc.

Revision No.

Authorized By RANDY SCOTT

Vermont Agency of Transportation

Date 8/4/2014

Form III-2

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ON: December 29, 2014

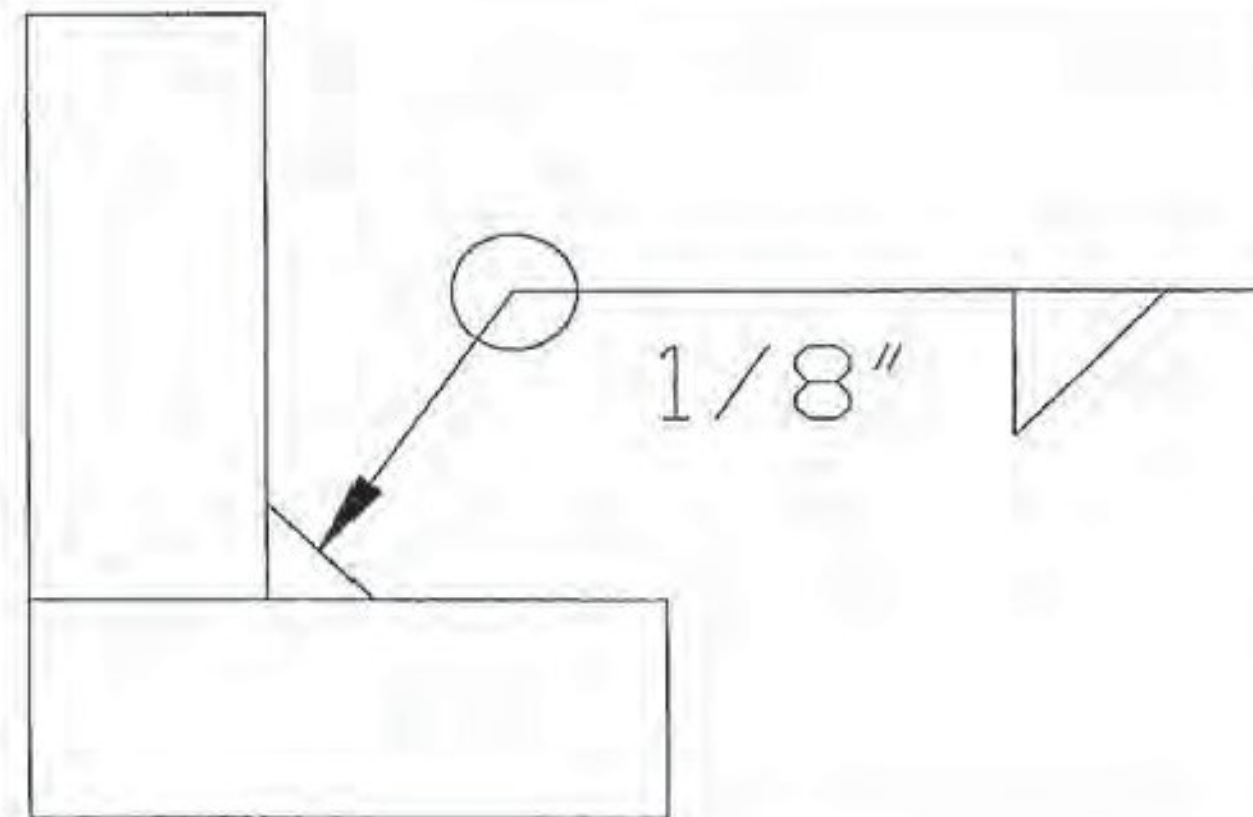
and Checked for

CONFORMANCE

BY: TAS DATE: 01/20/2015



WELDING PROCEDURE SPECIFICATION	
PQR ELDERLEE #3	
Material Specification	ASTM-A500-A53-GRADE B TO A36
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	1G
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F FLOW RATE 50 CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER. D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE					
Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO 269	TO 23	TO 10	

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

Procedure No.	3012	Contractor	Elderlee, Inc.
Revision No.		Authorized By	RANDY SCOTT
		Date	3/20/2014

Vermont Agency of Transportation

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ON: December 29, 2014

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BY: TAS DATE: 01/20/2015

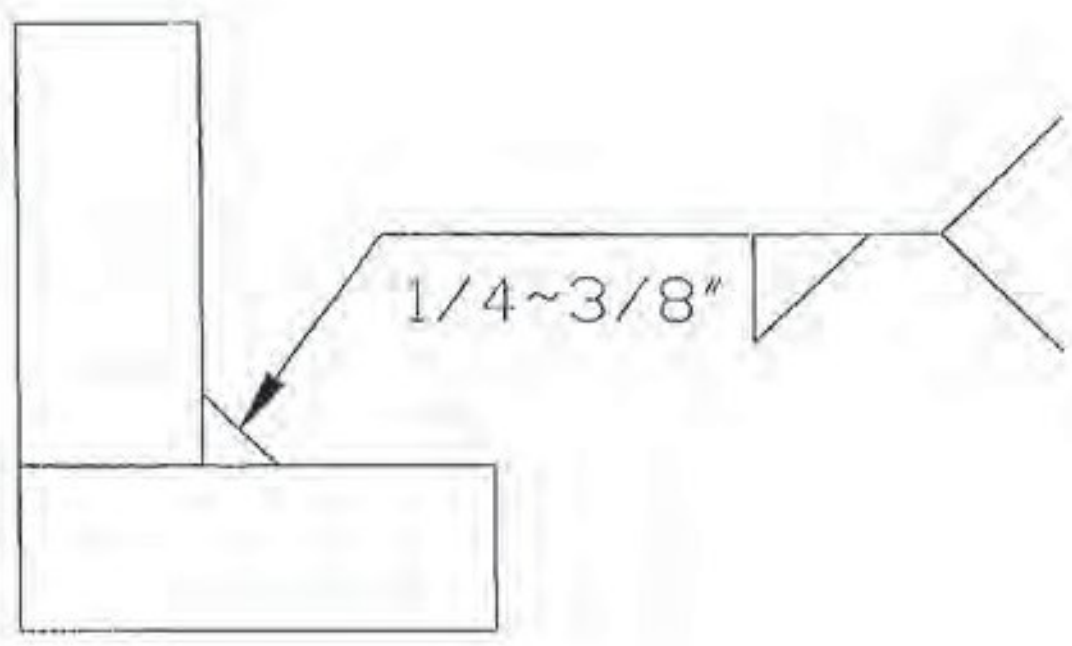


# WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	A500 TO A572 GR 50		
Welding Process	FCAW-G		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT/HORIZONTAL		
Filler Metal Specification	A5.29		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min		Max

## WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO	TO	TO	
		269	23	10	

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

Procedure No. 3016

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 8/4/2014

Vermont Agency of Transportation

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ON: December 29, 2014

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BY: TAS DATE: 01/20/2015

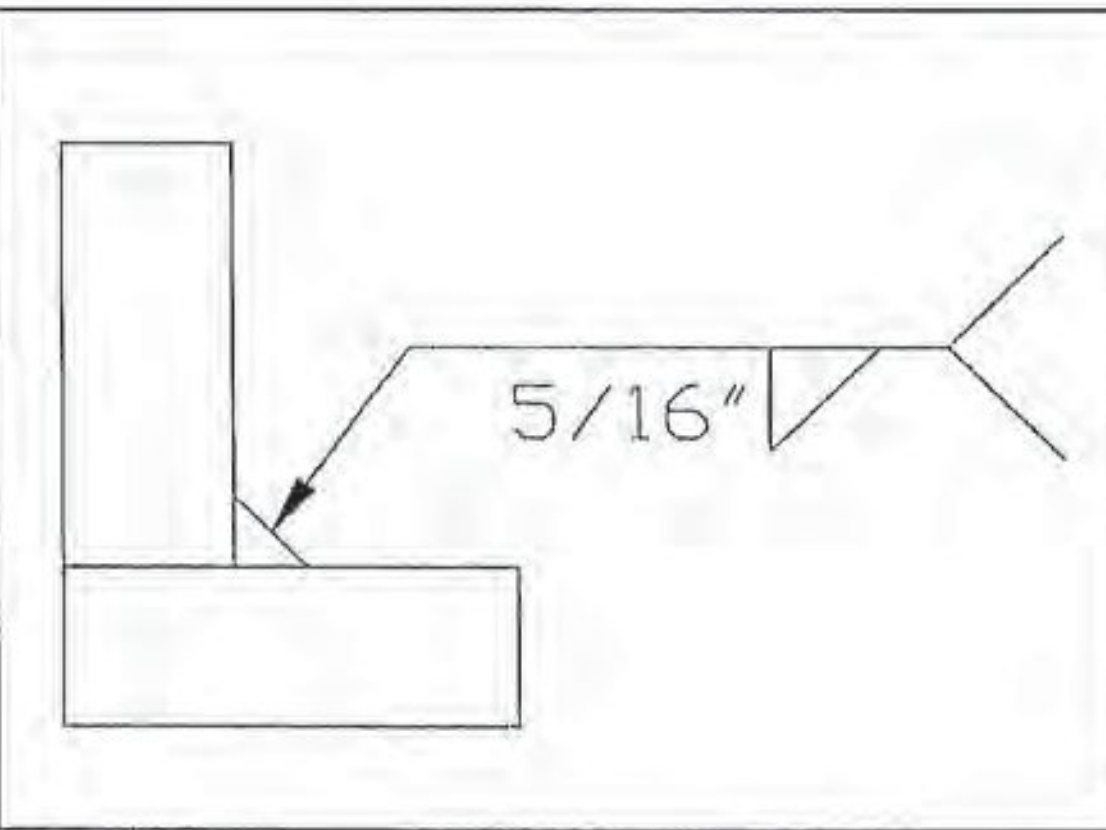


**WELDING PROCEDURE SPECIFICATION**

PQR ELDERLEE #3

Material Specification	ASTM A572 GR. 50	TO A325
Welding Process	FCAW-G	
Manual or Machine	SEMAUTOMATIC	
Position of Welding	FLAT/HORIZONTAL	
Filler Metal Specification	A5.29	
Filler Metal Classification	E81T1-Ni1C-JH4	
Flux	N/A	
Shielding Gas	CO 2	Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE	
Single or Multiple Arc	SINGLE	
Welding Current	DC	
Polarity	REVERSE ELECTRODE POSITIVE	
Welding Progression	STRINGER	
Root Treatment	CLEAN PER D1.5	
Preheat and Interpass Temperature	PER D1.5	
Postheat Temperature	NONE	
Heat Input	Min	Max

**WELDING PROCEDURE**

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO	TO	TO	
		269	23	10	

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

Procedure No. 3019

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 7/28/2014

Vermont Agency of Transportation

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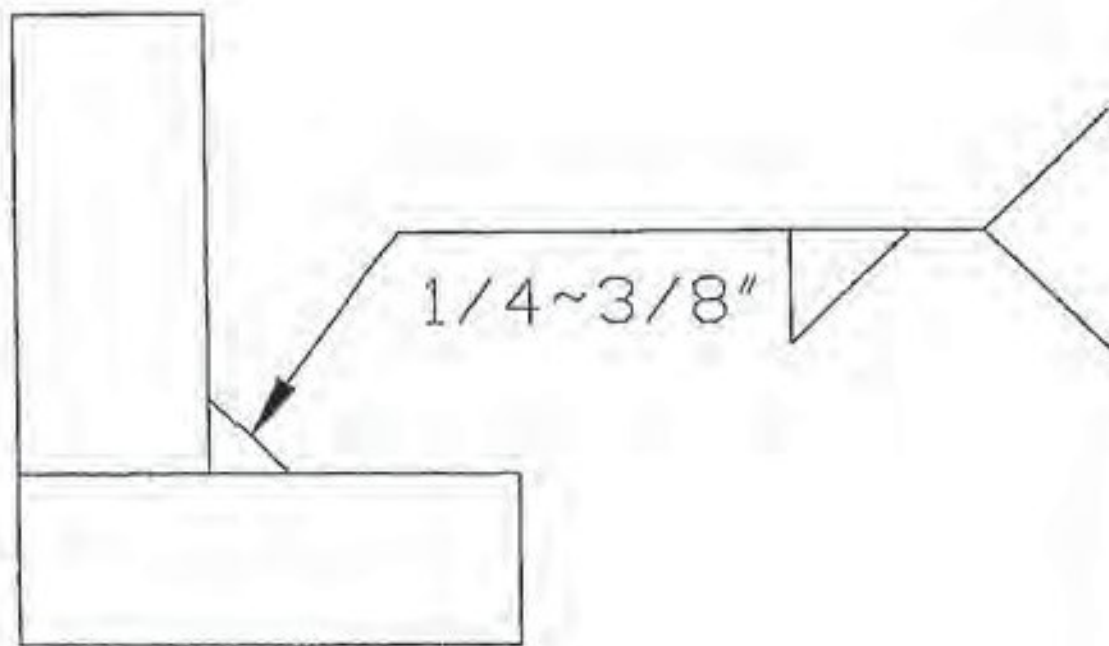


# WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	ASTM A572 GR. 50 CVN TO A500 GR B
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

## WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341	27	12	
		TO 269	TO 23	TO 10	

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

Procedure No. 3037

Contractor Elderlee, Inc.

Revision No.

Authorized By RANDY SCOTT

Vermont Agency of Transportation

Date 12/1/2014

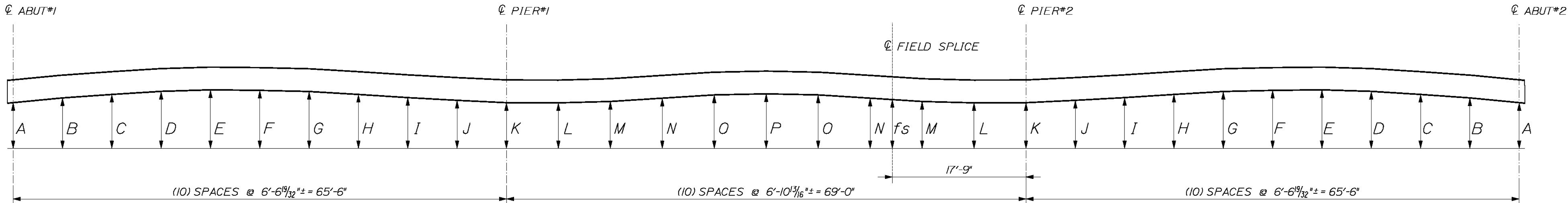
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ON: December 29, 2014

and Checked for  
CONFORMANCE

BY: TAS DATE: 01/20/2015

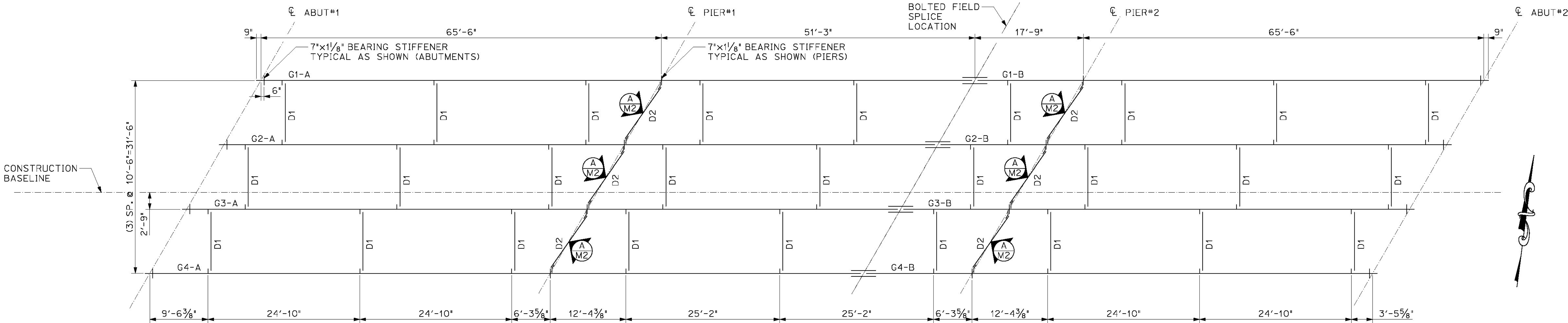




GIRDER LINE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	fs*
G1 & G4	6"	6 5/8"	7 1/16"	7 1/2"	7 11/16"	7 5/8"	7 1/2"	7 1/16"	6 11/16"	6 5/16"	6"	5 15/16"	6 3/16"	6 5/8"	7 1/16"	7 3/16"	5 5/16"
G2 & G3	6"	6 11/16"	7 3/16"	7 5/8"	7 7/8"	7 3/16"	7 5/8"	7 3/16"	6 3/4"	6 5/16"	6"	5 15/16"	6 3/16"	6 5/8"	7 1/16"	7 3/16"	5 5/16"

* BLOCKING DIMENSION IS TAKEN AS A DIMENSION FROM THE REFERENCE LINE IN THE ASSEMBLED BEAM TO THE BOTTOM OF THE BOTTOM FLANGE EXCEPT AT THE FIELD SPLICE LOCATION WHERE THE DIMENSION IS TO THE OUTSIDE OF THE BOTTOM OF THE FIELD SPLICE PLATE

1 ROCKINGHAM BLOCKING ELEVATION  
1 SCALE: 1/8" = 1'-0"



2 ROCKINGHAM FRAMING PLAN VIEW  
1 SCALE: 1/8" = 1'-0"

Field splice plates  
should require  
CVN testing.

## GENERAL FABRICATION NOTES

### MATERIAL SPECIFICATIONS

- ALL MATERIAL SHALL BE ASTM A709 GRADE 50W (UNO)
- ALL A709 GRADE 50 MATERIAL DENOTED "CVN" SHALL MEET THE CHARPY V-NOTCH TESTING REQUIREMENTS OF ZONE 2, H FREQUENCY: 15 FT-LB AT 40° (UP TO 2" WELDED)  
ITEMS SHALL CALL OUT "CVN" FOR EACH APPLICABLE ITEM IN THE BILL OF MATERIALS
- BOLTS SHALL BE HIGH STRENGTH BOLTS ASTM A325, TYPE 3  
NUTS SHALL BE A563 GRADE C3 OR DH3  
WASHERS SHALL BE ASTM F436, TYPE 3  
BOLTS AND NUTS SHALL BE ROTATIONAL CAPACITY TESTED. DO NOT MIX NUTS AND BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL NUTS AND BOLTS HAVE THE SAME LOT NUMBER.

### FABRICATION

- DIE STAMPING IS ALLOWED IN SPECIFIC LOCATIONS WITH THE APPROVAL OF THE ENGINEER.
- ALL EDGES OF FLAME CUT MATERIAL SUBJECTED TO CALCULATED STRESSES SHALL BE ROUNDED TO A MINIMUM RADIUS OF 1/16", OR AN EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE.
- ALL PLATES, FLAME CUT FROM LARGER PLATES, SHALL BE CUT SO THAT THE PRIMARY DIRECTION OF ROLLING IS PARALLEL TO THE MAIN TENSILE OR COMPRESSIVE STRESS.
- FLANGE PLATE MATERIAL SHALL HAVE AN EDGE HARDNESS NOT GREATER THAN HRC 30, ALLOWED per STANDARD SPEC. 506.09.

### WELDING

- ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF SUBSECTION 506.10.
- NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH ANSI/AASHTO/AWS D1.5 - SECTION 6. FLANGE WELDS WILL BE CALLED OUT AS BEING IN EITHER COMPRESSION OR TENSION. WEB WELDS WILL LABEL EITHER TOP OR BOTTOM AS BEING IN COMPRESSION, OR BE LABELED AS BEING IN A STRESS REVERSAL AREA.  
FLANGE SPLICES SHALL BE TESTED AS FOLLOWS:  
FLANGE SPLICES IN TENSION ~ TESTED 100%  
FLANGE SPLICES IN STRESS REVERSAL AREAS ~ TESTED 100%  
FLANGE SPLICES IN COMPRESSION ~ TESTED 25%  
WEB SPLICES SHALL BE TESTED AS FOLLOWS:  
FOR 1/6 THE DEPTH OF THE WEB (TENSION AREA) ~ TESTED 100%  
FOR THE REMAINING DEPTH OF WEB (COMPRESSION AREA) ~ TESTED 25 %  
FOR 1/6 DEPTH OF THE WEB @ TOP & BTM. (STRESS REVERSAL) ~ TESTED 100%  
THE REMAINING 2/3 OF THE WEB ~ TESTED 25%

### FIELD CONNECTIONS

- FIELD BOLTS SHALL HAVE A HEAVY HEX NUT, HEX HEAD, AND ONE HARD WASHER EACH.
- PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS. ALL ERECTION MARKS, MATCH MARKS, AND WEIGHT MARKS MUST NOT BE EXPOSED IN THE FINISHED STRUCTURE.
- HARDENED WASHERS ARE REQUIRED OVER OVERSIZED HOLES.

### CLEANING AND PAINTING

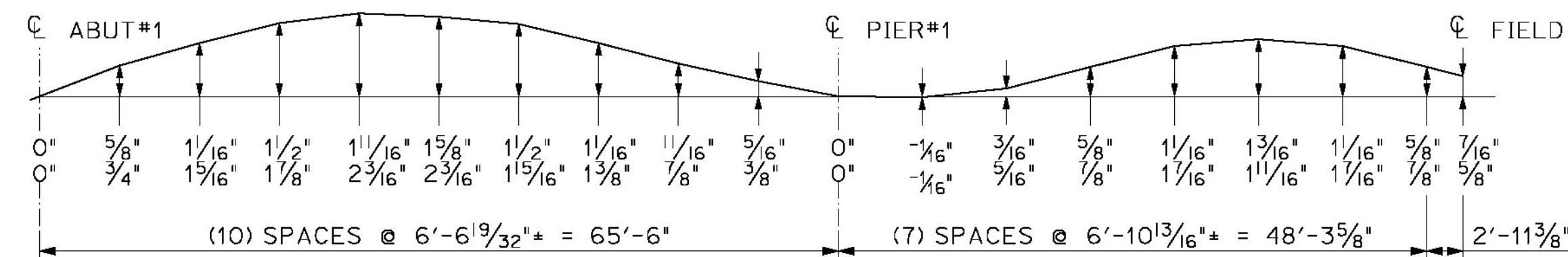
- UNPAINTED STEEL SHALL BE BLAST CLEANED TO SSPC SP-~~X~~ TO ACHIEVE A UNIFORM WEATHERED APPEARANCE.

Direct Tension  
Indicator Washers?

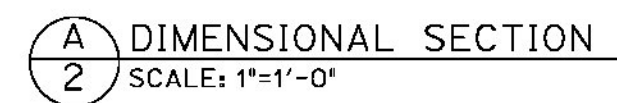
SP-10

FINISH	N/A				
MATERIAL	SEE DETAIL SHEETS				
HOLES					
ELECTRODES	PER WELD PROCEDURE				
WELDS	PER WELD PROCEDURE				
SURFACE PREP	1	FEB 2015	correct l.b. & fab note 4	ETC	
	NO	DATE	DESCRIPTION	BY	
REVISIONS					
ARC ENTERPRISES, INC.		ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED P.O. BOX 120 KINGFIELD, ME. 04947 PHONE: (207) 265-2646 -- FAX: (207) 265-4054			
DRAFTER	ETC	FRAMING PLAN & BLOCKING ELEVATION			PROJECT NO. 14-178
DATE	FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0128(12)			DWG. NO.
CHECKED	GMM	Cold River Bridges, LLC			1
DATE	FEB 2015				





THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:  
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION  
BTM. DIMENSION - TOTAL CAMBER OF WEB @ TIME WEB IS CUT  
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE  
LOST DURING FABRICATION



**B** DIMENSIONAL SECTION  
2 SCALE: 1"=1'-0"

C  
2

DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

D  
2

DIMENSIONAL SECTION

SCALE: 1"=1'-0"

BILL OF MATERIALS							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G1A			GIRDER G1A	117'-6 $\frac{3}{4}$ "	22,700#	
		1	WP1	WEB PLATE 35"x $\frac{1}{2}$ "	48'-4 $\frac{1}{16}$ "	2,900#	CVN
		1	WP2	WEB PLATE 35"x $\frac{1}{2}$ "	69'-2 $\frac{7}{8}$ "	4,150#	CVN
		1	TF1	FLANGE PL 1 $\frac{1}{8}$ "x18 $\frac{3}{8}$ "	85'-3 $\frac{1}{2}$ "	5,550#	CVN
		1	TF2	FLANGE PL 1 $\frac{1}{8}$ "x16"	32'-3 $\frac{1}{4}$ "	2,000#	CVN
		1	BF1	FLANGE PL 1 $\frac{1}{8}$ "x18 $\frac{3}{8}$ "	85'-3"	5,550#	CVN
		1	BF2	FLANGE PL 1 $\frac{1}{8}$ "x16"	32'-2 $\frac{7}{8}$ "	2,000#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		5	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

FINISH		SSPC SP-10			
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W				
HOLES					
ELECTRODES	PER WELD PROCEDURE				
WELDS	PER WELD PROCEDURE				
SURFACE PREP	1	FEB 2015	add pl P10 correct t.b.		ETC
	NO	DATE	DESCRIPTION		BY
REVISIONS					
 ENTERPRISES, INC.		ADVANCED RESOURCES &amp; CONST. ENTERPRISES, INCORPORATED P.O. BOX 120 KINGFIELD, ME. 04947 PHONE: (207) 265-2646 - FAX: (207) 265-4054			
		DRAFTER ETC DATE FEB 2015 CHECKED GNM DATE FEB 2015    GIRDER G1A  VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BR# 0128(12) Cold River Bridges, LLC   PROJECT NO. 14-178			

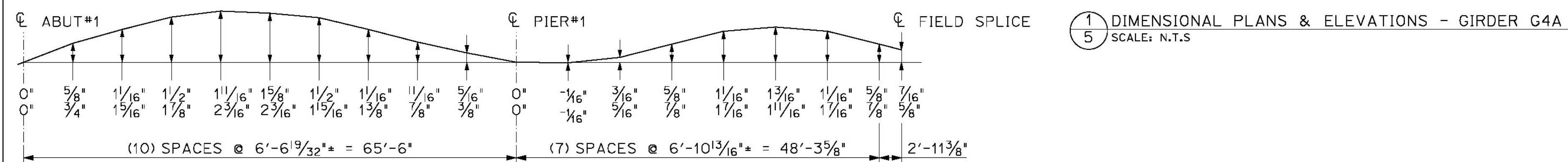




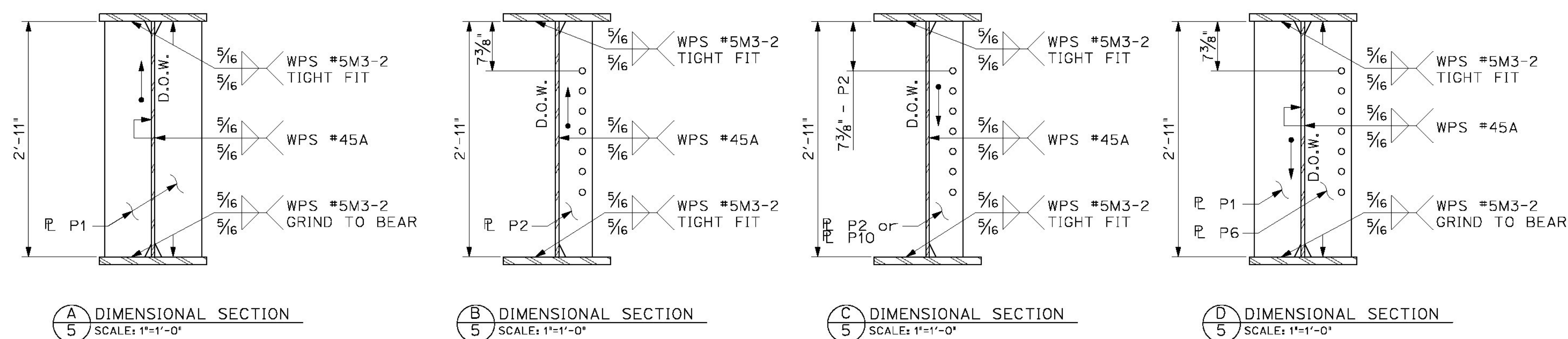








THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:  
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION  
BTM. DIMENSION - TOTAL CAMBER OF WEB @ TIME WEB IS CUT  
ADDITIONAL CAMBER TO ACCOMMODATE FOR CAMBER THAT WILL BE  
LOST DURING FABRICATION



BILL OF MATERIALS							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G4A			GIRDER G4A	117'-6 $\frac{3}{4}$ "	22,700#	
		1	WP1	WEB PLATE 35"x $\frac{1}{2}$ "	48'-4 $\frac{1}{16}$ "	2,900#	CVN
		1	WP2	WEB PLATE 35"x $\frac{1}{2}$ "	69'-2 $\frac{7}{8}$ "	4,150#	CVN
		1	TF1	FLANGE PL 1 $\frac{1}{8}$ "x18 $\frac{3}{8}$ "	85'-3 $\frac{1}{2}$ "	5,550#	CVN
		1	TF2	FLANGE PL 1 $\frac{1}{8}$ "x16"	32'-3 $\frac{1}{4}$ "	2,000#	CVN
		1	BF1	FLANGE PL 1 $\frac{1}{8}$ "x18 $\frac{3}{8}$ "	85'-3"	5,550#	CVN
		1	BF2	FLANGE PL 1 $\frac{1}{8}$ "x16"	32'-2 $\frac{7}{8}$ "	2,000#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		5	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

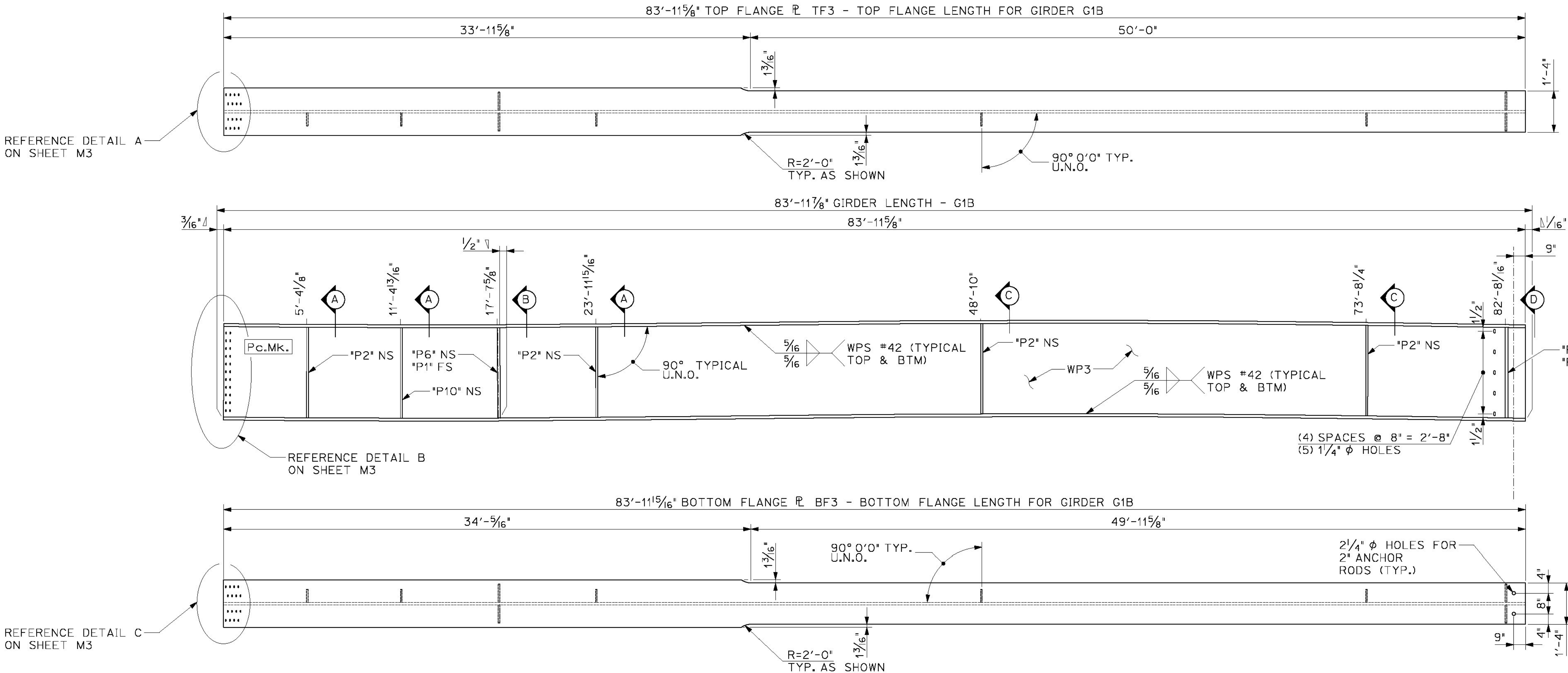
FINISH	SSPC SP-10					
MATERIAL	AASHTO M270 (ASTM A709) GR. S0W					
HOLES						
ELECTRODES	PER WELD PROCEDURE					
WELDS	PER WELD PROCEDURE					
SURFACE PREP	1	FEB 2015	add pl P10 correct t.b.		ETC	
	NO	DATE	DESCRIPTION		BY	
	REVISIONS					



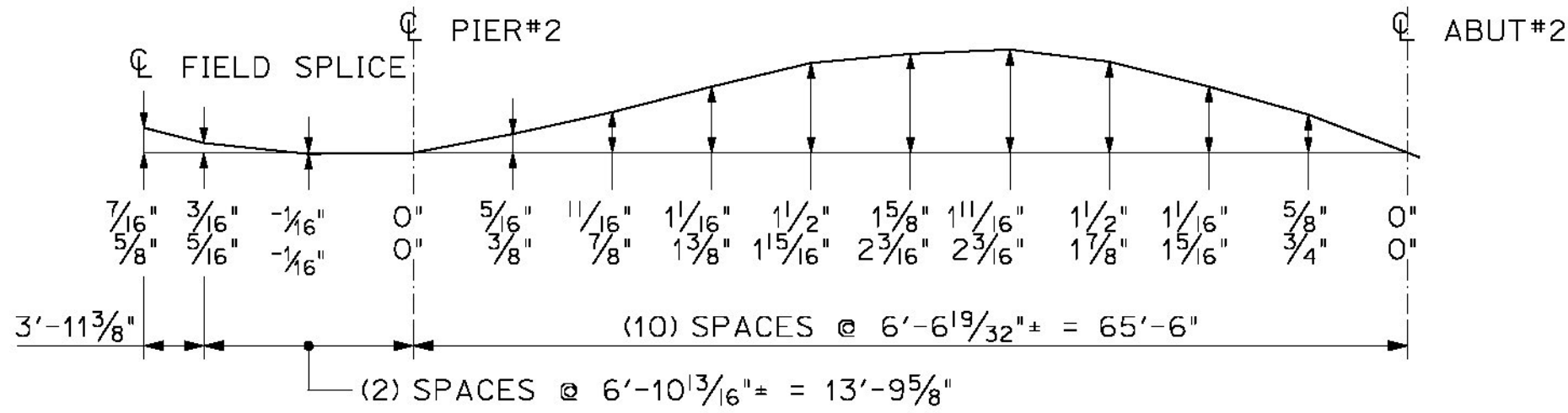
ADVANCED RESOURCES & CONST.  
ENTERPRISES, INCORPORATED  
P.O. BOX 120 KINGFIELD, ME. 04947  
PHONE: (207) 265-2646 - FAX: (207) 265-4054

DRAFTER ETC	<b>GIRDER G4A</b>  VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BR# 0126(12)  Cold River Bridges, LLC	PROJECT NO.
DATE FEB 2015		14-178
CHECKED GNM		DWG. NO.
DATE FEB 2015		5



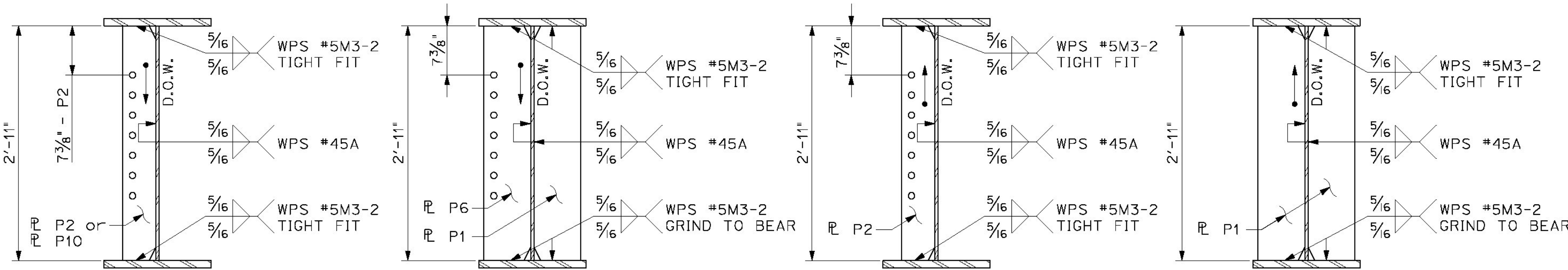


1  
6 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G1B  
SCALE: N.T.S.



GIRDER G1B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:  
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION  
BTM. DIMENSION - TOTAL CAMBER OF WEB @ TIME WEB IS CUT  
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE  
LOST DURING FABRICATION



A  
6 DIMENSIONAL SECTION  
SCALE: 1\"/>

B  
6 DIMENSIONAL SECTION  
SCALE: 1\"/>

C  
6 DIMENSIONAL SECTION  
SCALE: 1\"/>

D  
6 DIMENSIONAL SECTION  
SCALE: 1\"/>

BILL OF MATERIALS

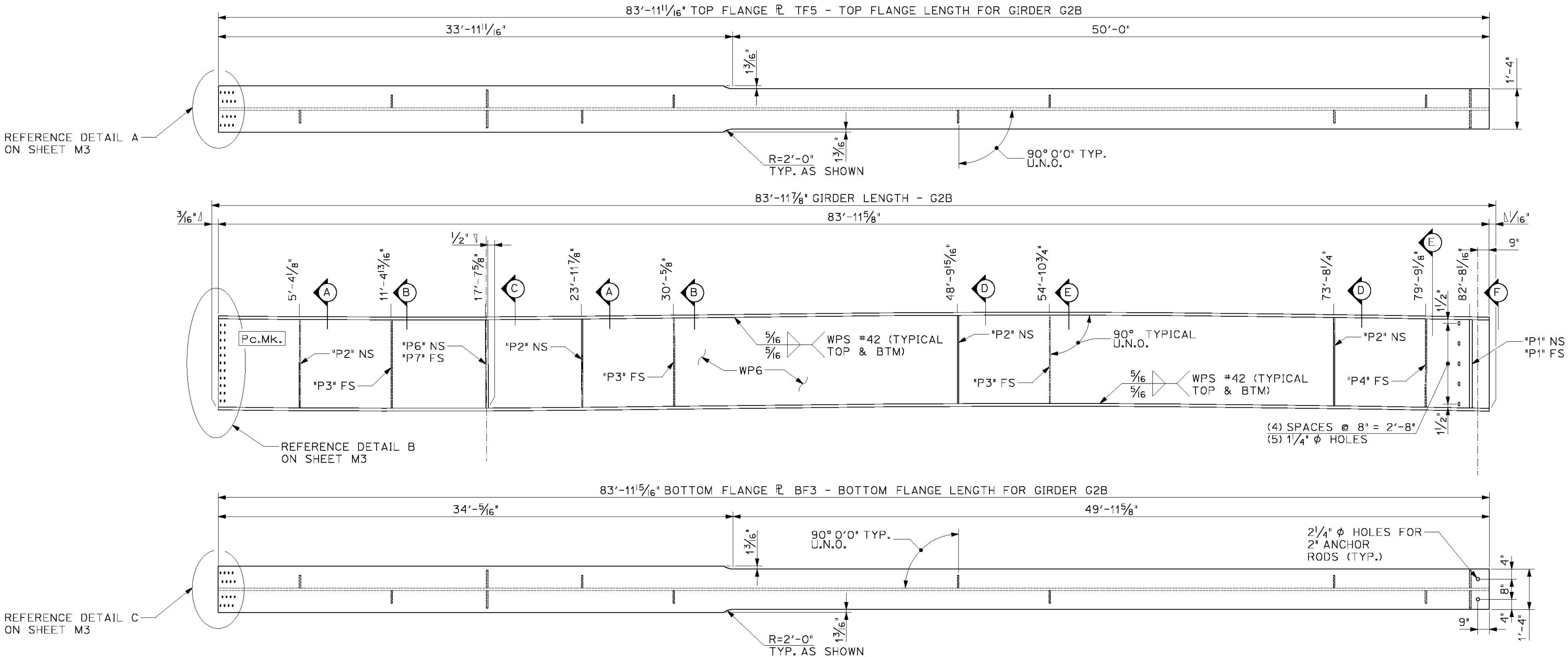
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G1B			GIRDER G1B	83'-11 7/8"	16,500#	
		1	WP3	WEB PLATE 35"x1/2"	83'-11 7/8"	5,000#	CVN
		1	TF3	FLANGE PL 1 1/8"x18 3/8"	83'-11 7/8"	5,500#	CVN
		1	BF1	FLANGE PL 1 1/8"x18 3/8"	83'-11 5/16"	5,500#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		4	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

FINISH	SSPC SP-10				
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W				
HOLES					
ELECTRODES	PER WELD PROCEDURE				
WELDS	PER WELD PROCEDURE				
SURFACE PREP		1	FEB 2015	add pl P10, correct t.b.	ETC
		NO	DATE	DESCRIPTION	BY
REVISIONS					

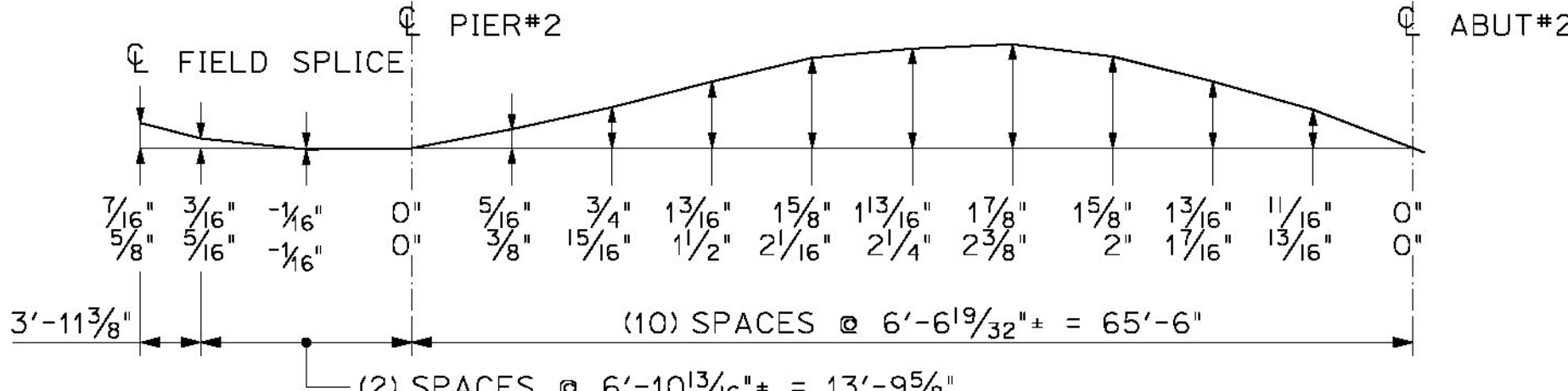
	ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED	
	P.O. BOX 120 KINGFIELD, ME. 04947	
	PHONE: (207) 265-2646 -- FAX: (207) 265-4054	

DRAFTER	ETC	<b>GIRDER G1B</b> <b>VT Rte 121 over Saxtons River</b> <b>Rockingham Vermont VTRANS - BR# 0128(12)</b> <b>Cold River Bridges, LLC</b>	PROJECT NO.
DATE	FEB 2015		<b>14-178</b>
CHECKED	GMM		DWG. NO.
DATE	FEB 2015		<b>6</b>



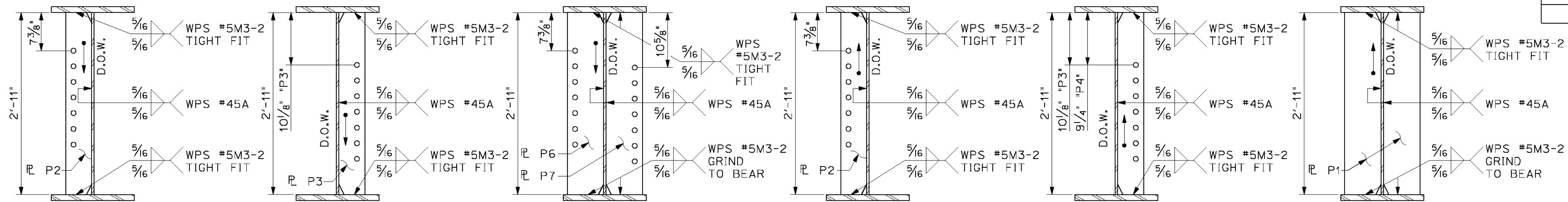


1 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G2B  
7 SCALE: N.T.S.



GIRDER G2B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:  
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION  
BTM. DIMENSION - TOTAL CAMBER OF WEB @ TIME WEB IS CUT  
ADDITIONAL CAMBER TO ACCOMMODATE FOR CAMBER THAT WILL BE  
LOST DURING FABRICATION



A DIMENSIONAL SECTION  
7 SCALE: 1"=1'-0"

B DIMENSIONAL SECTION  
7 SCALE: 1"=1'-0"

C DIMENSIONAL SECTION  
7 SCALE: 1"=1'-0"

D DIMENSIONAL SECTION  
7 SCALE: 1"=1'-0"

E DIMENSIONAL SECTION  
7 SCALE: 1"=1'-0"

F DIMENSIONAL SECTION  
7 SCALE: 1"=1'-0"

BILL OF MATERIALS							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G2B			GIRDER G2B	83'-11 7/8"	16,600#	
		1	WP6	WEB PLATE 35"x1/2"	83'-11 7/8"	5,000#	CVN
		1	TF5	FLANGE PL 1 1/8"x18 3/8"	83'-11 1/16"	5,500#	CVN
		1	BF3	FLANGE PL 1 1/8"x18 3/8"	83'-11 5/16"	5,500#	CVN
		2	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		1	P7	SEE SHEET M1		80#	
		4	P2	SEE SHEET M1		25#	
		3	P3	SEE SHEET M1		25#	
		1	P4	SEE SHEET M1		25#	

FINISHSSPC SP-10

MATERIALAASHTO M270 (ASTM A709) GR. 50W

HOLES

ELECTRODESPER WELD PROCEDURE

WELDSPER WELD PROCEDURE

SURFACE PREP

NO

DATE

DESCRIPTION

BY

REVISIONS

ARC  
ENTERPRISES, INC.

ADVANCED RESOURCES & CONST.  
ENTERPRISES, INCORPORATED  
P.O. BOX 120 KINGFIELD, ME. 04947  
PHONE: (207) 265-2646 -- FAX: (207) 265-4054

DRAFTERETC

DATEFEB 2015

CHECKEDGMM

DATEFEB 2015

GIRDER G2B

VT Rte 121 over Saxtons River

Rockingham Vermont VTRANS - BRF 0128(12)

CC: Cold River Bridges, LLC

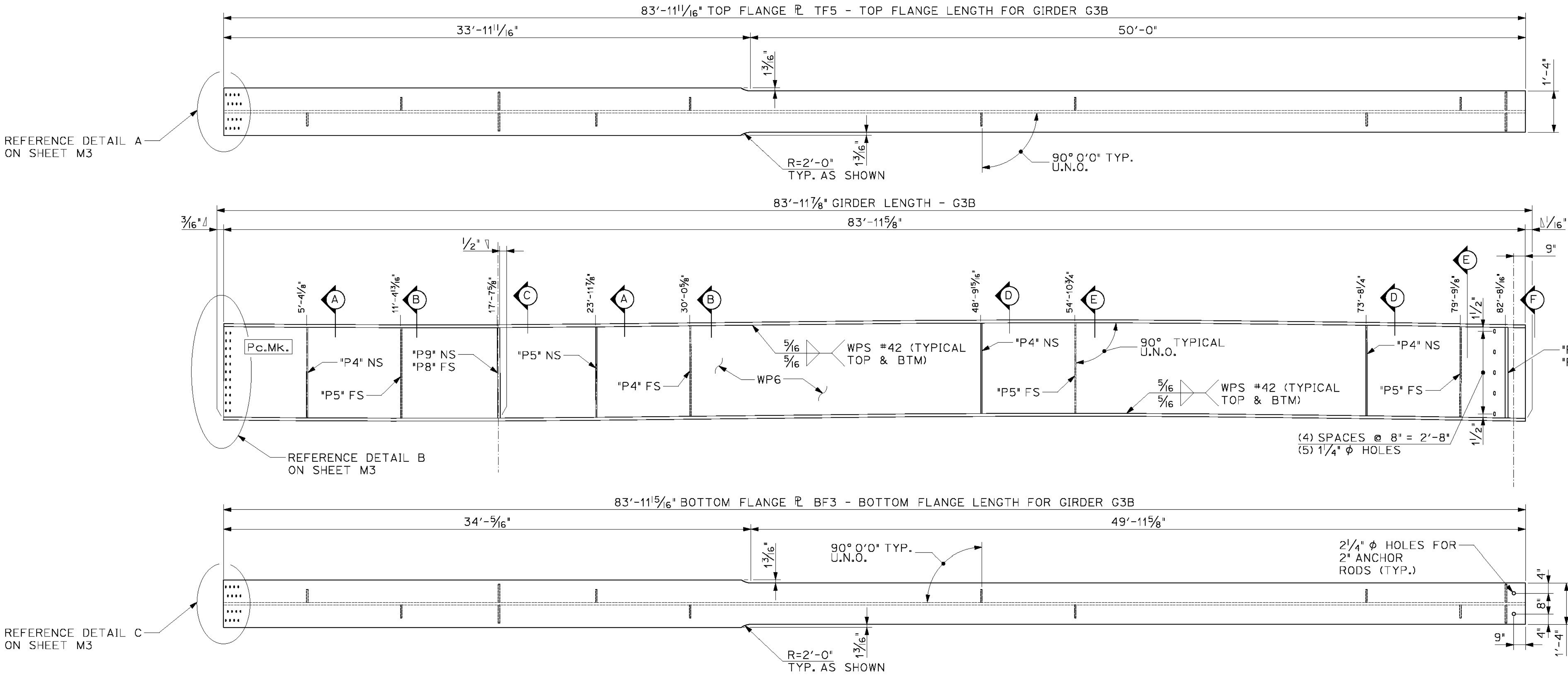
PROJECT NO.

14-178

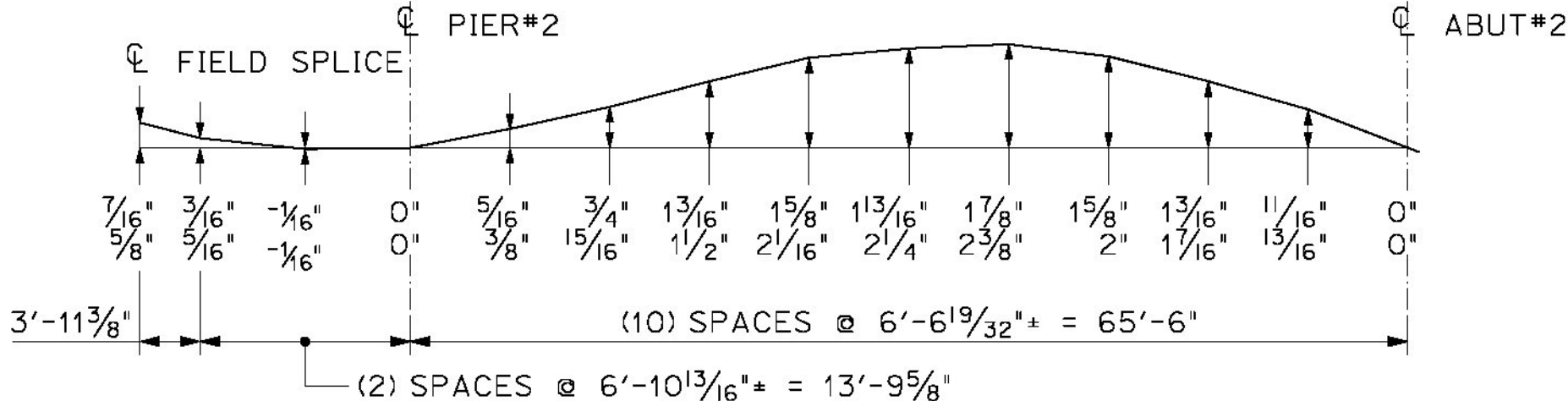
DWG. NO.

7



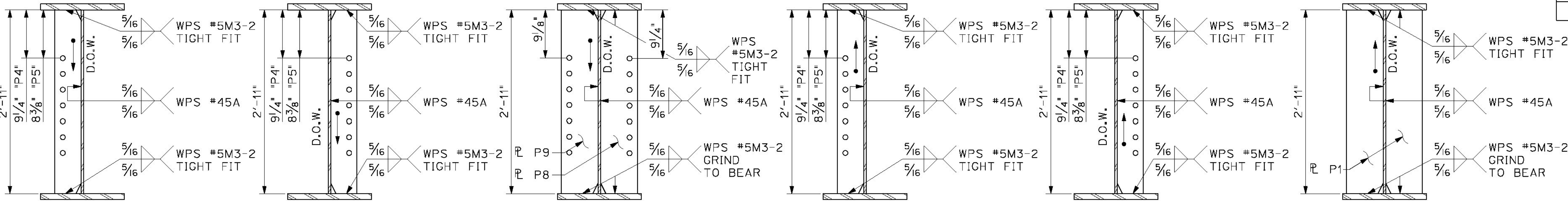


1  
8 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G3B  
SCALE: N.T.S.



GIRDER G3B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:  
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION  
BTM DIMENSION - TOTAL CAMBER OF WEB @ TIME WEB IS CUT  
ADDITIONAL CAMBER TO ACCOMMODATE FOR CAMBER THAT WILL BE  
LOST DURING FABRICATION



A  
8 DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

B  
8 DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

C  
8 DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

D  
8 DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

E  
8 DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

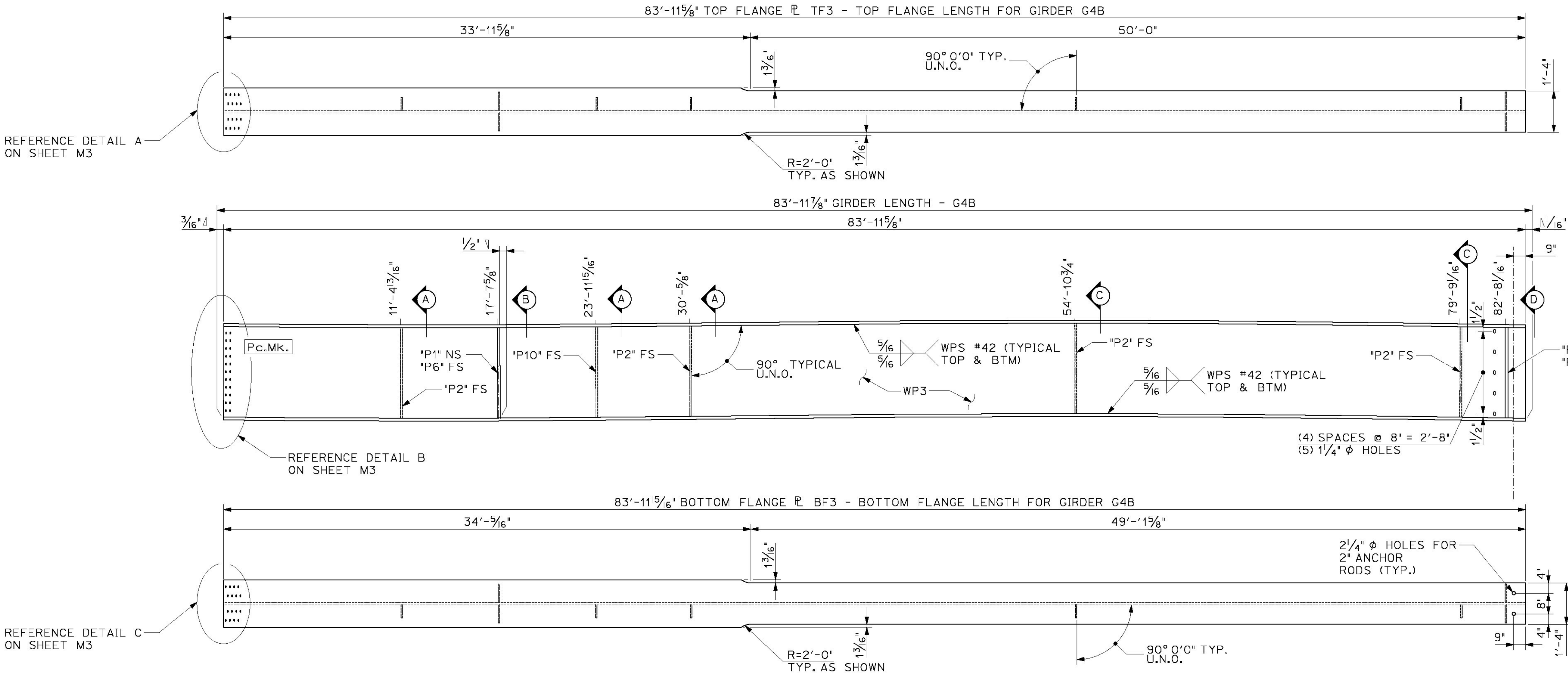
F  
8 DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G3B			GIRDER G3B	83'-11 7/8"	16,600#	
		1	WP6	WEB PLATE 35"x1/2"	83'-11 7/8"	5,000#	CVN
		1	TF5	FLANGE PL 1 1/8"x18 3/8"	83'-11 1/16"	5,500#	CVN
		1	BF3	FLANGE PL 1 1/8"x18 3/8"	83'-11 5/16"	5,500#	CVN
		2	P1	SEE SHEET M1		80#	
		1	P8	SEE SHEET M1		80#	
		1	P9	SEE SHEET M1		80#	
		4	P4	SEE SHEET M1		25#	
		4	P5	SEE SHEET M1		25#	

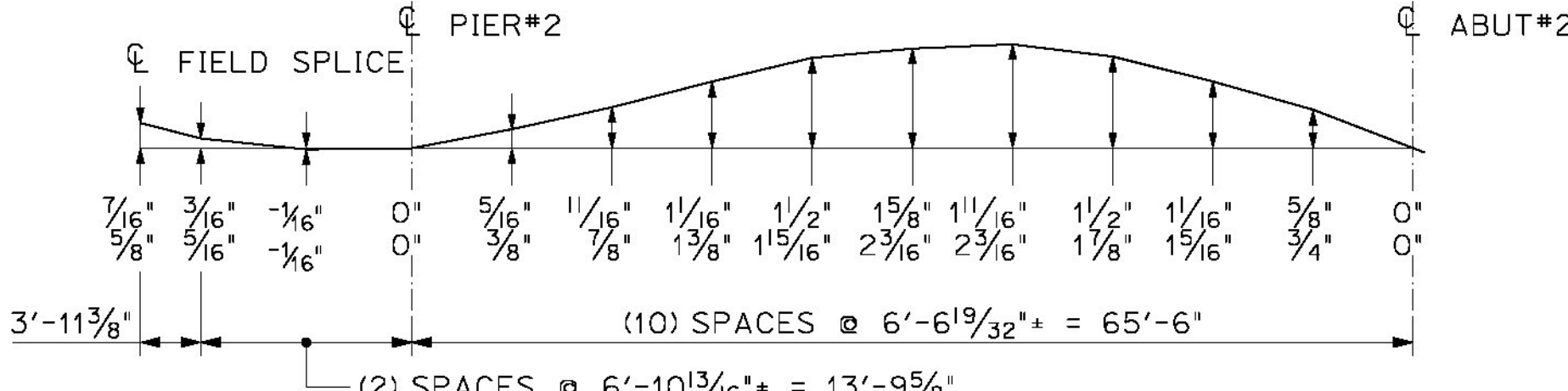
FINISH		SSPC SP-10			
MATERIAL		AASHTO M270 (ASTM A709) GR. 50W			
HOLES					
ELECTRODES		PER WELD PROCEDURE			
WELDS		PER WELD PROCEDURE			
SURFACE PREP		1	FEB 2015	correct l.b.	ETC.
		NO	DATE	DESCRIPTION	BY
REVISIONS					
ARC		ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED			
ENTERPRISES, INC.		P.O. BOX 120 KINGFIELD, ME. 04947 PHONE: (207) 265-2646 -- FAX: (207) 265-4054			
DRAFTER ETC		GIRDER G3B			PROJECT NO.
DATE FEB 2015		VT Rte 121 over Saxtons River			14-178
CHECKED GNM		Rockingham Vermont VTRANS - BRF 0128(12)			DWG. NO.
DATE FEB 2015		Cold River Bridges, LLC			8





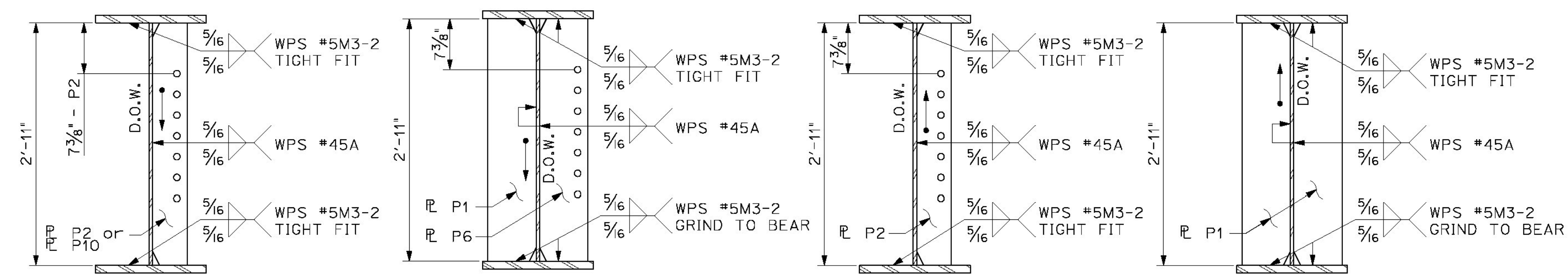
1  
9

DIMENSIONAL PLANS & ELEVATIONS - GIRDER G4B  
SCALE: N.T.S.



GIRDER G4B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:  
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION  
BTM. DIMENSION - TOTAL CAMBER OF WEB @ TIME WEB IS CUT  
ADDITIONAL CAMBER TO ACCOMMODATE FOR CAMBER THAT WILL BE  
LOST DURING FABRICATION



A  
9

DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

B  
9

DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

C  
9

DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

D  
9

DIMENSIONAL SECTION  
SCALE: 1"=1'-0"

BILL OF MATERIALS							
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G4B			GIRDER G4B	83'-11 7/8"	16,500#	
		1	WP3	WEB PLATE 35"x1/2"	83'-11 7/8"	5,000#	CVN
		1	TF3	FLANGE PL 1 1/8"x18 3/8"	83'-11 7/8"	5,500#	CVN
		1	BF1	FLANGE PL 1 1/8"x18 3/8"	83'-11 5/8"	5,500#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		4	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

FINISHSSPC SP-10

MATERIALAASHTO M270 (ASTM A709) GR. 50W

HOLES

ELECTRODESPER WELD PROCEDURE

WELDSPER WELD PROCEDURE

SURFACE PREP

1FEB 2015added pl P10, correct t.b.ETC

NO

DATE

DESCRIPTION

BY

REVISIONS

ARCENTERPRISES, INC.

ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED

P.O. BOX 120 KINGFIELD, ME. 04947

PHONE: (207) 265-2646 - FAX: (207) 265-4054

DRAFTERETC

DATEFEB 2015

CHECKEDGMM

DATEFEB 2015

GIRDER G4B

VT Rte 121 over Saxtons River

Rockingham Vermont VTRANS - BRF 0128(12)

Cold River Bridges, LLC

PROJECT NO.

14-178

DWG. NO.

9



The cope doesnt match SD-802.00. Per that detail it should be 1" x 3" (typ)

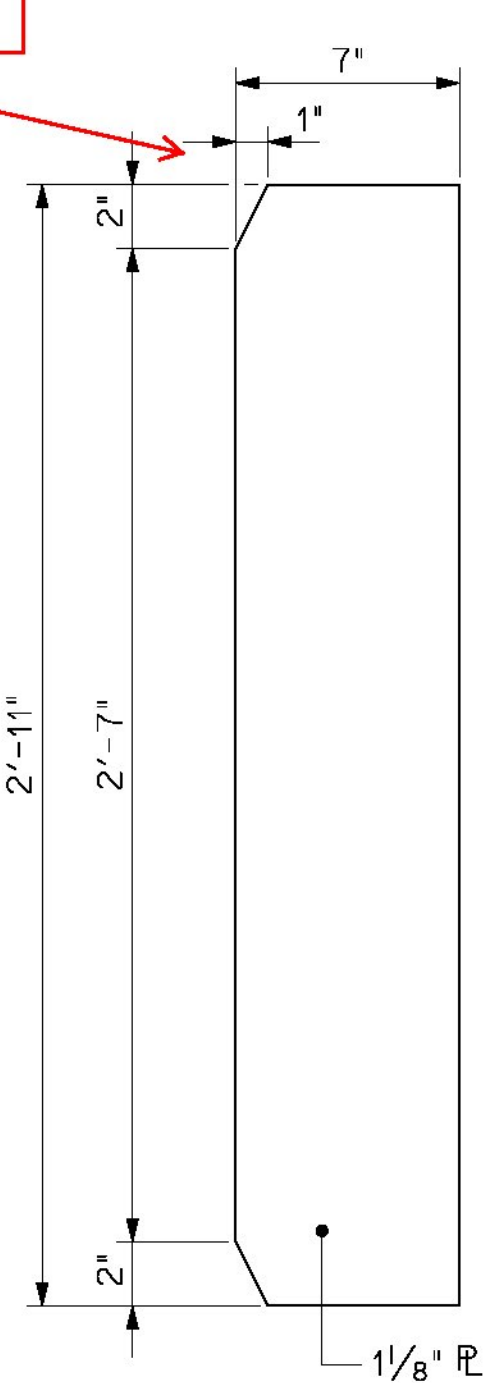


PLATE P1  
(20) REQ'D

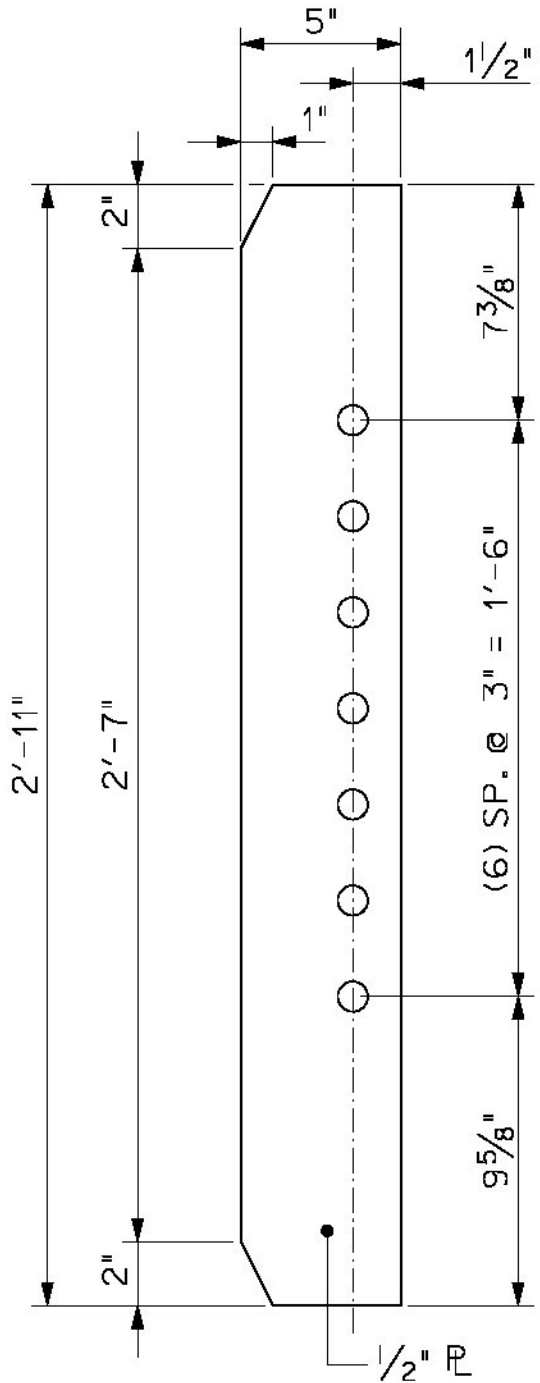


PLATE P2  
(27) REQ'D

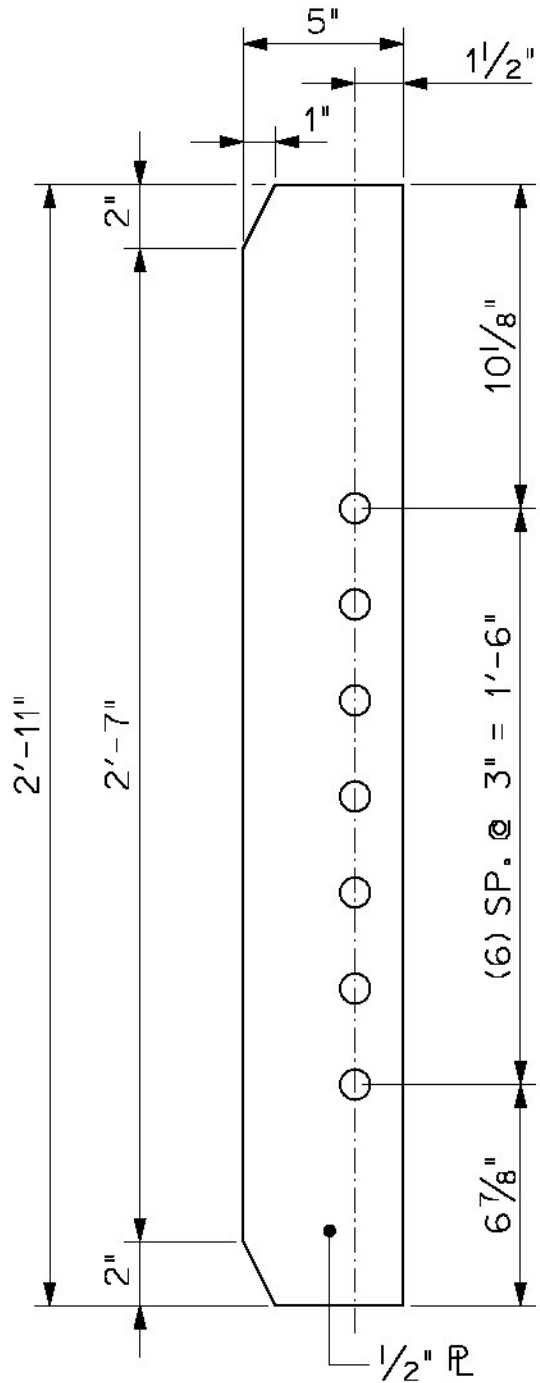


PLATE P3  
(7) REQ'D

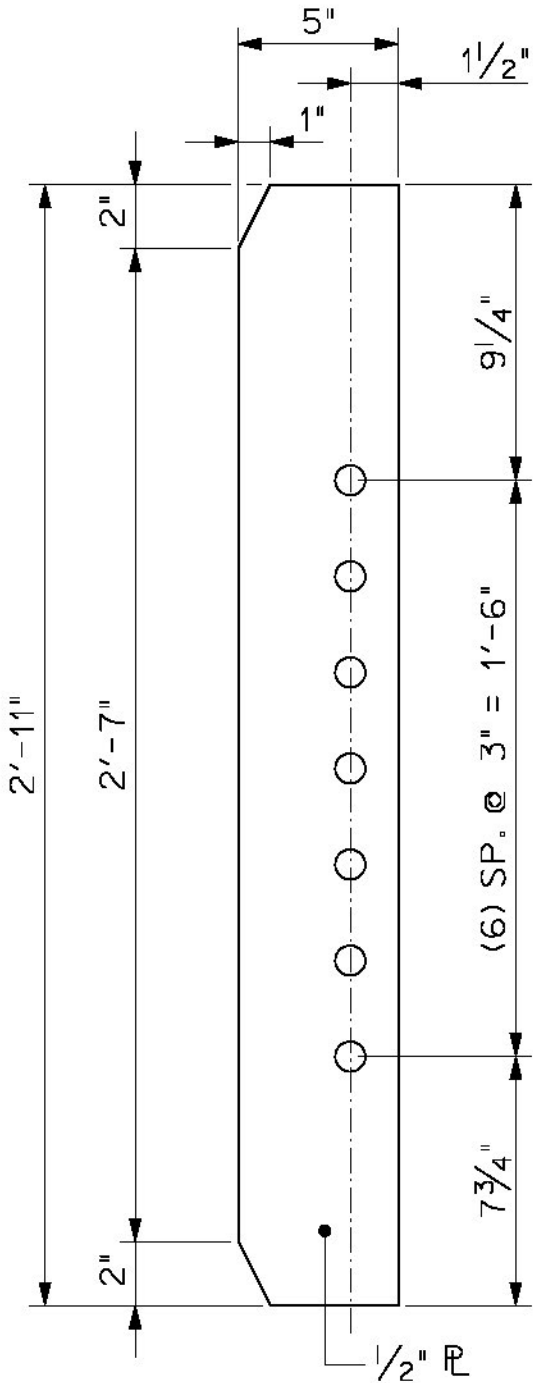


PLATE P4  
(10) REQ'D

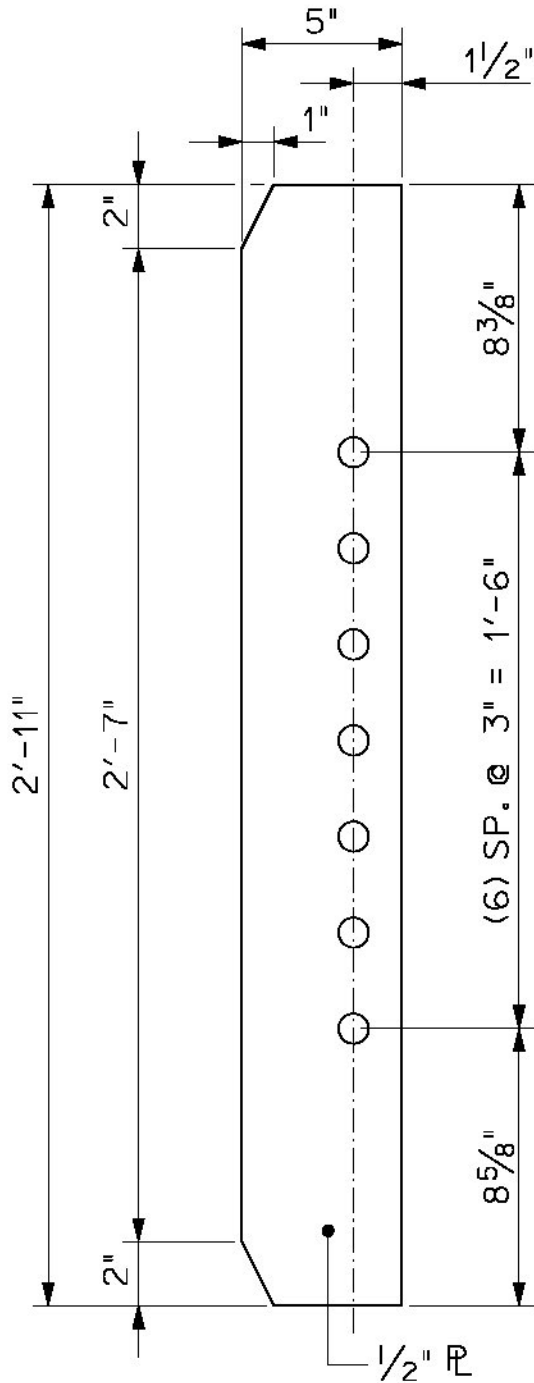
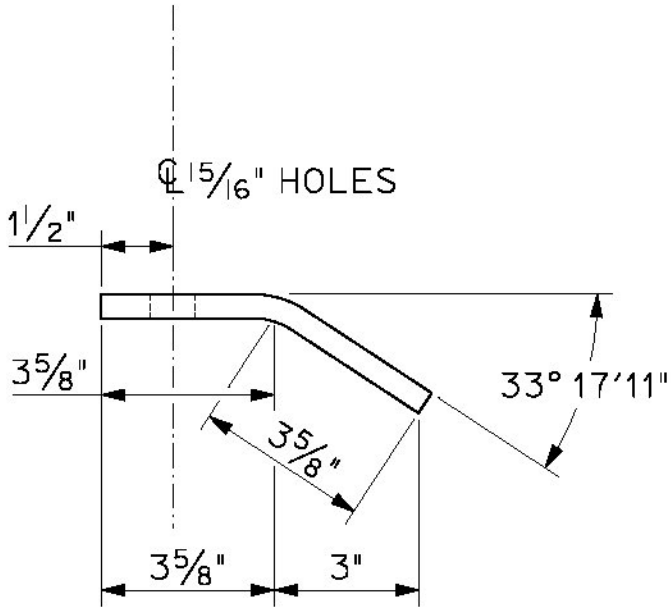
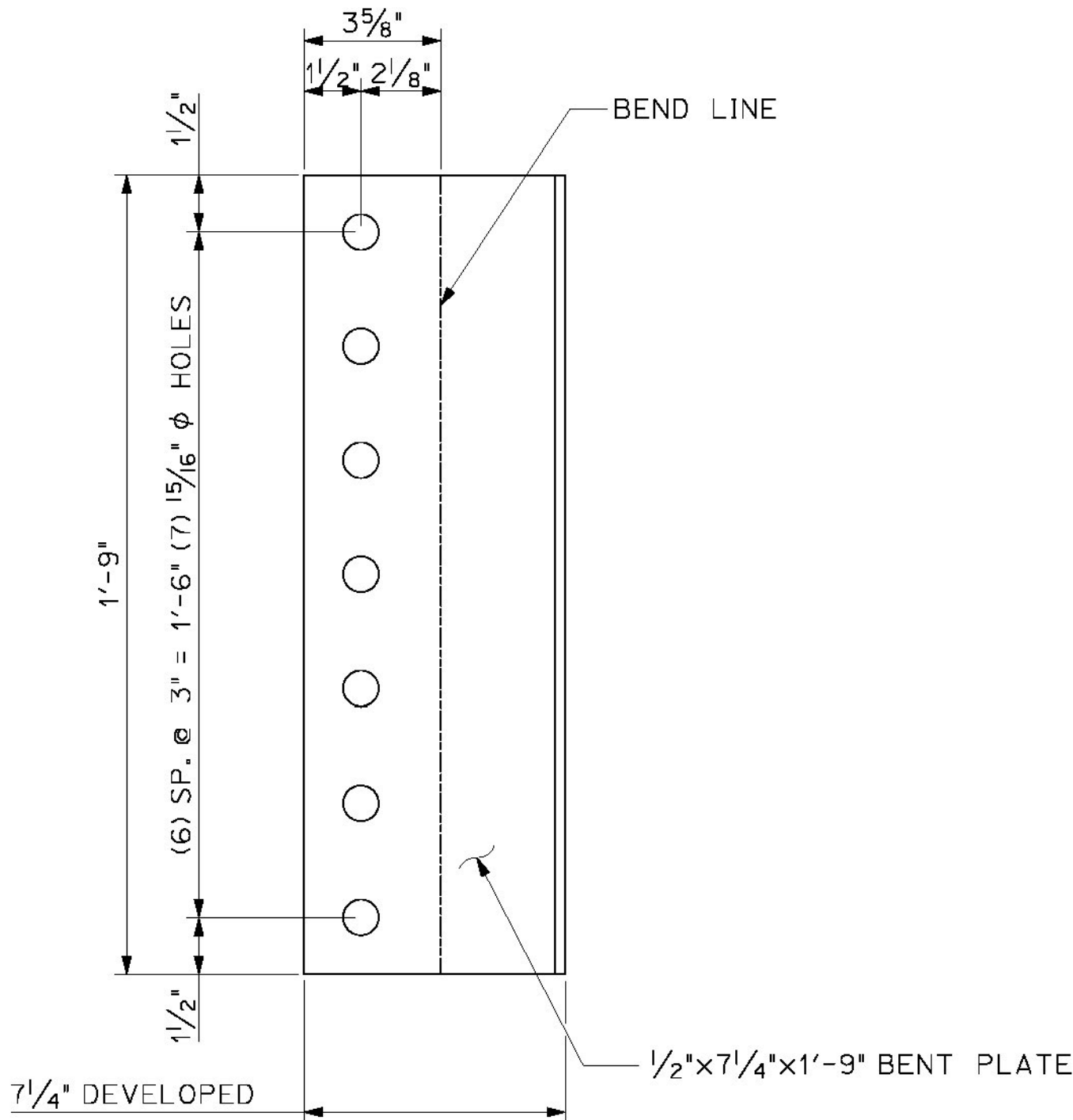


PLATE P5  
(10) REQ'D



BP1 PLAN VIEW



BP1 ELEVATION VIEW  
(12) REQUIRED

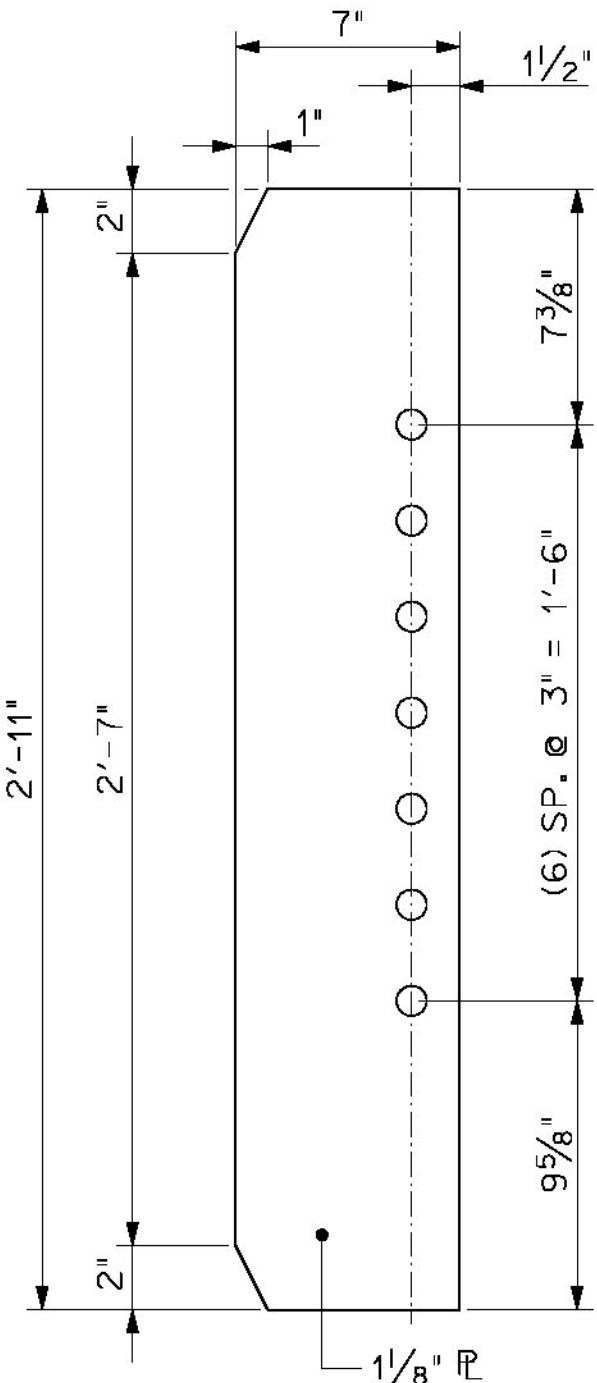


PLATE P6  
(6) REQ'D

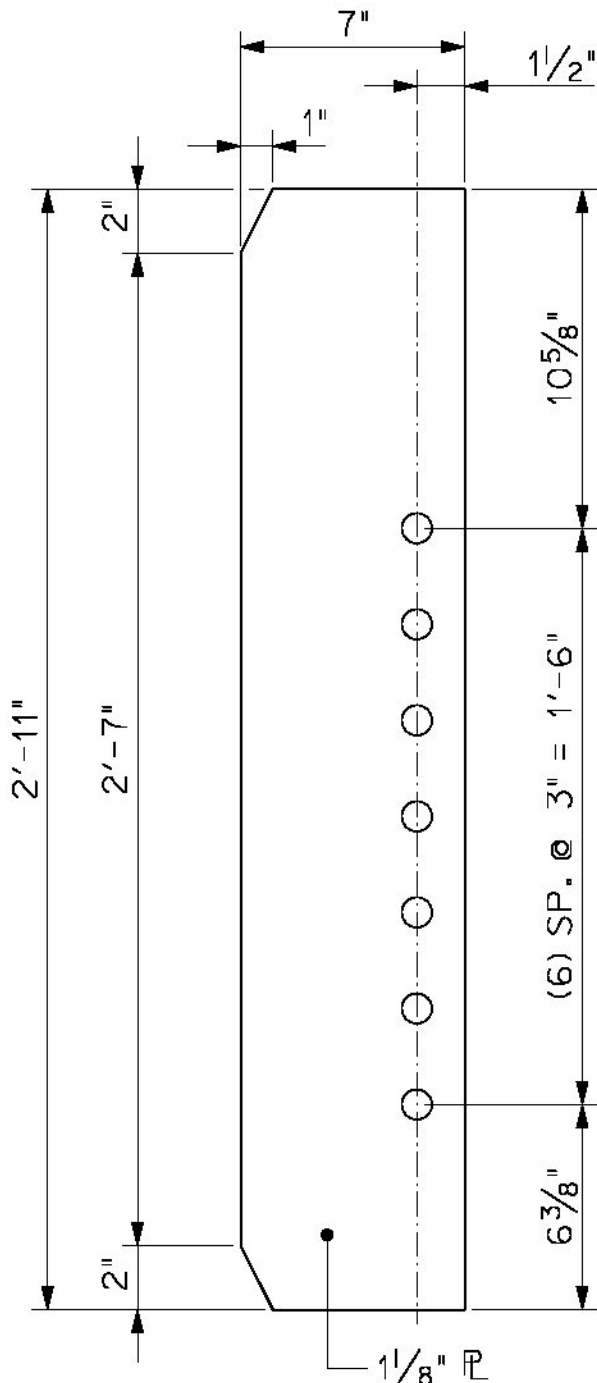


PLATE P7  
(2) REQ'D

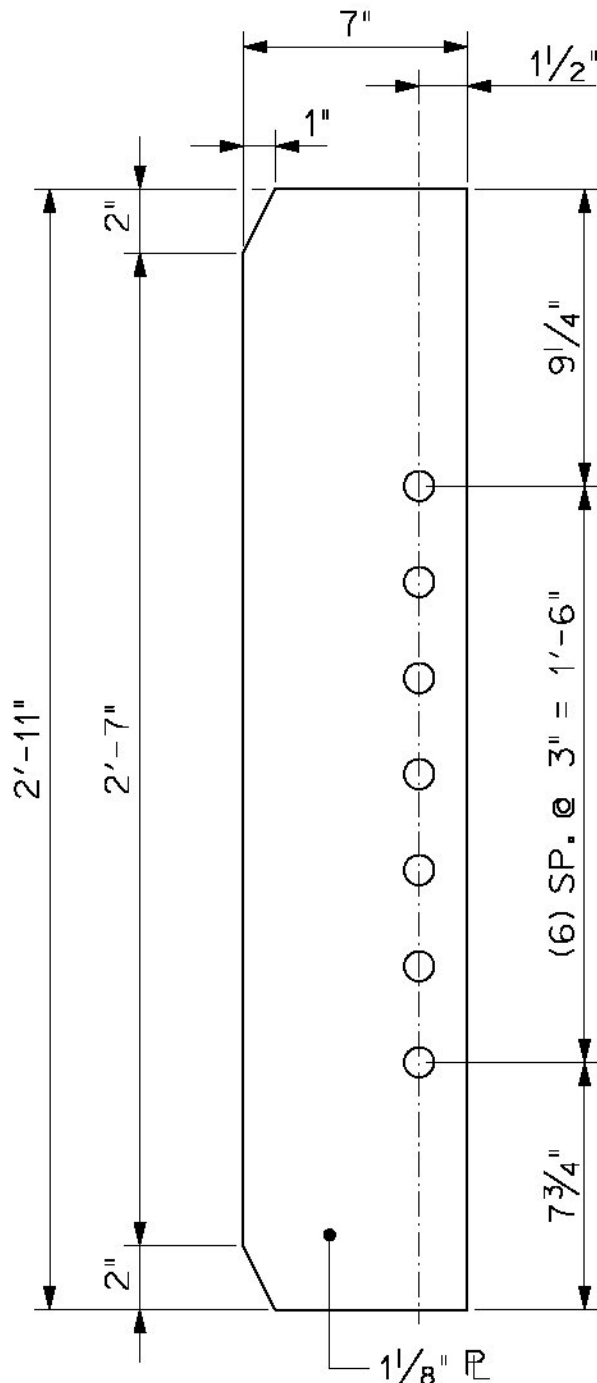


PLATE P8  
(2) REQ'D

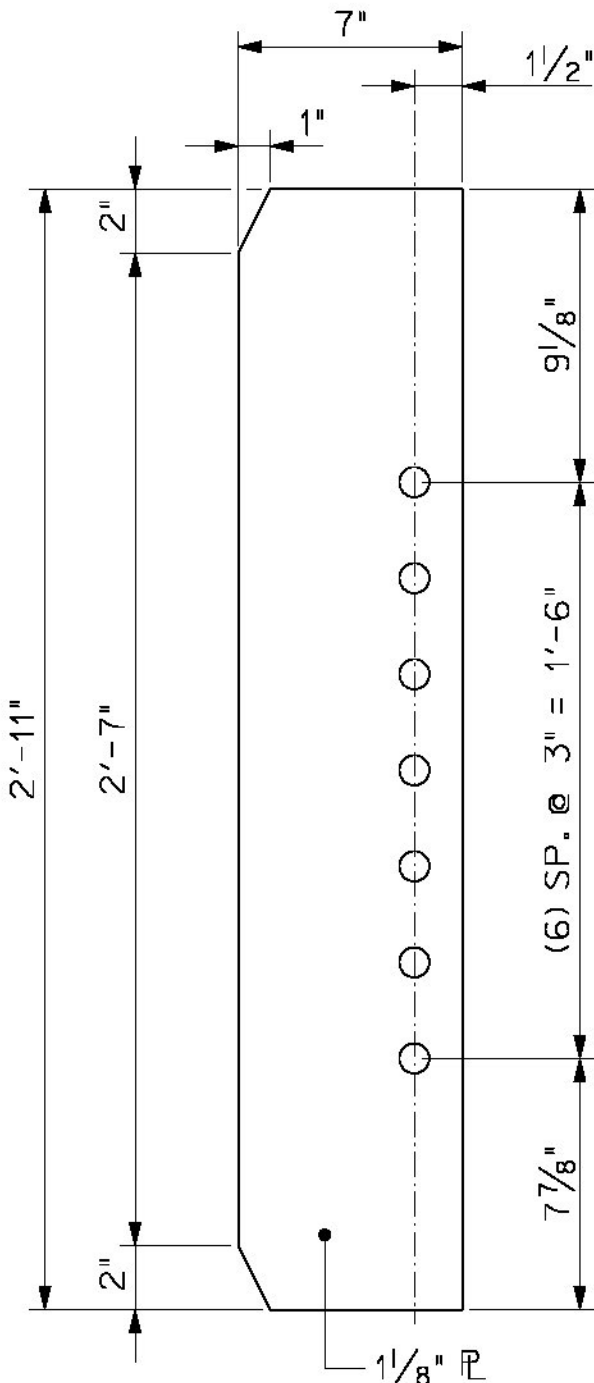


PLATE P9  
(2) REQ'D

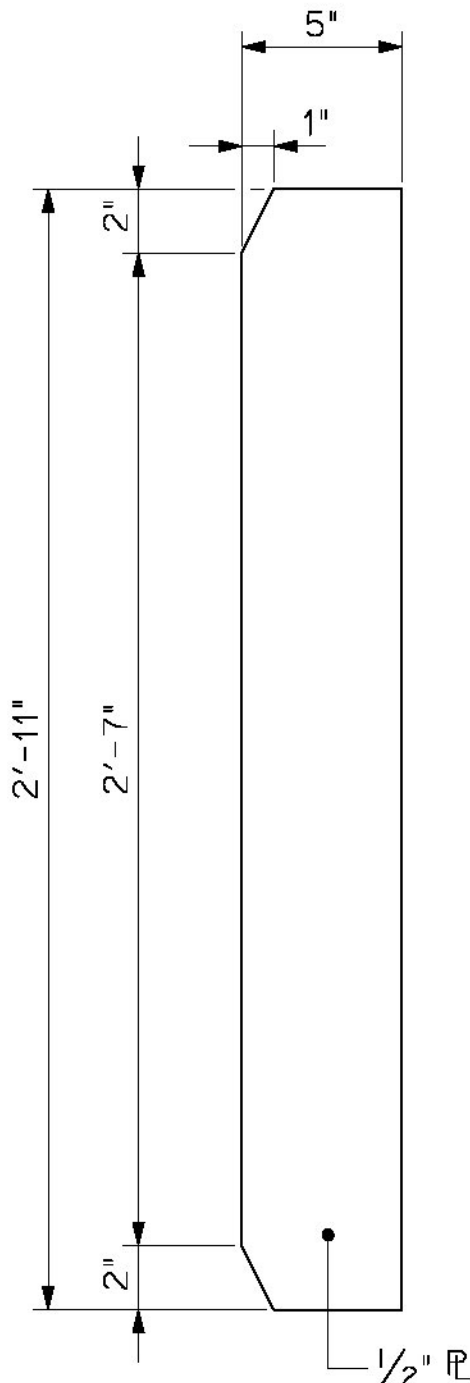


PLATE P10  
(4) REQ'D

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
		20	P1	1/8"x7" BRG STIFFENER	35'	80*	
		27	P2	1/2"x5" CONN. PL	35'	25*	
		7	P3	1/2"x5" CONN. PL	35'	25*	
		10	P4	1/2"x5" CONN. PL	35'	25*	
		10	P5	1/2"x5" CONN. PL	35'	25*	
		4	P10	1/2"x5" BLANK STIFFENER	35'	25*	
		6	P6	1/8"x7" BRG STIFFENER	35'	80*	
		2	P7	1/8"x7" BRG STIFFENER	35'	80*	
		2	P8	1/8"x7" BRG STIFFENER	35'	80*	
		2	P9	1/8"x7" BRG STIFFENER	35'	80*	
		12	BP1	1/2"x7 1/4" BENT PL	21"	25*	

FINISH	SSPC SP-10			
MATERIAL	AASHTO M270 (ASTM A709) GR. SOW			
HOLES				
ELECTRODES	PER WELD PROCEDURE			
WELDS	PER WELD PROCEDURE			
SURFACE PREP	1	FEB 2015	add pl P10, correct t.b.	ETC
	NO	DATE	DESCRIPTION	BY
REVISIONS				

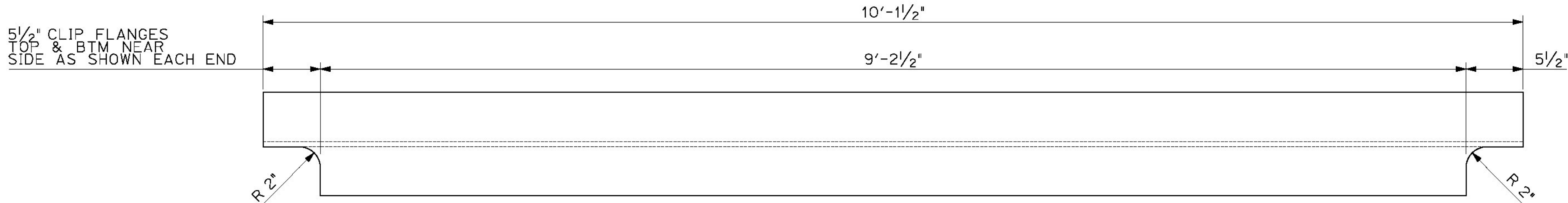
<b>ARC</b> ENTERPRISES, INC.		ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED P.O. BOX 120 KINGFIELD, ME. 04947 PHONE: (207) 265-2646 -- FAX: (207) 265-4054	
DRAFTER	ETC	PROJECT NO. <b>14-178</b>	
DATE	FEB 2015	DWC. NO. <b>M1</b>	
CHECKED	GMM		
DATE	FEB 2015		

MISC DETAILS - CONN. PL. & BRG STIFF.		VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0128(12)	
Cold River Bridges, LLC			

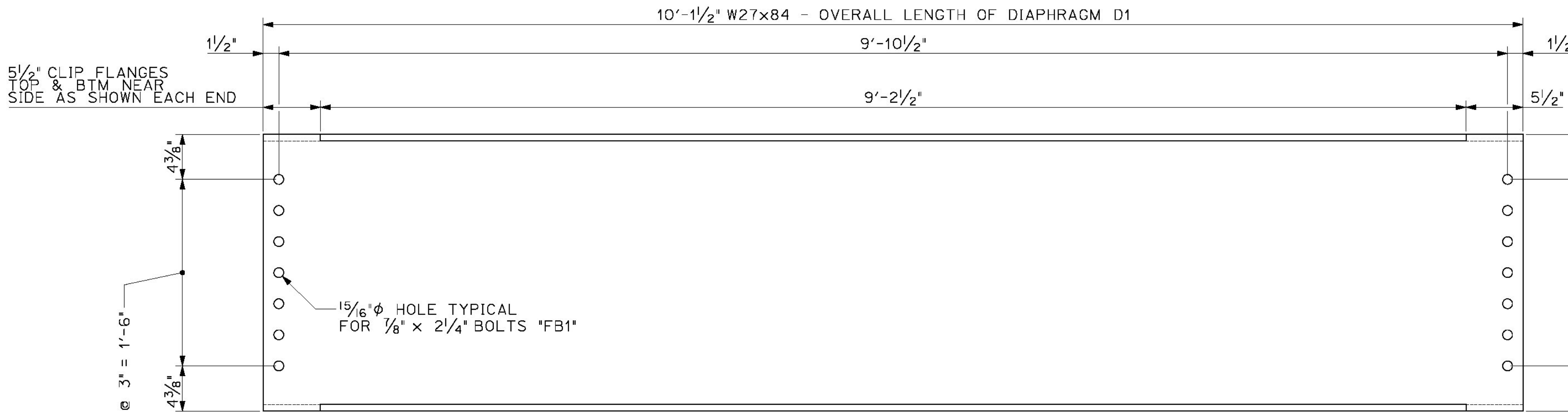
COMPLETE BOLT SCHEDULE

NO. BOLTS	PIECE MARK	LENGTH	DESCRIPTION	LOCATION
378	FB1	2 1/4"	7/8" $\phi$ ASTM A325, TYPE 3 BOLT (WEATHERING) W/ N&W	DIAPHRAGM TYPE D1 TO CONNECTION PLATE
260	FB2	3"	7/8" $\phi$ ASTM A325, TYPE 3 BOLT (WEATHERING) W/ N&W	DIAPHRAGM TYPE D2 TO CONN PL & WEB SPLICE PL BOLTS
256	FB3	3 1/2"	7/8" $\phi$ ASTM A325, TYPE 3 BOLT (WEATHERING) W/ N&W	FLANGE SPLICE PL BOLTS

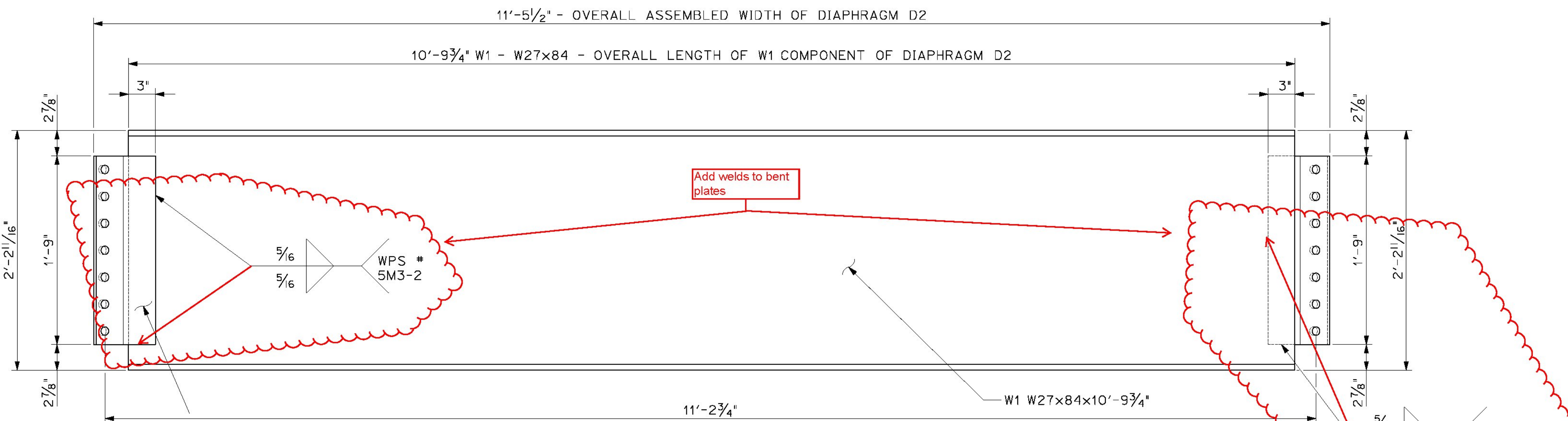




DIAPHRAGM "D1" PLAN  
(27) DIAPHRAGM D1 REQ'D

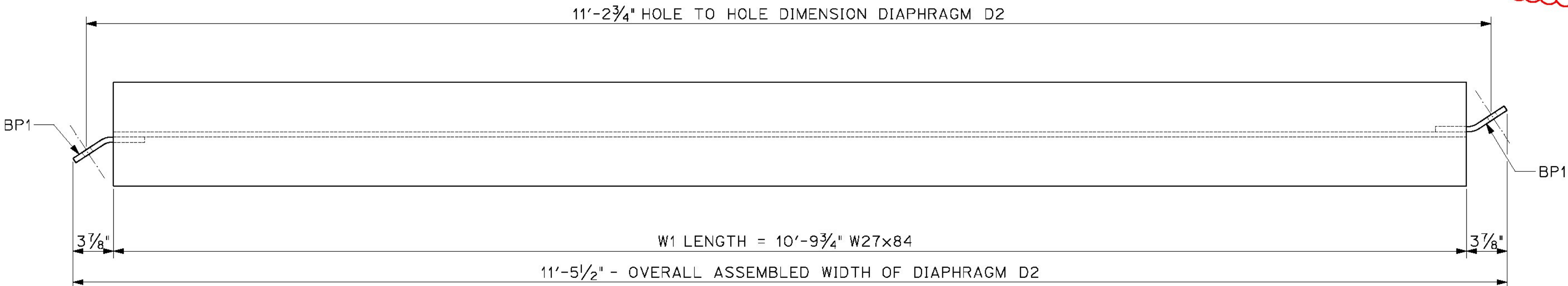


DIAPHRAGM "D1" ELEVATION  
(27) DIAPHRAGM D1 REQ'D



DIAPHRAGM "D2" ASSEMBLY ELEVATION

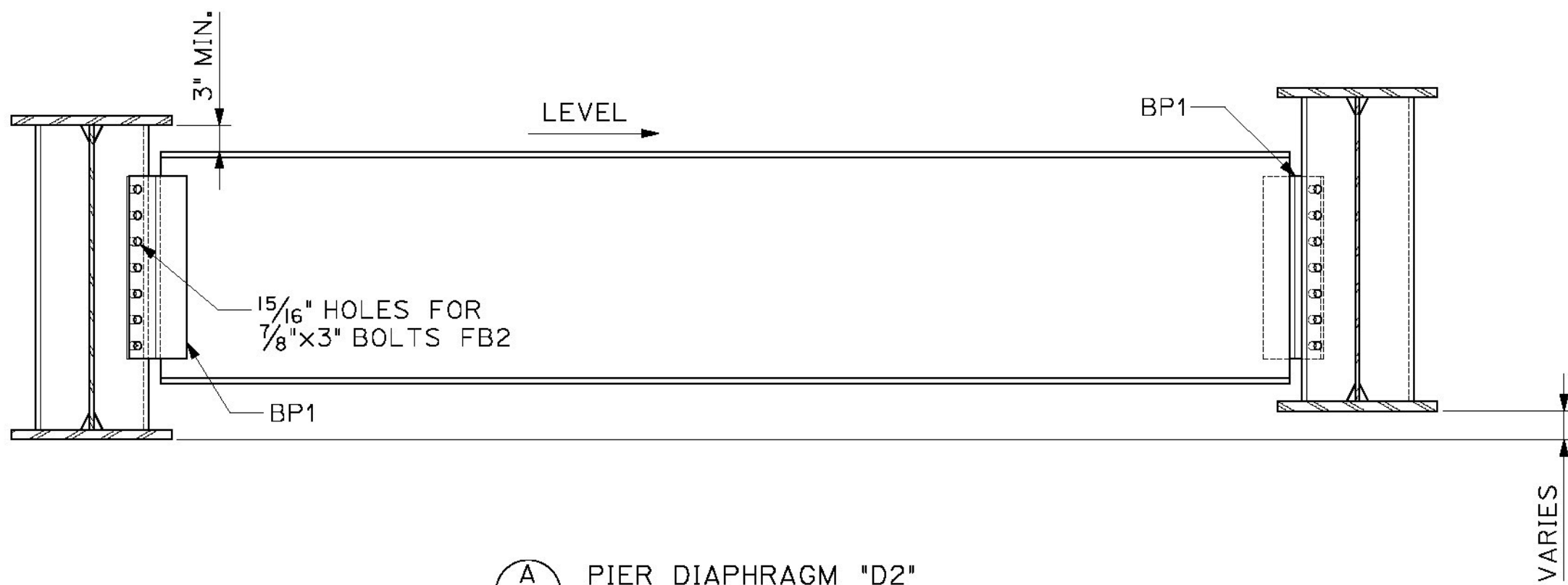
NOTE: - TERMINATE WELDS AS PER WELD TERMINATION DETAIL SHEET M1



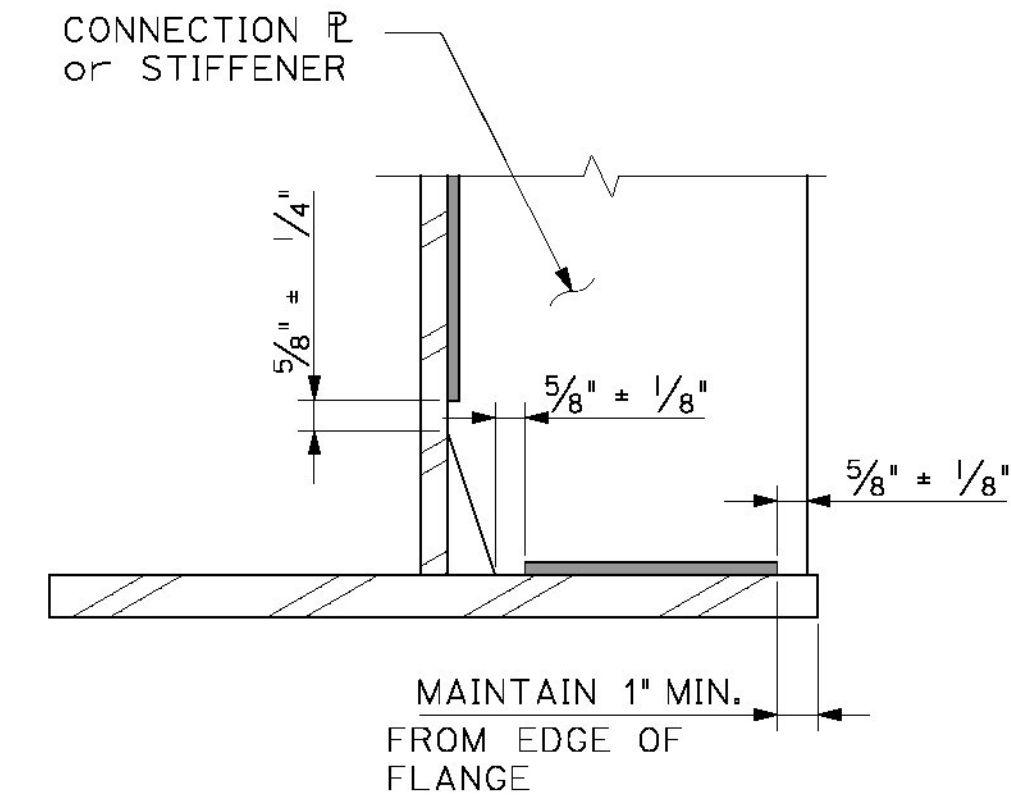
DIAPHRAGM "D2" ASSEMBLY PLAN

(6) W1 REQUIRED  
(12) BP1 REQUIRED

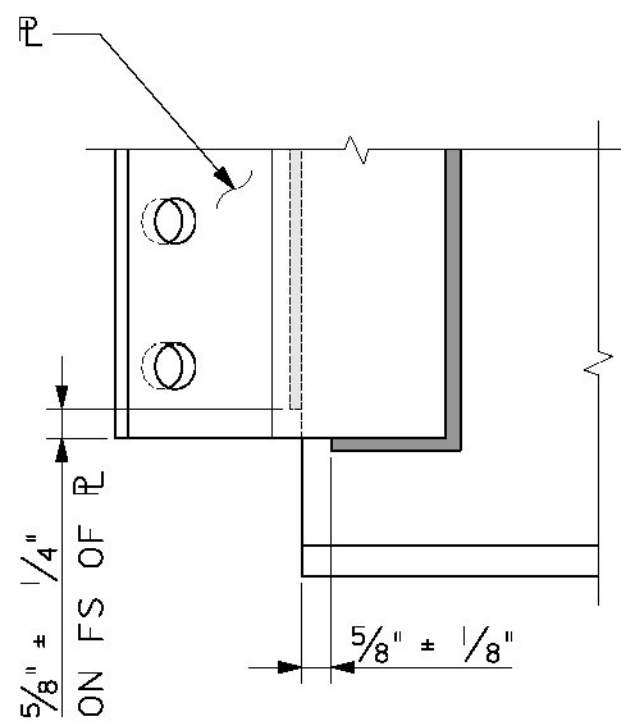
(6) D2 ASSEMBLIES



PIER DIAPHRAGM "D2"  
SCALE: 3/4" = 1'-0"



TYPICAL CONNECTION  $\ell$  WELD TERMINATION DETAIL  
N.T.S.



BENT  $\ell$  WELD TERMINATION DETAIL  
N.T.S.

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
27	D1			W27x84 INT. DIAPHRAGMS	10'-1 1/2"	900#	
6	D2			W27x84 PIER DIAPHRAGMS	11'-5 1/2"	1000#	
		6	W1	W27X84	10'-9 3/4"	910#	
		12	BP1	SEE SHT M1 (WELD TO W1)	21"	25#	

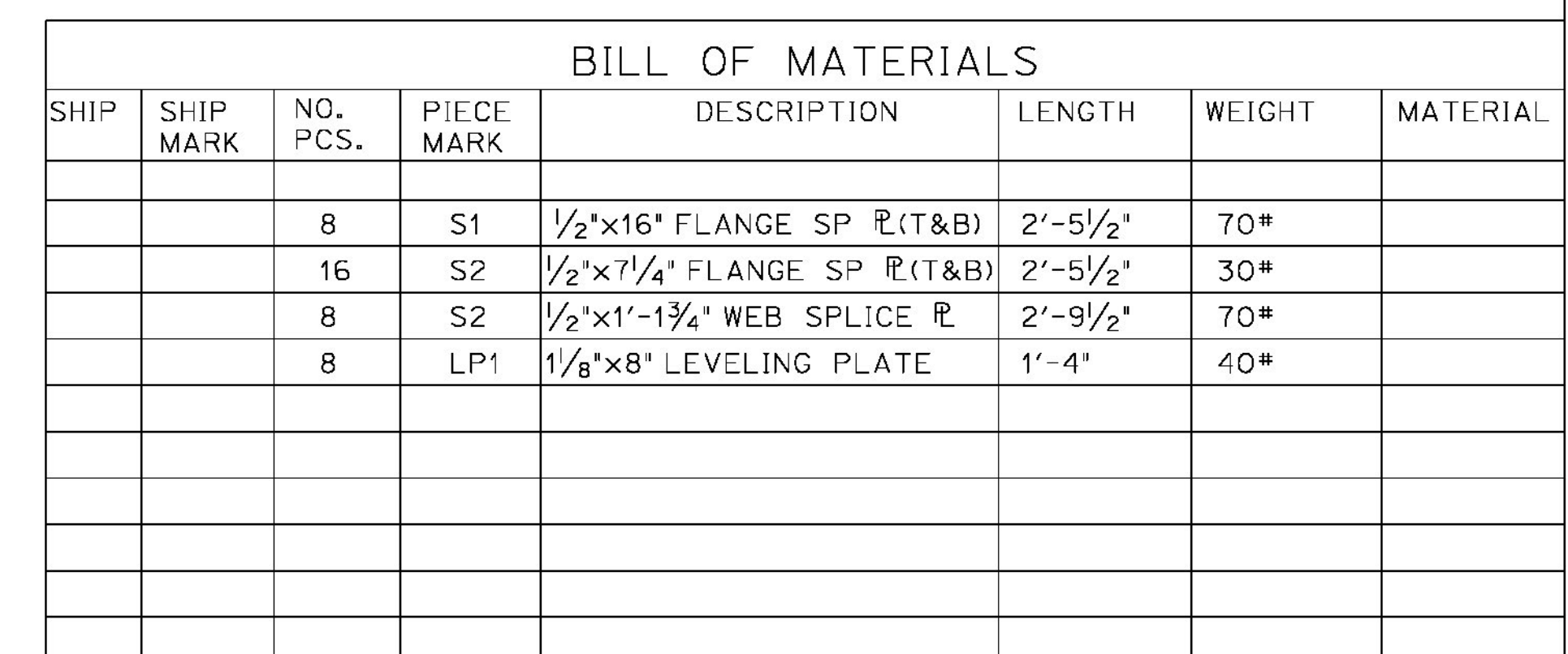
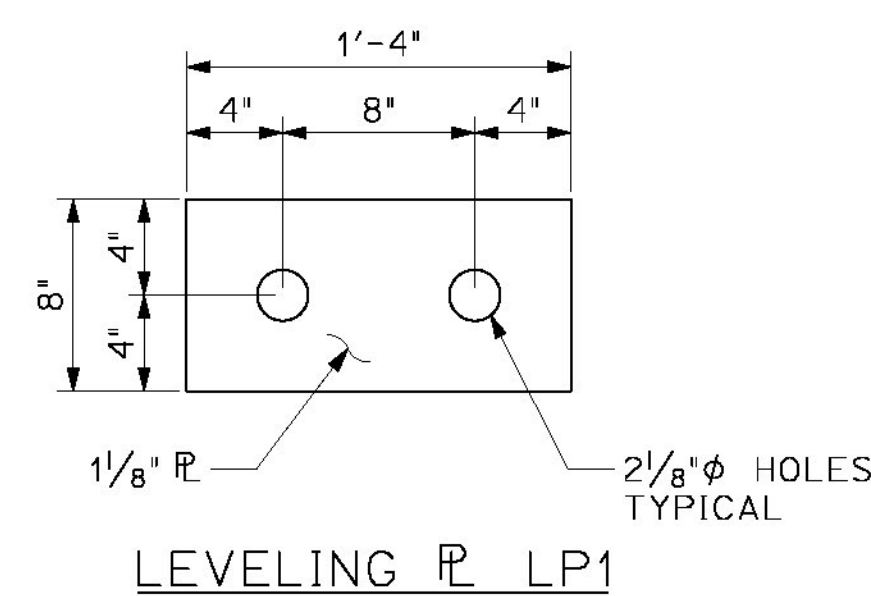
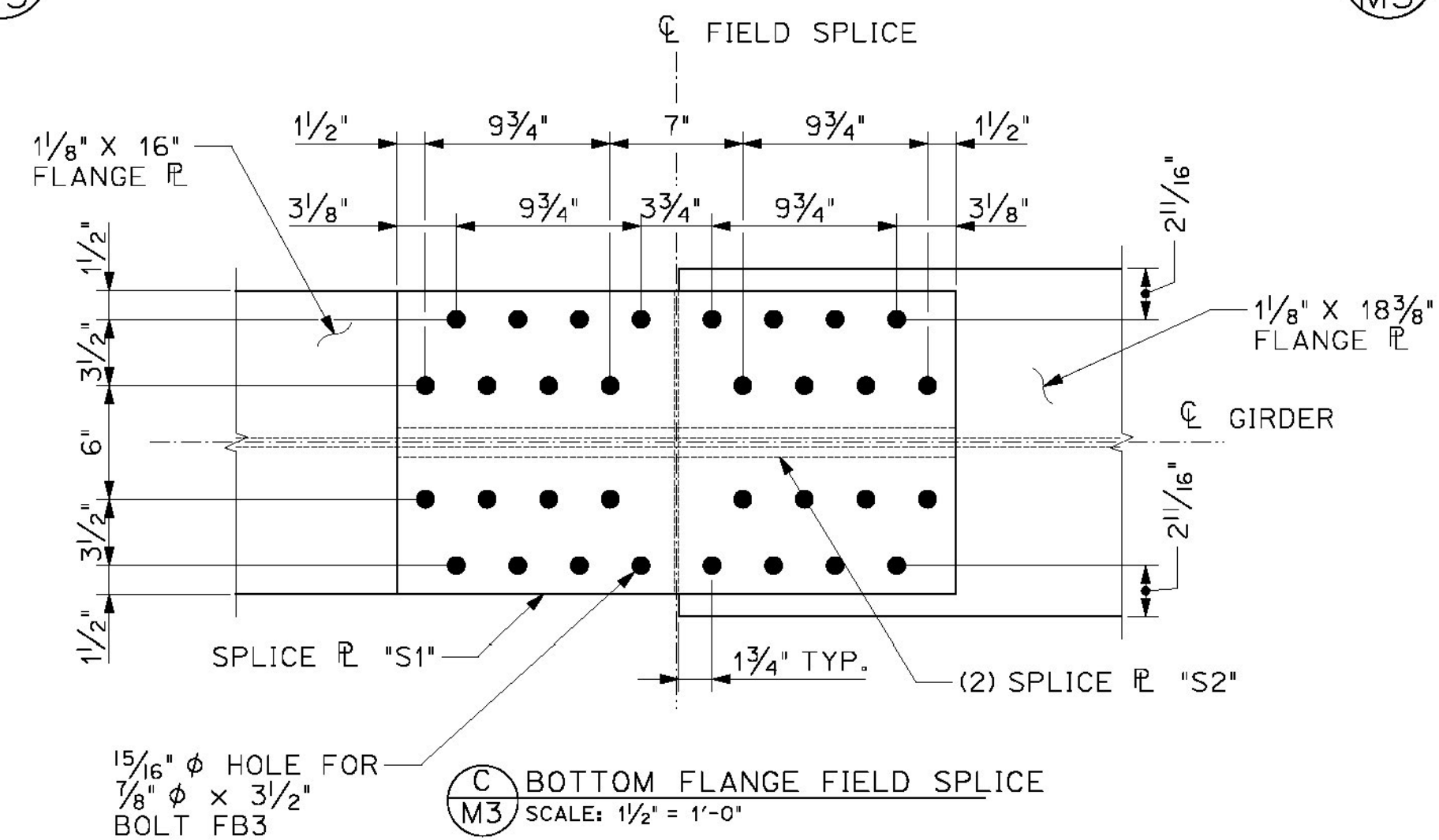
FINISH	SSPC SP-10				
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W				
HOLES					
ELECTRODES	PER WELD PROCEDURE				
WELDS	PER WELD PROCEDURE				
SURFACE PREP	1	FEB 2015	correct t.b.	ETC.	
	NO	DATE	DESCRIPTION	BY	
REVISIONS					



ADVANCED RESOURCES & CONST.  
ENTERPRISES, INCORPORATED  
P.O. BOX 120 KINGFIELD, ME. 04947  
PHONE: (207) 265-2646 - FAX: (207) 265-4054

DRAFTER	ETC	MISC. DETAILS - DIAPHRAGMS	PROJECT NO.
DATE	FEB 2015	VT Rte 121 over Saxtons River	14-178
CHECKED	GMM	Rockingham Vermont VTRANS - BR# 0128(12)	DWG. NO.
DATE	FEB 2015	Cold River Bridges, LLC	M2





FINISH		SSPC SP-10			
MATERIAL		AASHTO M270 (ASTM A709) GR. 50W			
HOLES					
ELECTRODES		PER WELD PROCEDURE			
WELDS		PER WELD PROCEDURE			
SURFACE PREP		1	FEB 2015	correct l.b.	ETC
		NO	DATE	DESCRIPTION	BY
REVISONS					
		<b>ADVANCED RESOURCES &amp; CONST.</b> <b>ENTERPRISES, INCORPORATED</b> P.O. BOX 120 KINGFIELD, ME. 04947 PHONE: (207) 265-2646 -- FAX: (207) 265-4054			
DRAWER/ ETC		MISC DETAILS - SPLICES & SPLICE PL.			PROJECT NO. <b>14-178</b>
DATE FEB 2015		VT Rte 121 over Saxtons River Roxburyham Vermont VTRANS - BR# 0126(12)			DWG. NO.
CHECKED GNM		Cold River Bridges, LLC			<b>M3</b>
DATE FEB 2015					