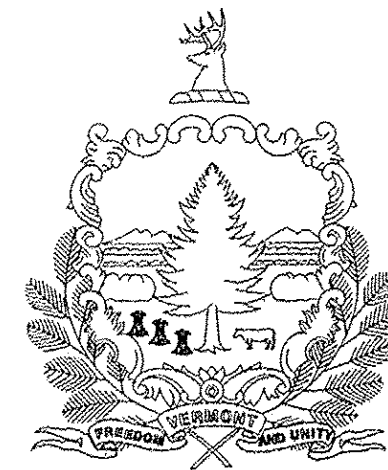


STATE OF VERMONT
AGENCY OF TRANSPORTATION

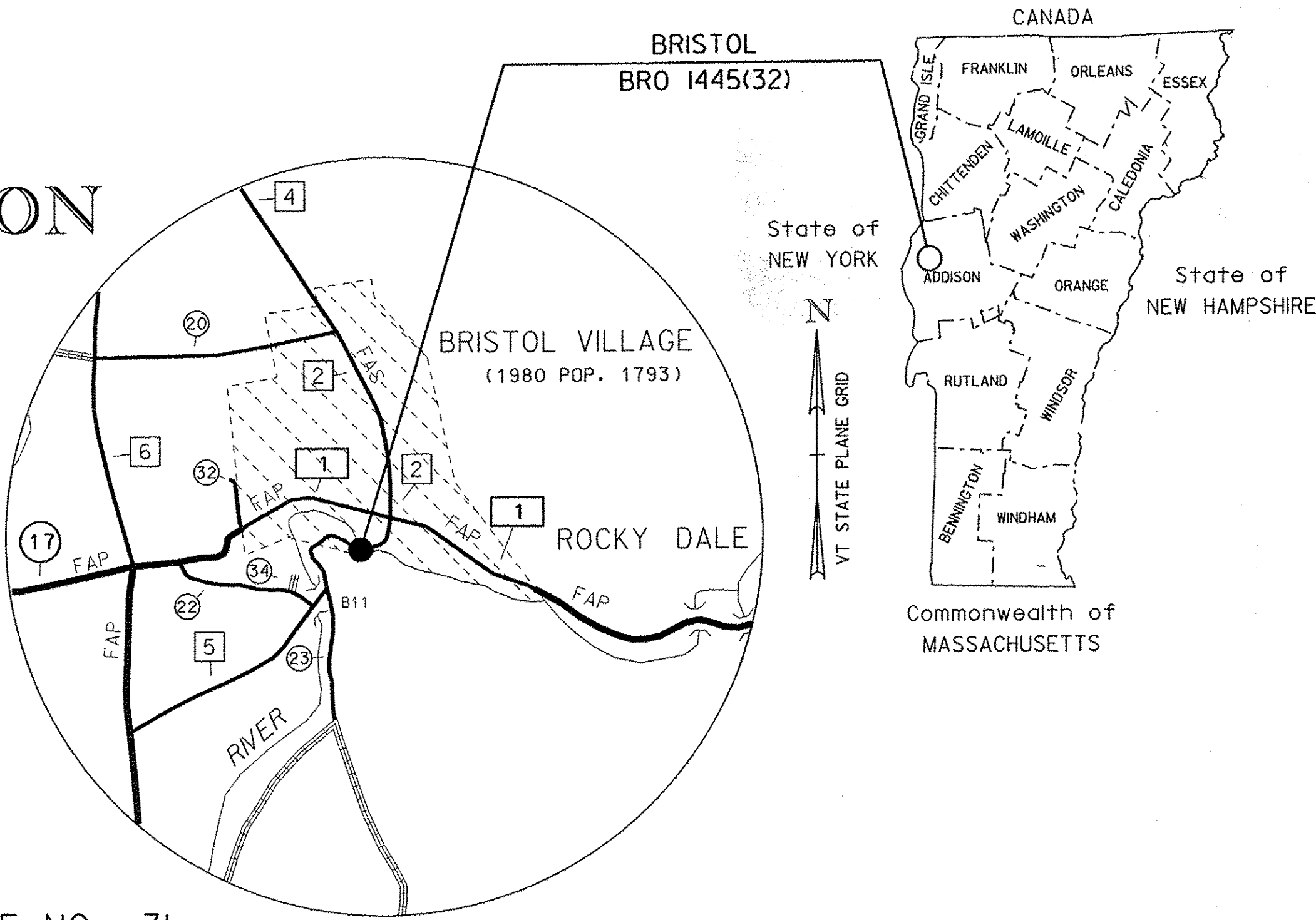


PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF BRISTOL, ADDISON COUNTY
ROUTE NO : TH 5 CLASS II, LOCAL ROAD (SOUTH STREET) BRIDGE NO : 31

PROJECT LOCATION : THE BRIDGE IS LOCATED ON TOWN HIGHWAY 5 (SOUTH STREET) APPROXIMATELY 0.2 MILES SOUTHWEST OF THE INTERSECTION OF TOWN HIGHWAY 5 AND VT RTE 17.
PROJECT DESCRIPTION : REPLACEMENT OF EXISTING TRUSS BRIDGE WITH A NEW SINGLE SPAN BRIDGE, NEW ABUTMENTS AND NECESSARY APPROACH WORK.

LENGTH OF STRUCTURE : 122.20 FEET
LENGTH OF ROADWAY : 177.80 FEET
LENGTH OF PROJECT : 300.00 FEET



RECORD PLANS

CONTRACTOR: BLOW & COTE INC. - MORRISVILLE, VT

RESIDENT ENGINEER: JOE KNIPES

CONSTRUCTION BEGAN: SEPTEMBER 3, 2013

CONSTRUCTION COMPLETE: AUGUST 22, 2014

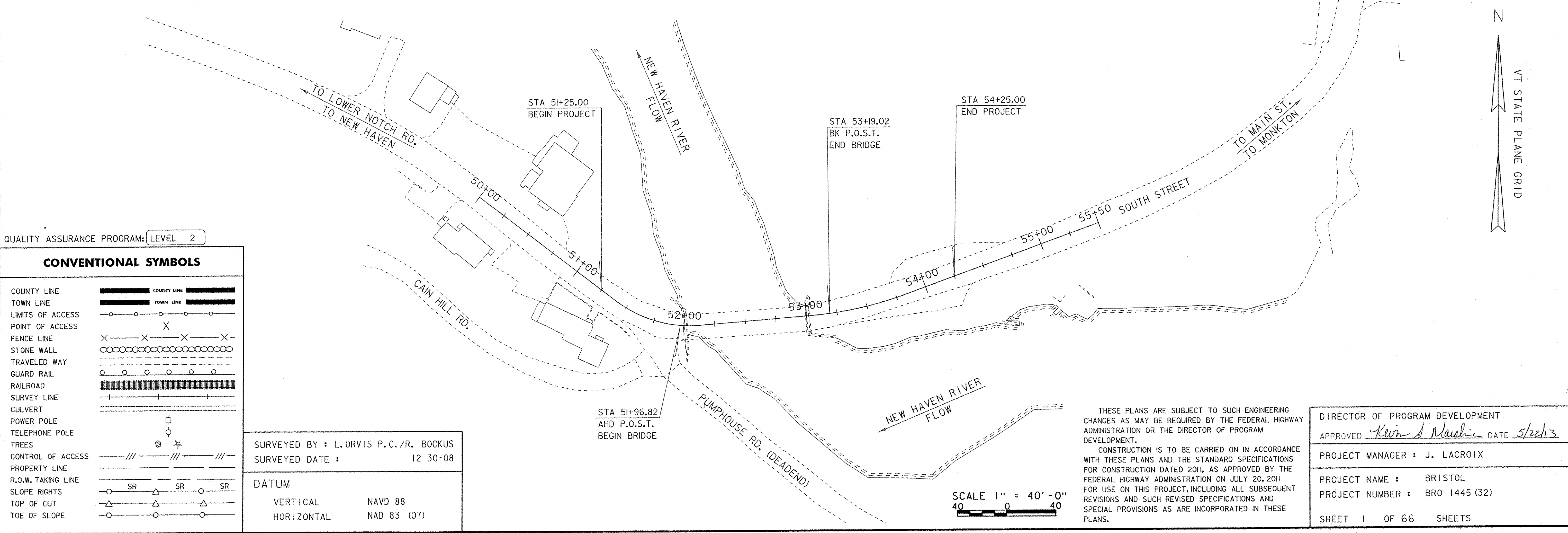
RECORD PLANS BY: JOE KNIPES & JESSE IVES

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

BY [Signature] RESIDENT ENGINEER

DATE 4-13-17

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.



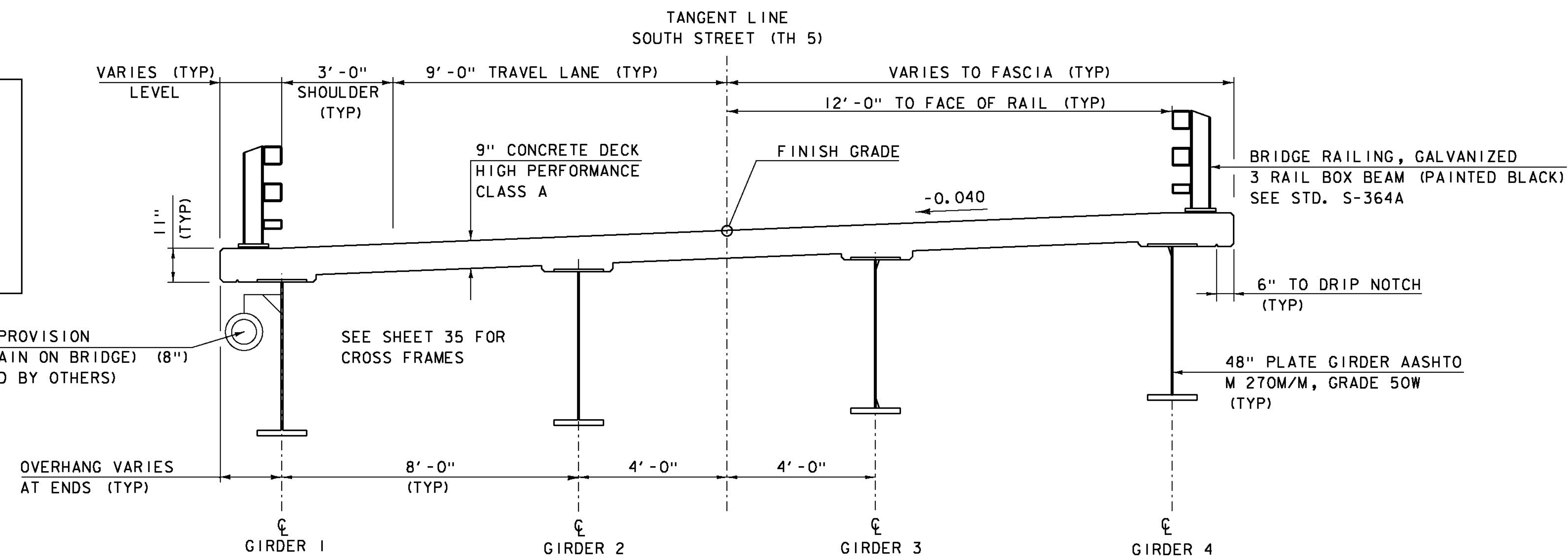
INDEX OF SHEETS						FINAL HYDRAULIC REPORT									
PLAN SHEETS 1 TITLE SHEET 2 PRELIMINARY INFORMATION SHEET 3 - 4 TYPICAL SECTIONS SHEET #1 & #2 5 - 6 QUANTITY SHEETS 7 BRIDGE QUANTITY SHEET 8 TIE SHEET 9 ALIGNMENT SHEET 10 LAYOUT SHEET 11 MAINLINE PROFILE SHEET 12 SIDELINE PROFILES SHEET 13 EXISTING UTILITY LAYOUT SHEET 14 PROPOSED UTILITY LAYOUT SHEET 15 DRAINAGE LAYOUT SHEET 16 DRAINAGE PROFILE SHEET 17 DRAINAGE DETAIL SHEET 18 SIGNS AND PAVEMENT MARKINGS 19 TRAFFIC SIGN SUMMARY 20 BORING LAYOUT SHEET 21 - 28 BORING LOG SHEET #1 - #8 29 PLAN AND ELEVATION SHEET 30 RAIL LAYOUT SHEET 31 GENERAL NOTES 32 DECK DETAILS 33 DECK END DETAILS 34 FRAMING PLAN AND GIRDER ELEVATION 35 CROSS FRAME DETAILS 36 STEEL DETAILS 37 APPROACH SLAB 38 ASPHALTIC PLUG JOINT 39 ABUTMENT NO.1 PLAN AND ELEVATION 40 ABUTMENT NO.2 PLAN AND ELEVATION 41 WINGWALL ELEVATIONS 42 ABUTMENT SECTIONS 43 REINFORCING STEEL SCHEDULE SHEET #1 44 REINFORCING STEEL SCHEDULE SHEET #2 45 - 50 MAINLINE SECTIONS #1 - #6 51 - 52 CAIN HILL SECTIONS #1 - #2 53 - 54 PUMPHOUSE SECTIONS #1 - #2 55 - 56 MATERIAL TRANSITION & BANKING DIAGRAM #1 - #2 57 - 60 CHANNEL SECTIONS #1 - #4 61 EPSC NARRATIVE 62 EPSC - EXISTING CONDITIONS 63 EPSC - DURING CONSTRUCTION 64 EPSC - FINAL CONDITIONS 65 - 66 EPSC DETAILS #1 - #2 B-71 STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES 07-08-2005 D-1 PRECAST REINFORCED CONCRETE DROP INLET DETAILS 06-01-1994 D-16 DRAINAGE DETAILS INCLUDING DROP INLETS, IRON GRATE TYPE B&C, CONC END 06-01-1994 E-121 STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD 08-08-1995 E-123 GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS 03-16-2004 E-164 SQUARE STEEL SIGN POST 06-08-2009 G-1B BOX BEAM GUARD RAIL 06-01-1994 S-364A BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM 04-23-2012 S-364B GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM 04-23-2012 S-364C GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM 04-23-2012															

MATERIAL TOLERANCES

(IF USED ON PROJECT)

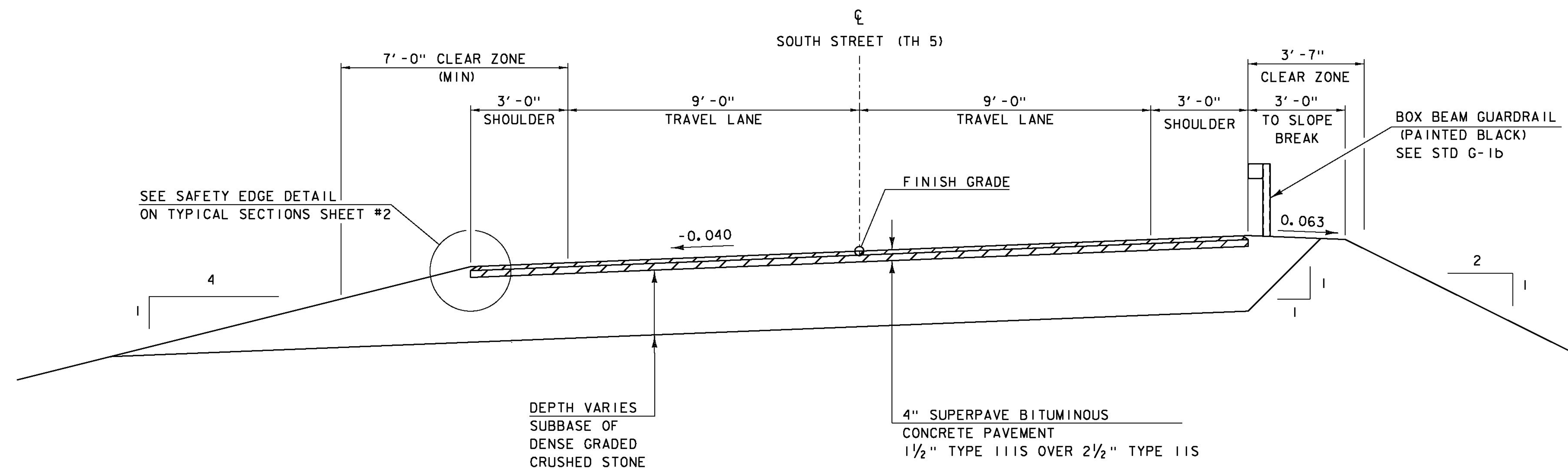
SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

SPECIAL PROVISION
(WATER MAIN ON BRIDGE) (8")
(DESIGNED BY OTHERS)



BRIDGE TYPICAL SECTION

SCALE 1/2" = 1'-0"



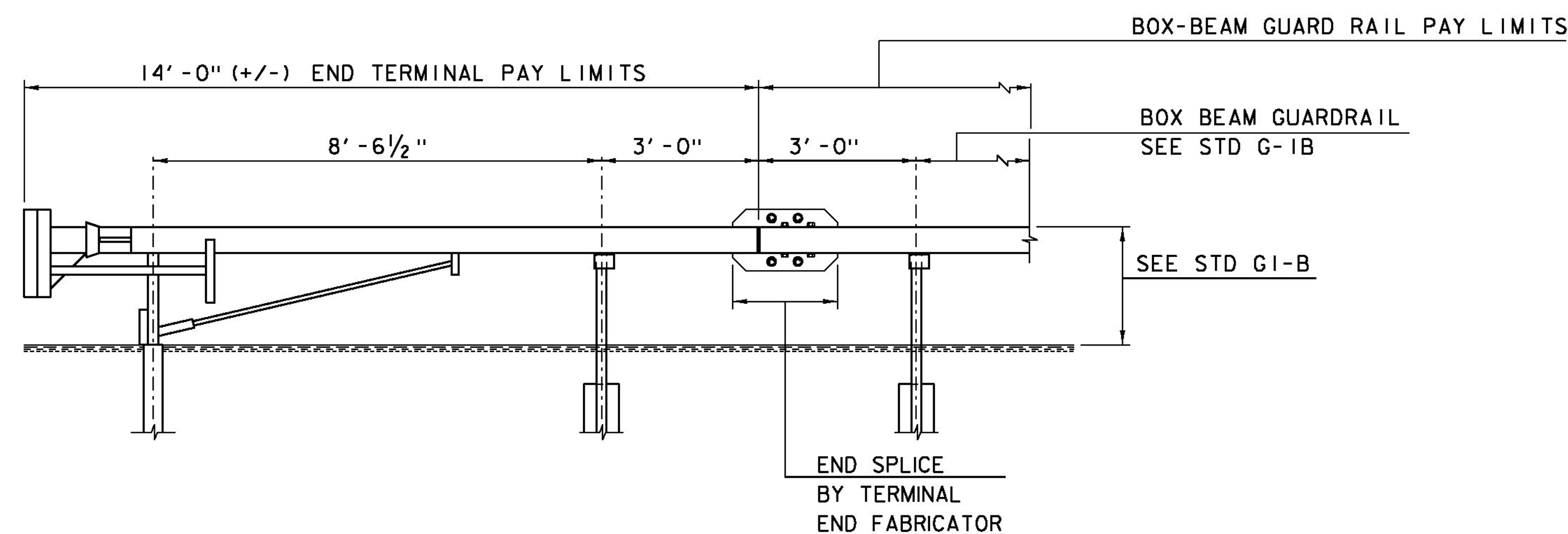
ROADWAY TYPICAL SECTION

SCALE 1/2" = 1'-0"

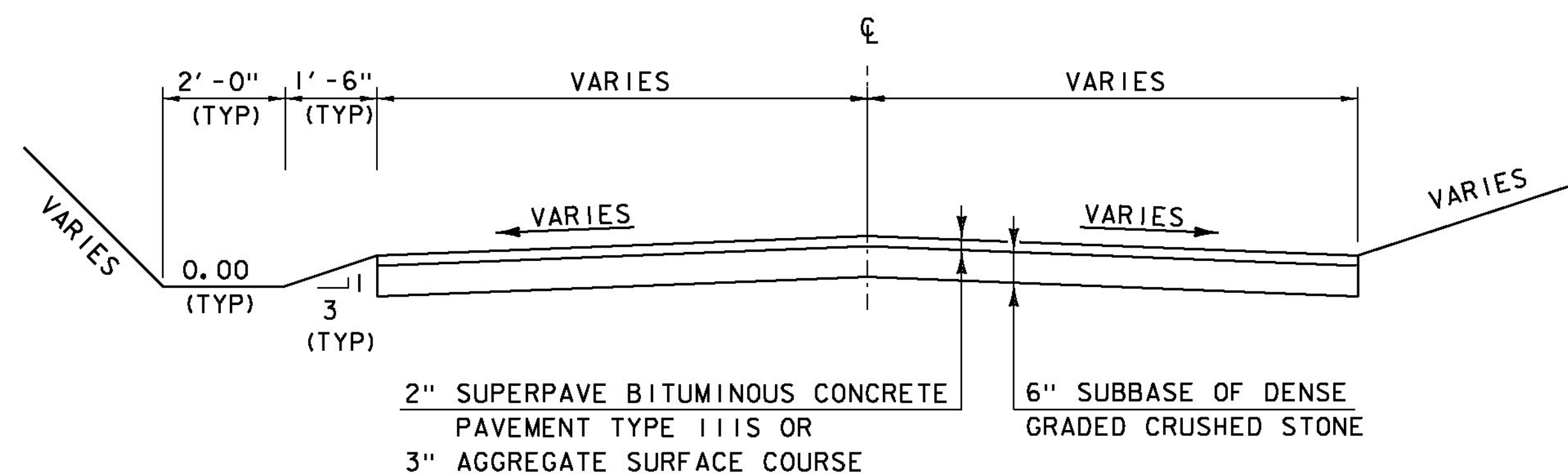
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352+yp.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
TYPICAL SECTIONS SHEET #1

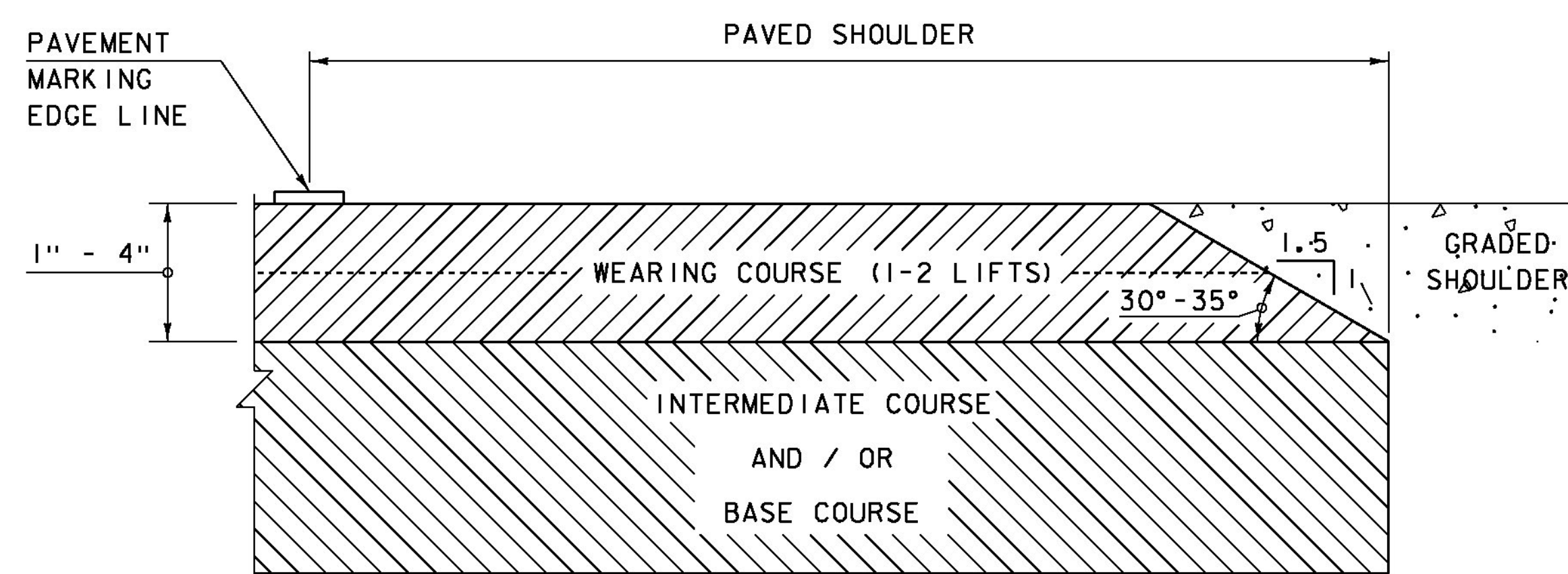
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 3 OF 66



MANUFACTURED TERMINAL SECTION, TANGENT DETAIL
SCALE 1/2" = 1'-0"

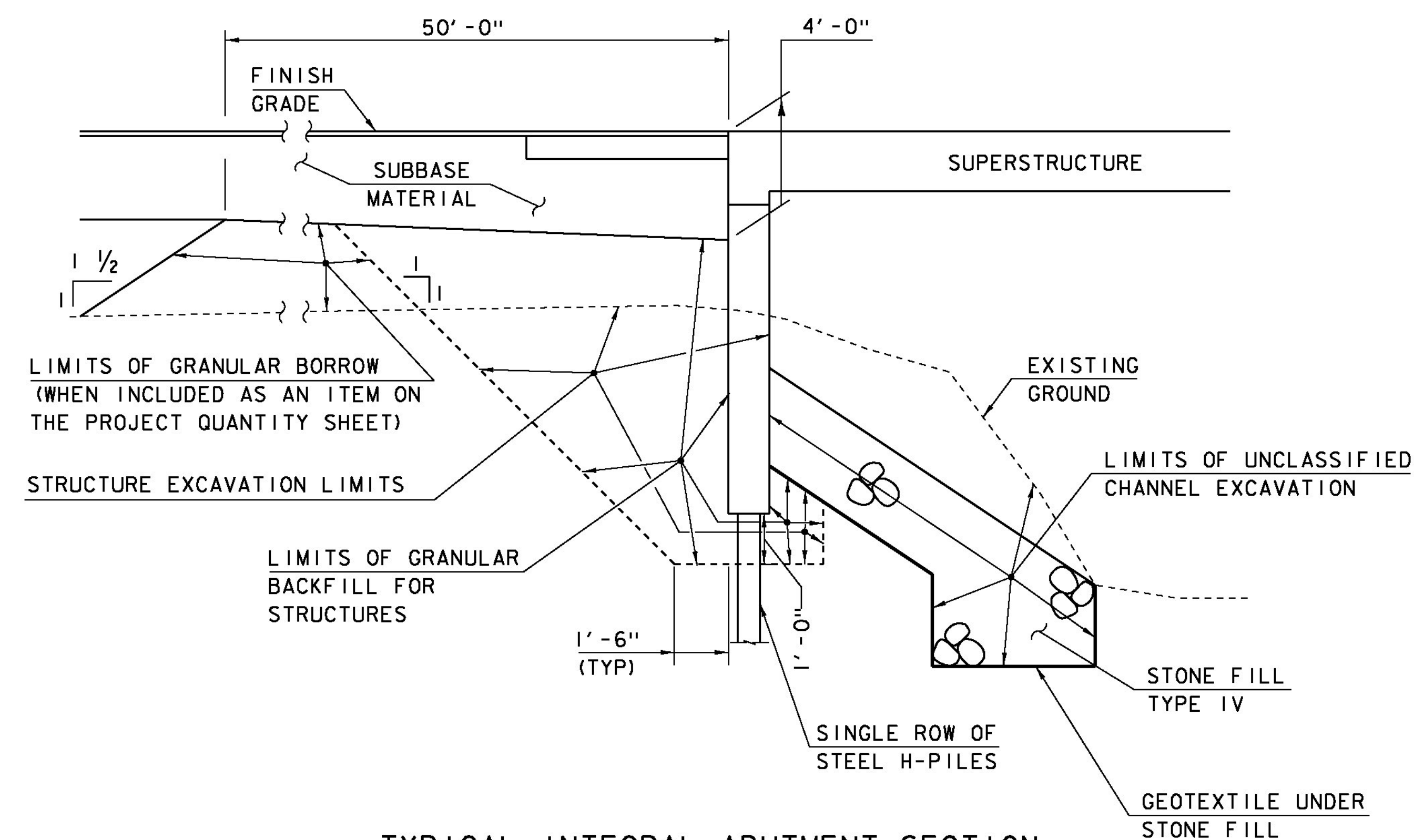


SIDE ROAD TYPICAL SECTION
SCALE 1/2" = 1'-0"



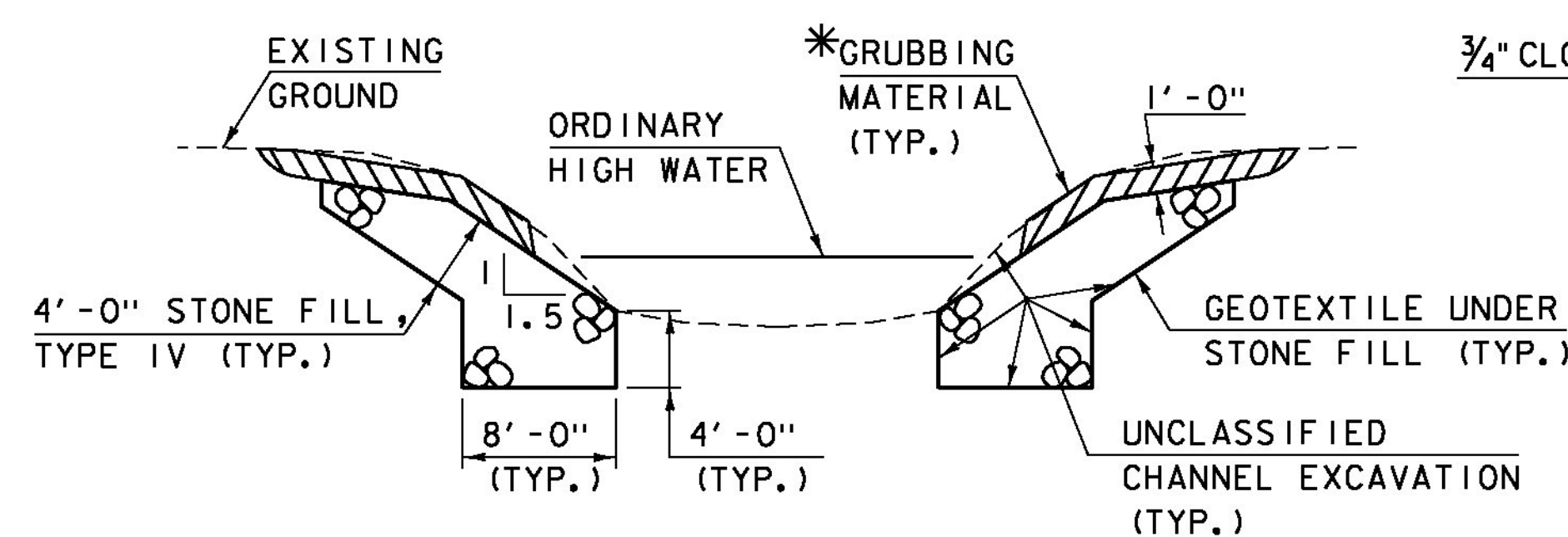
SAFETY EDGE DETAIL
NOT TO SCALE

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



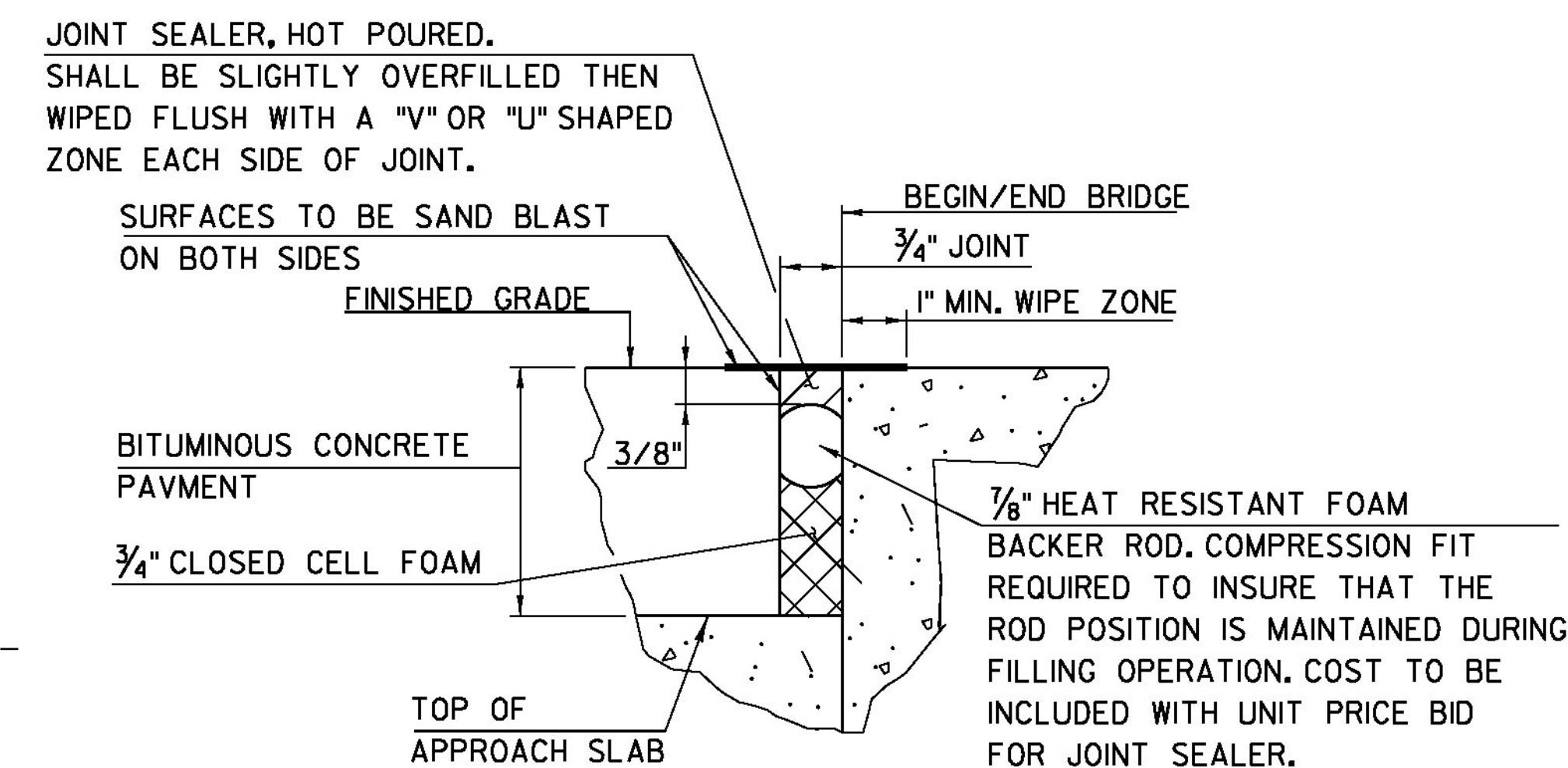
TYPICAL INTEGRAL ABUTMENT SECTION
NOT TO SCALE

ACTUAL LIMITS OF STRUCTURE EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR. HOWEVER, ONLY THE EXCAVATION BETWEEN THE LIMITS SHOWN WILL BE PAID FOR UNDER THE ITEM 204.25 "STRUCTURE EXCAVATION". EXCAVATION BY THE CONTRACTOR OUTSIDE OF THESE LIMITS WILL BE AT THE EXPENSE OF THE CONTRACTOR.



TYPICAL CHANNEL SECTION
(NOT TO SCALE)

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



PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352+yp.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
TYPICAL SECTIONS SHEET #2

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 4 OF 66

STATE OF VERMONT AGENCY OF TRANSPORTATION														QUANTITY SHEET 1									
SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS						DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	FULL C.E. ITEMS	BRIDGE	EROSION CONTROL		GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS			
							1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10							
							800					800		CY	COMMON EXCAVATION	203.15							
							5					5		CY	SOLID ROCK EXCAVATION	203.16	EST.	800	CY	FILL AVAILABLE			
							1140					1140		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27		7	CY	COMMON EXCAVATION (800 X 1)			
							88					88		CY	TRENCH EXCAVATION OF EARTH	204.20		342	CY	SOLID ROCK EXCAVATION (5 X 1.3)			
							1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		88	CY	UNCLASSIFIED CHANNEL EXCAVATION (1140 X 0.3)			
									490			490		CY	STRUCTURE EXCAVATION	204.25		147	CY	TRENCH EXCAVATION (88 X 1)			
									340			340		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		1384	CY	STRUCTURE EXCAVATION (490 X 0.3)			
							190					190		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				TOTAL FILL AVAILABLE			
							820					820		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		58	CY	FILL REQUIRED			
							32					32		CY	AGGREGATE SURFACE COURSE	401.10				FACTORED FILL (50 X 1.15)			
							4					4		CWT	EMULSIFIED ASPHALT	404.65		1326	CY	TOTAL WASTE MATERIAL			
							1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50							
									160			160		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33							
									155			155		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34							
									1			1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10							
									820			820		LF	STEEL PILING, HP 14 X 89	505.18							
									2			2		EACH	DYNAMIC PILE LOADING TEST	505.45							
									127171			127171		LB	STRUCTURAL STEEL, PLATE GIRDER	506.55							
									25359			25359		LB	REINFORCING STEEL, LEVEL I	507.11							
									44005			44005		LB	REINFORCING STEEL, LEVEL II	507.12							
									1			1		LS	SHEAR CONNECTORS (968 - 7" X 7/8")	508.15							
									35			35		GAL	WATER REPELLENT, SILANE	514.10							
									71			71		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10							
									55			55		LF	JOINT SEALER, HOT POURED	524.11							
									255			255		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)	525.335							
									1			1		EACH	REMOVAL OF STRUCTURE (2369 SF - EST.)	529.15							
									8			8		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17							
															BEGIN OPTION AA								
							80					80		LF	18" CAAP .060 (2-2/3 X 1/2)	601.0215							
							80					80		LF	18" CSP .064 (2-2/3 X 1/2)	601.0015							
							80					80		LF	18" CPEP	601.0915							
															END OPTION AA								
							1					1		EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.18							
							1					1		MGAL	DUST CONTROL WITH WATER	609.10							
							5					5		CY	STONE FILL, TYPE I	613.10							
							22					22		CY	STONE FILL, TYPE II	613.11							
							950					950		CY	STONE FILL, TYPE IV	613.13							
							1					1		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10							
							63					63		LF	CHAIN-LINK FENCE, 6 FEET	620.12							
																		PROJECT NAME: BRISTOL					
																		PROJECT NUMBER: BRO 1445(32)					
																		FILE NAME: s05j352QUANTITY SHEET.XLS					
																		PLOT DATE: 06/04/2013					
																		PROJECT LEADER: J. LACROIX					
																		DRAWN BY: R. PELLETT					
																		DESIGNED BY: G. LAROCHE					
																		CHECKED BY: J. GRIFFIN					
																		QUANTITY SHEET #1					
																		SHEET 5 OF 68					

STATE OF VERMONT AGENCY OF TRANSPORTATION														QUANTITY SHEET 2									
SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES					
							ROADWAY	FULL C.E. ITEMS	BRIDGE	EROSION CONTROL		GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS			
							55					55		LF	REMOVAL OF EXISTING FENCE	620.55							
							97.667					97.667		LF	BOX BEAM GUARDRAIL (PAINTED BLACK)	621.30							
							3					3		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51							
							4					4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)	621.725							
							1					1		EACH	REMOVE HYDRANT	629.30							
							500					500		HR	FLAGGERS	630.15							
								1				1		LS	FIELD OFFICE, ENGINEERS	631.10							
								1				1		LS	TESTING EQUIPMENT, CONCRETE	631.16							
								1				1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17							
								3000				3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26							
							1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11							
							1000					1000		LF	4 INCH WHITE LINE	646.20							
							1000					1000		LF	4 INCH YELLOW LINE	646.21							
							870					870		SY	GEOTEXTILE UNDER STONE FILL	649.31							
										82		82		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515							
										90		90		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61							
										20		20		LB	SEED	651.15							
										70		70		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							
										360		360		SY	GRUBBING MATERIAL	651.40							
										1		1		LS	EPSC PLAN	652.10							
										50		50		HR	MONITORING EPSC PLAN	652.20							
										1		1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30							
										350		350		SY	TEMPORARY EROSION MATTING	653.20							
										30		30		CY	VEHICLE TRACKING PAD	653.35							
										350		350		LF	BARRIER FENCE	653.50							
										240		240		LF	PROJECT DEMARCATION FENCE	653.55							
							25					25		SF	TRAFFIC SIGNS, TYPE A	675.20							
							40					40		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341							
							5					5		EACH	REMOVING SIGNS	675.50							
									1			1		LS	SPECIAL PROVISION (MAINTENANCE OF EXISTING WATER FLOWS)	900.645							
							1					1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645							
									1			1		LS	SPECIAL PROVISION (WATER MAIN ON BRIDGE) (8")	900.645							
							1					1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650							
							1					1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650							
									35			35		SF	SPECIAL PROVISION (RETAINING WALL)	900.670							
							220					220		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680							
																		PROJECT NAME: BRISTOL					
																		PROJECT NUMBER: BRO 1445(32)					
																		FILE NAME: s05j352QUANTITY SHEET.XLS					
																		PLOT DATE: 06/04/2013					
																		PROJECT LEADER: J. LACROIX					
																		DRAWN BY: R. PELLETT					
																		DESIGNED BY: G. LAROCHE					
																		CHECKED BY: J. GRIFFIN					
																		QUANTITY SHEET #2					
																		SHEET 6 OF 68					

BRIDGE QUANTITY SHEET 1

[illegible]

GPS CONTROL POINTS

HVCTRL #1

LATHROP AZ MK
NORTH = 596195.437
EAST = 1486663.832
ELEV. = 565.693

GENERAL LOCATION BRISTOL, VT.
TO REACH FROM THE INTERSECTION OF BURPEE ROAD, VT ROUTE 17 AND VT ROUTE 116 SOUTH, JUST WEST OF BRISTOL VILLAGE, GO EAST ALONG VT ROUTES 17/116 FOR 0.8 MI (1.3 KM) TO THE INTERSECTION OF MUNSILL AVENUE LEFT AND THE SITE OF THE MARK ON THE RIGHT. THE MARK IS SET IN THE TOP OF A 30 CM (12 INCHES) DIAMETER CONCRETE MONUMENT POURED 1.4 M (4.6 FT) DEEP. IT IS 6.5 M (21.3 FT) SOUTH OF AND ABOUT 0.3 M (1.0 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 17/116, 1.8 M (5.9 FT) SOUTH OF A STEEL BEAM GUARD RAIL, 21.4 M (70.2 FT) EAST OF POLE NO 21/8/13, 10.7 M (35.1 FT) WEST OF POLE NO 20/12, 2.5 M (8.2 FT) NORTH OF THE TOP OF A STEEP BANK, AND 0.3 M (1.0 FT) NORTH OF A FIBERGLASS WITNESS POST.

HVCTRL #2

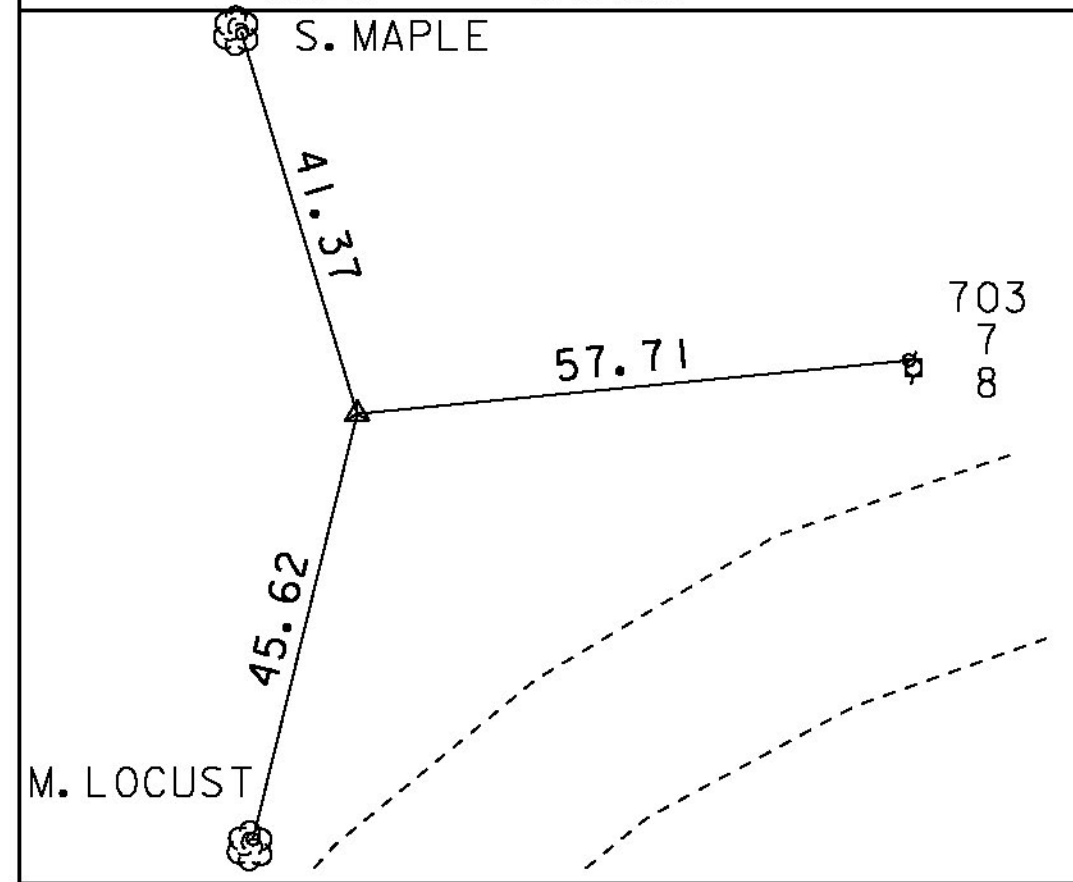
LATHROP
NORTH = 595029.754
EAST = 1487003.577
ELEV. = 461.658

GENERAL LOCATION BRISTOL, VT. OWNERSHIP-- LATHROP LTD, 62 WEST STREET, BRISTOL, VT 05443.
TO REACH FROM THE INTERSECTION OF BURPEE ROAD, VT ROUTE 17 AND VT ROUTE 116 SOUTH, JUST WEST OF BRISTOL VILLAGE, GO EAST ALONG VT ROUTES 17/116 FOR 1.1 MI (1.8 KM) TO THE INTERSECTION OF NORTH STREET LEFT AND SOUTH STREET RIGHT AT THE TRAFFIC LIGHT IN BRISTOL VILLAGE. TURN RIGHT AND GO SOUTH ALONG SOUTH STREET FOR 0.4 MI (0.6 KM) TO THE CLARE LATHROP LUMBER YARD ON THE RIGHT AND THE SITE OF THE MARK ON THE LEFT, ABOUT OPPOSITE THE MOST SOUTHERLY GATE TO THE LUMBER YARD. THE MARK IS SET IN THE TOP OF A 1.5 M (4.9 FT) X 1.2 M (3.9 FT) BOULDER WHICH PROJECTS ABOUT 0.8 M ABOVE GROUND SURFACE. IT IS 12.9 M (42.3 FT) EAST OF AND ABOUT 2.2 M (7.2 FT) HIGHER THAN THE CENTERLINE OF SOUTH STREET, 20.6 M (67.6 FT) EAST-NORTHEAST OF POLE NO 11, 22.8 M (74.8 FT) EAST-SOUTHEAST OF THE MOST SOUTHERLY GATE POST OF THE SOUTHERN GATE TO THE LATHROP LUMBER YARD, 41.2 M (135.2 FT) SOUTH-SOUTHWEST OF POLE NO 9, AND 1.7 M (5.6 FT) NORTHWEST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES

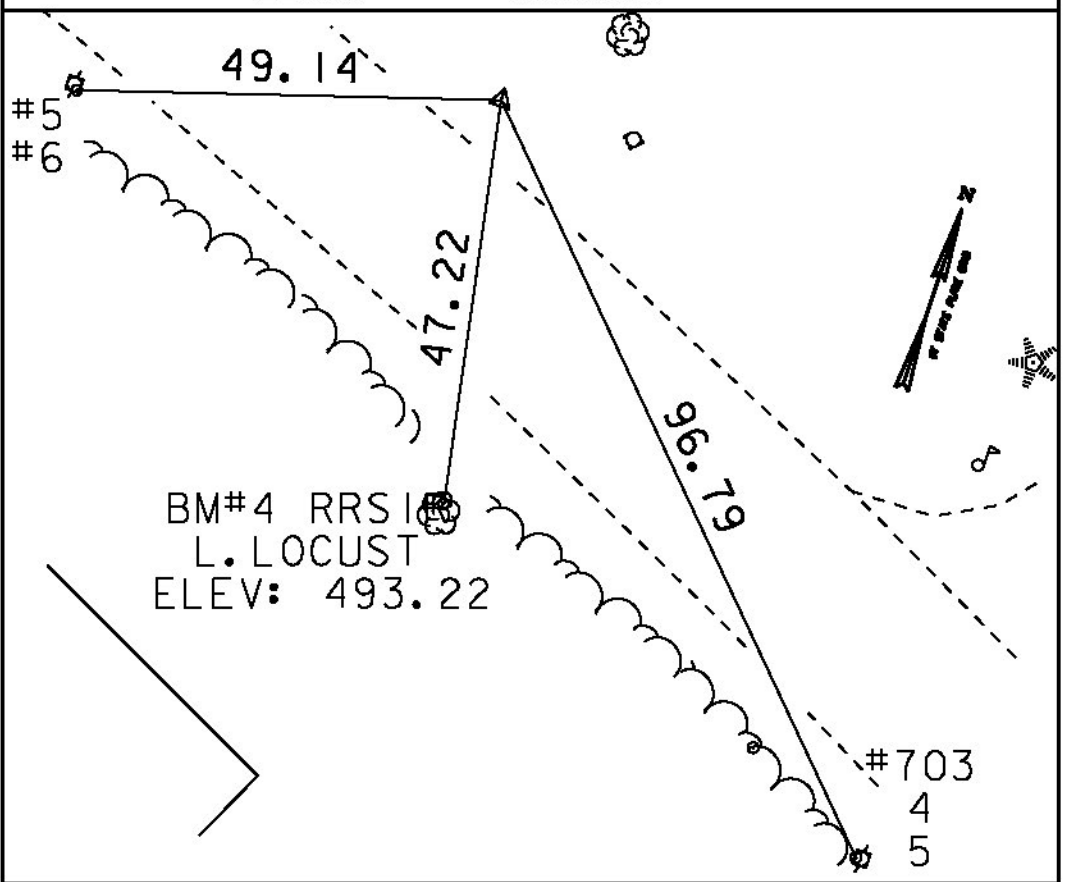
HVCTRL #3

NORTH = 595431.576
EAST = 1487230.649
ELEV. = 481.028



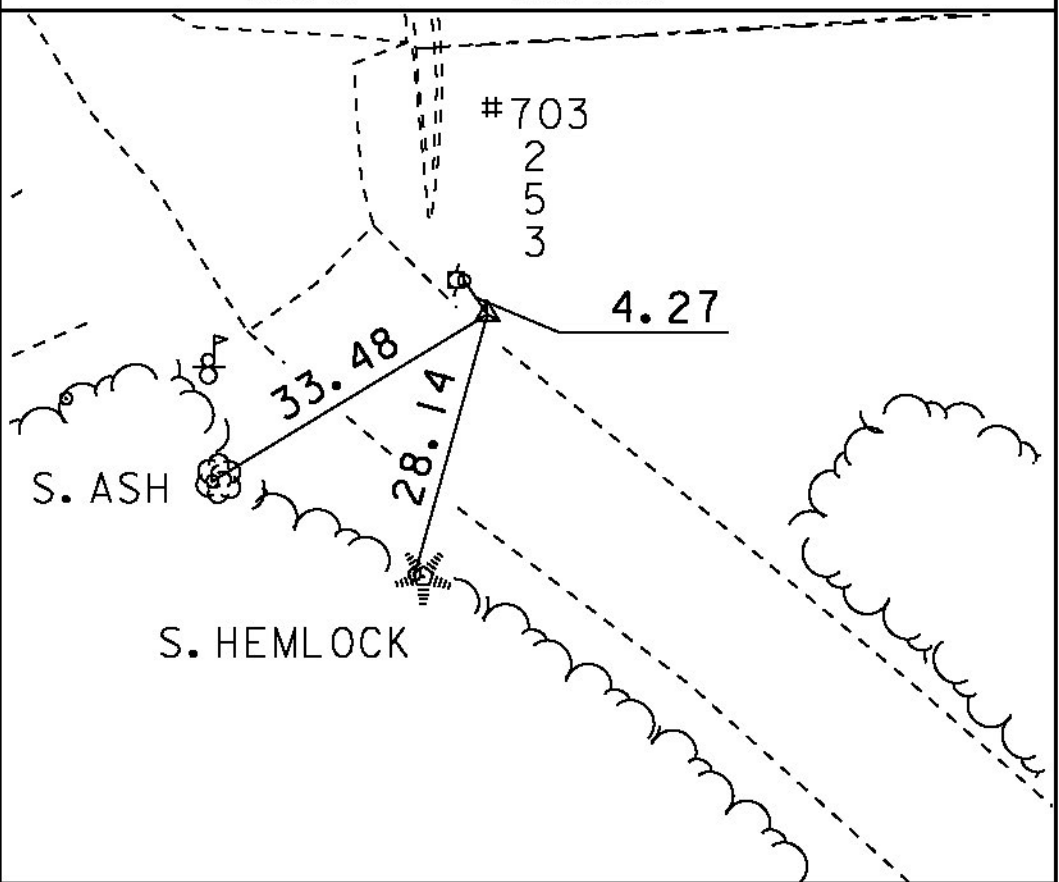
HVCTRL #4

NORTH = 595361.273
EAST = 1487589.444
ELEV. = 488.396



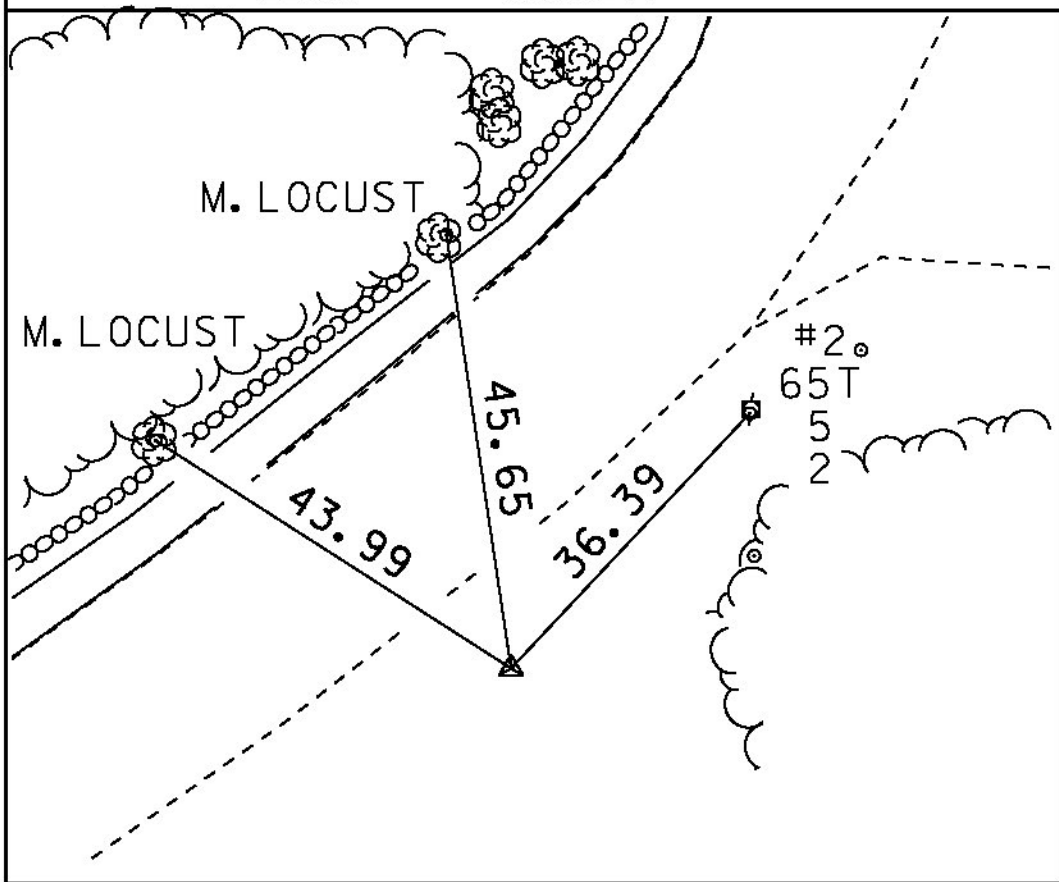
HVCTRL #5

NORTH = 595103.408
EAST = 1487927.976
ELEV. = 495.856



HVCTRL #6

NORTH = 595290.930
EAST = 1488415.521
ELEV. = 529.217



* Main Traverse Completed 12/30/2008 by L.Orvis & R.Bockus

ALIGNMENT TIES

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (07)

ADJUSTMENT Compass

PROJECT NAME: Bristol

PROJECT NUMBER: BRO 1445 (32)

FILE NAME: 05J352\survey\05J352+1.dg
PROJECT LEADER: Kristin Higgins
DESIGNED BY: G. LAROCHE
TIE SHEET

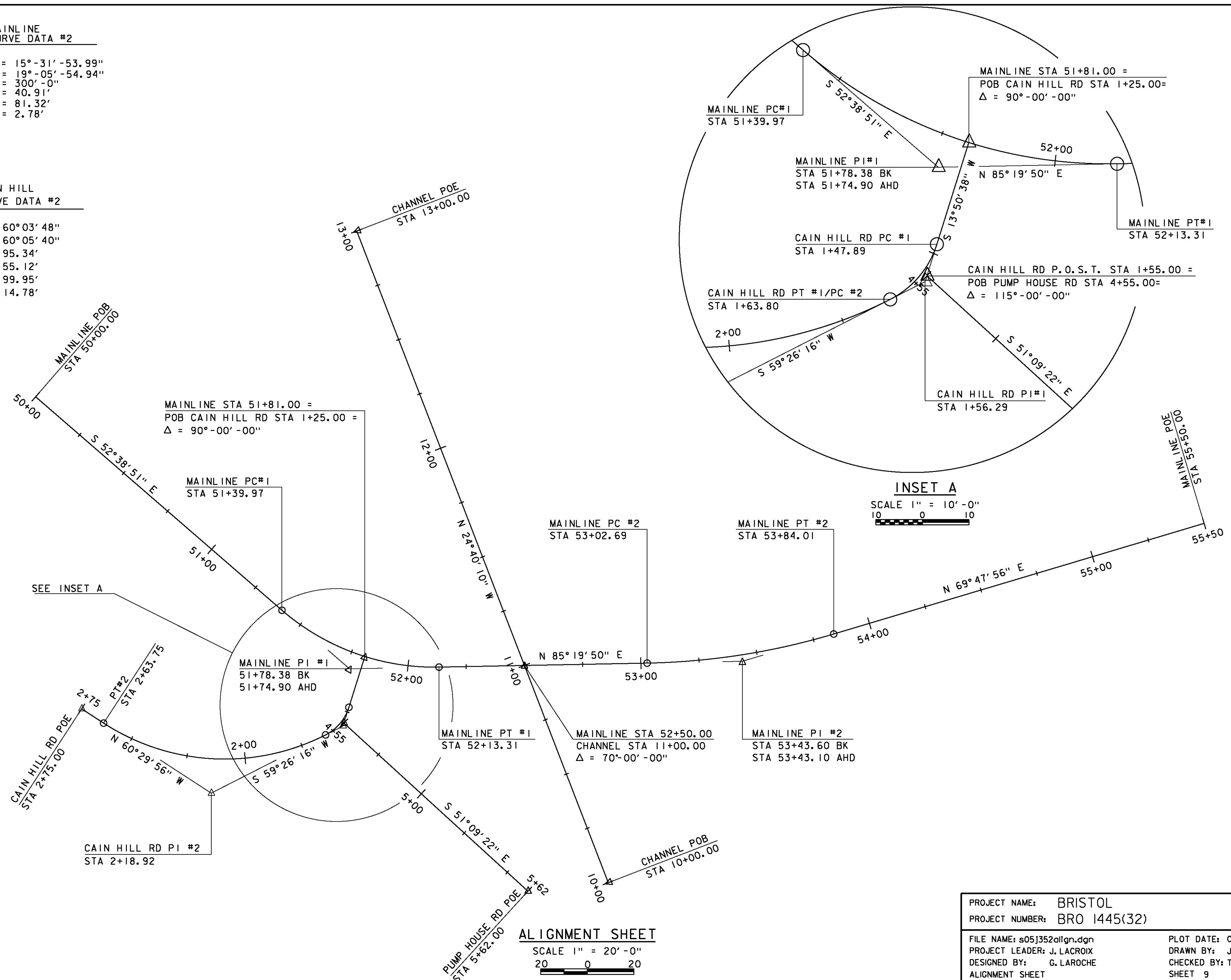
PLOT DATE: 04-JUN-2013
DRAWN BY: R. Bullock
CHECKED BY: T. FILLBACH
SHEET 8 OF 66

MAINLINE
CURVE DATA #1
 $\Delta = 42^{\circ}-01'-18.93''$
 $D = 57^{\circ}-17'-44.81''$
 $R = 100'-0''$
 $T = 38.41'$
 $L = 73.34'$
 $E = 7.12'$

MAINLINE
CURVE DATA #2
 $\Delta = 15^{\circ}-31'-53.99''$
 $D = 19^{\circ}-05'-54.94''$
 $R = 300'-0''$
 $T = 40.91'$
 $L = 81.32'$
 $E = 2.78'$

CAIN HILL
CURVE DATA #1
 $\Delta = 45^{\circ}35'39''$
 $D = 286^{\circ}28'44''$
 $R = 20.00'$
 $T = 8.41'$
 $L = 15.92'$
 $E = 1.69'$

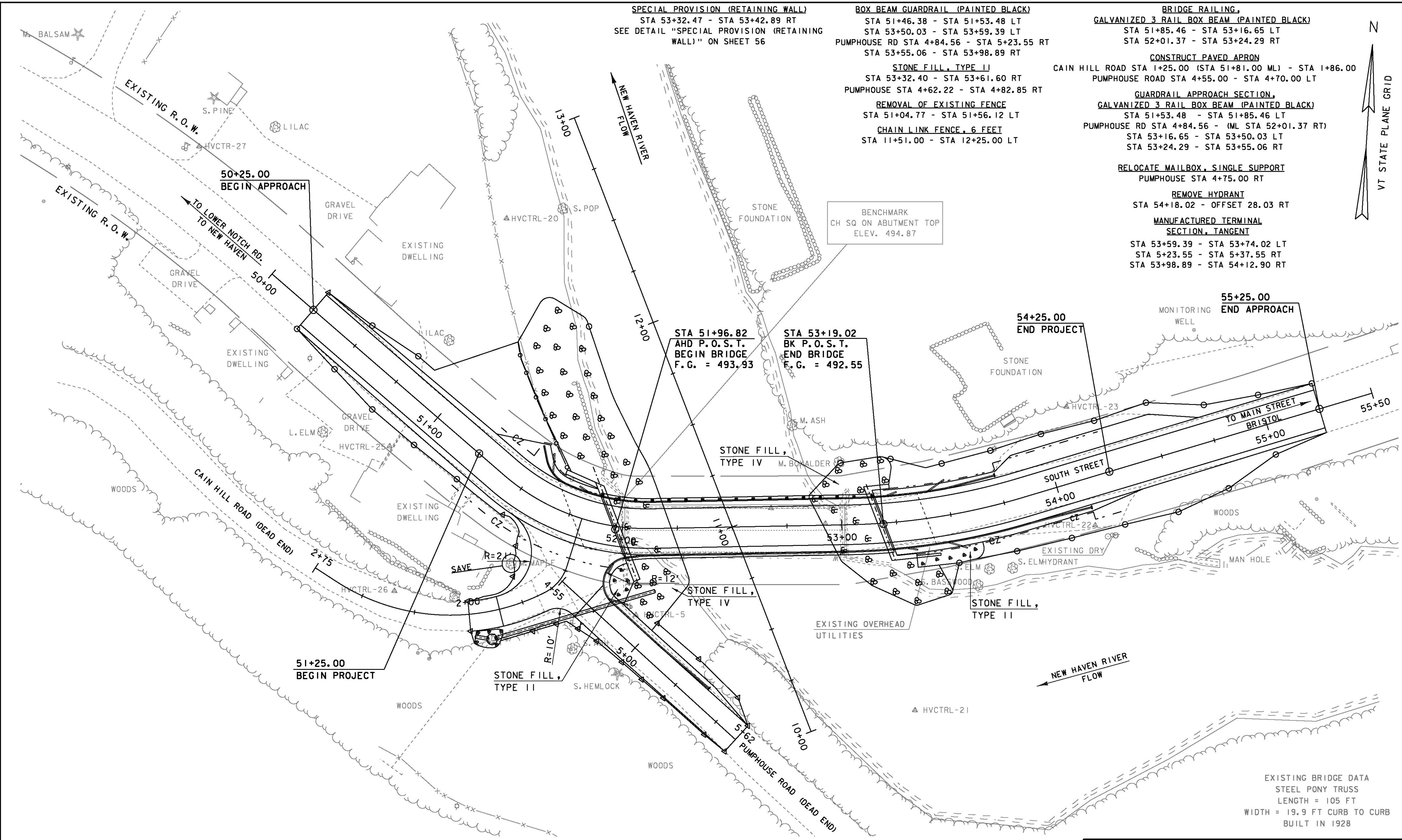
CAIN HILL
CURVE DATA #2
 $\Delta = 60^{\circ}03'48''$
 $D = 60^{\circ}05'40''$
 $R = 95.34'$
 $T = 55.12'$
 $L = 99.95'$
 $E = 14.78'$



PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352align.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
ALIGNMENT SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 9 OF 66



SPECIAL PROVISION (RETAINING WALL)
STA 53+32.47 - STA 53+42.89 RT
SEE DETAIL "SPECIAL PROVISION (RETAINING WALL)" ON SHEET 56

BOX BEAM GUARDRAIL (PAINTED BLACK)
STA 51+46.38 - STA 51+53.48 LT
STA 53+50.03 - STA 53+59.39 LT
PUMPHOUSE RD STA 4+84.56 - STA 5+23.55 RT
STA 53+55.06 - STA 53+98.89 RT

STONE FILL, TYPE II
STA 53+32.40 - STA 53+61.60 RT
PUMPHOUSE STA 4+62.22 - STA 4+82.85 RT

REMOVAL OF EXISTING FENCE
STA 51+04.77 - STA 51+56.12 LT

CHAIN LINK FENCE, 6 FEET
STA 11+51.00 - STA 12+25.00 LT

BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)
STA 51+85.46 - STA 53+16.65 LT
STA 52+01.37 - STA 53+24.29 RT

CONSTRUCT PAVED APRON
CAIN HILL ROAD STA 1+25.00 (STA 51+81.00 ML) - STA 1+86.00
PUMPHOUSE ROAD STA 4+55.00 - STA 4+70.00 LT

GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM (PAINTED BLACK)
STA 51+53.48 - STA 51+85.46 LT
PUMPHOUSE RD STA 4+84.56 - (ML STA 52+01.37 RT)
STA 53+16.65 - STA 53+50.03 LT
STA 53+24.29 - STA 53+55.06 RT

RELOCATE MAILBOX, SINGLE SUPPORT
PUMPHOUSE STA 4+75.00 RT

REMOVE HYDRANT
STA 54+18.02 - OFFSET 28.03 RT

MANUFACTURED TERMINAL SECTION, TANGENT
STA 53+59.39 - STA 53+74.02 LT
STA 5+23.55 - STA 5+37.55 RT
STA 53+98.89 - STA 54+12.90 RT

LAYOUT SHEET

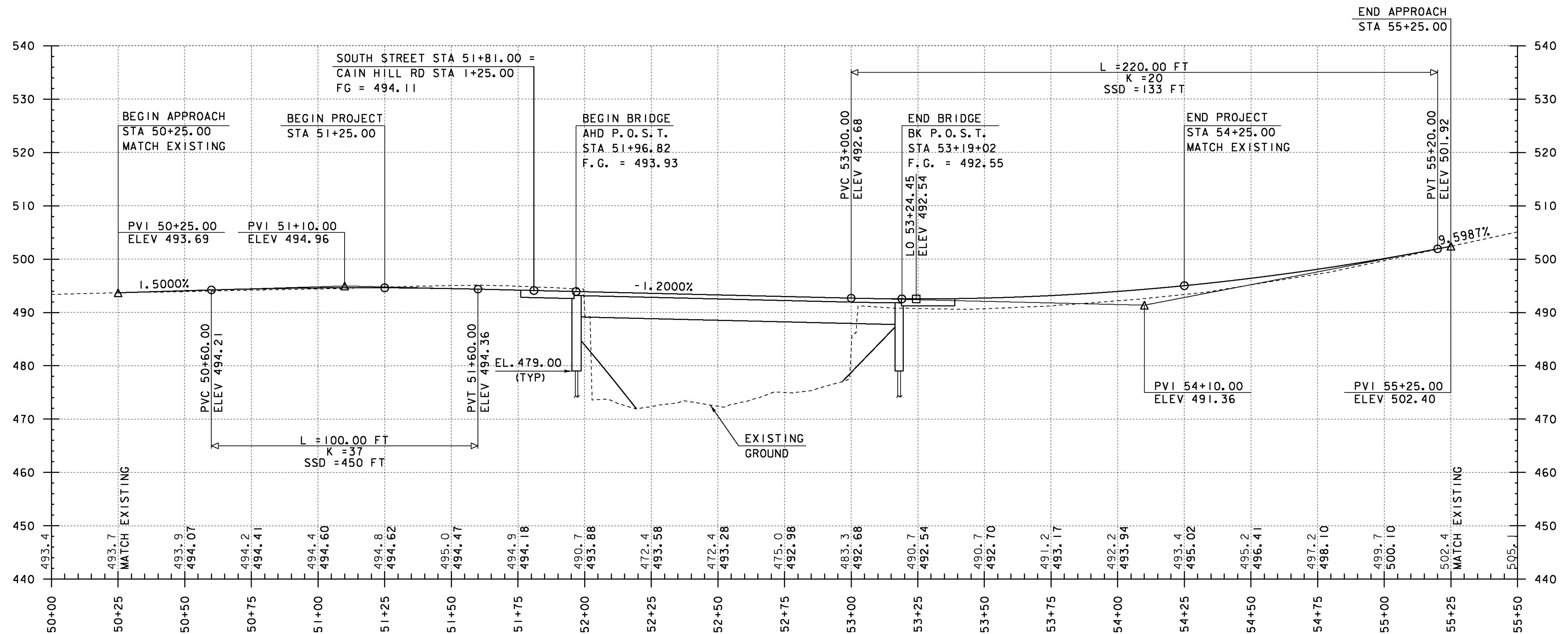
SCALE 1" = 20' - 0"
20 0 20

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352bdr.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
LAYOUT SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: J. SALVATORI
CHECKED BY: T. FILLBACH
SHEET 10 OF 66

EXISTING BRIDGE DATA
STEEL PONY TRUSS
LENGTH = 105 FT
WIDTH = 19.9 FT CURB TO CURB
BUILT IN 1928



MAINLINE PROFILE

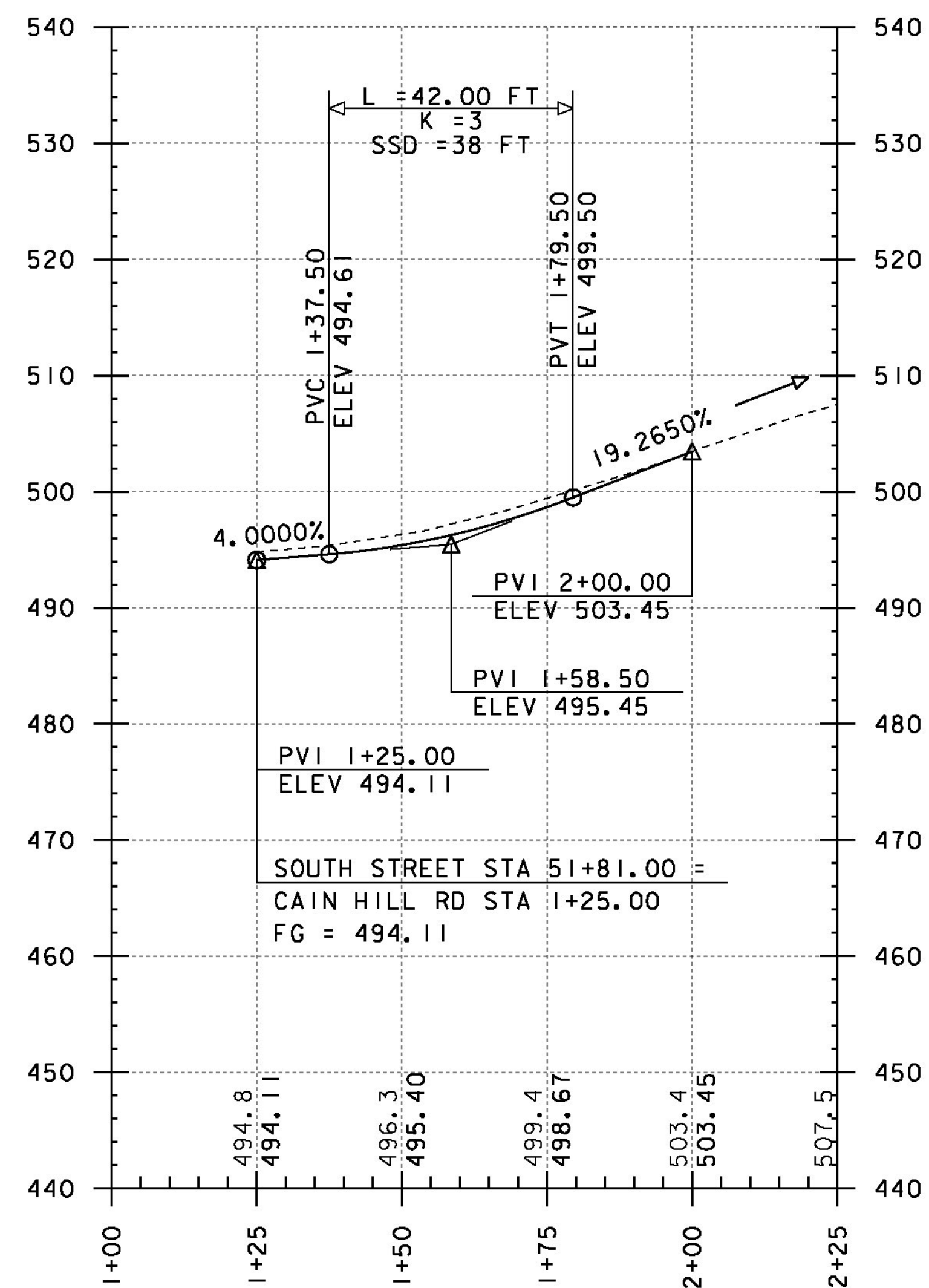
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

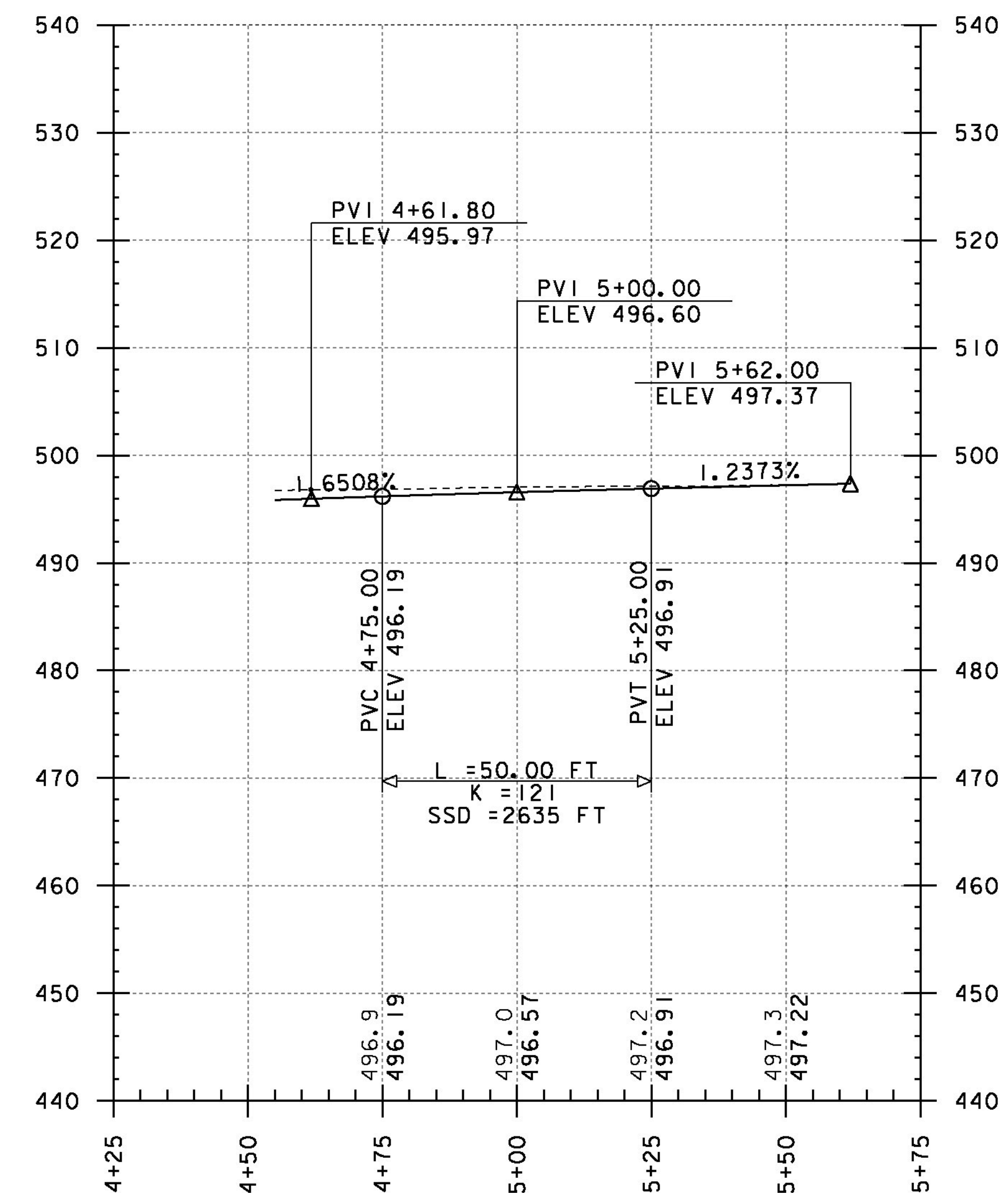
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352pro.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
MAINLINE PROFILE SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET II OF 66



CAIN HILL ROAD PROFILE

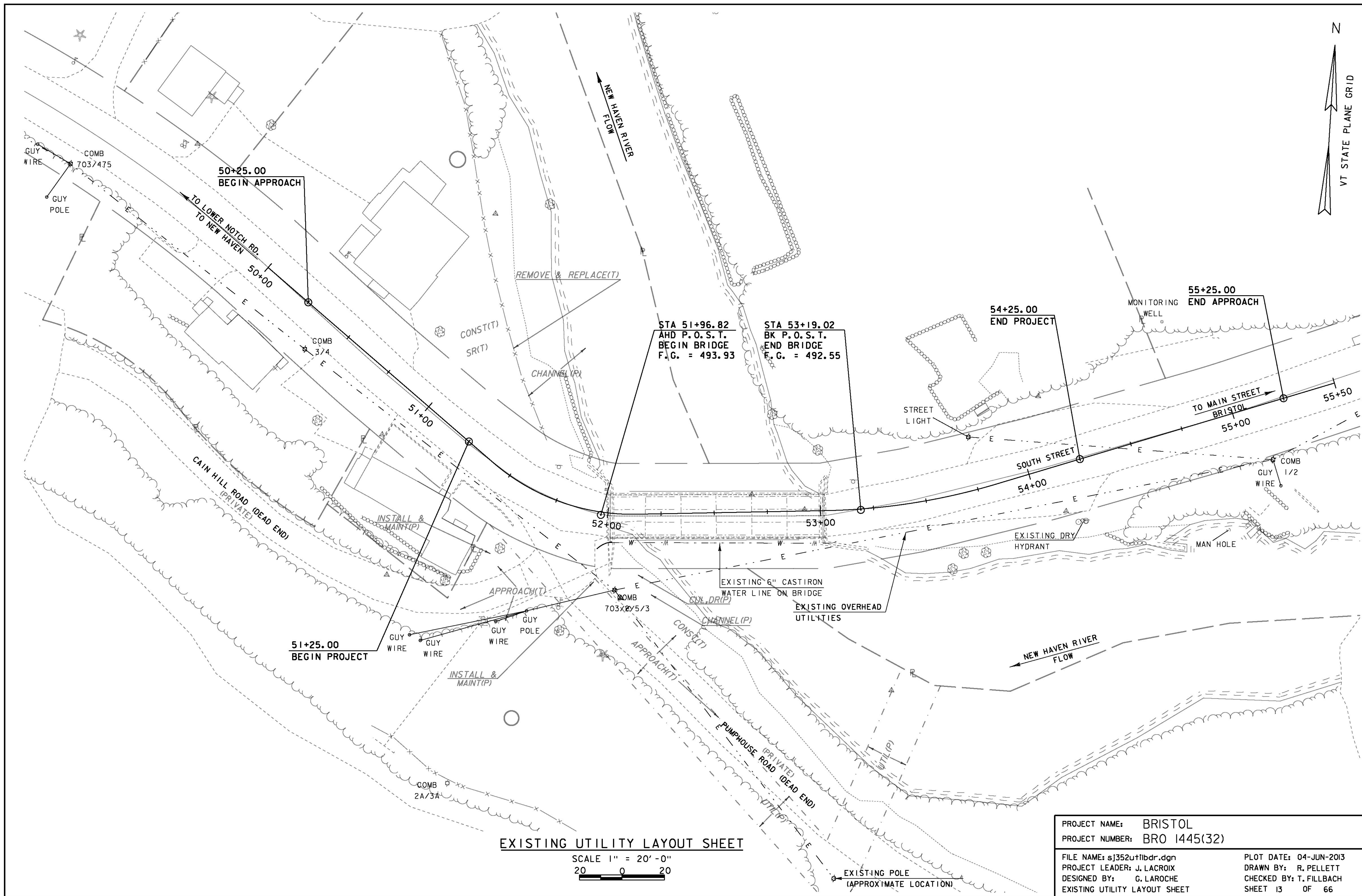


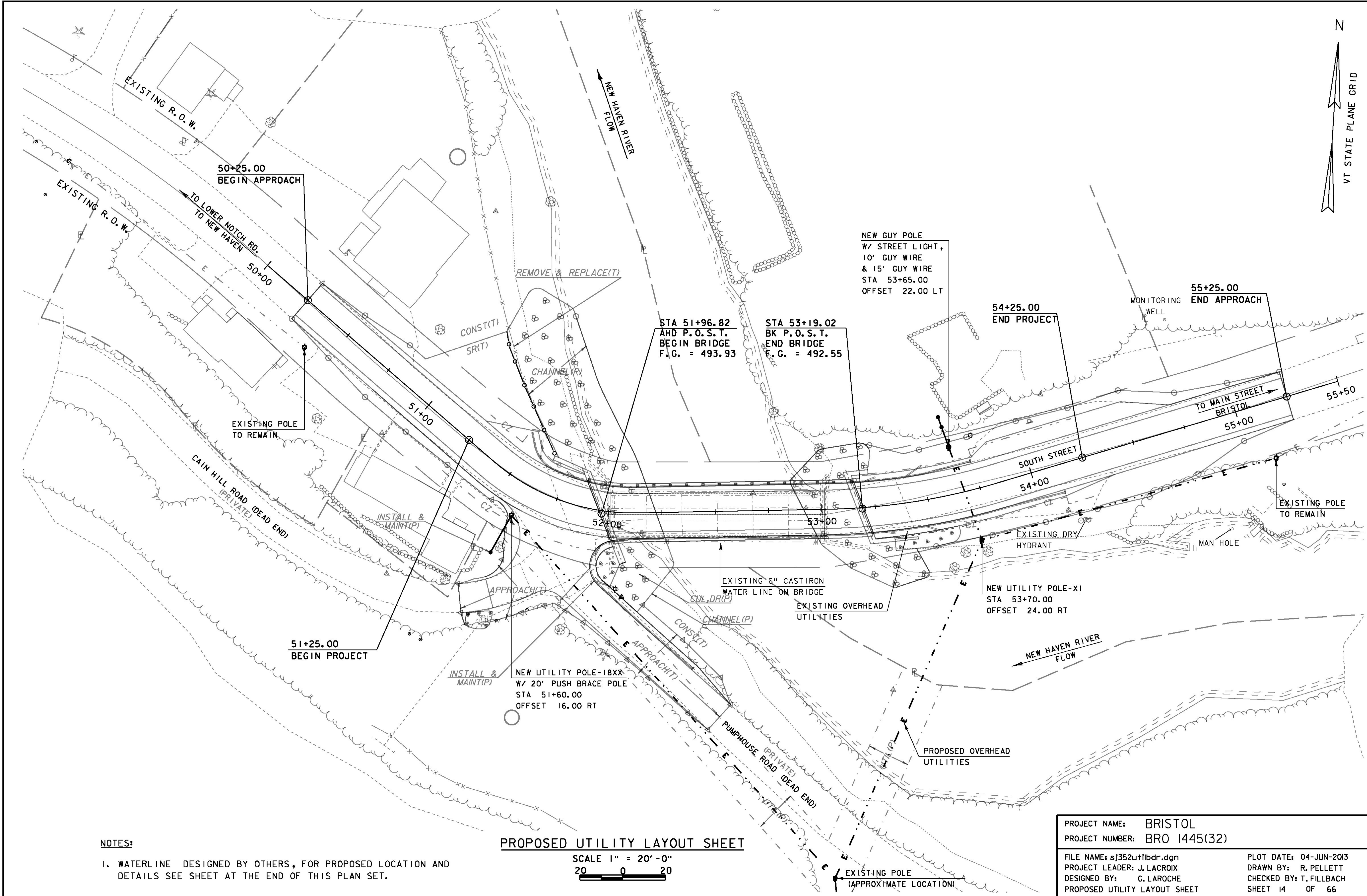
PUMPHOUSE ROAD PROFILE

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

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05j352pro.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: G. LAROCHE
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
SIDELINE PROFILES SHEET	SHEET 12 OF 66





NOTES:

I. WATERLINE DESIGNED BY OTHERS, FOR PROPOSED LOCATION AND DETAILS SEE SHEET AT THE END OF THIS PLAN SET.

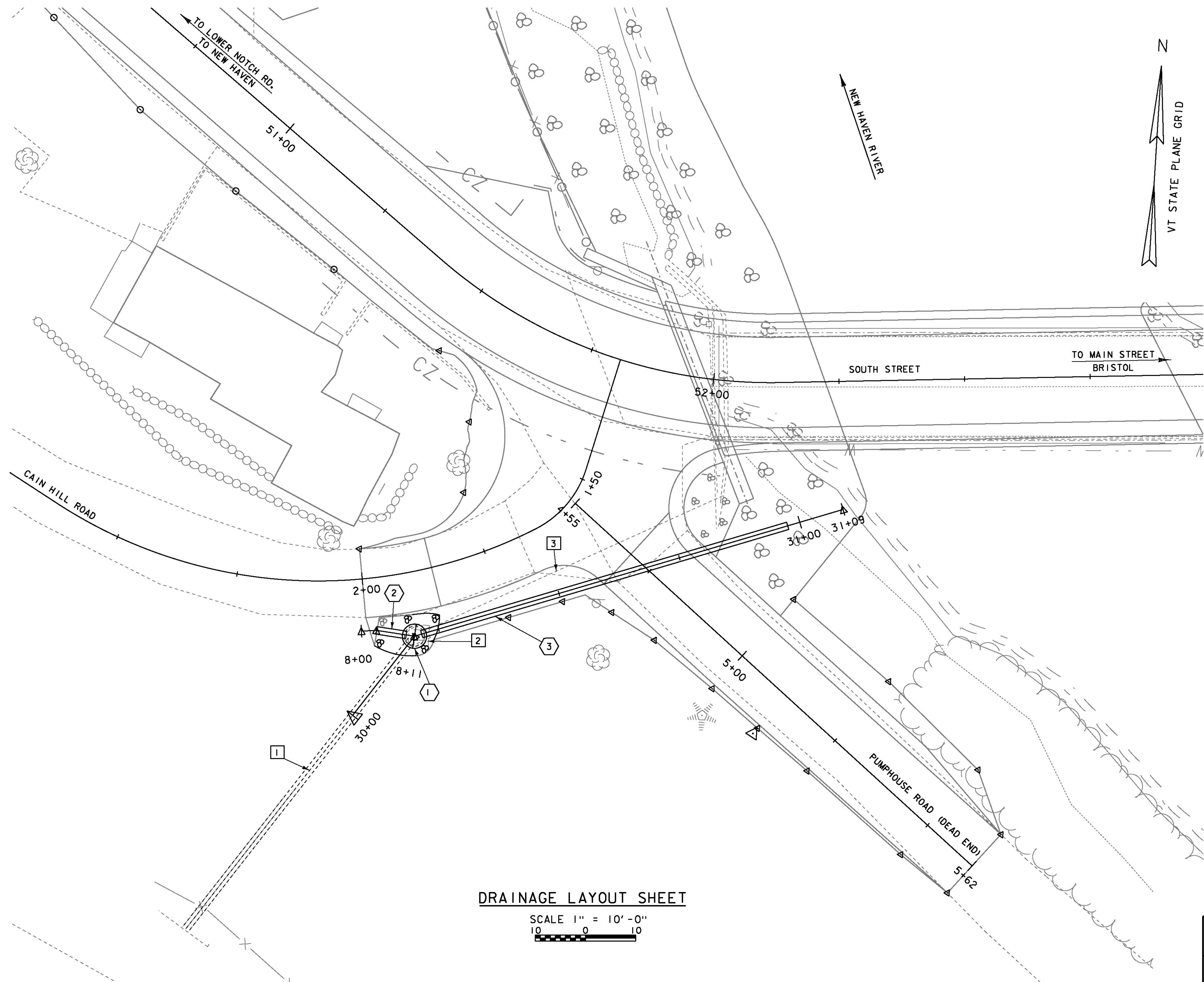
PROPOSED UTILITY LAYOUT SHEET

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

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: sj352ut1bdr.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
PROPOSED UTILITY LAYOUT SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: T. FILLBACH
SHEET 14 OF 66



- 1 EXISTING 18" ACCGMP CULVERT (DO NOT REMOVE
PLACE PIPE AS INDICATED INTO STUCTURE)
- 2 REMOVE EXISTING DROP INLET
STA. 30+20.90
CAIN HILL STA. 1+90.97 OFFSET 12'-8" LT
- 3 REMOVE EXISTING 18" ACCGMP CULVERT
STA. 1+44.80 TO 1+90.63 LT
LENGTH = 66'-93"
- 1 NEW PRECAST REINFORCED CONCRETE DROP INLET
WITH CAST IRON COVER W/FRAME.
STA. 30+20.00
CAIN HILL STA. 1+91.76 OFFSET 12'-8"
- 2 PROPOSED 18" PIPE OPTION
STA. 1+93.16 TO 1+98.32 LT (CAIN HILL)
STA. 8+02.98 TO 8+08.98
LENGTH 6'-0"
- 3 PROPOSED 18" PIPE OPTION
STA. 1+46.60 TO 1+90.45 LT (CAIN HILL)
STA. 30+21.49 TO 30+97.49
PIPE LENGTH 76'-0"

DRAINAGE LAYOUT SHEET

SCALE 1" = 10'-0"

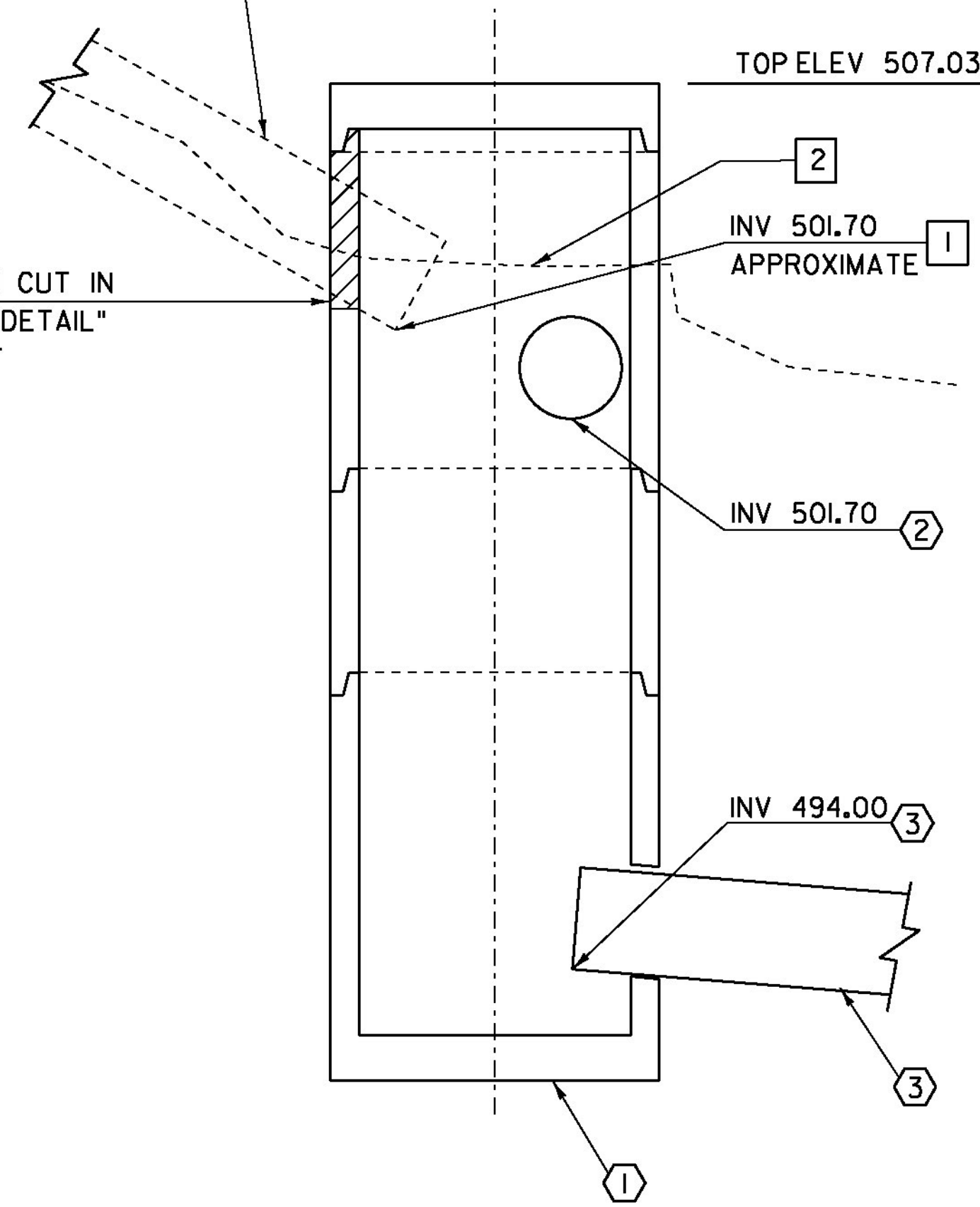
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445 (32)

FILE NAME: s05j352drainage_l0sca.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
DRAINAGE LAYOUT SHEET

PLOT DATE: 04-JUN-2013
DRAWN BY: G. LAROCHE
CHECKED BY: J. SALVATORI
SHEET 15 OF 66

PLACE EXISTING PIPE INTO
NEW DRAINAGE STRUCTURE

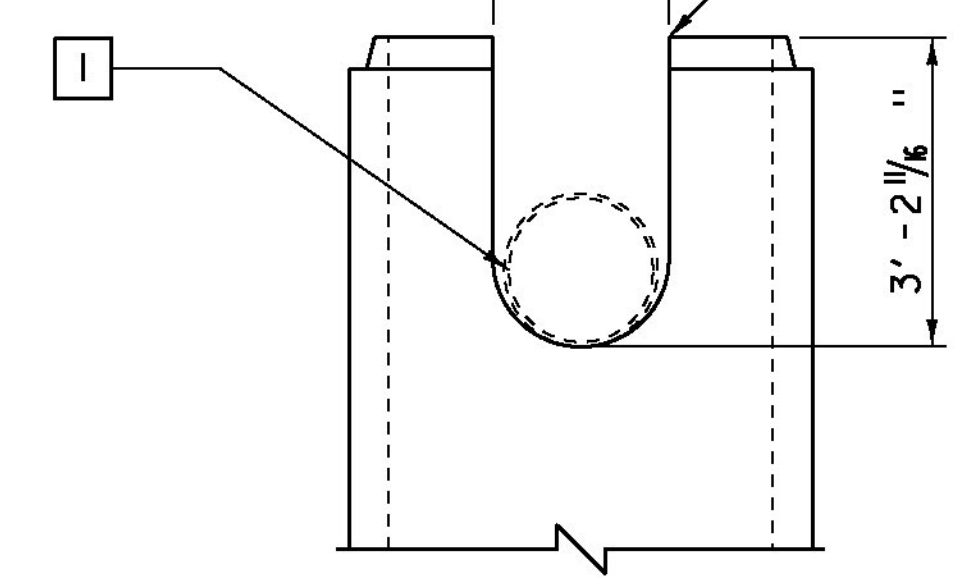
SEE "NOTCH CUT IN
STUCTURE DETAIL"
THIS SHEET



DRAINAGE STRUCTURE DETAIL

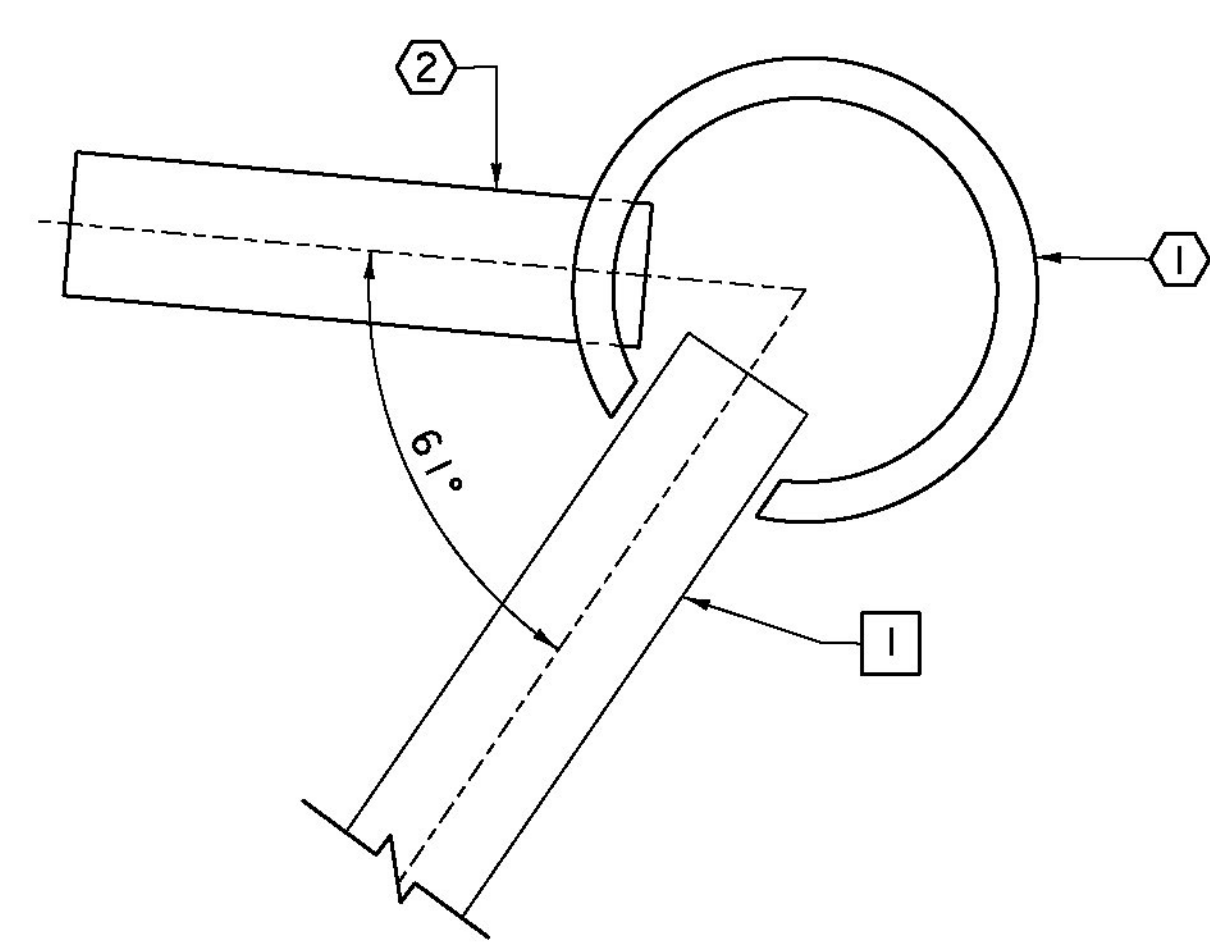
SCALE 1/2" = 1'-0"

1'-10"
VERIFY DIMENSION IS ADEQUATE FOR
PLACEMENT OF THE EXISTING ACCGMP.
SEE "NOTCH CUT PLAN"
THIS SHEET



NOTCH CUT IN STRUCTURE DETAIL

SCALE 1/2" = 1'-0"



NOTCH CUT PLAN

SCALE 1/2" = 1'-0"

1 EXISTING 18" ACCGMP CULVERT (DO NOT REMOVE
PLACE PIPE AS INDICATED INTO STUCTURE)

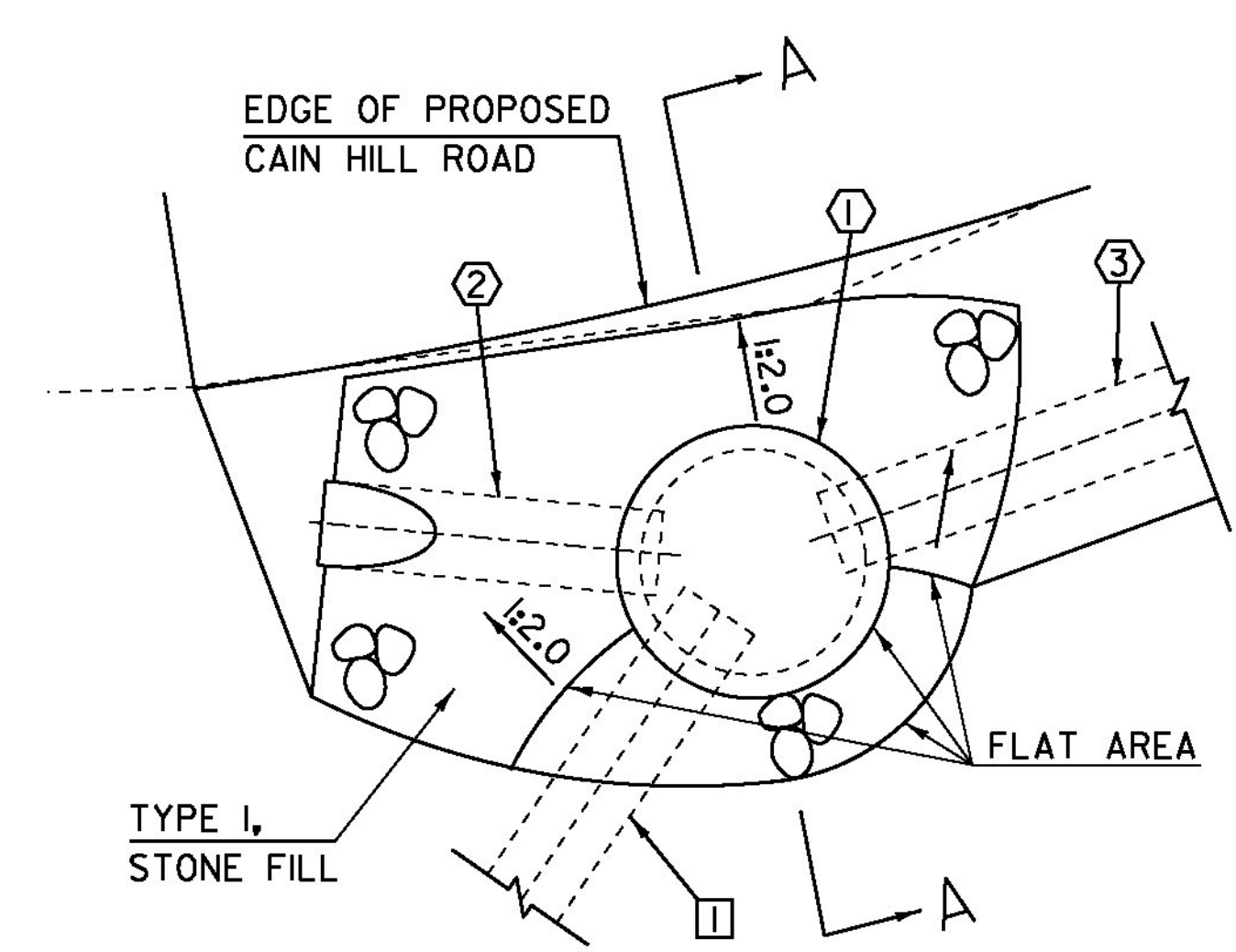
2 REMOVE EXISTING DROP INLET
STA. 30+20.90
CAIN HILL STA. 1+90.97 OFFSET 12'-8" LT

3 REMOVE EXISTING 18" ACCGMP CULVERT
STA. 1+44.80 TO 1+90.63 LT
LENGTH = 66'-93"

1 NEW PRECAST REINFORCED CONCRETE DROP INLET
WITH CAST IRON COVER W/FRAME.
STA. 30+20.00
CAIN HILL STA. 1+91.76 OFFSET 12'-8"

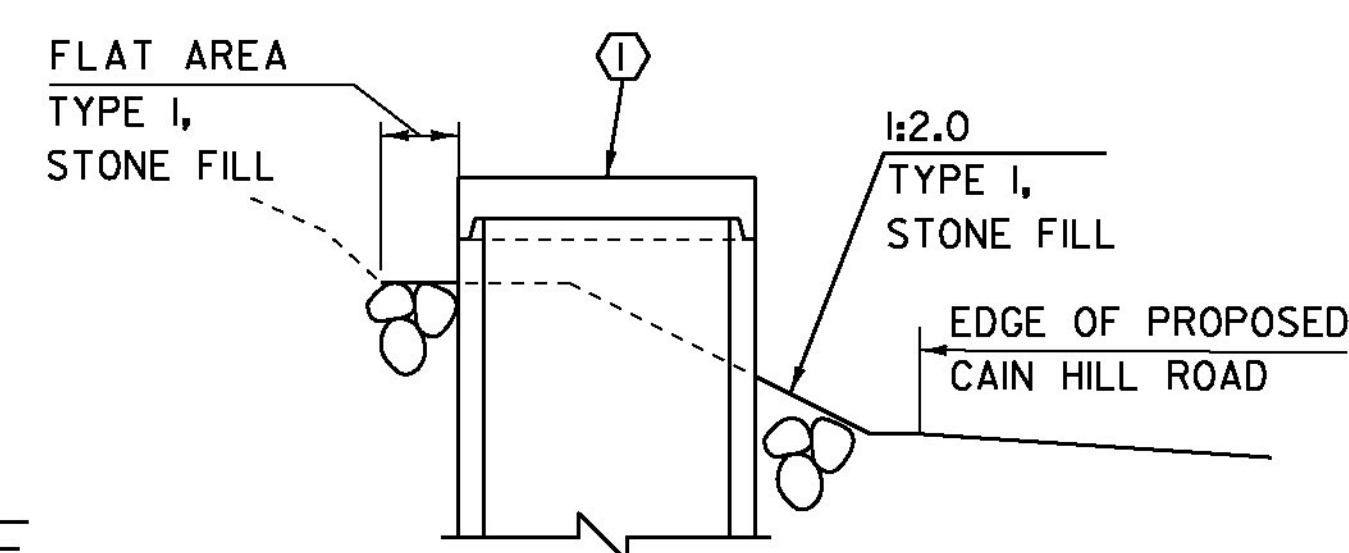
2 PROPOSED 18" PIPE OPTION
STA. 1+93.16 TO 1+98.32 LT (CAIN HILL)
STA. 8+02.98 TO 8+08.98
LENGTH 6'-0"

3 PROPOSED 18" PIPE OPTION
STA. 1+46.60 TO 1+90.45 LT (CAIN HILL)
STA. 30+21.49 TO 30+97.49
PIPE LENGTH 76'-0"



STONE FILL AROUND STRUCTURE

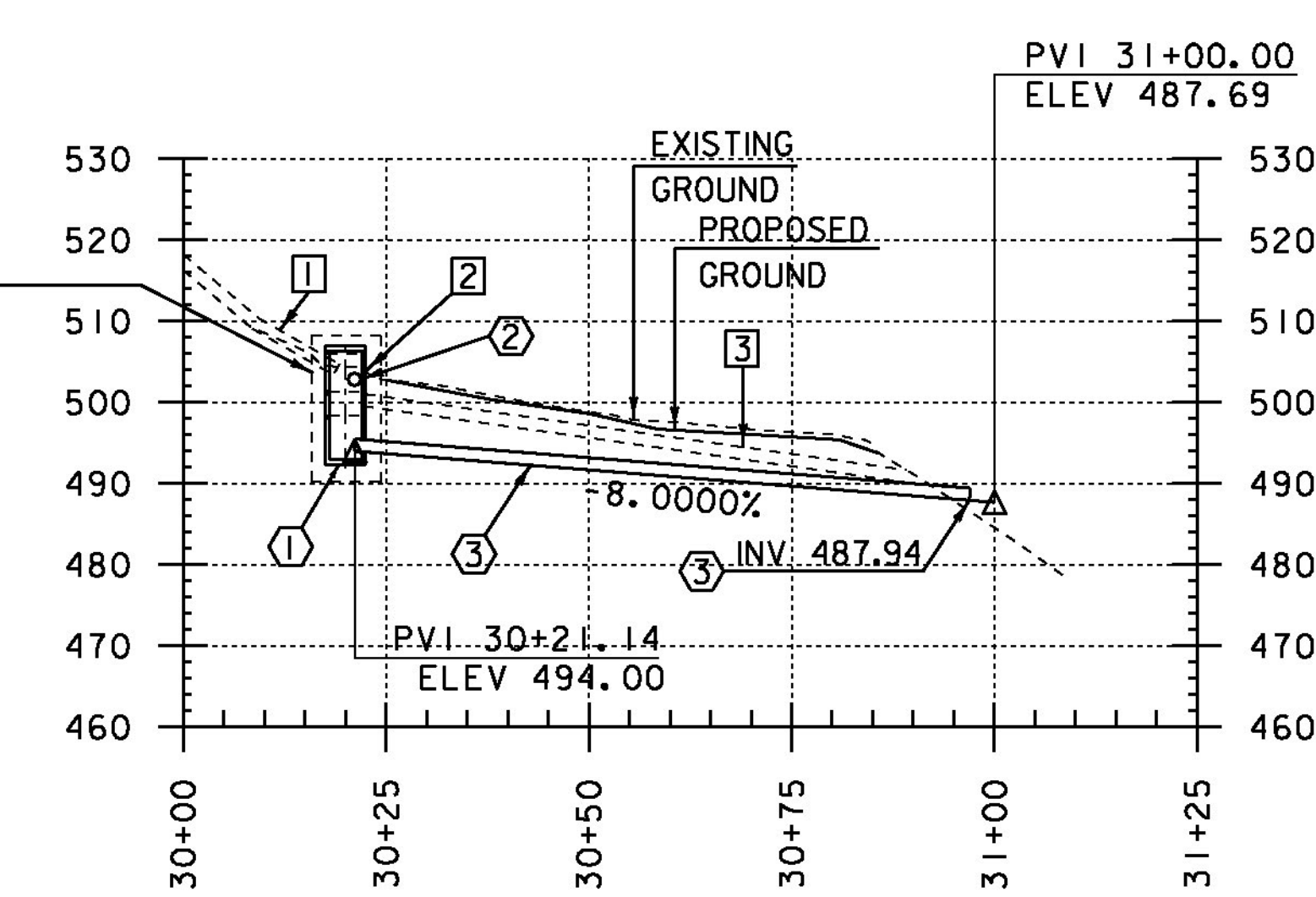
NTS



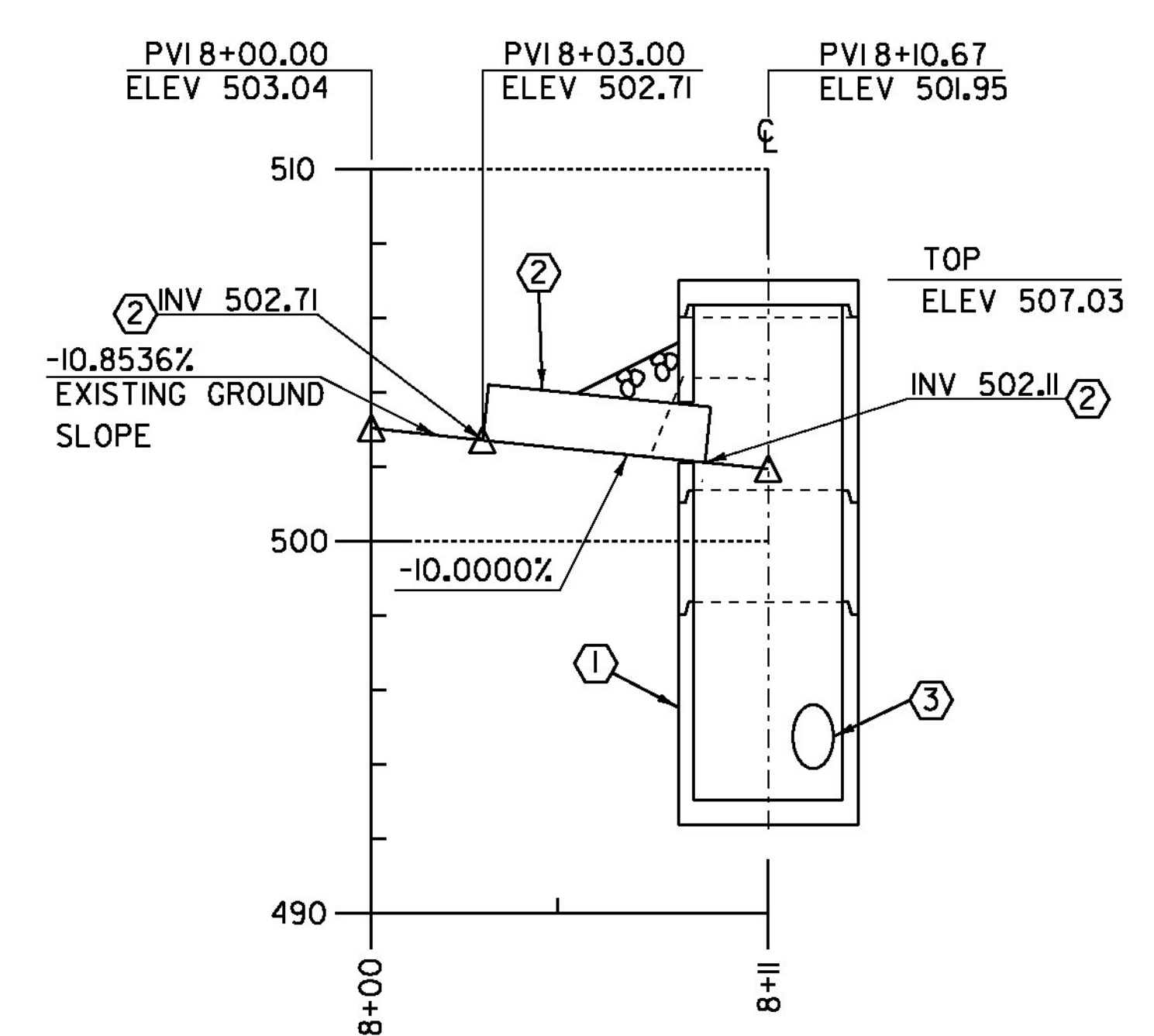
A-A

NTS

SEE "DRAINAGE STRUCTURE
DETAIL" THIS SHEET.



PIPE #3 PROFILE



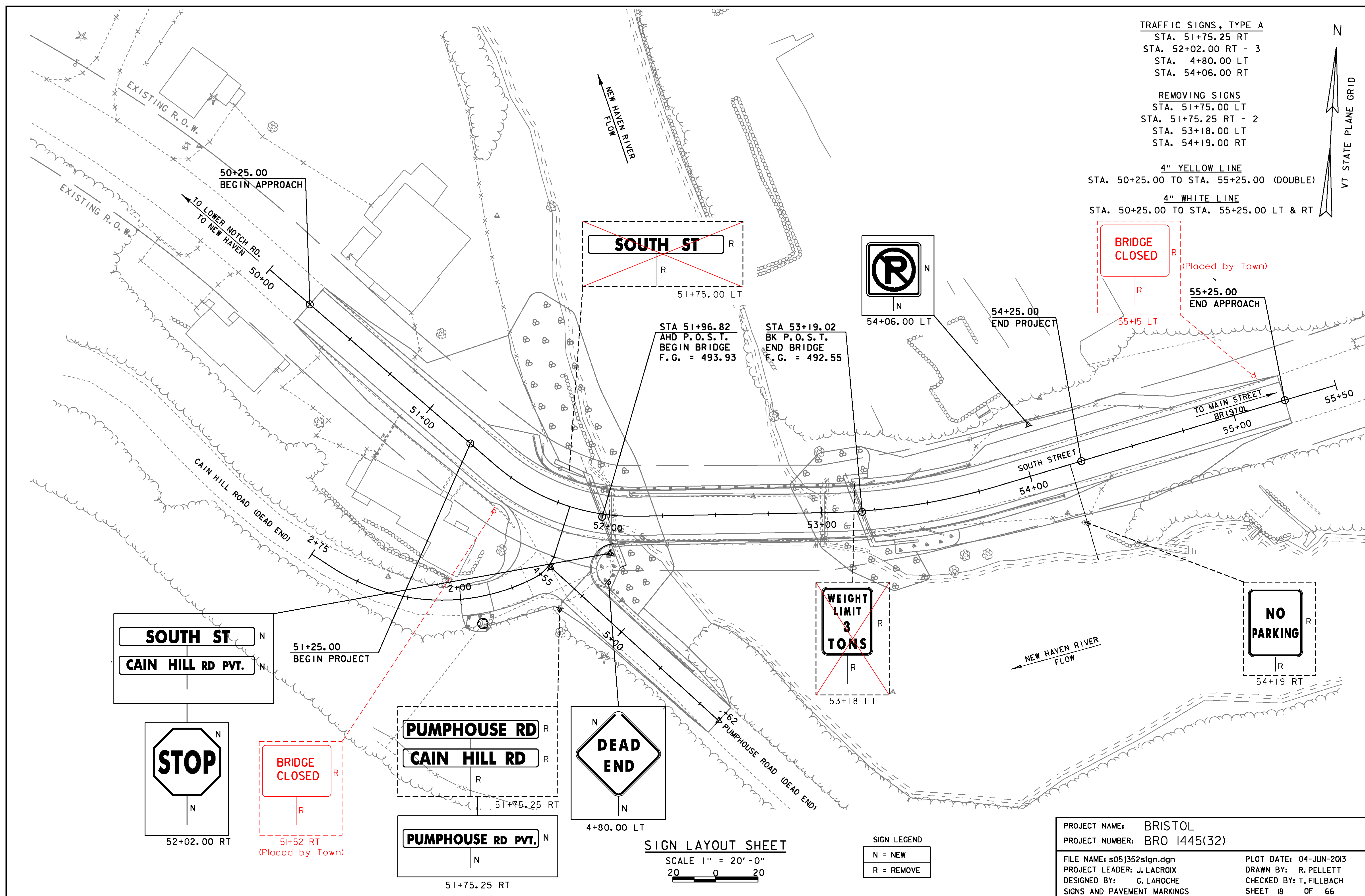
PIPE #2 PROFILE

SCALE 1/4" = 1'-0"

PROJECT NAME:	BRISTOL	PLOT DATE:	04-JUN-2013
PROJECT NUMBER:	BRO 1445(32)	DRAWN BY:	G. LAROCHE
FILE NAME:	s05j352drainage.dgn	CHECKED BY:	J. SALVATORI
PROJECT LEADER:	J. LACROIX	SHEET	16
DESIGNED BY:	G. LAROCHE	OF	66
DRAINAGE PROFILE SHEET			

DRAINAGE DETAIL SHEET

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s051352drainage.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: G. LAROCHE
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
DRAINAGE DETAIL SHEET	SHEET 17 OF 66



TRAFFIC SIGN SUMMARY SHEET

NOTE: STREET SIGNS SHALL BE IN CONFORMANCE WITH TOWN STANDARDS

36" 6" PUMPHOUSE RD PVT. 3" 4" TEXT HEIGHT

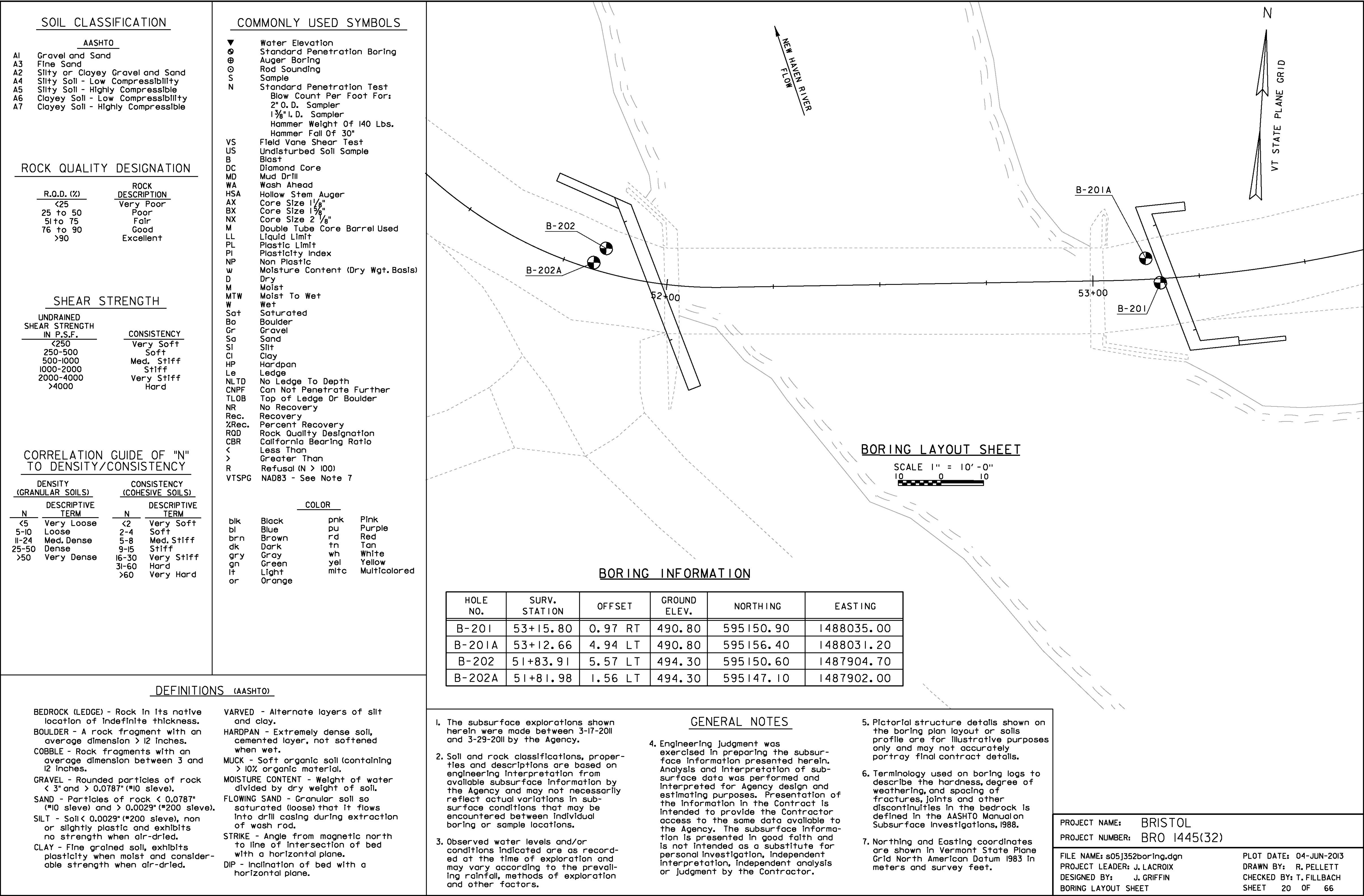
30" 6" SOUTH ST 3" 4" TEXT HEIGHT

36" 6" CAIN HILL RD PVT. 3" 4" TEXT HEIGHT

Diagram of a rectangular road sign with the following specifications:

- Overall width: 36"
- Overall height: 48"
- Text: "CAIN HILL RD PVT."
- Text height: 3"
- Text offset from bottom: 4"

FILE NAME: s05j352sign.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R.PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T.FILLBACH
TRAFFIC SIGN SUMMARY	SHEET 19 OF 66



South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-201									
PROJECT NUMBER: 22718.1000.32000									
Page 1 of 2									
LOCATION: Bristol, Vermont									
CLIENT: VTrans									
CONTRACTOR: New Hampshire Boring, Inc.									
DRILLER: B. Thompson									
INSPECTOR: K. Owens									
START DATE and TIME: 3/17/2011 9:25:00 AM									
FINISH DATE and TIME: 3/17/2011 5:00:00 PM									
SURFACE ELEV: 490.80 (ft; Estimated)									
CHECKED BY: K. Adnams									
DRILL FLUID: Water @ 0'									
DRILLING METHOD: 5" FJC									
DATE: 3-17-11									
TIME: 5:00 PM									
READING TYPE: Casing Pulled									
WATER DEPTH (ft): None									
CASING BOTTOM (ft): N/A									
HOLE BOTTOM (ft): 24									
WATER LEVEL OBSERVATIONS									
SAMP./CORE NUMBER									
SAMP. ADV. LEN. (ft)									
RECOVERY (ft)									
Blows Per 6" on Split Spoon Sampler									
"N" Value or RDX SAMPLE									
DEPTH (ft)									
GRAPHICS									
DESCRIPTION AND CLASSIFICATION									
ELEVATION (ft)									
Remarks on Character of Drilling, Water Return, etc.									
WATER LEVELS AND/OR WELL DATA									
ASPHALT									
Lab results are included for each sample. When insufficient sample mass was recovered for testing the description of the sample was based on field observations and denoted with " * * * ".									
Groundwater conditions observed during drilling may not represent static conditions.									
Roller bit through asphalt 0-0.5'.									
Void observed under the asphalt 0.5'-1.0'.									
**(SS-1) Gravel: 63.3%, Sand: 30.1%, Fines: 6.5%.									
(SS-2) Gravel: 33.4%, Sand: 58.9%, Fines: 7.7%.									
**(SS-3) Gravel: 51.6%, Sand: 43.0%, Fines: 7.7%.									
f.m.c. SAND, little f.c. gravel, trace silt, brown, medium compact, wet (FILL)									
f.m.c. SAND, Some f.c. gravel, trace silt, brown, medium compact, moist (FILL)									
f.m.c. SAND, Some f.c. gravel, trace silt, brown, loose, moist (FILL)									
f.m.c. SAND, trace silt, trace f. gravel, brown, medium compact, wet (SP)									
f.m.c. SAND, Some silt, trace c. gravel, trace organics/coal, loose, wet (FILL)									
Roller bit grinding 13.5'-15.5'.									
**Gravel: 37.7%, Sand: 29.9%, Fines: 32.3%.									
**Gravel: 34.6%, Sand: 56.6%, Fines: 8.8%.									
f.c. GRAVEL, Some f.m.c. Sand, little silt, brown, very compact, wet (GP)									
**Gravel: 67.1%, Sand: 23.2%, Fines: 9.7%.									
Drill rig bouncing while advancing roller bit 21.0'-23.0'.									
Casing and roller bit refusal at 24.0'. Cuttings from roller bit wash contain metal fragments, pull casing and roller bit to identify source. Boring terminated due to roller bit fragments remaining in the hole.									
B-201 offset to B-201A.									
Borings made with a CME 550X ATV drill rig.									
Hammer Energy Correction Factor CE = 1.3									
Coordinates: N 595150.9 ft, E 1488035.0 ft									

BOTTOM OF PILE CAP
ELEV. 479.00

SUBSURFACE LOG: BRIDGE REPLACEMENT LOGS.GPJ UPDATED: 8/9/11

South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-201									
PROJECT NUMBER: 22718.1000.32000									
Page 2 of 2									
SAMP./CORE NUMBER									
SAMP. ADV. LEN. (ft)									
RECOVERY (ft)									
Blows Per 6" on Split Spoon Sampler									
"N" Value or RDX SAMPLE									
DEPTH (ft)									
GRAPHICS									
DESCRIPTION AND CLASSIFICATION									
ELEVATION (ft)									
Remarks on Character of Drilling, Water Return, etc.									
WATER LEVELS AND/OR WELL DATA									
f.c. GRAVEL, Some f.m.c. Sand, little silt, brown, very compact, wet (GP)									
**Gravel: 67.1%, Sand: 23.2%, Fines: 9.7%.									
Drill rig bouncing while advancing roller bit 21.0'-23.0'.									
Casing and roller bit refusal at 24.0'. Cuttings from roller bit wash contain metal fragments, pull casing and roller bit to identify source. Boring terminated due to roller bit fragments remaining in the hole.									
B-201 offset to B-201A.									
Borings made with a CME 550X ATV drill rig.									
Hammer Energy Correction Factor CE = 1.3									
Coordinates: N 595150.9 ft, E 1488035.0 ft									

SUBSURFACE LOG: BRIDGE REPLACEMENT LOGS.GPJ UPDATED: 8/9/11

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05J352Boring_logs.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
BORING LOG SHEET *I

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: T. FILLBACH
SHEET 21 OF 66

BOTTOM OF PILE CAP
ELEV. 479.00

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATERCHAG.DOT 8/9/11

PROJECT NUMBER: 22718.1000.32000					South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-201A						
LOCATION: Bristol, Vermont					DRILL FLUID: Water @ 0'			DRILLING METHOD: 4" FJC			
CLIENT: VTrans					WATER LEVEL OBSERVATIONS	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
CONTRACTOR: New Hampshire Boring, Inc.						3-21-11	9:45 AM	Start of Day	24.4	27.5	27.5
DRILLER: B. Thompson			INSPECTOR: K. Owens			3-22-11	4:45 PM	Casing Pulled	None	N/A	22
START DATE and TIME: 3/18/2011 8:00:00 AM											
FINISH DATE and TIME: 3/22/2011 5:00:00 PM											
SURFACE ELEV: 490.80 (ft; Estimated)					CHECKED BY: K. Adnams						
SAMP./CORE NUMBER	SAMP. ADV. LEN. CORE (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD SAMPLE	DEPTH (feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA	
					2			490	B-201A offset from B-201 due to roller bit fragments remaining in B-201. Advance roller bit and casing to 25'.		
								488			
					4						
								486	Lab results are included for each sample. When insufficient sample mass was recovered for testing the description of the sample was based on field observations and denoted with " ".		
					6			484			
					8			482			
					10			480			
					12						
								478			
					14						
					16			476	Roller bit grinding 15.0'-17.0'.		
								474			
					18						
								472	Roller bit grinding 19.0'-19.3'. Roller bit grinding		

PROJECT NUMBER: 22718.1000.32000						South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-201A				
						Page 2 of 3				
SAMP./CORE NUMBER	SAMP. ADV. LEN. (ft)	RECOVERY (%)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD SAMPLE	DEPTH (feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
					22		(continued)	470	19.6'-20.3'.	
					24			468		
SS-1	2	0.4	9-11-24-12	35	26		f. SAND. Some Silt, little f.c. gravel, trace m.c. sand, light brown/gray, compact, moist (SM)	466	Groundwater observations made during drilling may not represent static conditions. **Gravel: 23.7%, Sand: 54.4%, Fines: 21.9%.	
					28			464	Roller bit grinding 27.0'-29.3'.	
					30			462		
SS-2	2	0.3	16-22-21-23	43	32		f.m.c. SAND, little silt, little f. gravel, brown, compact, wet (SM)	460	**Gravel: 44.5%, Sand: 39.5%, Fines: 16.0%.	
					34			458	End of 3/18/11 at 32.0'.	
SS-3	2	0.1	1-1-1-1-10	2	36		f.c. GRAVEL, trace silt, trace f.m.c. sand, brown/red, very loose, wet (GP)	456	Due to small recovery of sample SS-3 and high gravel content of sample, the 3" spoon was advanced after SS to obtain sample to determine in-situ material. **Gravel: 91.9%, Sand 3.9%, Fines: 4.2%.	
					38			454		
					40		No recovery	452		
SS-4	0.8	0	40-100/4"	R	42			450	Coarse gravel blocking shoe of sample SS-4. The 3" spoon was advanced after SS to obtain sample but no material was recovered. Hard roller bit 40.0'-41.0'. 4" FJC casing will not advance past 41.0'. Install 3" FJC casing.	
					44			448		

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05J352Boring_logs.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
BORING LOG SHEET *2

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 22 OF 66

PROJECT NUMBER: 22718.1000.32000						South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-201A				Page 3 of 3					
SAMP./CORE NUMBER	SAMP. ADV. LEN. (ft)	RECOVERY (%)	Blows Per 6" on Split Spoon Sampler	"N" Value or RDNX SAMPLE	DEPTH (feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA					
SS-5	2	0.5	14-14-15-19	29	46		f.c. GRAVEL, little silt, little f.m.c. sand, light brown, medium compact, wet (GP)	446	**Gravel: 72.2%, Sand: 16.3%, Fines: 11.5%.						
					48			444							
					48			442							
SS-6	1.2	0.3	23-39-50/2"	R	50		f.c. GRAVEL, little f.m.c. sand, trace silt, gray, very compact, wet (GP)	440	**Gravel: 71.9%, Sand: 20.1%, Fines: 8.0%. Roller bit and casing grinding 51.0'-52.0'. End of 3/21/11 at 51.2'.						
					52			438							
					54			436							
SS-7	0.2	0	50/2"	R	56		No recovery	436	Split spoon bouncing during blows. Roller bit grinding 55.0'-56.0'. 3" FJC did not advance past 55.5', drillers believe spin shoe to be stripped.						
					56			434							
					56			434							
SS-8	2	0	18-14-21-32	35	58		No recovery	432							
					58			432							
					58			432							
SS-9	1.1	0.5	28-62-50/1"	R	60		f.c. GRAVEL, Some f.m.c. SAND, little silt, light brown, very compact, wet (GP)	430	**Gravel: 56.0%, Sand: 26.8%, Fines: 17.2%.						
					62			428							
					62			428							
					End of Boring at 61.1 ft								Boring terminated due to casing refusal. High sand and gravel content did not allow for open hole roller bit and sampling past 60.0'.		
					64		426	Borings made with a CME 550X ATV drill rig. Hammer Energy Correction Factor CE = 1.3 Coordinates: N 595156.4 ft, E 1488031.2 ft							
					66		424								
68															

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05J352Boring_logs.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
BORING LOG SHEET *3	SHEET 23 OF 66

BOTTOM OF PILE CAP
ELEV. 479.00

SUBSURFACE LOG BRIDGE REPLACEMENT LOGS.GPJ UPDATEDCHA.GDT 8/9/11

FILE NAME: s05j352Boring_logs.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLET
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
BORING LOG SHEET *4	SHEET 24 OF 66

PROJECT NUMBER: 22718.1000.32000						South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-202					Page 3 of 3	
SAMP./CORE NUMBER	SAMP. ADV. LEN. (ft)	RECOVERY (ft)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD% SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA		
SS-11	0.9	0.2	20-50/5"	R	46		f.m.c. SAND, little f.c. gravel, trace silt, light brown/gray, very compact, moist (SP)	448	**Gravel: 59.7%, Sand: 25.3%, Fines: 15.0%. Roller bit grinding 45.5'-46.0'.			
					48				446			
					50					End of 3/23/11 at 50.0'. Install 4" FJC at 50.0'.		
					52				444	**Gravel: 70.7%, Sand: 21.3%, Fines: 8.0%.		
SS-12	2	0.6	15-12-13-16	25	52		f.m.c. SAND, Some f.c. gravel, trace silt, brown, medium compact, wet (SP)	442				
					54				440			
					56				438	Spoon bouncing during blows of sample SS-13. Roller bit grinding 55.5'-56.5'.		
					58				436			
SS-13	0.8	0	6-70/3"	R	56		No recovery	438				
					58				436			
					60				434	**Gravel: 69.2%, Sand: 23.7%, Fines: 6.0%.		
					62				432	Drill rig bouncing and roller bit wash recovering metal shavings at 65.0'. Driller suspected the casing was bent around likely boulder at 55.5'. Casing and roller bit removed to confirm. One length of casing not recovered from boring. B-202 terminated and offset to B-202A.		
SS-14	2	1	9-7-13-16	20	62		f.m.c. SAND, Some f.c. Gravel, little silt, brown, medium compact, wet (SM)	434				
					64				430			
					66			End of Boring at 65 ft	428	Borings made with a CME 550X ATV drill rig. Hammer Energy Correction Factor CE = 1.3 Coordinates: N 595150.6 ft, E 1487904.7 ft		
					68				426			

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05J352Boring_logs.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
BORING LOG SHEET *5	SHEET 25 OF 66

BOTTOM OF PILE CAP
ELEV. 479.00

SUBSURFACE LOG: BRIDGE REPLACEMENT LOGS.RPJ UPDATED: 8/9/11

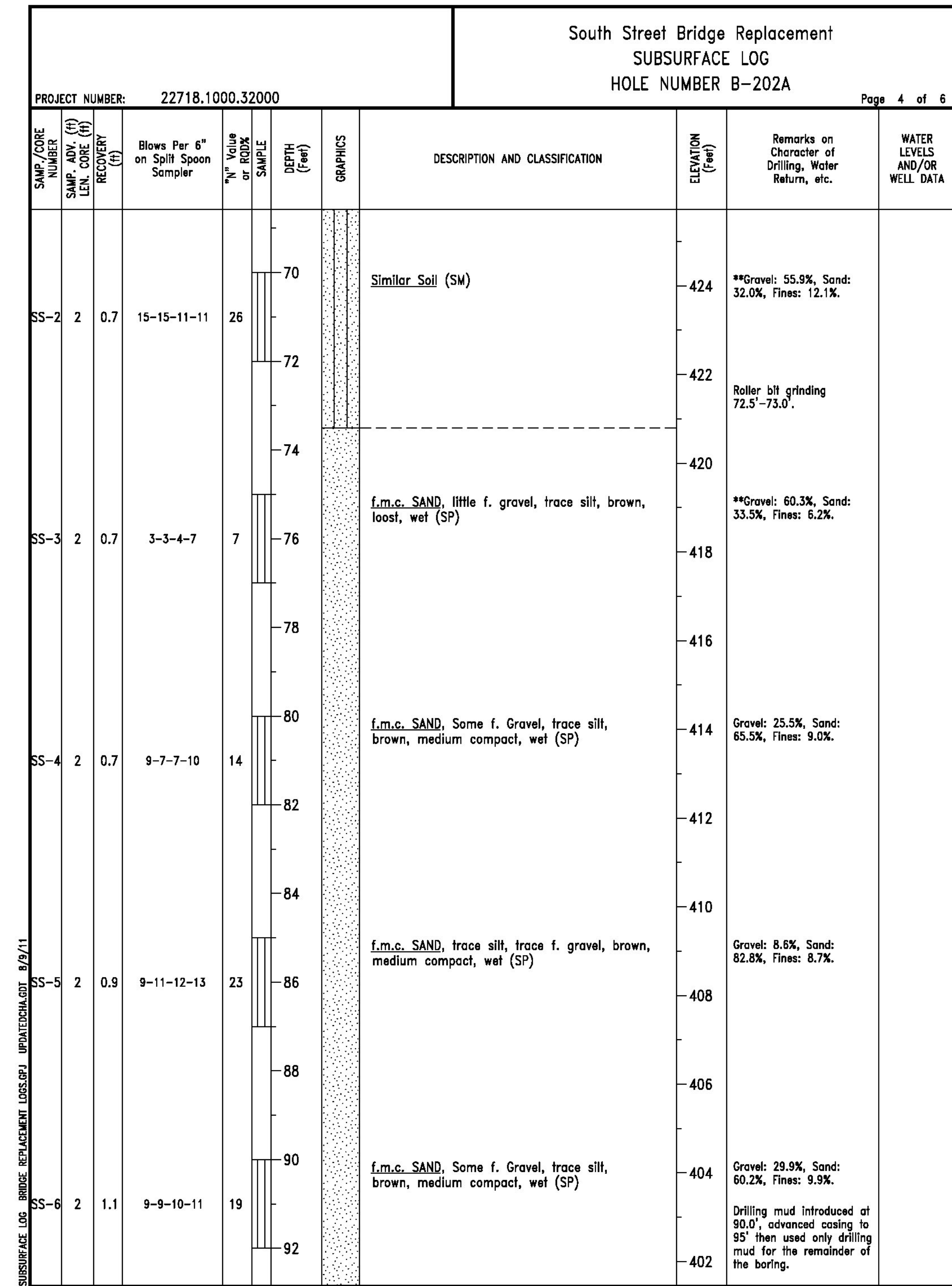
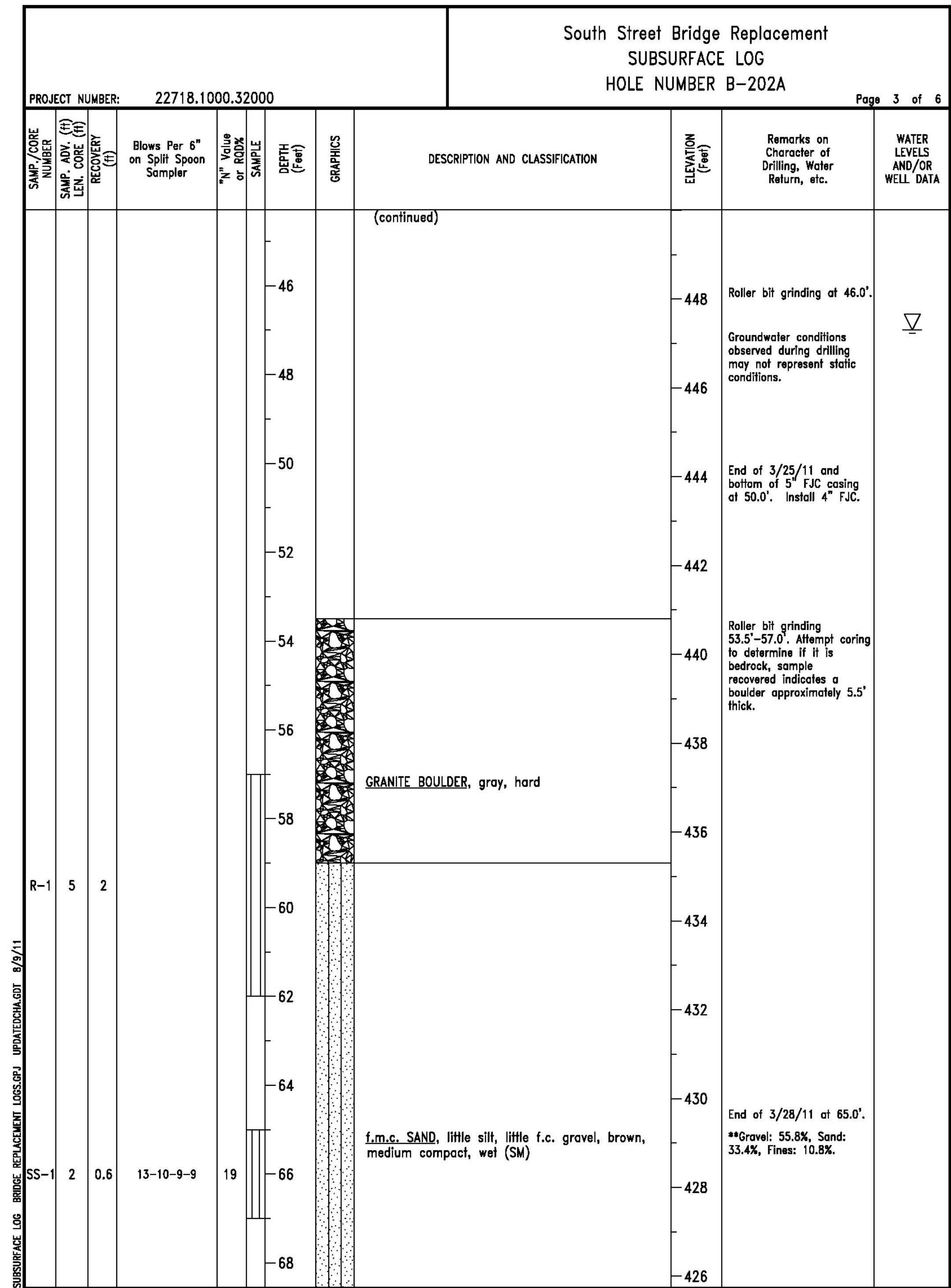
										South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-202A						
PROJECT NUMBER: 22718.1000.32000										Page 1 of 6						
LOCATION: Bristol, Vermont										DRILL FLUID: Water @ 0'		DRILLING METHOD: 5" FJC				
CLIENT: VTrans										WATER LEVEL OBSERVATIONS	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
CONTRACTOR: New Hampshire Boring, Inc.											3-28-11	10:00 AM	Start of Day	47	50	49
DRILLER: B. Thompson											INSPECTOR: K. Owens					
START DATE and TIME: 3/24/2011 3:00:00 PM																
FINISH DATE and TIME: 3/29/2011 3:00:00 PM																
SURFACE ELEV: 494.30 (ft; Estimated)										CHECKED BY: K. Adnams						
SAMP./CORE NUMBER	SAMP. ADV. LEN. (ft)	RECOVERY (%)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD %	SAMPLE	DEPTH (feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA					
									494	B-202A offset from B-202 due to broken casing remaining in the hole.						
						2			492	Roller bit through pavement 0'-0.5'.						
						4			490							
						6			488	Lab results are included for each sample and when Insufficient sample was recovered for testing the description of the sample was based on field observations and denoted with "**".						
						8			486							
						10			484							
						12			482							
						14			480							
						16			478							
						18			476							

										South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-202A						
PROJECT NUMBER: 22718.1000.32000										Page 2 of 6						
SAMP./CORE NUMBER	SAMP. ADV. LEN. (ft)	RECOVERY (%)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD %	SAMPLE	DEPTH (feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA					
						22		(continued)	474							
						24			472							
						26			470	Roller bit grinding at 25.0'.						
						28			468							
						30			466							
						32			464	Roller bit grinding at 30.0'.						
						34			462							
						36			460							
						38			458							
						40			456							
						42			454							
						44			452							

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352Boring_logs.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
BORING LOG SHEET *6

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 26 OF 66



ESTIMATED PILE TIP
ELEV. 379.00

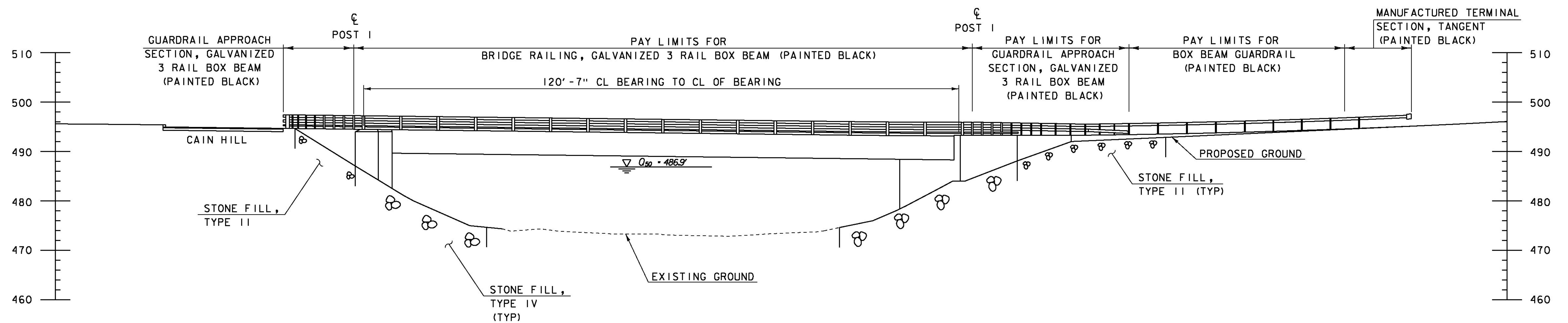
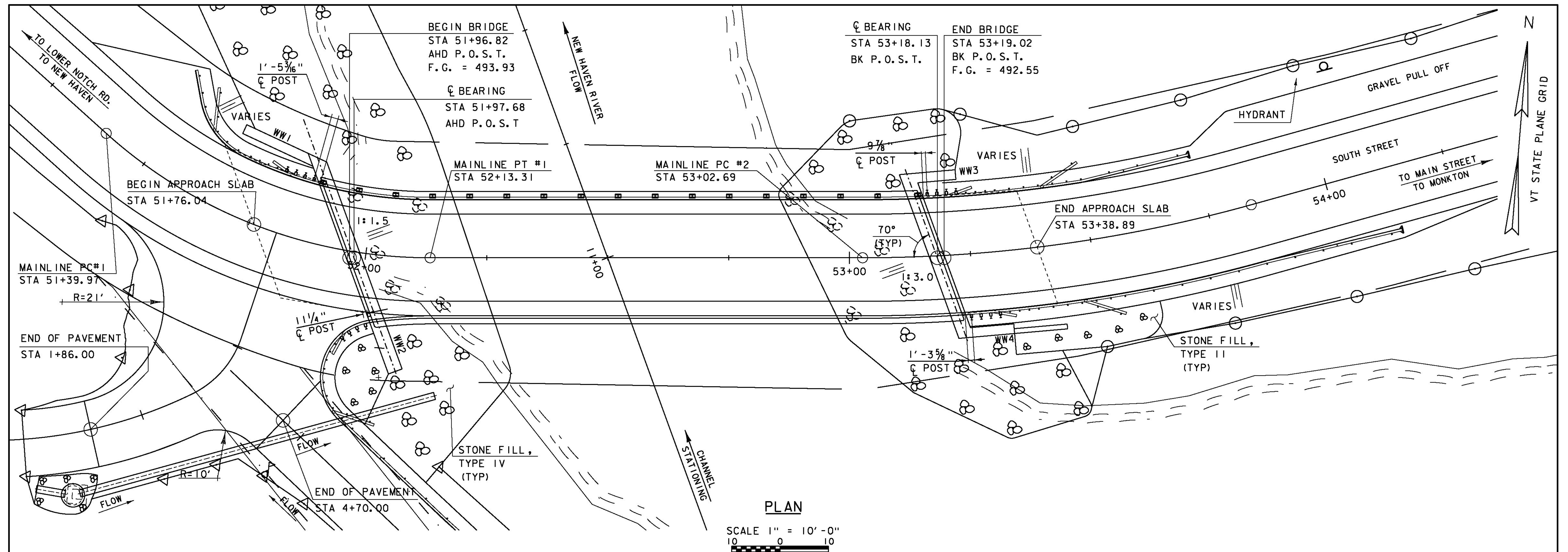
PROJECT NUMBER: 22718.1000.32000						South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-202A				Page 5 of 6	
SAMP. / CORE NUMBER	SAMP. ADV. LEN. CORE (ft)	RECOVERY (%)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD% SAMPLE	DEPTH (feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA	
SS-7	2	1.2	14-22-28-42	50	94		f.m.c. SAND, trace silt, trace f. gravel, brown, compact, wet (SP-TILL)	400	Roller bit resistance increased at 93.0'.		
					96			398	Gravel: 6.0%, Sand: 85.1%, Fines: 8.9%.		
					98			396			
SS-8	2	1.8	21-33-28-22	61	100		f.m.c. SAND, little silt, brown, very compact, wet (SM-TILL)	394	Gravel: 0.0%, Sand: 89.7%, Fines: 10.3%.		
					102			392			
					104			390			
SS-9	2	1.4	18-30-32-42	62	106		f.m. SAND, little silt, brown, very compact, wet (SM-TILL)	388			
					108			386			
					110			384	Gravel: 0.0%, Sand: 85.2%, Fines: 14.8%.		
					112			382			
					114			380	Drill rig chattering while advancing roller bit 114.0'-120.0' on probable gravel and cobbles.		
					116			378			

PROJECT NUMBER: 22718.1000.32000						South Street Bridge Replacement SUBSURFACE LOG HOLE NUMBER B-202A				Page 6 of 6	
SAMP. / CORE NUMBER	SAMP. ADV. LEN. (ft)	RECOVERY (%)	Blows Per 6" on Split Spoon Sampler	"N" Value or RQD% SAMPLE	DEPTH (feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA	
SS-10	1.3	1	24-34-50/3"	R	118		f.m.c. SAND, Some Silt, Some f. Gravel, brown, very compact, moist (SM-TILL)	376	Gravel: 20.5%, Sand: 44.9%, Fines: 34.6%. Borings made with a CME 550X ATV drill rig. Hammer Energy Correction Factor CE = 1.3 Coordinates: N 595147.1 ft, E 1487902.0 ft		
					120			374			
					122			372			
					124			370			
					126			368			
					128			366			
					130			364			
					132			362			
					134			360			
					136			358			
					138			356			
					140			354			

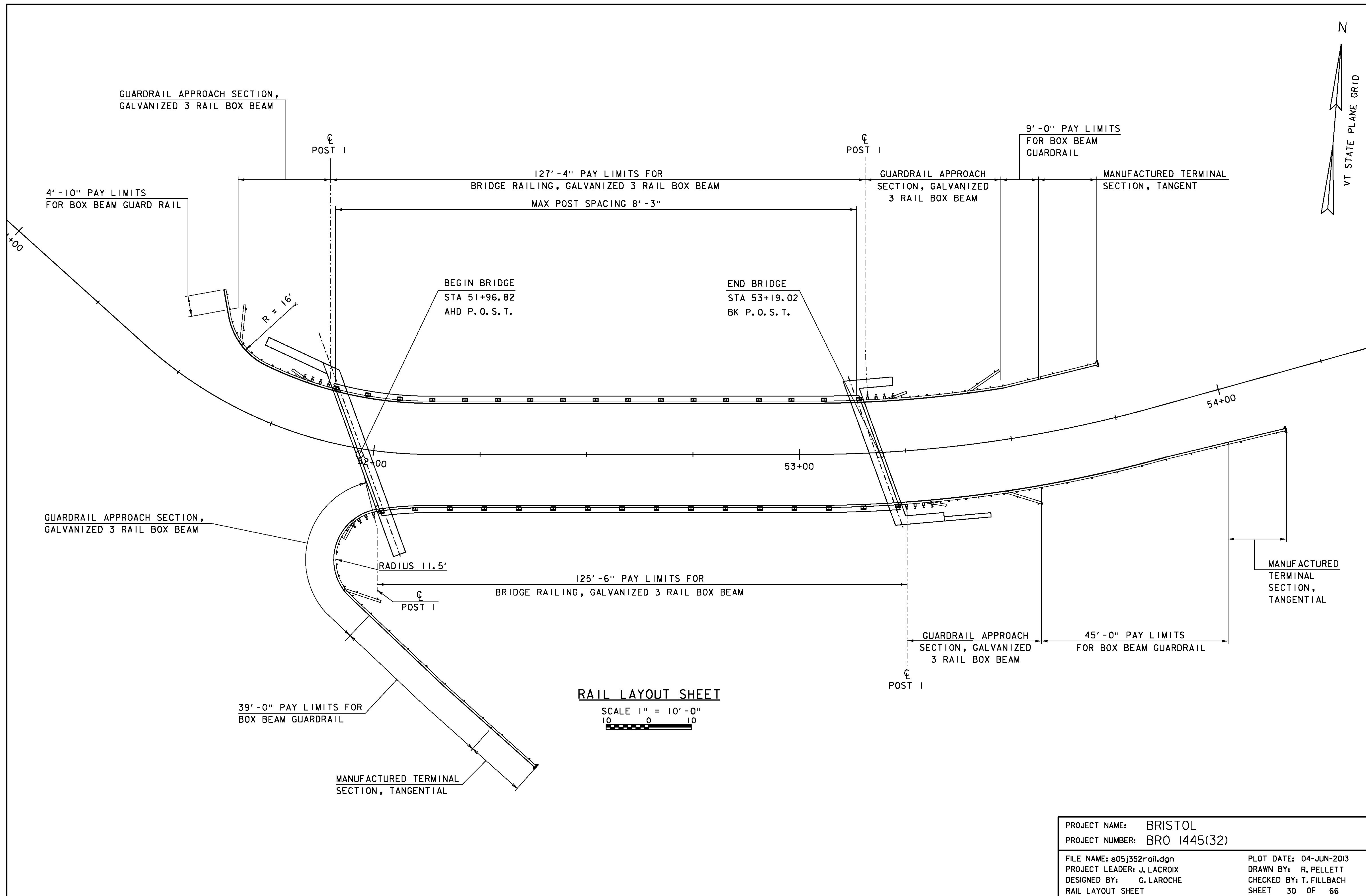
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05J352Boring_logs.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
BORING LOG SHEET *8

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLETT
CHECKED BY: T. FILLBACH
SHEET 28 OF 66



PROJECT NAME:	BRISTOL	FILE NAME:	s05j352pe.dgn	PLOT DATE:	04-JUN-2013
PROJECT NUMBER:	BRO 1445(32)	PROJECT LEADER:	J. LACROIX	DRAWN BY:	J. SALVATORI
		DESIGNED BY:	G. LAROCHE	CHECKED BY:	T. FILLBACH
		PLAN AND ELEVATION SHEET		SHEET 29	OF 66



GENERAL

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION’S STANDARD SPECIFICATION FOR CONSTRUCTION, DATED 2011 WITH ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2012 WITH INTERIMS.
- DESIGN FOR HL-93 LIVE LOADING WITH FUTURE 2 ½” WEARING SURFACE.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT UNLESS OTHERWISE NOTED.
- ITEM 529.15 REMOVAL OF STRUCTURE IS FOR THE COMPLETE REMOVAL OF THE EXISTING BRIDGE, INCLUDING COMPLETE REMOVAL OF THE EXISTING SUPERSTRUCTURE AND ALL PORTIONS OF THE EXISTING ABUTMENTS NOT REMOVED UNDER STRUCTURE EXCAVATION.
- 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.
- FOR INFORMATION REGARDING THE WATER MAIN CHANGES AND RELOCATIONS, REFER TO SPECIAL PROVISIONS AND CONSULTANT WATER MAIN DRAWINGS, INCLUDED IN THIS PLAN SET.
- ANY DAMAGE TO THE ROADWAY INCURRED DURING CONSTRUCTION OF THE TEMPORARY OR PERMANENT WATER MAIN SHALL BE REPAIRED TO THE ORIGINAL CONDITION. THIS WORK WILL BE INCIDENTAL TO THE CONTRACT ITEMS SPECIAL PROVISION (WATER MAIN ON BRIDGE)(8”) AND SPECIAL PROVISION (MAINTENANCE OF EXISTING FLOWS).
- THE DESIGN AND INSTALLATION OF THE TEMPORARY WATER MAIN SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DONE IN ACCORDANCE WITH THE PLANS AND SECTION 629. PAYMENT FOR THE TEMPORARY WATER MAIN TO BUILD A COMPLETE FUNCTIONAL SYSTEM TO THE SATISFACTION OF THE ENGINEER WILL BE PAID UNDER CONTRACT ITEM 900.645 SPECIAL PROVISION (MAINTENANCE OF EXISTING WATER FLOWS).
- THE DETAILS AND DIMENSIONS SHOWN ON THE PROJECT SPECIFIC PLAN AND DETAIL SHEETS TAKE PRECEDENCE OVER THE MORE GENERAL “STRUCTURES DETAIL SHEETS” PROVIDED AFTER THE PLAN SHEETS AS LISTED IN THE INDEX.
- ALL BRIDGE RAILING, APPROACH RAILING, AND GUARDRAIL SHALL BE PAINTED BLACK (COLOR CHIP #27038) EXCEPT HARDWARE AND ANCHORAGE CAST IN CONCRETE.
- NESTING SWALLOWS HAVE BEEN NOTED ON THE PROJECT SITE. THE CONTRACTOR SHALL WORK WITH THE VTRANS ENVIRONMENTAL BIOLOGIST IN ORDER TO DETERMINE AN ADEQUATE METHOD FOR SAFELY REMOVING ANY EXISTING NESTS.

TRAFFIC CONTROL

- CURRENTLY BRIDGE 31 ON SOUTH STREET IS CLOSED. DURING CONSTRUCTION, SOUTH STREET WILL REMAIN CLOSED TO THROUGH TRAFFIC UNTIL COMPLETION OF THE NEW STRUCTURE.
- FOR ADDITIONAL CONSTRUCTION SIGNING INSTRUCTIONS SEE E-100 SERIES STANDARDS AND THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.

EARTHWORK

- THE STONE FILL, TYPE IV SHALL BE PLACED IN FRONT OF THE ABUTMENTS BEFORE THE STRUCTURAL STEEL HAS BEEN SET.
- THE HEIGHT OF THE FILL BEHIND THE NEW ABUTMENTS SHALL BE LIMITED TO THE CONSTRUCTION JOINT ELEVATION UNTIL THE DECK HAS BEEN POURED AND CURED.
- BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN 2 FEET OF DIFFERENTIAL BACKFILL HEIGHT SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE ABUTMENT AND DECK CONSTRUCTION IS COMPLETE.

CONCRETE

- THE MINIMUM COVER FOR REINFORCING STEEL IN THE SUBSTRUCTURE SHALL BE TWO INCHES ALONG THE WALL FACES AND AGAINST EARTH, THREE INCHES ALONG SURFACES EXPOSED TO DEICING SALTS AND THREE INCHES ELSEWHERE UNLESS DETAILED OTHERWISE.
- REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
SPACING +/- 1”
CLEARANCE +/- ¼”

- ALL REINFORCING STEEL IN THE CONCRETE DECK AND INTEGRAL BACKWALL EXTENDING ABOVE THE BRIDGE SEAT SHALL BE LEVEL II CORROSION RESISTANCE. ALL OTHER REINFORCING STEEL SHALL BE LEVEL I CORROSION RESISTANCE. WHEN REINFORCING STEEL IS CUT, THE UNCOATED ENDS SHALL BE REPAIRED WITH MATERIALS AND PROCEDURES APPROVED BY THE COATING MANUFACTURER. FLAME CUTTING OF COATED REINFORCING STEEL WILL NOT BE PERMITTED.
- JOINTS AND SCORE MARKS IN THE CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP NOTCHES.
- THE CONCRETE IN THE WINGWALLS AND BACKWALLS ABOVE THE CONSTRUCTION JOINT ELEVATION SHALL BE POURED WITH THE DECK.
- THE TOP SURFACE OF THE PILE CAP SHALL INITIALLY BE GIVEN A FLOAT FINISH TO GRADE. THE CONCRETE WITHIN THE REINFORCING CAGE SHALL THEN BE ROUGHENED BY RAKING PARALLEL TO THE FACE OF THE ABUTMENT TO AN AMPLITUDE OF ½”. THE CONCRETE OUTSIDE THE REINFORCING CAGE AND UNDER THE BEARING PADS SHALL REMAIN SMOOTH.
- FOR THE BRIDGE DECK POURS, THE MAXIMUM TIME LIMIT FOR ANY COMBINATION OF POURS DONE IN ANY ONE DAY SHALL BE EIGHT HOURS. THERE SHALL BE A MINIMUM OF 96 HOURS BETWEEN THE COMPLETION OF ONE DAY’S POUR AND THE BEGINNING OF OTHER ADJACENT POURS. ALL INDIVIDUAL DECK POURS SHALL START FROM THE LOW END OF THE BRIDGE.
- ALL PORTIONS OF THE APPROACH SLABS AND SUBSTRUCTURE CONCRETE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS B UNLESS OTHERWISE NOTED AND SHALL BE PAID FOR UNDER ITEM 501.34, “CONCRETE, HIGH PERFORMANCE CLASS B”. ALL PORTIONS OF THE SUPERSTRUCTURE SHALL BE CONCRETE, HIGH PERFORMANCE CLASS A AND SHALL BE PAID FOR UNDER ITEM 501.33, “CONCRETE, HIGH PERFORMANCE CLASS A”.
- IN ACCORDANCE WITH SUBSECTION 506.23(A) AND AS DIRECTED BY THE RESIDENT ENGINEER, THE CONTRACTOR SHALL TAKE MEASURES NECESSARY TO PROTECT ALL SUBSTRUCTURE CONCRETE FROM STAINING DUE TO OXIDE FORMATION ON THE STRUCTURAL STEEL PRIOR TO PLACEMENT OF THE DECK. THESE MEASURES WILL NOT BE PAID FOR SEPARATELY BUT WILL BE CONSIDERED INCIDENTAL TO ITEM 501.34, “CONCRETE, HIGH PERFORMANCE CLASS B”. ANY SUCH STAINING THAT OCCURS PRIOR TO DECK PLACEMENT SHALL BE REMOVED AT NO ADDITIONAL COST TO THE STATE.

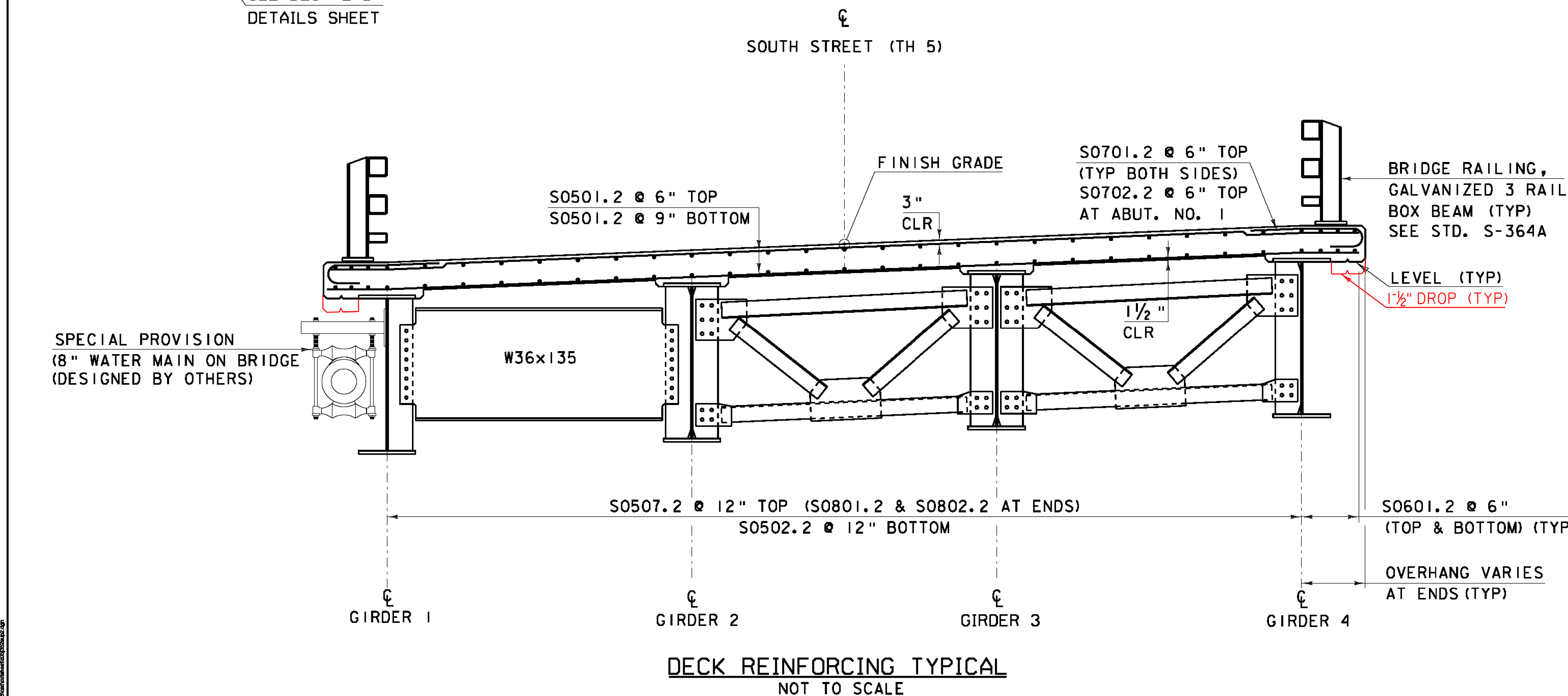
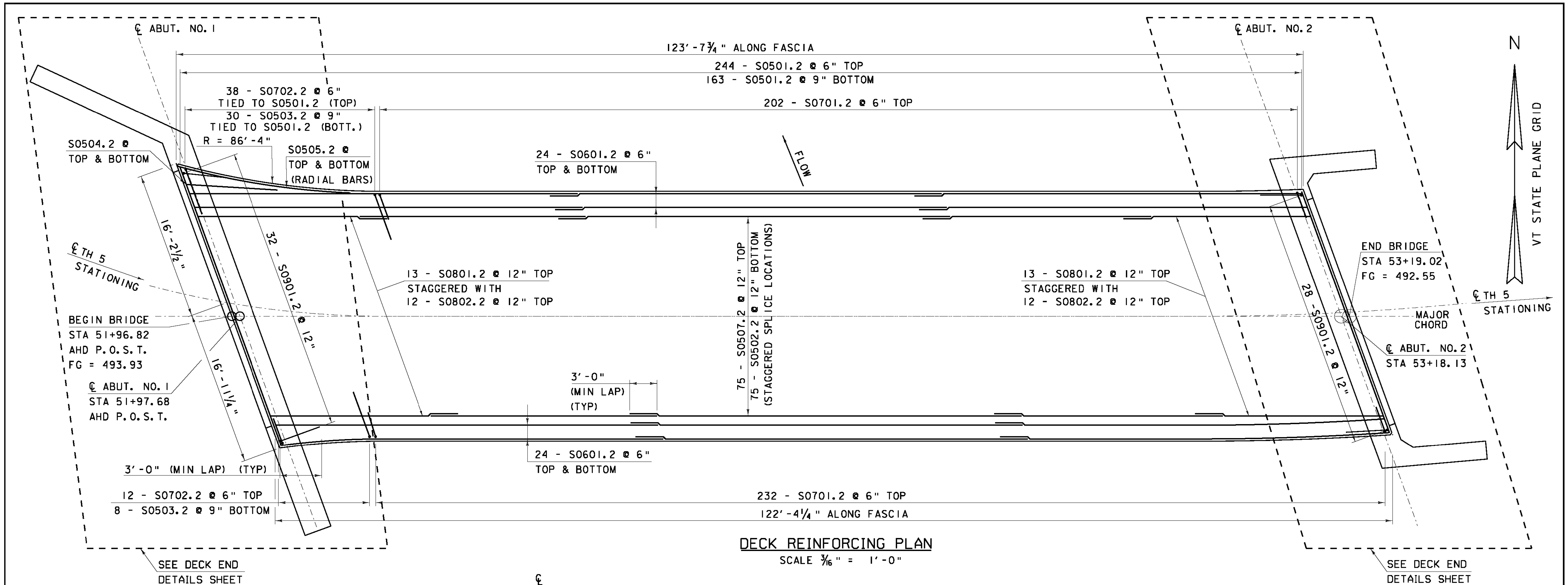
STRUCTURAL STEEL

- ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
- ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
- ANY HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTIONS 506.19.
- ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8” DIAMETER HIGH STRENGTH BOLTS IN 15/16” DIAMETER HOLES, PER SECTION 506 UNLESS OTHERWISE NOTED.
- THE FAYING SURFACE ON THE CONNECTION PLATES SHALL BE PREPARED AS CLASS “A”. THESE SURFACES SHALL BE PROTECTED FROM DAMAGE AND CORROSION PRIOR TO THE CONNECTION.
- FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE PLACED AT A MAXIMUM SPACING OF 4 FEET. THE BRACKETS SHALL BEAR NEAR THE BOTTOM FLANGE AND IN NO CASE SHALL THEY BEAR ABOVE THE BOTTOM QUARTER OF THE WEB.
- AFTER THE GIRDERS HAVE BEEN ERECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF THE GIRDERS, AS DIRECTED BY THE RESIDENT ENGINEER, FOR USE IN DETERMINING THE FINISHED GRADE.
- STRUCTURAL STEEL MEMBERS DESIGNATED “CVN TENSION ZONE” IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01.
- ENDS OF GIRDERS ARE TO BE VERTICAL UNDER FULL DEAD LOAD.
- CONNECTION PLATES FOR WATER MAIN SUPPORTS AND ASSOCIATED ATTACHMENT HARDWARE FOR WATER MAIN SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE).

PILES

- PROVIDE HP14X89 ASTM A572, GRADE 50 PILES AT ALL PILE LOCATIONS SHOWN ON PLANS. ALL PILES SHALL BE EQUIPPED WITH APPROVED REINFORCED TIPS. THE PILES SHALL BE DRIVEN TO A NOMINAL RESISTANCE OF 627 KIPS AND TO A MINIMUM OF 40 FEET BELOW THE BOTTOM OF THE PILE CAP.
- A MINIMUM OF ONE DYNAMIC PILE TESTS SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN FOR EACH SUBSTRUCTURE UNIT, FOR A TOTAL OF 2 TESTS. MORE TESTES MAY BE REQUIRED BY THE ENGINEER.
- PILES SHALL BE DRIVEN WITHIN 3 INCHES OF THE LOCATION SHOWN ON THE PLANS. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW THE TOLERANCE WILL BE MET TO THE SATISFACTION OF THE ENGINEER.
- FOR ESTIMATING PURPOSES, THE PILE LENGTHS WERE ASSUMED TO BE 102 FEET. ACTUAL IN PLACE LENGTHS MAY VARY.

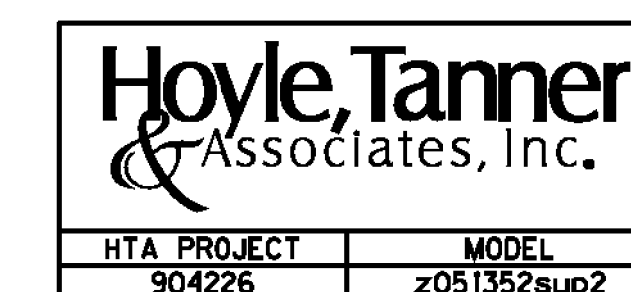
PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: 05J352/STR/s05J352form.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J.LACROIX	DRAWN BY: J.SALVATORI
DESIGNED BY: G.LAROCHE	CHECKED BY: J.GRIFFIN
GENERAL NOTES	SHEET 31 OF 66



DISTANCE	OVERHANG LENGTHS, MEASURED NORMAL TO THE CENTERLINE OF ADJACENT GIRDER									
	10TH POINT DISTANCE ALONG GIRDER, MEASURED FROM CENTERLINE ABUTMENT									
	0 FT	12.06 FT	24.12 FT	36.17 FT	48.23 FT	60.29 FT	72.35 FT	84.41 FT	96.46 FT	108.52 FT
LEFT OVERHANG	3'-1 ³ / ₈ "	1'-8 ¹⁵ / ₁₆ "	1'-8"	1'-8"	1'-8"	1'-8"	1'-8"	1'-8"	1'-8"	1'-8 ³ / ₁₆ "
RIGHT OVERHANG	2'-5 ¹ / ₈ "	1'-8 ¹⁵ / ₁₆ "	1'-8"	1'-8"	1'-8"	1'-8"	1'-8"	1'-8"	1'-8"	1'-6 ⁷ / ₈ "

NOTE:

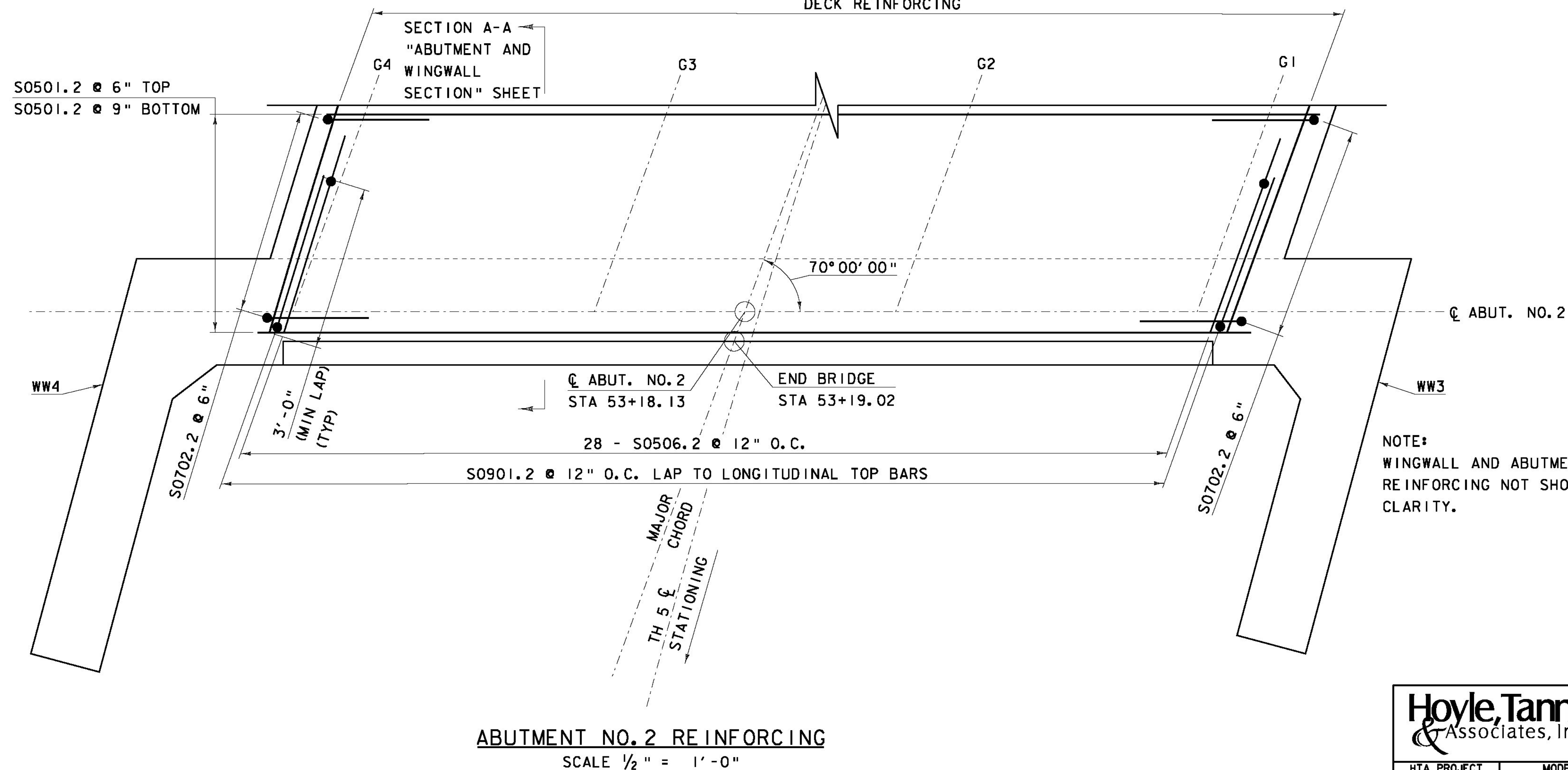
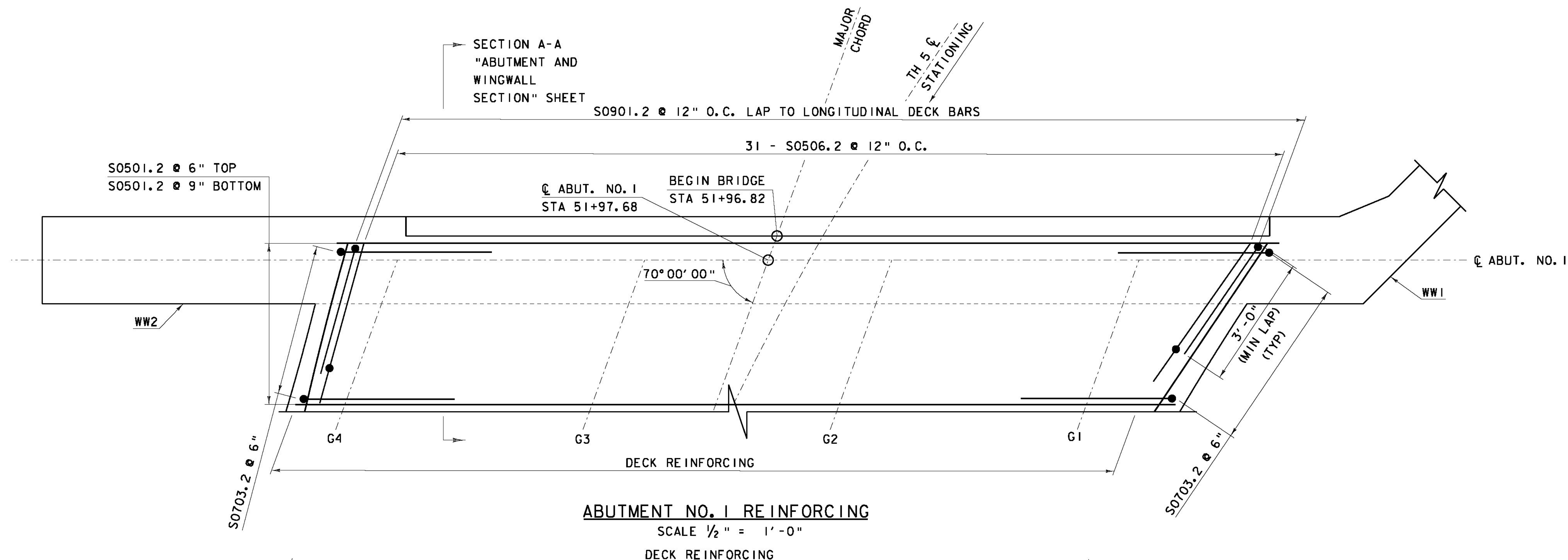
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
ALL REINFORCING STEEL TO BE CUT IN THE FIELD IS TO BE SAW CUT AND EXPOSED END TREATED AS PER SUBSECTION 507.04.



PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: z05j352sup2.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
DECK DETAILS

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 32 OF 66



NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE
SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.

NOTE:
WINGWALL AND ABUTMENT
REINFORCING NOT SHOWN FOR
CLARITY.



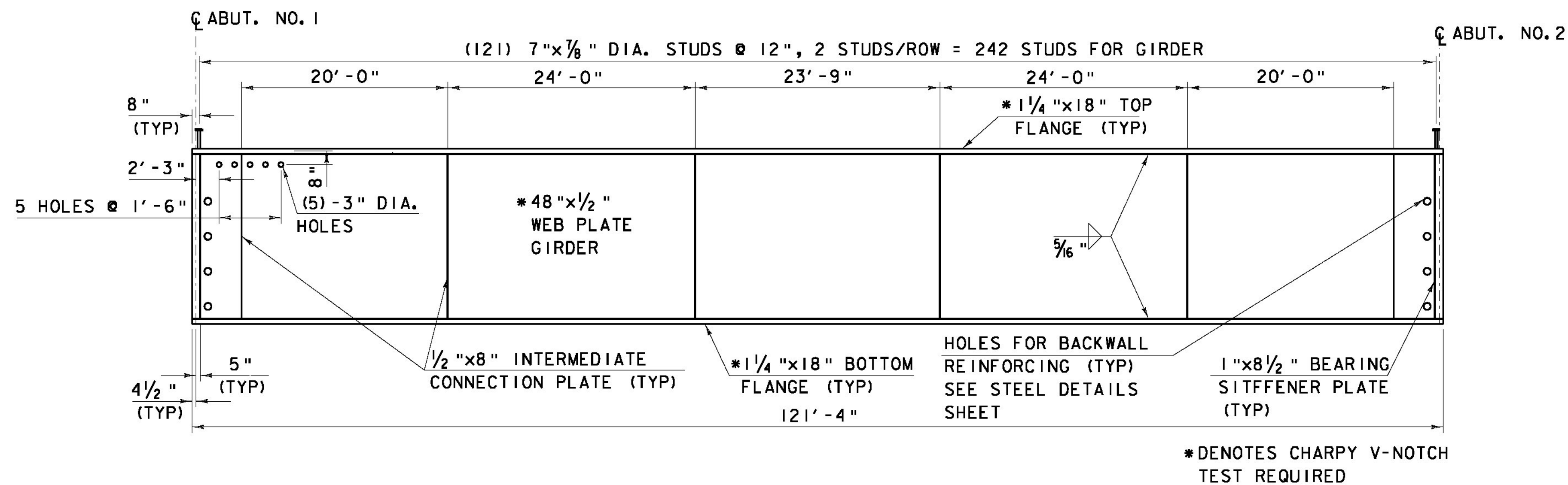
Hoyle, Tanner
& Associates, Inc.

HTA PROJECT	MODEL
904226	z051352sup4

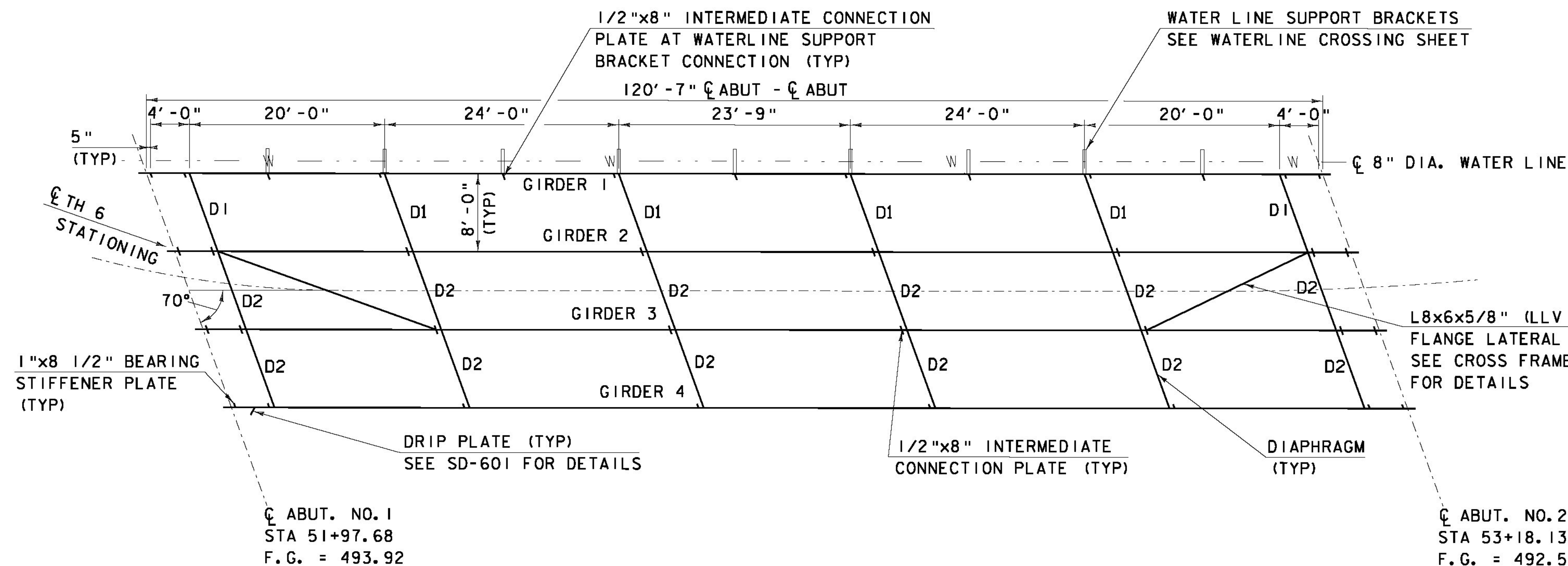
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PROJECT NUMBER: BRO 1445(32)

FILE NAME: z051352sup4.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
DECK END DETAILS

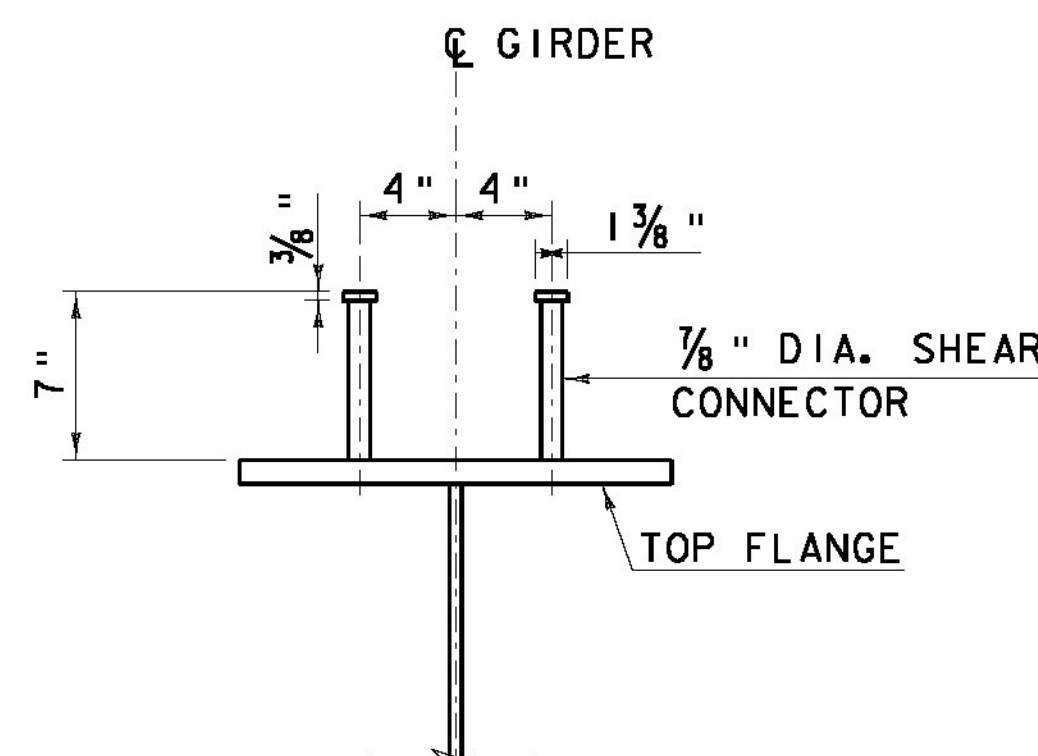
PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 33 OF 66



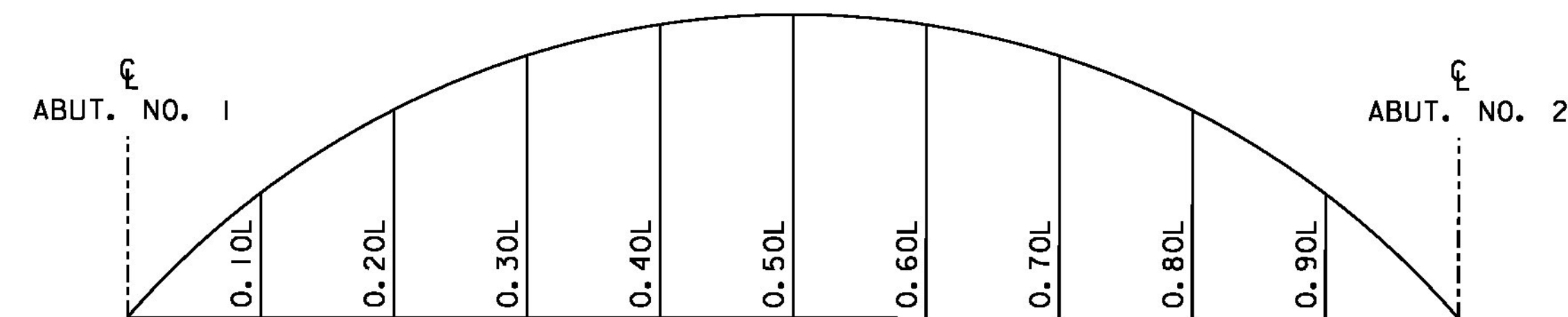
BEAM ELEVATION
 HORIZ. SCALE $\frac{1}{8}$ " = 1'-0"
 VERT. SCALE $\frac{1}{2}$ " = 1'-0"



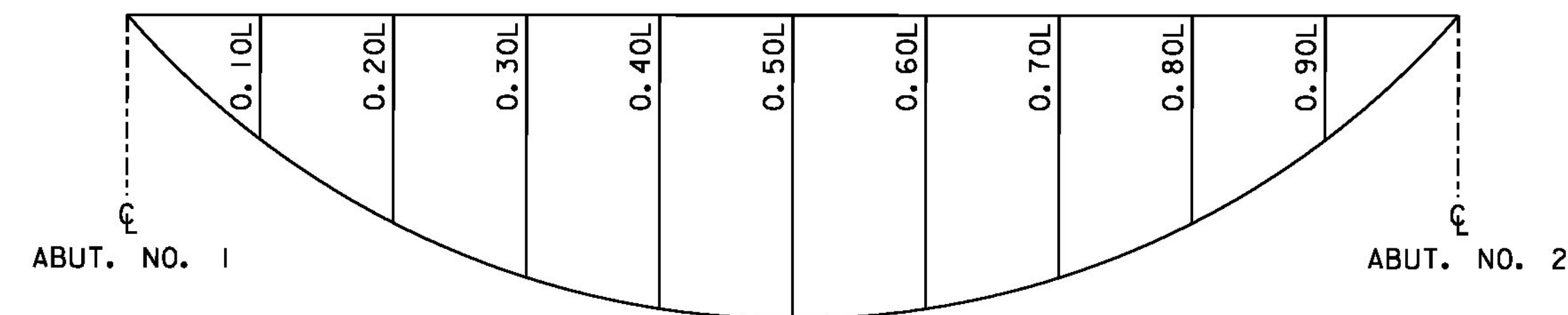
FRAMING PLAN
 SCALE $\frac{1}{8}$ " = 1'-0"



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



CAMBER DIAGRAM
 SEE TABLES BELOW

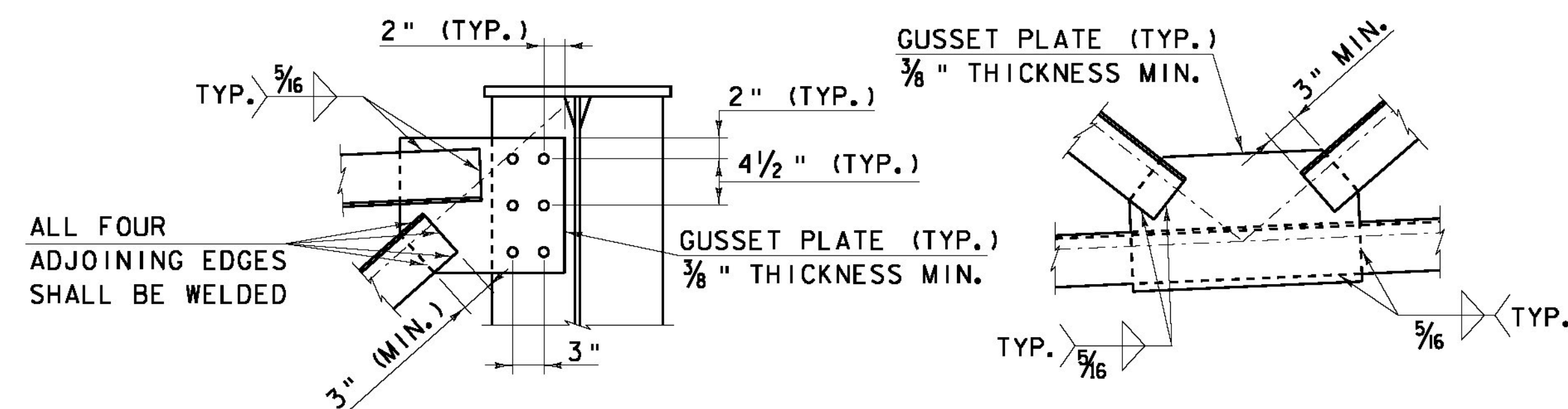
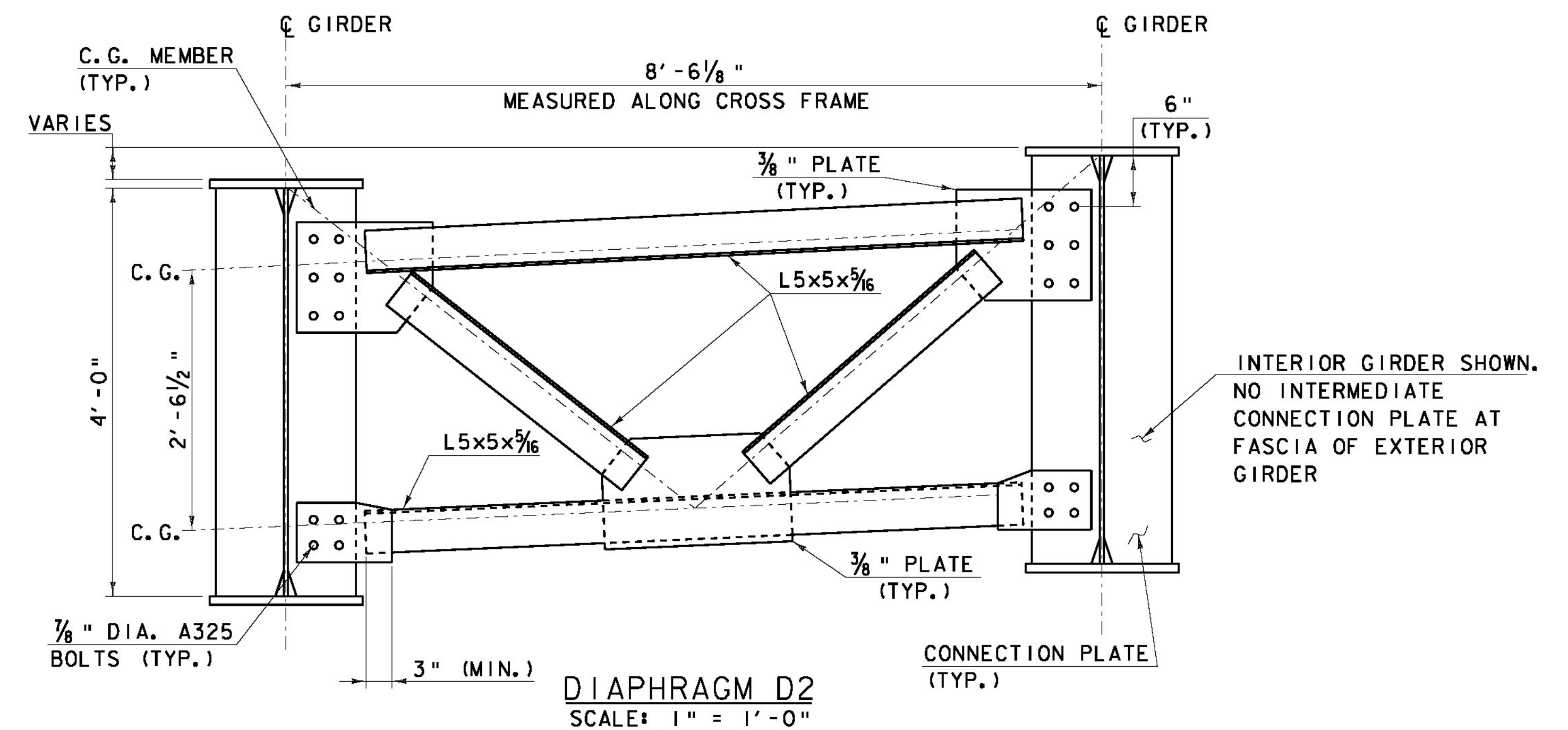
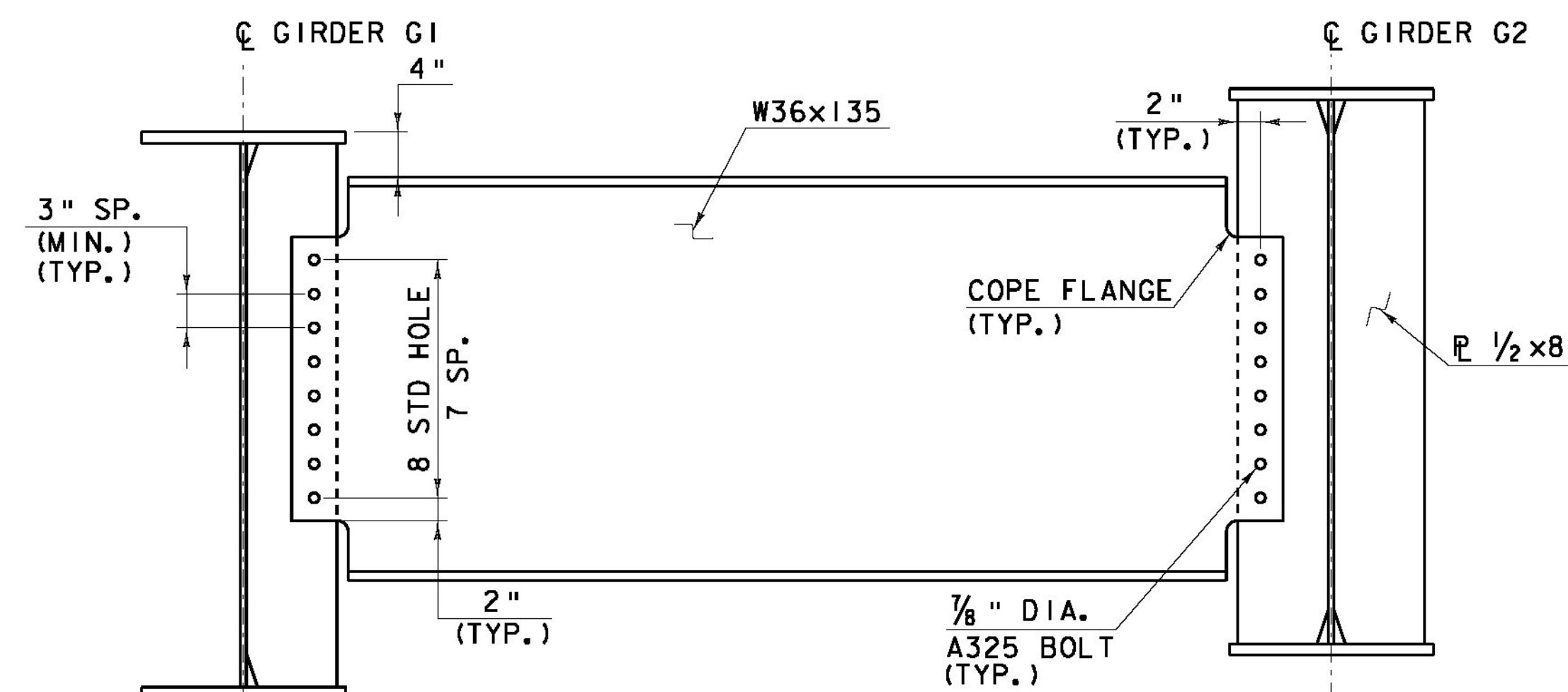
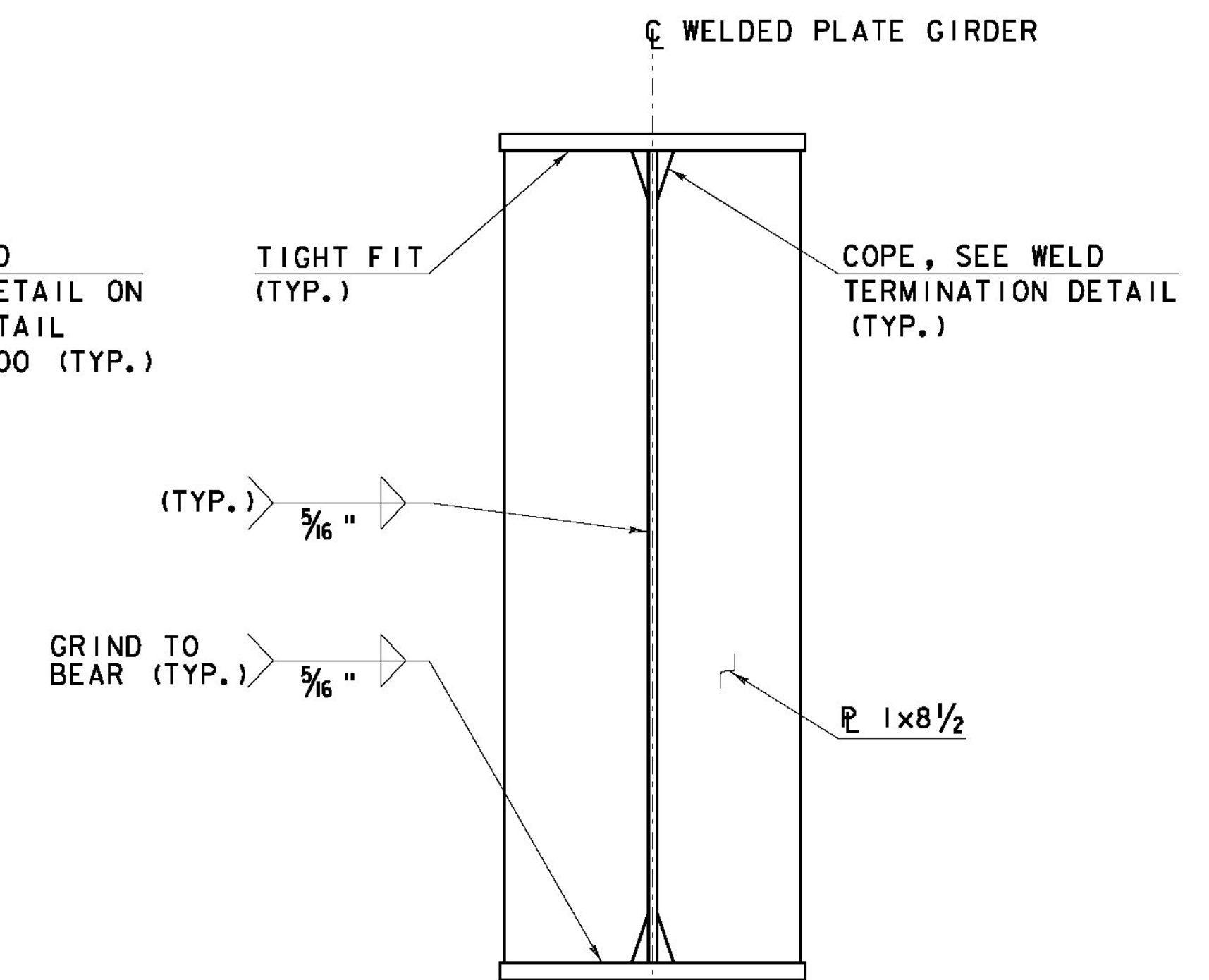
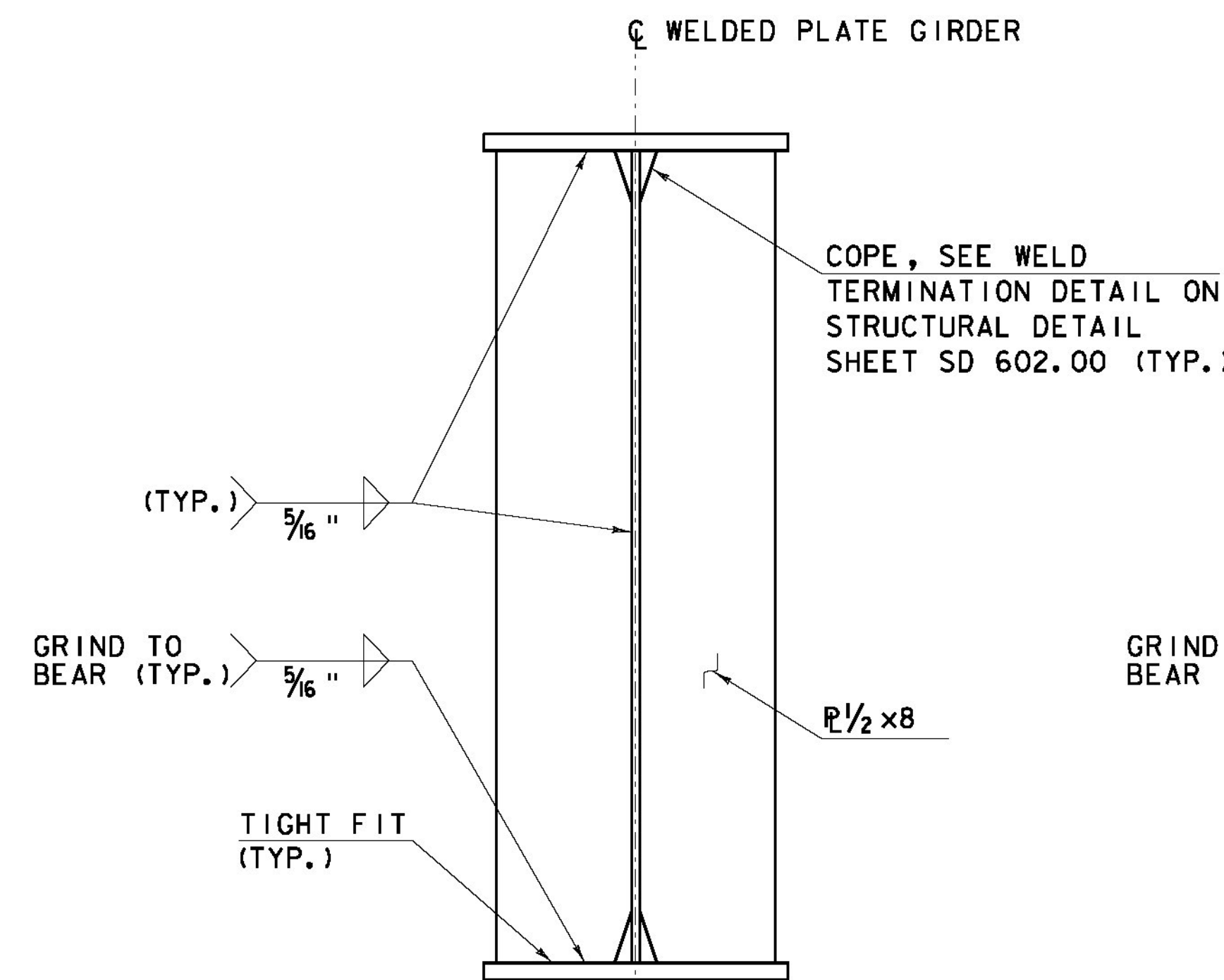
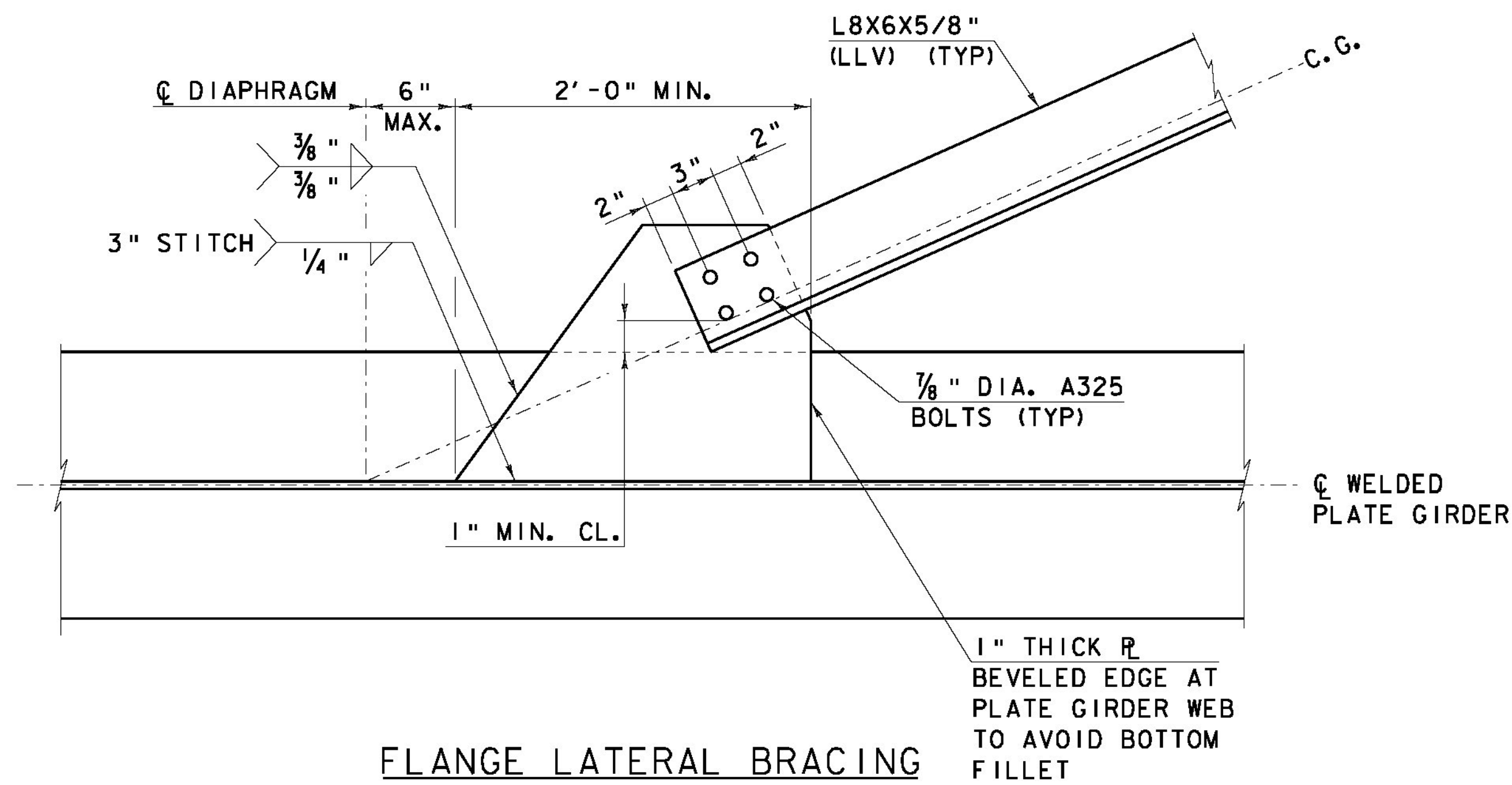


DEAD LOAD DEFLECTION DIAGRAM
 SEE TABLES BELOW

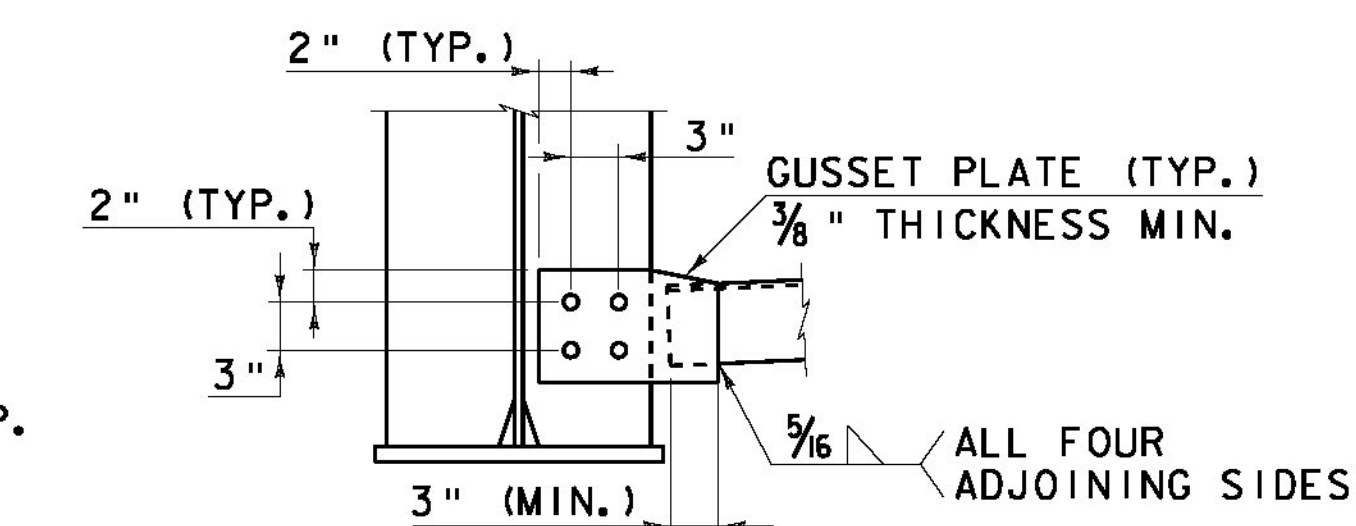
GIRDERS 1 THRU 4	CAMBER TABLE IN INCHES								
	0.10L	0.20L	0.30L	0.40L	0.50L	0.60L	0.70L	0.80L	0.90L
GIRDER D.L.	-0.39	-0.73	-1.00	-1.17	-1.23	-1.17	-1.00	-0.73	-0.39
CONCRETE SLAB D.L.	-1.76	-3.32	-4.55	-5.32	-5.59	-5.32	-4.55	-3.32	-1.76
SUPERIMPOSED D.L.	-0.03	-0.08	-0.14	-0.18	-0.19	-0.18	-0.14	-0.08	-0.03
TOTAL DEFLECTION	-2.17	-4.14	-5.69	-6.67	-7.01	-6.67	-5.69	-4.14	-2.17
RESIDUAL CAMBER	0.30	0.60	0.90	1.20	1.50	1.20	0.90	0.60	0.30
TOTAL CAMBER	2.47	4.74	6.59	7.87	8.51	7.87	6.59	4.74	2.47

- NOTES:
1. ENDS OF GIRDERS SHALL BE FABRICATED TO BE PLUMB UNDER FULL DEAD LOAD.
 2. DEAD LOAD DEFLECTION INCLUDES GIRDER SELF-WEIGHT.
 3. FOR DIAPHRAGM DETAILS SEE CROSS FRAME SHEET.





CENTER GUSSET PLATE
SCALE: 1" = 1'-0"

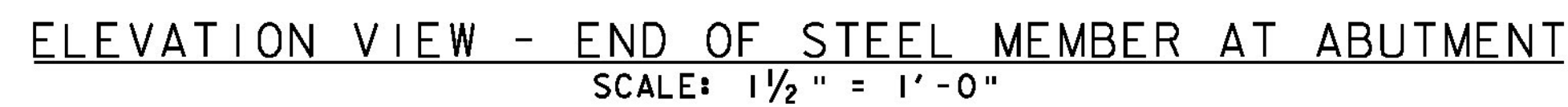


Hoyle, Tanner & Associates, Inc.

HTA PROJECT 904226 MODEL z05j352ssd11

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)
FILE NAME: z05j352ssd11.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
CROSS FRAME
PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 35 OF 66



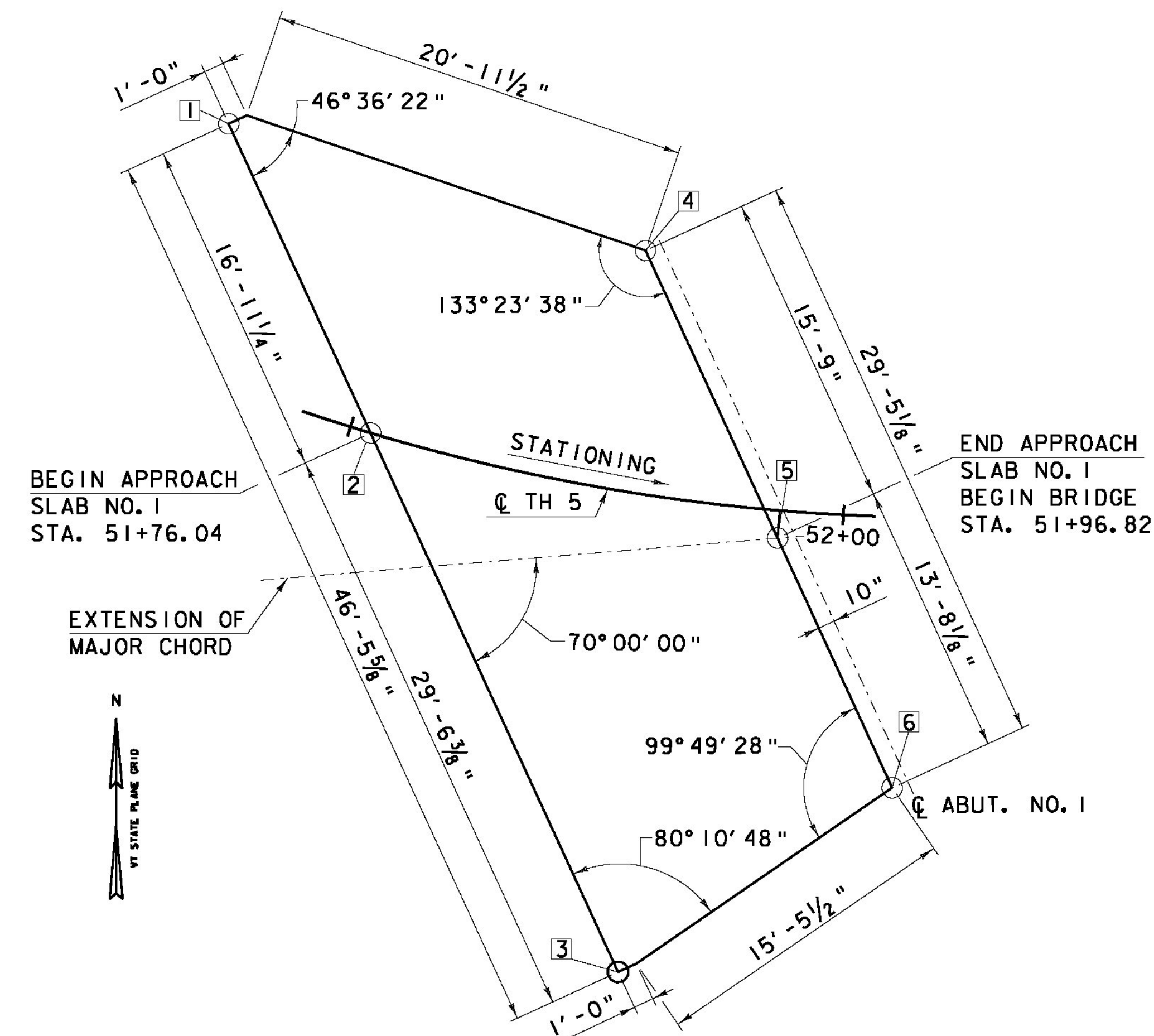


-

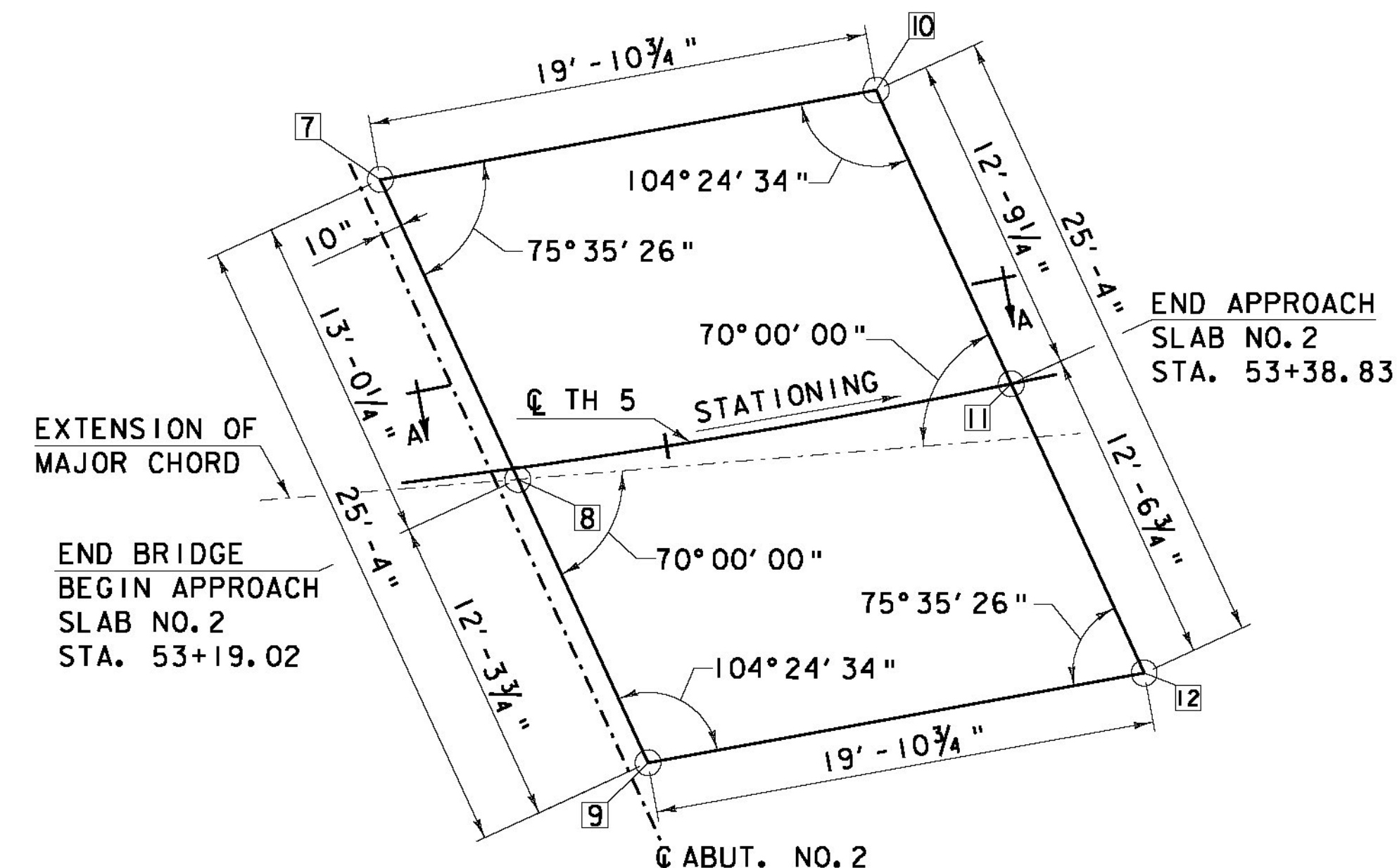
PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 36 OF 66

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

Hoyle, Tanner & Associates, Inc.	
HTA PROJECT	MODEL
904226	904226+12



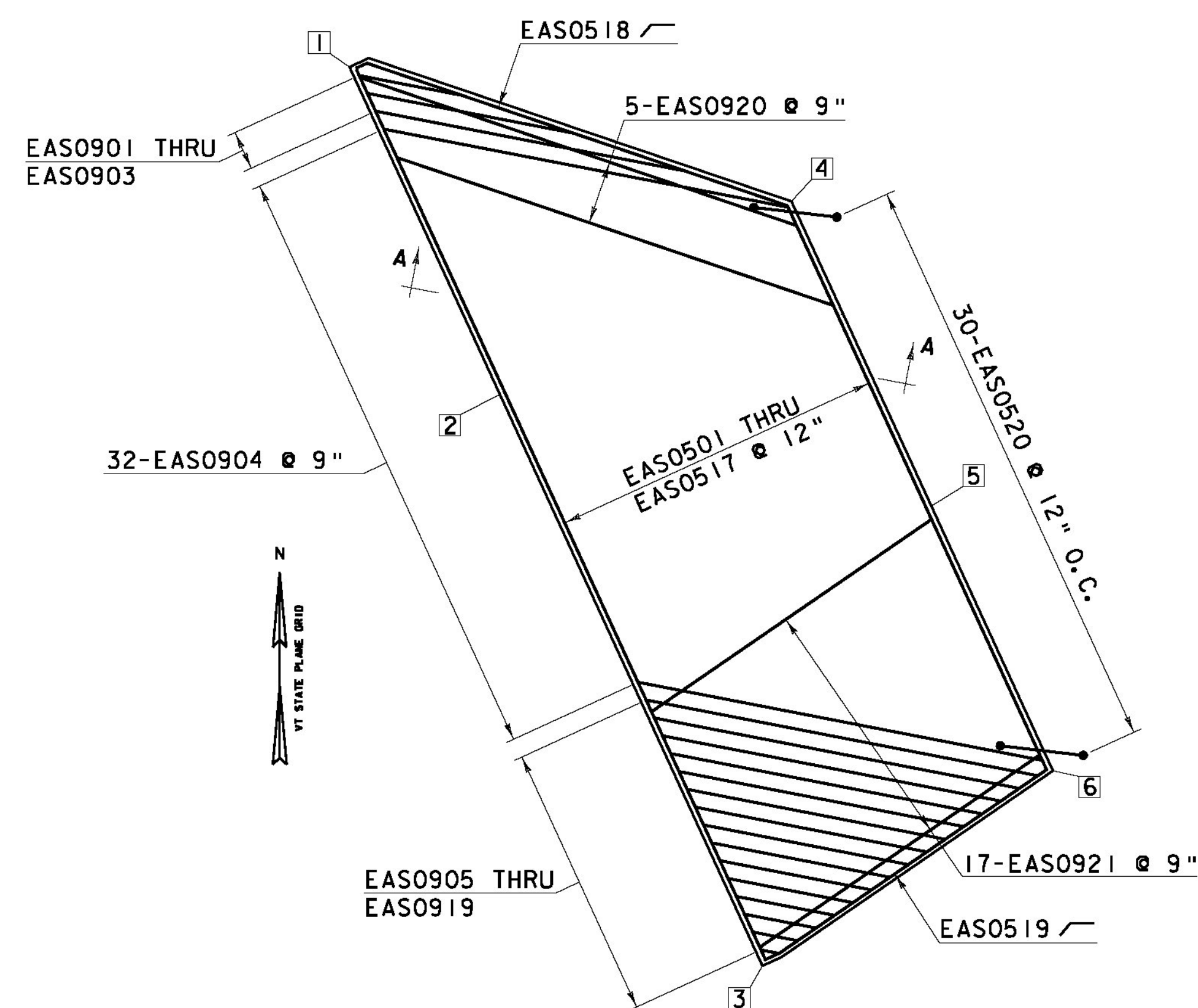
APPROACH SLAB NO. 1 MASONRY
SCALE: $\frac{3}{16}$ " = 1'-0"



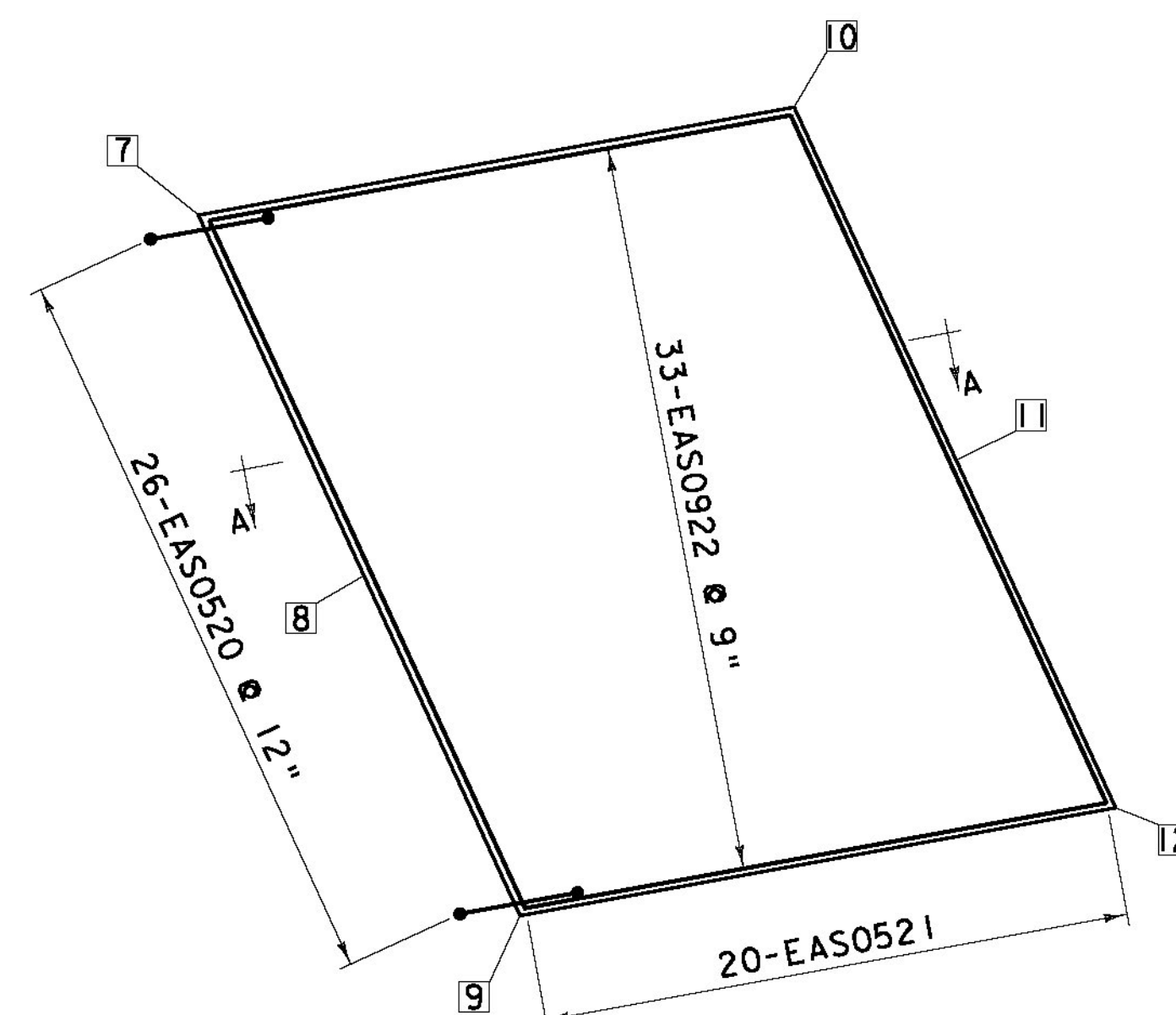
APPROACH SLAB NO. 2 MASONRY
SCALE: $\frac{3}{16}$ " = 1'-0"

APPROACH SLAB #1			
POINTS	STATION	OFFSET	TOP OF SLAB ELEV
1	51+63.29	12.00' LT.	493.27
2	51+76.04	0	493.84
3	51+91.88	23.71' RT.	494.82
4	51+88.01	12.00' LT.	493.04
5	51+96.82	1.38' RT.	493.60
6	52+02.75	13.49' RT.	494.05
APPROACH SLAB #2			
POINTS	STATION	OFFSET	TOP OF SLAB ELEV
7	53+15.08	12.00' LT.	491.79
8	53+19.01	0.44' RT.	492.22
9	53+22.44	12.25' RT.	492.64
10	53+35.81	12.42' LT.	491.79
11	53+38.83	0	492.20
12	53+41.56	12.25' RT.	492.64

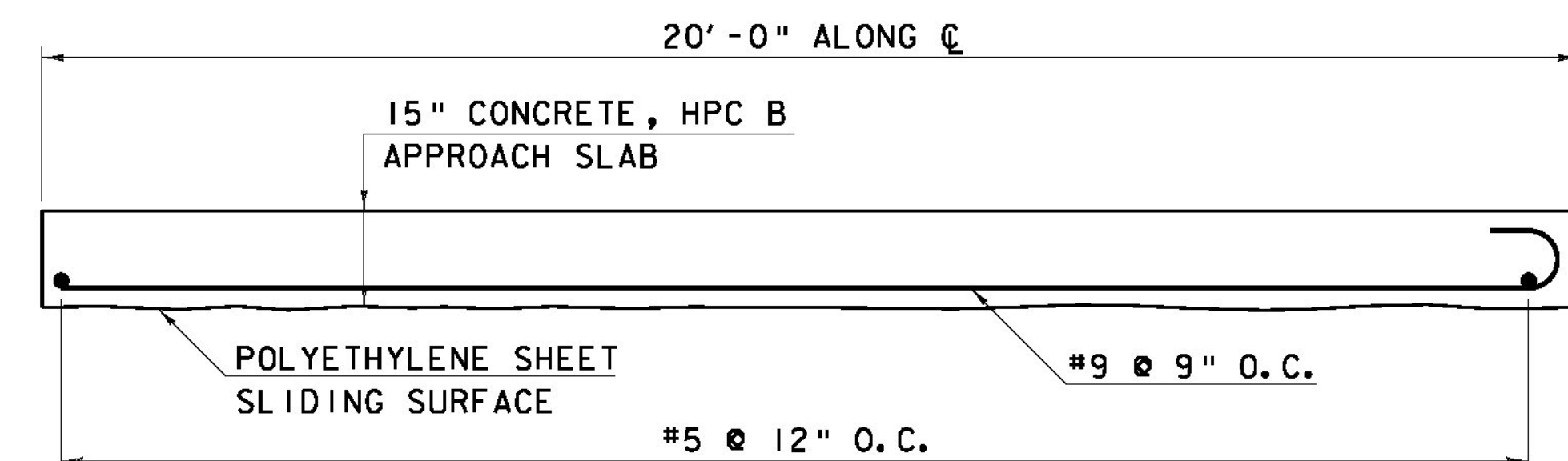
NOTE:
E = EPOXY COATED
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.



APPROACH SLAB NO. 1 REINFORCING
SCALE: $\frac{3}{16}$ " = 1'-0"

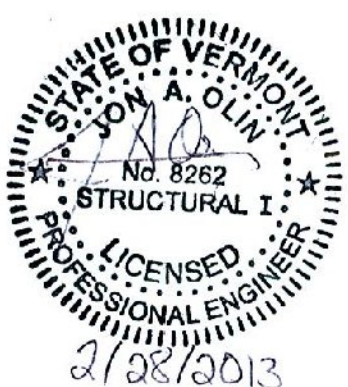


APPROACH SLAB NO. 2 REINFORCING
SCALE: $\frac{3}{16}$ " = 1'-0"



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

NOTE: PAYMENT FOR THE POYETHYLENE SHEET WILL BE INCIDENTAL TO THE APPROACH SLAB CONCRETE ITEM.



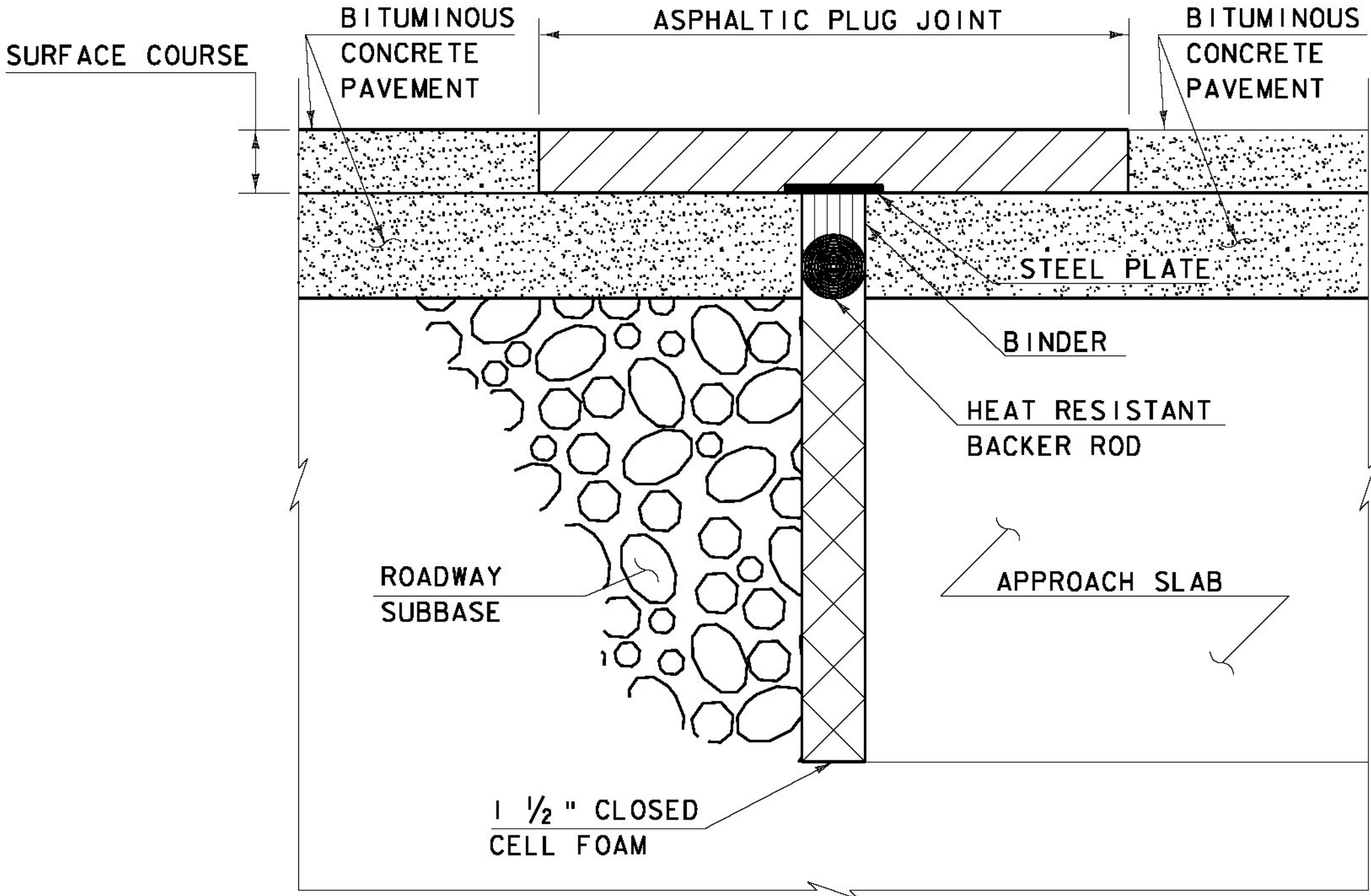
Hoyle, Tanner
& Associates, Inc.

HTA PROJECT	MODEL
904226	Z051352supl

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: z051352supl.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
APPROACH SLAB

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 37 OF 66



ASPHALTIC PLUG-TYPE JOINT DETAIL - MODIFIED
(NOT TO SCALE)

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
3. REPAIR MATERIAL GREATER THAN 4 INCHES FROM FINISHED GRADE WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
7. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
8. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
9. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
10. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.
11. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

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

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



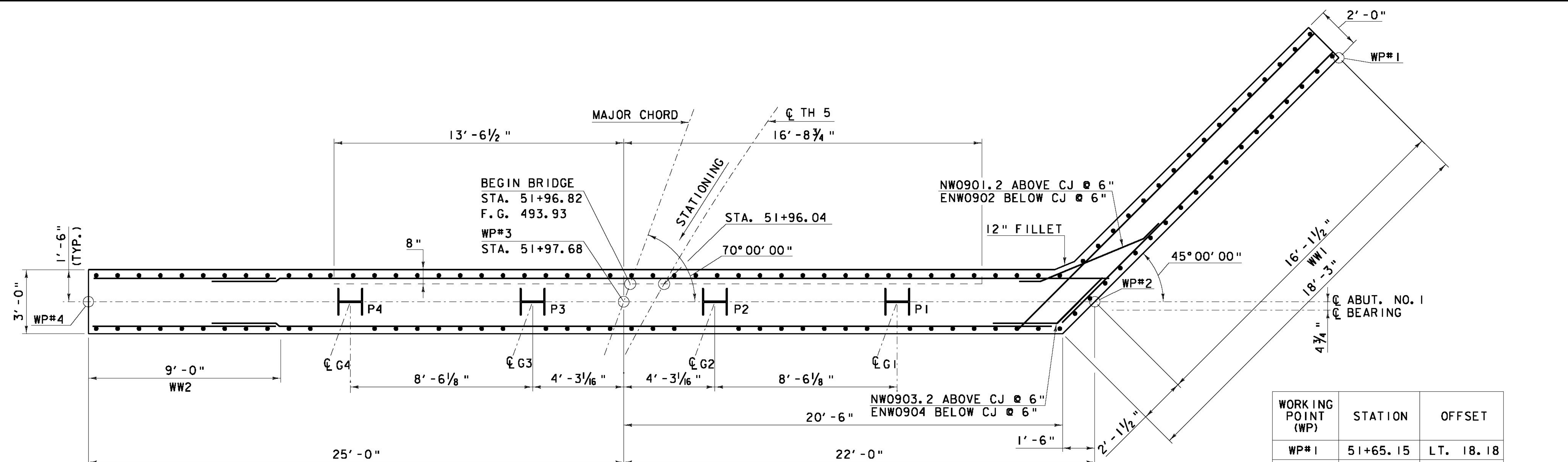
Hoyle, Tanner
& Associates, Inc.

HTA PROJECT	MODEL
904226	904226d113

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: z05j352DTL3.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
ASPHALTIC PLUG JOINT

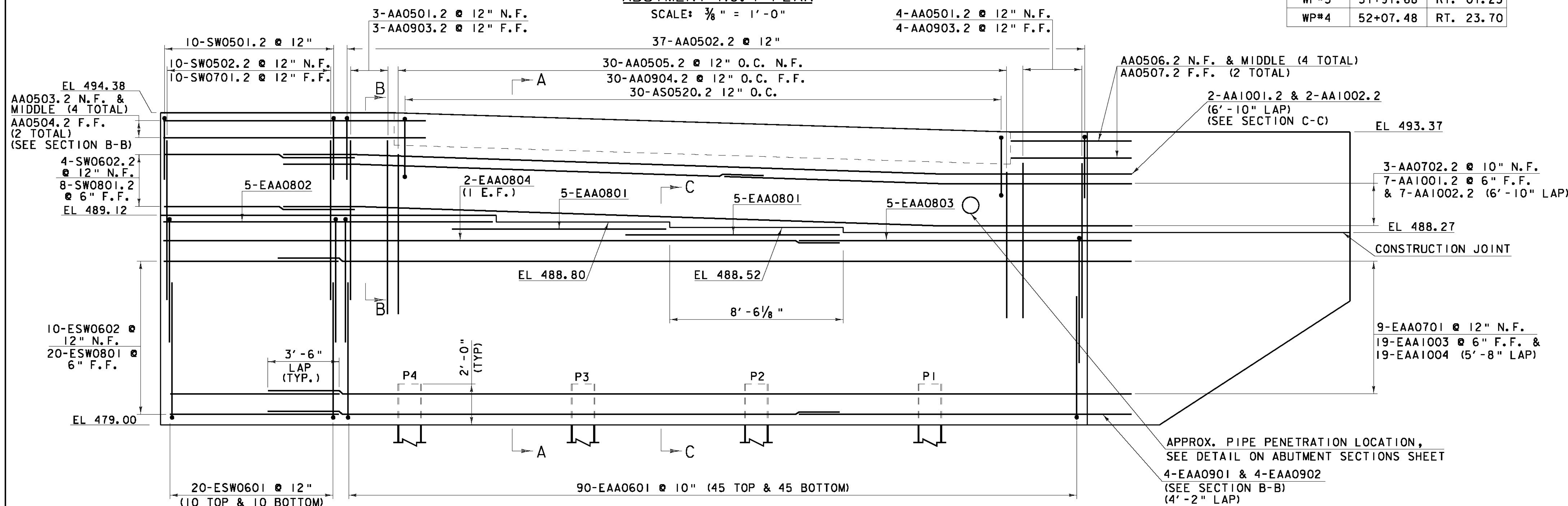
PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 38 OF 66



WORKING POINT (WP)	STATION	OFFSET
WP#1	51+65.15	LT. 18.18
WP#2	51+84.77	LT. 17.33
WP#3	51+97.68	RT. 01.23
WP#4	52+07.48	RT. 23.70

ABUTMENT NO. 1 PLAN

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



NOTE: DECK AND NORTHWEST WINGWALL REINFORCING NOT SHOWN FOR CLARITY.

ABUTMENT NO. 1 ELEVATION

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

NOTE:
 E = EPOXY COATED REINFORCING
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 2" CLEAR, UNLESS OTHERWISE
 SPECIFIED ON THE PLANS.
 3'-0" BAR LAP UNLESS OTHERWISE
 SPECIFIED ON THE PLANS.

NOTE: WORK THIS SHEET WITH ABUTMENT SECTIONS SHEET.

SCALE: $\frac{3}{8}$ " = 1'-0"
 1 0 1 2 3 4

Hoyle, Tanner
 & Associates, Inc.

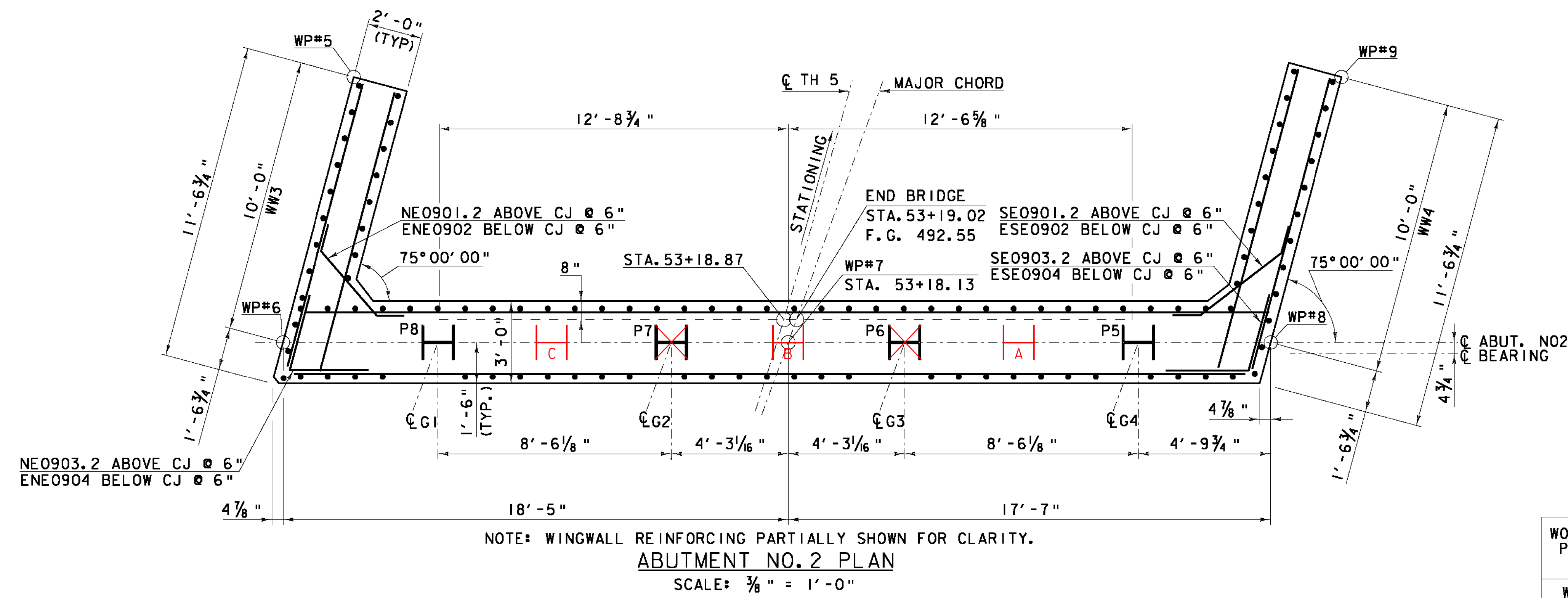
HTA PROJECT MODEL
 904226 Z051352sub1

PROJECT NAME: BRISTOL
 PROJECT NUMBER: BRO 1445(32)

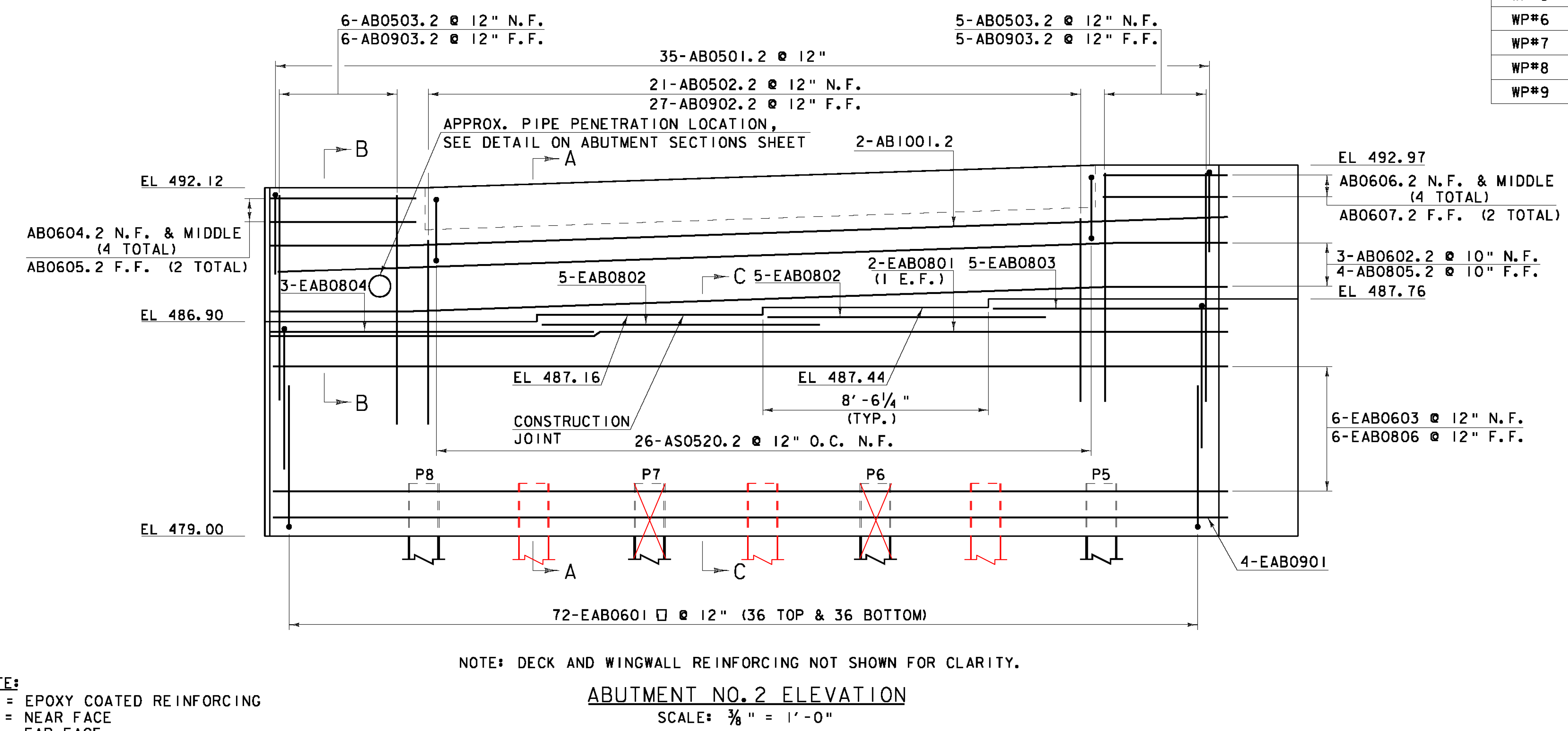
FILE NAME: z051352sub1.dgn
 PROJECT LEADER: J.LACROIX
 DESIGNED BY: J.OLIN/ A.SAUNDERS
ABUTMENT NO.1 PLAN AND ELEVATION

PLOT DATE: 02/28/2013
 DRAWN BY: J.MCQUAID
 CHECKED BY: J.OLIN
 SHEET 39 OF 66



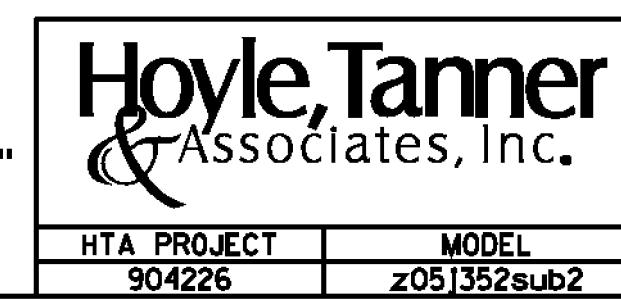
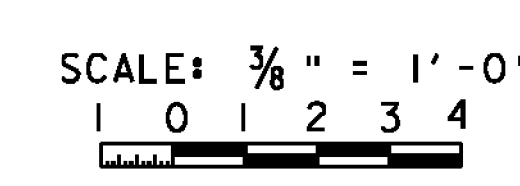


WORKING POINT (WP)	STATION	OFFSET
WP#5	53+23.00	LT. 17.53
WP#6	53+12.39	LT. 17.16
WP#7	53+18.13	LT. 00.40
WP#8	53+23.00	RT. 17.25
WP#9	53+32.45	RT. 23.21



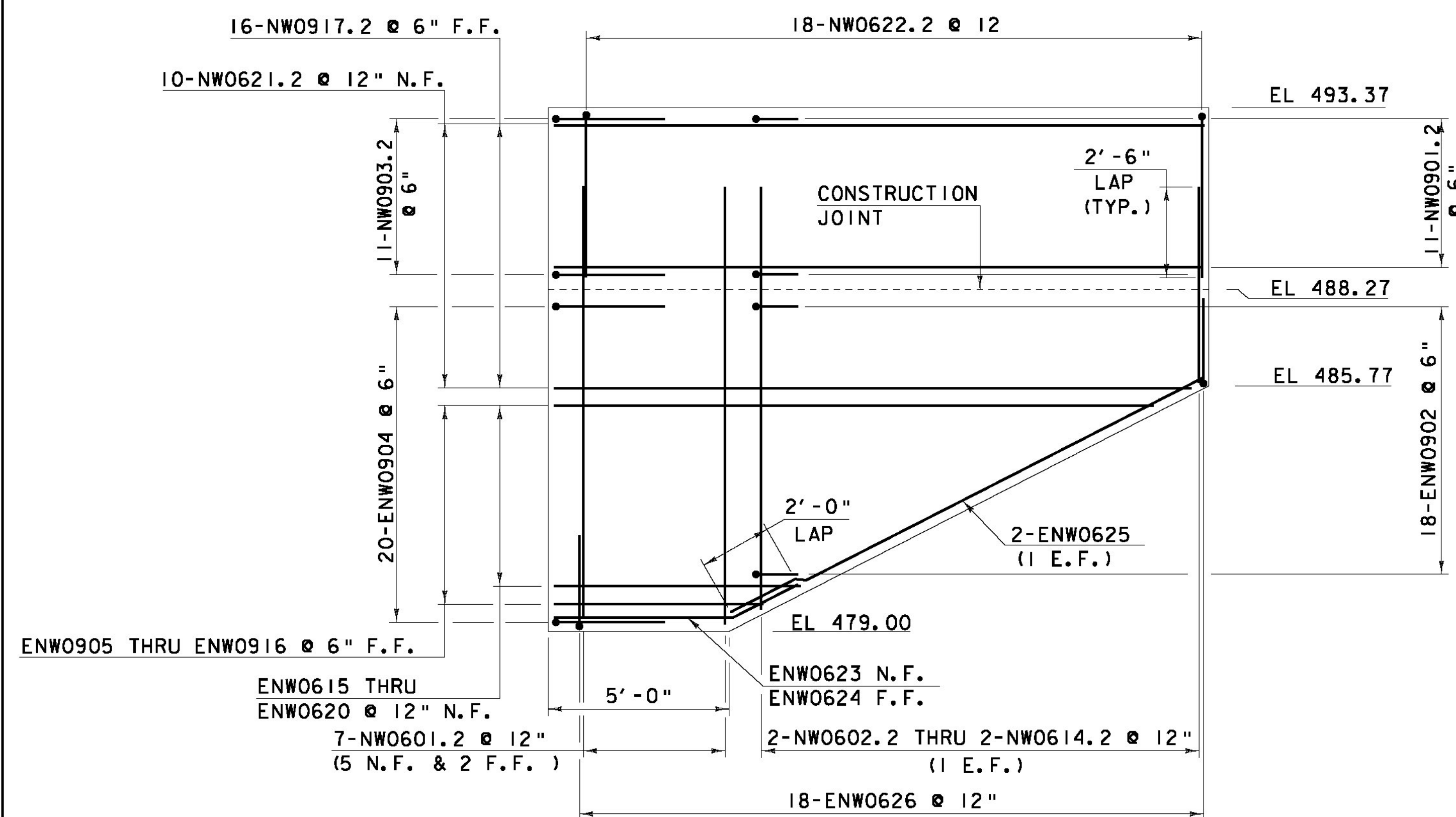
NOTE:
 E = EPOXY COATED REINFORCING
 NF = NEAR FACE
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 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 2" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTE: WORK THIS SHEET WITH ABUTMENT SECTION SHEET.

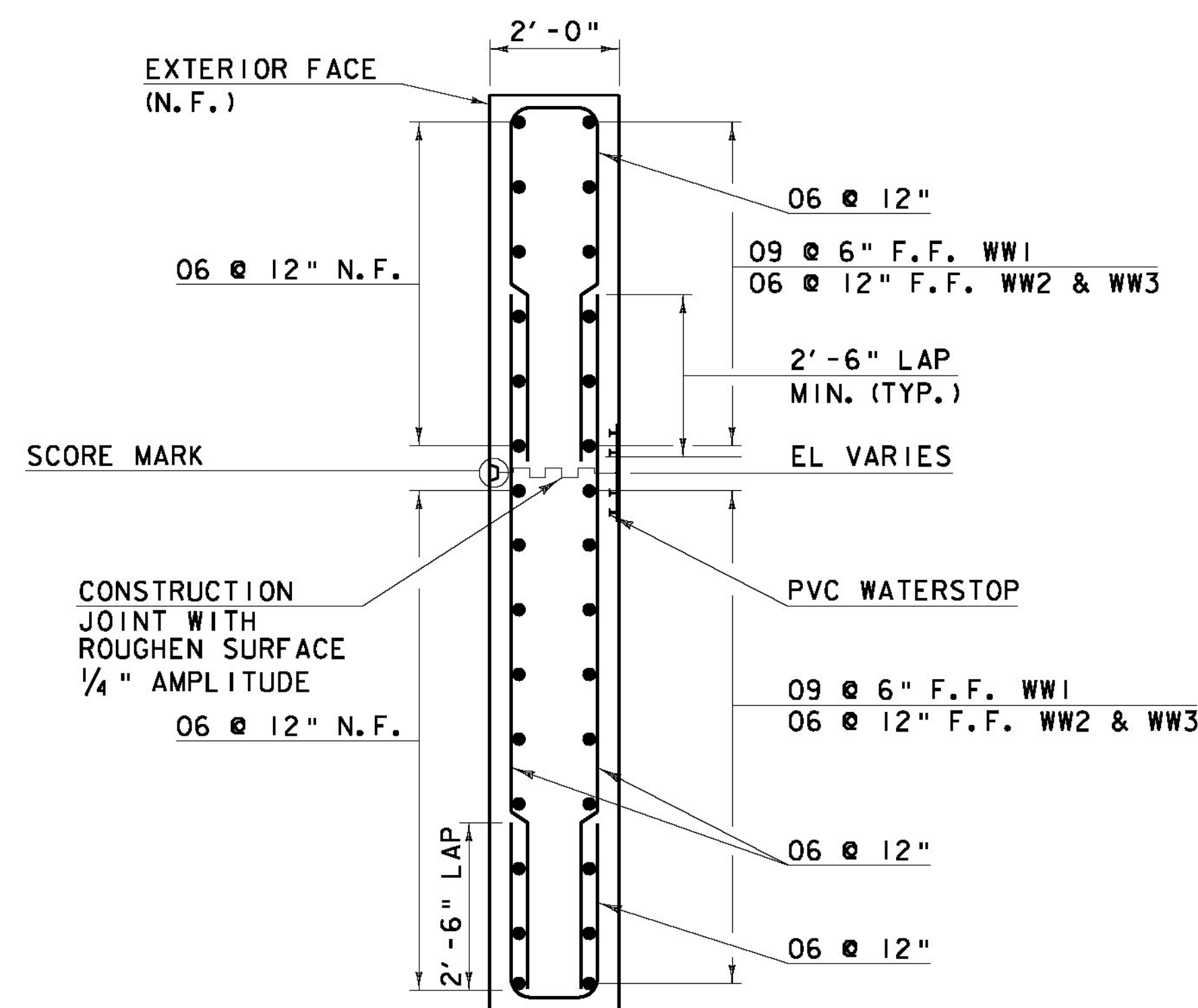


PROJECT NAME: BRISTOL	FILE NAME: z05j352sub2.dgn	PLOT DATE: 02/28/2013
PROJECT NUMBER: BRO 1445(32)	PROJECT LEADER: J.LACROIX	DRAWN BY: J.MCQUAID
	DESIGNED BY: J.OLIN/ A.SAUNDERS	CHECKED BY: J.OLIN
	ABUTMENT NO.2 PLAN AND ELEVATION	SHEET 40 OF 66



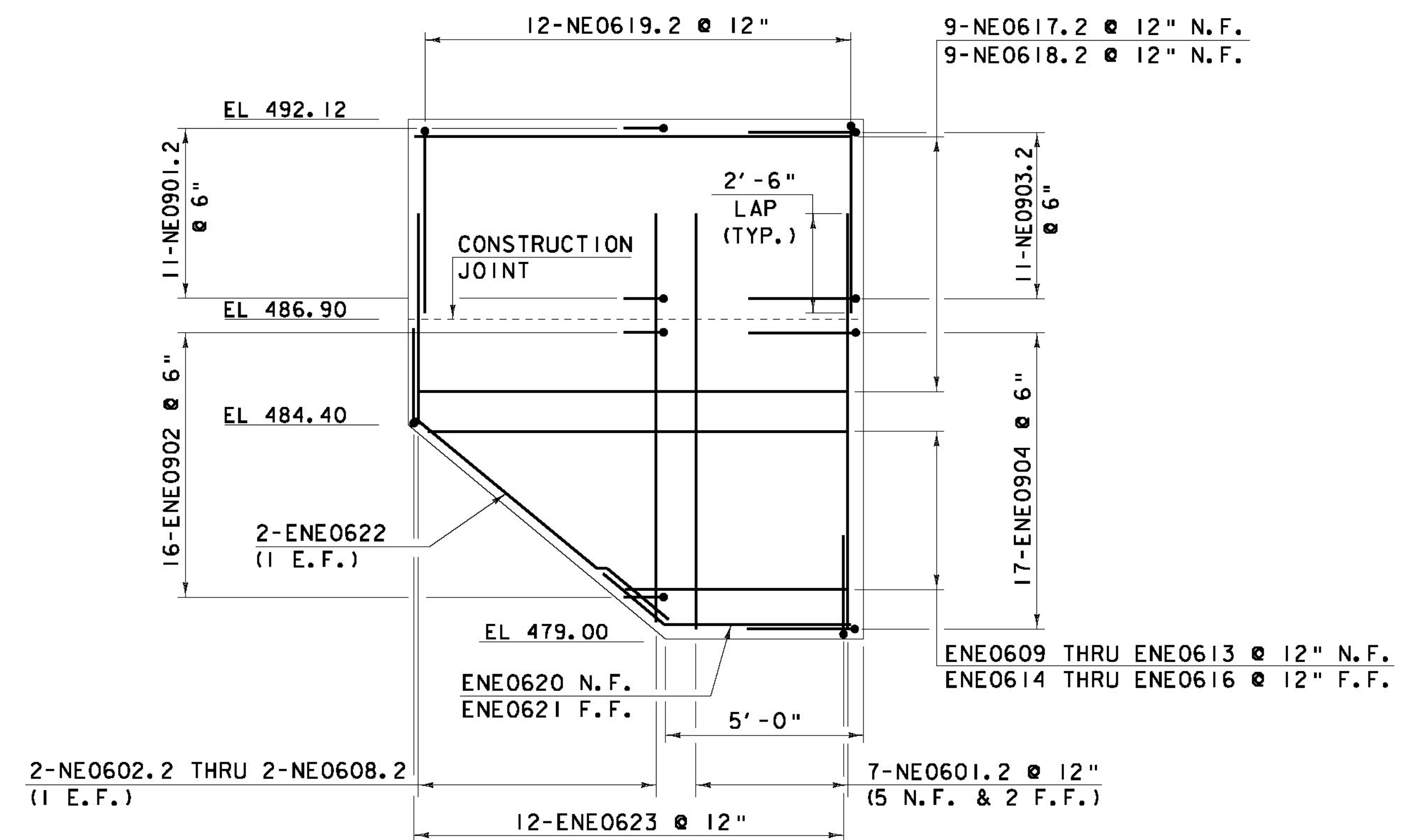


WW1
SCALE: $\frac{3}{8}$ " = 1'-0"

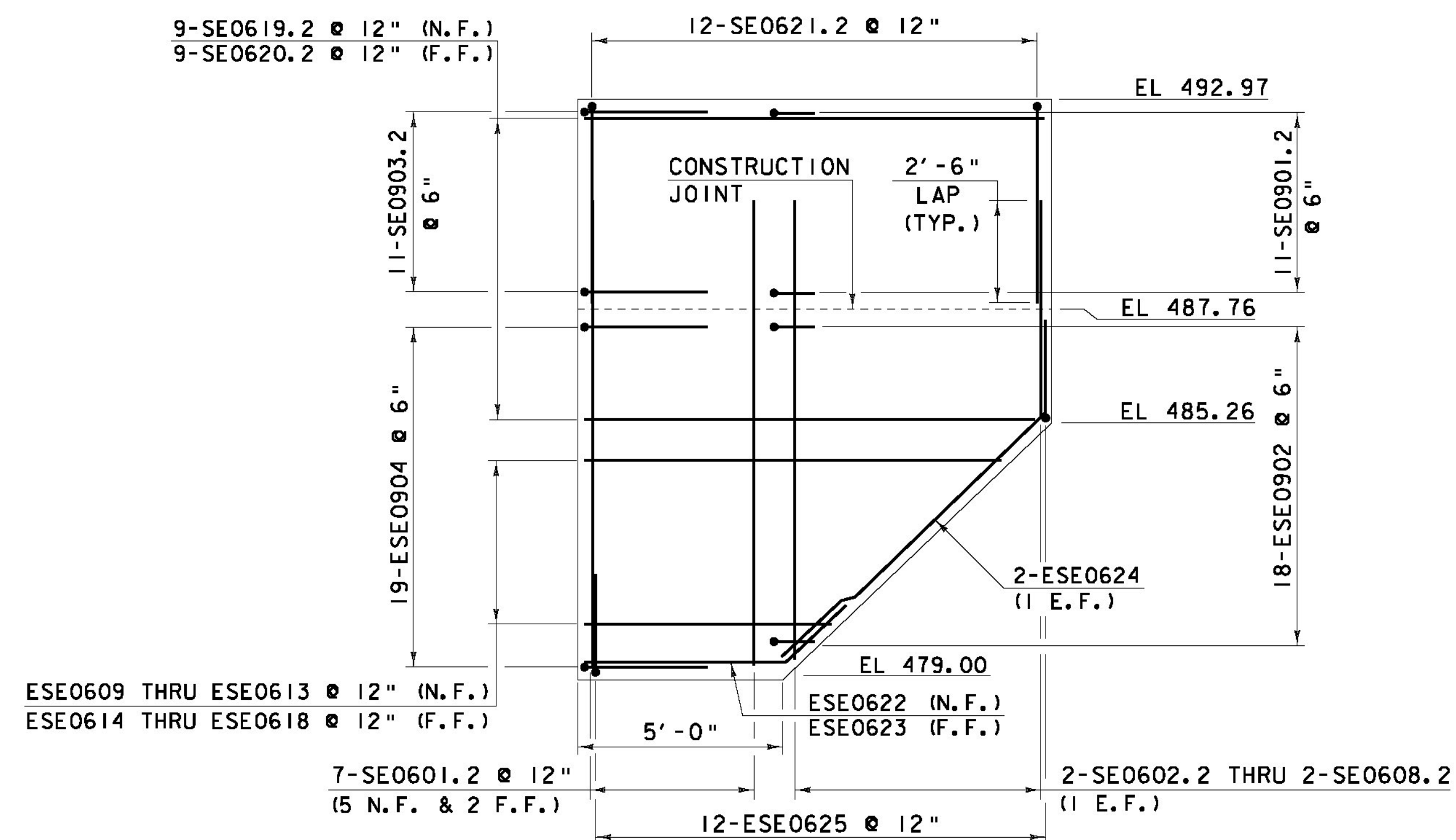


WINGWALL TYPICAL
SCALE: $\frac{1}{2}$ " = 1'-0"

NOTE:
E = EPOXY COATED
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
2" CLEAR, UNLESS OTHERWISE
SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.



WW3
SCALE: $\frac{3}{8}$ " = 1'-0"



WW4
SCALE: $\frac{3}{8}$ " = 1'-0"

SCALE: $\frac{3}{8}$ " = 1'-0"
1 0 1 2 3 4

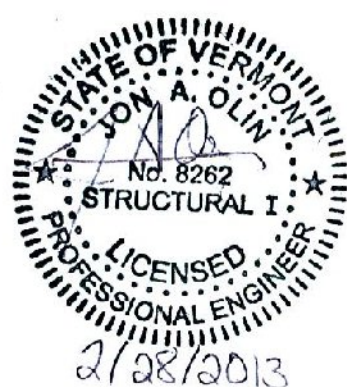
Hoyle, Tanner & Associates, Inc.

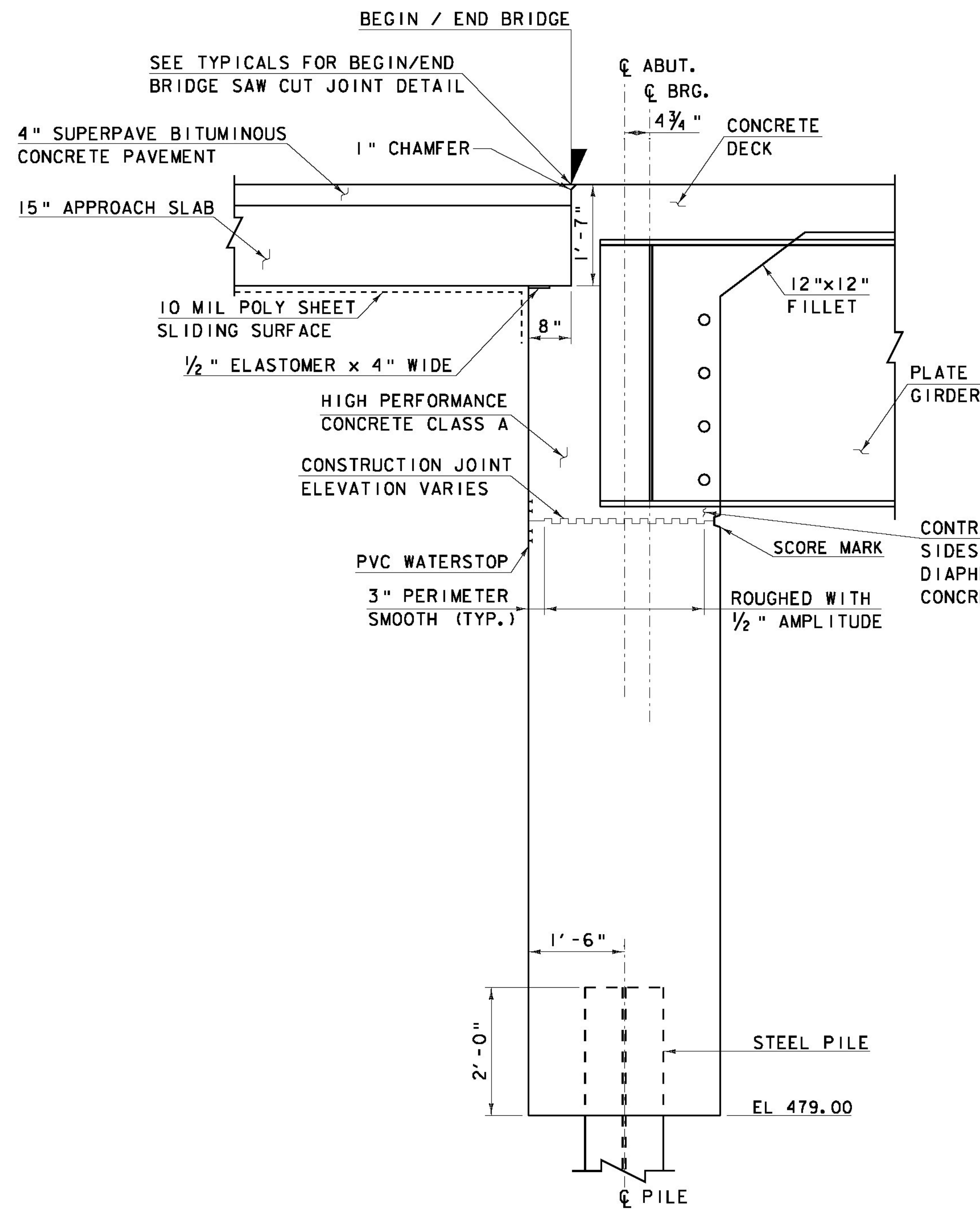
HTA PROJECT 904226 MODEL z051352sub3

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

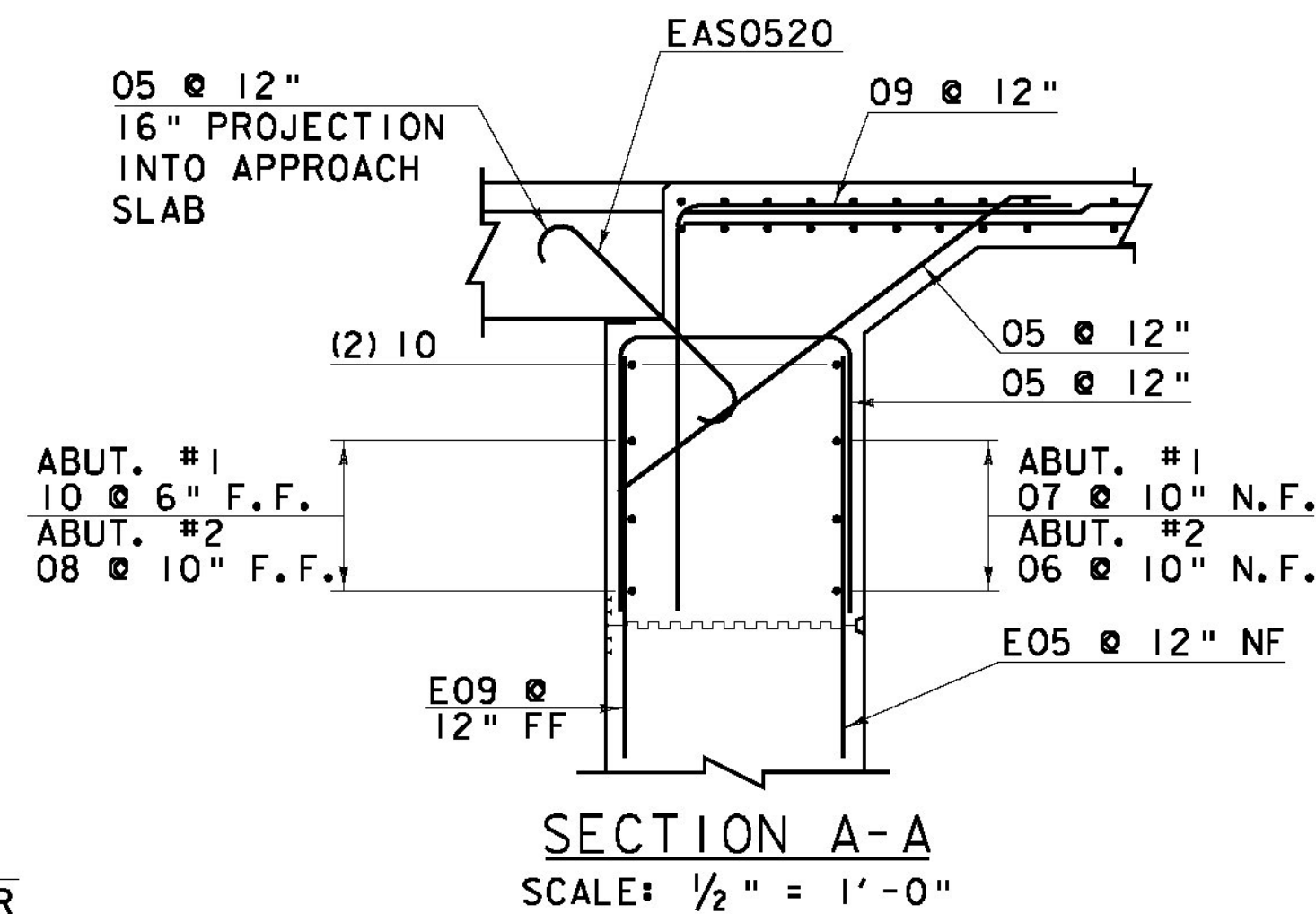
FILE NAME: z051352sub3.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.OLIN/ A.SAUNDERS
WINGWALL ELEVATIONS

PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.OLIN
SHEET 41 OF 66

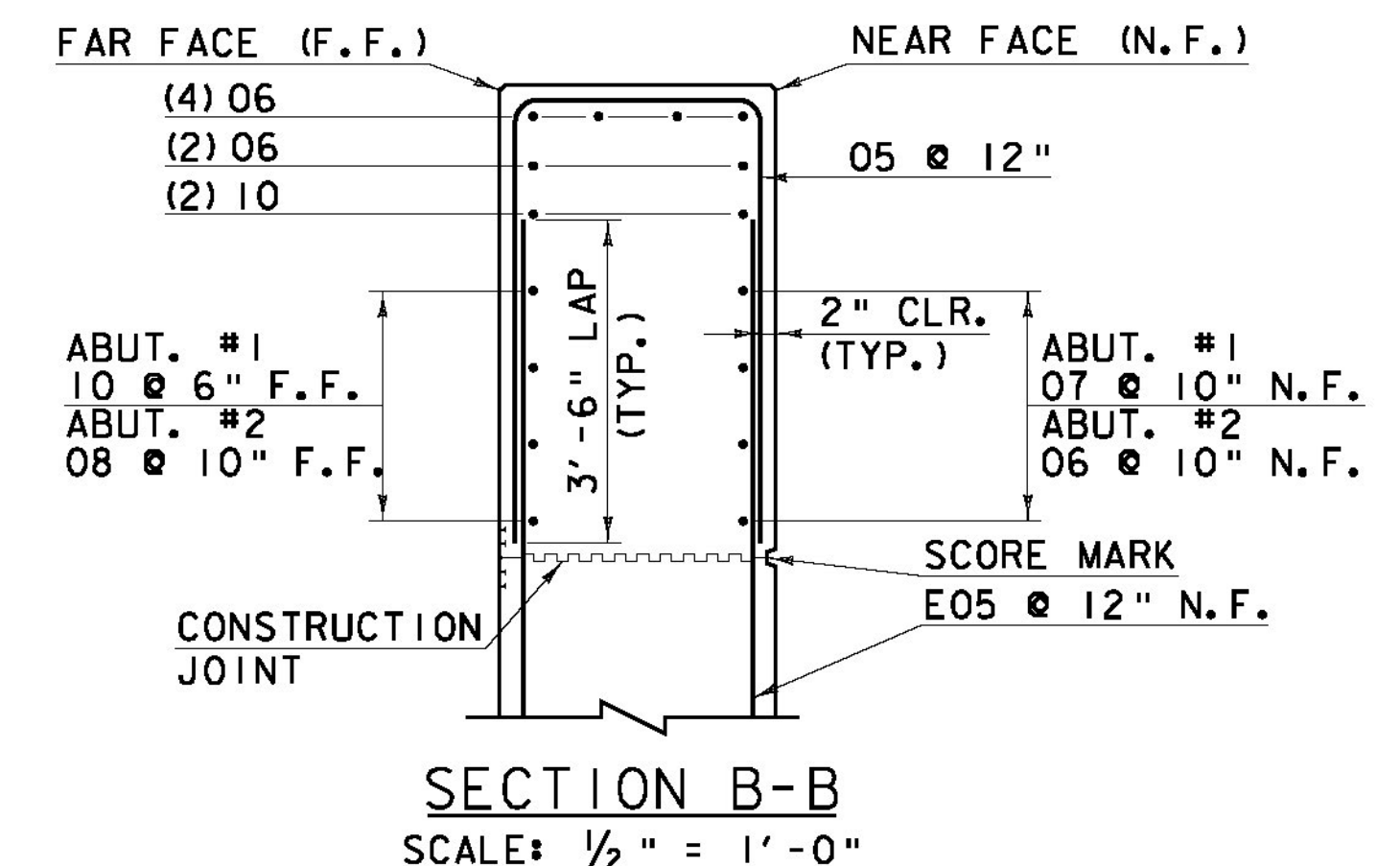




ABUTMENT TYPICAL SECTION
SCALE: 3/4" = 1'-0"

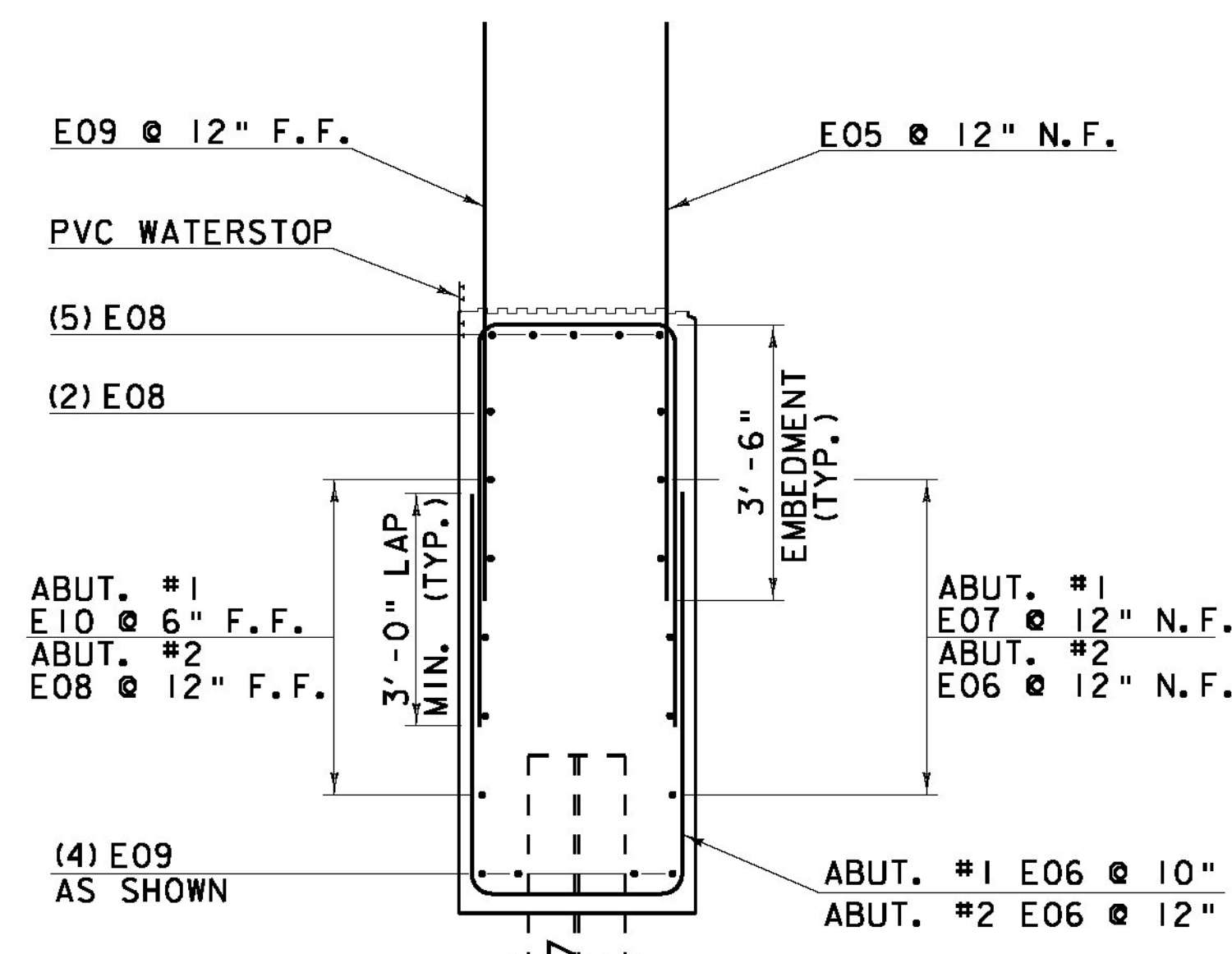


SECTION A-A
SCALE: 1/2" = 1'-0"

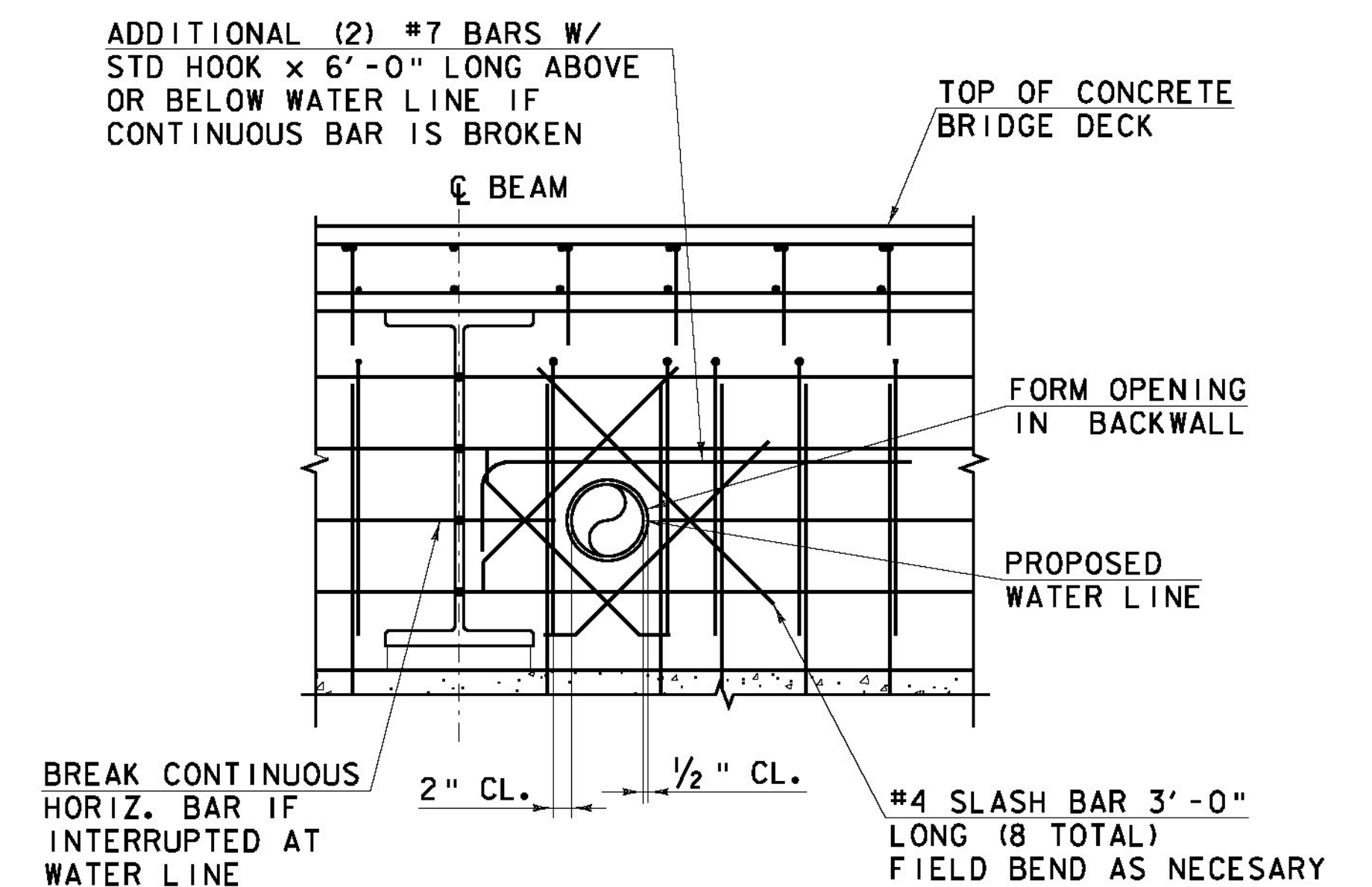


SECTION B-B
SCALE: 1/2" = 1'-0"

CONTRACTOR TO USE VIBRATOR ON BOTH
SIDES OF EACH BEAM DURING END
DIAPHRAGM POUR TO ENSURE FLOW OF
CONCRETE BETWEEN BEAM AND PILE CAP



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



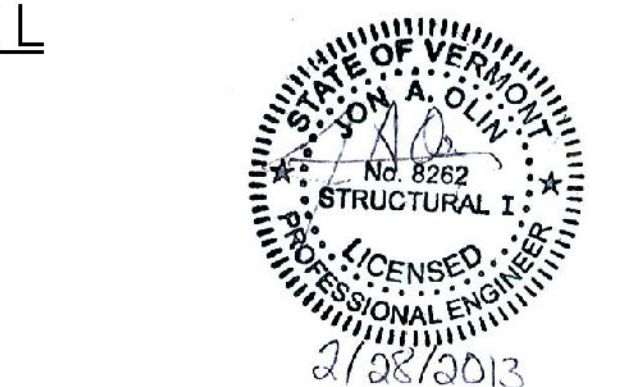
NOTE:
E = EPOXY COATED REINFORCING
NF = NEAR FACE
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EF = EACH FACE
▲ = CUT TO FIT IN FIELD
2" CLEAR, UNLESS OTHERWISE
SPECIFIED ON THE PLANS.
3'-0" BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.

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

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

Hoyle, Tanner
& Associates, Inc.
HTA PROJECT MODEL
904226 Z051352DTLI

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)
FILE NAME: z051352DTLI.dgn
PROJECT LEADER: J.LACROIX
DESIGNED BY: J.LIN / A.SAUNDERS
ABUTMENT SECTIONS



PLOT DATE: 02/28/2013
DRAWN BY: J.MCQUAID
CHECKED BY: J.LIN
SHEET 42 OF 66

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.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.
12. 2 IN BAR MARK SUFFIX DENOTES LEVEL II CORROSION RESISTANCE.

ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNA- TION	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

PROJECT NAME: **BRISTOL**
PROJECT NUMBER: **BRO 1445(32)**

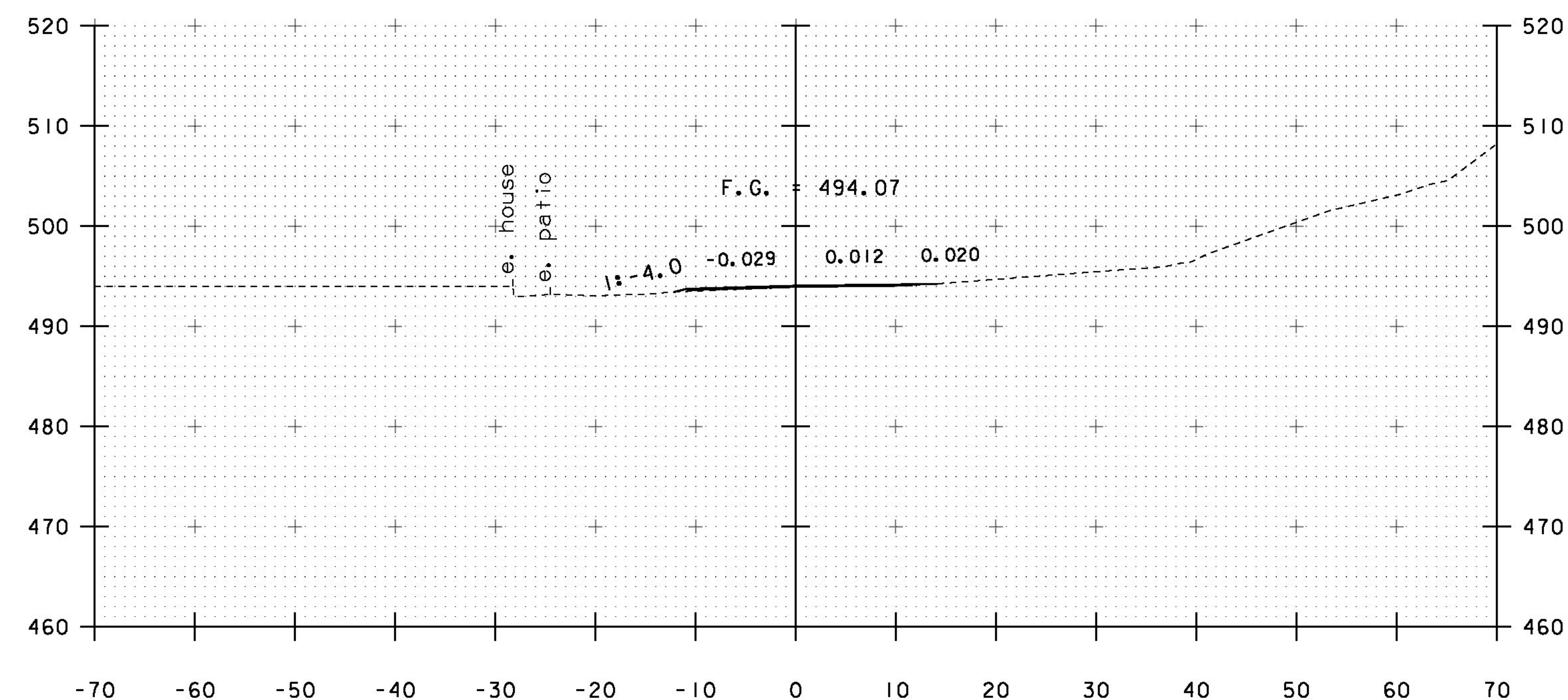
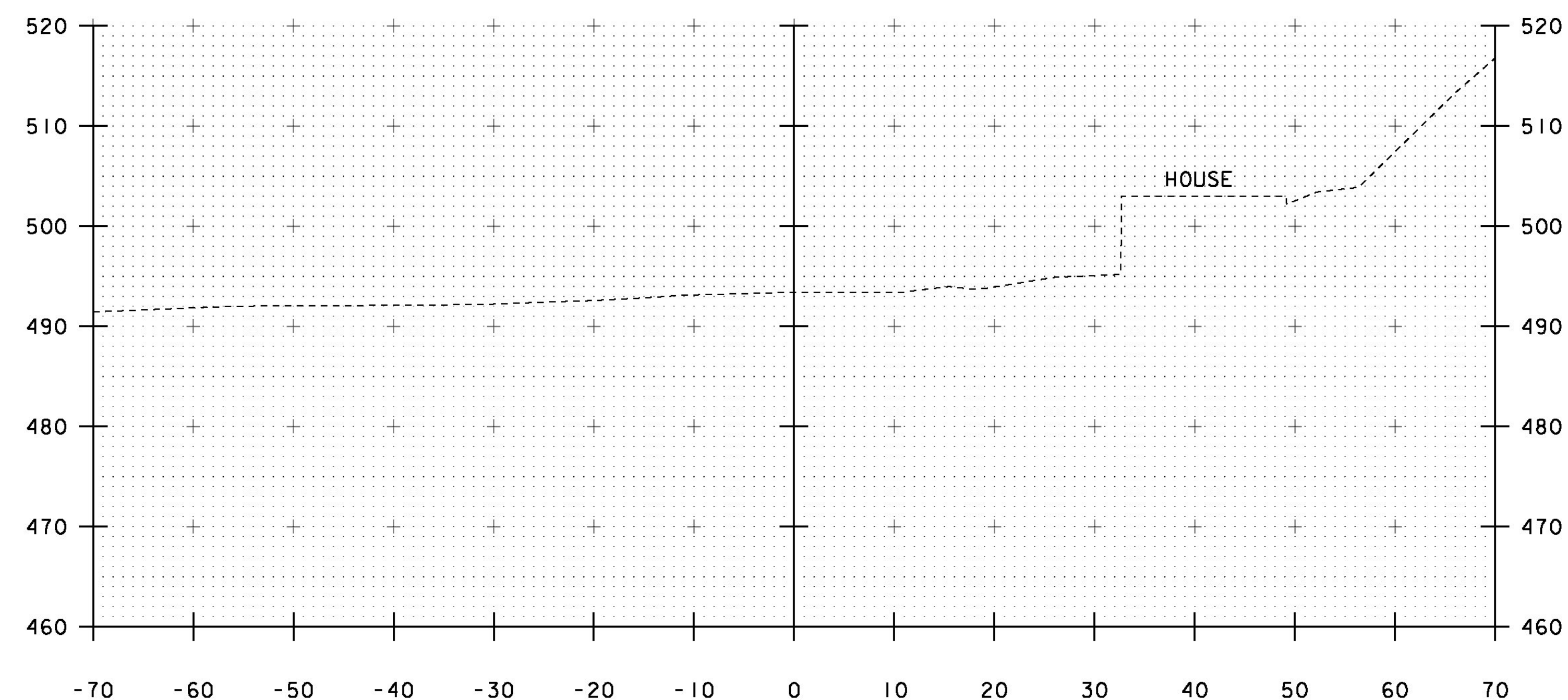
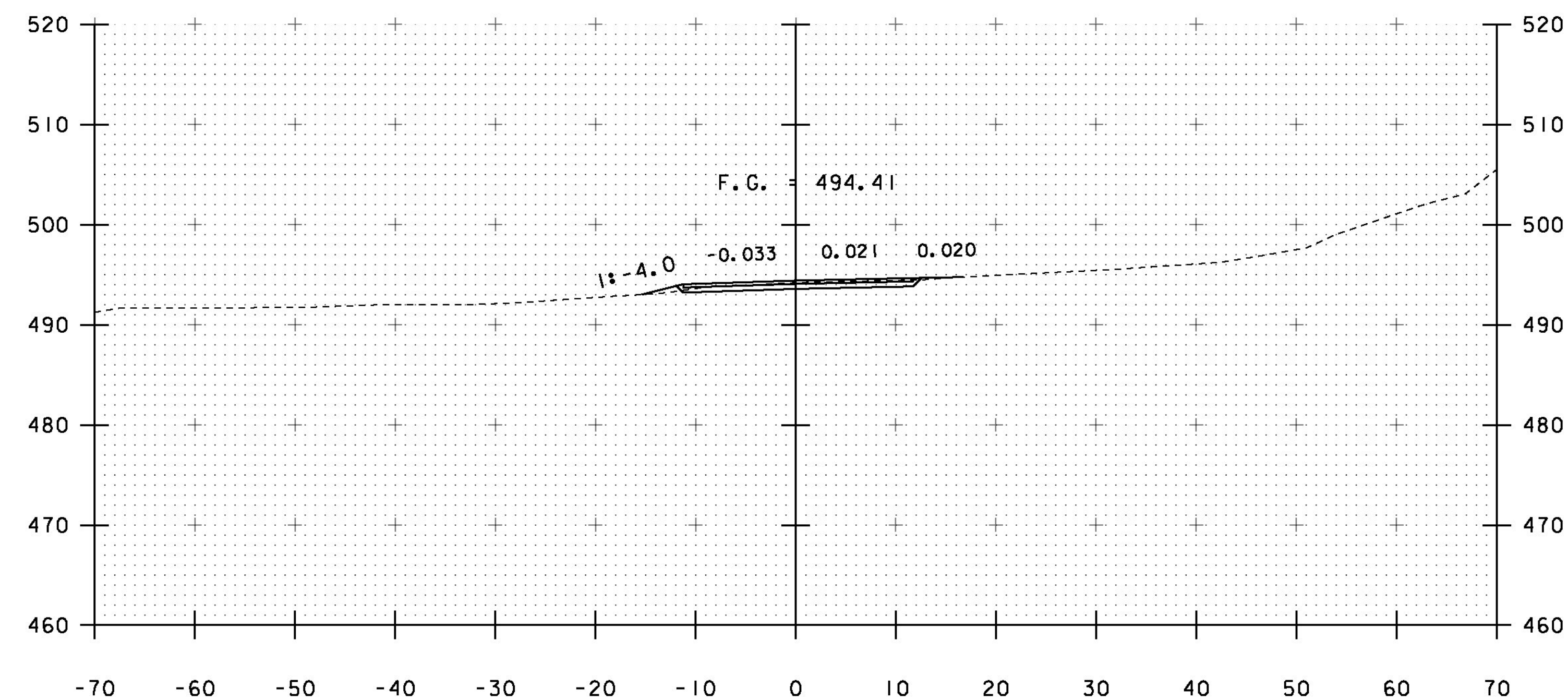
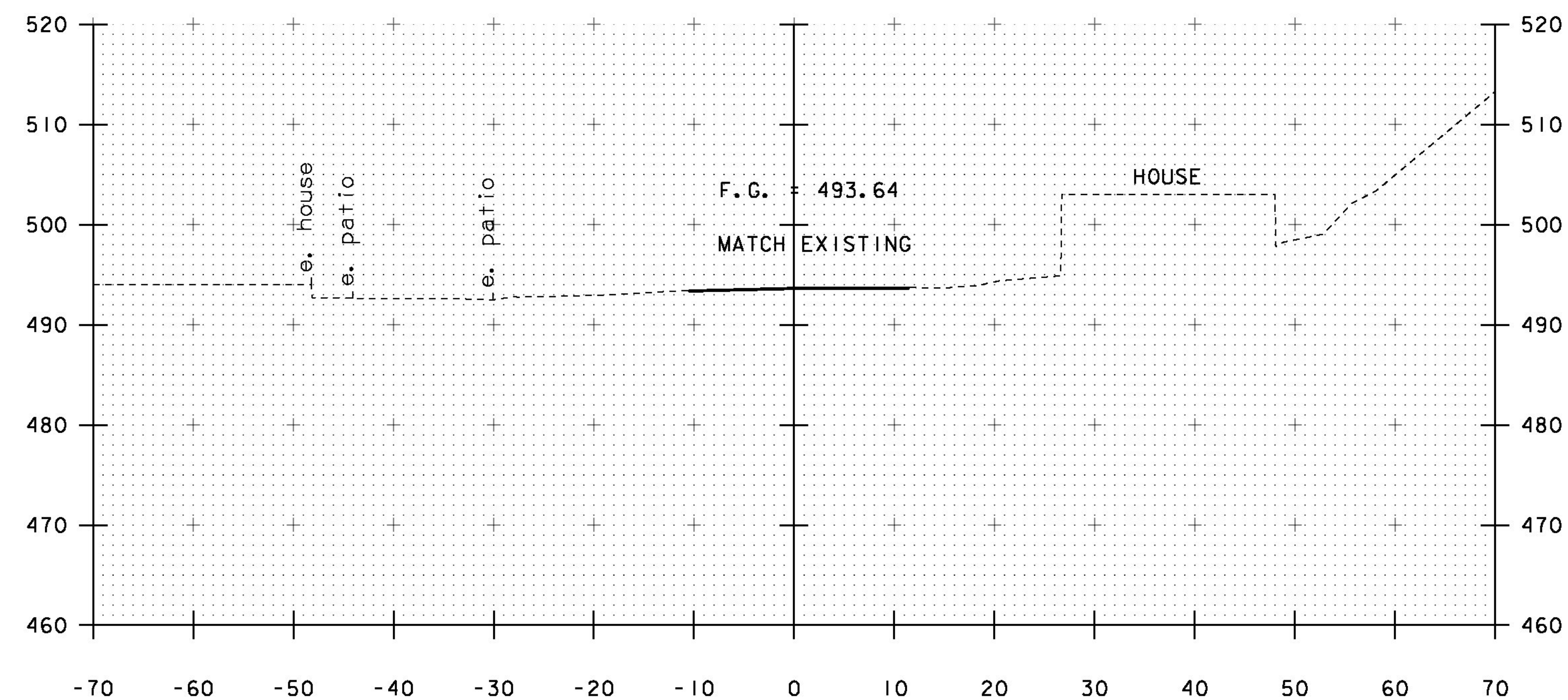
FILE NAME: s05j352reinf.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: J. OLIN/A. SAUNDERS
REINFORCING STEEL SCHEDULE SHEET #1

PLOT DATE: 2/28/2013
DRAWN BY: A. SAUNDERS
CHECKED BY: J. OLIN
SHEET 43 OF 66

STATE OF VERMONT
AGENCY OF TRANSPORTATION

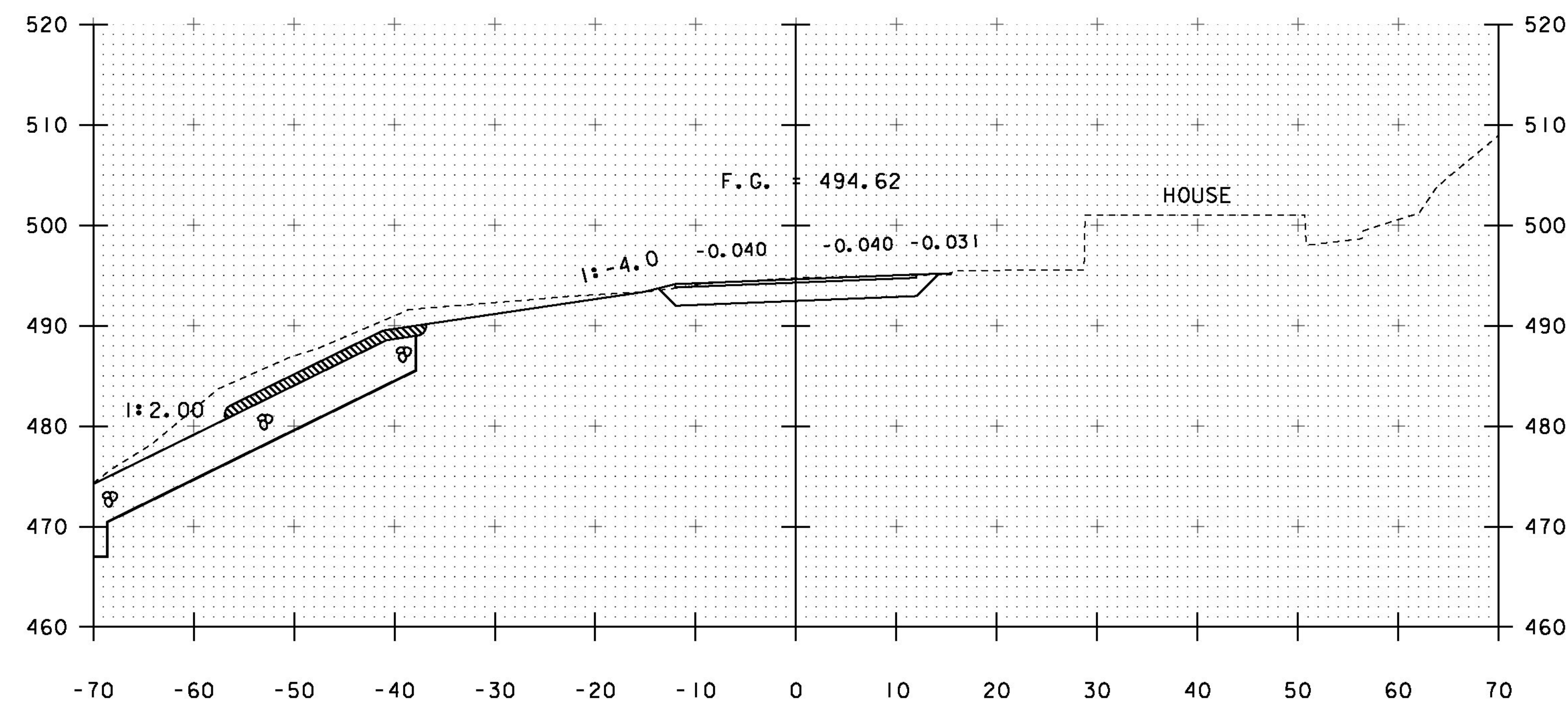
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
WINGWALL (WW1)																		WINGWALL (WW4)																	
	7	6	12'- 9"	NW0601.2	STR														7	6	11'- 5"	SE0601.2	STR												
	2	6	12'- 7"	NW0602.2	STR														2	6	11'- 2"	SE0602.2	STR												
	2	6	↑	NW0603.2	STR														2	6	↑	SE0603.2	STR												
	2	6		NW0604.2	STR														2	6		SE0604.2	STR												
	2	6		NW0605.2	STR														2	6		SE0605.2	STR												
	2	6		NW0606.2	STR														2	6		SE0606.2	STR												
	2	6		NW0607.2	STR														2	6	↓	SE0607.2	STR												
	2	6		NW0608.2	STR														2	6	5'- 4"	SE0608.2	STR												
	2	6		NW0609.2	STR														1	6	10'- 2"	ESE0609	STR												
	2	6		NW0610.2	STR														1	6	↑	ESE0610	STR												
	2	6		NW0611.2	STR														1	6	↓	ESE0611	STR												
	2	6		NW0612.2	STR														1	6	↓	ESE0612	STR												
	2	6		NW0613.2	STR														1	6	6'- 0"	ESE0613	STR												
	2	6	5'- 5"	NW0614.2	STR														1	6	10'- 7"	ESE0614	STR												
	1	6	16'- 6"	ENW0615	STR														1	6	↑	ESE0615	STR												
	1	6	↑	ENW0616	STR														1	6	↓	ESE0616	STR												
	1	6		ENW0617	STR														1	6		ESE0617	STR												
	1	6	↓	ENW0618	STR														1	6	6'- 5"	ESE0618	STR												
	1	6		ENW0619	STR														9	6	11'- 3"	SE0619.2	STR												
	1	6	6'- 10"	ENW0620	STR														9	6	11'- 8"	SE0620.2	STR												
	10	6	18'- 0"	NW0621.2	STR														12	6	11'- 4"	SE0621.2	2	4'- 9"	1'- 10"						4'- 9"				
	18	6	11'- 4"	NW0622.2	2	4'- 9"	1'- 10"												1	6	6'- 8"	ESE0622	3	0'- 0"	0'- 0"	2'- 0"	4'- 8"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	6'- 2"	
	1	6	6'- 11"	ENW0623	3	0'- 0"	0'- 0"	2'- 0"	4'- 11"	0'- 0"	0'- 0"	0'- 0"	0'- 10"	0'- 0"	1'- 10"		5'- 9"		1	6	7'- 1"	ESE0623	3	0'- 0"	0'- 0"	2'- 0"	5'- 1"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	6'- 7"	
	1	6	8'- 7"	ENW0624	3	0'- 0"	0'- 0"	2'- 0"	6'- 7"	0'- 0"	0'- 0"	0'- 0"	0'- 10"	0'- 0"	1'- 10"		7'- 6"		2	6	8'- 5"	ESE0624	STR												
	2	6	14'- 3"	ENW0625	STR														12	6	6'- 10"	ESE0625	2	2'- 6"	1'- 10"						2'- 6"				
	18	6	6'- 10"	ENW0626	2	2'- 6"	1'- 10"																												
	11	9	14'- 10"	NW0901.2	3	0'- 0"	0'- 0"	1'- 0"	12'- 10"	1'- 0"	0'- 0"	0'- 0"	0'- 5"	0'- 0"	0'- 11"		14'- 8"		18	9	6'- 3"	ESE0902	3	0'- 0"	0'- 0"	1'- 0"	4'- 3"	1'- 0"	0'- 0"	0'- 0"	0'- 8"	0'- 0"	0'- 9"	5'- 9"	
	18	9	14'- 10"	ENW0902	3	0'- 0"	0'- 0"	1'- 0"	12'- 10"	1'- 0"	0'- 0"	0'- 0"	0'- 5"	0'- 0"	0'- 11"		14'- 8"		11	9	5'- 2"	SE0903.2	3	0'- 0"	0'- 0"	2'- 7"	2'- 7"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	4'- 6"	
	11	9	7'- 0"	NW0903.2	3	0'- 0"	0'- 0"	3'- 6"	3'- 6"	0'- 0"	0'- 0"	0'- 0"	2'- 6"	0'- 0"	0'- 0"		6'- 0"		19	9	5'- 2"	ESE0904	3	0'- 0"	0'- 0"	2'- 7"	2'- 7"	0'- 0"	0'- 0"	0'- 0"	1'- 4"	0'- 0"	1'- 6"	4'- 6"	
	20	9	7'- 0"	ENW0904	3	0'- 0"	0'- 0"	3'- 6"	3'- 6"	0'- 0"	0'- 0"	0'- 0"	2'- 6"	0'- 0"	0'- 0"		6'- 0"																		
	1	9	16'- 6"	ENW0905	STR																														
	1	9	↑	ENW0906	STR																														
	1	9		ENW0907	STR																														
	1	9		ENW0908	STR																														
	1	9		ENW0909	STR																														
	1	9		ENW0910	STR																														
	1	9		ENW0911	STR																														
	1	9		ENW0912	STR																														
	1	9		ENW0913	STR																														
	1	9		ENW0914	STR																														
	1	9	↓	ENW0915	STR																														
*	1	9	5'- 10"	ENW0916	STR																														
	16	9	18'- 0"	NW0917.2	STR																														
WINGWALL (WW3)																		WINGWALL (WW2)																	
	7	6	10'- 7"	NE0601.2	STR														7	6	10'- 5"	NE0602.2	STR												
	2	6	10'- 5"	NE0602.2	STR														2	6	↑	NE0603.2	STR												
	2	6	↑	NE0603.2	STR														2	6		NE0604.2	STR												
	2	6		NE0605.2	STR														2	6		NE0605.2	STR												
	2	6		NE0606.2	STR														2	6		NE0606.2	STR												
	2	6		NE0607.2	STR														2	6		NE0607.2	STR												
	2	6	5'- 4"	NE0608.2	STR														1	6	10'- 7"	ENE0609	STR												
	1	6	10'- 7"	ENE0609	STR														1	6	↑	ENE0610	STR												
	1	6	↑	ENE0610	STR														1	6	↓	ENE0611	STR												
	1	6	5'- 7"	ENE0612	STR														1	6	5'- 7"	ENE0612	STR												
	1	6	10'- 2"	ENE0613	STR														1	6	10'- 2"	ENE0613	STR												
	1	6	↑	ENE0614	STR														1	6	↑	ENE0614	STR												
	1	6	↓	ENE0615	STR														1	6	↓	ENE0615	STR												
	1	6	5'- 2"	ENE0616	STR														1	6	5'- 2"	ENE0616	STR												
	9	6	11'- 0"	NE0617.2	STR														9	6	11'- 0"	NE0617.2	STR												
	9	6	10'- 7"	NE0618.2	STR														9	6	10'- 7"	NE0618.2	STR												
	12	6	11'- 4"	NE0619.2	2	4'- 9"	1'- 10"												12	6	11'- 4"	NE0619.2	2	4'- 9"	1'- 10"										
	1	6	6'- 7"	ENE0620	3	0'- 0"	0'- 0"	2'- 0"	4'- 7"	0'- 0"	0'- 0"	0'- 0"	1'- 2"	0'- 0"	1'- 7"		6'- 2"		1	6	6'- 7"	ENE0620	3	0'- 0"	0'- 0"	2'- 0"	4'- 2"	0'- 0"	0'- 0"	0'- 0"	1'- 2"	0'- 0"	1'- 7"		
	1	6	6'- 2"	ENE0621	3	0'- 0"	0'- 0"	2'- 0"	4'- 2"	0'- 0"	0'- 0"	0'- 0"	1'- 2"	0'- 0"	1'- 7"		5'- 9"		2	6	6'- 10"														

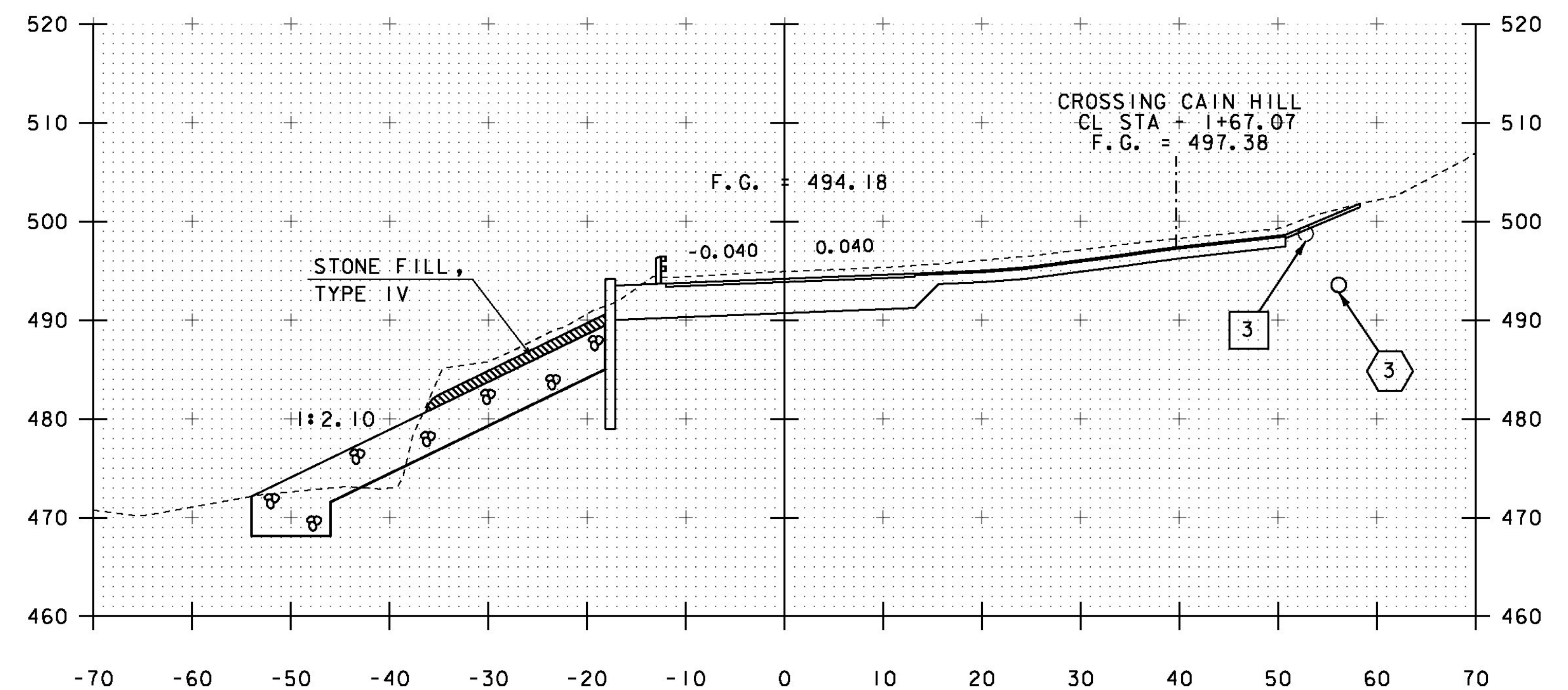


STA. 50+00 TO STA. 50+75

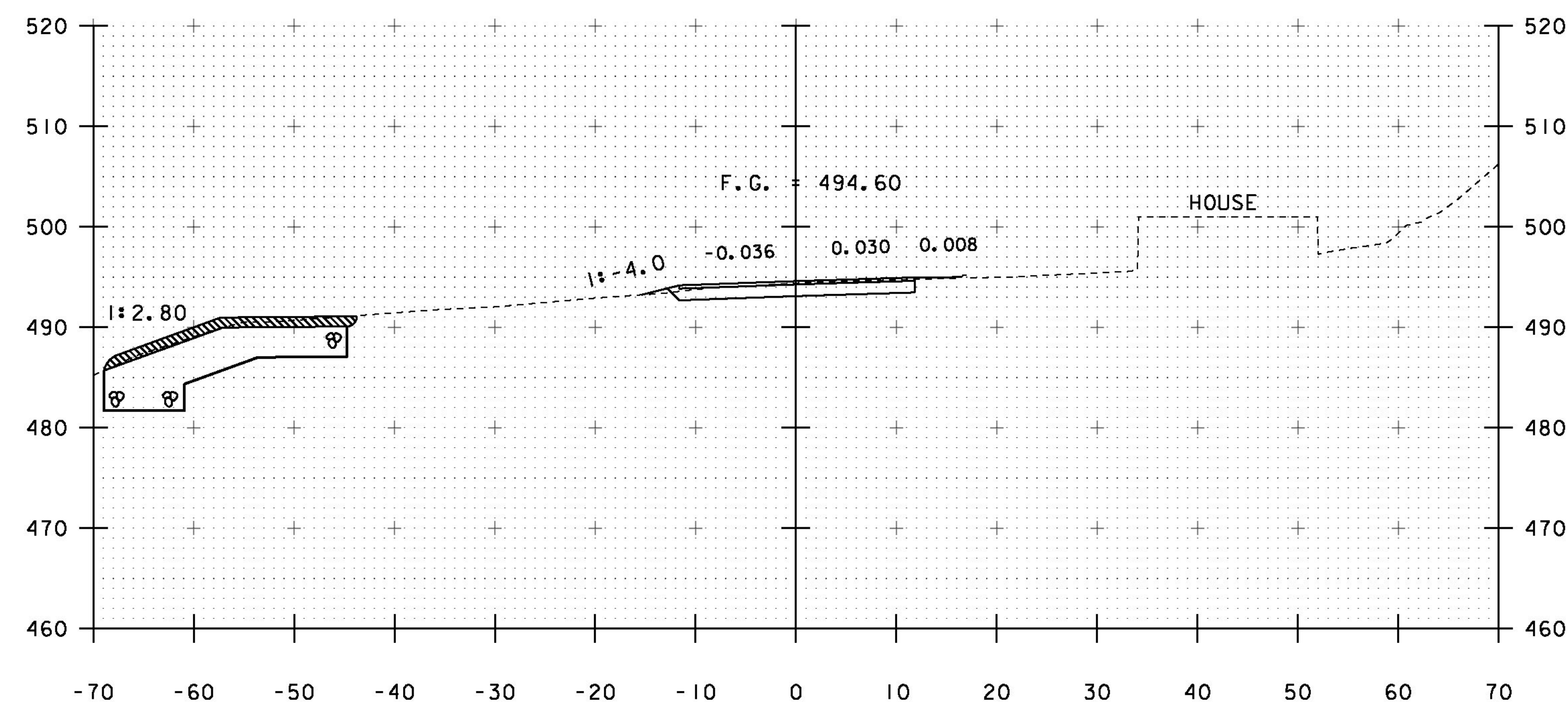
PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLET
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS *1	SHEET 45 OF 66



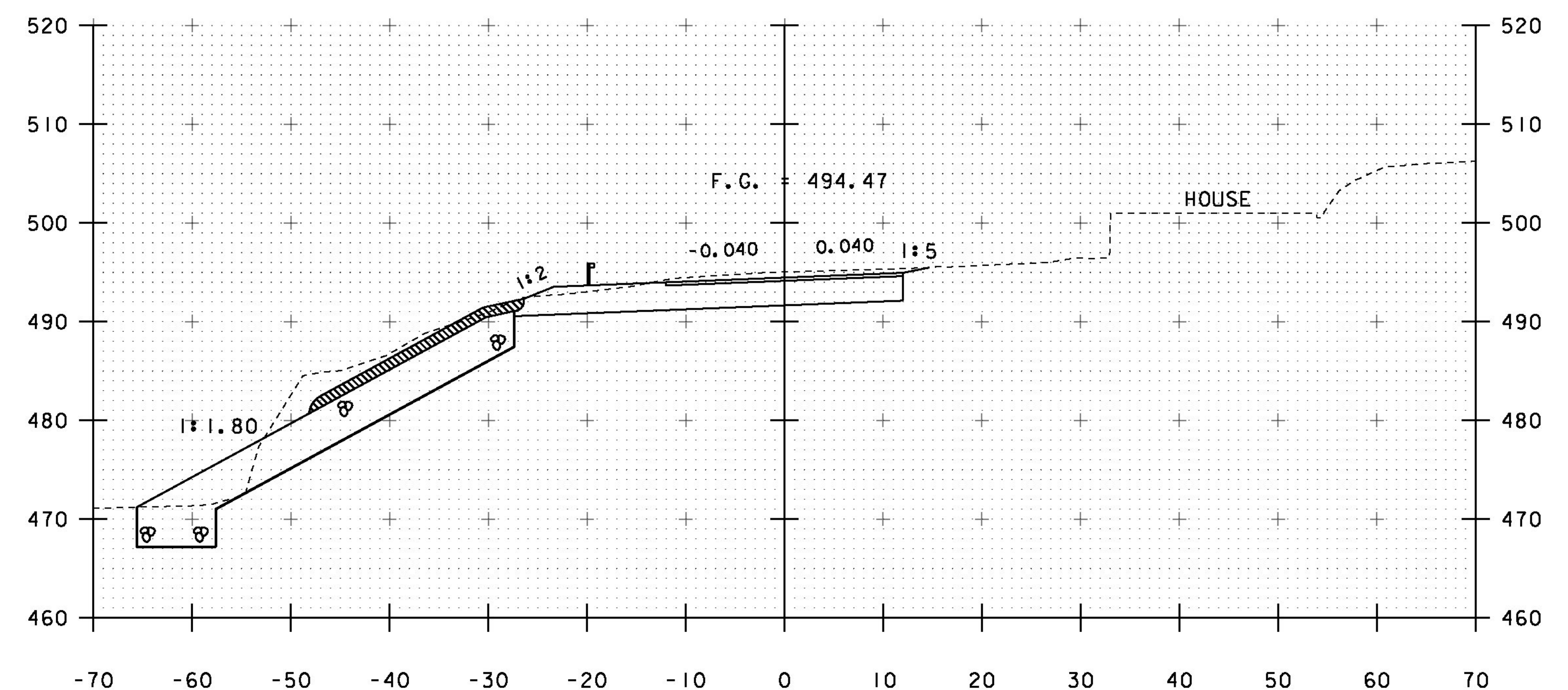
51+25
BEGIN PROJECT



51+75



51+00



51+50

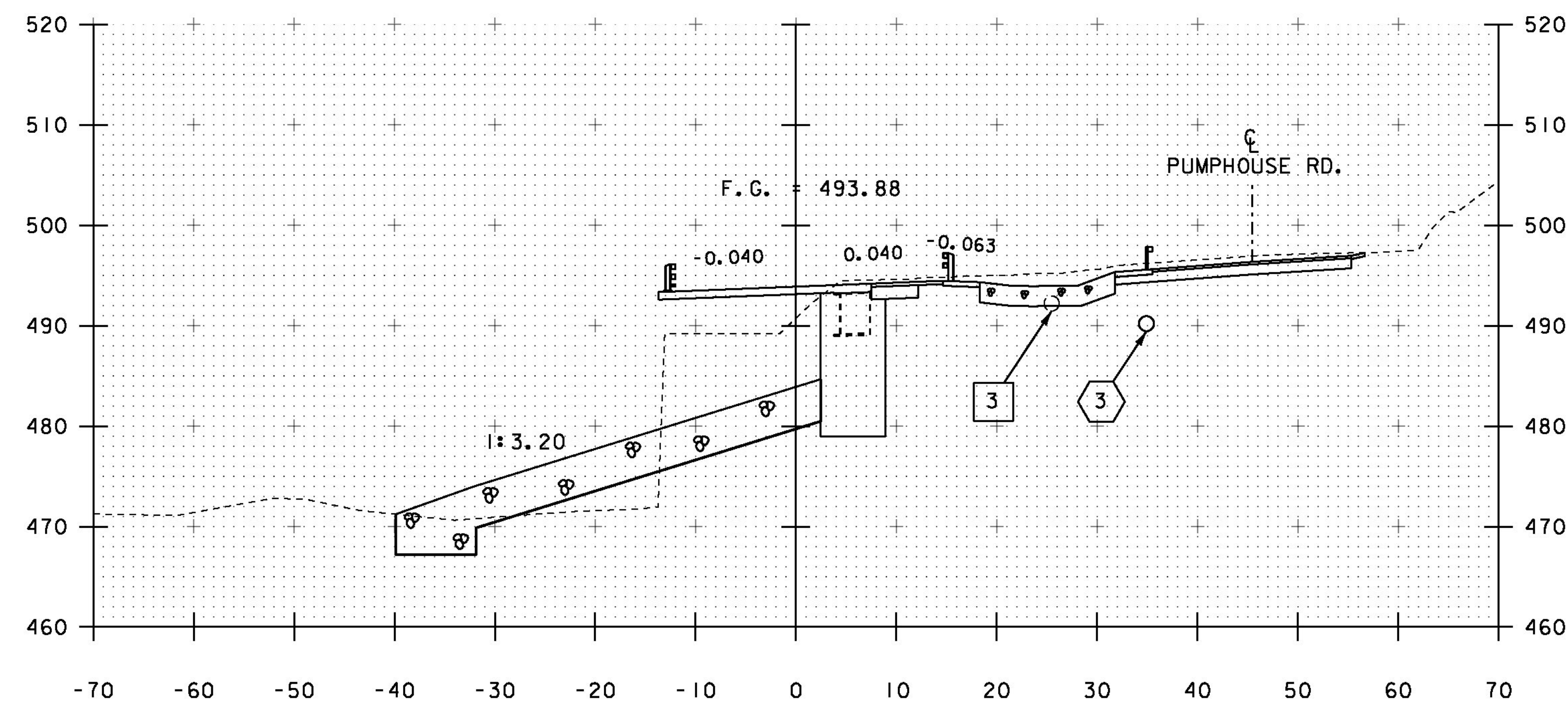
- 3 EXISTING 18" ACCGMP CULVERT
- 3 PROPOSED 18" PIPE OPTION
56'-2" RIGHT

STA. 51+00 TO STA. 51+75

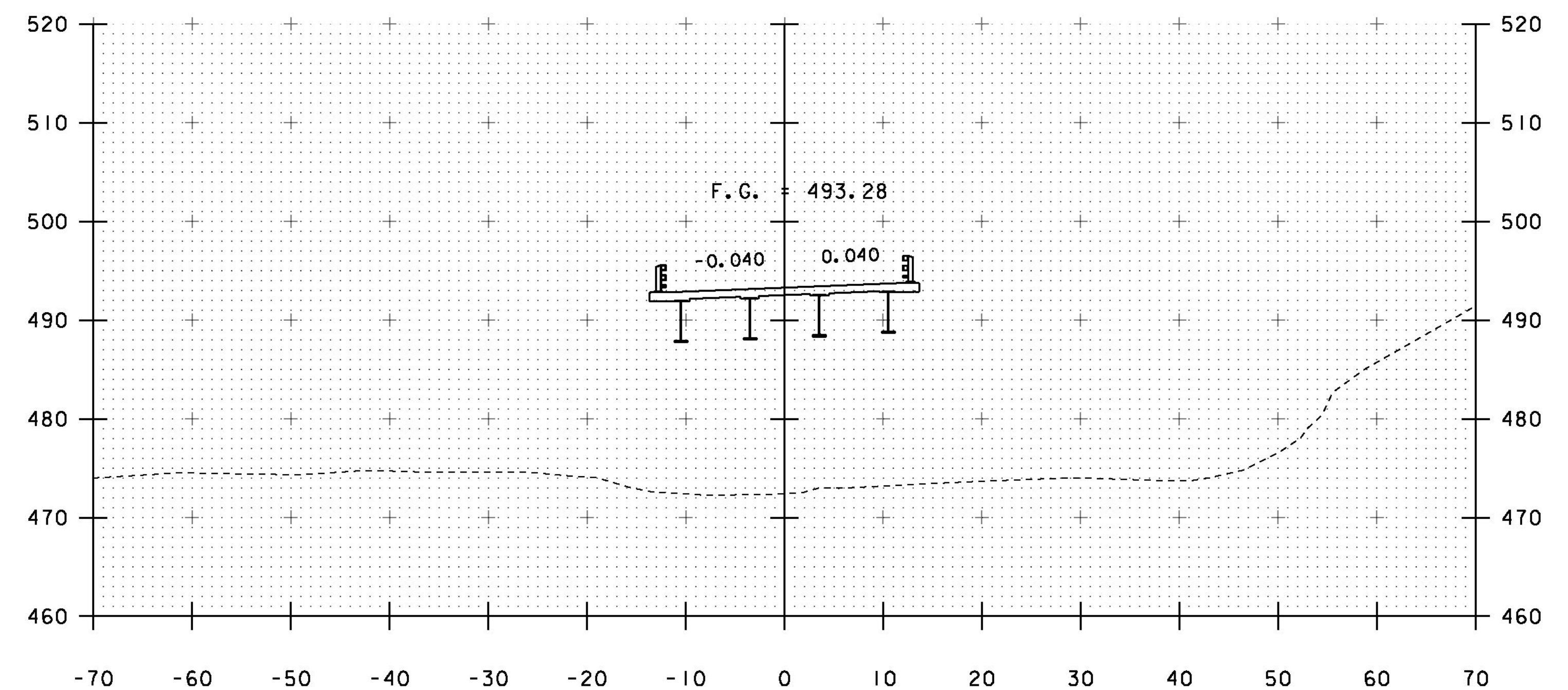
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
MAINLINE SECTIONS *2

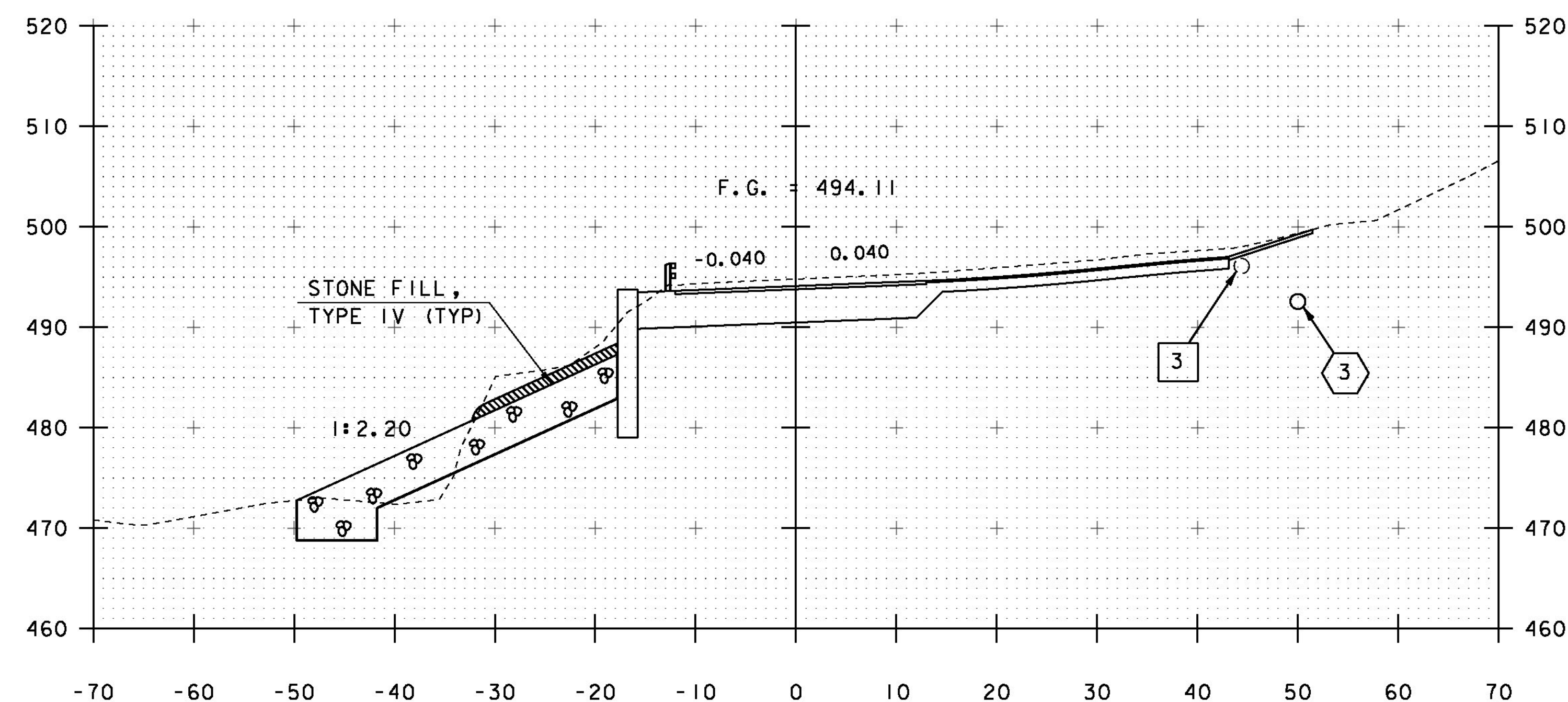
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: T. FILLBACH
SHEET 46 OF 66



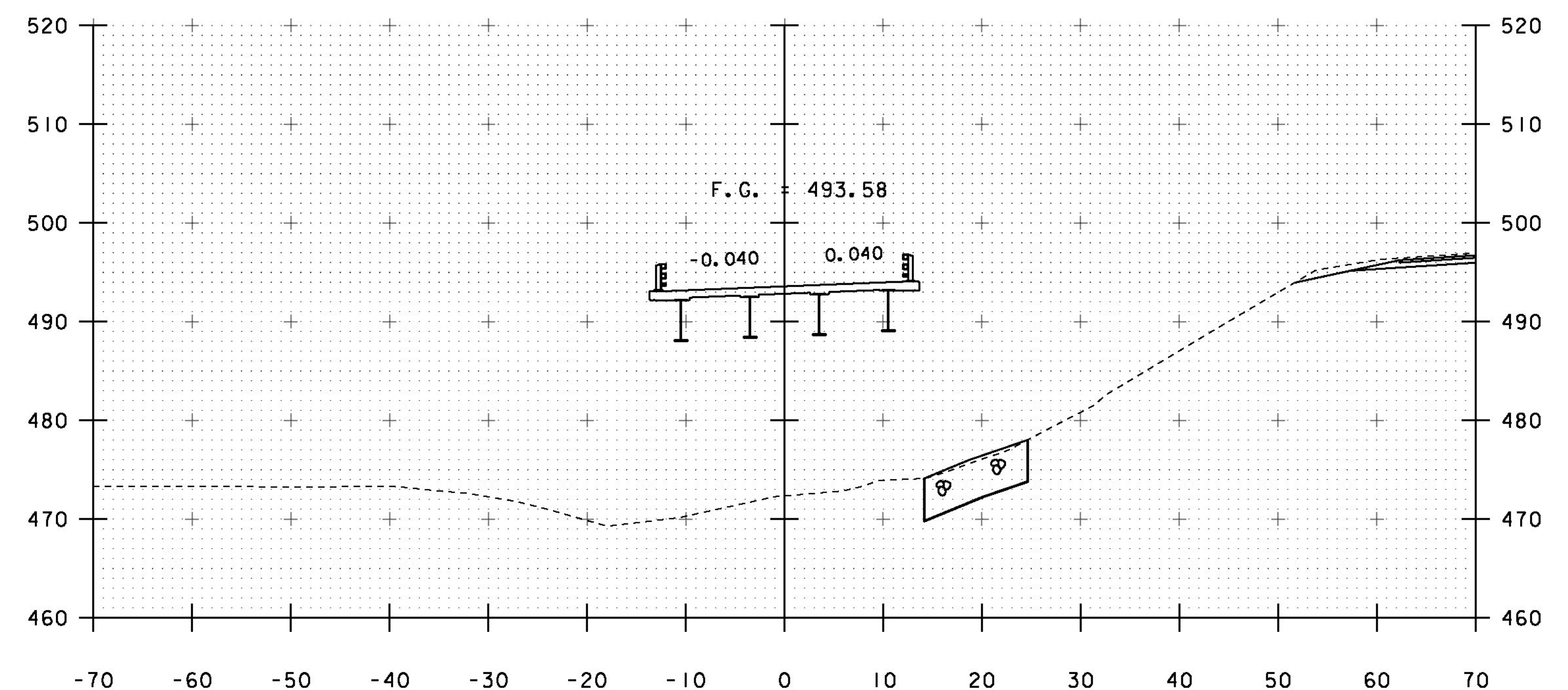
52+00
BEGIN BRIDGE
STA - 51+96.67



52+50



51+81
INTERSECTION
SOUTH STREET / CAIN HILL



52+25

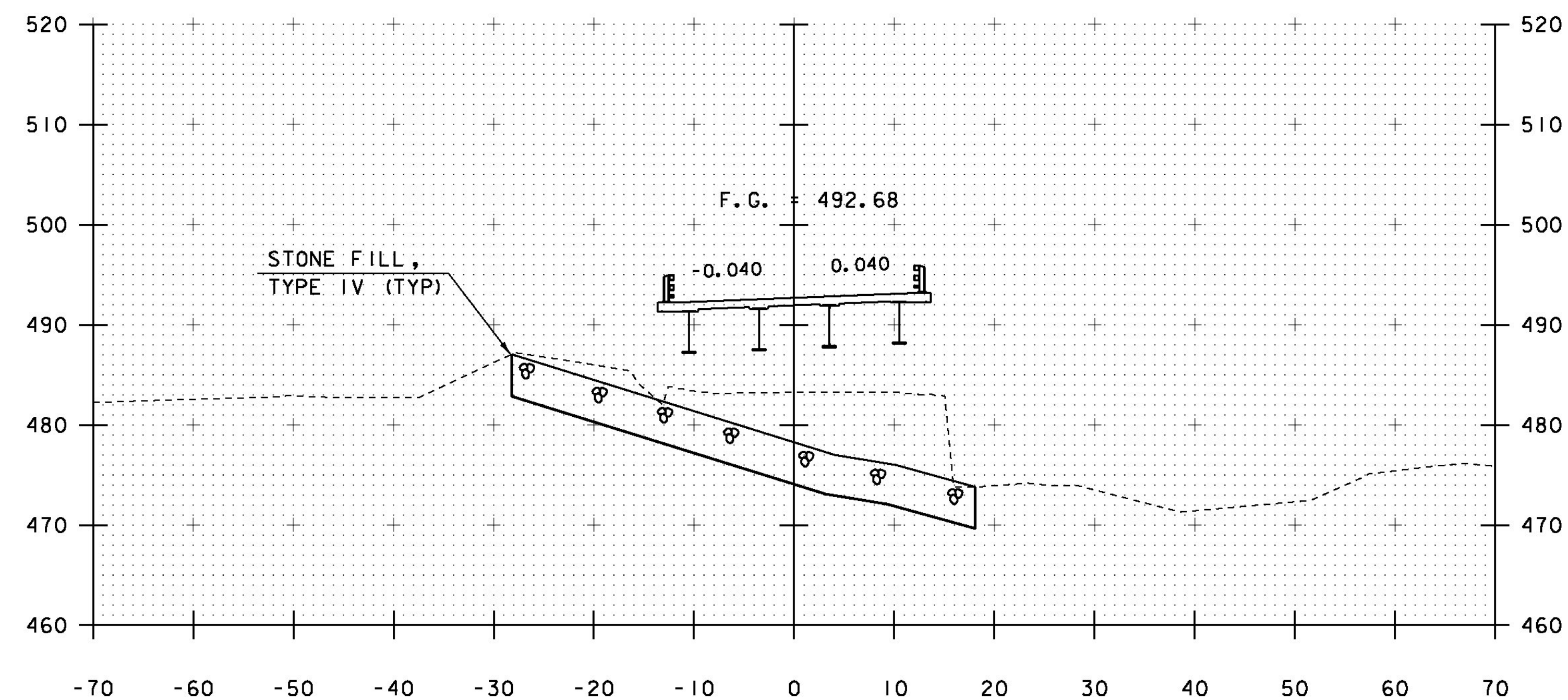
- 3 EXISTING 18" ACCGMP CULVERT
- 3 PROPOSED 18" PIPE OPTION
34' - 11" RIGHT

STA. 51+81 TO STA. 52+50

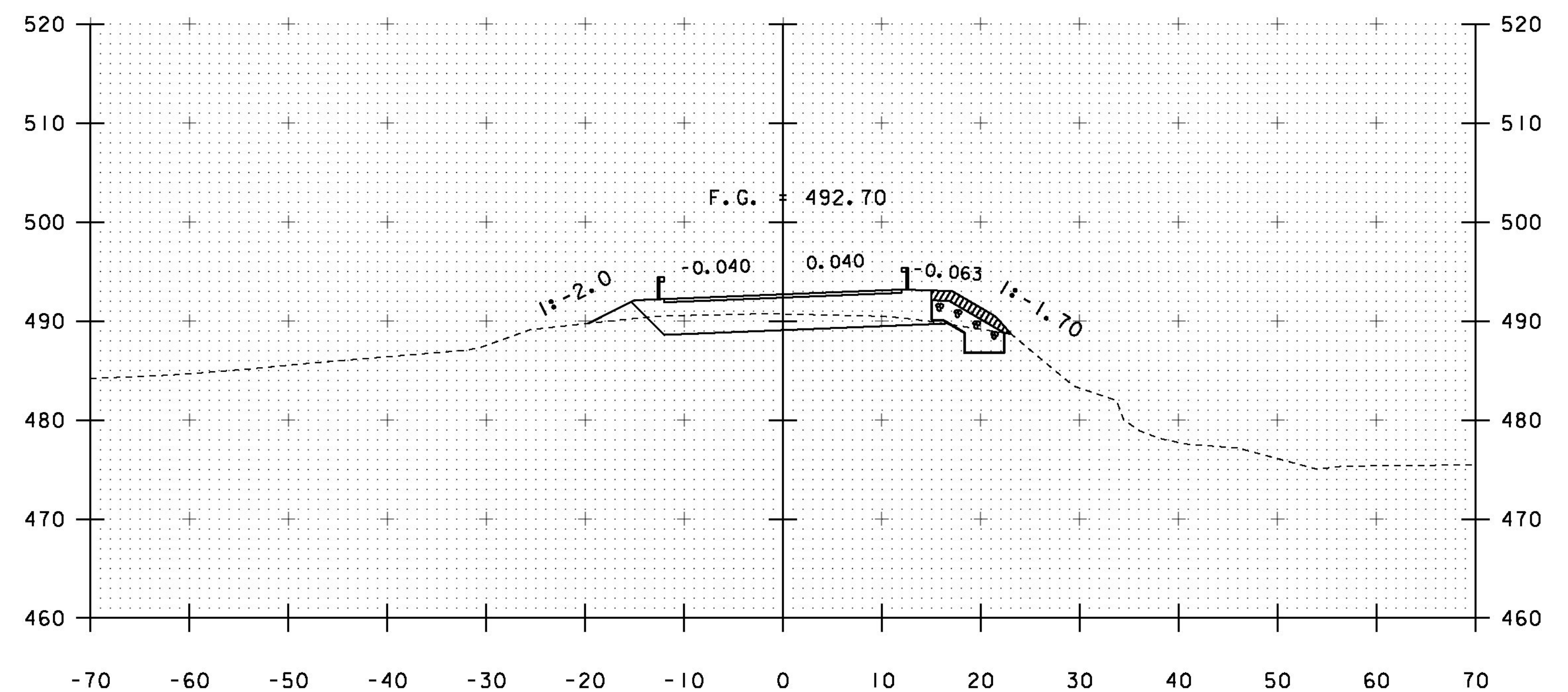
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
MAINLINE SECTIONS *3

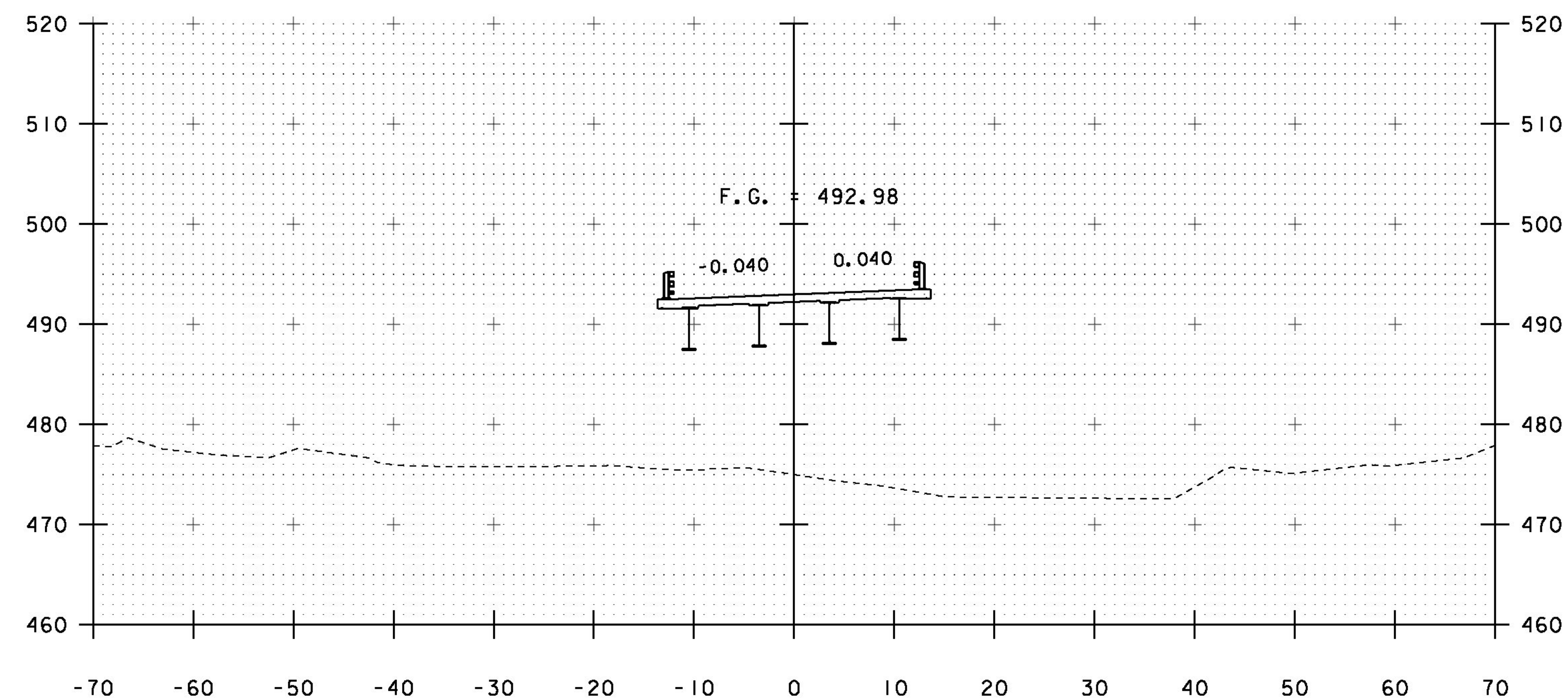
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: T. FILLBACH
SHEET 47 OF 66



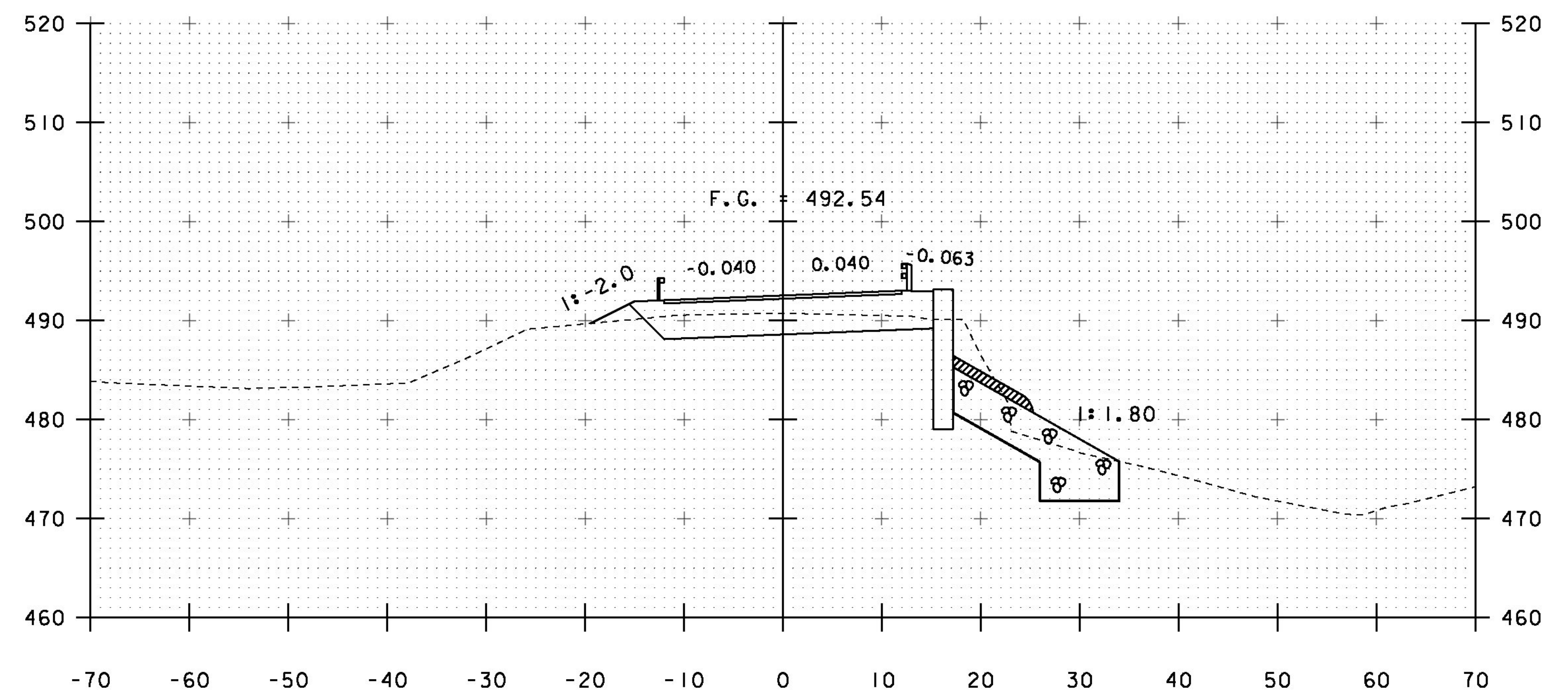
53+00



53+50



52+75

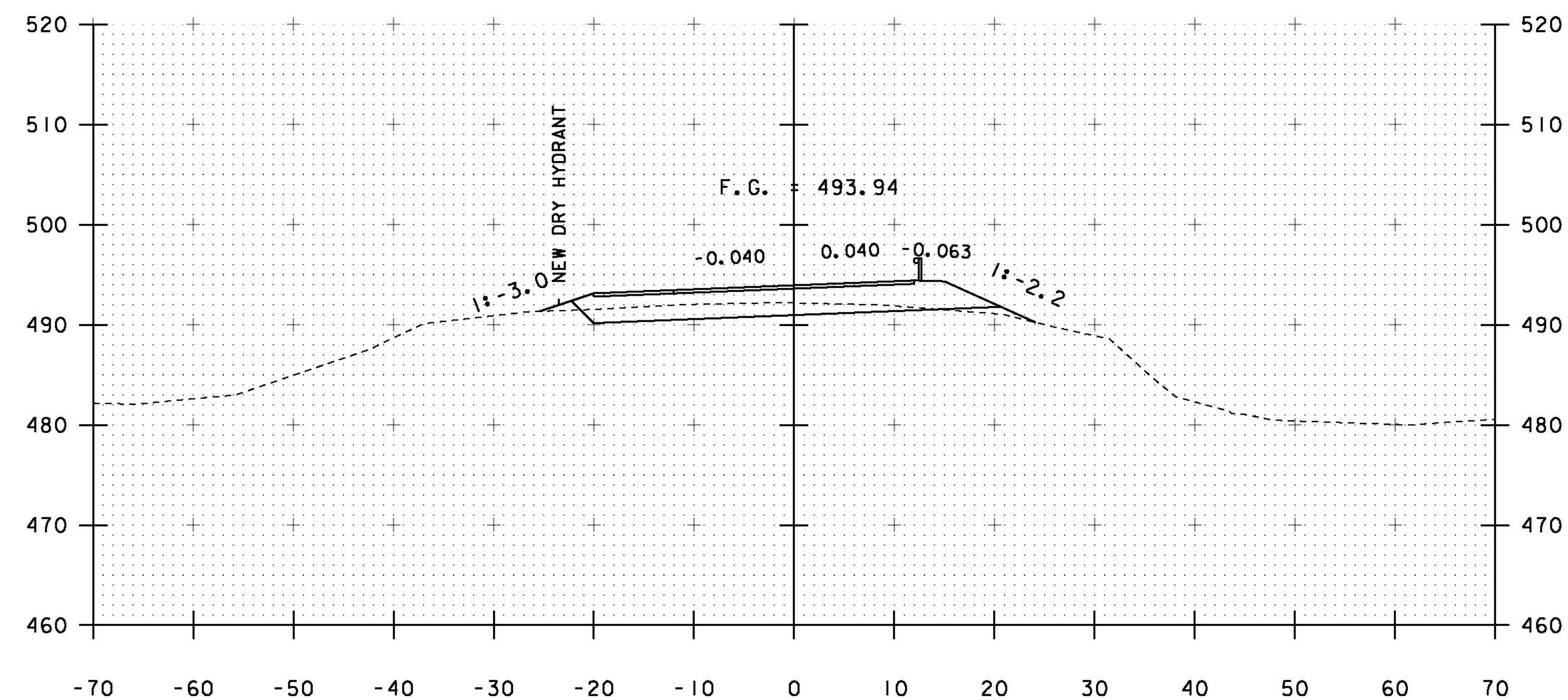


53+25

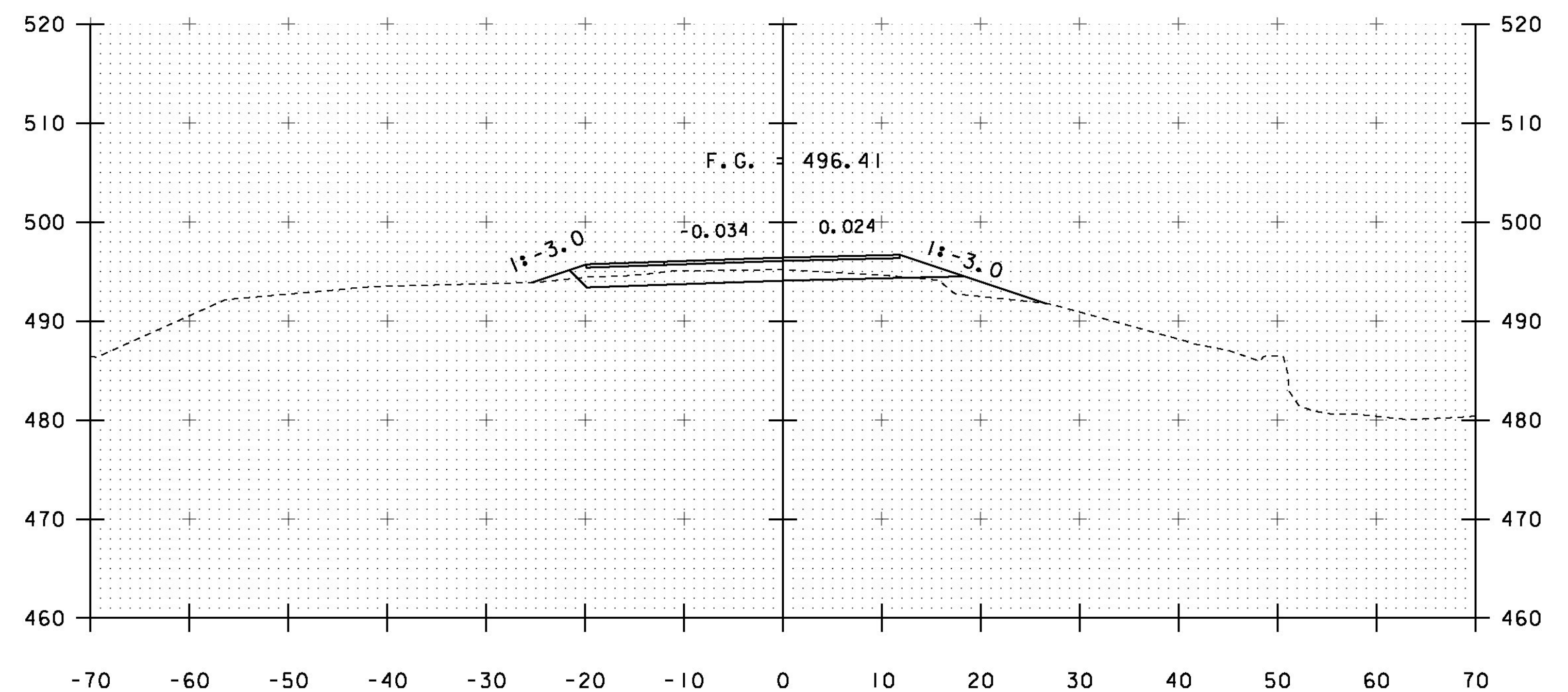
END BRIDGE
STA - 53+19.02

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLET
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS *4	SHEET 48 OF 66

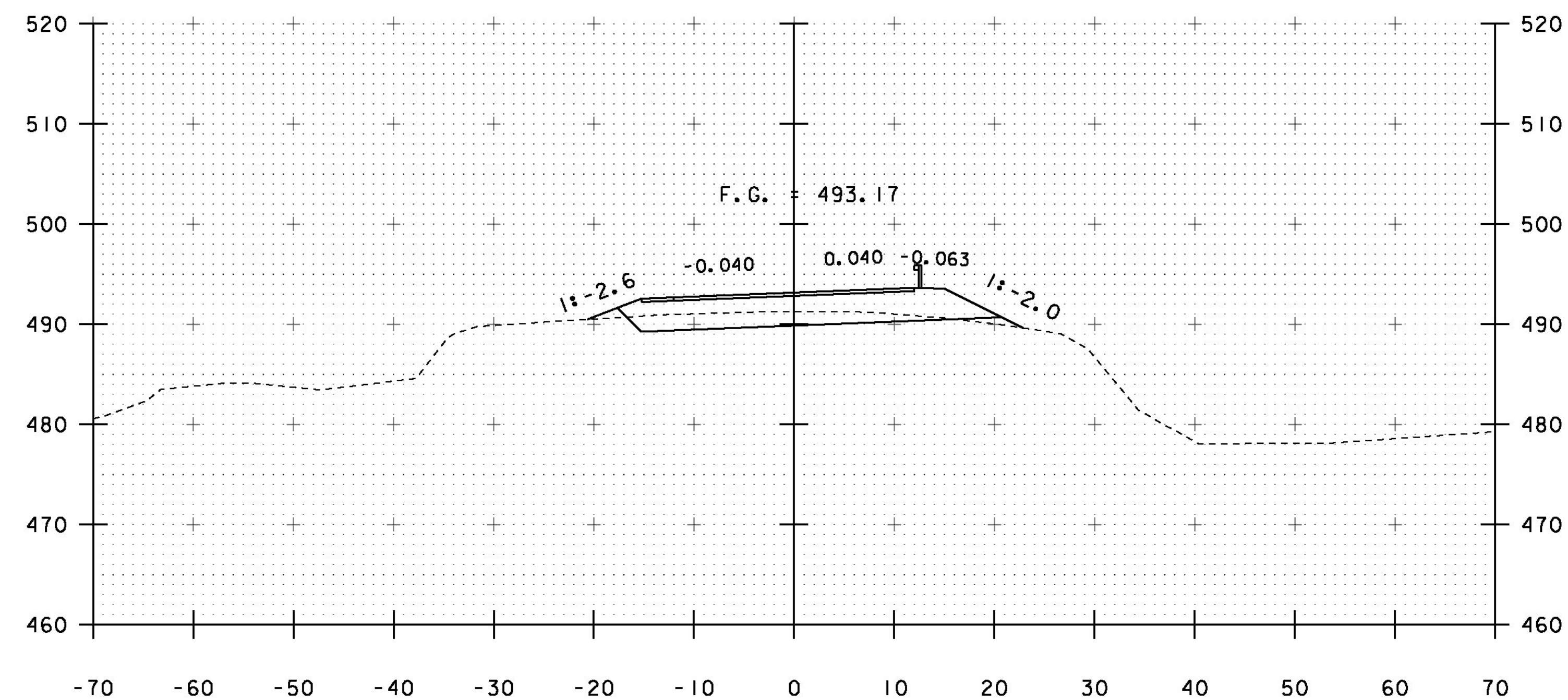
STA. 52+75 TO STA. 53+50



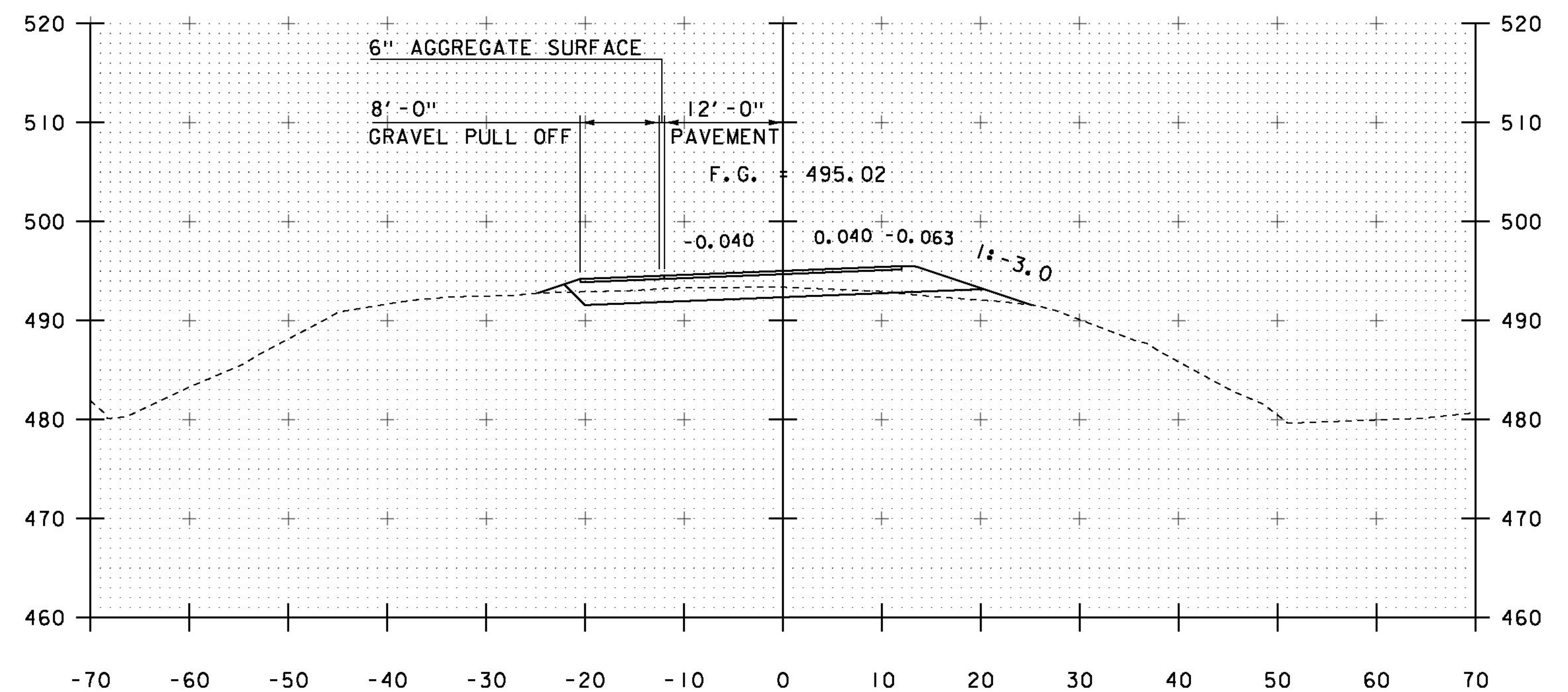
54+00



54+50



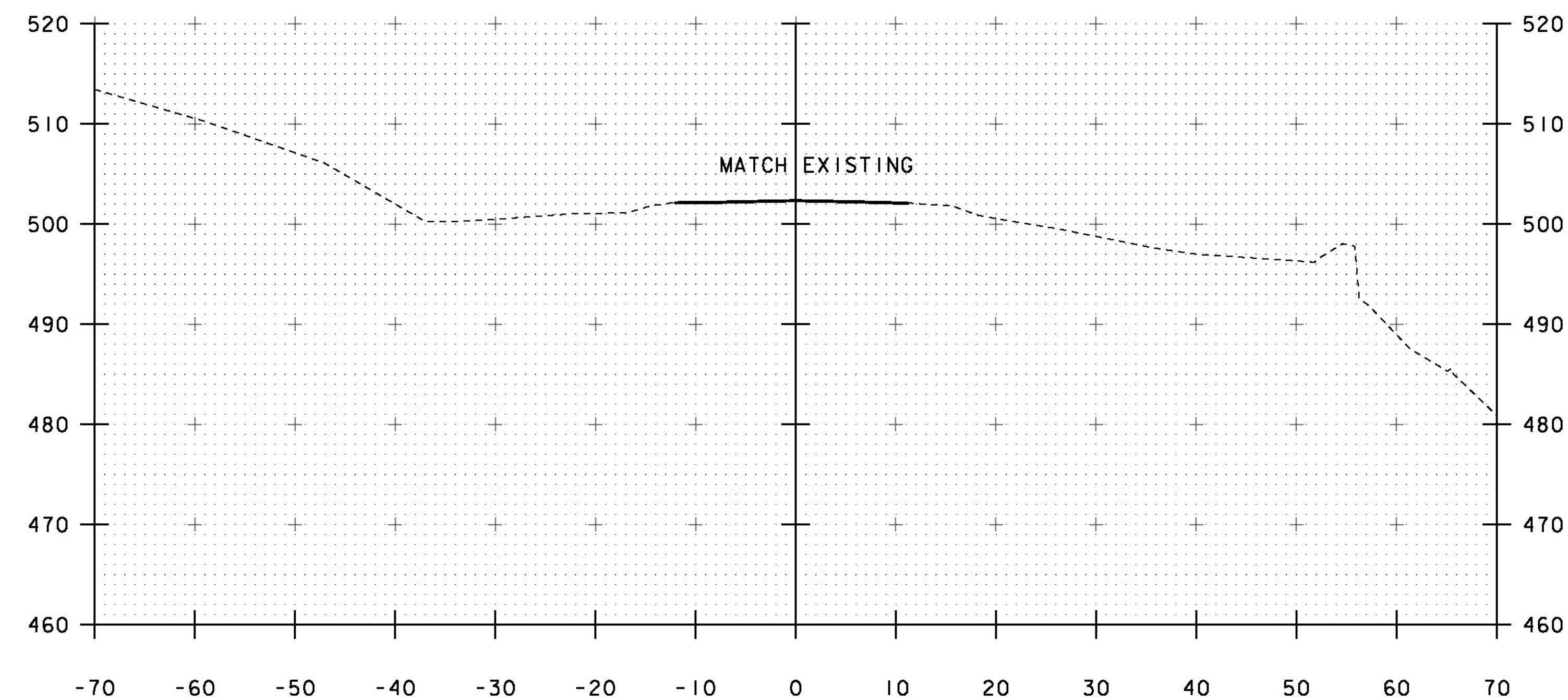
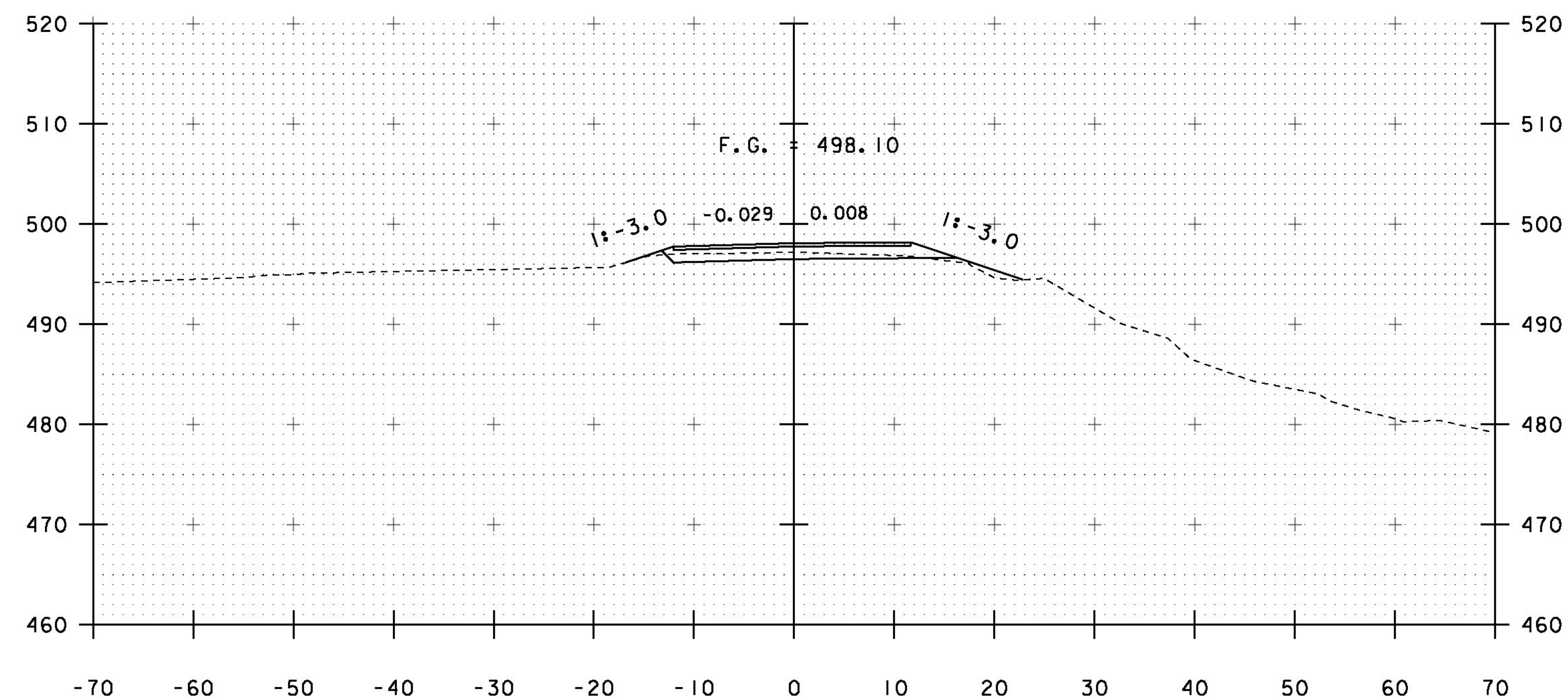
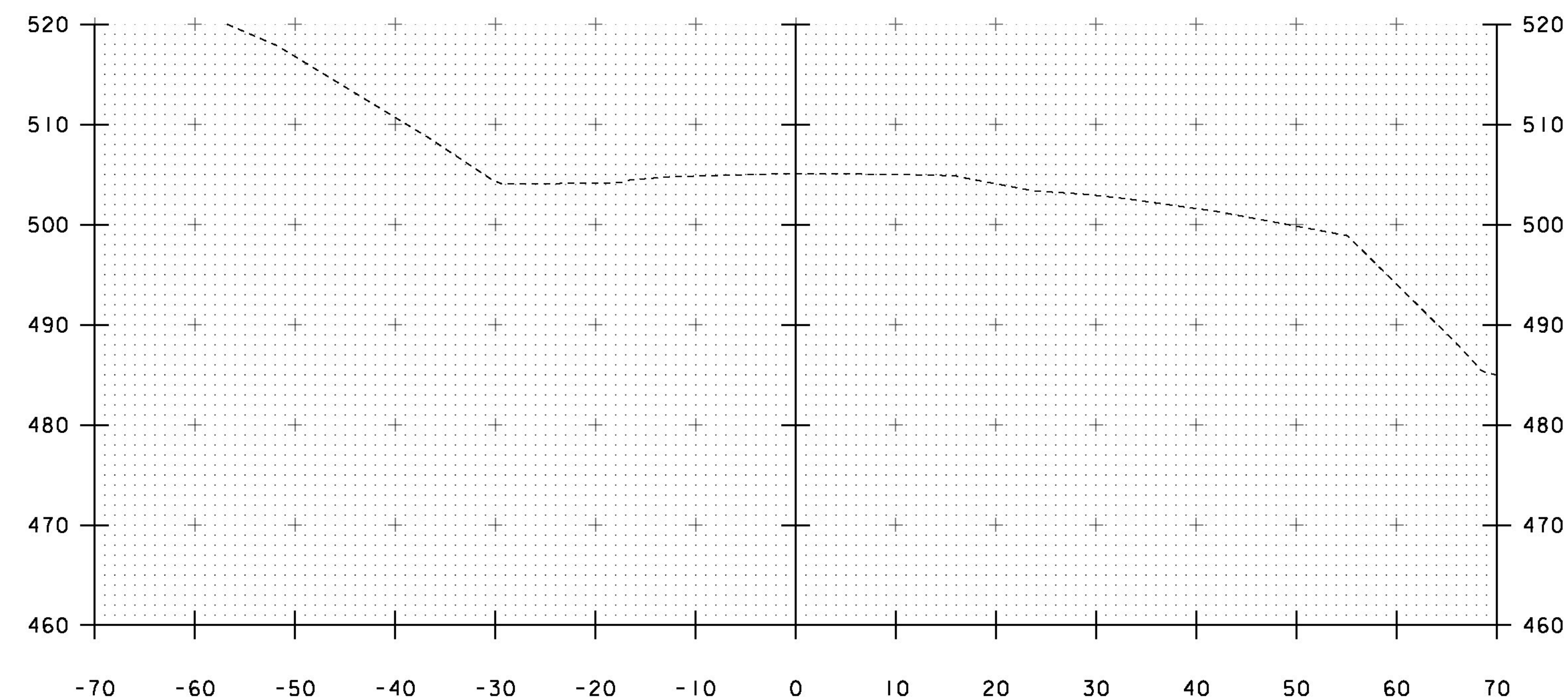
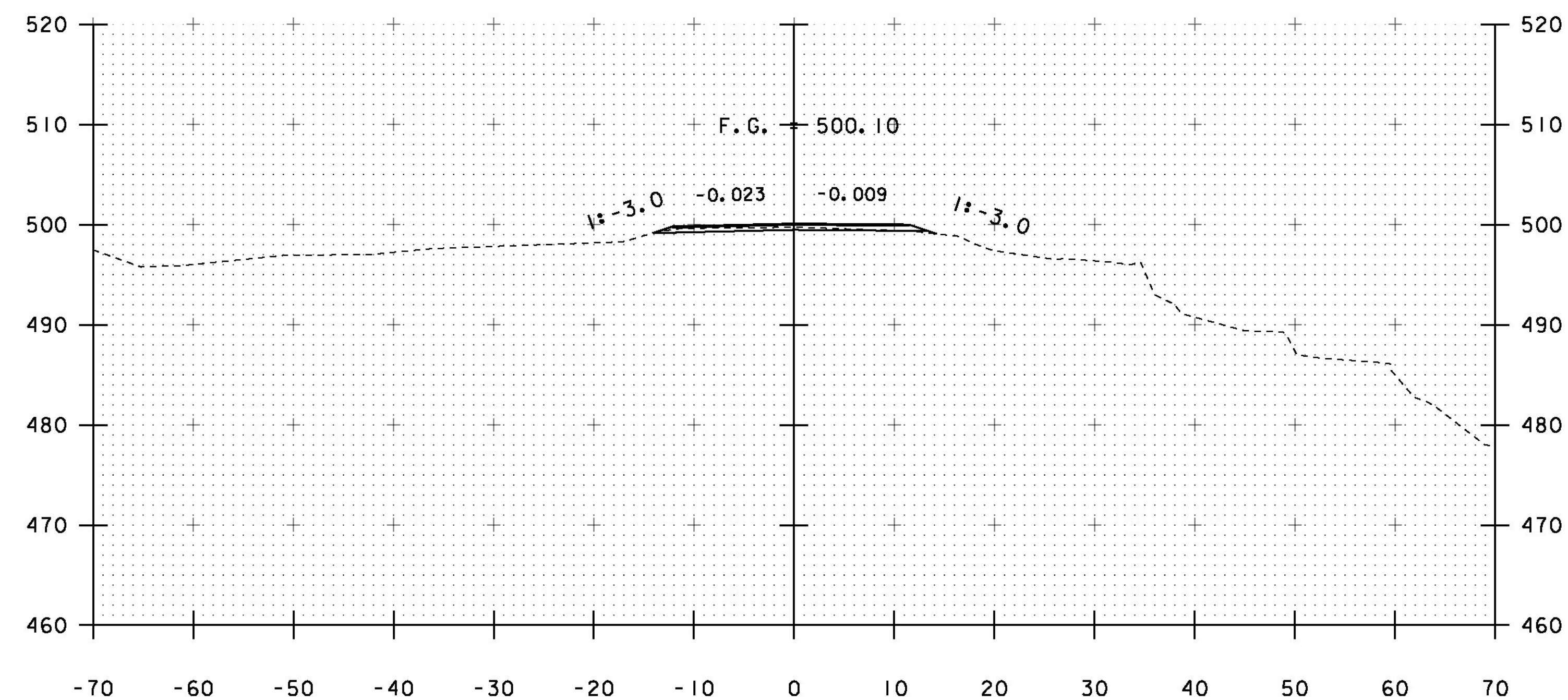
53+75



54+25
END PROJECT

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLET
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MAINLINE SECTIONS *5	SHEET 49 OF 66

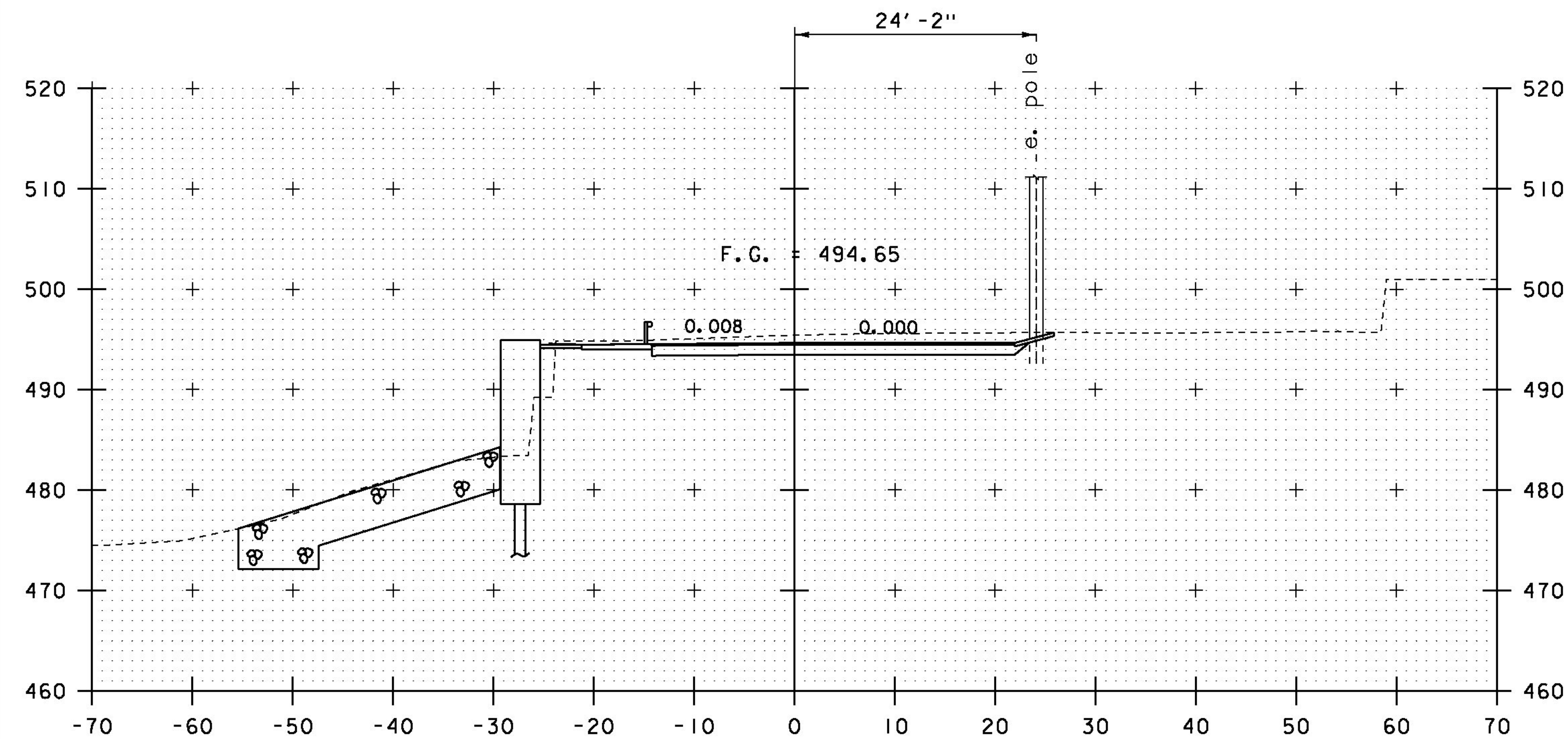
STA. 53+75 TO STA. 54+50



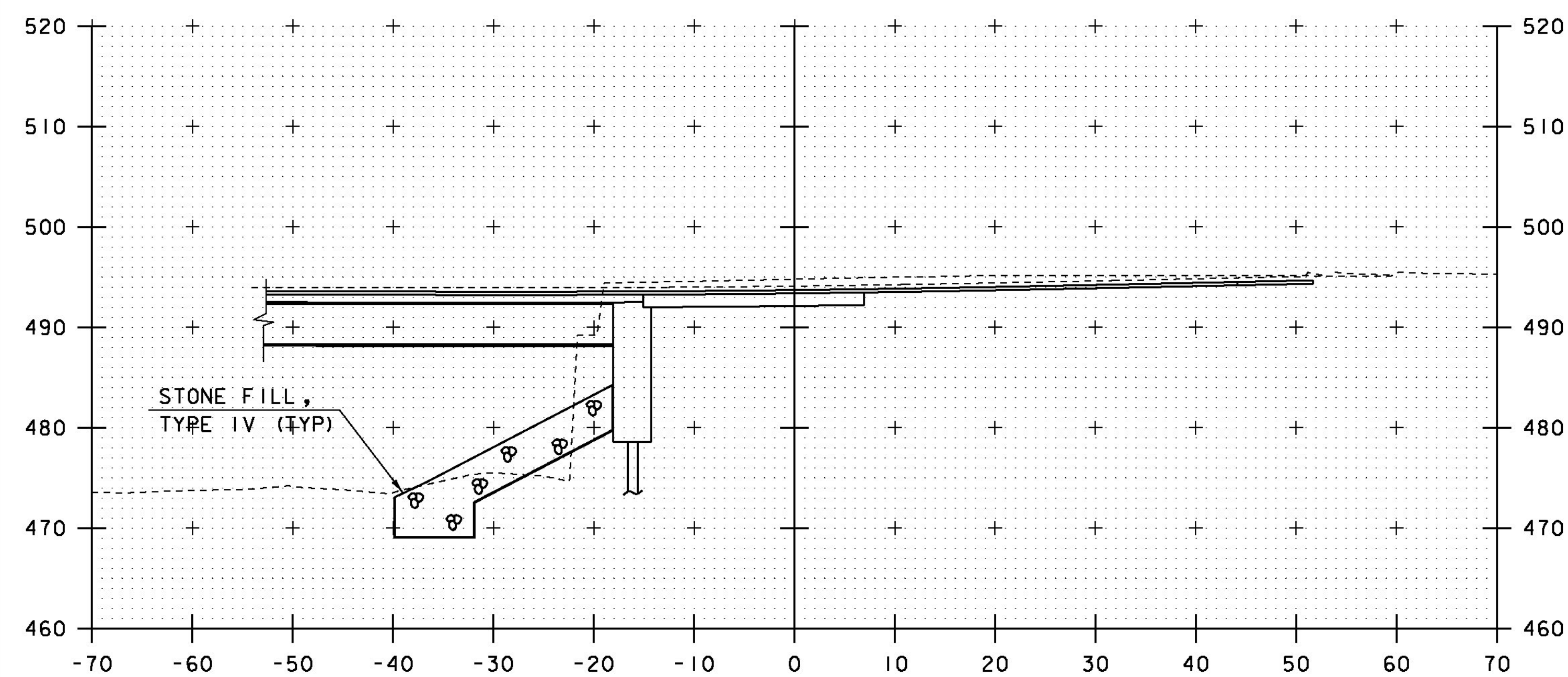
END APPROACH

STA. 54+75 TO STA. 55+50

PROJECT NAME:	BRISTOL
PROJECT NUMBER:	BRO 1445(32)
FILE NAME:	s05j352xs2.dgn
PROJECT LEADER:	J. LACROIX
DESIGNED BY:	G. LAROCHE
MAINLINE SECTIONS	*6
PLOT DATE:	04-JUN-2013
DRAWN BY:	R. PELLET
CHECKED BY:	T. FILLBACH
SHEET	50 OF 66

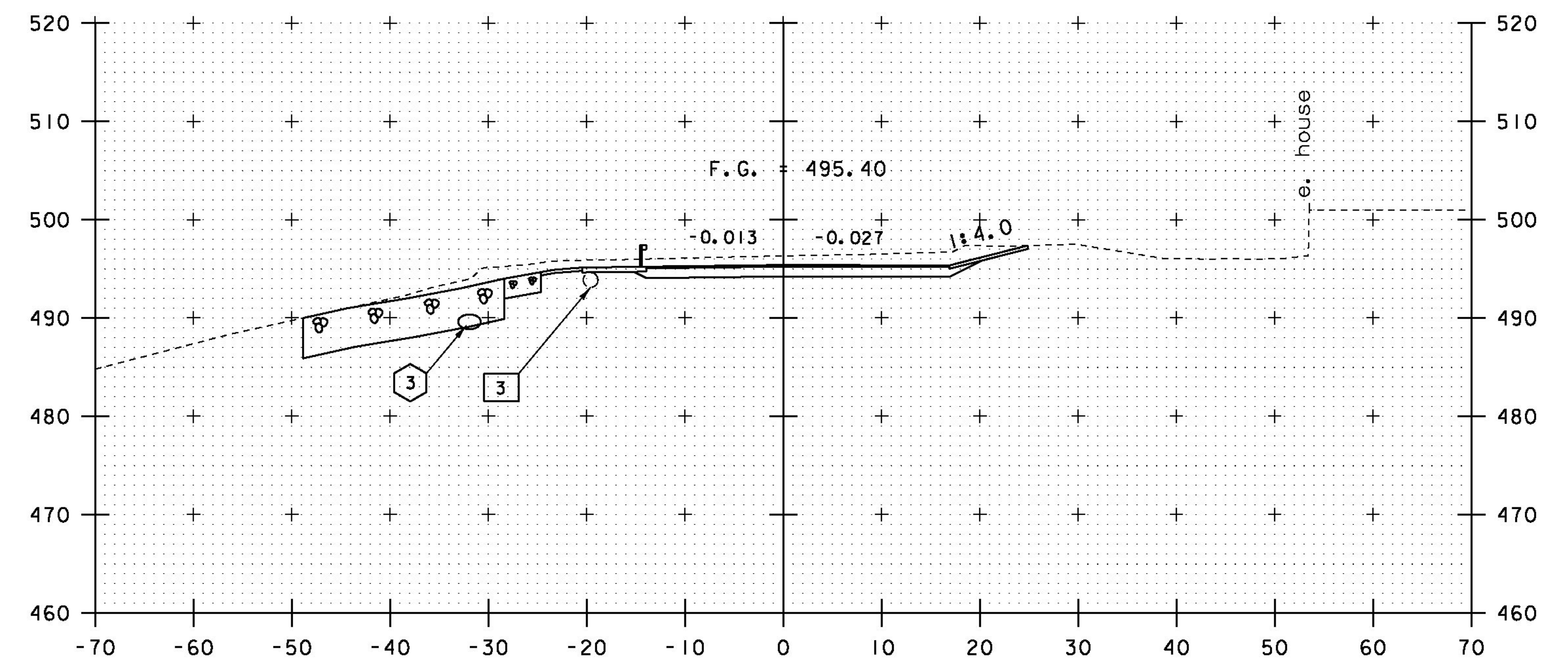


I+38

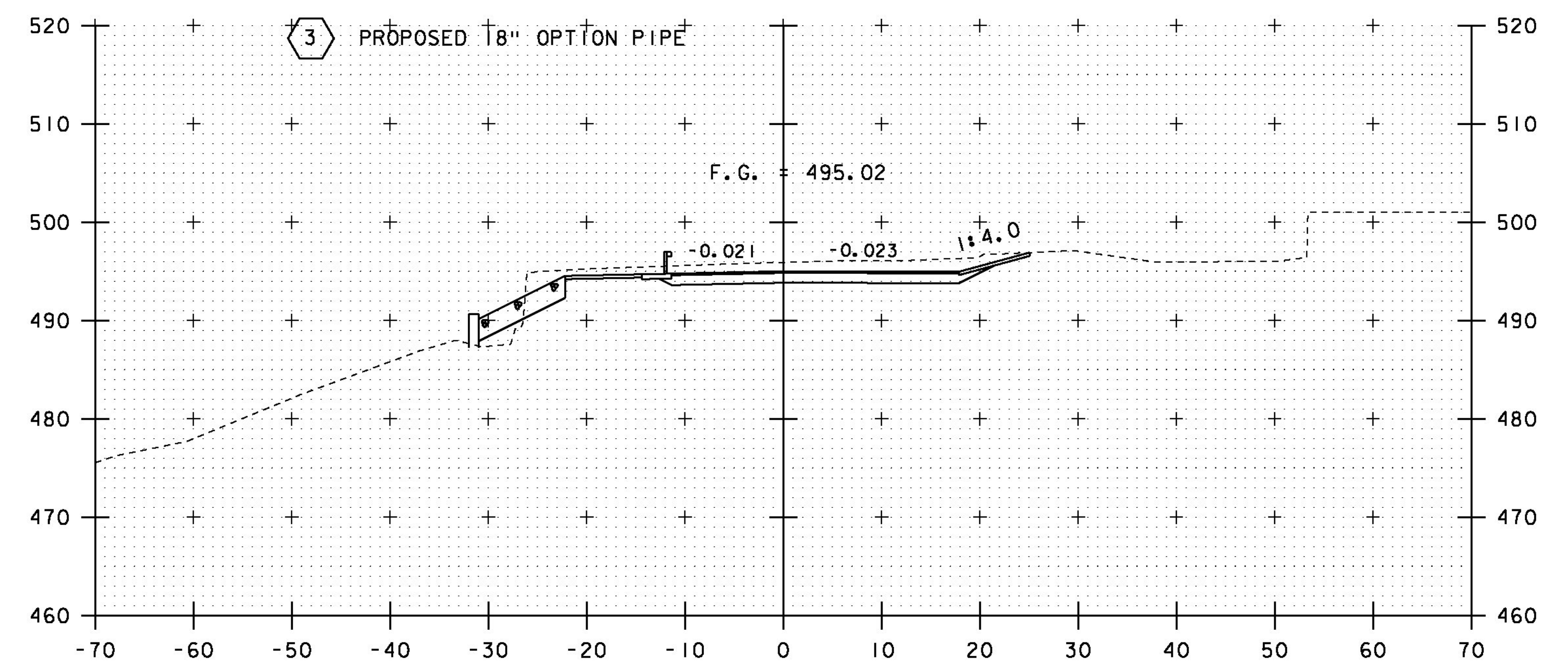


I+25

SOUTH STREET
STA - 51+81.00 @ CL



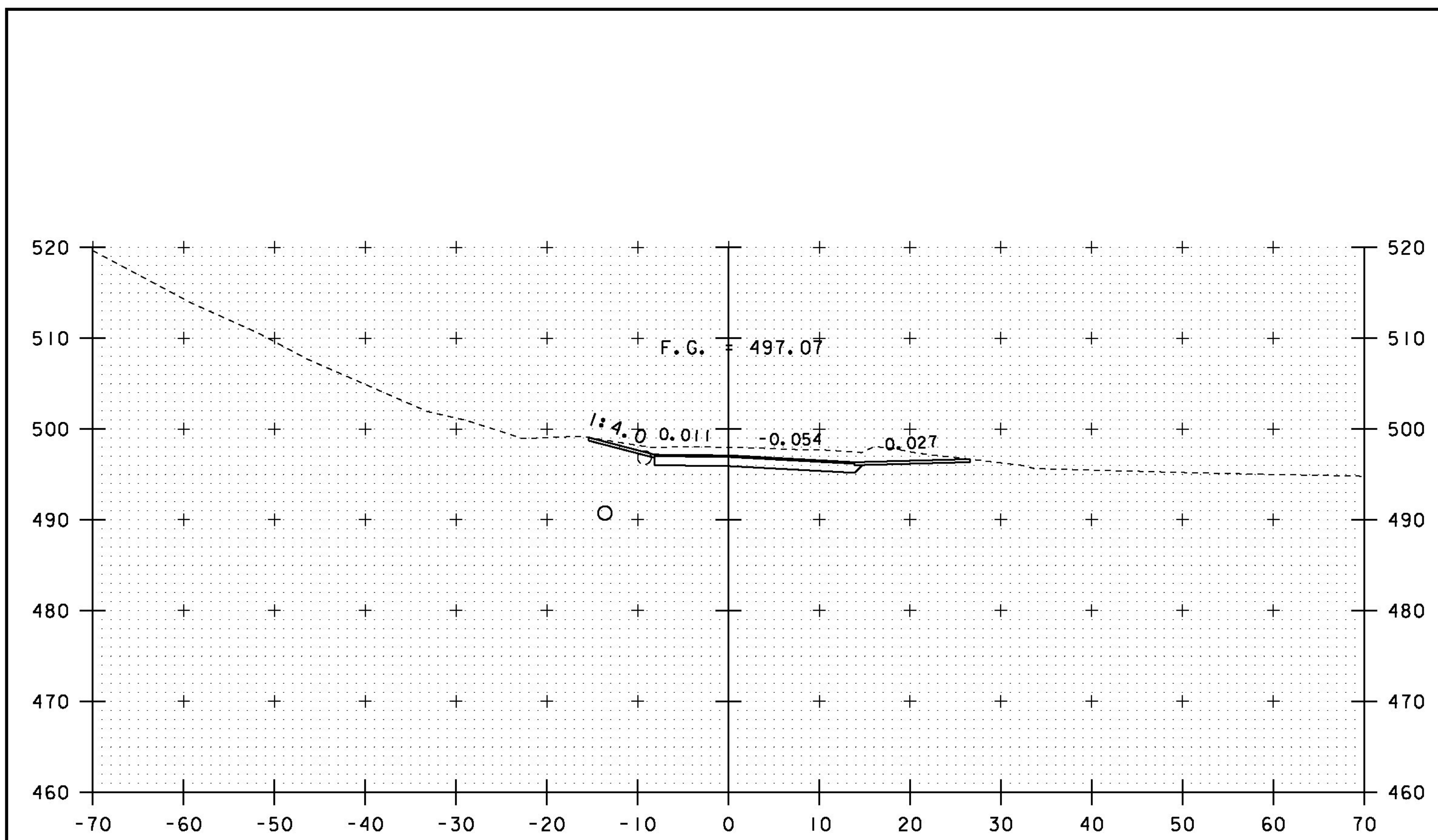
3 EXISTING 18" ACCGMP PIPE I+50



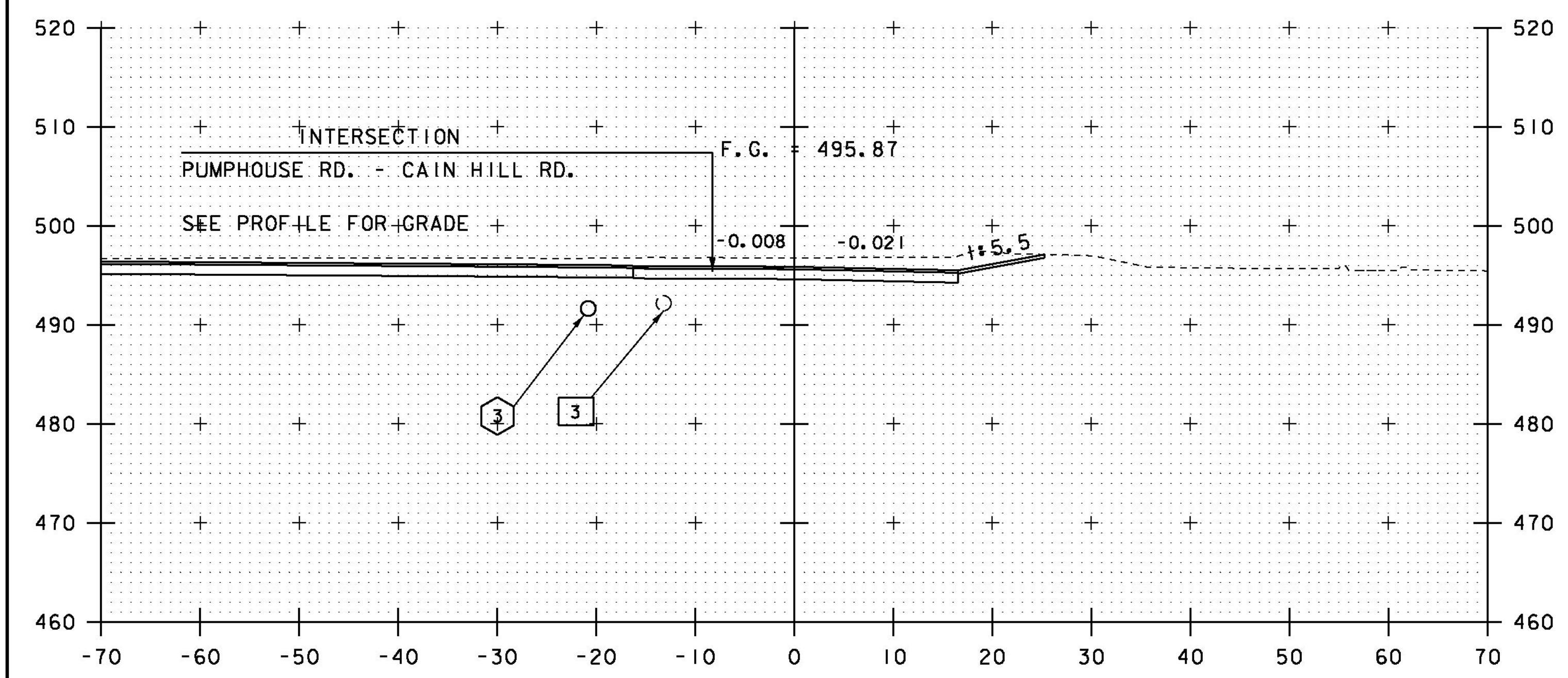
I+45

STA. I+25 TO STA. I+50

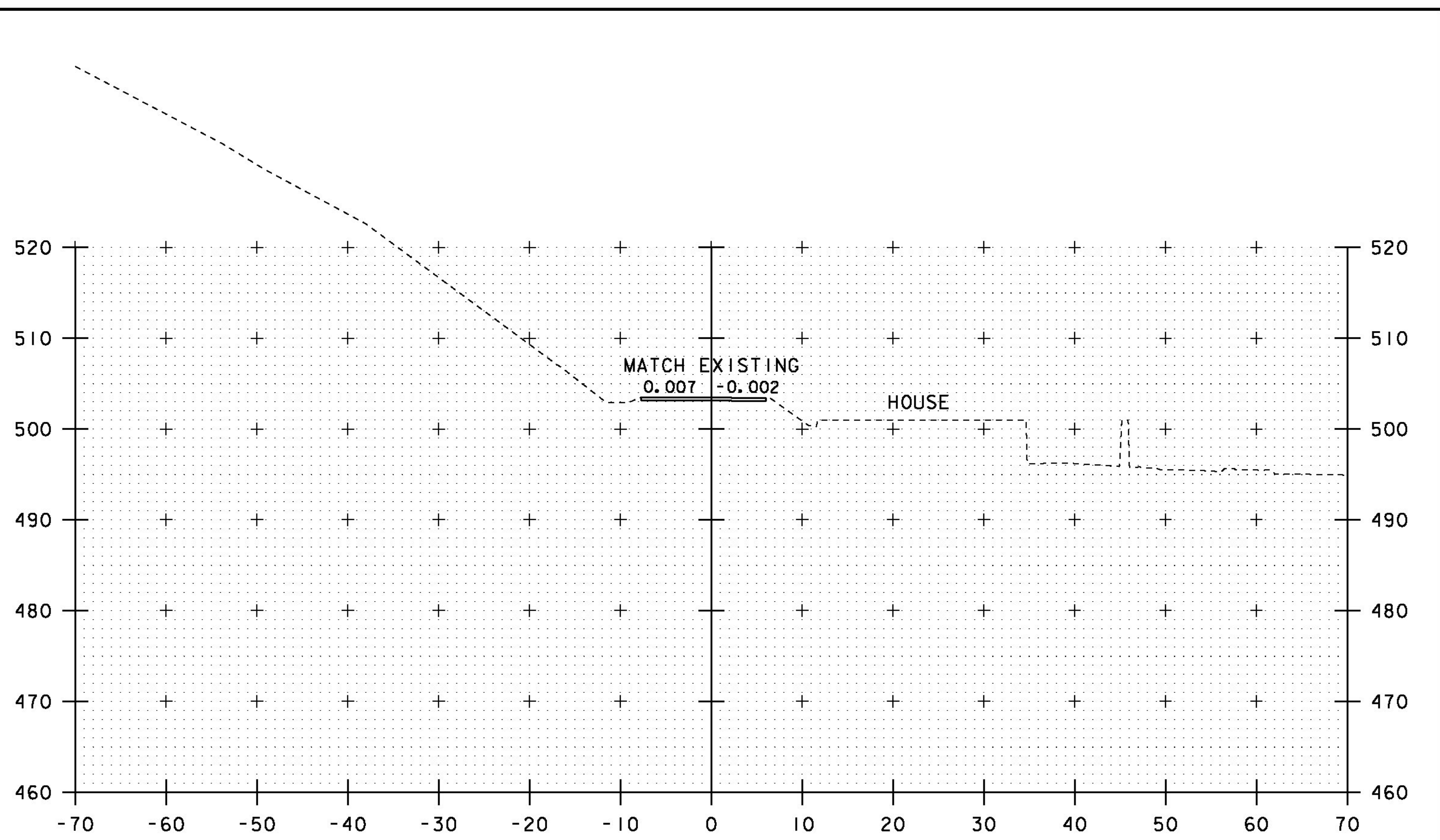
PROJECT NAME: BRISTOL	PROJECT NUMBER: BRO 1445(32)
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
CAIN HILL SECTIONS #1	SHEET 51 OF 66



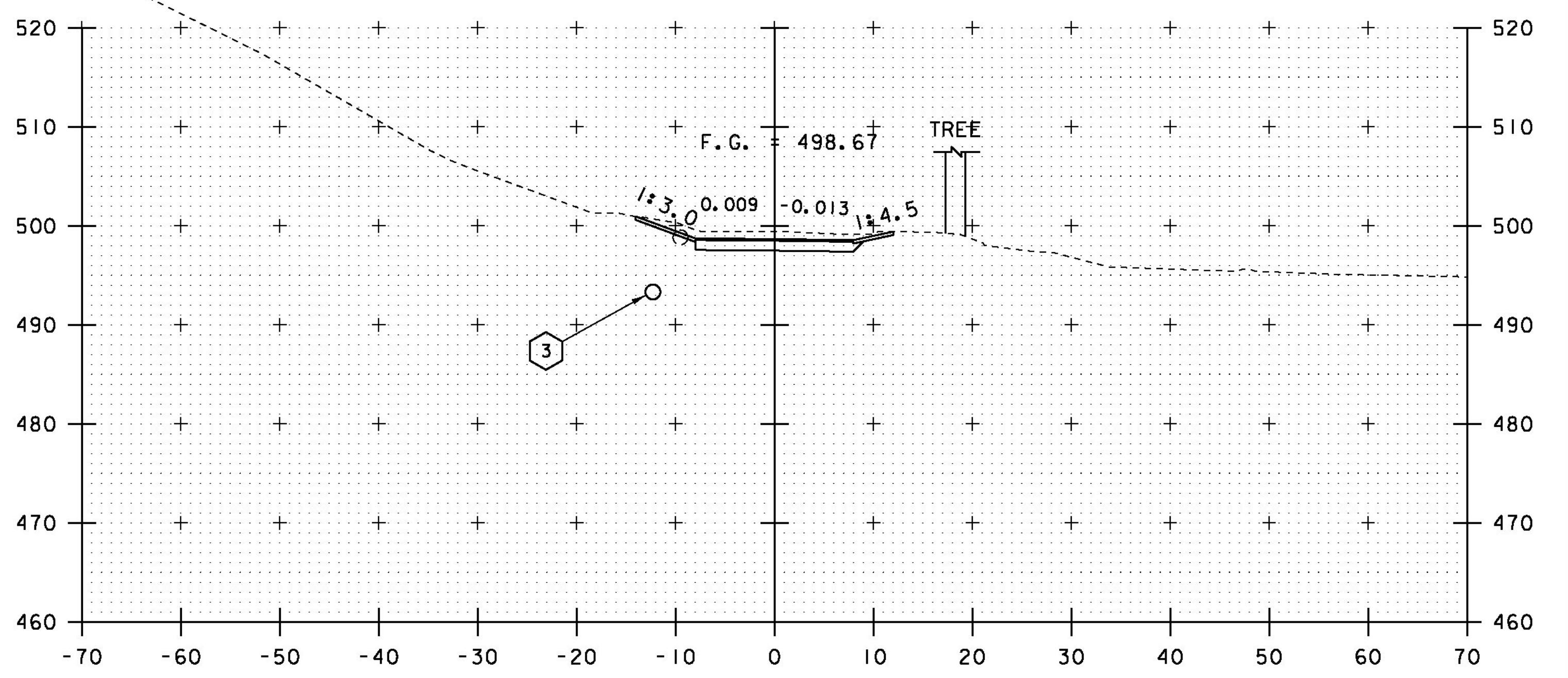
1+65



1+55



2+00



1+75

3 EXISTING 18" ACCGMP PIPE

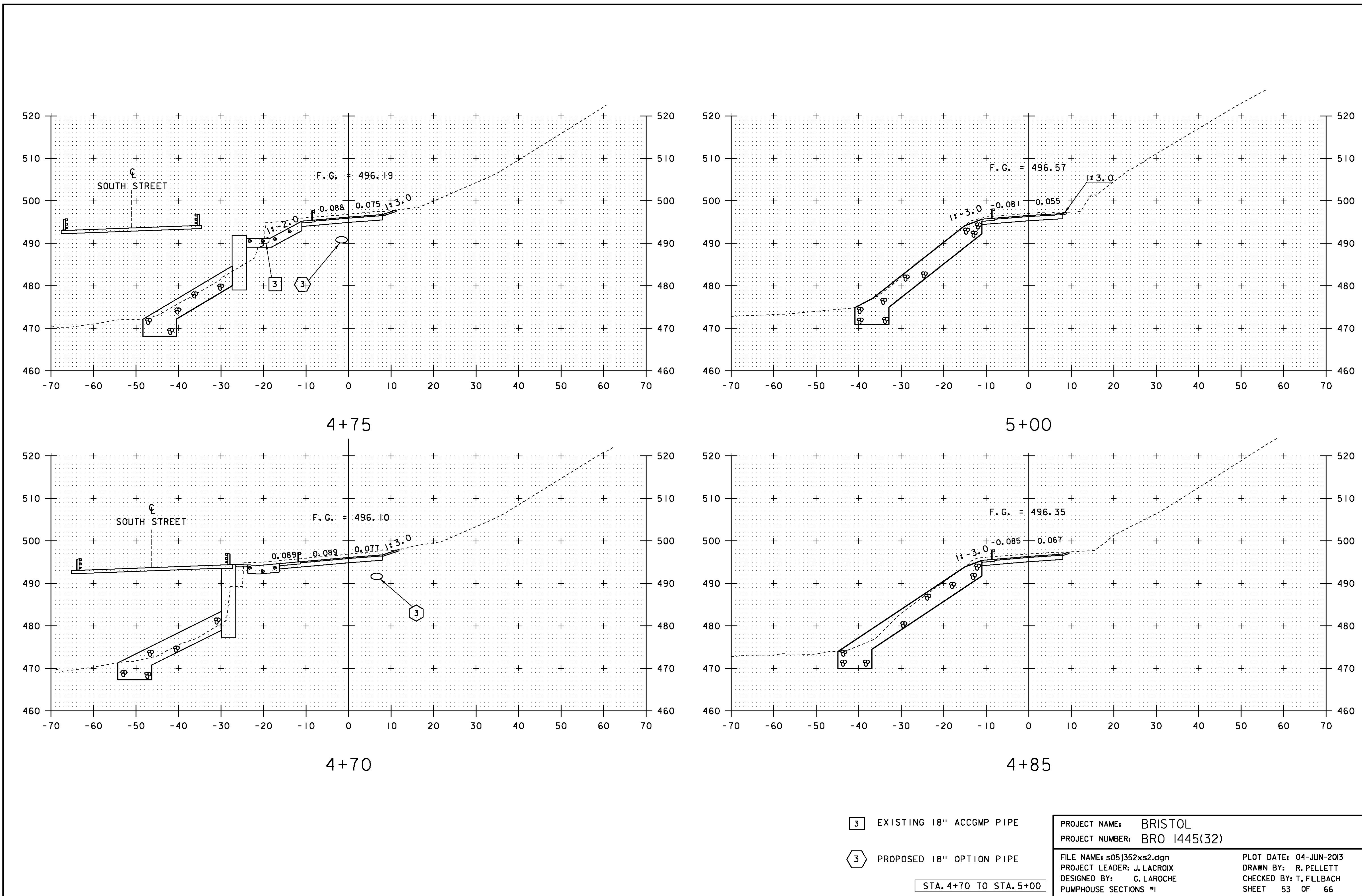
3 PROPOSED 18" OPTION PIPE

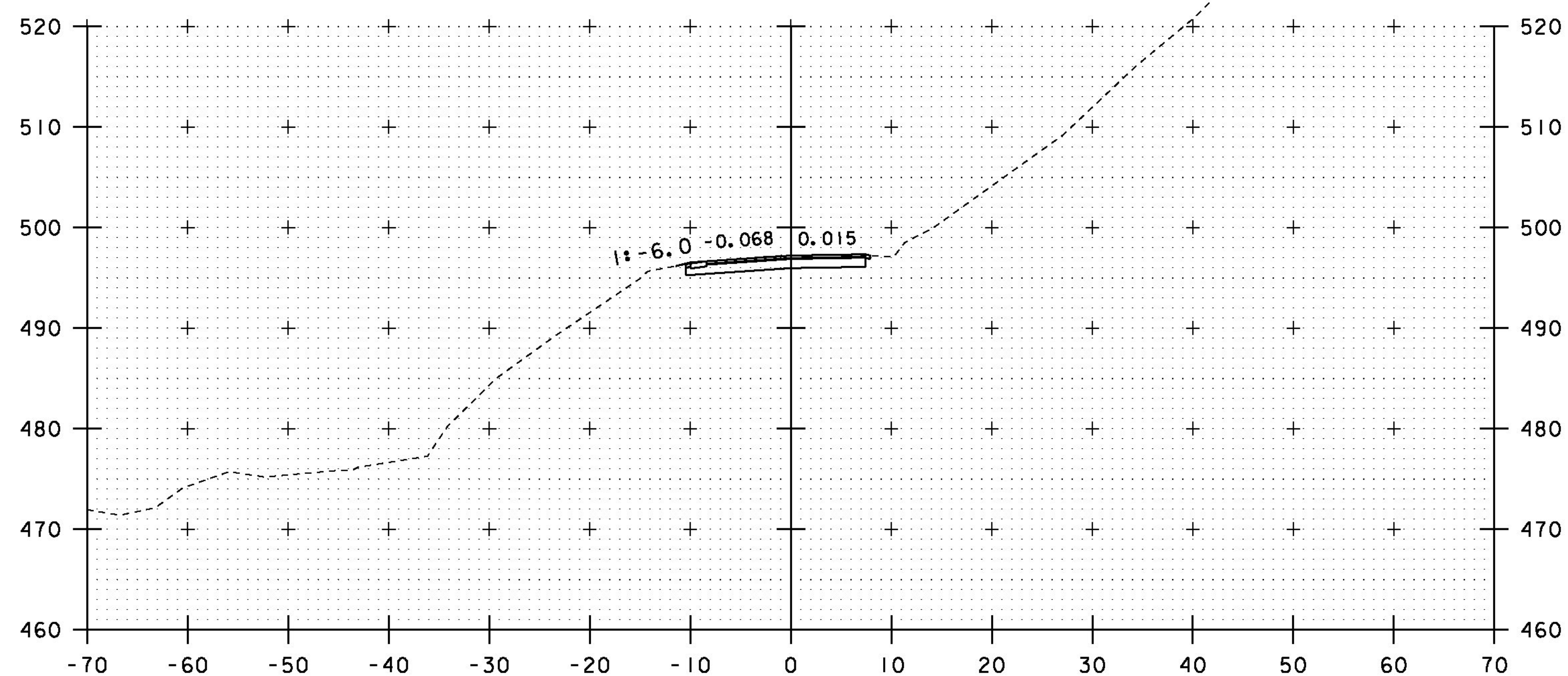
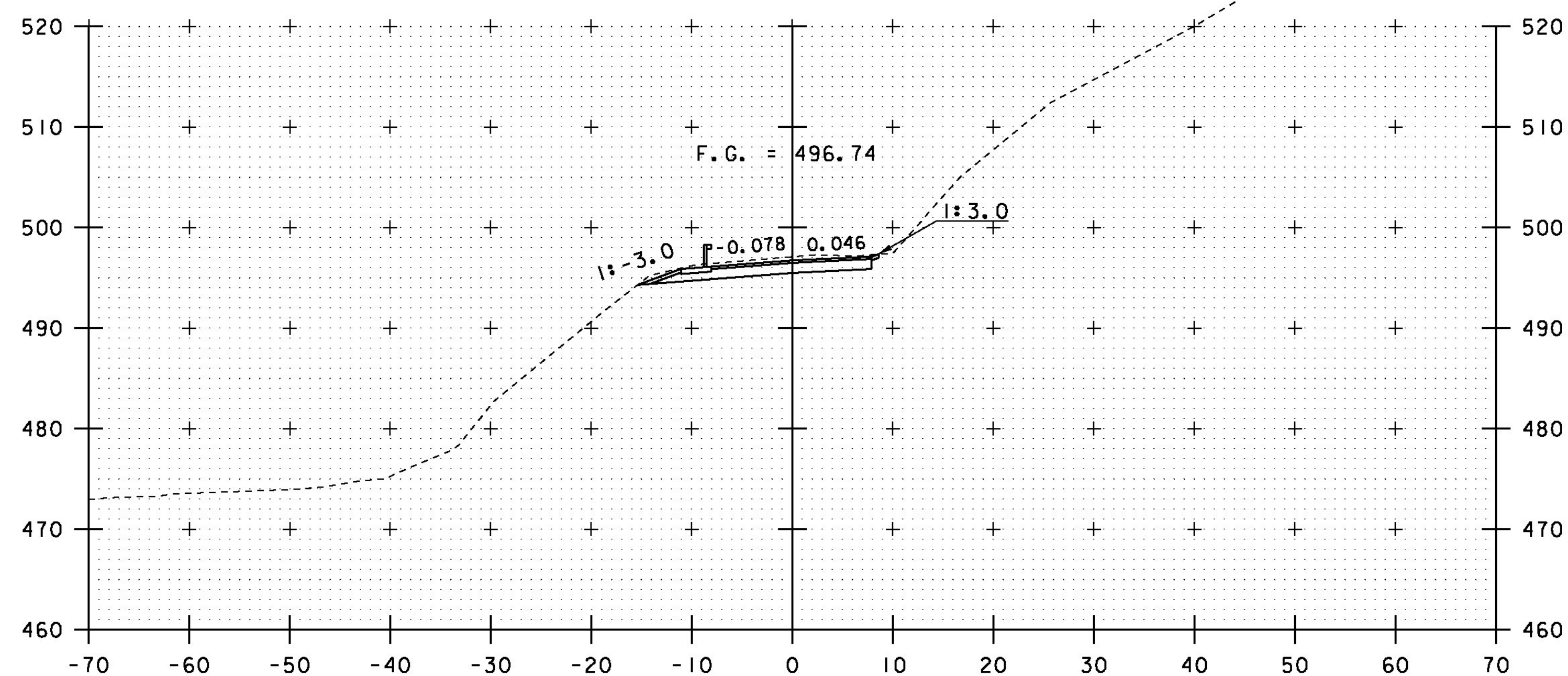
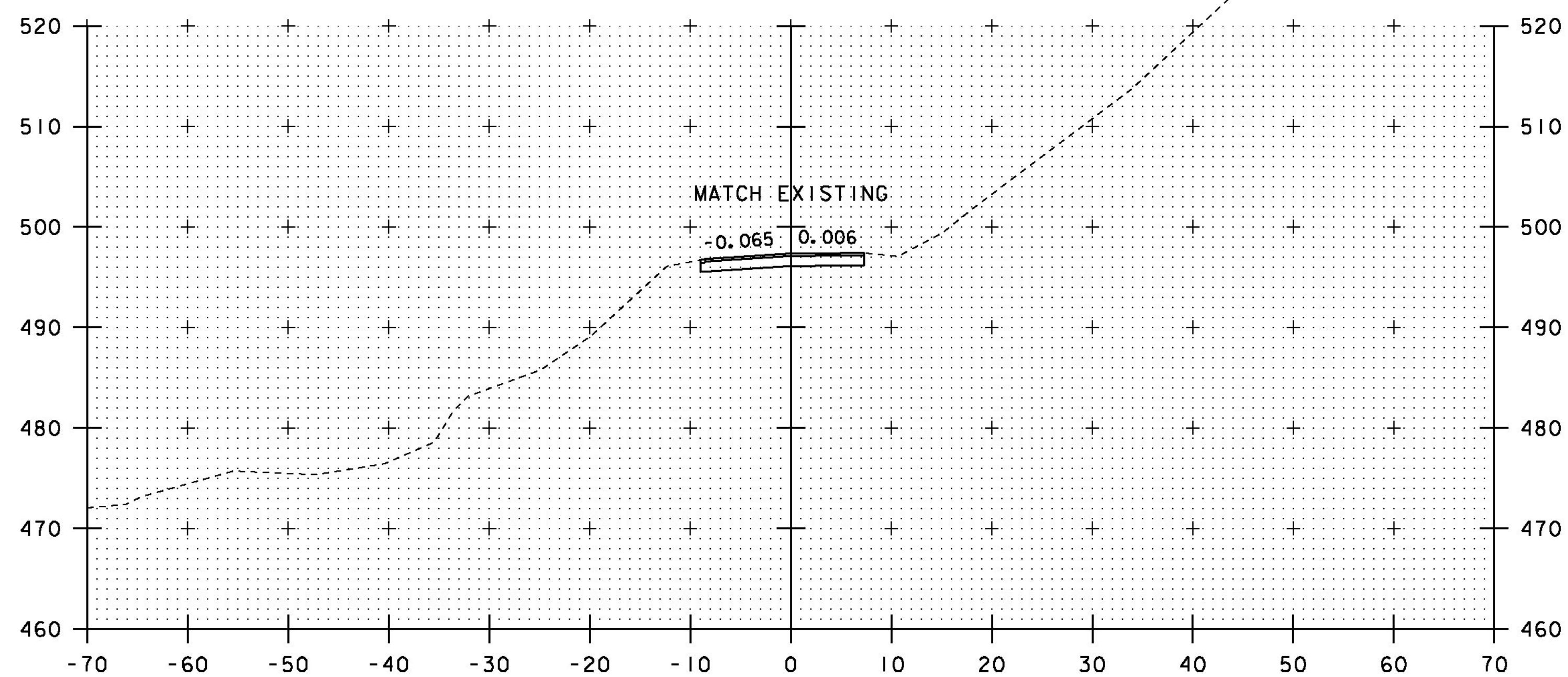
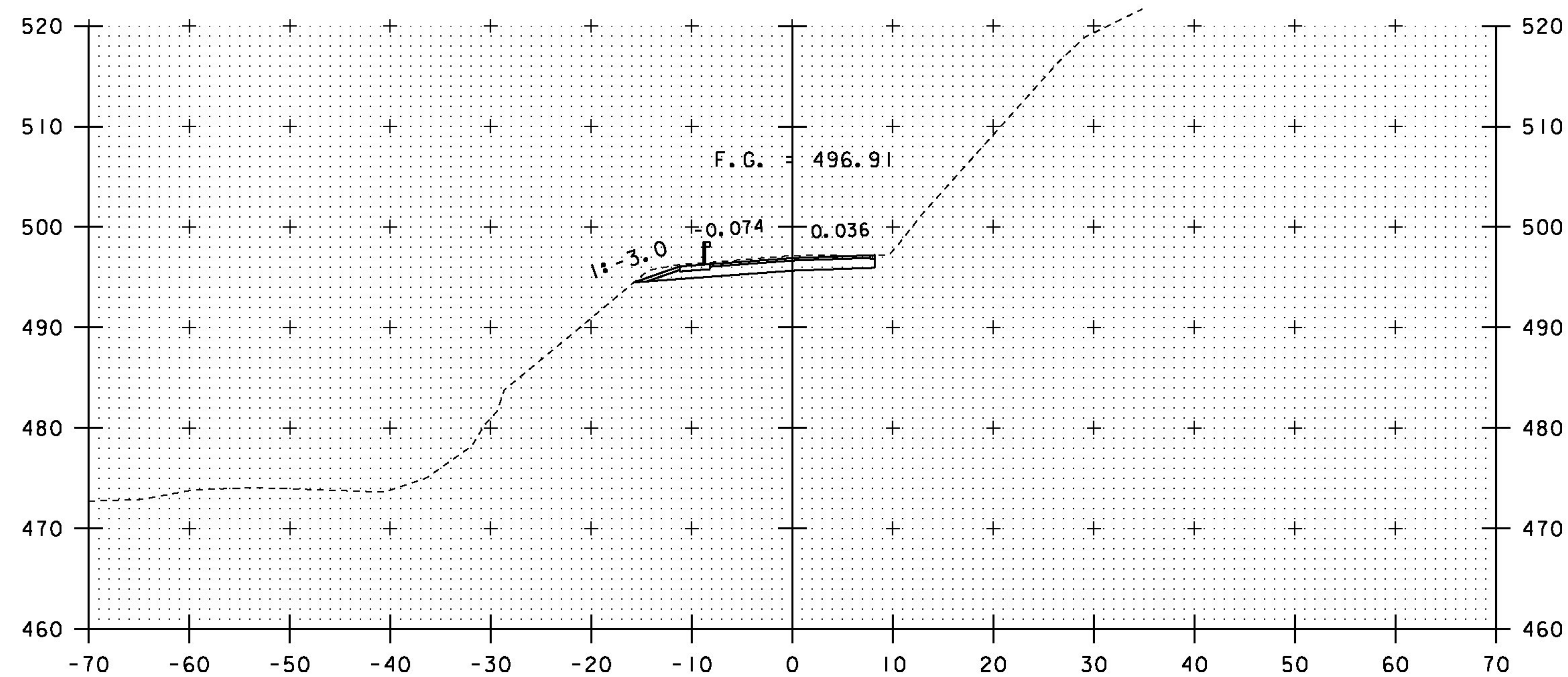
STA. 1+55 TO STA. 2+00

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CAIN HILL SECTIONS #2

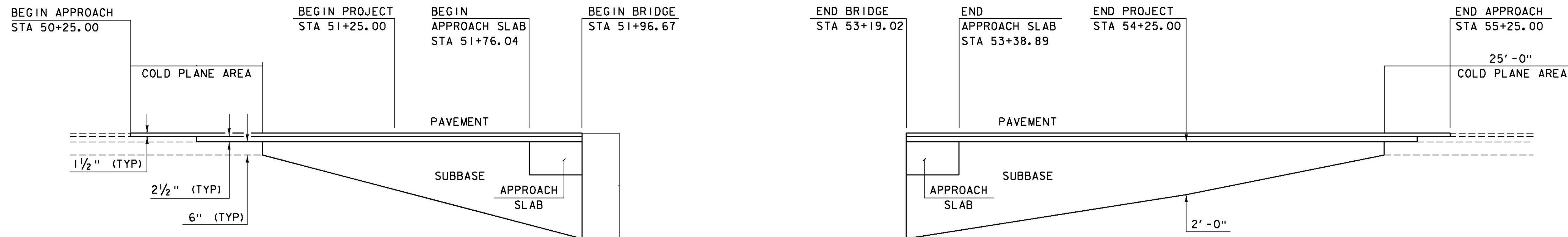
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: T. FILLBACH
SHEET 52 OF 66



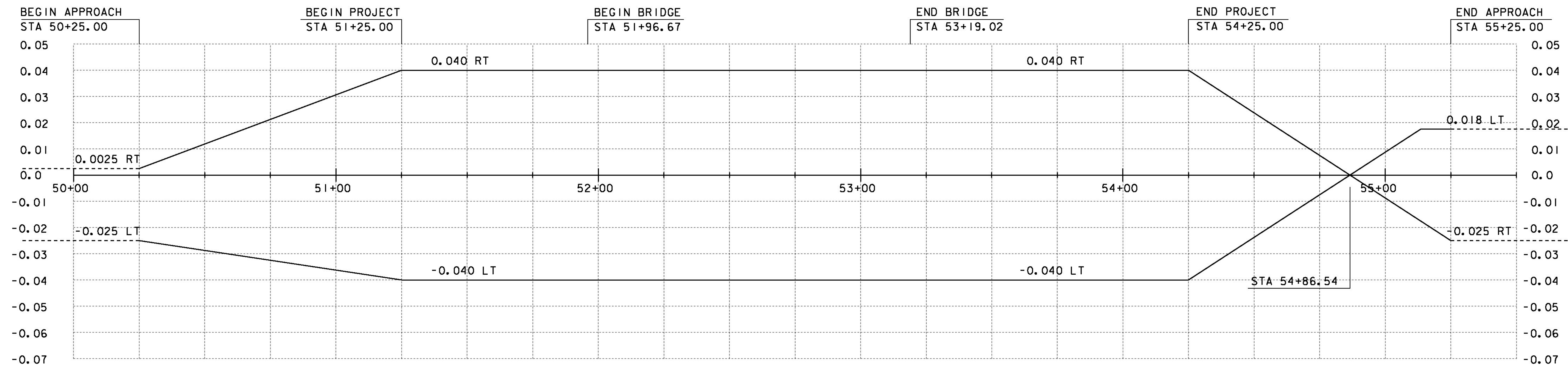


STA. 5+12 TO STA. 5+62

PROJECT NAME:	BRISTOL	PLOT DATE:	04-JUN-2013
PROJECT NUMBER:	BRO 1445(32)	DRAWN BY:	R. PELLETT
FILE NAME:	s05j352xs2.dgn	CHECKED BY:	T. FILLBACH
PROJECT LEADER:	J. LACROIX	SHEET	54 OF 66
DESIGNED BY:	G. LAROCHE		
PUMPHOUSE SECTIONS #2			

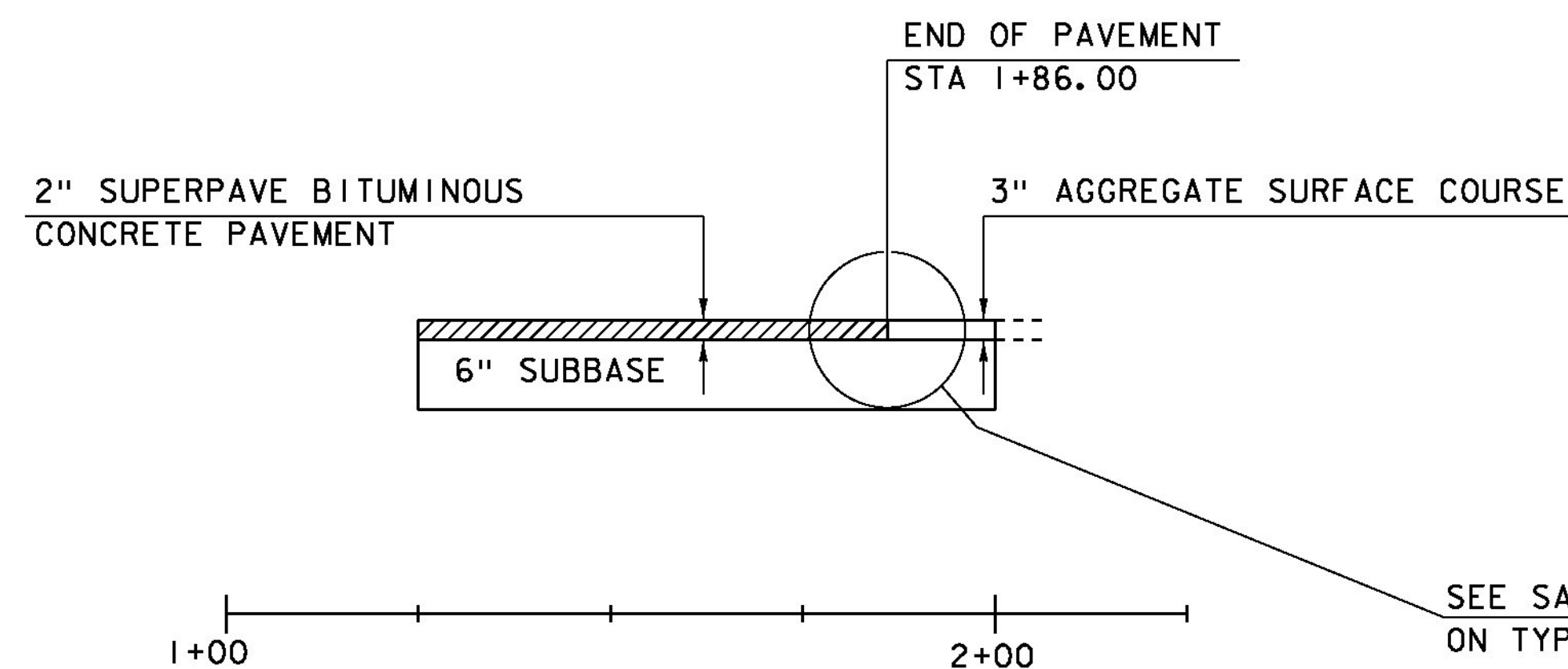


**SOUTH ST (TH 5)
MATERIAL TRANSITION**
HOR. SCALE 1" = 20' - 0"
NO VERT. SCALE

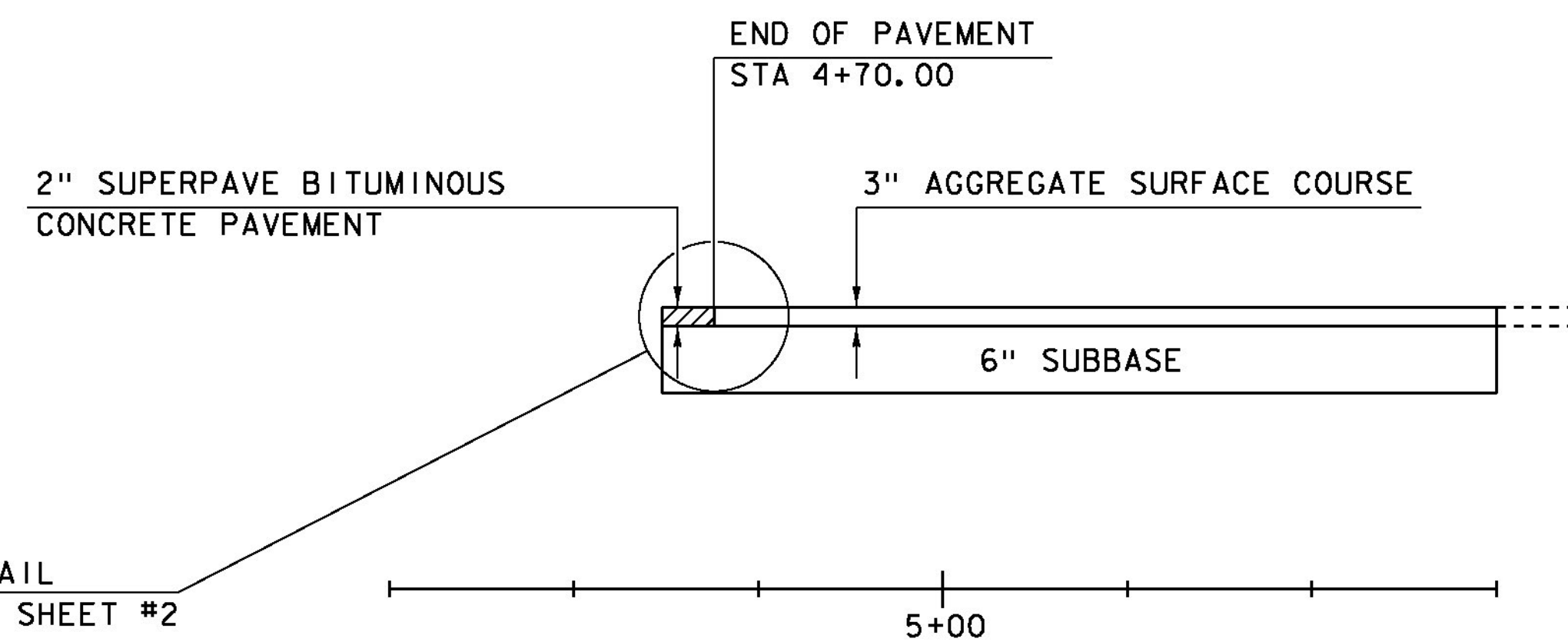


**SOUTH ST (TH 5)
BANKING DIAGRAM**
HOR. SCALE 1" = 20' - 0"
NO VERT. SCALE

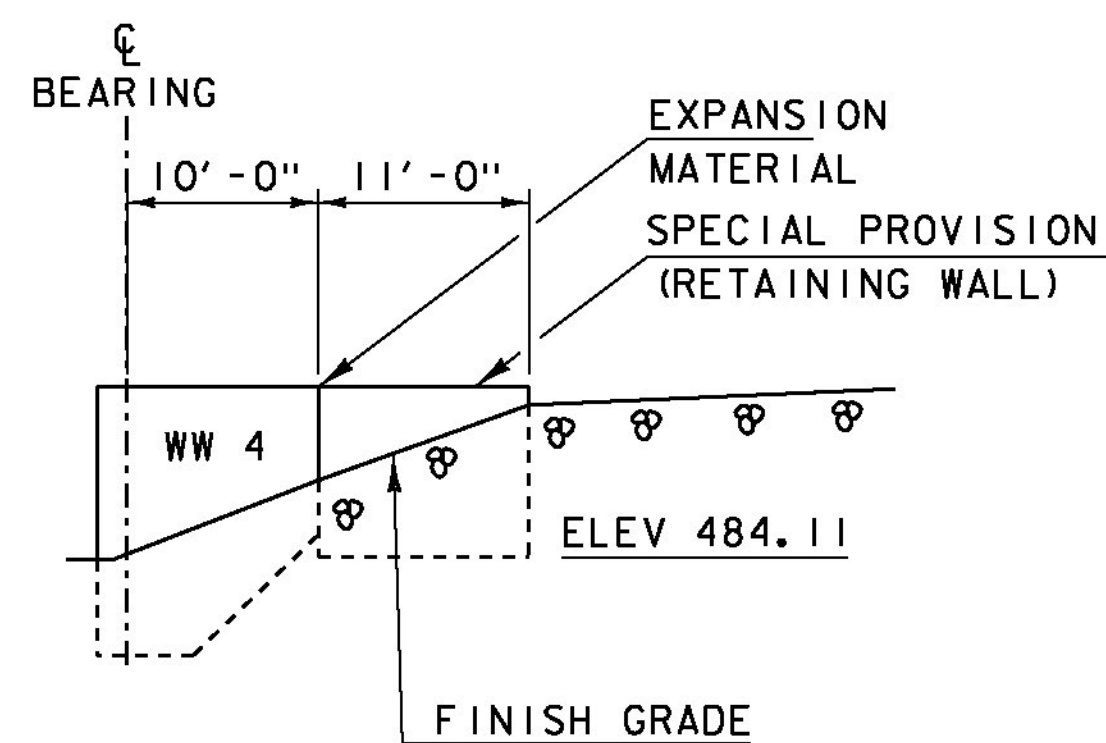
PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05j352pro.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLET
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
MATERIAL TRANSITION & BANKING DIAGRAM #1 SHEET 55 OF 66	



**CAIN HILL ROAD
MATERIAL TRANSITION**
HOR. SCALE 1" = 20'-0"
NO VERT. SCALE

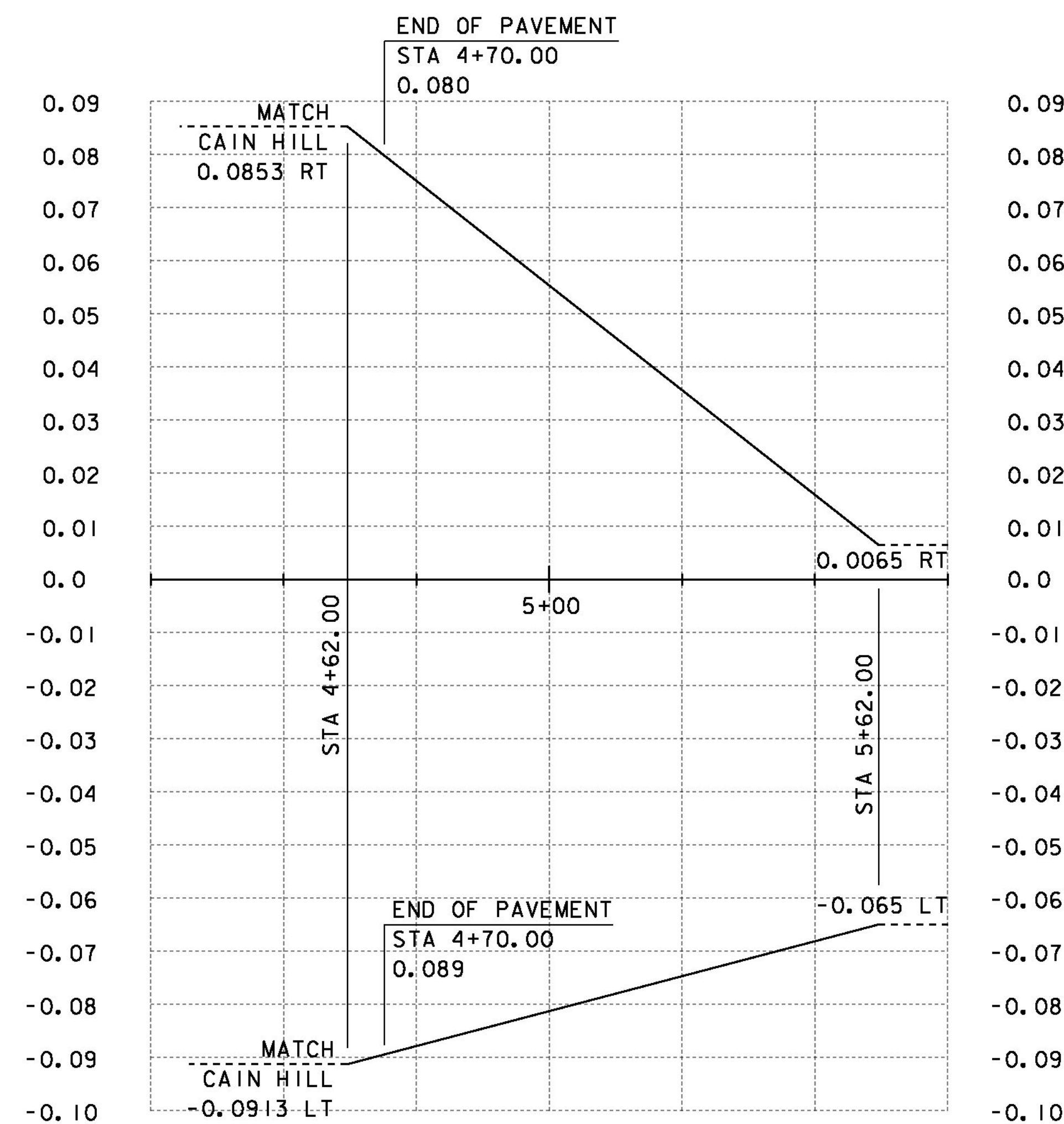


**PUMPHOUSE ROAD
MATERIAL TRANSITION**
HOR. SCALE 1" = 20'-0"
NO VERT. SCALE



**SPECIAL PROVISION (RETAINING WALL)
ELEVATION**
NOT TO SCALE

1. THE ELEVATION SHOWN AT THE BOTTOM OF WALL IS THE MAXIMUM ELEVATION TO ACCOUNT FOR FROST DEPTH.
2. THE WALL SHALL CONFORM TO ITEM 900.670 SPECIAL PROVISION (RETAINING WALL).
3. AN EXPANSION MATERIAL SHALL BE PROVIDED BETWEEN WW4 AND THE PROPOSED RETAINING WALL CAPABLE OF ACCOMODATING 1" OF EXPANSION.

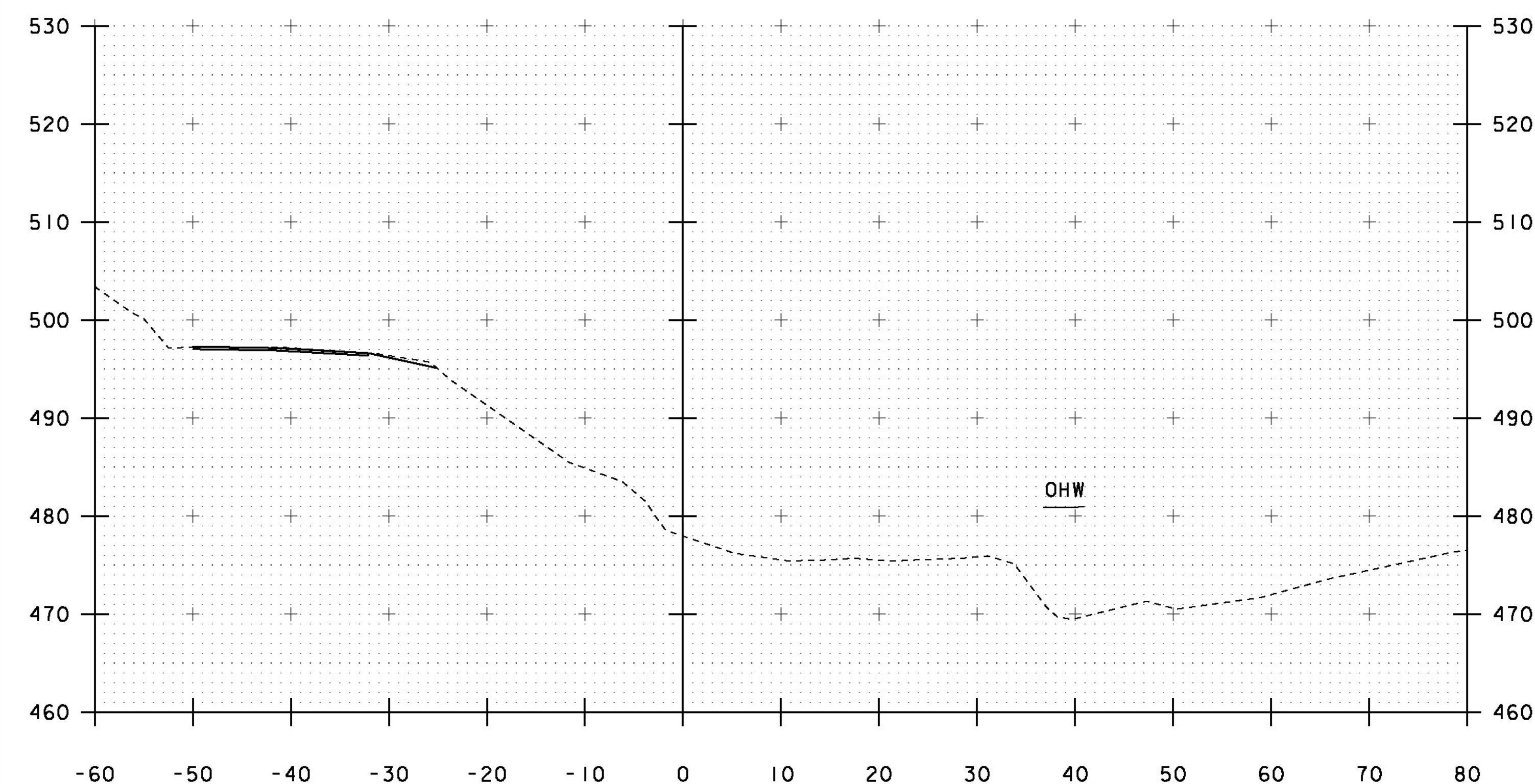


**PUMPHOUSE ROAD
BANKING DIAGRAM**
HOR. SCALE 1" = 20'-0"
NO VERT. SCALE

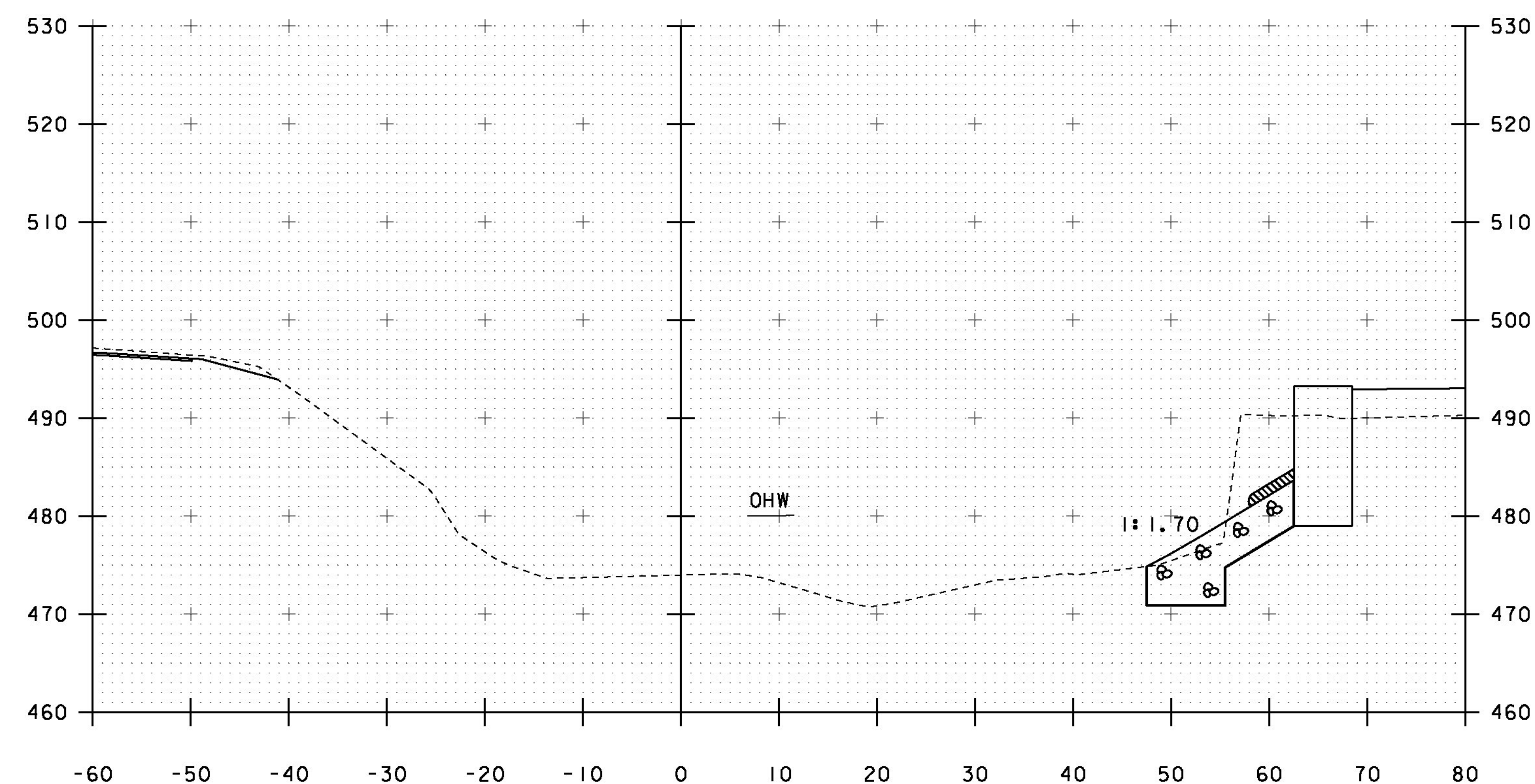
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352pro.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
MATERIAL TRANSITION & BANKING DIAGRAM #2 SHEET 56 OF 66

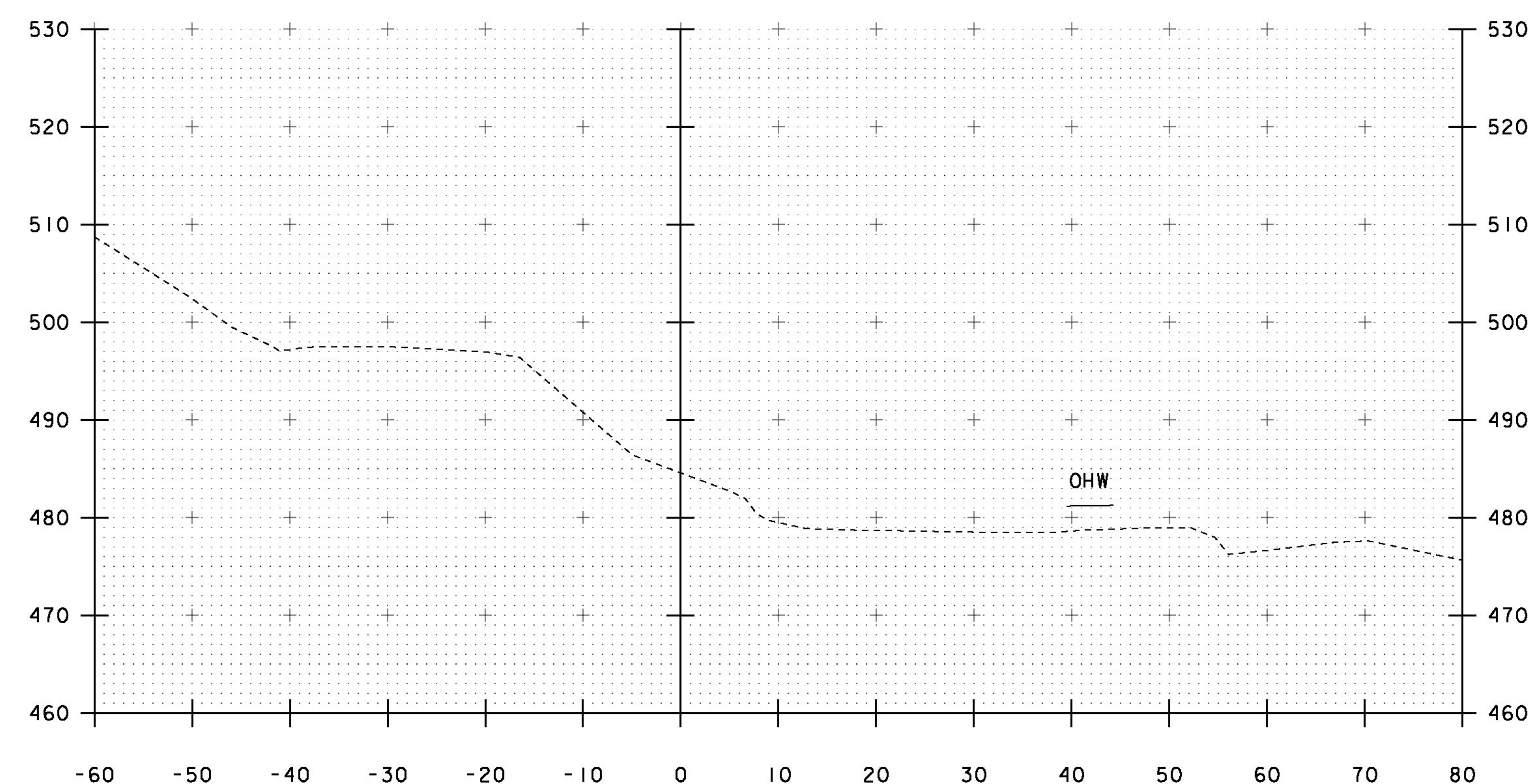
PLOT DATE: 04-JUN-2013
DRAWN BY: G. LAROCHE
CHECKED BY: T. FILLBACH



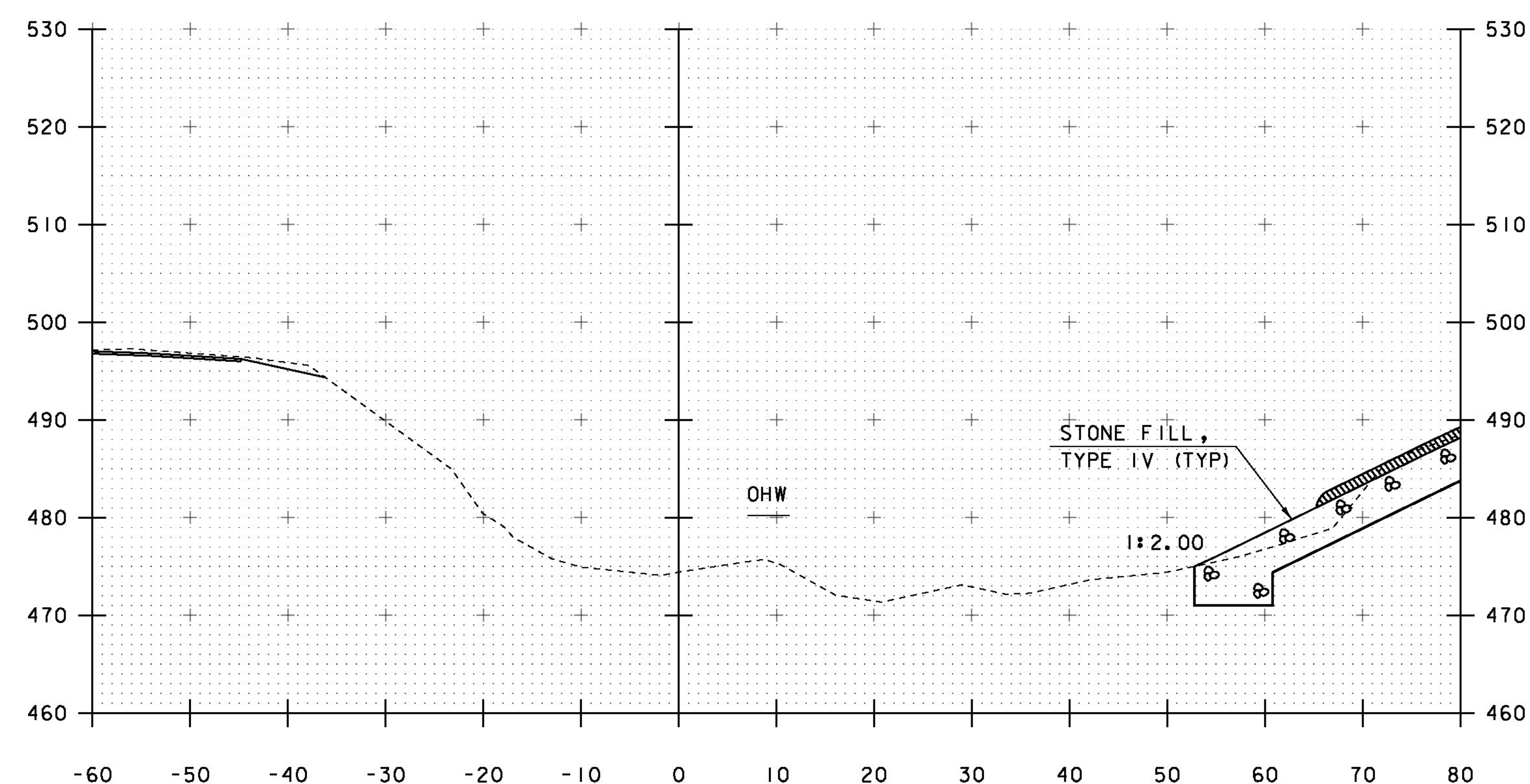
10+25



10+60



10+00



10+50

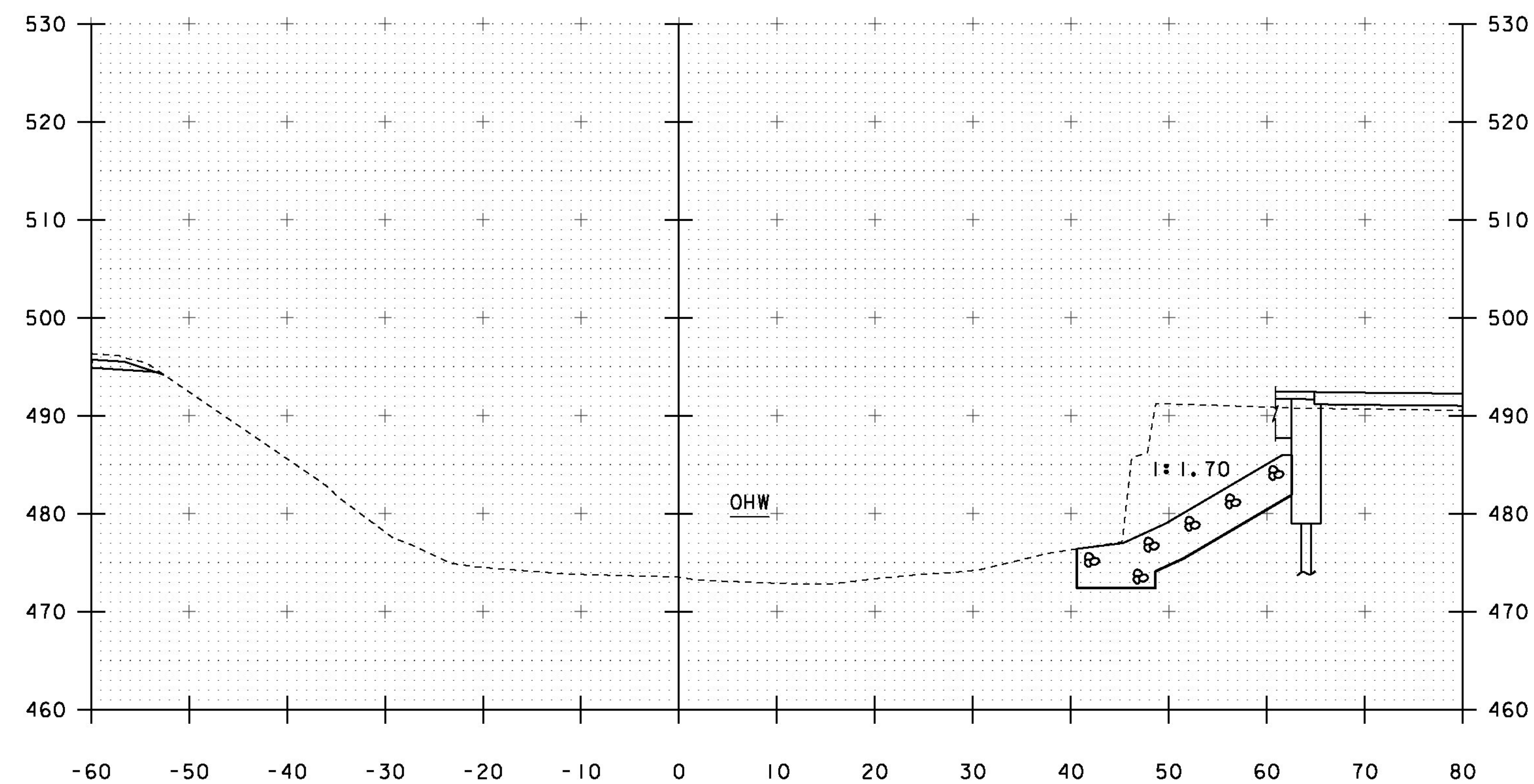
STA 10+46 RT. (ABUT #2)
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN STONE FILL, TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL

STA. 10+00 TO STA. 10+60

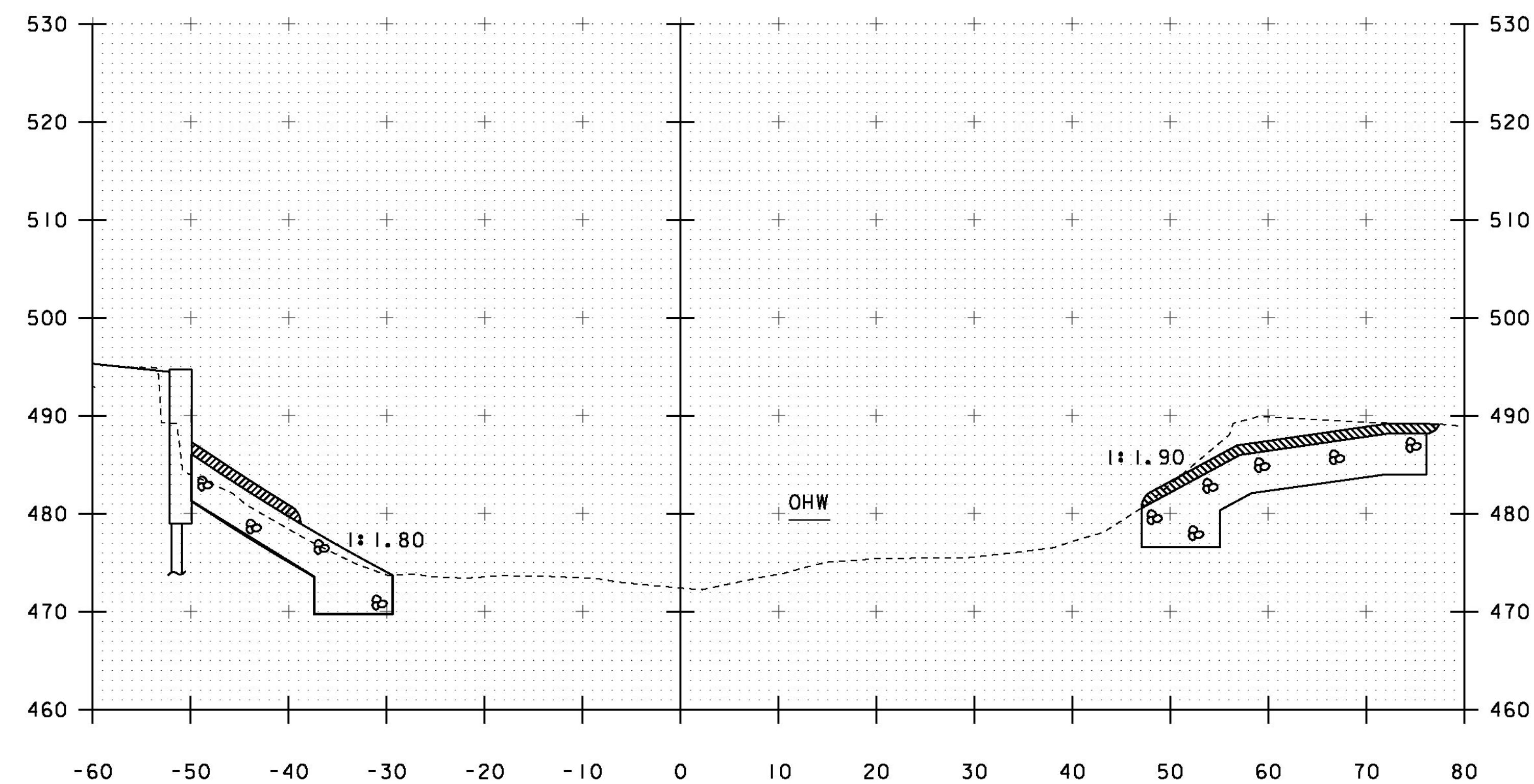
PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CHANNEL SECTIONS *1

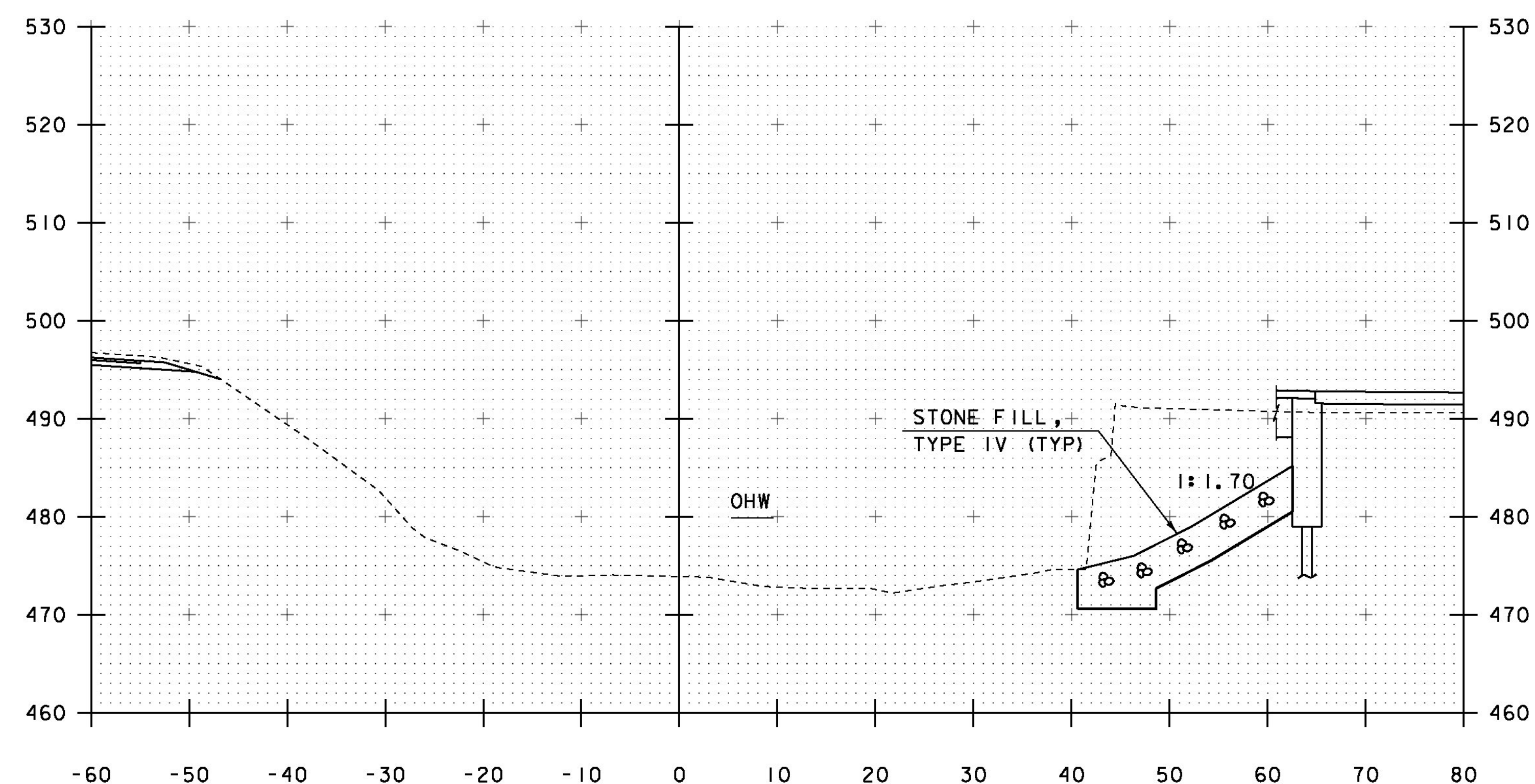
PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: T. FILLBACH
SHEET 57 OF 66



10+80

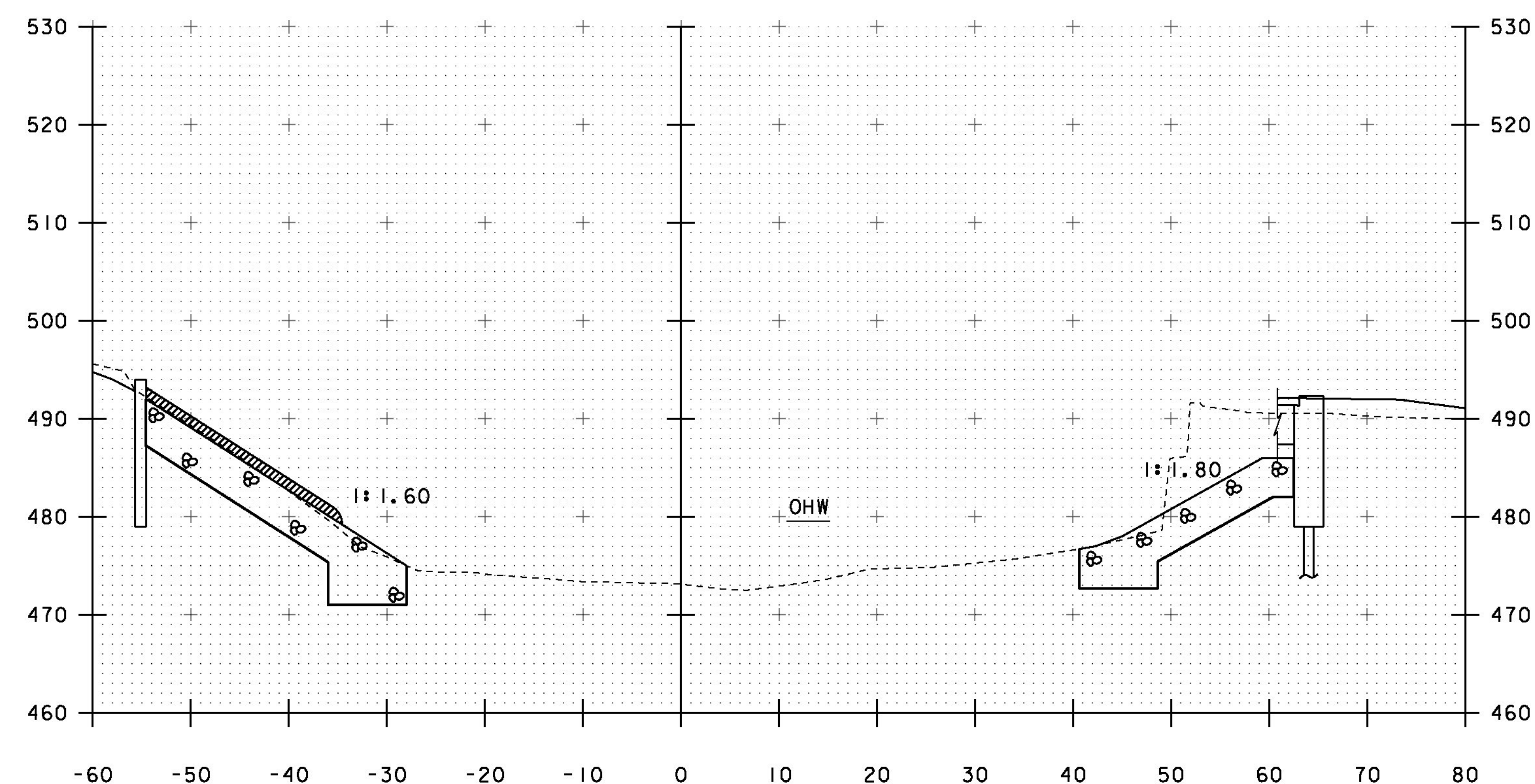


11+00



10+70

RT. (ABUT #2)
END GRUBBING MATERIAL 10+71 RT.



10+90

RT. (ABUT #2)
BEGIN GRUBBING MATERIAL 10+92 RT.

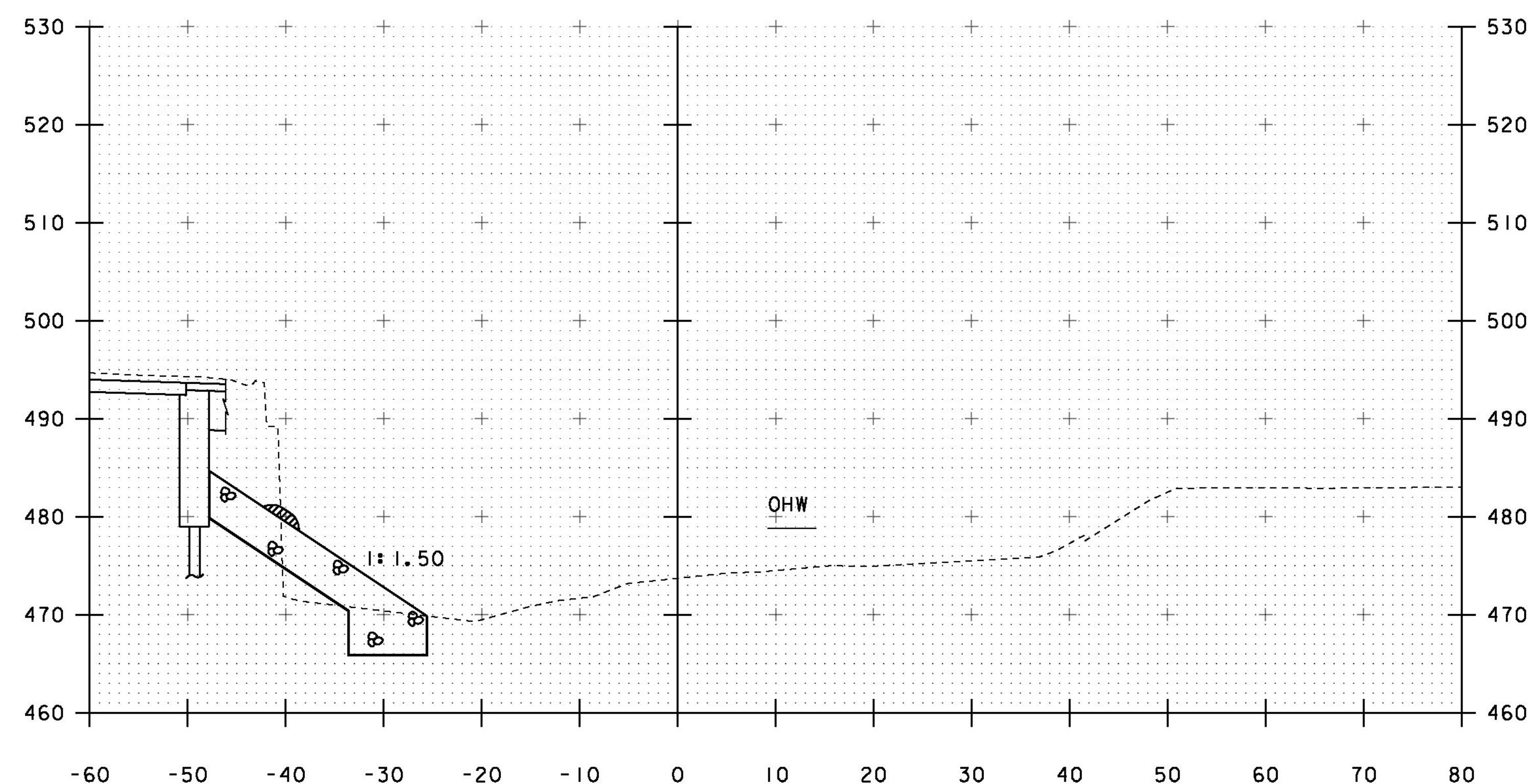
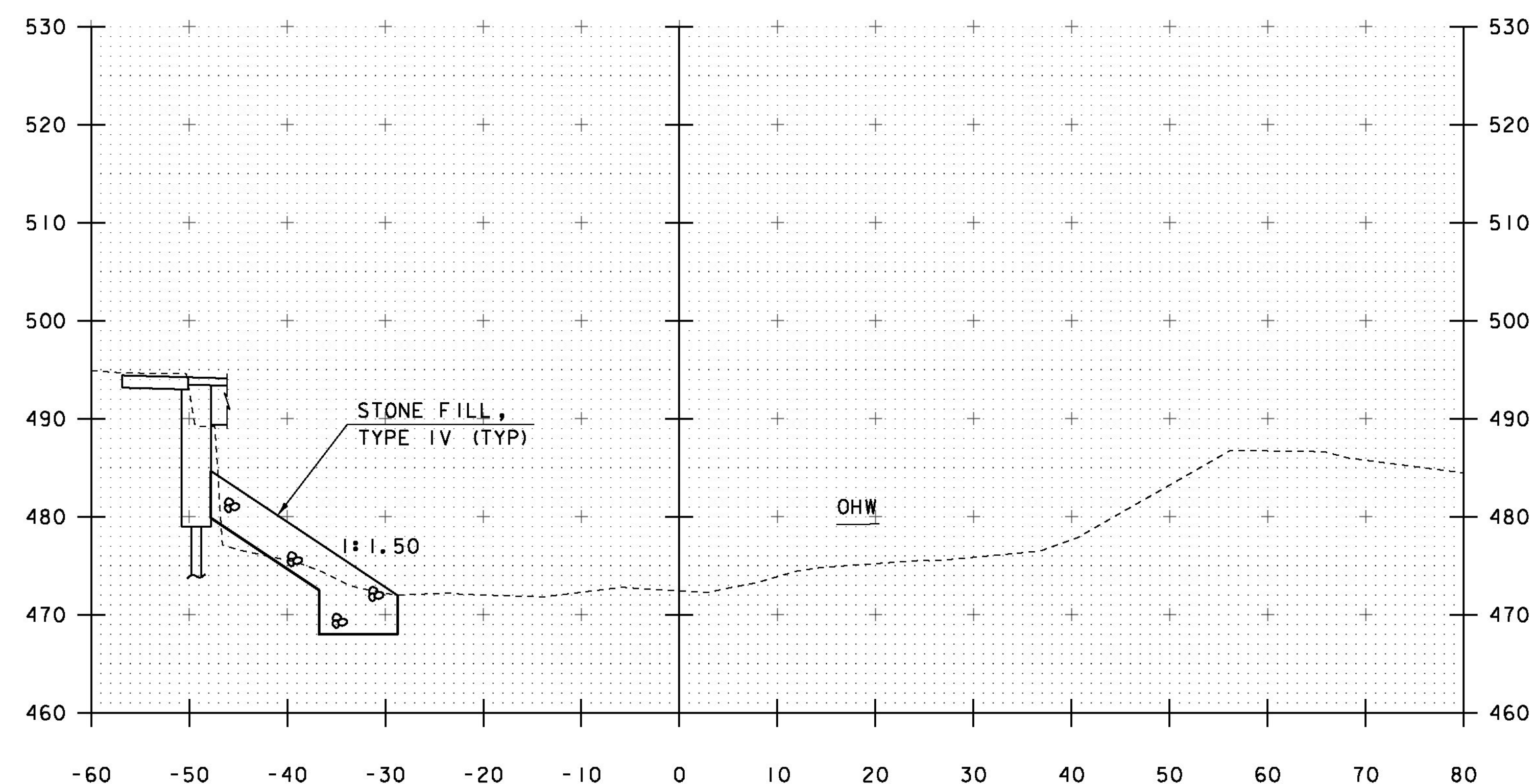
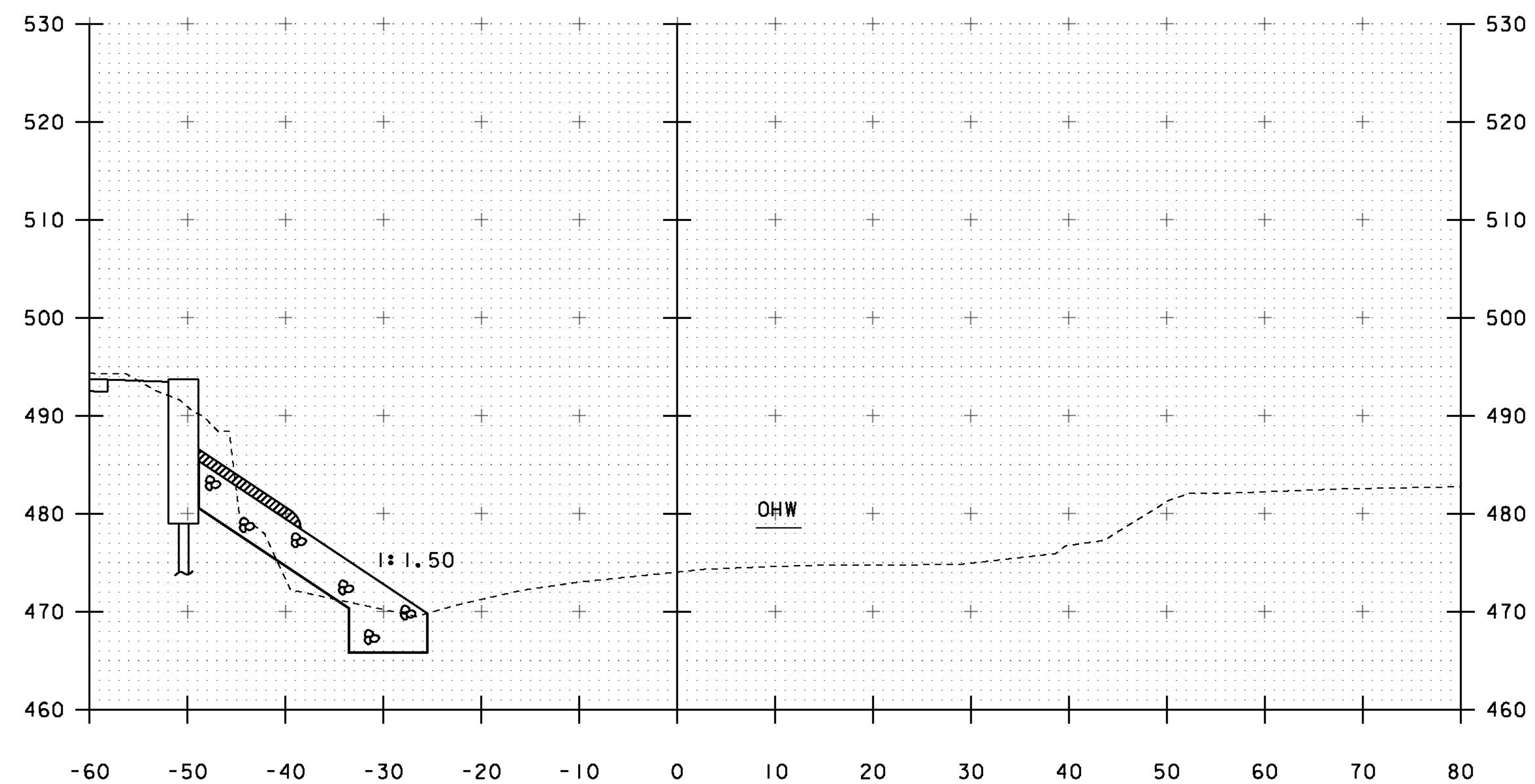
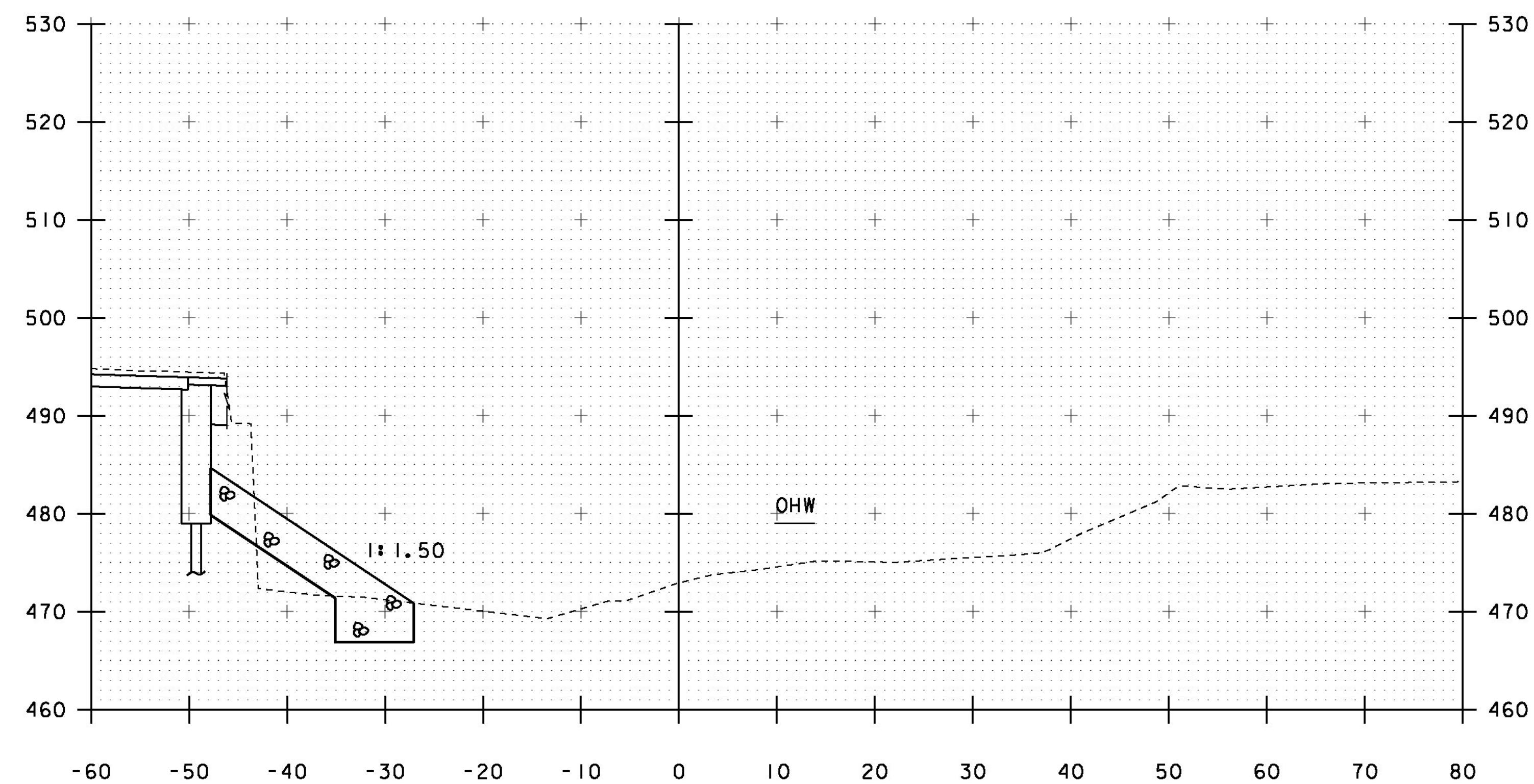
STA 10+82 RT. (ABUT #1)
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BEGIN STONE FILL, TYPE IV
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN GRUBBING MATERIAL
END GRUBBING MATERIAL 11+03 LT.

STA. 10+70 TO STA. 11+00

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352xs2.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
CHANNEL SECTIONS #2

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: T. FILLBACH
SHEET 58 OF 66

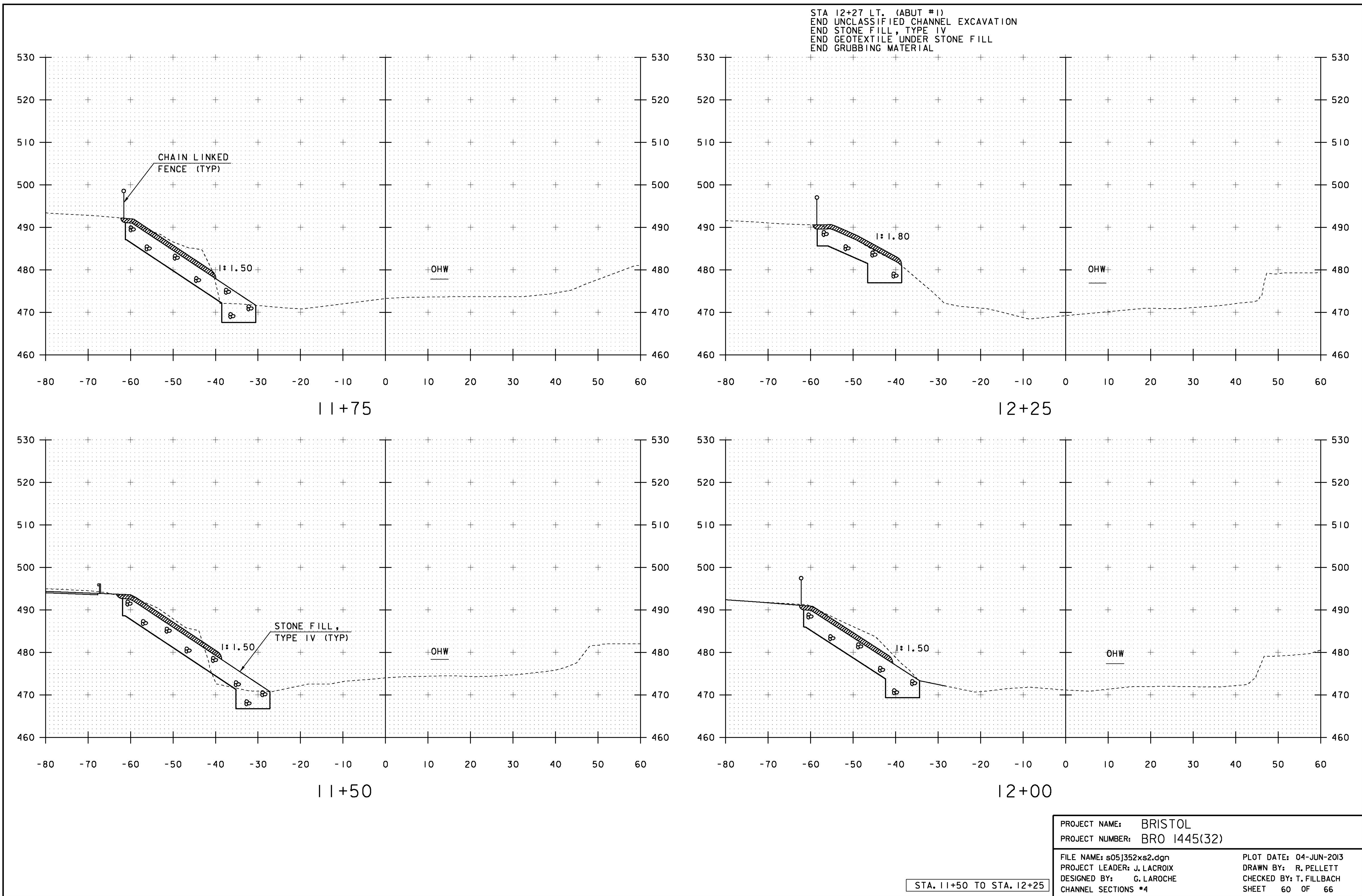


STA 11+09 RT. (ABUT #2)
END UNCLASSIFIED CHANNEL EXCAVATION
END STONE FILL, TYPE IV
END GEOTEXTILE UNDER STONE FILL
END GRUBBING MATERIAL

LT. (ABUT #1)
BEGIN GRUBBING MATERIAL 11+23 LT.

STA. 11+10 TO STA. 11+40

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05j352xs2.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
CHANNEL SECTIONS *3	SHEET 59 OF 66



EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 31 ON TH 5 (SOUTH STREET), APPROXIMATELY 0.2 MILES SOUTHWEST OF THE INTERSECTION OF TOWN HIGHWAY 5 AND VT RTE. 17 IN THE TOWN OF BRISTOL, VERMONT. THE REPLACEMENT WILL BE ON THE EXISTING ALIGNMENT AND INCLUDE RELATED CHANNEL AND APPROACH WORK. THE NEW STRUCTURE WILL BE 122.20 FEET IN LENGTH OVER THE NEW HAVEN RIVER.

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

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.57 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS MOSTLY A RESIDENTIAL AREA WITH SOME FORESTED AREAS AND STEEP SLOPES DOWN TO THE RIVER. THERE ARE RESIDENCES ON THE WEST SIDE OF THE PROJECT.

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

THE NEW HAVEN RIVER AND STORM DRAINS ARE THE ONLY WATER SOURCES ON THE PROJECT SITE. THE RIVER IS CLASSIFIED AS INCISED WITH STEEP UNSTABLE BANKS. THE STREAM BEDS ARE ROCK, SAND AND COBBLES.

1.2.3 VEGETATION

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

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF ADDISON, VERMONT. SOILS ON THE PROJECT SITE ARE THE FOLLOWING:

COLTON GRAVELLY SANDY LOAM 0% TO 5% SLOPES

COLTON GRAVELLY SANDY LOAM 30% TO 50% SLOPES

K-VALUES FACTOR FOR:

COLTON GRAVELLY SANDY LOAM IS 0.24

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: YES
HISTORICAL OR ARCHEOLOGICAL AREAS: YES
THE HISTORIC HOUSE WILL NOT BE DISTURBED
THE HISTORIC BRIDGE WILL BE REMOVED
THERE ARE ARCHEOLOGICAL AREAS WITHIN THE PROJECT LIMITS; THESE AREAS SHALL NOT BE DISTURBED, INCLUDING FILL OVER ANY PART OF THE SITE, DURING CONSTRUCTION. TEMPORARY FENCING WILL BE USED TO PROTECT THE SITE DURING CONSTRUCTION.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: NEW HAVEN RIVER & STORM DRAINS
WETLANDS: NO

1.3 RISK EVALUATION

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

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

1.4.1 MARK SITE BOUNDARIES

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

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES AS SHOWN ON EPSC PLANS.

BARRIER FENCE SHALL BE USED TO MARK HISTORICAL AND ARCHEOLOGICAL AREAS NOT TO BE DISTURBED AS SHOWN ON EPSC PLANS.

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 MNIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

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

1.4.4 INSTALL SEDIMENT BARRIERS

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

INSTALL SILT FENCE AS PROPOSED ON THE EPSC PLAN.

INSTALL FILTER CURTAIN AS PROPOSED ON THE EPSC PLAN.

INSTALL FILTER FABRIC DROP INLET PROTECTION AS PROPOSED ON THE EPSC PLAN.

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 CONSTRUCITON SITE.

THE PROJECT AREA IS REALTIVELY FLAT. THERFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH PERMIT CONDITIONS.

INSTALL DROP INLET(S), STONE PAD(S) AND CARRIER PIPES AS PROPOSED ON THE DRAINAGE LAYOUT SHEET.

INSTALL STONE FILL AS PROPOSED ON THE EPSC PLAN.

1.4.7 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

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

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

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

1.4.8 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.

1.4.9 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.

1.4.10 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.

1.4.11 INSPECT YOUR SITE

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

1.5 SEQUENCE AND STAGING

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

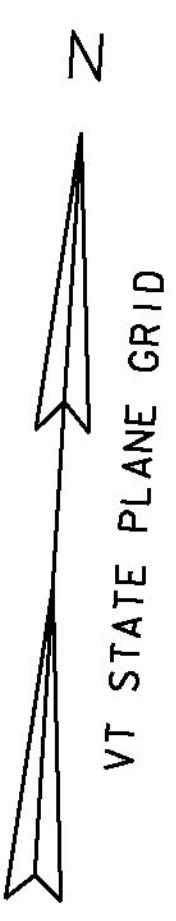
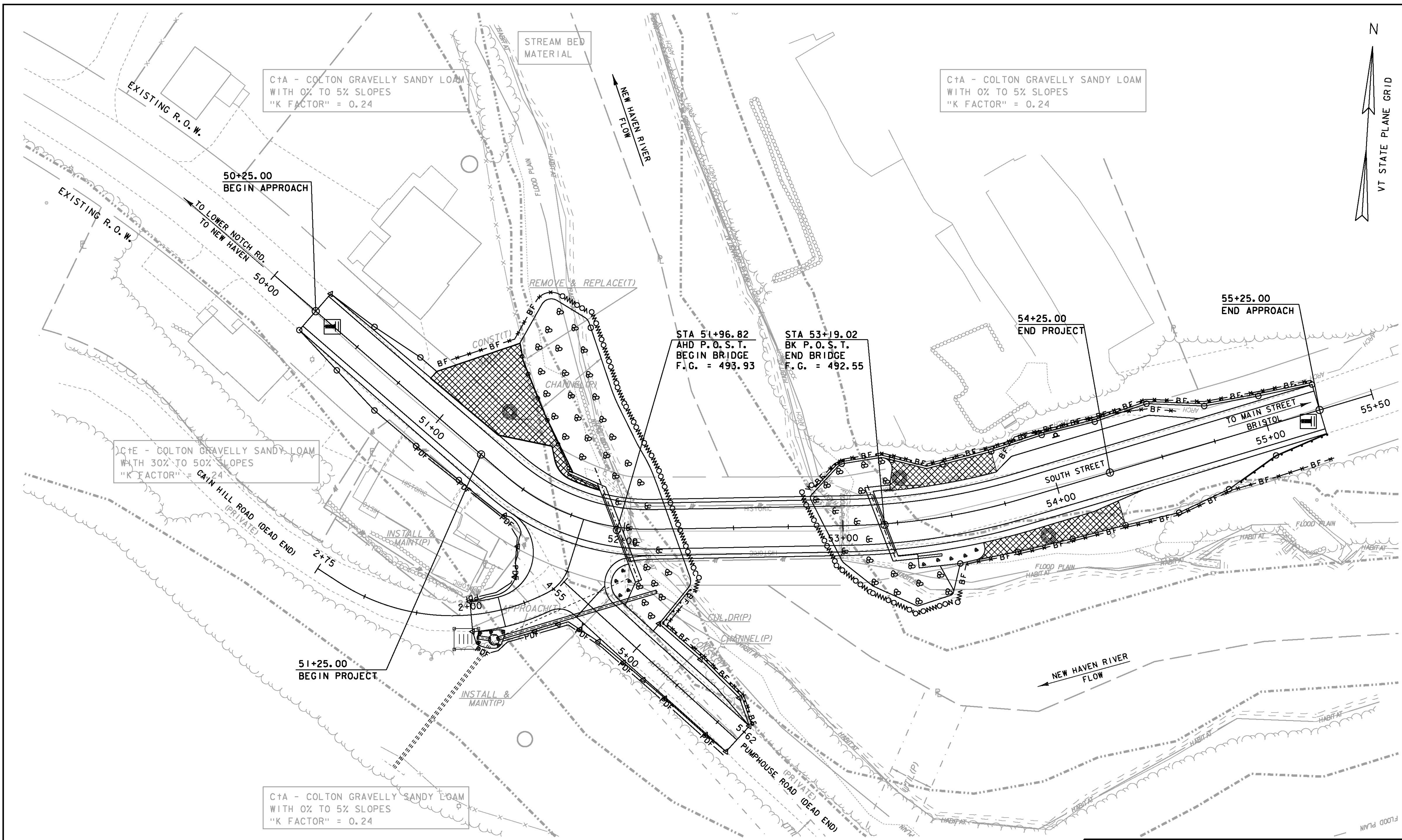
1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

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

1.5.3 UPDATES

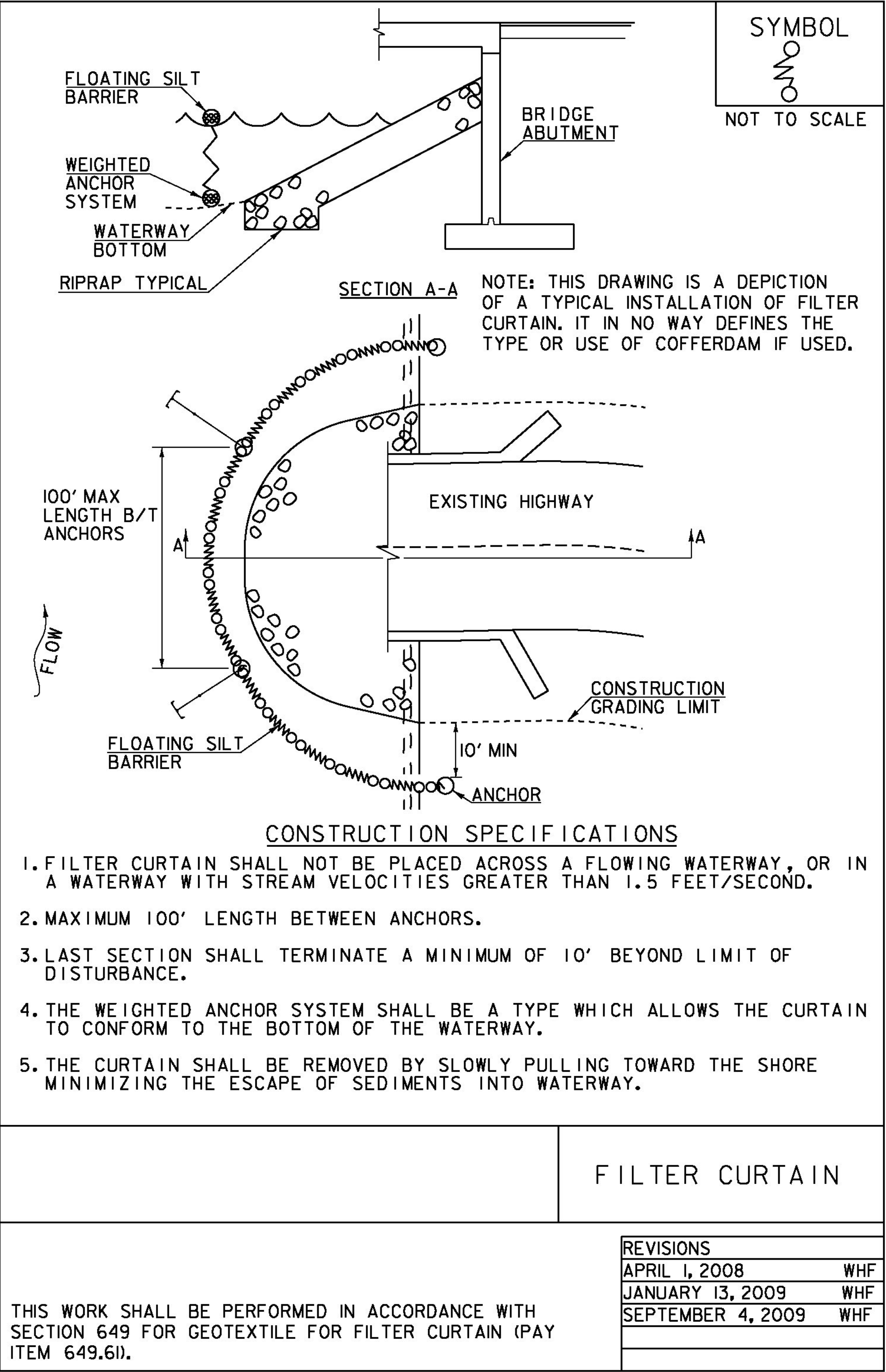
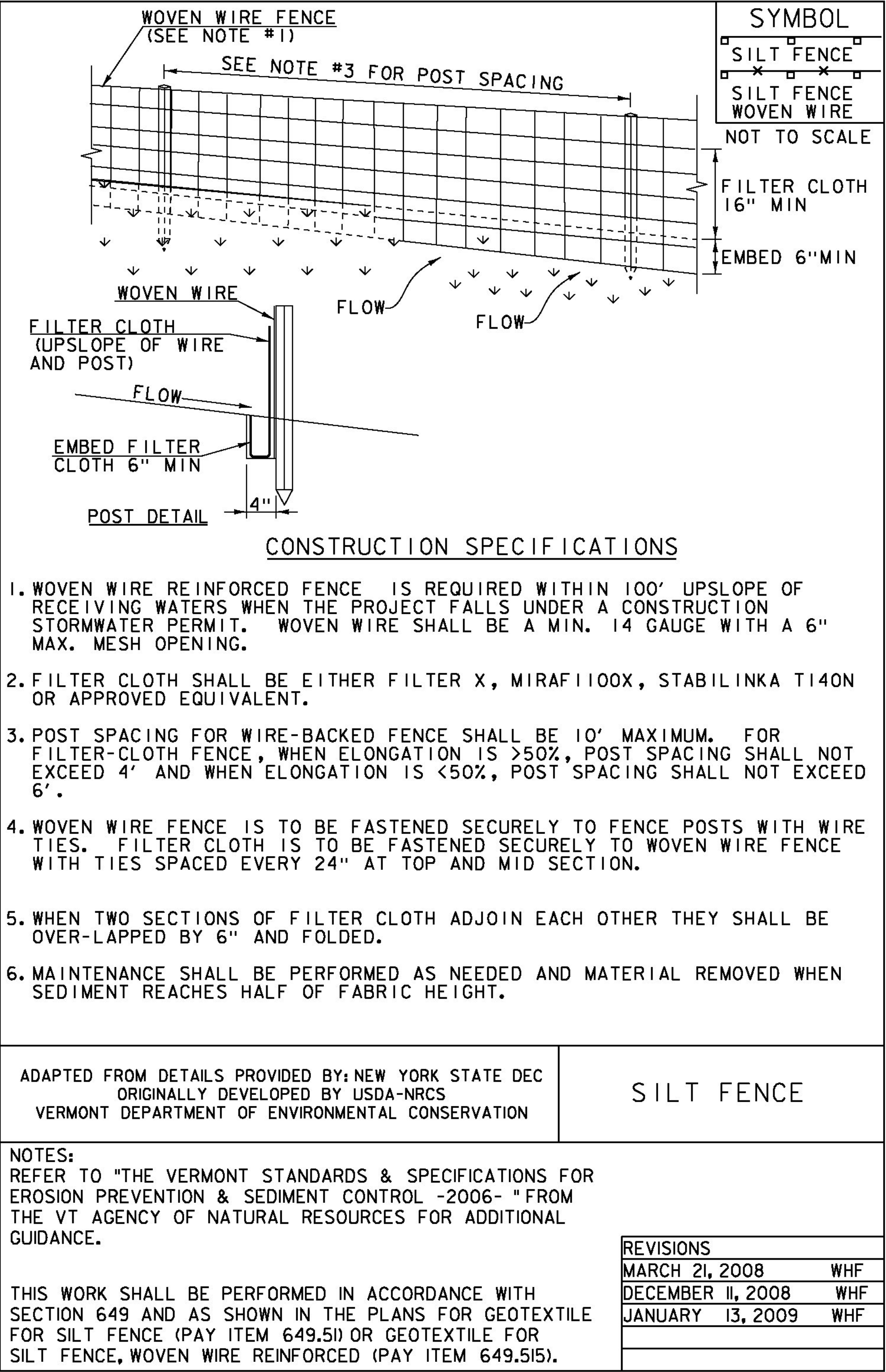
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PROJECT NUMBER: BRO 1445 (32)	
FILE NAME: s05j352epsc_nar.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
EPSC NARRATIVE	SHEET 61 OF 66



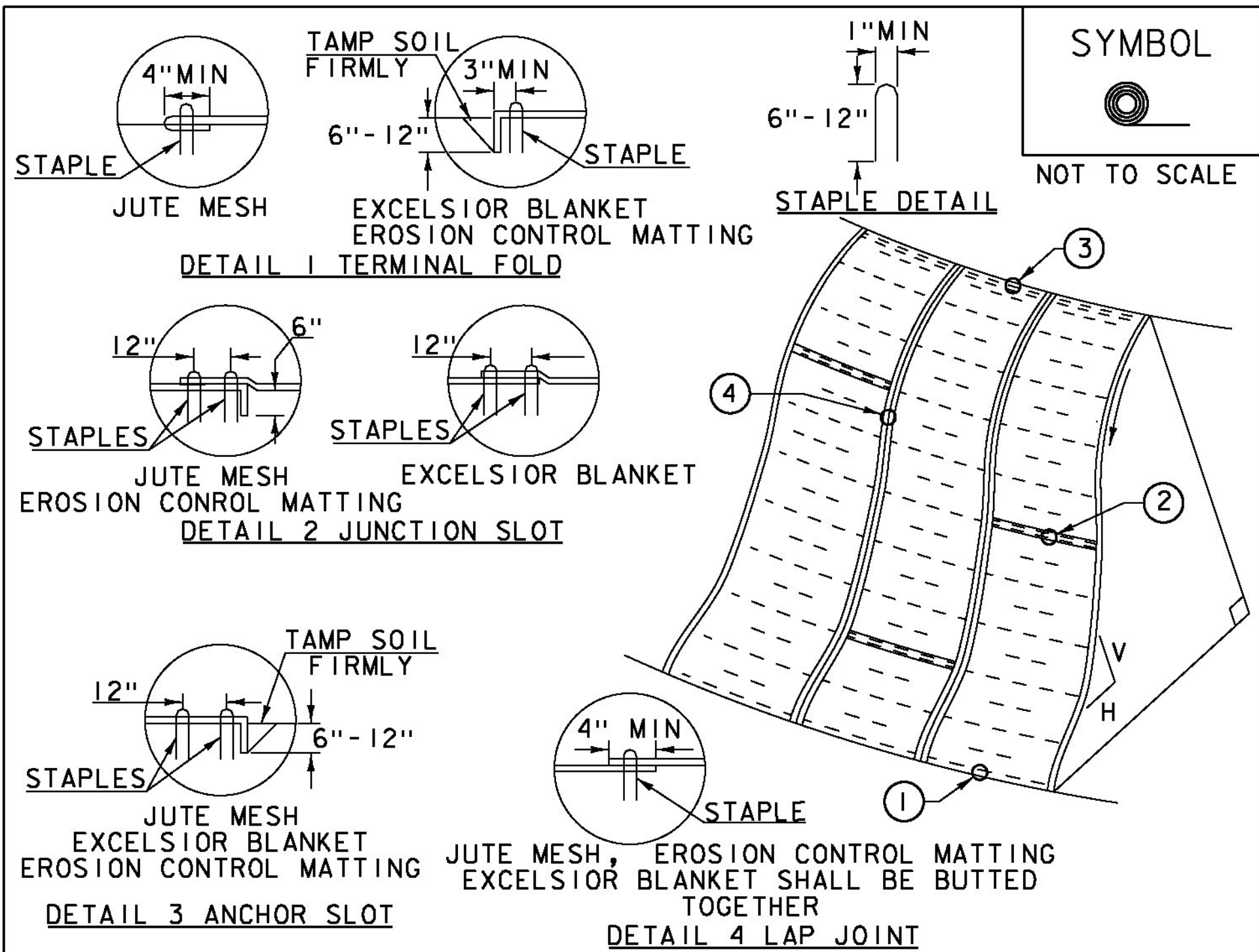
EPSC - DURING CONSTRUCTION

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

PROJECT NAME: BRISTOL	
PROJECT NUMBER: BRO 1445(32)	
FILE NAME: s05j352epsc-dur.dgn	PLOT DATE: 04-JUN-2013
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: J. SALVATORI
EPSC - DURING CONSTRUCTION	SHEET 63 OF 66



EPSC LAYOUT PLAN SYMBOLOGY LEGEND	
PROJECT BOUNDARY FENCE	
PDF	PDF PROJECT DEMARCATION FENCE
BF	BF BARRIER FENCE
EPSC MEASURES	
ONNOOONNOO	FILTER CURTAIN
—X—X—X—X—	SILT FENCE
—X—X—X—X—	SILT FENCE WOVEN WIRE
—X—X—X—X—	CHECK DAM
	DISTURBED AREAS REQUIRING RE-VEGETATION
	EROSION MATTING
ENVIRONMENTAL RESOURCES	
—	WETLAND BOUNDARY
—	RIPARIAN BUFFER ZONE
—	WETLAND BUFFER ZONE
—	SOIL TYPE BOUNDARY
—T&E—	THREATENED & ENDANGERED SPECIES
—HAZ—	HAZARDOUS WASTE AREA
—AG—	AGRICULTURAL LAND
—HABITAT—	FISH & WILDLIFE HABITAT
—FLOOD PLAIN—	FLOOD PLAIN
—OHW—	ORDINARY HIGH WATER (OHW)
—	STORM WATER
—	USDA FOREST SERVICE LANDS
—	WILDLIFE HABITAT SUIT/CONN
ARCHEOLOGICAL & HISTORIC	
—ARCH—	ARCHEOLOGICAL BOUNDARY
—HISTORIC DIST—	HISTORIC DISTRICT BOUNDARY
—HISTORIC—	HISTORIC AREA
(H)	HISTORIC STRUCTURE
UTILITY SYMBOLOGY	
—AER E&T—	AREAL ELECTRIC & TELEPHONE
—E—	AREAL ELECTRIC
—UE—	UNDERGROUND ELECTRIC
—UT—	UNDERGROUND TELEPHONE
—UC—	UNDER GROUND TV
—G—	GAS LINE
—W—	WATER LINE
CONSTRUCTION FEATURES	
—	TOE OF SLOPE CUT OR FILL
—	STONE FILL, TYPE III
—	STONE FILL, TYPE II
—	STONE FILL, TYPE I



CONSTRUCTION SPECIFICATIONS

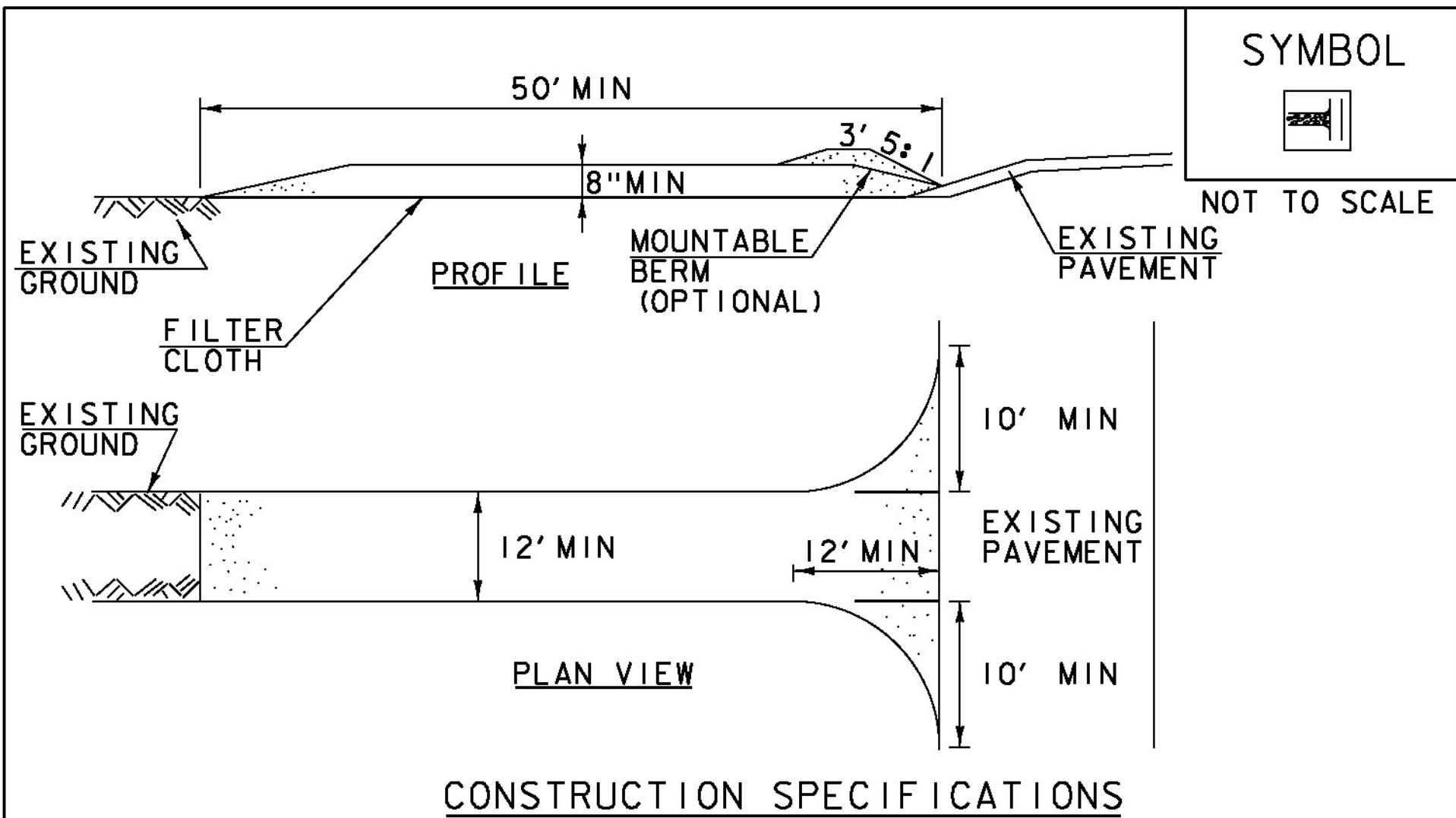
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER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

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

REVISIONS		
APRIL 16, 2007	JMF	
JANUARY 13, 2009	WHF	



CONSTRUCTION SPECIFICATIONS

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

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

STABILIZED CONSTRUCTION ENTRANCE

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

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

REVISIONS		
MARCH 24, 2008	WHF	
JANUARY 13, 2009	WHF	

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

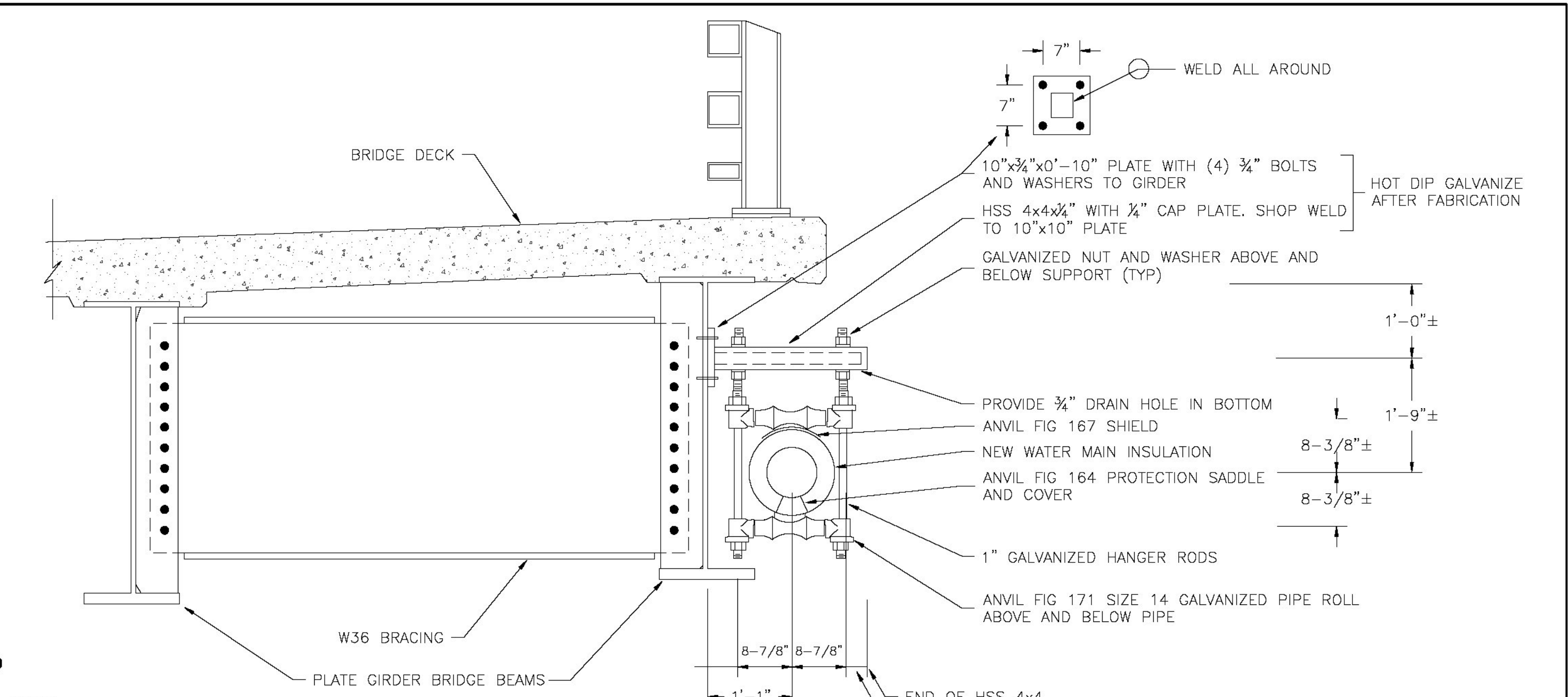
TURF ESTABLISHMENT

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

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PROJECT NUMBER: BRO 1445(32)

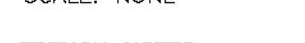
FILE NAME: s05j352EPSC_details.dgn
PROJECT LEADER: J. LACROIX
DESIGNED BY: G. LAROCHE
EPSC DETAILS - *2

PLOT DATE: 04-JUN-2013
DRAWN BY: R. PELLET
CHECKED BY: J. SALVATORI
SHEET 66 OF 66



1. ALL BOLTS, NUTS, WASHERS, AND OTHER HARDWARE RELATED TO THE WATER MAIN SUPPORT SHALL BE HOT DIPPED GALVANIZED.
2. STEEL PLATES SHALL BE ASTM A36 STEEL
3. STEEL TUBES SHALL BE ASTM A500, GRADE B, $F_y = 46\text{ksi}$

SCALE: $\frac{3}{4} = 1 - 0 \pm$ (32)



- TRENCH NOTES**
1. NO MECHANICAL TAMPERS SHALL BE USED DIRECTLY OVER PIPE TO INSURE THE PIPE IS NOT DAMAGED.
 2. ROCK EXCAVATION PAY LIMITS:
ROCK EXCAVATION PAYMENT IS INCLUDED IN ITEM 203.16
 3. EMBEDMENT MATERIALS SHALL BE TESTED AND SHOWN BY THE CONTRACTOR TO MEET THE REQUIREMENTS OF SPEC. SECTION 203.
 4. MATERIALS SHALL BE PLACED IN MAXIMUM 6in LAYERS AND COMPACTED TO ACHIEVE NOT LESS THAN 90% (95% IN ROAD) OF MAXIMUM DENSITY (STANDARD PROCTOR DENSITY).
 5. FINAL BACKFILL (SUITABLE MATERIALS) SHALL NOT CONTAIN ANY STONES MORE THAN 12in IN LARGEST DIMENSION, BE GREATER THAN 50lbs, OR CONTAIN ANY FROZEN, WET, OR ORGANIC MATERIALS.
 6. WIDTH OF TRENCH AT SURFACE SHALL BE KEPT AS NARROW AS PRACTICAL.
 7. PAYMENT UNDER THE ITEMS OF WORK SPECIFIED IN THE CONTRACT DOCUMENTS IS TO THE LIMITS SHOWN.
 8. TRENCHES SHALL BE COMPLETELY DEWATERED PRIOR TO PLACEMENT OF PIPE, BEDDING MATERIAL, AND BE KEPT DEWATERED DURING INSTALLATION OF PIPE, EMBEDMENT MATERIALS, AND INITIAL BACKFILL.
 9. PERMANENT SHEETING SHALL BE INSTALLED ONLY IF REQUIRED BY JOB CONDITIONS.
 10. SEE SPECIFICATIONS SECTION 200 EARTHWORK FOR MORE COMPLETE MATERIALS SPECIFICATION.

MIXED GRAIN SOILS: FINE SAND AND CLAYEY GRAVELS, INCLUDING FINE SANDS, SANDY-CLAY MIXTURES AND GRAVEL-CLAY MIXTURES. MAXIMUM PARTICLE SIZE = $1\frac{1}{2}$ "

STATE OF VERMONT
ALAN HUIZENGA
NO 5805
REGISTERED
PROFESSIONAL ENGINEER

FILENAME: Bristol Bridge

**GREEN
MOUNTAIN
ENGINEERING**

CIVIL
WATER
WASTEWATER

WILLISTON, VERMONT 05495
PHONE: (802)862-5590
FAX: (802)862-7598

Crossing South Street Watermain Bridge Crossing	DESIGNED AH	PROJECT NO. 22-001
	DRAWN RHW	
	CHECKED —	
TOWN OF BRISTOL	PLOT DATE 09/13/12	DRAWING NO. 32
	SCALE AS SHOWN	
BRISTOL, VERMONT	DATE SEPT. 2012	



- NOTES:
1. ALL THRUST BLOCKS SHALL BE CLASS "B" CONCRETE, SEE SPEC. SECTION 541
 2. CONCRETE SHALL BE PLACED SO AS NOT TO HAMPER THE FUTURE REMOVAL OF A FITTING.
 3. WRAP FITTINGS IN (2) LAYERS POLYETHYLENE PLASTIC SHEET PRIOR TO FORMING AND POURING THRUST BLOCK.

MINIMUM BEARING FACE "HEIGHTS AND WIDTHS"

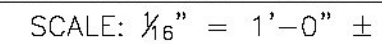
- | | | |
|--|-------|--|
| 1. HYDROSTATIC AND LEAKAGE TEST PRESSURE PER SPECIFICATIONS. | NOTE: | CONTRACTOR SHALL PROVIDE THRUST RESTRAINT DEVICES, |
| 2. UNDISTURBED EARTH: SIDE OF TRENCH OR OTHER EXCAVATION. | | SUCH AS "GRIPPER RINGS" OR RETAINER GLANDS, |
| 3. SEE DIAGRAM FOR H AND B LOCATION REFERENCE, MEASURED IN FEET. | | IN THE THRUST BLOCK DETAILS SHOWN ABOVE. |

NOTE:

CONTRACTOR SHALL PROVIDE THRUST RESTRAINT DEVICES, SUCH AS "GRIPPER RINGS" OR RETAINER GLANDS, IN THE THRUST BLOCK DETAILS SHOWN ABOVE.



- 1) HYDRANT SHALL BE FULLY EXPOSED, OPEN LEFT, AND HAVE (2) 3/4" NTS HOSE CONNECTIONS AND (1) 4" PUMPER CONNECTION. HYDRANT SHALL BE 50" PAPER BY AMERICAN FLOW CONTROL, OR EQUAL. BRANCH PIPING SHALL BE 6" D.I. CL-52 AND GATE VALVE TO BE MODEL AFC-2500 BY AMERICAN FLOW CONTROL, OR EQUAL.
- 2) ALL BRANCH PIPING AND FITTINGS SHALL BE MECHANICAL JOINT.
- 3) HYDRANTS WHICH ARE INSTALLED WHERE THE NATURAL GROUND WATER TABLE IS ABOVE THE HYDRANT DRAIN ORIFICE SHALL HAVE THE DRAIN PLUGGED. HYDRANTS WITH PLUGGED DRAINS SHALL BE LABELED "ND" (FOR NON-DRAINING) IN 3" HIGH GROUND GRAIN LETTERS ON THE BONNET FACING THE ROAD.
- 4) THE SHORT BRANCH = 4'-0"



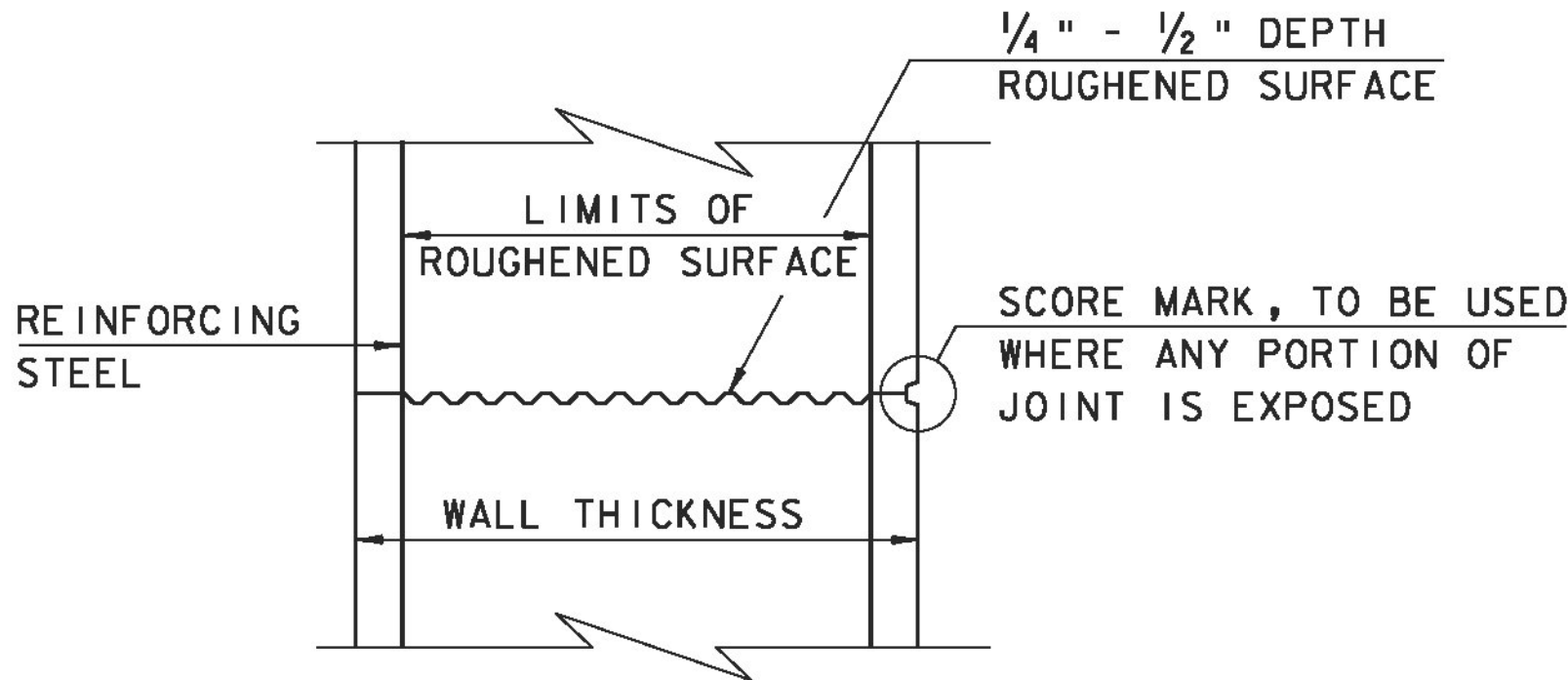
1. BRIDGE CROSSING IS TO BE CONSTRUCTED UTILIZING 8" TR-FLEX DUCTILE IRON PIPE OR EQUAL, AND IS TO BE INSULATED WITH 3" TRYMER 2000 XP PIPE INSULATION. PACCO-CHILDERS METALS 0.20" THICK ALUMINUM JACKET WITH STAINLESS STEEL BANDS AND ANVIL-INT FIGURE #167 SHIELDS OR EQUIVALENT, APPROVED PRODUCTS, REFER TO THE WATER MAIN SUPPORT LOCATION PLAN AND SECTION FOR FURTHER INFORMATION. PIPE JOINTS TO BE PROPERLY INSULATED AND JACKETED AS PER MANUFACTURERS RECOMMENDATIONS.
2. THE PROPERTY LINES, EASEMENTS, AND OTHER REAL PROPERTY DESCRIPTIONS PROVIDED ARE APPROXIMATE. THEY DO NOT DEFINE LEGAL RIGHTS OR MEET LEGAL REQUIREMENTS FOR A LAND SURVEY AS DESCRIBED IN 26.V.S.A.(4), AND SHALL NOT BE USED IN LIEU OF A SURVEY AS THE BASIS OF ANY LAND TRANSFER OR ESTABLISHMENT OF ANY PROPERTY RIGHT.
3. THE BASE MAP FOR THIS PLAN WAS PROVIDED BY VAOT FROM DRAWING "s05j352vtilbrd"
4. WATER MAINS (INCLUDING TEMPORARY MAINS) ARE TO BE FULLY DISINFECTED AND PRESSURE TESTED PRIOR TO CONNECTION TO THE EXISTING WATER SYSTEM.
5. STATIC PRESSURE IN EXISTING SYSTEM AT THIS LOCATION IS APPROX. 160psi

"I hereby certify in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and the design included in this application for a permit complies with the Vermont Water Supply Rules."

Alan Huizenga, P.E.

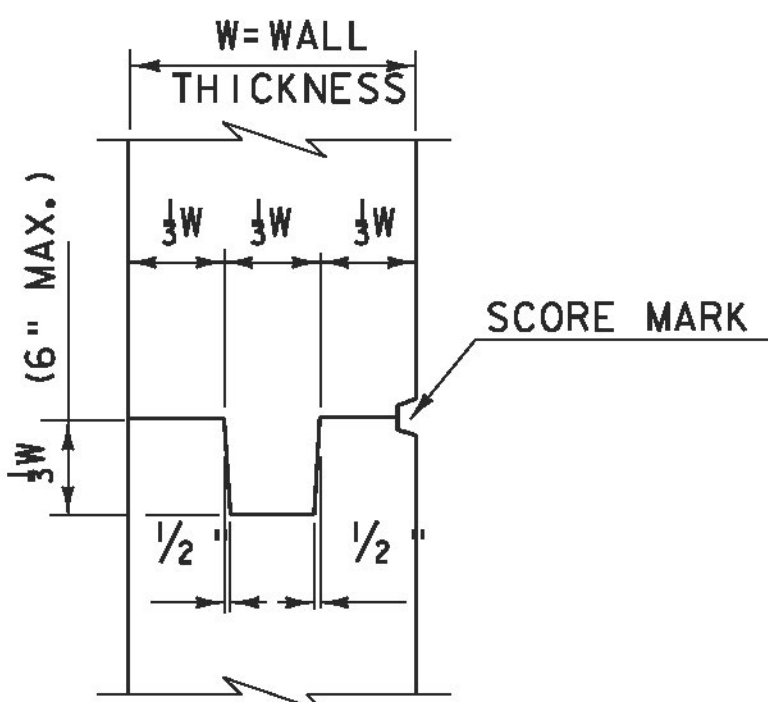
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"

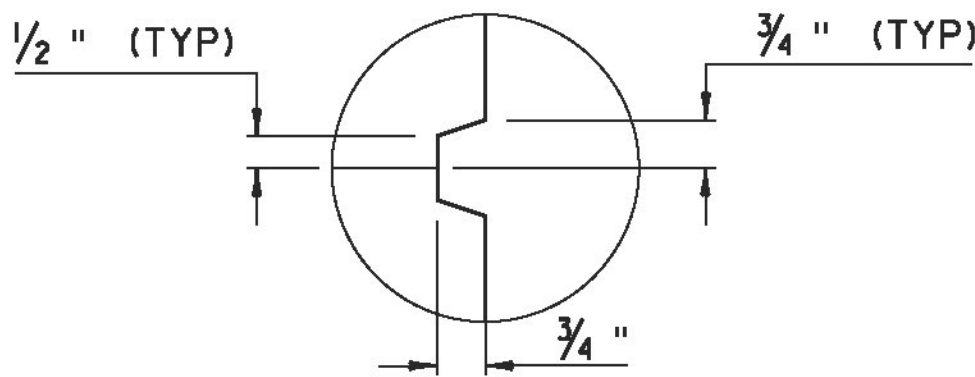


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

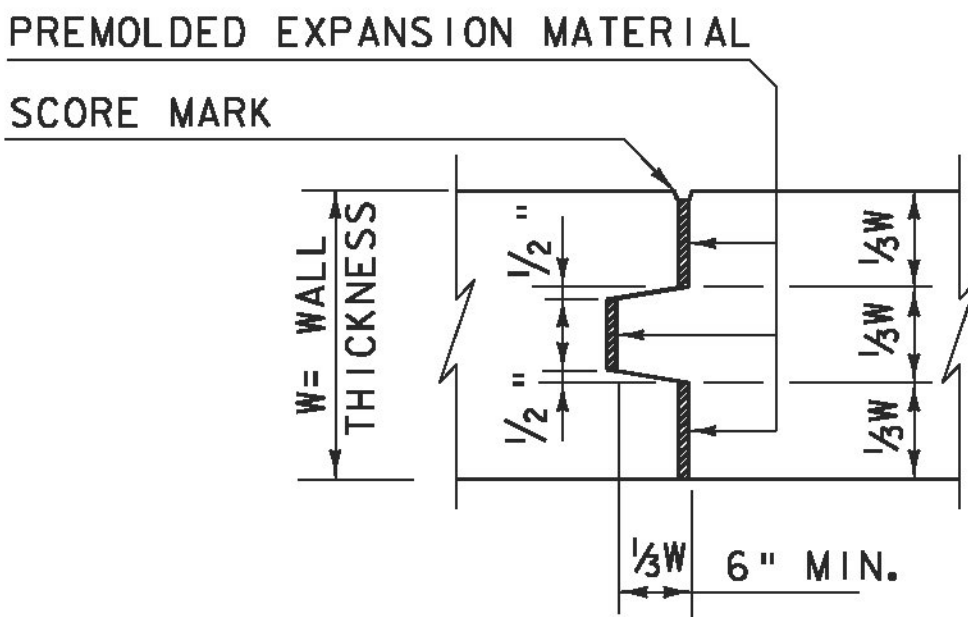
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



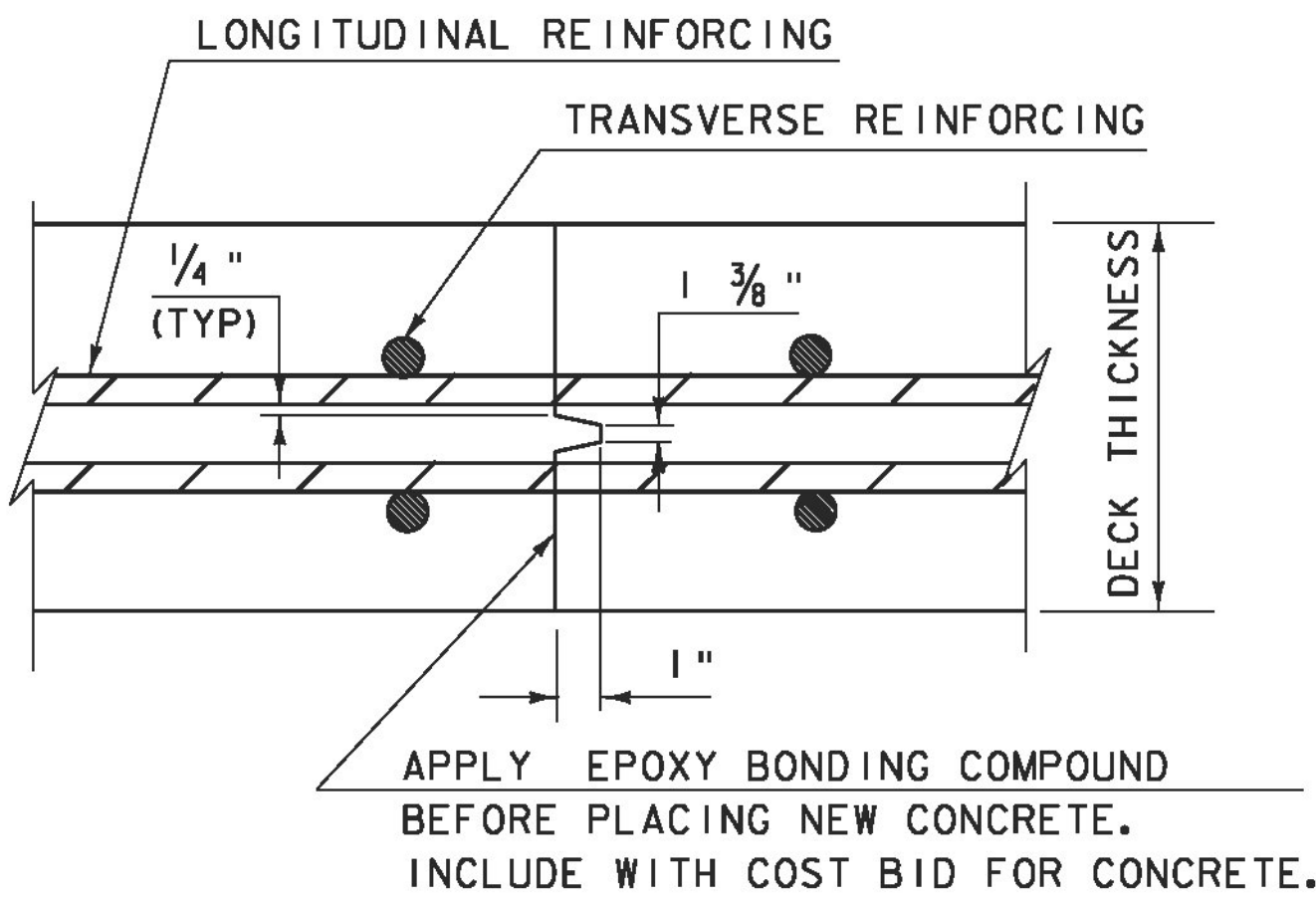
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



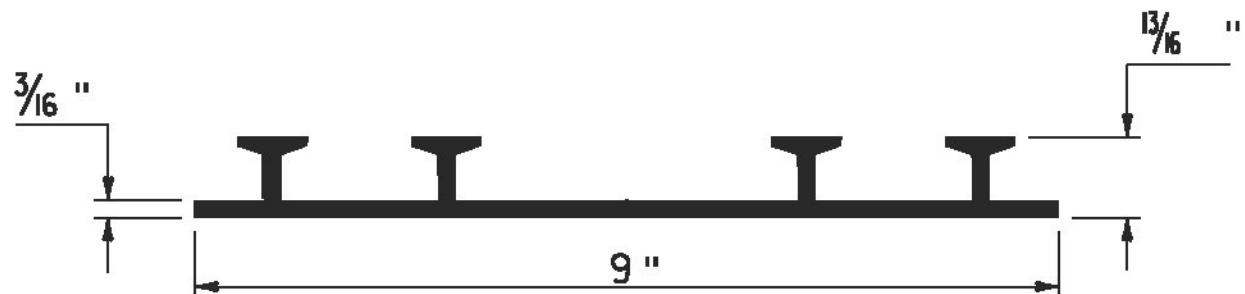
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



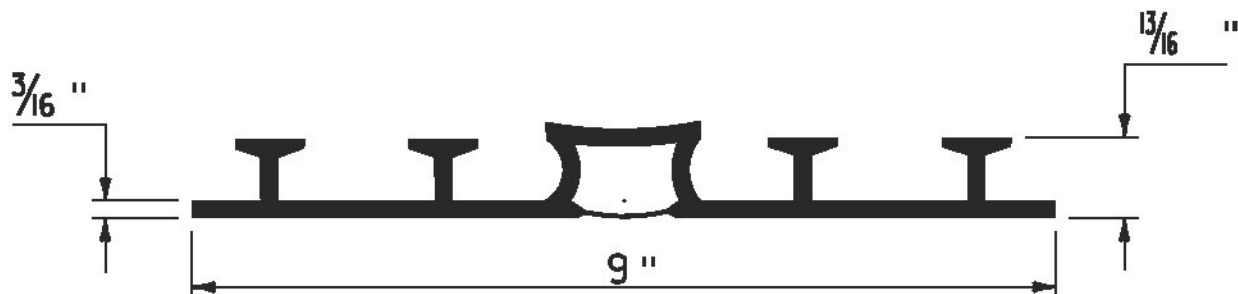
TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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

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

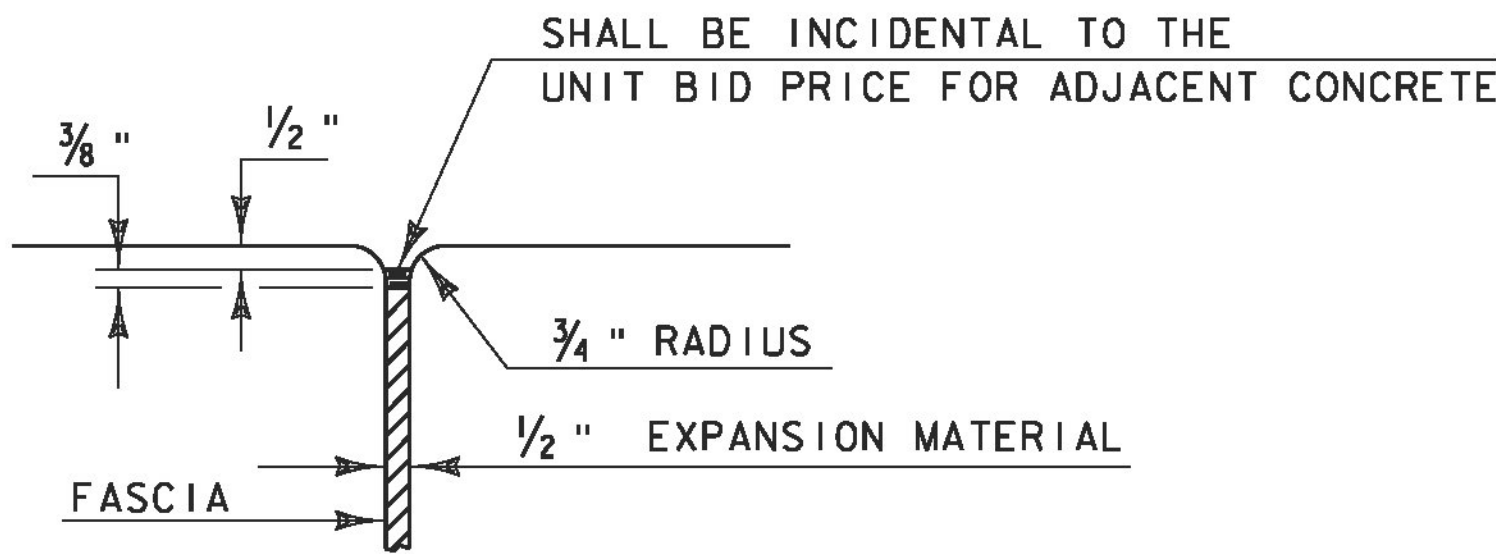
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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

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

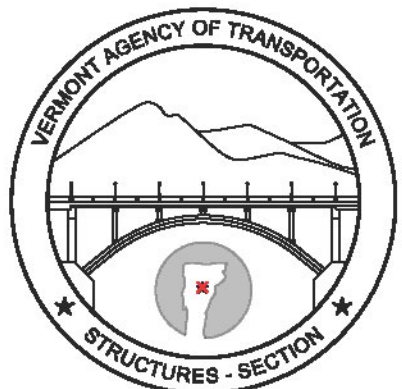
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



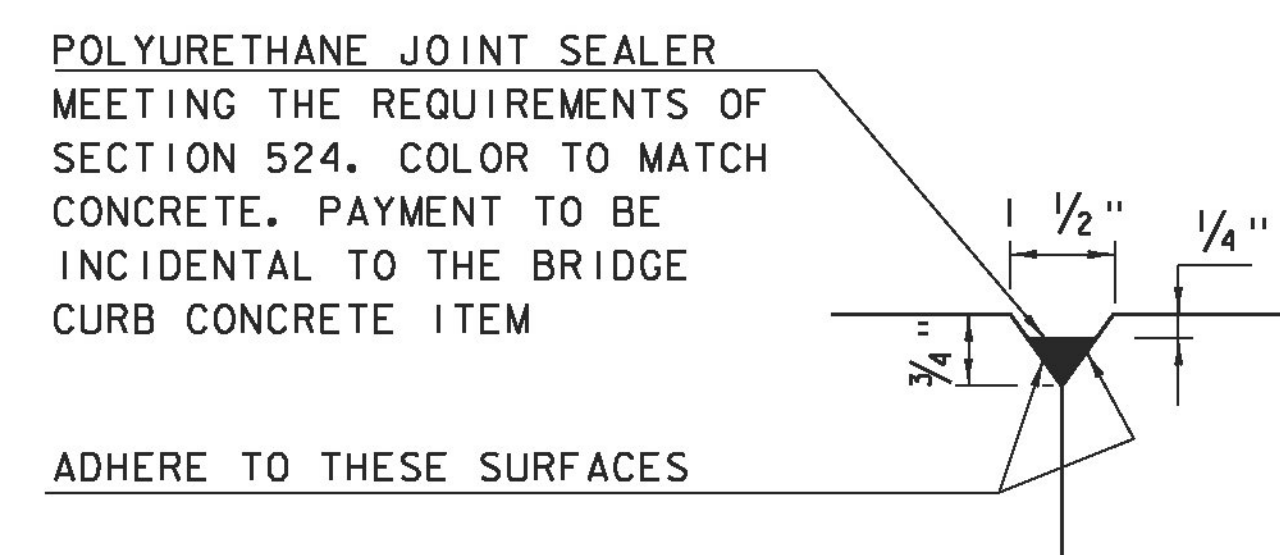
JOINT BETWEEN FASCIA
AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

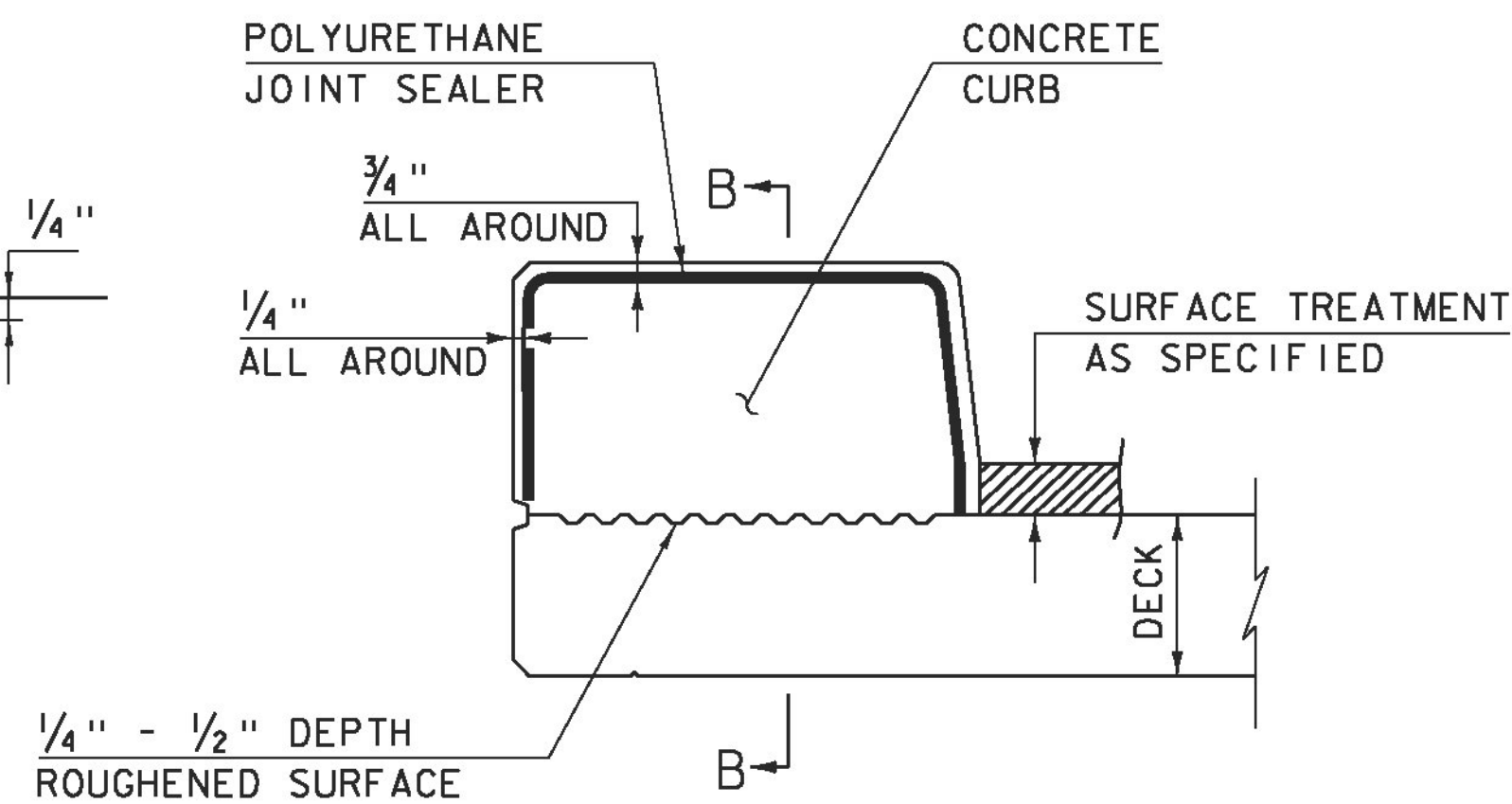
CONCRETE
DETAILS AND NOTES



STRUCTURES
DETAIL
SD-5 01.00

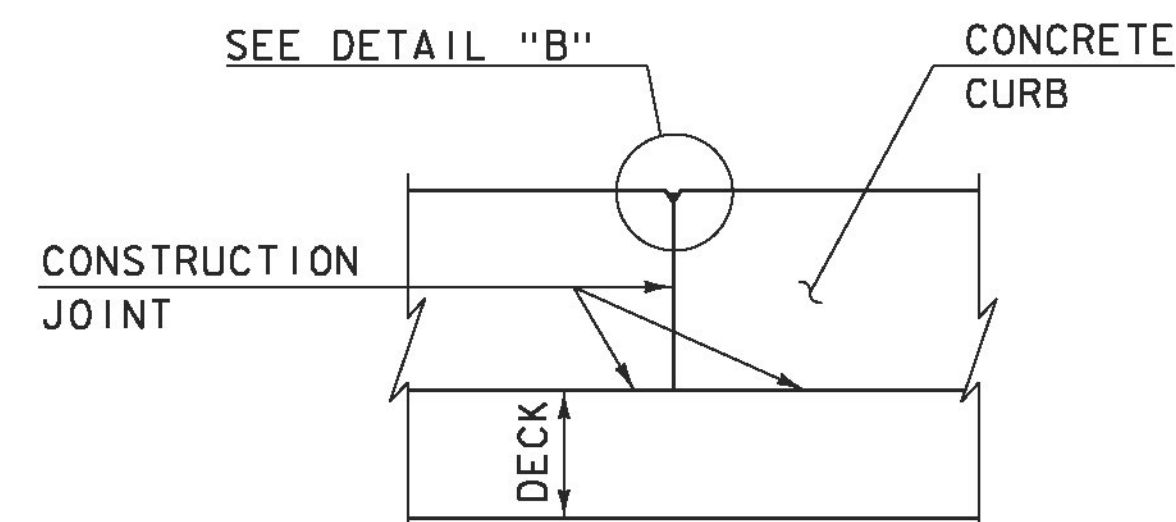


DETAIL "B"
(NOT TO SCALE)

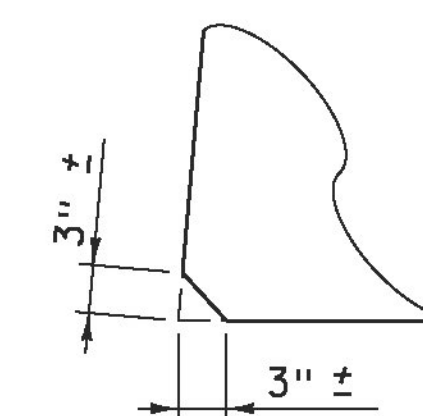


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

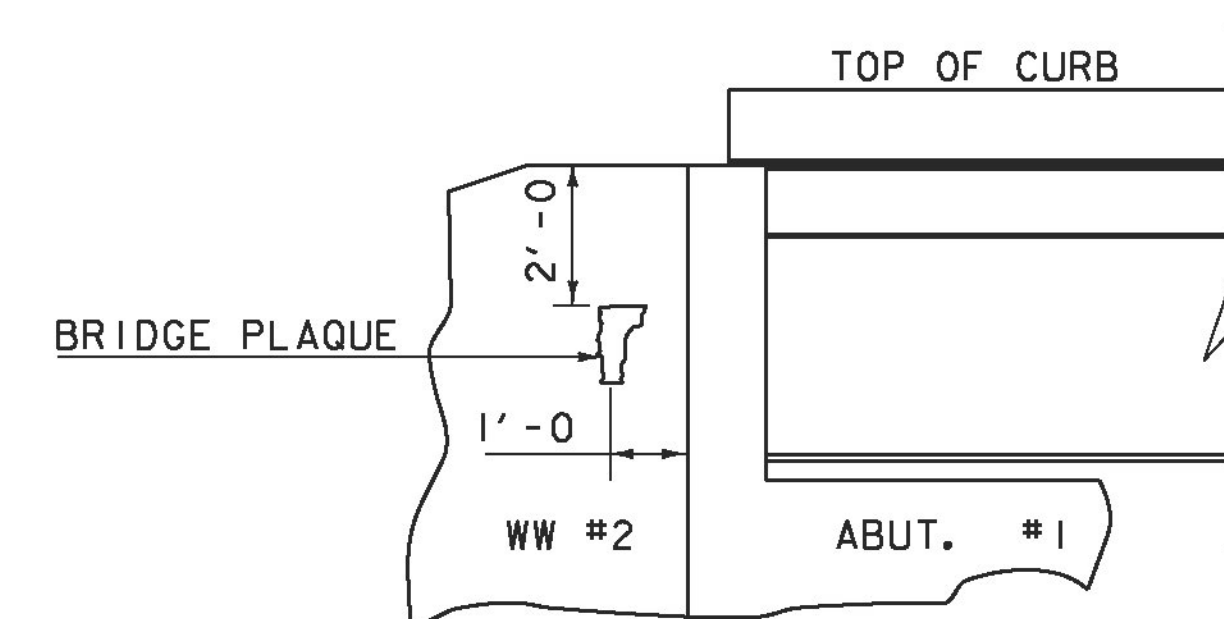
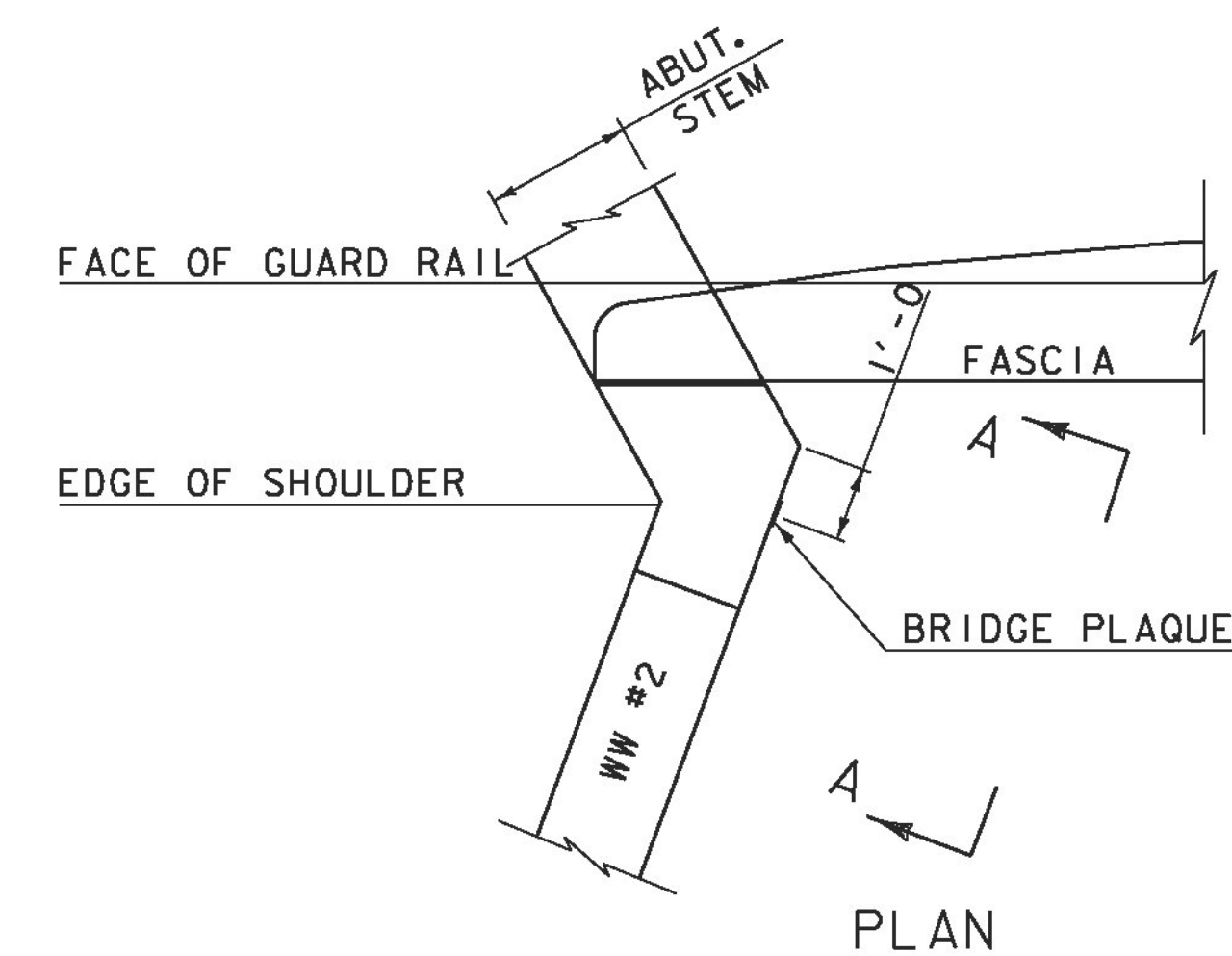
1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE
CLIP DETAIL
(NOT TO SCALE)



VIEW "A - A"

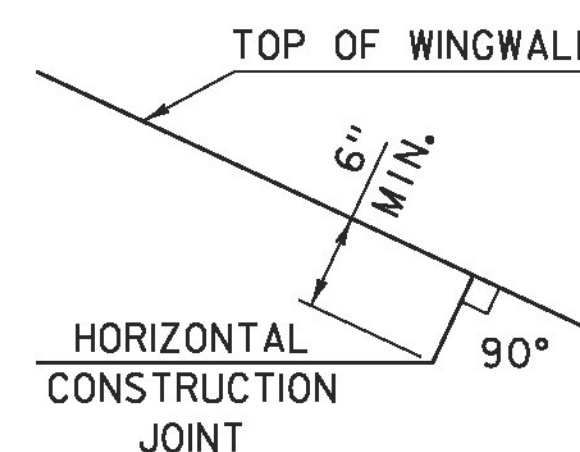
BRIDGE PLAQUE
(NOT TO SCALE)

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

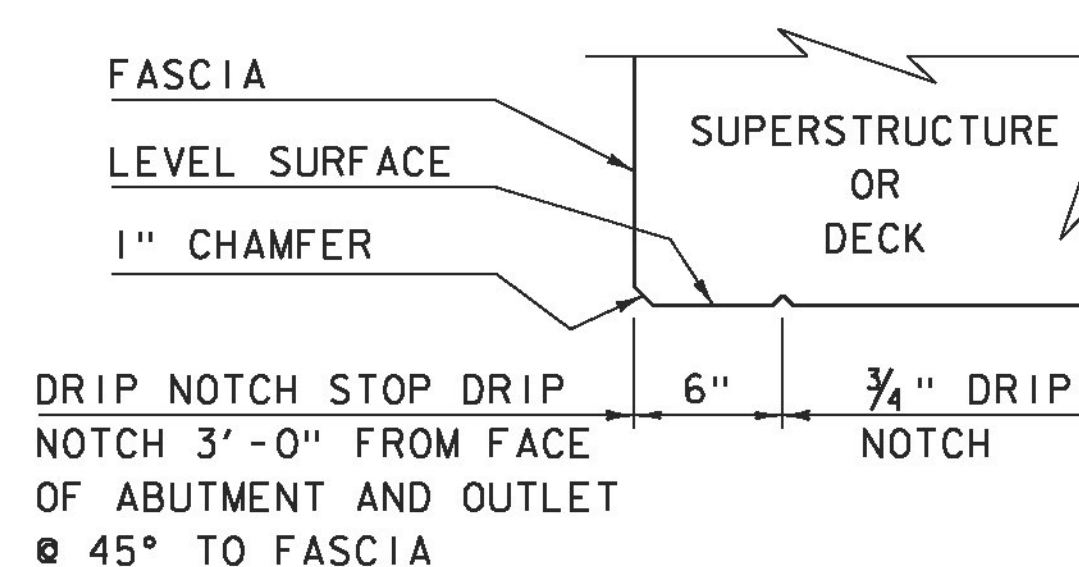
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

CONCRETE CURB JOINT NOTES

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

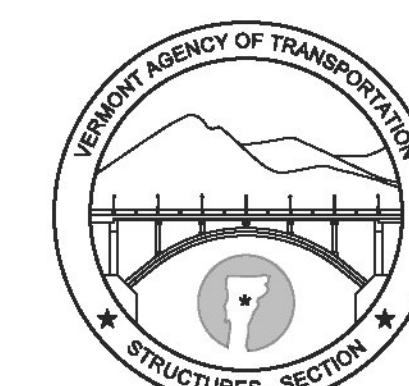


HORIZONTAL WINGWALL
CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)

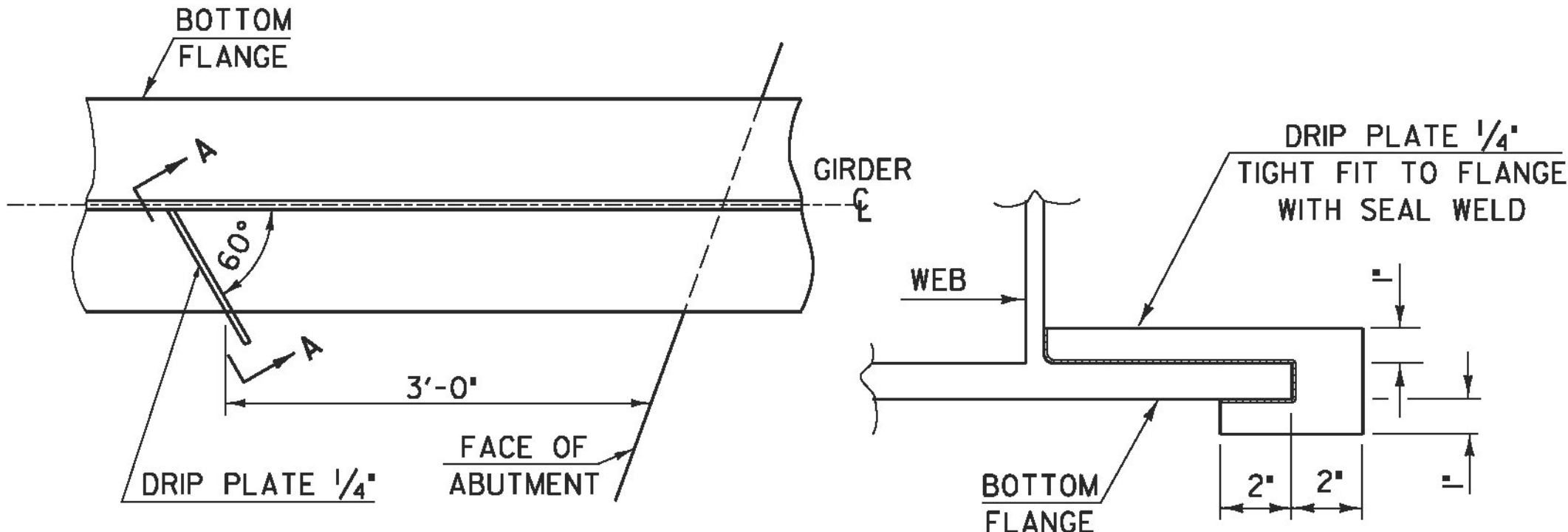
CONCRETE DETAILS AND NOTES



STRUCTURES
DETAIL
SD-502.00

STRUCTURAL STEEL GENERAL NOTES:

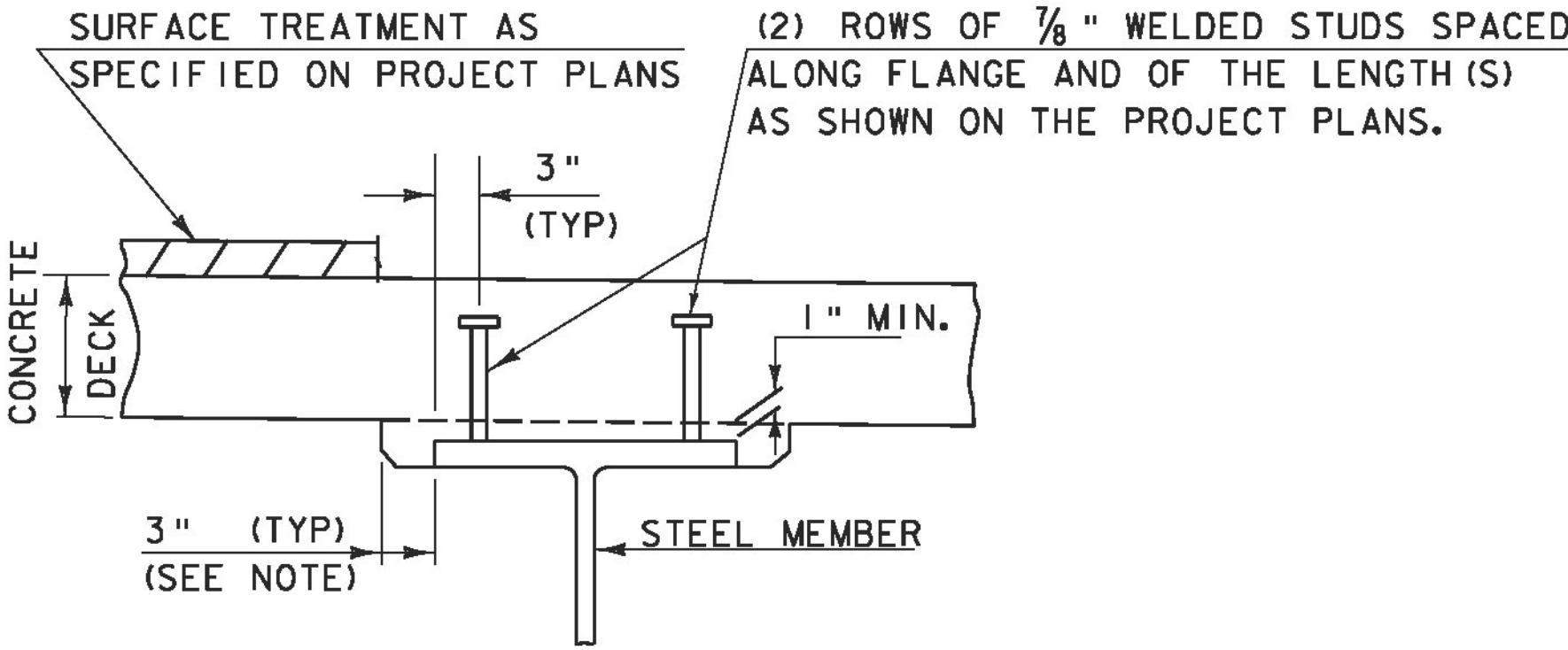
- 1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.I9, UNLESS OTHERWISE SPECIFIED.
- 2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.I9.
- 3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.I0.
- 4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
- 5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
- 6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
- 7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.



PLAN DRIP PLATE

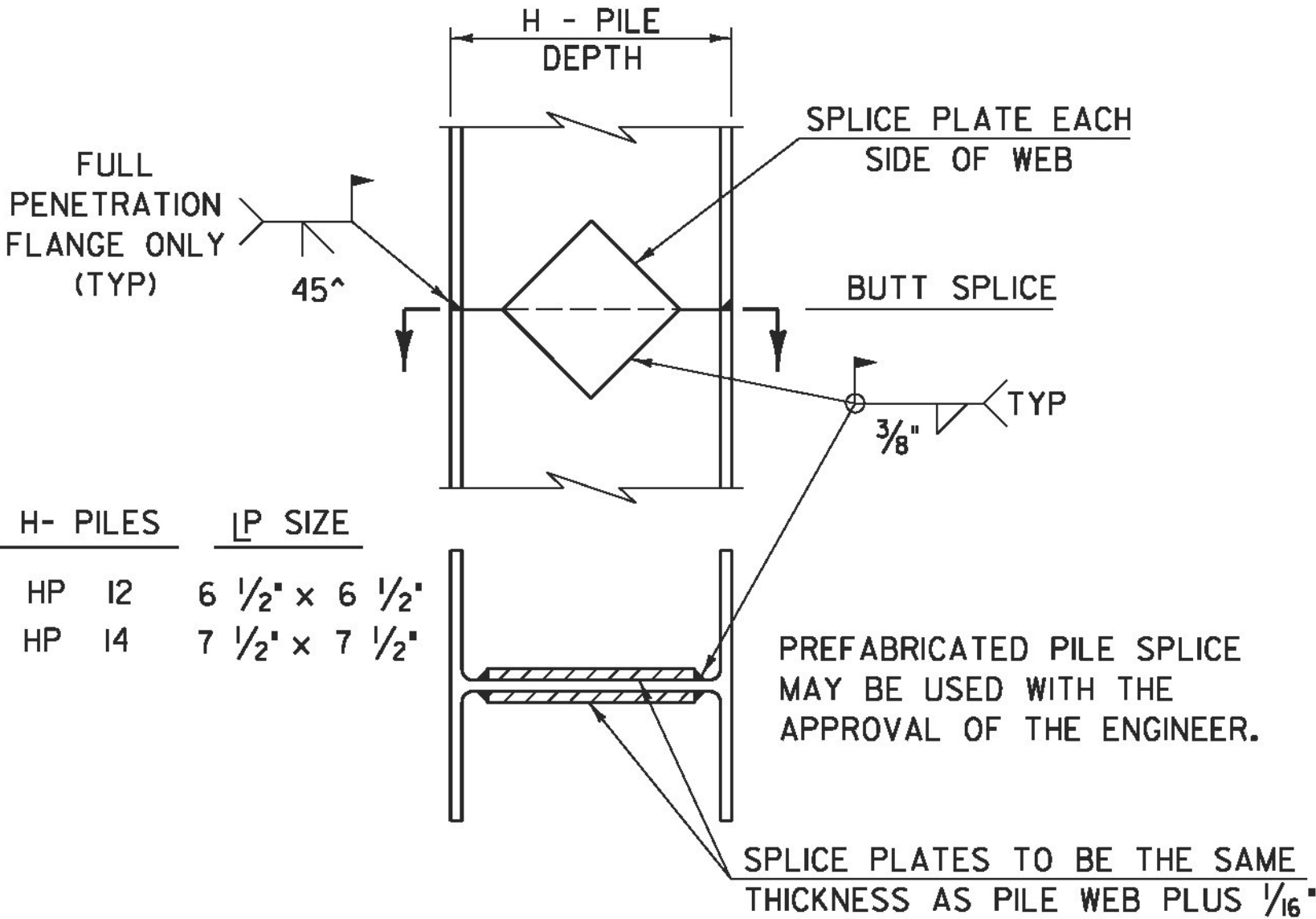
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL

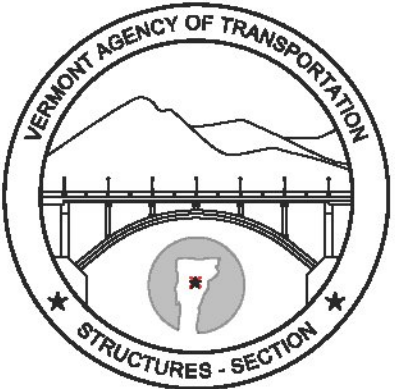


DETAIL OF PILE SPLICE

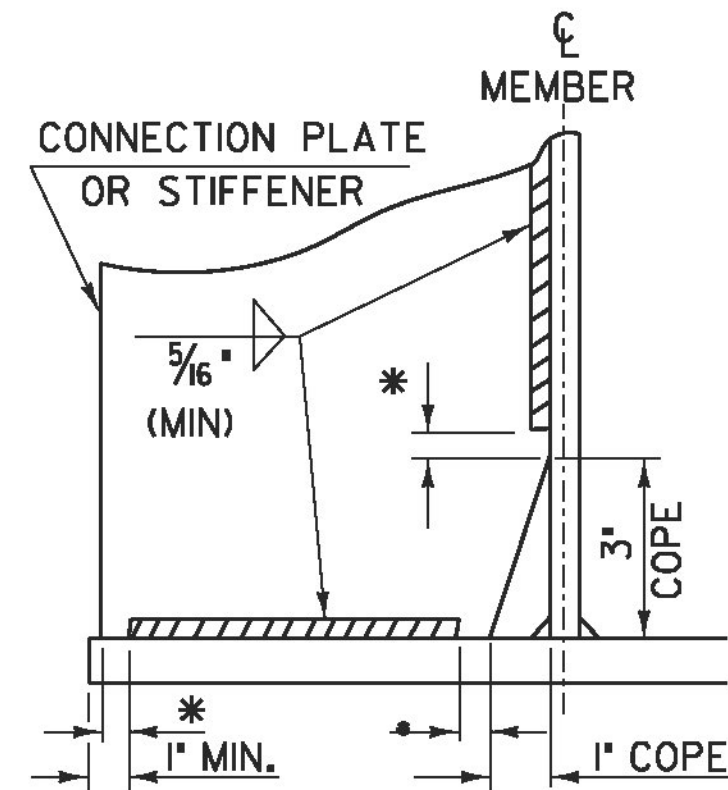
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

STRUCTURAL STEEL
DETAILS & NOTES

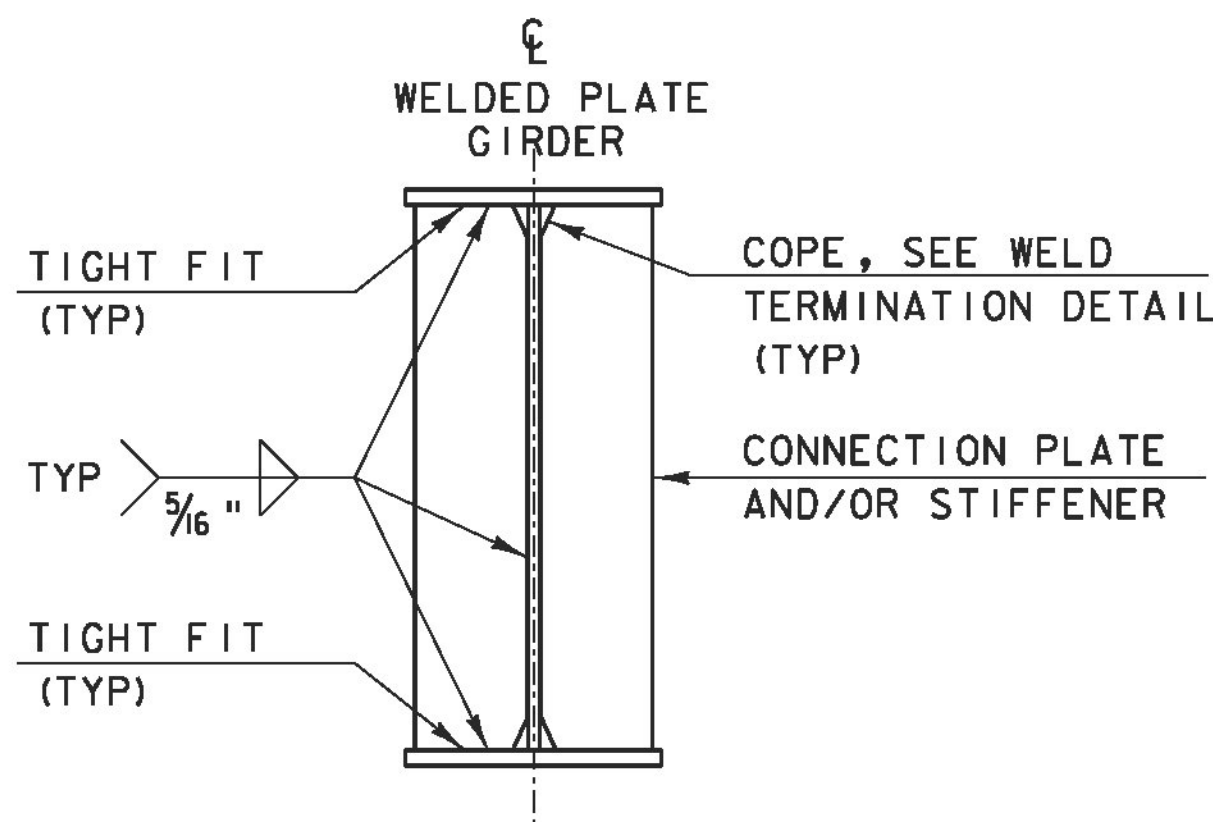


STRUCTURES
DETAIL
SD-6 01.00



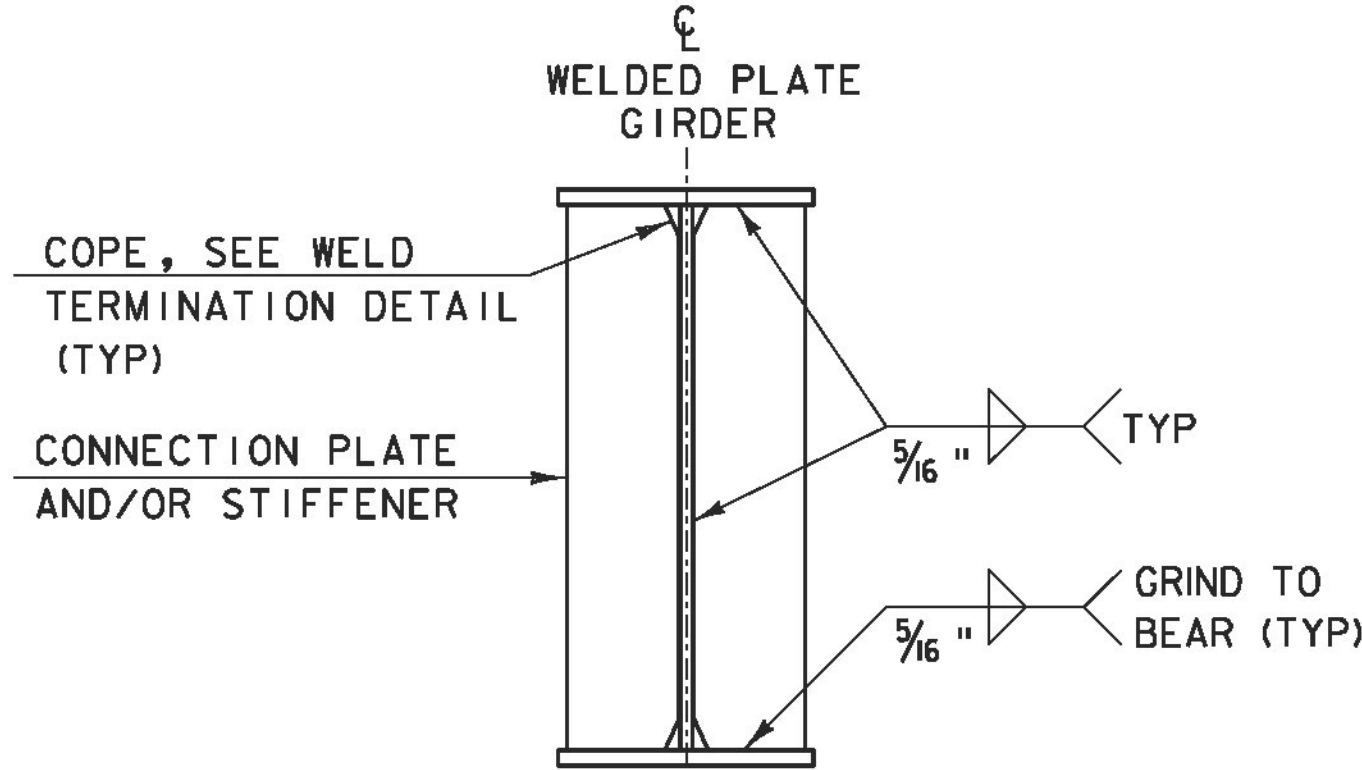
WELD TERMINATION AND COPING
DETAILS FOR STEEL MEMBERS

*NO WELD FOR 3/8" MIN. 7/8" MAX. (EXCEPT MUST
MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

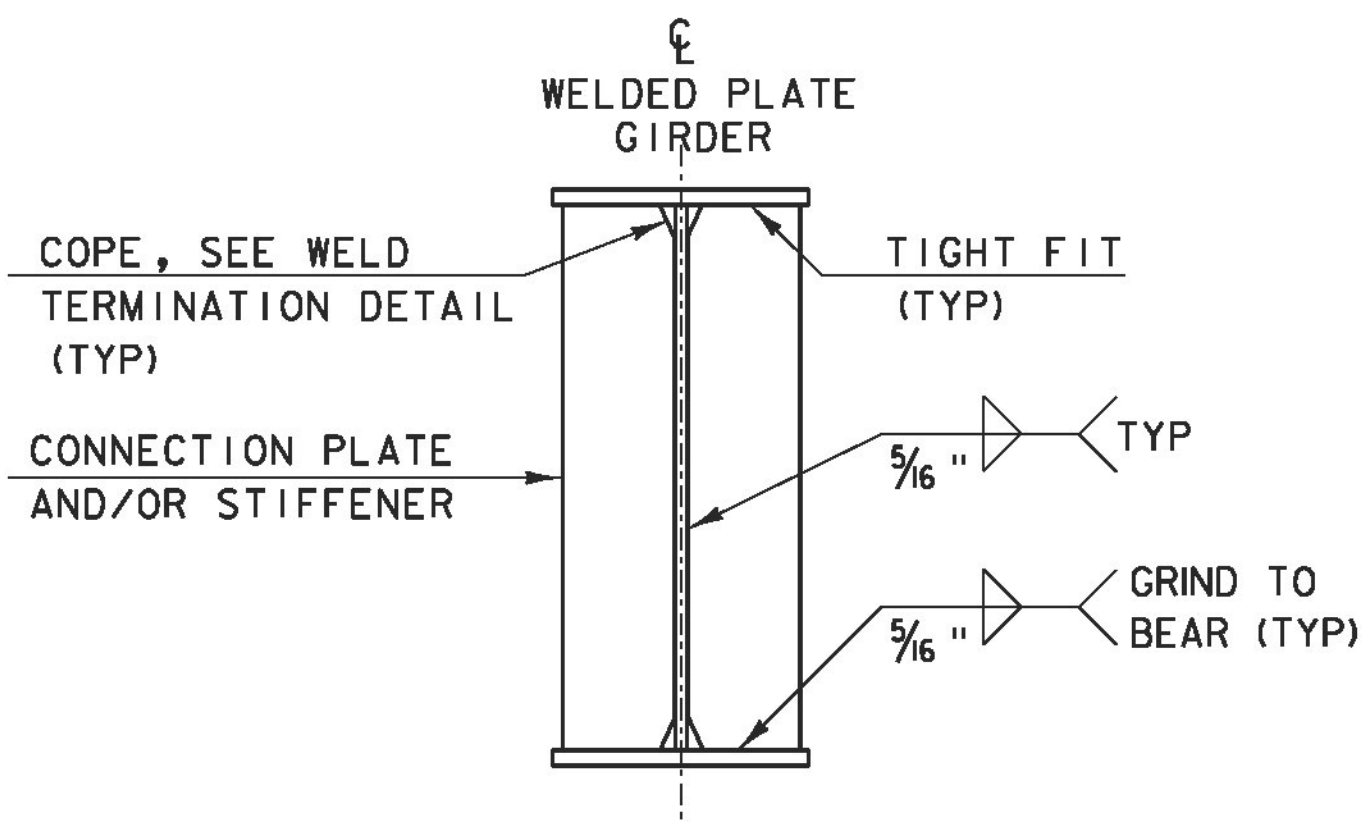


INTERMEDIATE CONNECTION PLATES
AND/OR STIFFENERS FOR WELDED
PLATE GIRDERS

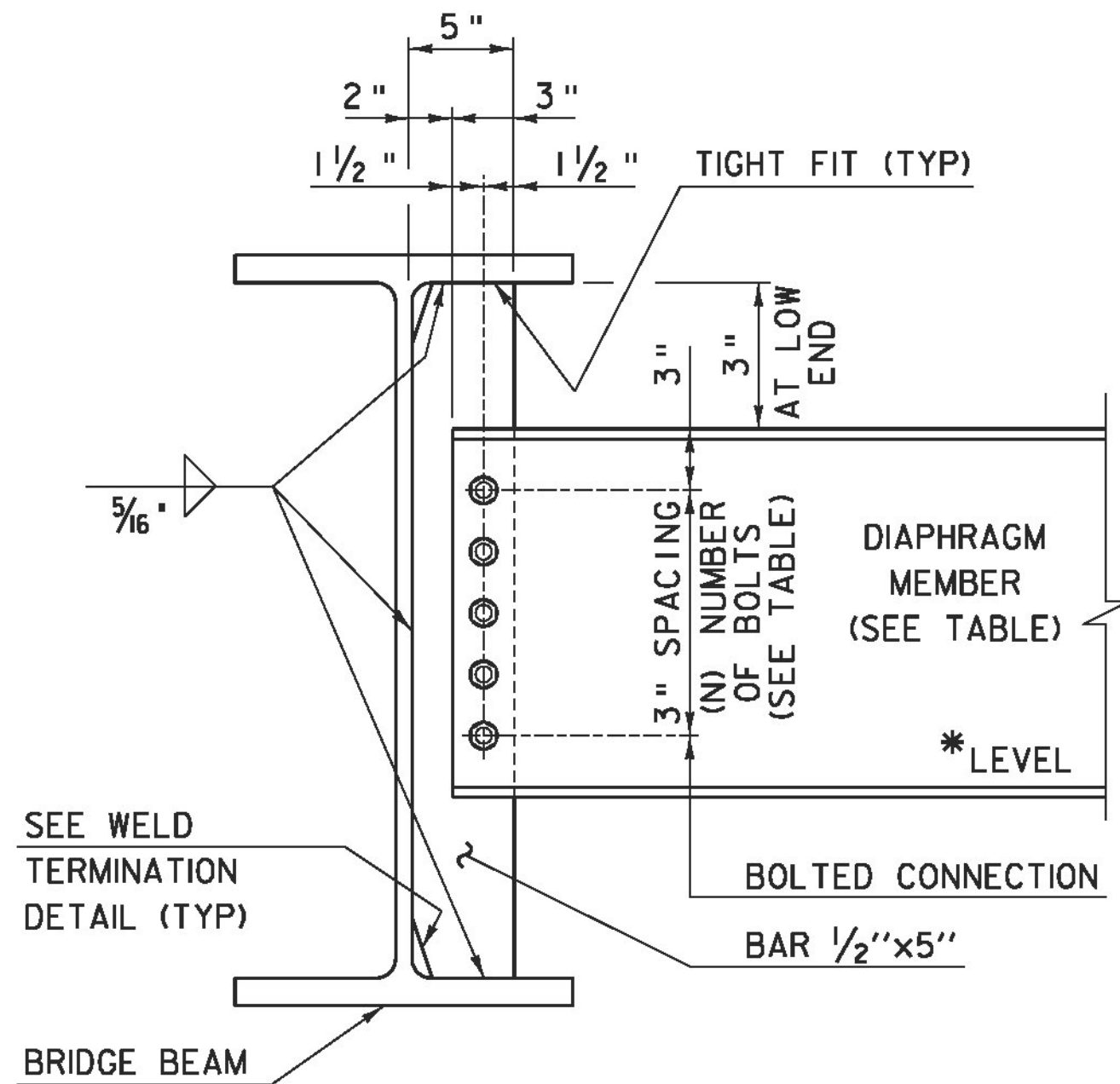
INTERMEDIATE DETAIL IS ONLY USED WHEN PLATE DOES
NOT OCCUR AT AN ABUTMENT OR PIER.



ABUTMENT BEARING STIFFENERS
AND/OR CONNECTION PLATES
FOR WELDED PLATE GIRDERS



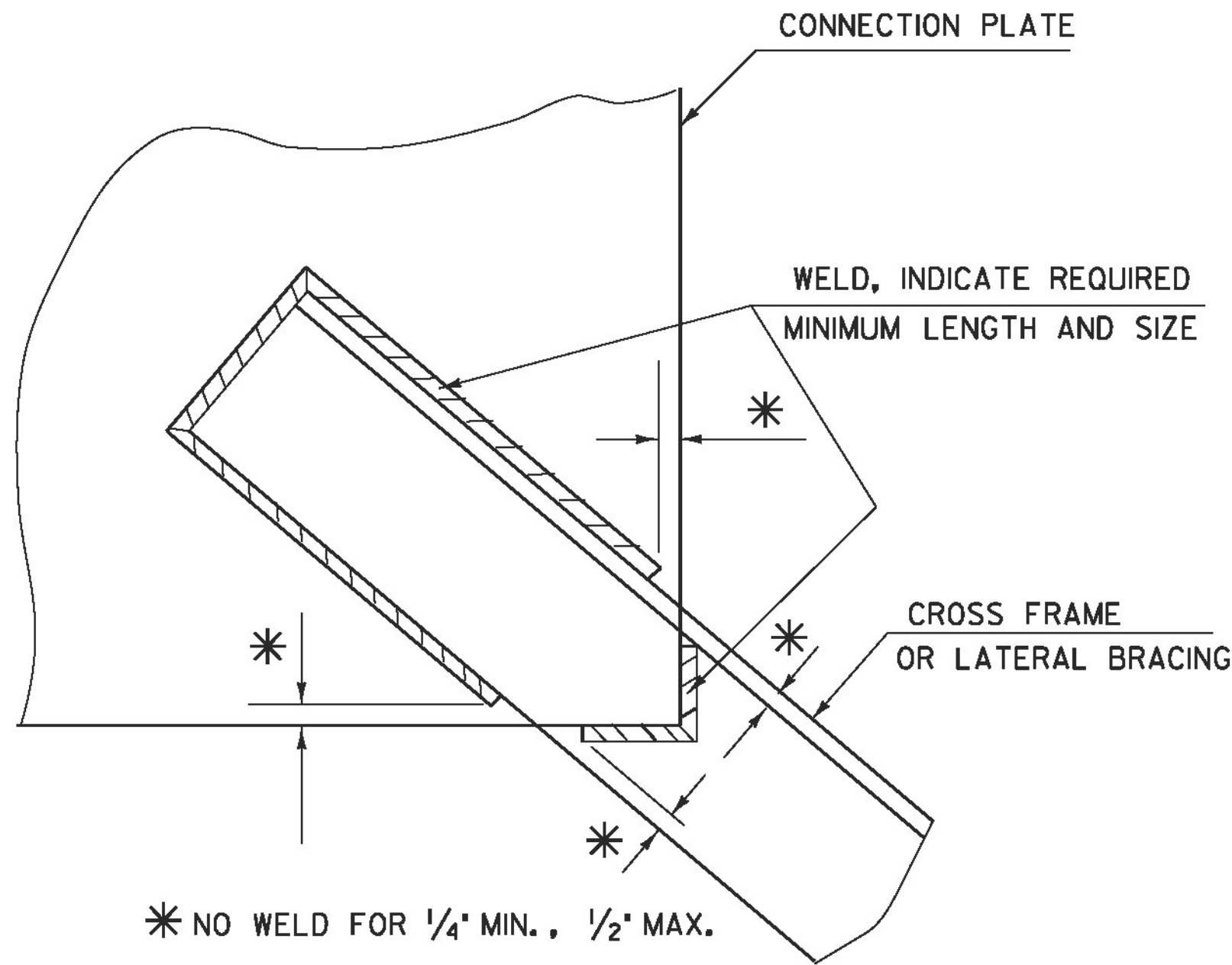
PIER BEARING STIFFENERS
AND/OR CONNECTION PLATES
FOR WELDED PLATE GIRDERS



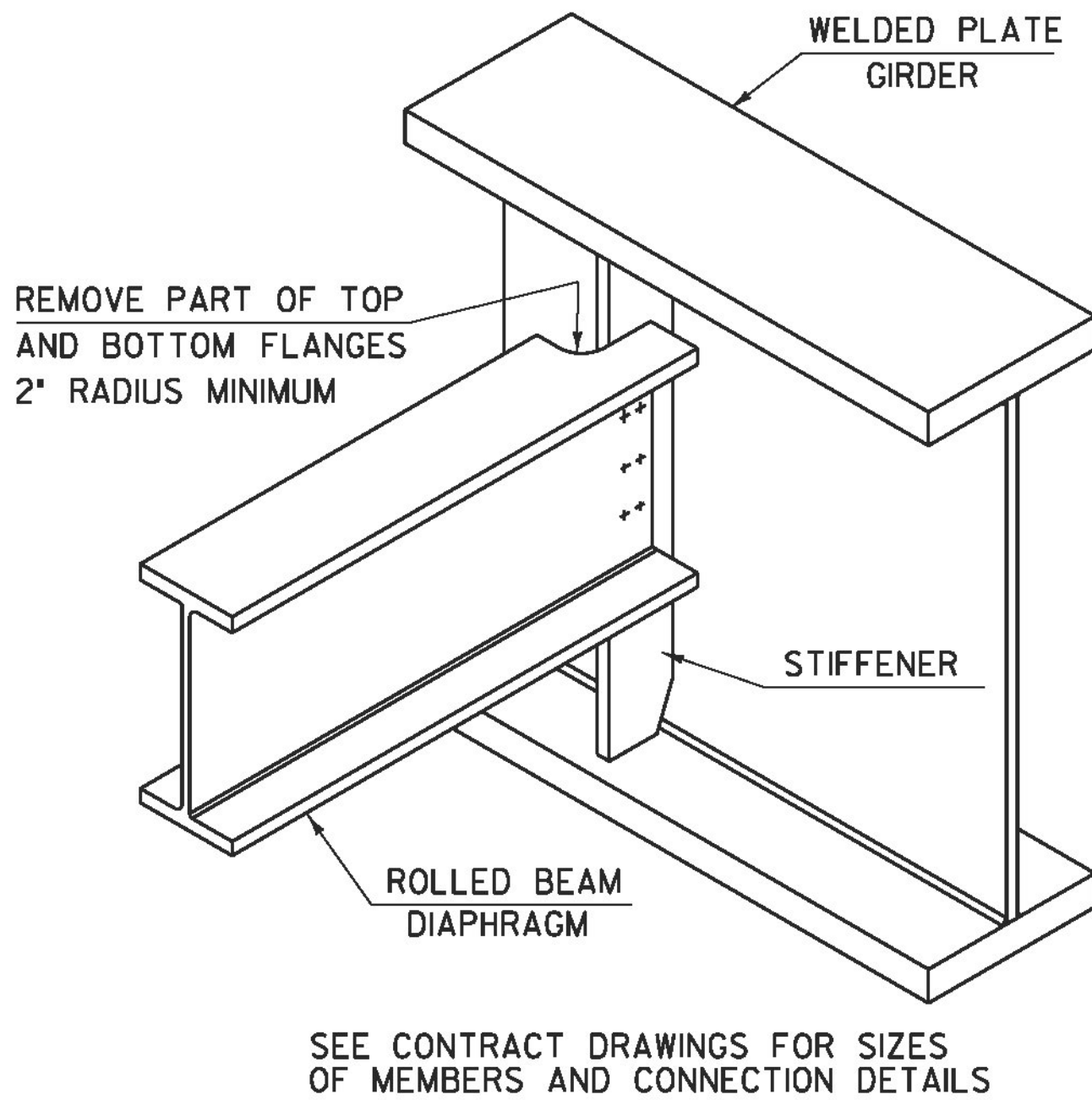
INTERMEDIATE DIAPHRAGMS
FOR 24" TO 48" BRIDGE BEAMS

* IF CLEARANCE CANNOT BE MET, DIAPHRAGM MAY BE SLOPED.

DEPTH	DIAPHRAGM MEMBER	(N) BOLTS
ROLLED BEAM		
24"	C15x33.9	4
30"		
31"	MC18x42.7	5
36"		
37"	W21x44	6
42"		
PLATE GIRDER WEB		
31"	W27x84	7
36"		
37"	W33x118	9
42"		
43"	W36x135	10
48"		



WELD LOCATION DETAIL AT CROSS
FRAMES AND LATERAL BRACING



ROLLED BEAM USED AS DIAPHRAGM

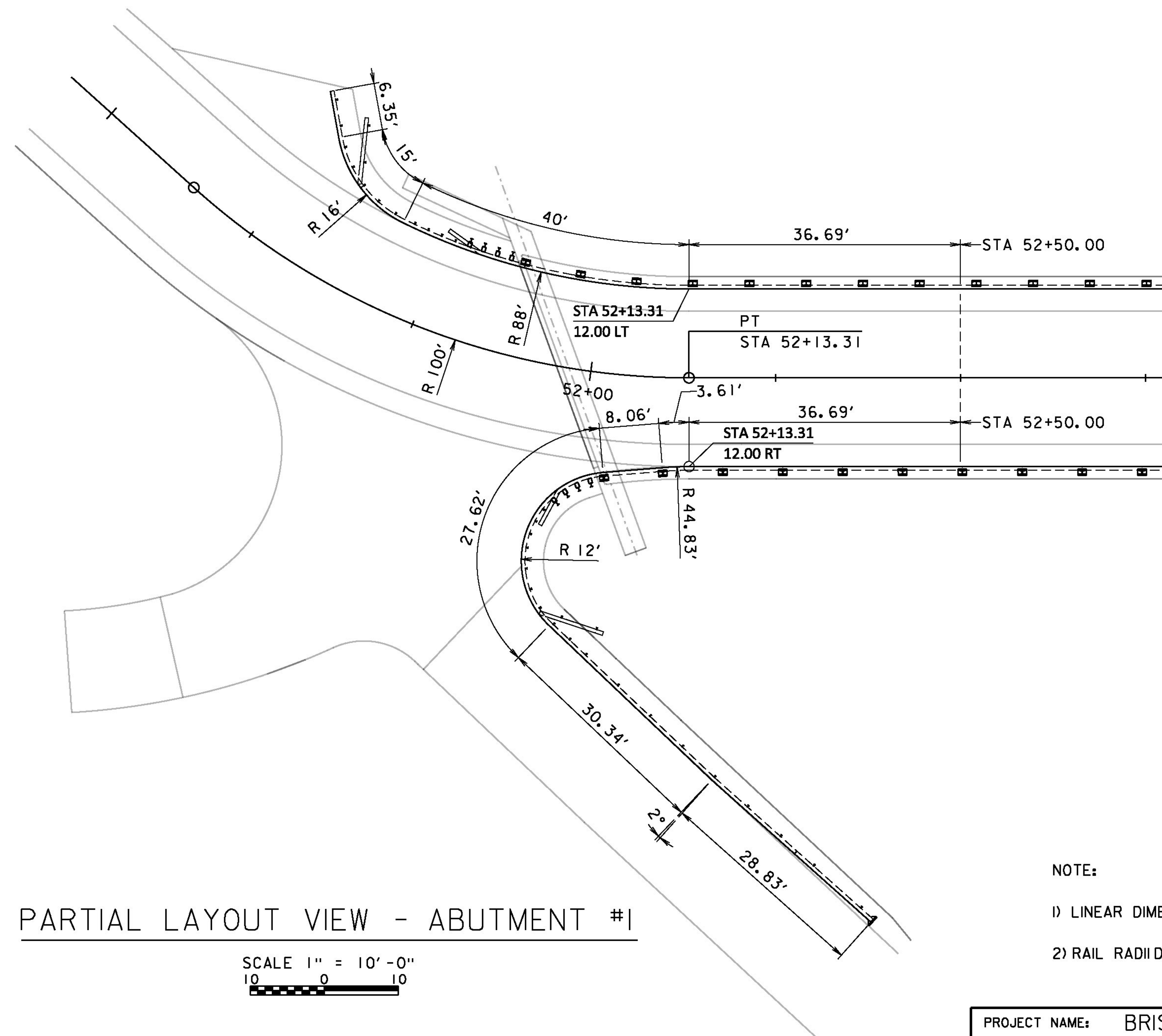
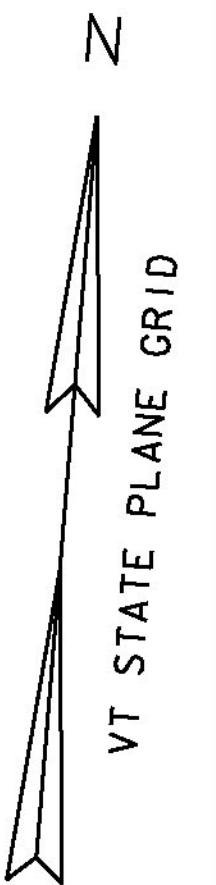
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
MAY 2, 2011	ADD INTERMEDIATE DIAPHRAGMS DETAIL & ADD NOT TO SCALE NOTE

STRUCTURAL STEEL PLATE GIRDER DETAILS AND NOTES



STRUCTURES
DETAIL
SD-6 02.00



PARTIAL LAYOUT VIEW - ABUTMENT #1

SCALE 1" = 10' - 0"
10 0 10

NOTE:

- 1) LINEAR DIMENSIONS ARE TO FACE OF RAIL.
- 2) RAIL RADIUS DIMENSIONS ARE TO FACE OF RAIL.

PROJECT NAME: BRISTOL
PROJECT NUMBER: BRO 1445(32)

FILE NAME: s05j352rail.dgn	PLOT DATE: 23-JAN-2014
PROJECT LEADER: J. LACROIX	DRAWN BY: R. PELLETT
DESIGNED BY: G. LAROCHE	CHECKED BY: T. FILLBACH
ABUTMENT #1 APPROACH RAIL LAYOUT	SHEET 1 OF 1

RECEIVED

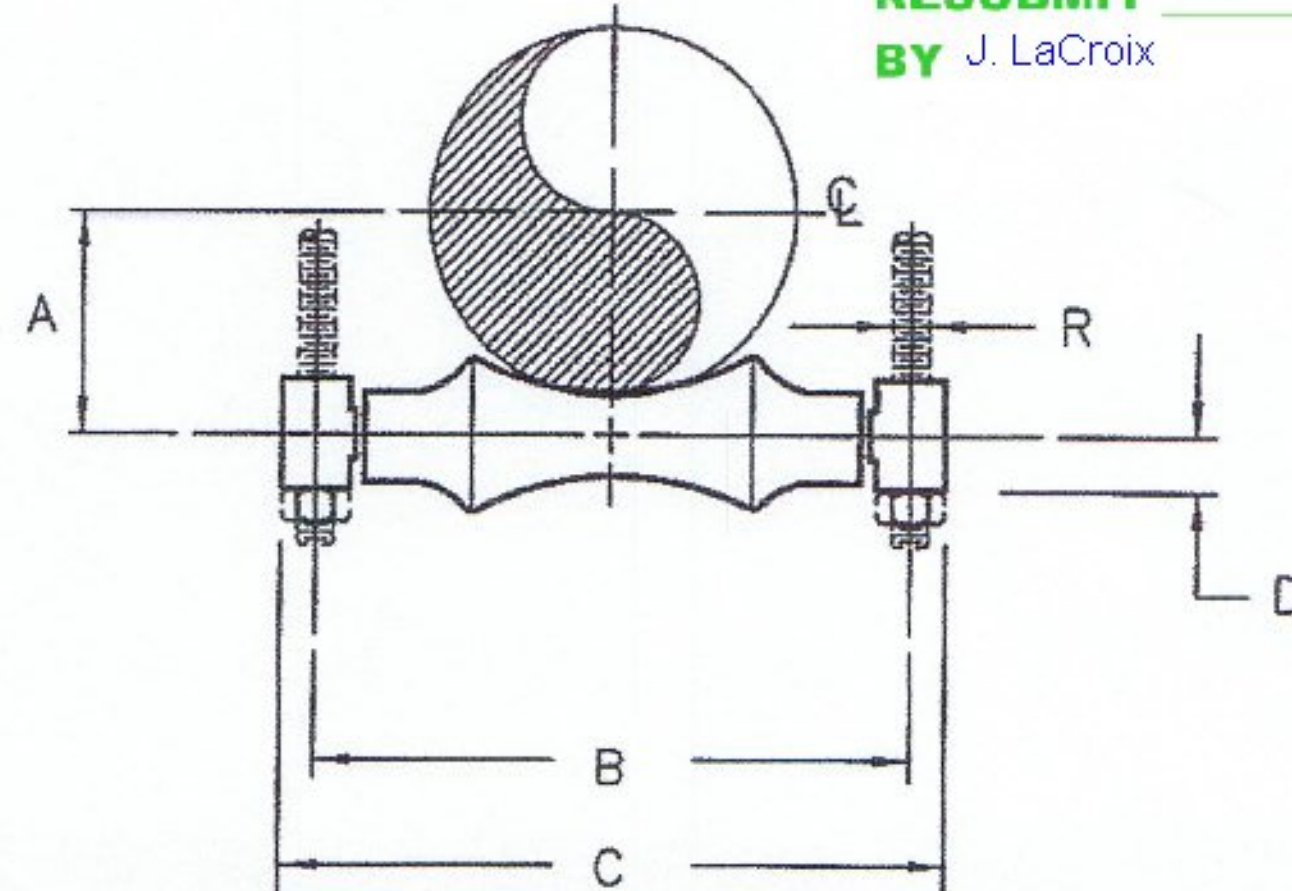
CK'D BY J. LaCroix

OK'D BY

November 11, 2013

RESUBMIT **No**
BY J. LaCroix

Approved
DATE 11/15/2013



PIPE SIZE	A	B	C	D	R	MAX LOAD	UNIT WGT
1	1	3	4 1/8	5/8	3/8	600	0.45
1 1/4	1 1/4	3 3/8	4 1/2	5/8	3/8	600	0.48
1 1/2	1 3/8	3 5/8	4 3/4	5/8	3/8	600	0.51
2	1 5/8	4 1/8	5 1/4	5/8	3/8	600	0.57
2 1/2	2	5 1/2	7	7/8	1/2	660	1.50
3	2 1/4	6 1/8	7 5/8	7/8	1/2	700	1.50
3 1/2	2 1/2	6 5/8	8 1/8	7/8	1/2	750	1.70
4	2 7/8	7 1/8	8 5/8	7/8	5/8	750	1.80
5	3 1/2	8 3/8	9 7/8	7/8	5/8	750	2.40
6	4	9 5/8	11 3/8	1	3/4	1070	4.00
7	4 3/4	10 3/4	12 1/2	1	3/4	1200	6.00
8	5 1/8	12	14	1 1/8	3/4	1350	6.40
10	6 1/4	14 1/8	16	1 1/8	7/8	1730	8.50
12	7 1/2	16 1/8	18	1 1/8	7/8	2400	10.30
14	8 3/8	17 3/4	20	1 3/8	1	3130	20.90
16	9 1/2	20 1/2	22 1/8	1 3/8	1	3970	26.10
18	10 1/2	22 1/8	24 3/8	1 3/8	1	4200	36.60
20	11 5/8	24 1/8	26 5/8	1 1/2	1 1/4	4550	39.00
24	14	28 7/8	32 1/8	1 3/4	1 1/2	6160	66.90
30	17 1/2	35 1/2	39 7/8	2 1/8	1 1/2	7290	134.00

LOAD (LBS) • DIMENSIONS (INCHES) • WEIGHT (LBS)

MAXIMUM TEMPERATURE AT ROLLER 450° F

CARPENTER AND PATERSON INC
WOBURN, MA 01801 / SADDLE BROOK, NJ 07662

SUBMITTAL DRAWING

MATERIAL:

FINISH:	☒	GALVANIZED
	☐	PAINTED
	☐	PLAIN

DESCRIPTION

TWO ROD ROLL HANGER

DRAWN	CHKD.	APPVD.	DATE	SCALE	SHEET
BM	RP	UB	12/93	N/A	1

DWG/FIGURE NO.

142

REV 3

ANVIL 171 EQUIV.

ANVIL 164 EQUIV.

DWG NO355REV0SH1

DESCRIPTION

REVDATEAPP

654

DESCRIPTION

REVDATEAPP

321

COVERING THICKNESS 3" MAX

CENTER RIB
SIZES 10" & LARGER

Vermont Agency of Transportation
RECEIVED
CK'D BY J. LaCroix OK'D BY
November 11, 2013
RESUBMIT No Approved
BY J. LaCroix DATE 11/15/2013

PIPE SIZE	B	SIZE OF PIPE ROLL				MAX LOAD	UNIT WGT
		FIG. No		FIG. No			
		140	142	17	53		
2	4 5/8	7	7	2	2	1800	4.50
2 1/2	4 7/8	8	7	2	2	1800	4.50
3	5 1/8	10	8	2	2	1800	4.90
3 1/2	5 3/8	10	8	2	2	1800	4.90
4	5 3/4	10	10	2	2	1800	4.90
5	6 1/4	12	10	2	2	1800	4.90
6	6 1/2	12	12	2	2	1800	7.70
8	7	16	12	3	3	1800	7.70
10	8 5/8	16	16	4	4	1800	8.80
12	9 5/8	18	18	4	4	5000	11.40
14	10 3/8	18	18	4	4	5000	11.40
16	11 1/4	24	24	5	5	7200	13.30
18	12 1/4	24	24	5	5	7200	13.30
20	13 1/4	24	24	6	6	7200	13.40
24	15 1/4	30	30	6	6	7200	20.30

LOAD (LBS) • DIMENSIONS (INCHES) • WEIGHT (LBS)

CARPENTER AND PATERSON INC
WOBURN, MA 01801 / SADDLE BROOK, NJ 07662

SUBMITTAL DRAWING

MATERIAL:
CARBON STEEL

FINISH:
HOT DIPPED GALV.
PLAIN

DESCRIPTION
PIPE COVERING
PROTECTION SADDLE

DRAWN	CHKD.	APPVD.	DATE	SCALE	SHEET	DWG/FIGURE NO.	REV
BM	RP	UB	2/94	N/A	1	355	0

Vermont Agency of Transportation

RECEIVED

CK'D BY J. LaCroix

OK'D BY

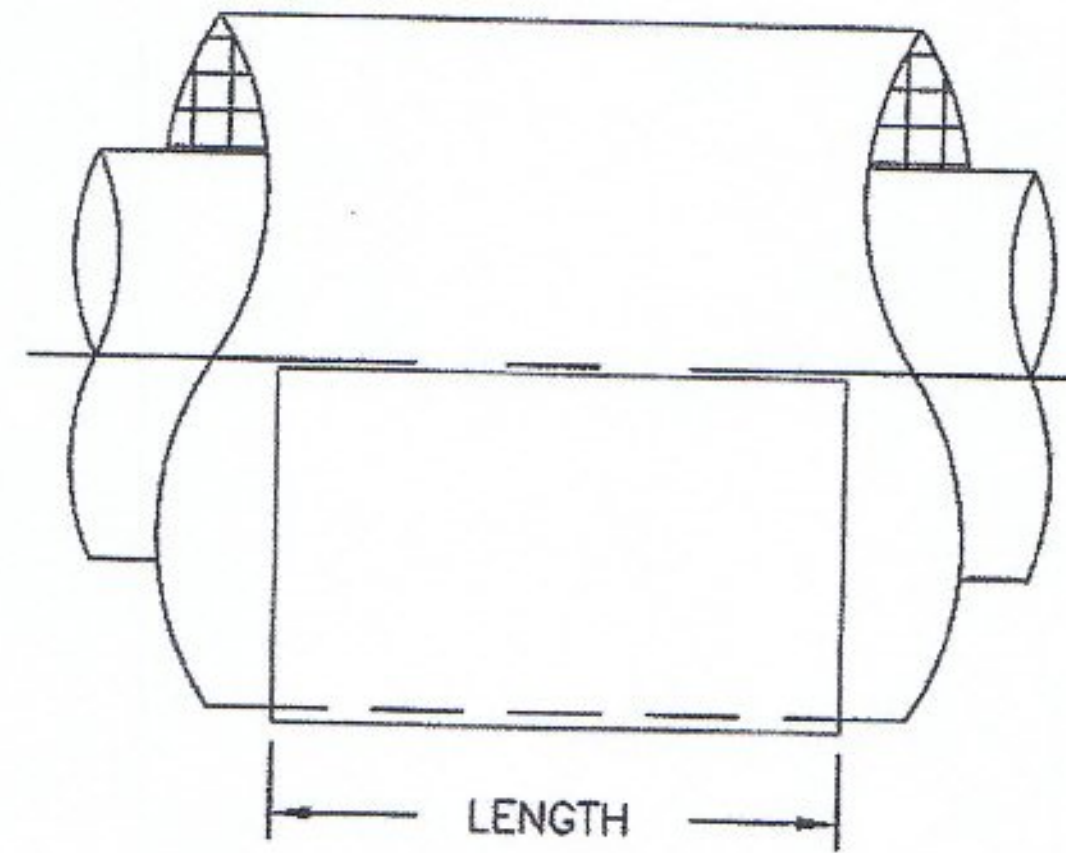
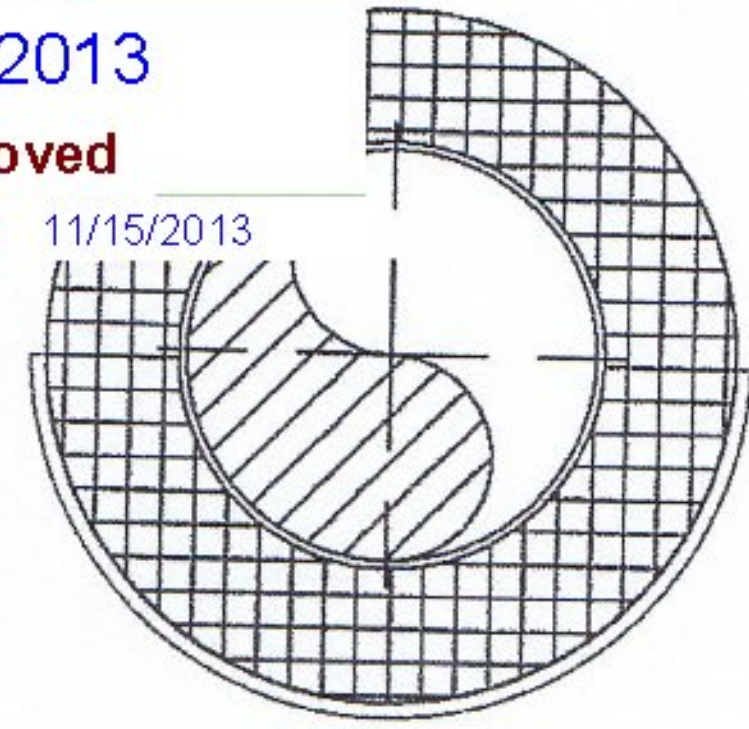
November 11, 2013

RESUBMIT No

Approved

BY J. LaCroix

DATE 11/15/2013



SIZE (I.D.)	HANGER SIZE	LENGTH	GA.	UNIT WGT
2.375	2	12	18	0.70
2.875	2 1/2	12	18	0.80
3.500	3	12	18	1.00
4.000	3 1/2	12	18	1.10
4.500	4	12	18	1.30
5.000	5	12	18	1.40
5.563	5	12	18	1.60
6.000	6	12	18	1.90
6.625	6	12	18	1.90
7.000	7	12	18	2.70
7.625	7	12	18	4.00
8.625	8	12	18	4.30
9.625	10	12	18	5.10
10.750	10	12	18	5.60
11.750	12	12	18	10.20
12.750	12	12	18	11.10
14.000	14	12	16	11.90
15.000	16	12	16	12.70
16.000	16	12	16	13.60
17.000	18	12	16	14.50
18.000	18	12	16	21.20
19.000	20	12	16	22.40
21.000	24	12	16	23.60

LOAD (LBS) • DIMENSIONS (INCHES) • WEIGHT (LBS)

CARPENTER AND PATERSON INC

WOBURN, MA 01801 / SADDLE BROOK, NJ 07663

SUBMITTAL DRAWING

MATERIAL:

CARBON STEEL

FINISH:

PRE-GALV.

DESCRIPTION

INSULATION SHIELD

DRAWN

CHKD.

APPVD.

DATE

SCALE

SHEET

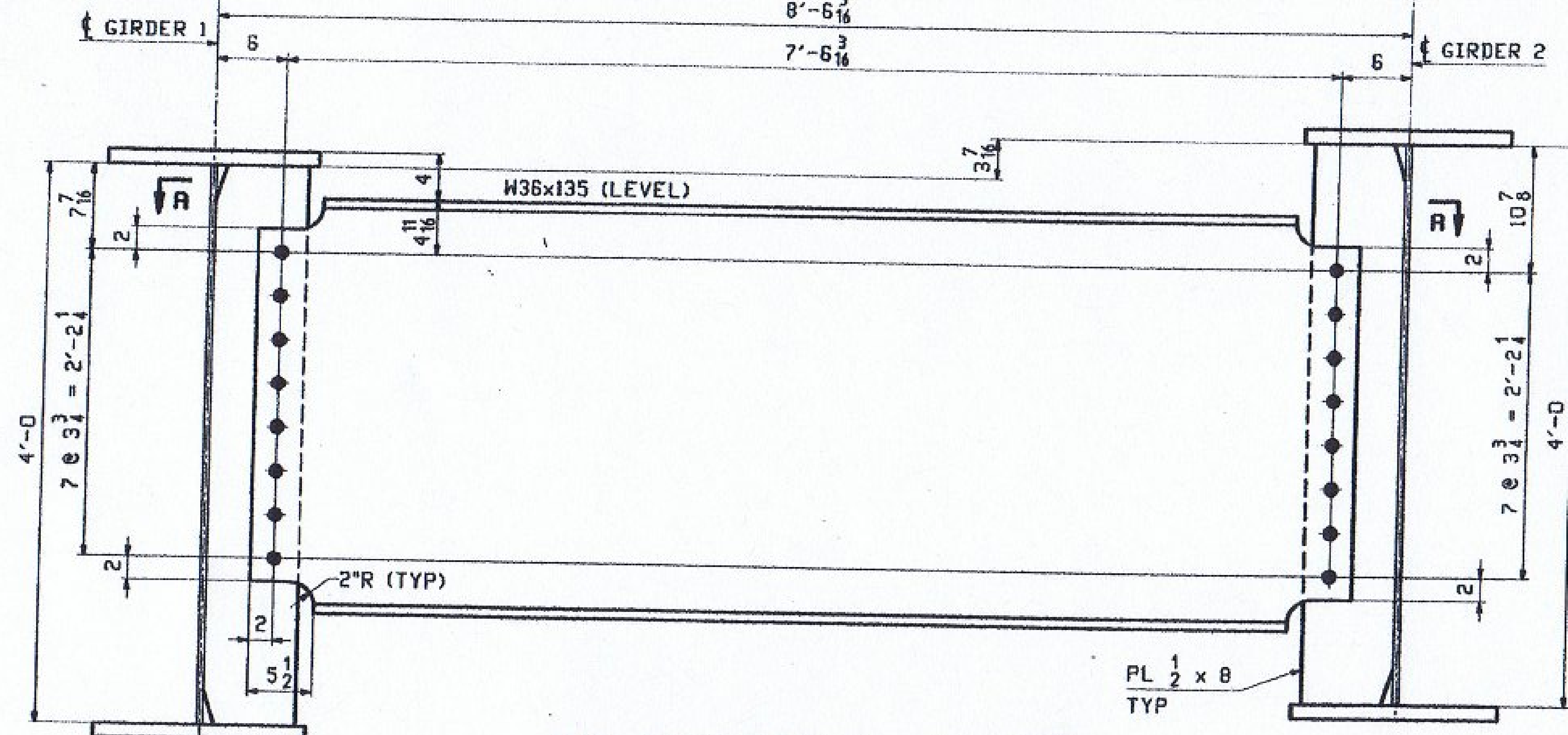
DWG/FIGURE NO.

265P

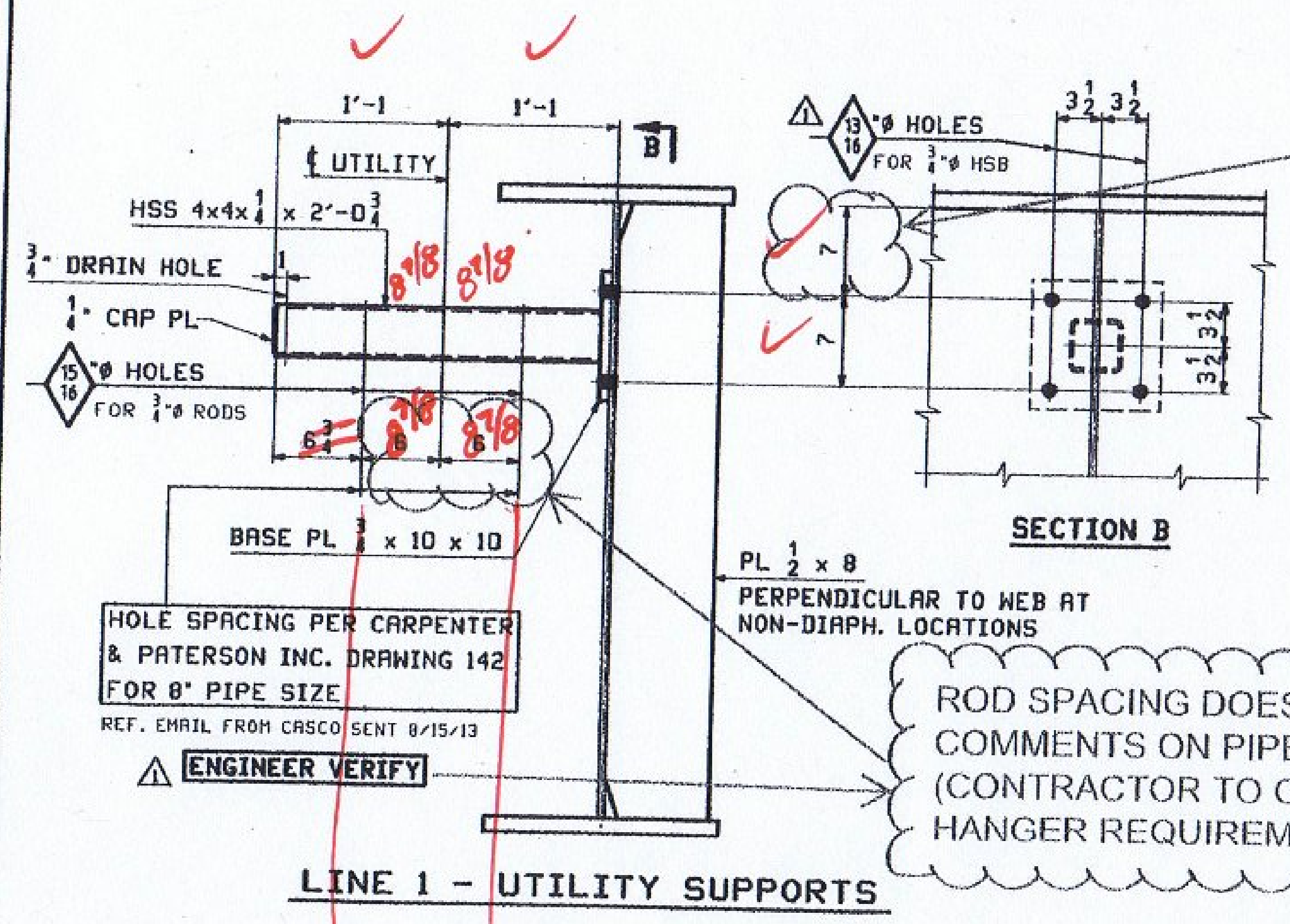
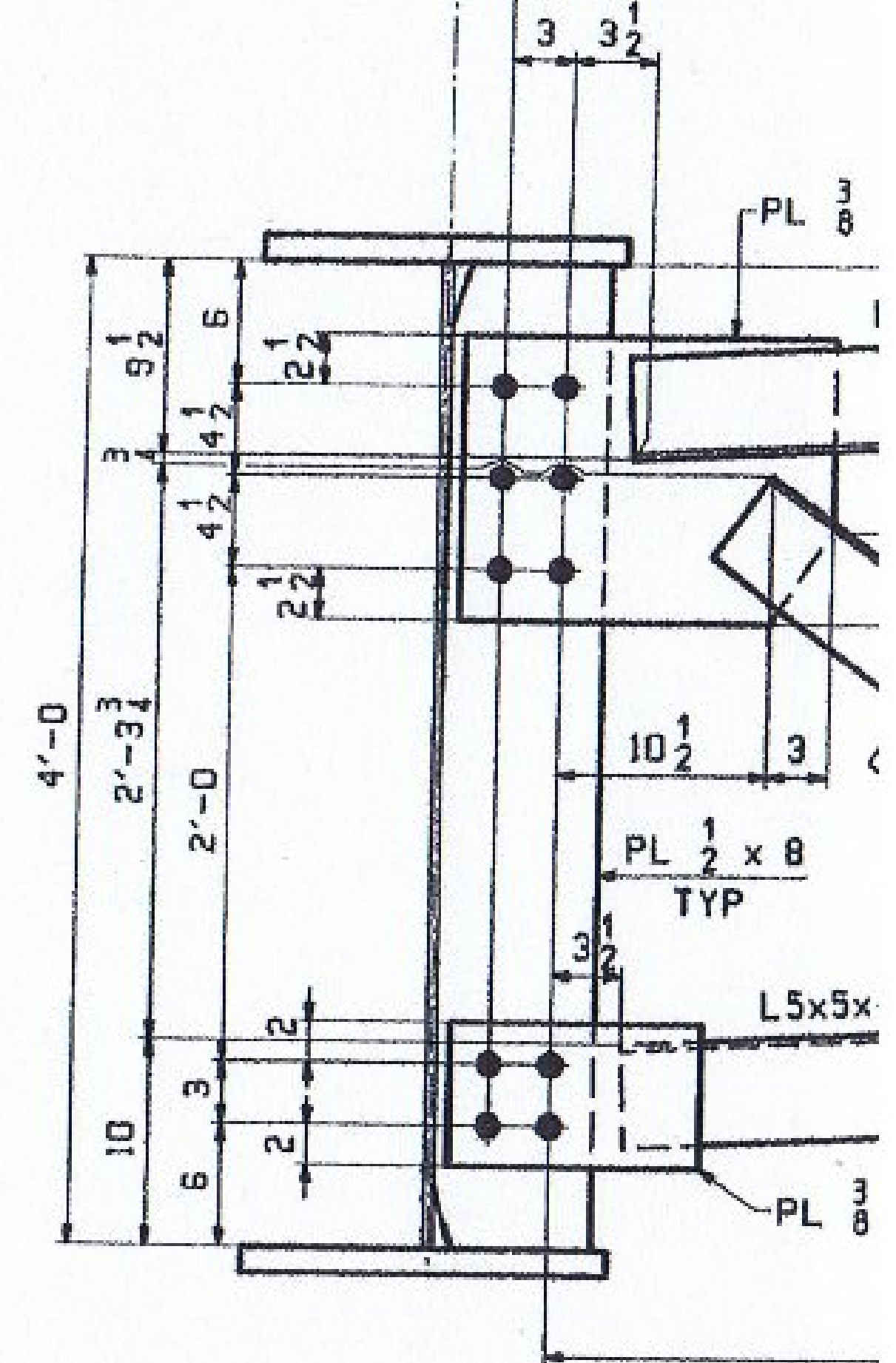
REV

0

SHIELD TO BE CUSTOM SIZED TO 15" 9.05" O.D. + 6" INSULATION



INT. DIAPHRAGMS - TYPE D1
(DEVELOPED)
FRAMES NS OR FS OF STIFFENERS - SEE WS1



*CONTRACTOR VERIFY THIS DIMENSION (COORDINATE WITH FIELD DIMENSIONS AND PIPE HANGER SUBMITTAL).

ROD SPACING DOES NOT MATCH PLANS SEE COMMENTS ON PIPE HANGER SUBMITTAL (CONTRACTOR TO COORDINATE PIPE HANGER REQUIREMENTS TO FABRICATOR)

Vermont Agency of Transportation

RECEIVED

CK'D BY J. LaCroix OK'D BY

November 11, 2013

RESUBMIT No Approved

BY J. LaCroix DATE 11/15/2013

NOTES:

1. MATERIAL IS M270-50K
2. ALL HOLES SHALL BE
3. BOLTS SHALL BE 7/8" (1)
4. BOLTS SHALL BE 7/8" (1)
5. BOLTS AT UTILITY CO

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO CONTROL INFORMATION AND IS SUBMITTED FOR INFORMATION FOR SHOP FABRICATION. DEWELDING AND DIMENSIONS R

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

- 1) ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 WITH LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS FOR HIGHWAY BRIDGES, 2012 AND ITS LATEST REVISIONS.

MATERIAL SPECIFICATIONS

- 1) UNLESS OTHERWISE NOTED, ALL STEEL TO BE UNPAINTED
AASHTO M270 (ASTM A709) GRADE 50W.
- 2) MATERIAL NOTED "CVN" OR "T2" ON DETAIL DRAWINGS SHALL BE CHARPY
V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT
STANDARD SPECIFICATIONS SECTION 714.01.
- 3) HIGH STRENGTH BOLTS: ASTM A325 (AASHTO M164) 7/8" DIAMETER, TYPE 3, IN 15/16" DIAMETER
HOLES, UNLESS NOTED OTHERWISE. NUTS SHALL BE A563 (TYPE 3) GRADE C3.

**BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED.
DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS
UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.**

FABRICATION

- 1) ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN).

WELDING

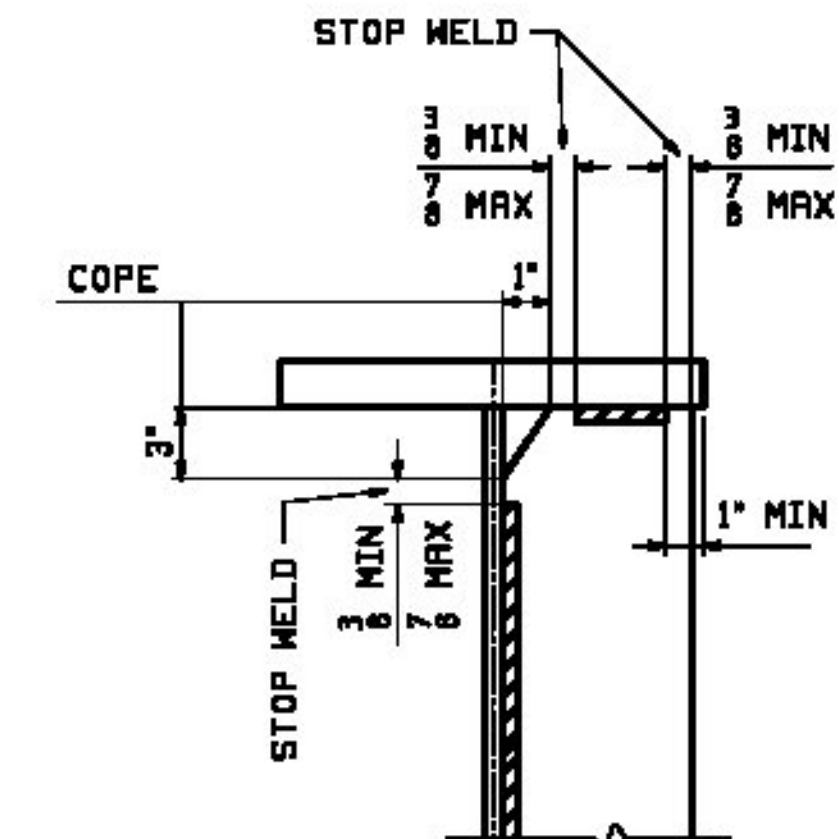
- 1) THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AWS/AWS D1.5-08 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAIL TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.
- 2) WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.
- 3) NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.
- 4) SEE DETAILS "WS1" & "WS2" ON THIS DRAWING FOR WELD TERMINATION DETAIL.

CLEANING

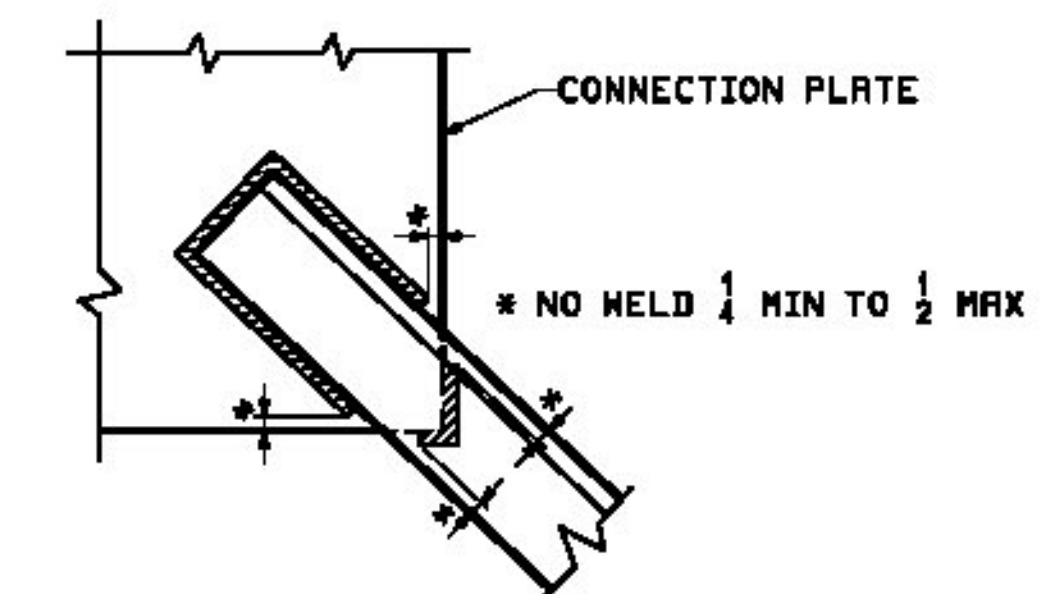
1. ALL STEEL SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-10.
2. STRUCTURAL STEEL SHALL NOT BE PAINTED.

FIELD CONNECTIONS

- 1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH A-325 TYPE 3 BOLTS (UN), INSTALLED PER SECTION 506.19(c). SEE DWG EI FOR FIELD BOLT SIZES.
- 2). BOLTS SHALL HAVE HEAVY HEX NUT, HEAVY HEX HEAD, AND AT LEAST ONE FLAT WASHER EACH. WASHER TO BE PLACED UNDER TURNED ELEMENT.
- 3). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.



DETAIL "WS1"
STIFFENER WELD TERMINATION



DETAIL "W52"
TYP. WELD TERMINATION

NOTE TO ENGINEER:
THESE NOTES ARE NOT INTENDED TO BE ALL INCLUSIVE AND
COMPLIANCE WITH RELEVANT SPECIFICATIONS REMAIN UNCHANGED.

☐	Approved	☐	Revise and Resubmit
☒	Approved as Noted (attach list of notes)	☐	Rejected (attach "imp. reqs." list)

Hoyle, Tanner
Associates, Inc.

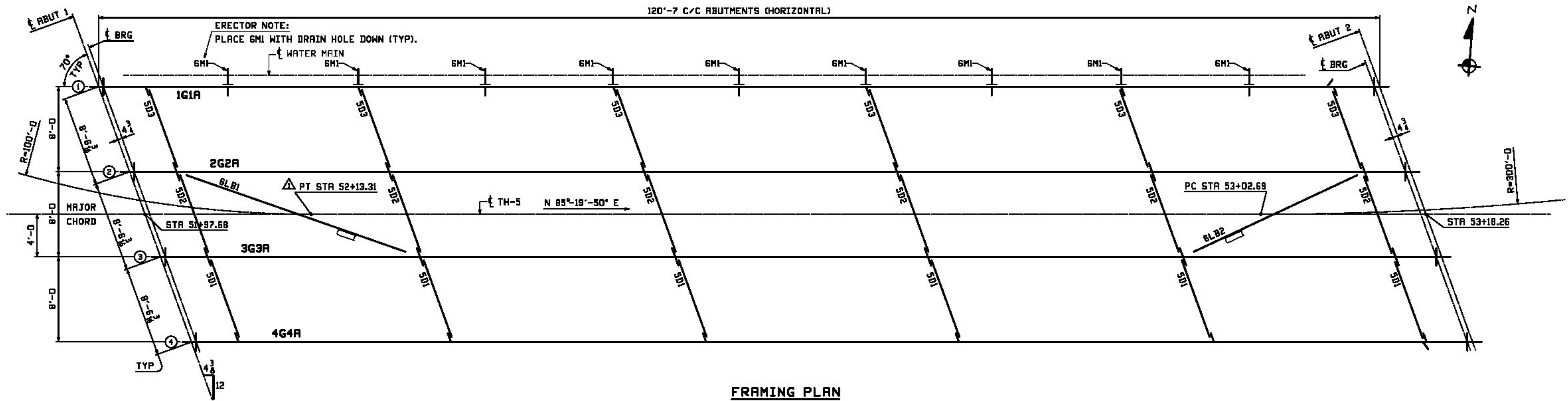
Project No. 900236

Approval is only for general concurrence with the design concept to the Program and the information given in the Contract Documents. Contractor is responsible for amendments to be confirmed and corrected at the job site; information that pertains to the fabrication process or to the actual use methods of containment; coordination of the work of oil caskets; and performing on work in a safe and satisfactory manner. This approval does not assume Contractor's duty of complete work contract.

Reviewed By: ASL Date: 11/3/78

Approved By: JAO Date: 11/12/13

REV.	DATE	REMARKS				DWN	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:			HOLES:		SHOP BOLTS:		
DESCRIPTION: CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-8722 SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726									
STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. TH 5 (SOUTH STREET) OVER NEW HAVEN RIVER									
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY) PROJ NO. BRO 1445 (32) CUSTOMER: BLOW AND COTE						DATE:	08/13 09/07		
						DATE:	08/13 09/07		
JOB NO. 534						DNG NO. GNI			
REV. 1						REV. 1			



FIELD BOLT LIST										A325 Type 3 BOLTS									
LINE	NO. REQ'D	BOLT DIA.	BOLT LEN.	BOLTS / CONN.	OF CONN.	GROUP	THICKNESS OF PCB. CONNECTED	WASHER CODE	PIECES CONNECTED AND REMARKS	LINE	NO. REQ'D	BOLT DIA.	BOLT LEN.	BOLTS / CONN.	OF CONN.	GROUP	THICKNESS OF PCB. CONNECTED	WASHER CODE	PIECES CONNECTED AND REMARKS
1									INT. DIAPHRAGMS - 5D1 & 5D2	1									
2	144	7/8	2 1/2	8	24	7/8	3/8	1	1 TOP GUSSET TO GIRDER CONNECTION PLATE	2									
3	86	7/8	2 1/2	4	24	7/8	3/8	1	1 BOTTOM GUSSET TO GIRDER CONNECTION PLATE	3									
4										4									
5									INT. DIAPHRAGMS - 5D3	5									
6	98	7/8	2 1/2	8	12	1 1/8	5/8	1	1 DIAPHRAGM WEB TO GIRDER CONNECTION PLATE	6									
7										7									
8									LATERAL BRACING - 6LB1 & 6LB2	8									
9	16	3/4	3 1/2	4	4	2 1/8	7/8	1	2 BRACE WITH BEVELED FILL TO GUSSET PLATE	9									
10										10									
11									UTILITY SUPPORT - 6M1	11									
12	36	3/4	2 1/2	4	8	1 1/4	3/4	1	1 CONNECTION PLATE TO GIRDER WEB	12									

WASHER CODES
1: 1 Hard Flat Washer
2: 2 Hard Flat Washers

FIELD BOLT SUMMARY			EXACT COUNT - NONE EXTRA			
LINE	NO. OF BOLTS	BOLT DIAM.	TYPE	BOLT LEN	ACTUAL COUNT	REMARKS
1	36	$\frac{7}{8}$	A325 Type 3	$2\frac{1}{2}$	36	
2						
3	36	Hard Flat Washers for $\frac{7}{8}$ " BOLT			F436-3	
4						
5						
6	240	$\frac{7}{8}$	A325 Type 3	$2\frac{1}{2}$	240	
7	86	$\frac{7}{8}$		$2\frac{1}{2}$	86	
8	16	$\frac{7}{8}$	A325 Type 3	$3\frac{3}{4}$	16	
9						
10	360	Hard Flat Washers for $\frac{7}{8}$ " BOLT			F436-3	
11						
12						
13						
14						

☐ Approved
☒ Approved as Noted

☐ Revise and Resubmit
☐ Rejected

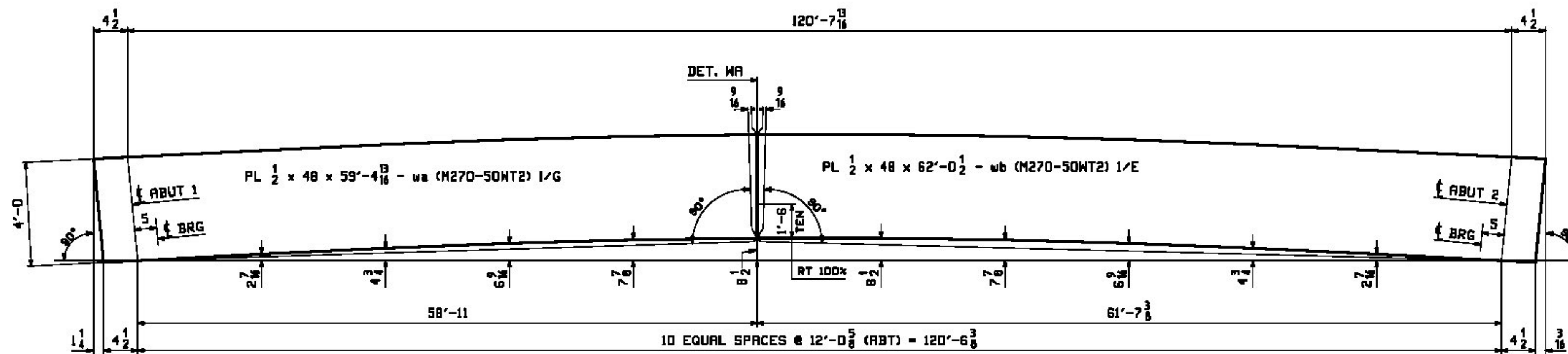
Hoyle Tanner
Associates, Inc.

Project No. 901226

Approval is only for general conformance with the design concept to the Project and the information herein is for the Contractor's use. Contractor is responsible for dimensions to be confirmed and corrected at the job site, adjustment that permits work to the satisfaction of the owner or to the minimum methods of construction, consideration of the work of the owner and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty of compliance with Contract.

Reviewed by: AS Date: 11/1/13
 Approved By: JAD Date: 11/1/13

REV.	DATE	REMARKS	JWB	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:	HOLES:		SHOP BOLTS:	
DESCRIPTION: FRAMING PLAN & FIELD BOLTS						
CASCO BAY STEEL STRUCTURES, INC.						
1 WALLACE AVE.			PHONE (207) 780-6722			
SOUTH PORTLAND, ME 04106			FAX. (207) 780-6726			
STRUCTURE: BRISTOL - BRIDGE NO. 31			DRWN:	DATE:		
VT ROUTE NO. TH 5 (SOUTH STREET)			JTB	08/14		
OVER NEW HAVEN RIVER			CHKD:	DATE:		
			DBH	09/07		
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO.	DWG NO.		
PROJ NO. BRO 1445 (32)			534	E1		
CUSTOMER: BLOW AND COTE			REV.			

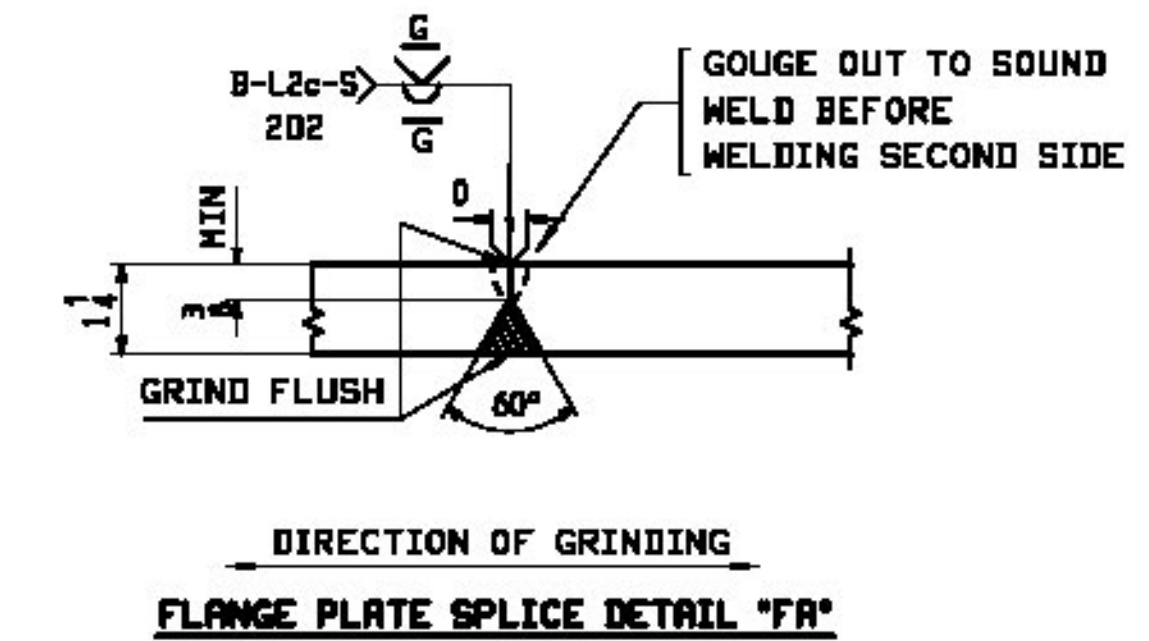
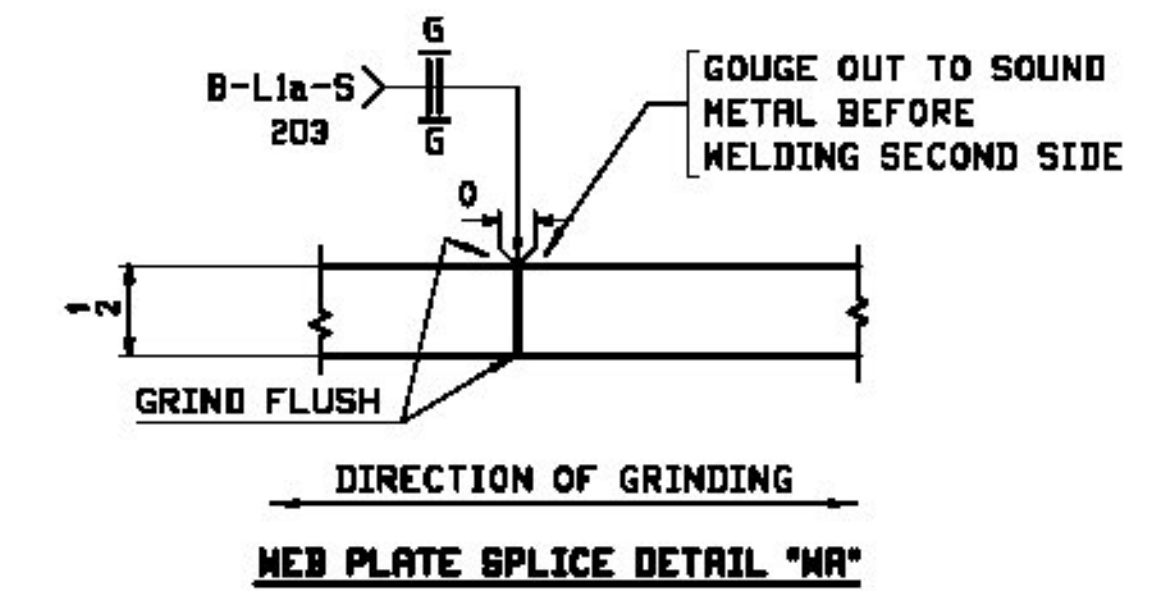


CAMBER DIAGRAM FOR 1G1A, 2G2A, 3G3A & 4G4A
4 REQ'D

1G1A	PL 1 1/4 x 18 x 80'-11 - ta (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-5 1/8 - tb (M270-50WT2) 1/C
2G2A	PL 1 1/4 x 18 x 80'-11 - ta (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-5 1/8 - tb (M270-50WT2) 1/C
3G3A	PL 1 1/4 x 18 x 80'-11 - ta (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-5 1/8 - tb (M270-50WT2) 1/C
4G4A	PL 1 1/4 x 18 x 80'-11 - ta (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-5 1/8 - tb (M270-50WT2) 1/C

1G1A	PL 1 1/4 x 18 x 80'-11 - ba (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-4 3/8 - bb (M270-50WT2) 1/C
2G2A	PL 1 1/4 x 18 x 80'-11 - ba (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-4 3/8 - bb (M270-50WT2) 1/C
3G3A	PL 1 1/4 x 18 x 80'-11 - ba (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-4 3/8 - bb (M270-50WT2) 1/C
4G4A	PL 1 1/4 x 18 x 80'-11 - ba (M270-50WT2) 1/A	PL 1 1/4 x 18 x 40'-4 3/8 - bb (M270-50WT2) 1/C

FLANGE DIAGRAM FOR 1G1A, 2G2A, 3G3A & 4G4A



NOTES:

- FOR GENERAL NOTES SEE DRAWING GNI.
- 'T2' DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

☐ Approved	☐ Revise and Resubmit
☒ Approved as Noted (Standard for Service)	☐ Rejected (See Remarks for Details)

Hoyle Tanner
Associates, Inc.

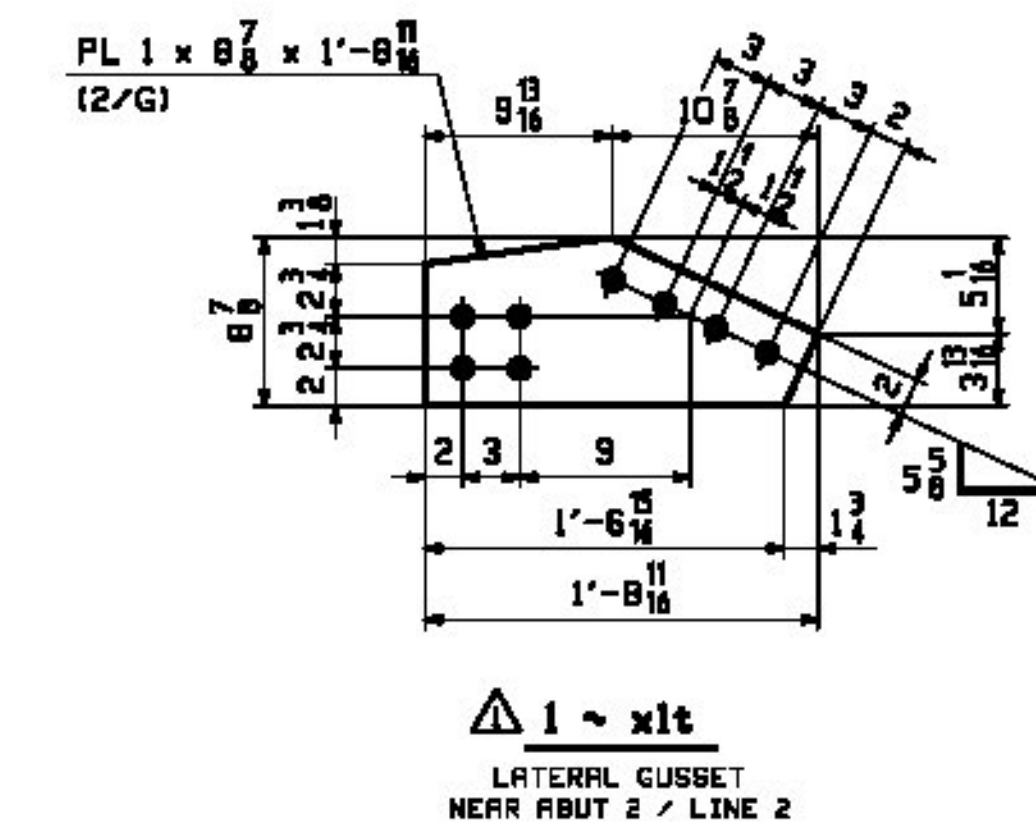
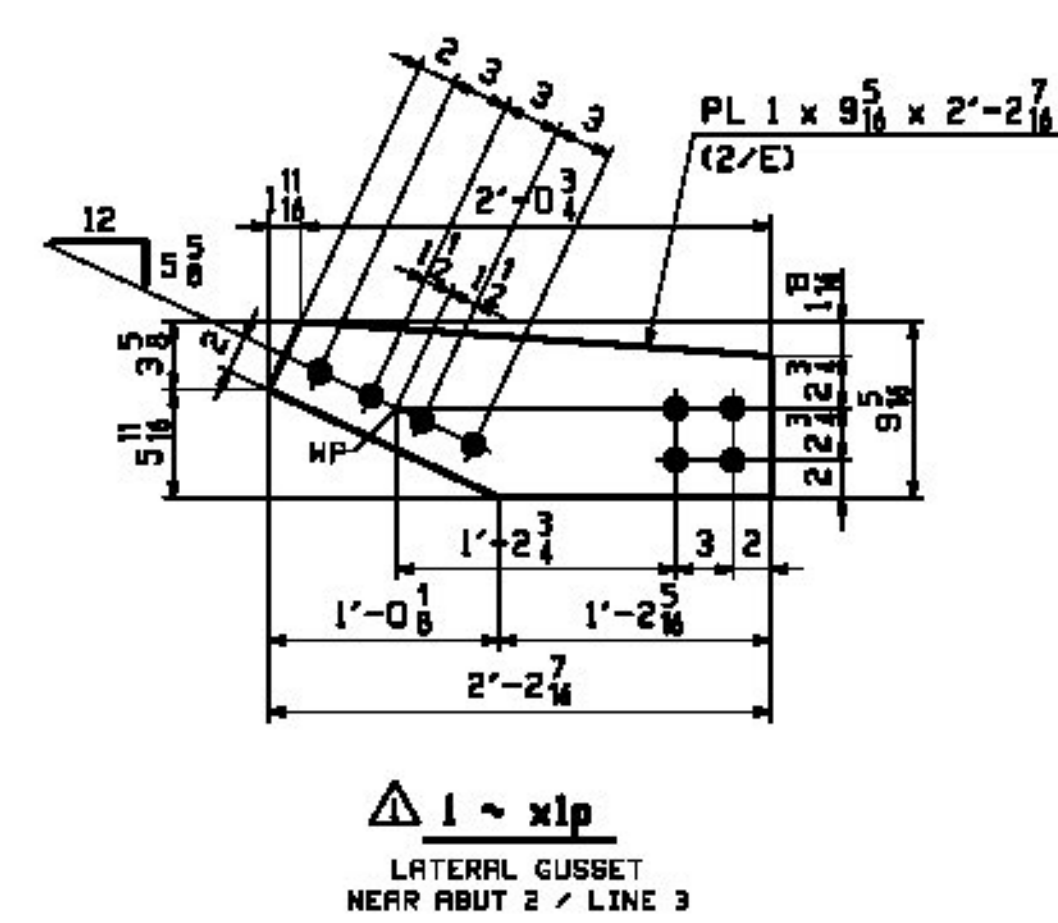
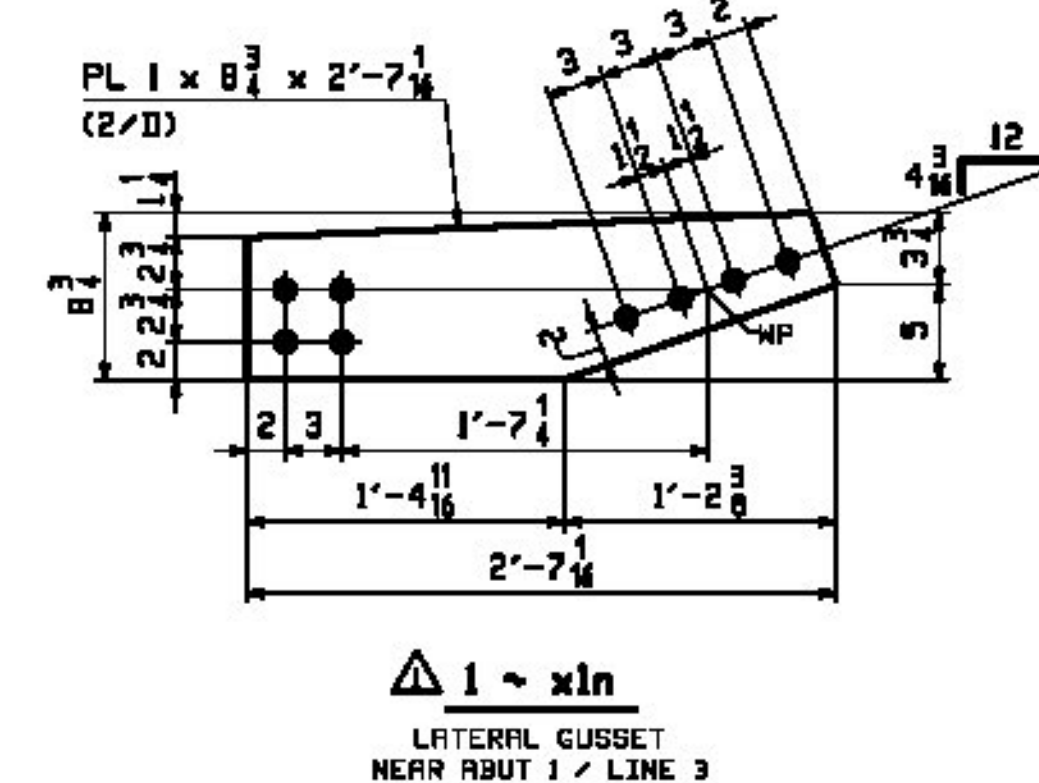
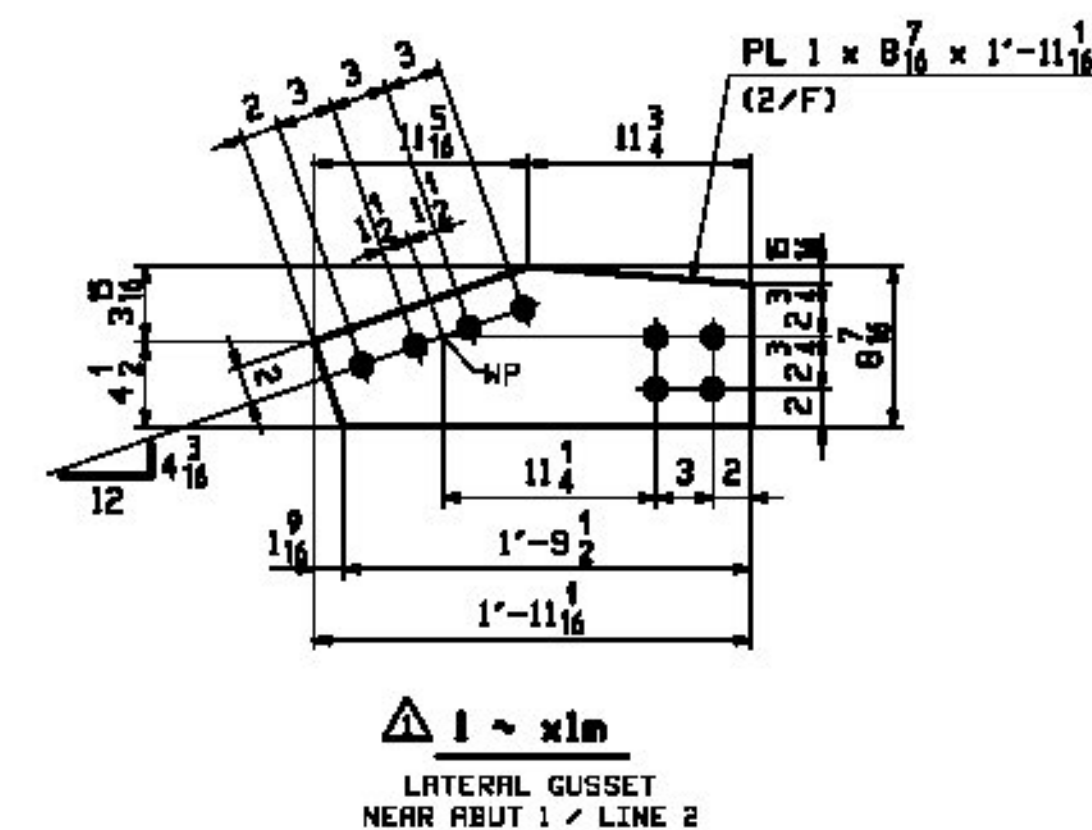
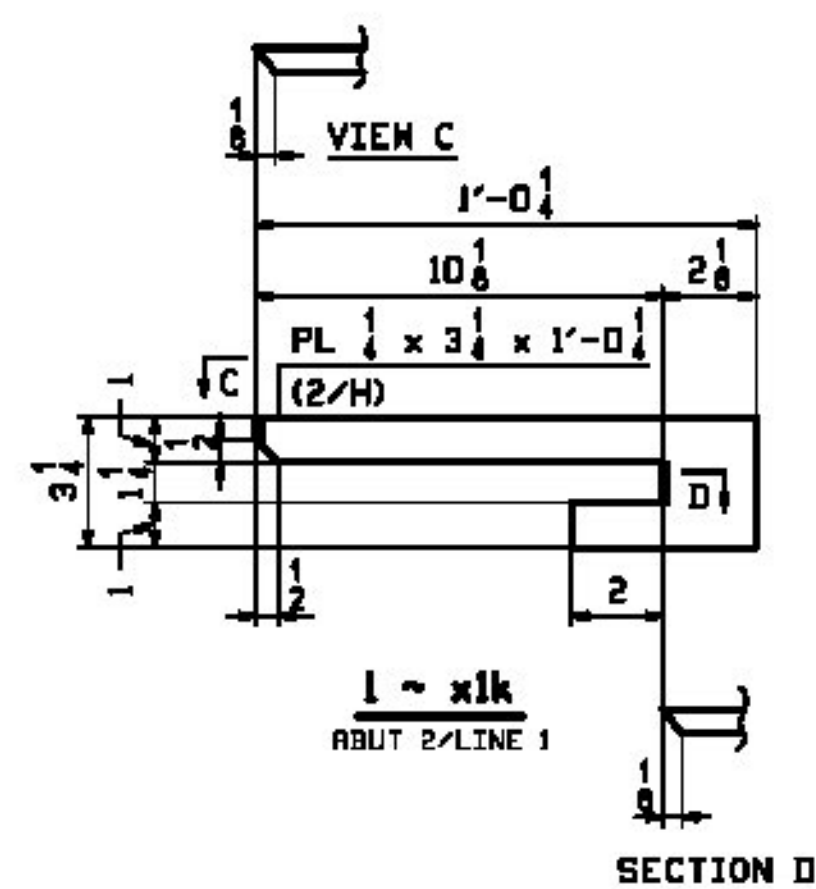
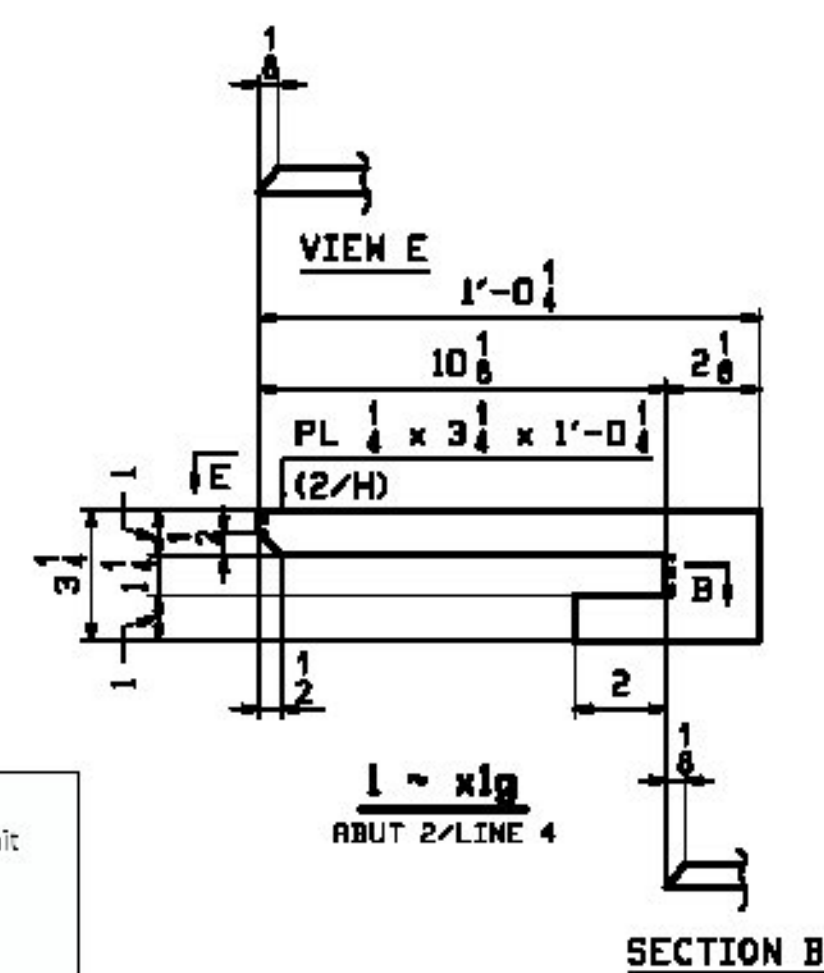
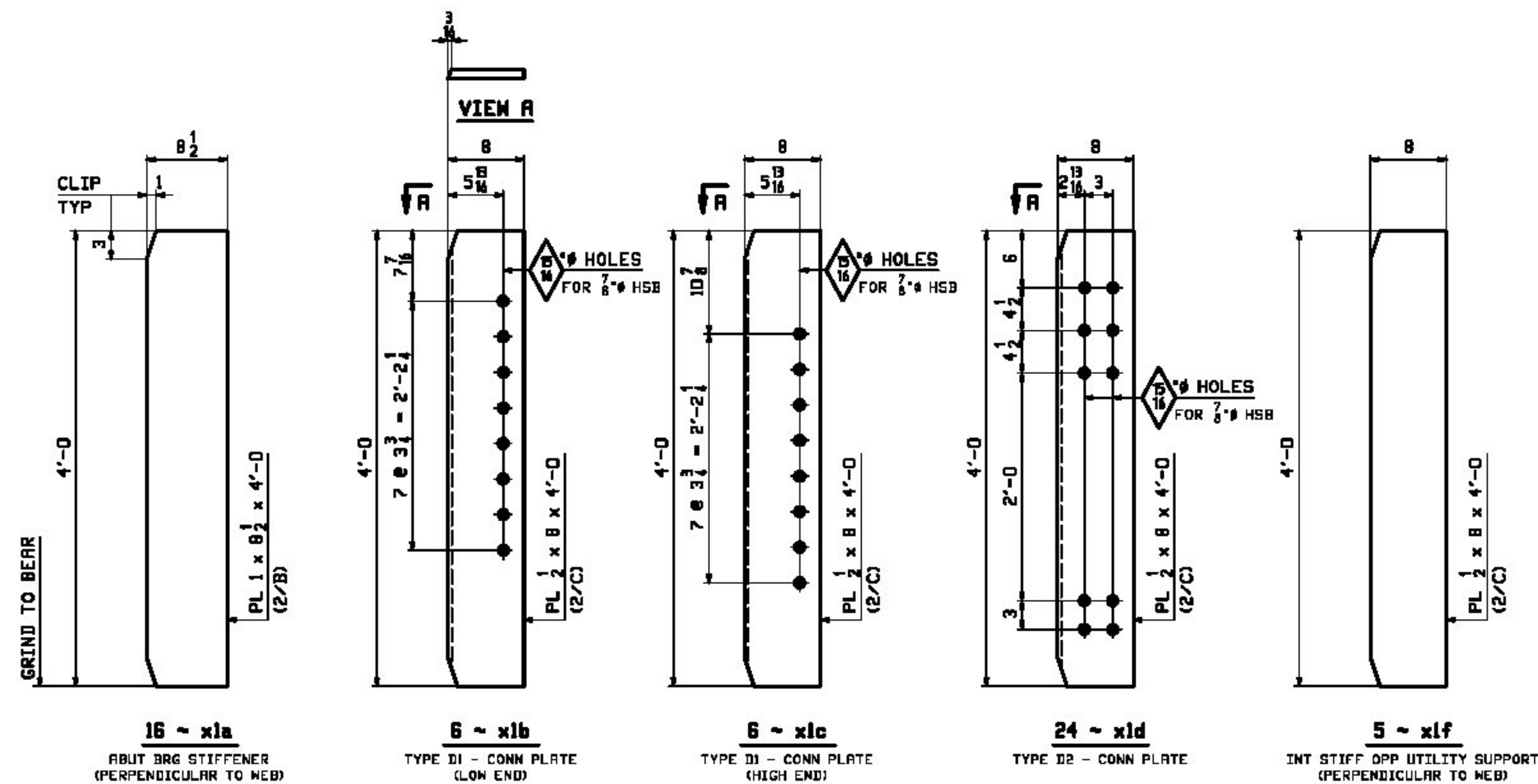
Project No. 00-126

Approval is only for general conformance with the design concept to the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and corrected at the job site; information that remains valid to the fabrication process or to the means and methods of construction consideration of the work of the contractor and performing all work in a safe and satisfactory manner. This approval does not modify Contractor's duty of compliance with Contract.

Reviewed by: JAS Date: 11/2/13

Approved by: JAO Date: 11/1/13

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270M-50WT2		SEE DWG GNI				
DESCRIPTION: CAMBER & FLANGE DIAGRAM						
CASCO BAY STEEL STRUCTURES, INC.						
1 WALLACE AVE.			PHONE (207) 780-6722			
SOUTH PORTLAND, ME 04106			FAX (207) 780-6726			
STRUCTURE: BRISTOL - BRIDGE NO. 31			DRAWN: JTB		DATE: 08/09	
VT ROUTE NO. TH 5 (SOUTH STREET)			CHKD: DBH		DATE: 09/07	
OVER NEW HAVEN RIVER						
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO. 534		DWG NO. C1	
PROJ NO. BRO 1445 (32)						
CUSTOMER: BLOM AND COTE					REV. 1	



Approved ☐ Revise and Resubmit ☐

Approved as Noted ☒ Rejected ☐

Project No. 1044236

Reviewed By: JAS Date: 6/13/13

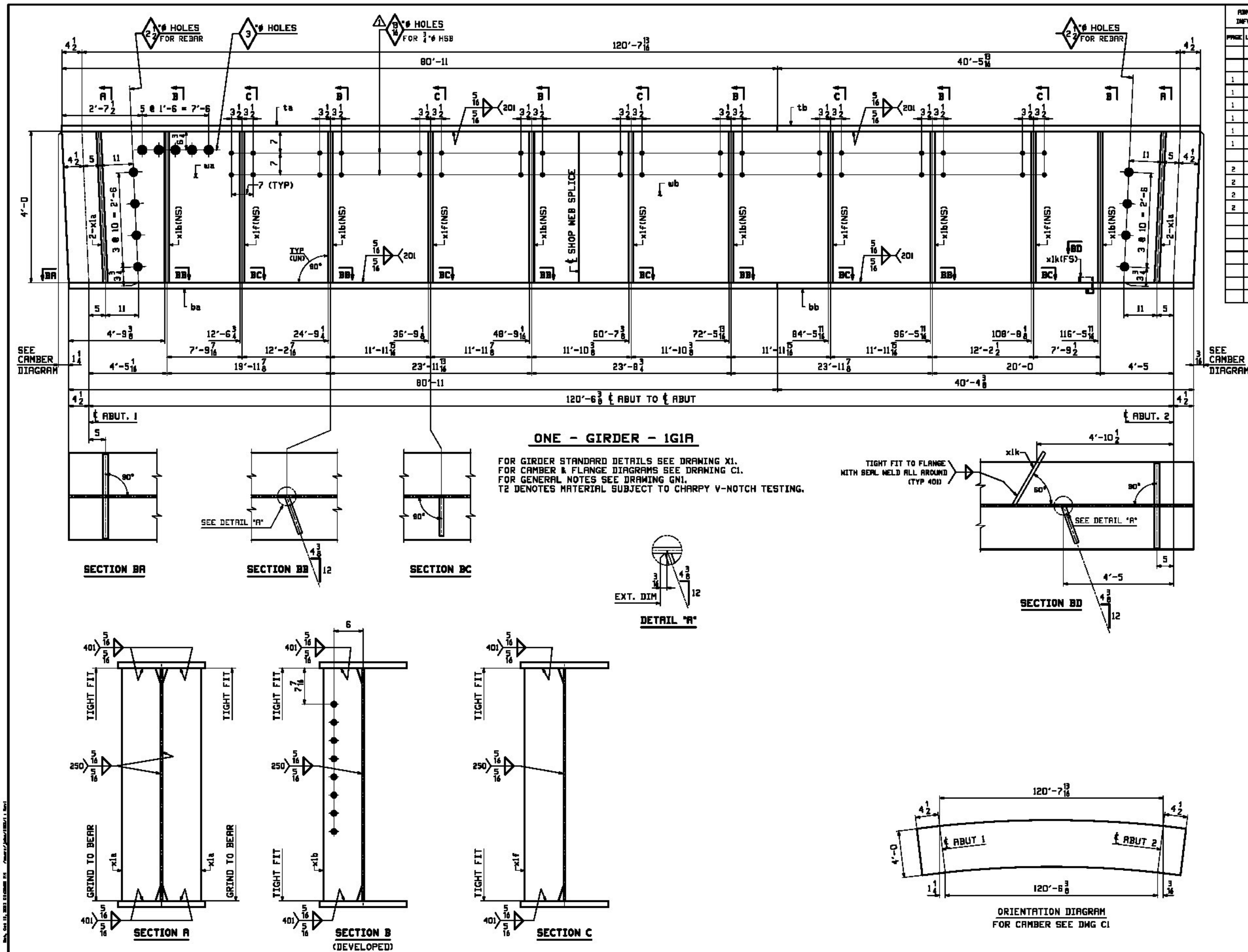
Approved by: JAO Date: 6/13/13

Hoyle, Tanner & Associates, Inc.

Person is only for general convenience with the design consent to the project and the information given in the Contract Documents. Contractor is responsible for structure to be constructed and corrected at the job site, and information that appears solely to the jurisdiction process in the means and methods of construction, coordination of the work of all trades, and performing on work in a safe and satisfactory manner. This approval does not involve Contractor's duty of complete site control.

NOTE:
1. FOR GENERAL NOTES SEE DRAWING GN1.
2. ALL HOLES THIS DRAWING SHALL BE $\frac{5}{8}$ " FOR $\frac{7}{8}$ " HSB.

	10/17	REVISE LATERAL GUSSET DETAILS	JTB	DBH		
						
REV. DATE	REMARKS		DWN	CHK	APVL	SHOP
MATERIAL: M270-50W		SURFACE PREP. & PAINT: SEE DWG GN1		HOLES: 15/16" 		SHOP BOLTS: NONE
DESCRIPTION: GIRDER STANDARD DETAILS						
CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. SOUTH PORTLAND, ME 04106 PHONE (207) 780-6722 FAX. (207) 780-6726						
STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. 115 (SOUTH STREET) OVER NEW HAVEN RIVER			DRAWN:	JTB	DATE:	08/13
			CHKD:	DBH	DATE:	09/07
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO.	DWG NO.		
PROJ NO. BRO 1445 (32)			534		X1	
CUSTOMER: BLOM AND COTE					REV. 	



BILL OF MATERIAL		JOB NO.		DRAWING NO.		REV.
ITEM	QTY	UNIT	DESCRIPTION	REMARKS	MT	
1	1	EA	GIRDER		25553	
1	1	EA	PL 1/2 x 48		1851	
1	1	EA	PL 1/2 x 48		3067	
1	1	EA	PL 1/2 x 18		6155	
1	1	EA	PL 1/2 x 18		3100	
1	1	EA	PL 1/2 x 18		6155	
1	1	EA	PL 1/2 x 18		3050	
2	4	EA	PL 1/2 x 8		116	
2	5	EA	PL 1/2 x 8		54	
2	5	EA	PL 1/2 x 8		54	
2	1	EA	PL 1/2 x 3		3	

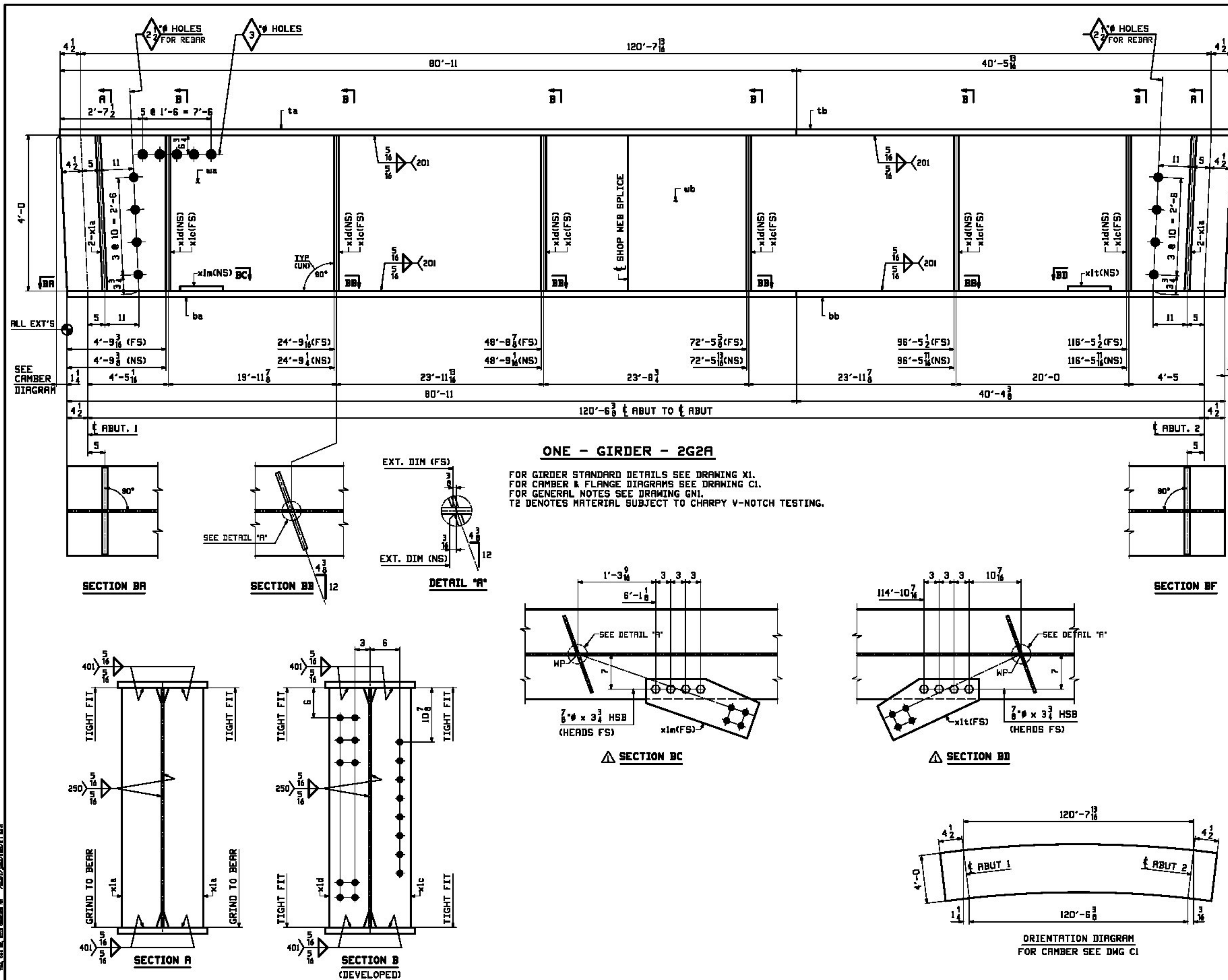
☐ Approved
 ☐ Revise and Resubmit

☒ Approved as Noted
 ☐ Rejected

Hoyle, Tanner
 ASSOCIATES, INC.

Reviewed By: SSS Date: 12/23/13
 Approved By: BSA Date: 12/23/13

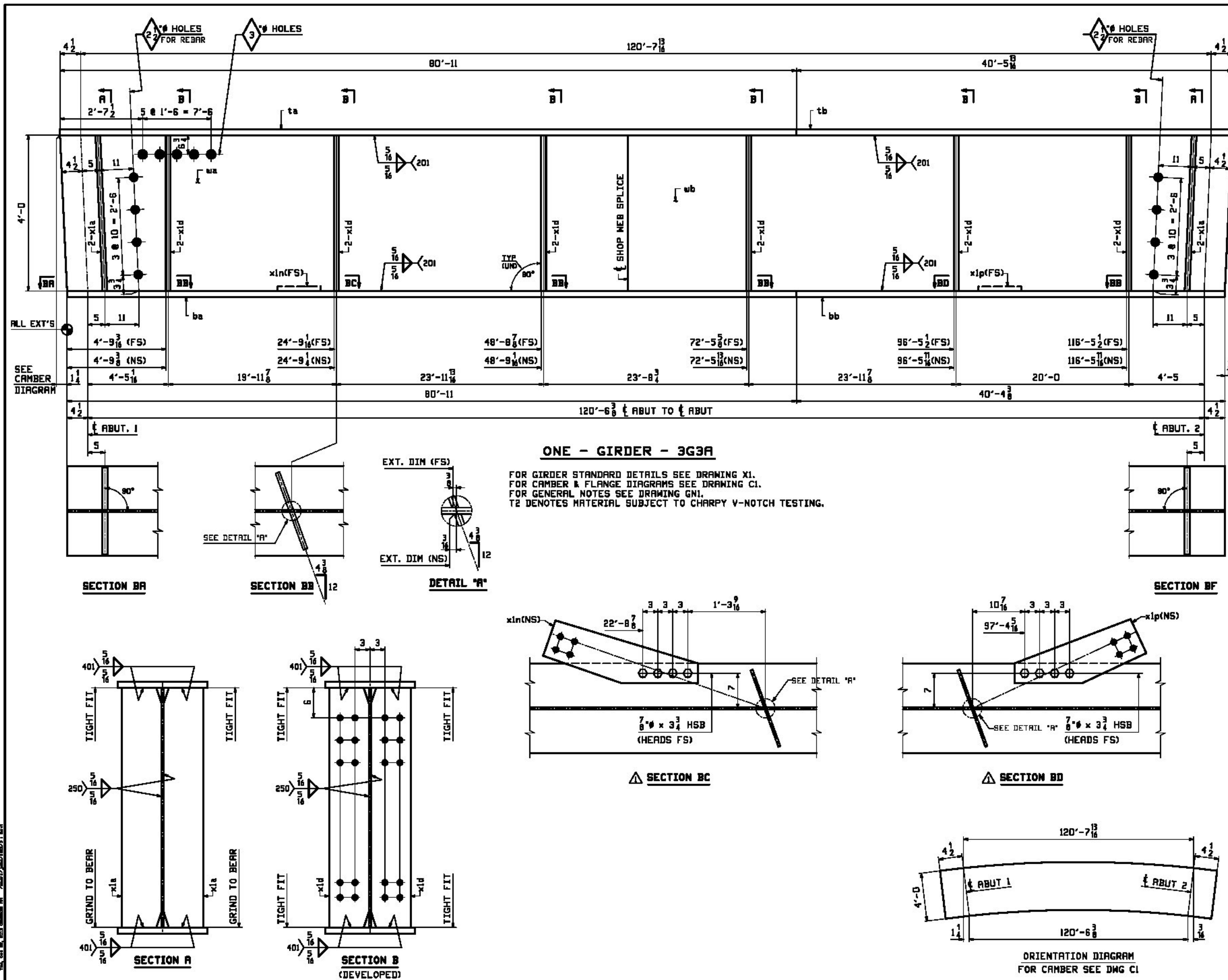
	12/17	APPROVAL COMMENT	JTB	DBH		
						
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL: M270-50W		SURFACE PREP. & PAINT: SEE DWG GNI	HOLES: 15 16" (UN)		SHOP BOLTS: NONE	
DESCRIPTION: GIRDER - 1G1A						
CASCO BAY STEEL STRUCTURES, INC.						
1 WALLACE AVE.		PHONE (207) 780-6722				
SOUTH PORTLAND, ME 04106		FAX. (207) 780-6726				
					TEMPOR 2023	
STRUCTURE: BRISTOL - BRIDGE NO. 31			DRAWN: JTB		DATE: 08/14	
VT ROUTE NO. 15 (SOUTH STREET) OVER NEW HAVEN RIVER			CHKD: DBH		DATE: 09/07	
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO.		DWG NO.	
PROJ NO. BRO 1445 (32)			534		1	
CUSTOMER: BLOM AND COTE					REV. 	



JOB NO.		DRAWING NO.		REV.
304		2		

REV.	DATE	REMARKS	BY	CHK	APV	SHOP
1	10/17	REVISE LATERAL GUSSETS	JTB	DBH		
2						
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	10/17	REVIS LATERAL GUSSETS	JTB	DBH			
							
REV. DATE		REMARKS		OWN	CHK	APVL	SHOP
MATERIAL: M270-50W		SURFACE PREP. & PAINT: SEE DWG GNI		HOLES: 15 16" (UN)		SHOP BOLTS: AS NOTED	
DESCRIPTION:				GIRDER - 2G2A			
CASCO BAY STEEL STRUCTURES, INC.							
1 WALLACE AVE.		PHONE (207) 780-6722					
SOUTH PORTLAND, ME 04106		FAX. (207) 780-6726					
STRUCTURE: BRISTOL - BRIDGE NO. 31				DRAWN:		DATE:	
VT ROUTE NO. 15 (SOUTH STREET)				JTB		08/14	
OVER NEW HAVEN RIVER				CHKD:		DATE:	
				DBH		09/07	
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)				JOB NO.		DWG NO.	
PROJ NO. BRO 1445 (32)						2	
CUSTOMER: BLOM AND COTE				534		REV. 	



JOB NO.		DRAWING NO.		REV.
304		3		
ITEM		QTY	UNIT	REMARKS
1	1	3G3A	1	GIRDER
1	1	1	1	PL 1/2 x 48
1	1	1	1	PL 1/2 x 48
1	1	1	1	PL 1/2 x 48
1	1	1	1	PL 1/2 x 48
1	1	1	1	PL 1/2 x 48
1	1	1	1	PL 1/2 x 48
2	4	1	1	PL 1/2 x 8
2	12	1	1	PL 1/2 x 8
2	1	1	1	PL 1/2 x 8
2	1	1	1	PL 1/2 x 8
5	1	1	1	1/2" HSB
5	1	1	1	1/2" HSB

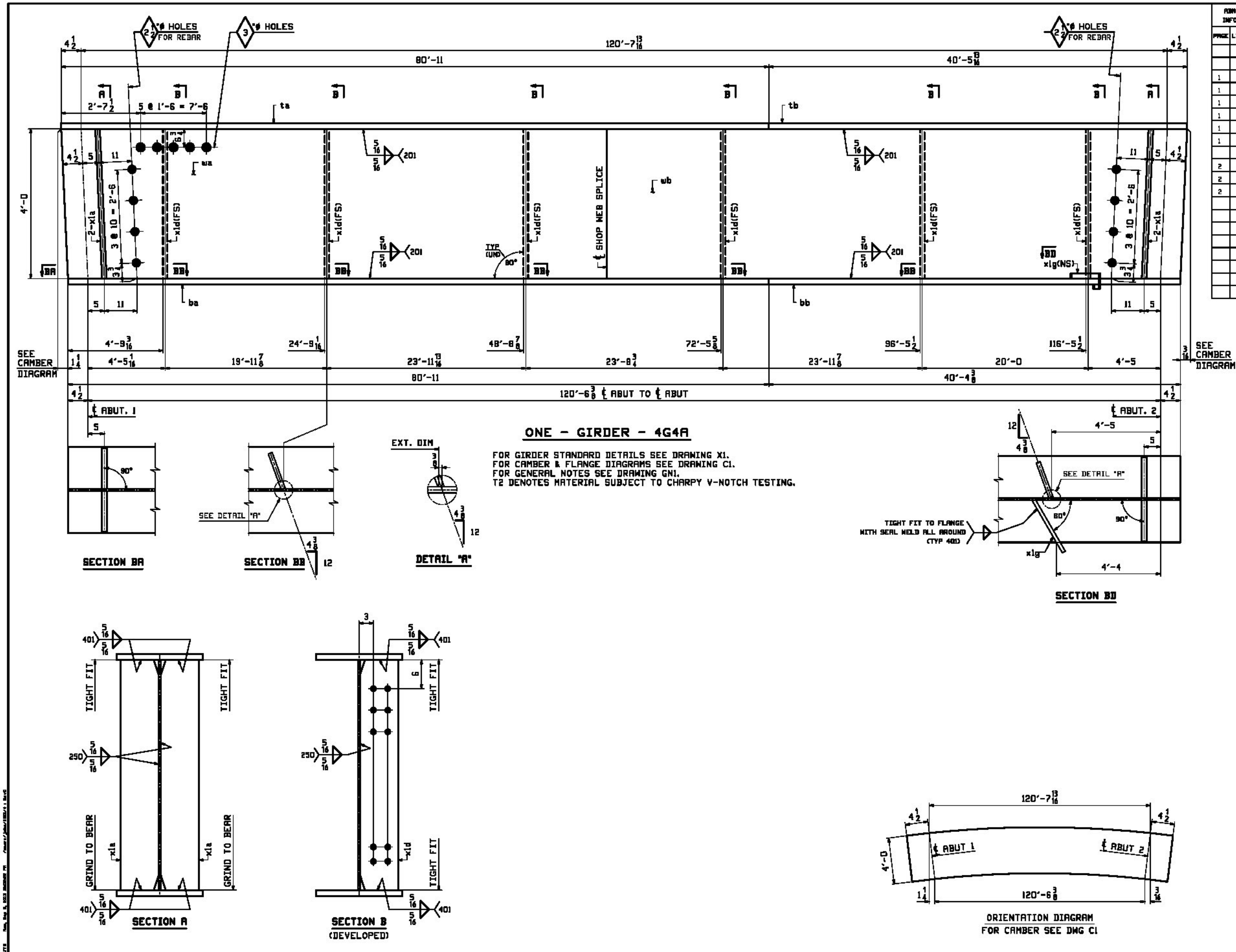
SEE CAMBER DIAGRAM

ALL EXT'S
 SEE CAMBER DIAGRAM

☐ Approved
☒ Approved as Noted
☐ Revise and Resubmit
☐ Rejected

Hoyle, Tanner
 Associates, Inc.
 Project No. 051226
 Approved By: [Signature] Date: 11/1/13
 Approved By: [Signature] Date: 11/1/13

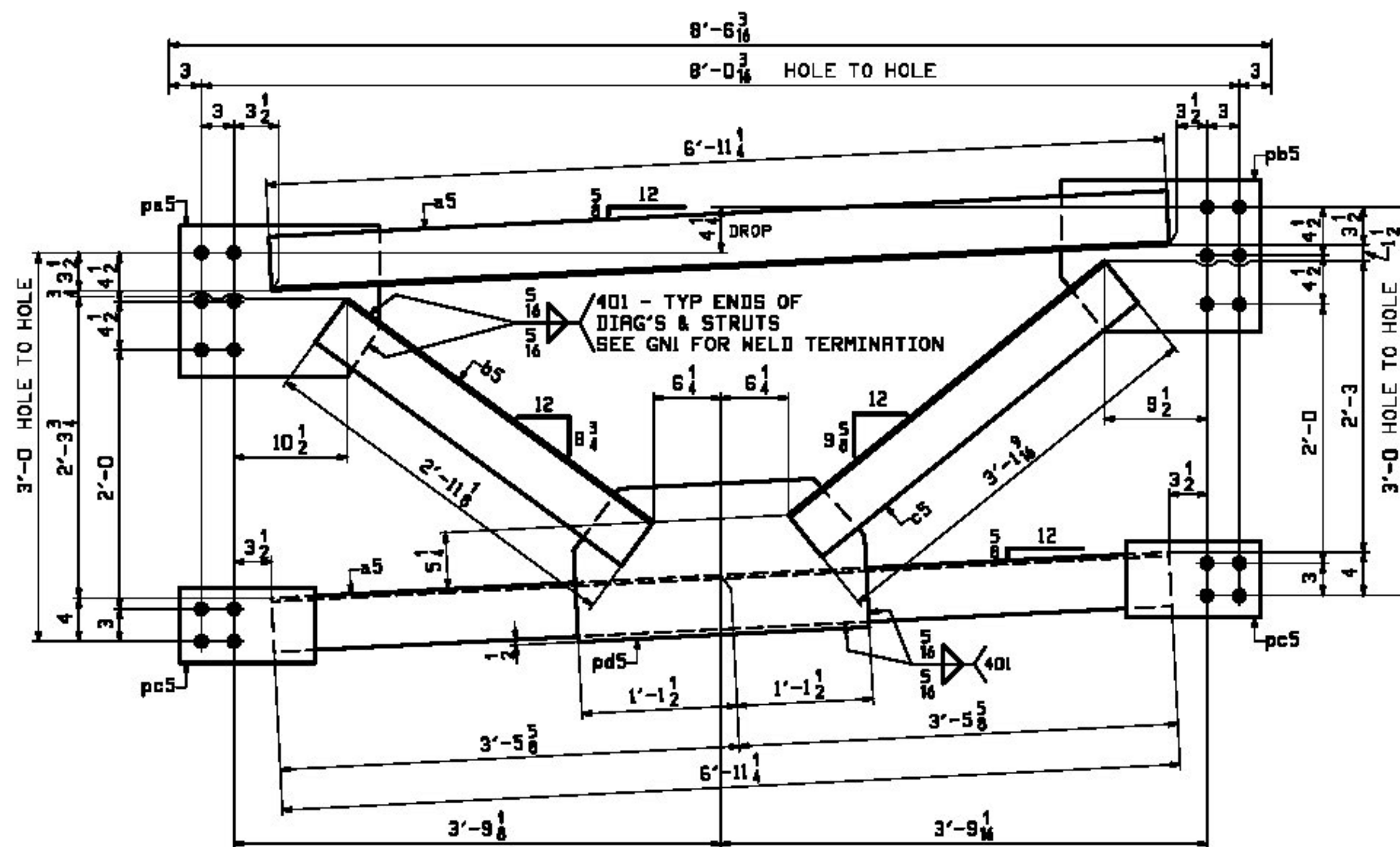
REV.	DATE	REMARKS	DMN	CHK	APVL	SHOP
1	10/17	REVISE LATERAL GUSSETS	JTB	DBH		
MATERIAL: M270-50W SURFACE PREP. & PAINT: SEE DWG GN1 HOLES: 15/16" (UN) SHOP BOLTS: NONE						
DESCRIPTION: GIRDER - 3G3A CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726						
STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. 15 (SOUTH STREET) OVER NEW HAVEN RIVER			DATE:	08/14		
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY) PROJ NO. BRO 1445 (32) CUSTOMER: BLOM AND COTE			DATE:	09/07		
			JOB NO.	534		
			DWG NO.	3		
			REV.	A		



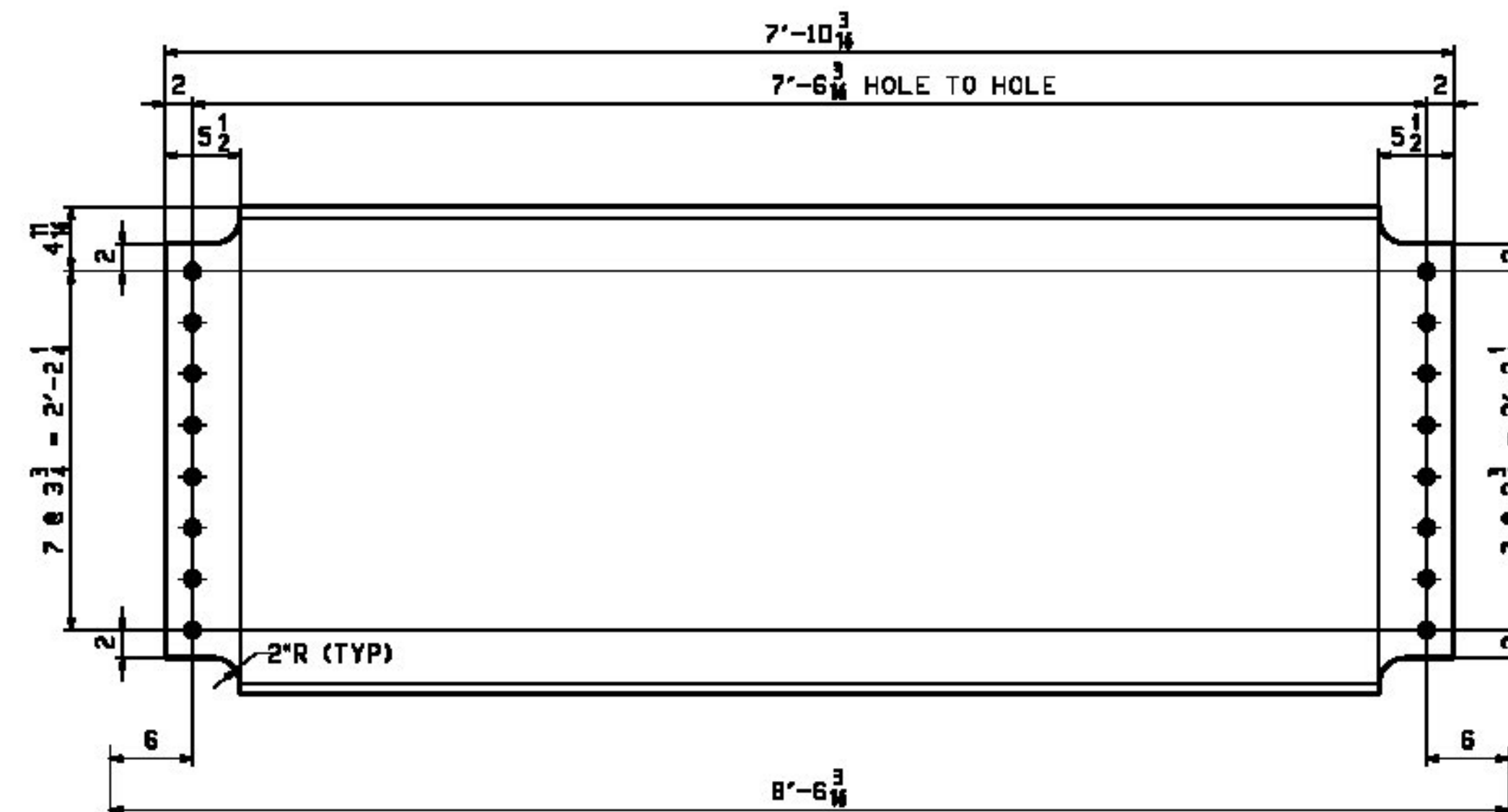
BILL OF MATERIAL		JOB NO.		DRAWING NO.		REV.
ITEM	QTY	UNIT	DESCRIPTION	REMARKS	MT	
1	1	EA	GIRDER		25290	
1	1	EA	PL 1/2 x 48	2270-SHUT	1851	
1	1	EA	PL 1/2 x 48	2270-SHUT	3067	
1	1	EA	PL 1/2 x 18	2270-SHUT	6155	
1	1	EA	PL 1/2 x 18	2270-SHUT	3100	
1	1	EA	PL 1/2 x 18	2270-SHUT	6155	
1	1	EA	PL 1/2 x 18	2270-SHUT	3090	
2	4	EA	PL 1/2 x 8	2270-SHUT	116	
2	5	EA	PL 1/2 x 8	2270-SHUT	54	
2	1	EA	PL 1/2 x 3	2270-SHUT	3	

APPROVED	REVISE AND RESUBMIT
X APPROVED AS NOTED (Not subject to Recheck)	REJECTED (See Accompanying Notes)
Hoyle, Tanner Associates, Inc.	
Approval is only for general convenience with this design and is not intended to be a final design. The Engineer is responsible for the design and the Contractor is responsible for the construction. The Contractor is responsible for the construction and the Engineer is responsible for the design.	
Reviewed By: AMS	Drawn By: JTB
Approved By: ASD	Check By: DBH

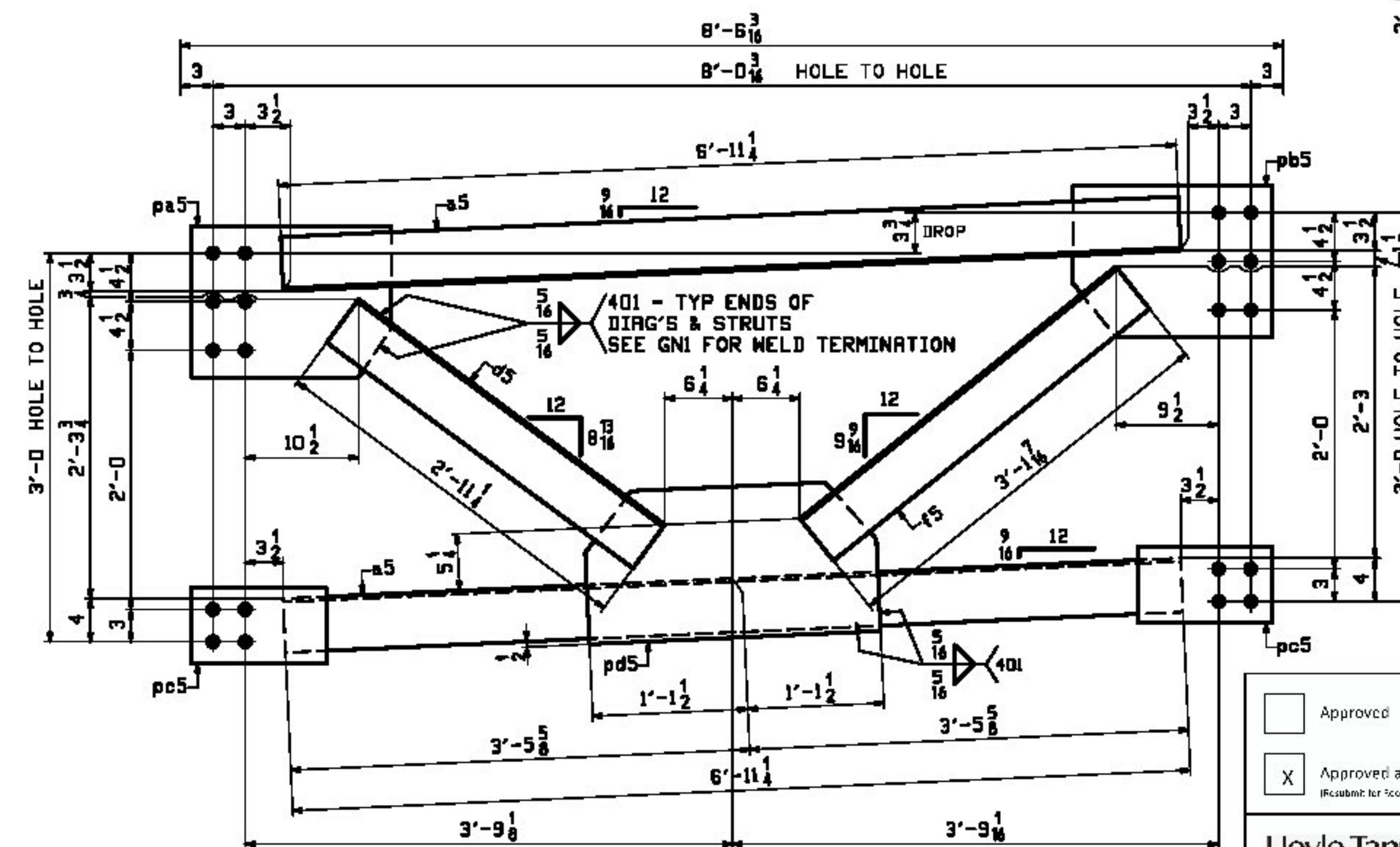
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:	M270-SHUT	SURFACE PREP. & PAINT: SEE DWG GN1	HOLES: 15/16" (UN)	SHOP BOLTS: NONE		
DESCRIPTION: GIRDER - 4G4R						
CASCO BAY STEEL STRUCTURES, INC.						
1 WALLACE AVE. PHONE (207) 780-6722						
SOUTH PORTLAND, ME 04106 FAX: (207) 780-6726						
STRUCTURE: BRISTOL - BRIDGE NO. 31			DRAWN: JTB		DATE: 08/14	
VT ROUTE NO. 115 (SOUTH STREET)			CHKD: DBH		DATE: 09/07	
OVER NEW HAVEN RIVER						
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO. 534		DWG NO. 4	
PROJ NO. BRO 1445 (32)						
CUSTOMER: BLOM AND COTE					REV. 1	



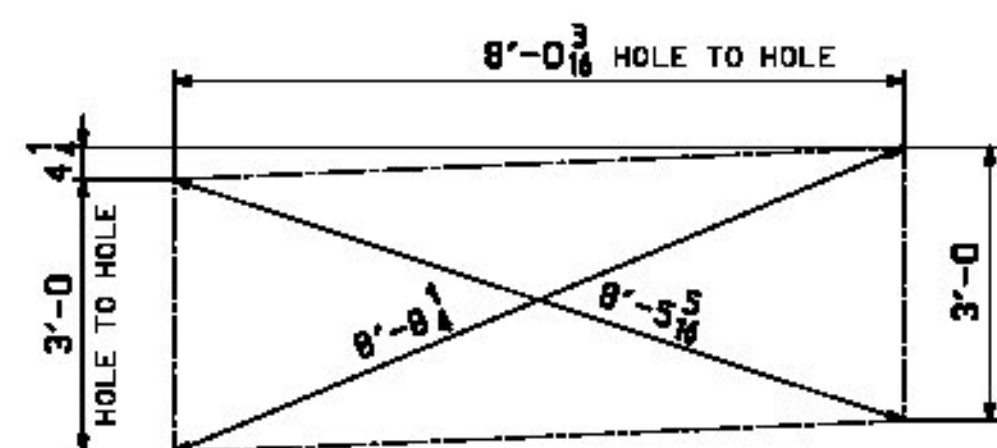
6 ~ INT. DIAPHRAGMS - 5D1
LINES 3 TO 4



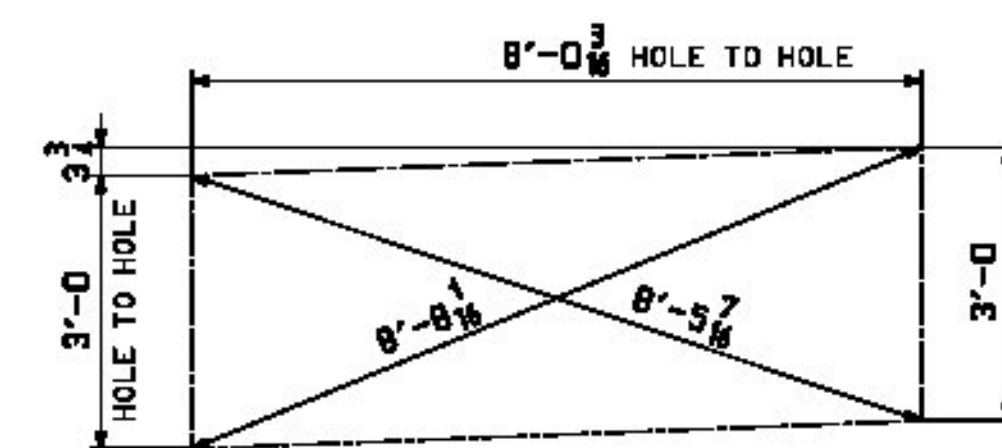
6 ~ INT. DIAPHRAGMS - 5D3
LINES 1 TO 2



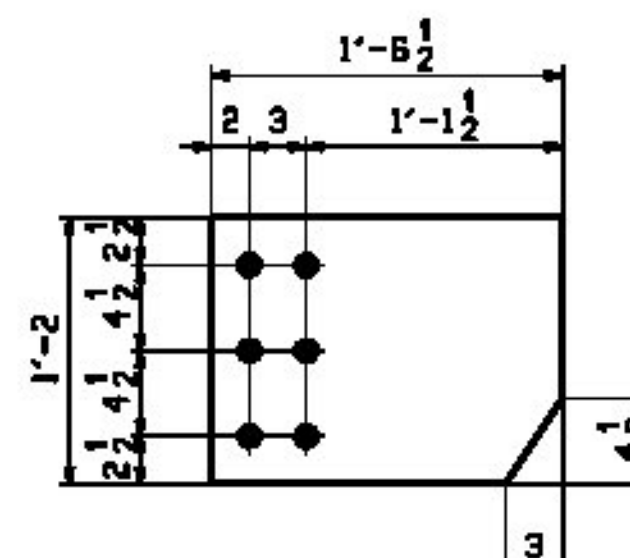
6 ~ INT. DIAPHRAGMS - 5D2
LINES 2 TO 3



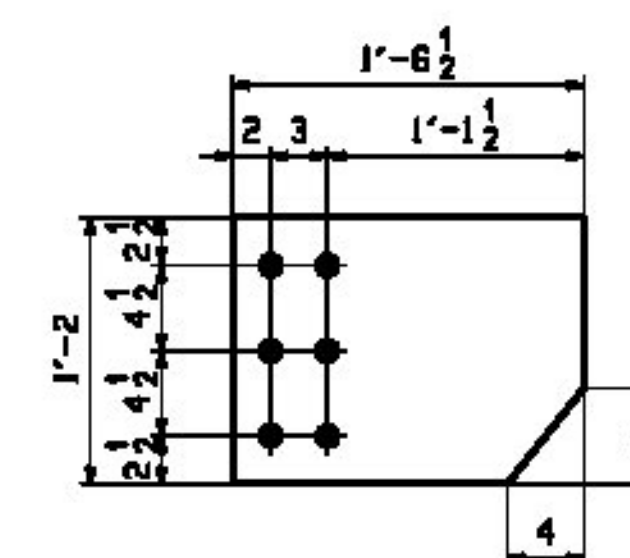
CROSSCHECK - 5D1



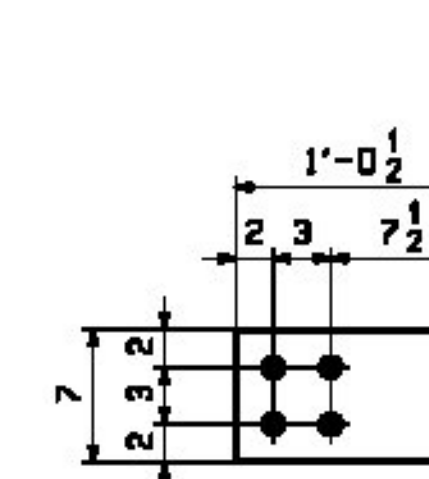
CROSSCHECK - 5D2



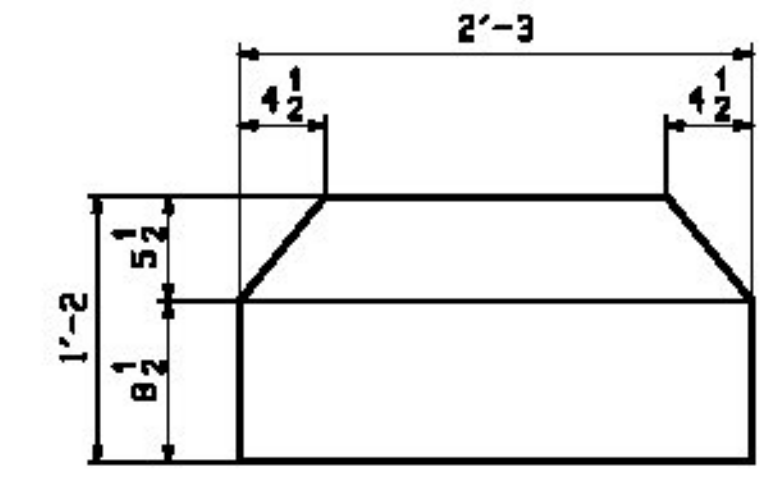
DETAIL - pc5
TOP GUSSET (LOW END)
12 REQ'D



DETAIL - pb5
TOP GUSSET (HIGH END)
12 REQ'D



DETAIL - pc5
BTM GUSSET
24 REQ'D



DETAIL - pd5
CTR GUSSET
12 REQ'D

FORM INFO		SHOP		BILL OF MATERIAL				JOB NO.		ISSUING NO.		REV.	
								504		5			
PRICE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT INCHES		REMARKS	MT	PROCUREMENT NOTES			
		SD1	6		INT. DIAPHRAGMS				319				
3	C		12	a5	L 5x5x ⁵ / ₁₆	6	11 ¹ / ₄		71				
3	D		6	b5	L 5x5x ⁵ / ₁₆	2	11 ¹ / ₄		30				
3	D		6	c5	L 5x5x ⁵ / ₁₆	3	1 ¹ / ₄		32				
3	E		6	pa5	PL ³ / ₈ x14	1	5 ¹ / ₂		26				
3	E		6	pb5	PL ³ / ₈ x14	1	5 ¹ / ₂		26				
3	F		12	pc5	PL ³ / ₈ x7	1	0 ¹ / ₂		9				
3	G		6	pd5	PL ³ / ₈ x14	2	3		40				
		SD2	6		INT. DIAPHRAGMS				319				
3	C		12	a5	L 5x5x ⁵ / ₁₆	6	11 ¹ / ₄		71				
3	D		6	d5	L 5x5x ⁵ / ₁₆	2	11 ¹ / ₄		30				
3	D		6	e5	L 5x5x ⁵ / ₁₆	3	1 ¹ / ₄		32				
3	E		6	pa5	PL ³ / ₈ x14	1	5 ¹ / ₂		26				
3	E		6	pb5	PL ³ / ₈ x14	1	5 ¹ / ₂		26				
3	F		12	pc5	PL ³ / ₈ x7	1	0 ¹ / ₂		9				
3	G		6	pd5	PL ³ / ₈ x14	2	3		40				
					INT. DIAPHRAGMS								
3	B	5D3	6		M 36x135	7	10 ³ / ₈		1080				

0						
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL: M270-50W		SURFACE PREP. & PAINT: SEE DWG GNI	HOLES: 15 16" Ø		SHOP BOLTS: NONE	
DESCRIPTION: DIAPHRAGMS						
CASCO BAY STEEL STRUCTURES, INC.					 TEMBOR 3033	
1 WALLACE AVE.		PHONE (207) 780-6722				
SOUTH PORTLAND, ME 04106		FAX. (207) 780-6726				
STRUCTURE: BRISTOL - BRIDGE NO. 31			DRAWN: JTB		DATE: 08/14	
VT ROUTE NO. 115 (SOUTH STREET)			CHKD: DBH		DATE: 09/07	
OVER NEW HAVEN RIVER						
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO. 534		DWG NO. 5	
PROJ. NO. BRO 1445 (32)						
CUSTOMER: BLOM AND COTE					REV. A	

☐ Approved
 ☐ Revise and Resubmit
 ☒ Approved as Noted
 ☐ Rejected

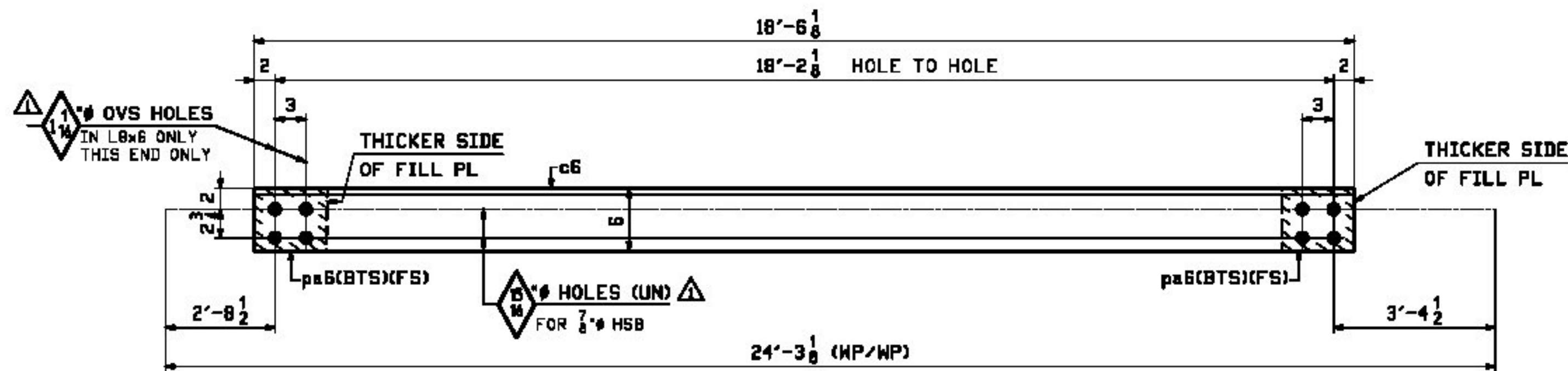
(Resubmit for 100% design)
 (See 4400-10000000-0000)

Hoyle, Tanner & Associates, Inc.
 Project No. 1002226

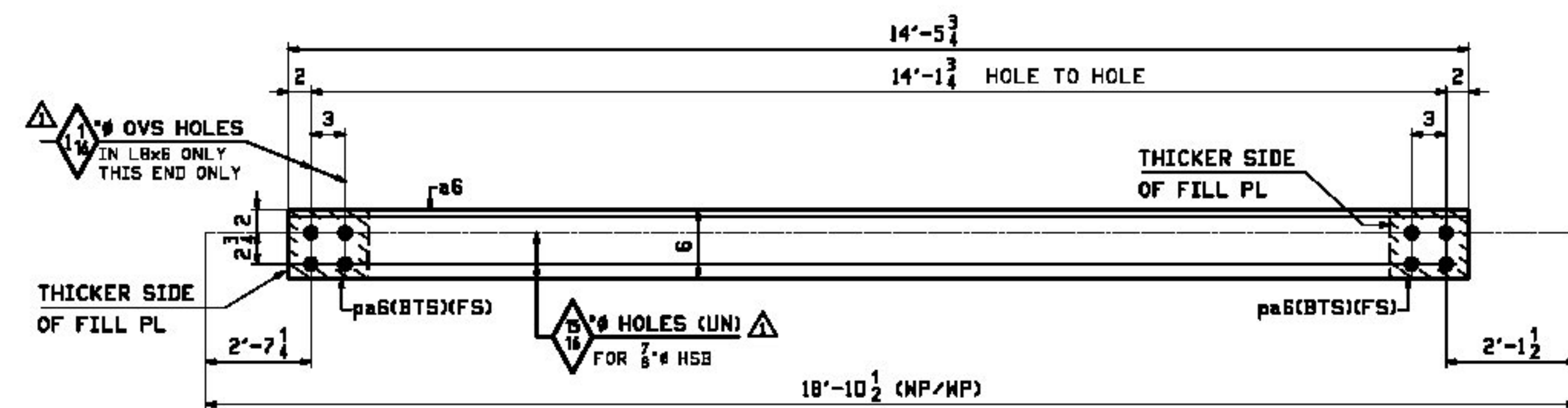
Approval is only for general conformity with the design concept to the Project and the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and corrected as they are. Information that pertains to the fabrication process or to the means and methods of construction, construction of the work of all trades, and performing all work in a safe and satisfactory manner. It is approved does not modify Contractor's duty of conformity with Contract.

Reviewed By: JAS Date: 11/11/13
 Approved By: JAC Date: 11/11/13

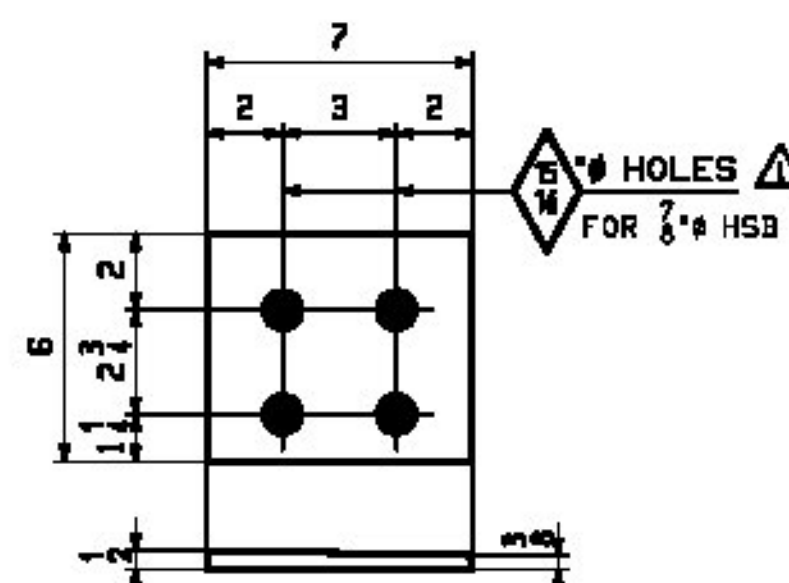
NOTE:
FOR GENERAL NOTES SEE DRAWING GNI.



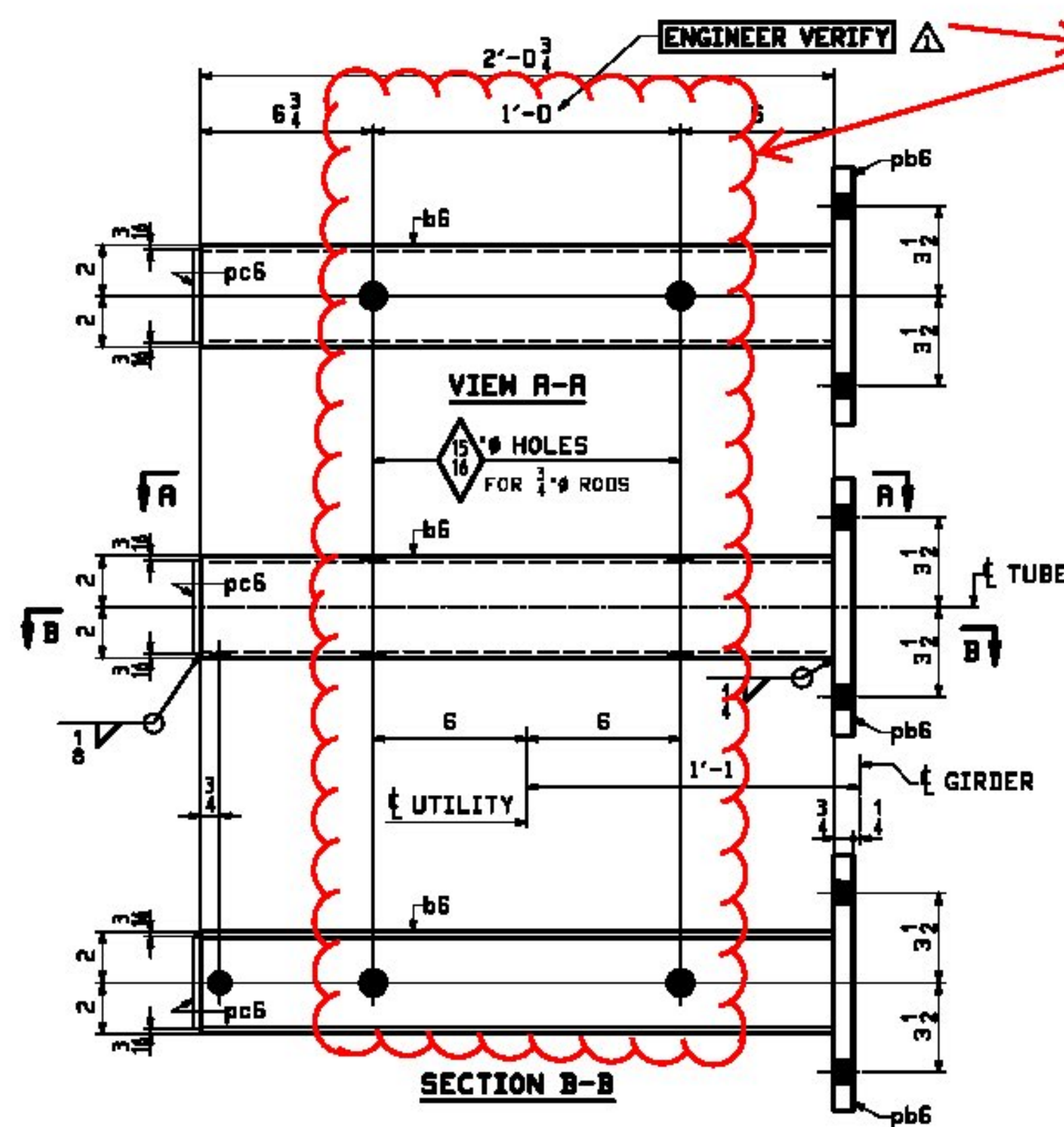
ONE ~ LATERAL BRACING - BLB1



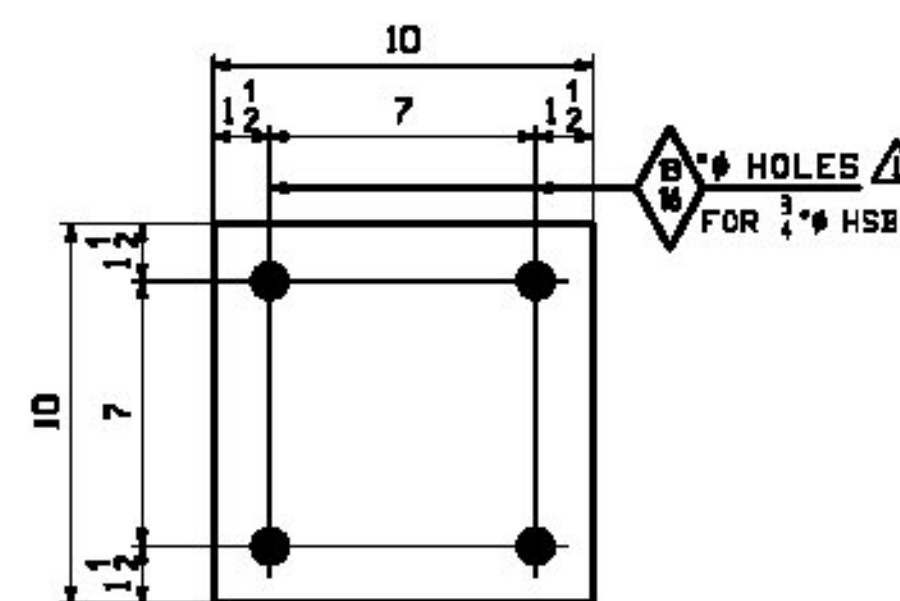
ONE ~ LATERAL BRACING - BLB2



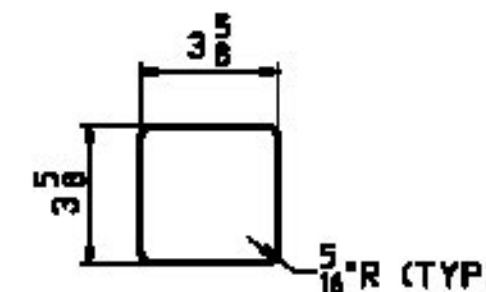
DETAIL - pa6
4 REQ'D



9 ~ UTILITY SUPPORTS - 6M1
HOT-DIP GALVANIZE AFTER FABRICATION



DETAIL - pb6
9 REQ'D



DETAIL - pc6
9 REQ'D

ROD SPACING DOES NOT MATCH PLANS SEE COMMENTS ON PIPE HANGER SUBMITTAL (CONTRACTOR TO COORDINATE PIPE HANGER REQUIREMENTS TO FABRICATOR)

JOB INFO		SHOP		BILL OF MATERIAL				JOB NO.		DRAWING NO.		REV.
								504		6		
PAGE	LINE	MARK	QTY	NRWK	NATURAL	LENGTH		REMARKS	MT	PROCUREMENT NOTES		
						FT	INCHES					
		SLB1	1		LATERAL BRACING				638			
3	K		1	pc6	L 8x8x $\frac{3}{4}$ 	16	8 $\frac{1}{2}$		828			
3	M		2	pa6	PL $\frac{1}{2}$ x6	0	7	REV. FILL (FIF)	6			
		SLB2	1		LATERAL BRACING				502			
3	L		1	pc6	L 8x8x $\frac{3}{4}$ 	14	8 $\frac{3}{4}$		490			
3	M		2	pa6	PL $\frac{1}{2}$ x6	0	7	REV. FILL (FIF)	6			
		6M1	9		UTILITY SUPPORTS			HOT-DIP GALV AFTER FAB	47			
3	Q		9	b6	HSS 4x4x $\frac{1}{4}$	2	0 $\frac{1}{2}$	1600-L	25			
3	R		9	pb6	PL $\frac{1}{2}$ x10	0	10	1270-M	21			
3	S		9	pc6	PL $\frac{1}{2}$ x3 $\frac{5}{8}$	0	3 $\frac{5}{8}$	1270-M	93			

☐ Approved	☐ Revise and Resubmit
☒ Approved as Noted (Available for use)	☐ Rejected (Not for use)

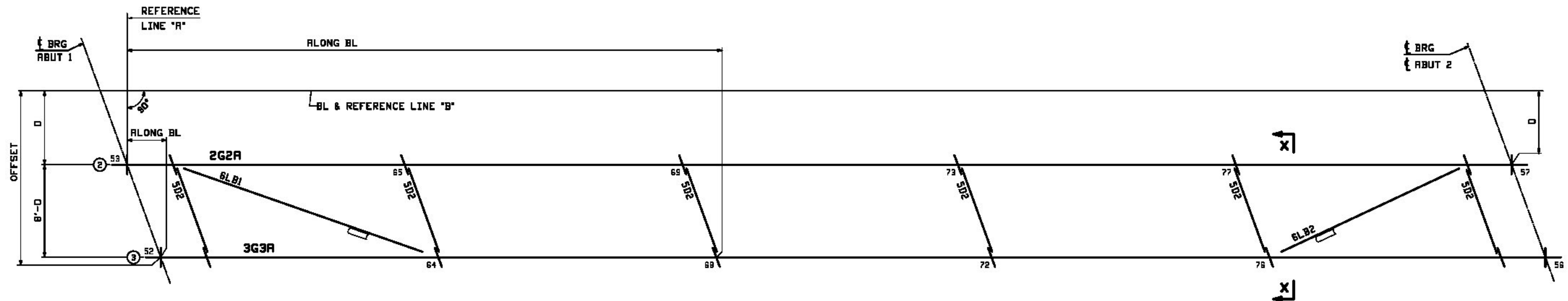
Hoyle, Tanner
 ASSOCIATES, INC.
 Project No. 950120

Approved By: JAS Date: 11/1/13
 Approved By: JAS Date: 11/1/13

Approved only for general reference with no design, except to the
 Project and the information given to the Contractor. Contractor is
 responsible for verification of the information and its use in the field.
 Information that pertains solely to the fabrication process or to the nature
 and methods of construction of the work of the fabricator and
 performing work in a safe and satisfactory manner. This approval does
 not modify Contractor's duty to comply with Contract.

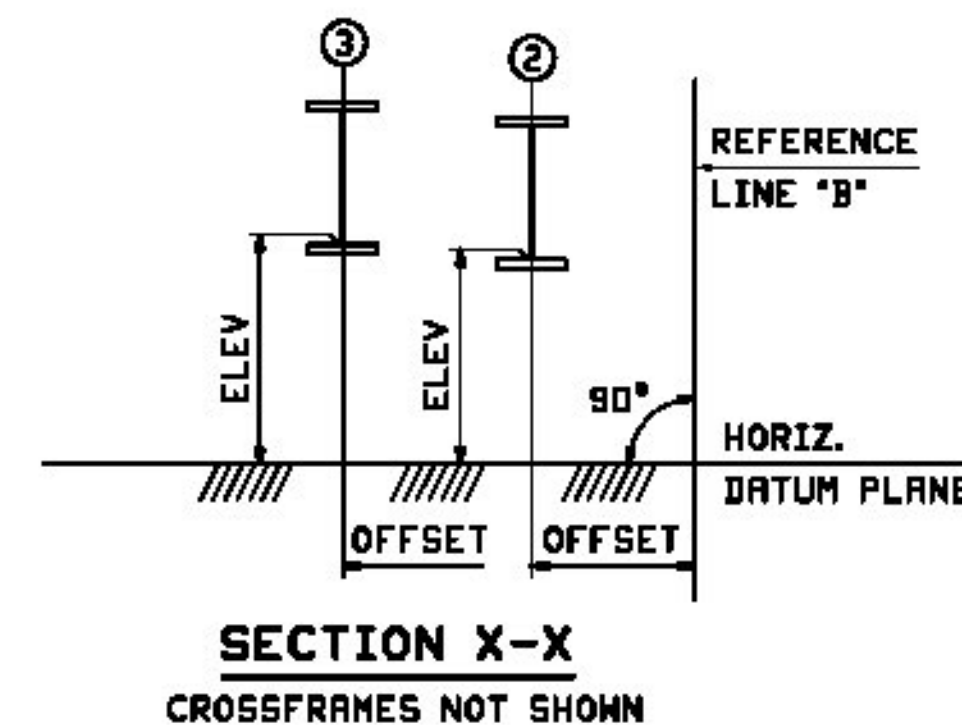
	10/17	REVISE LATERAL BRACE SIZE & MISC. APPROVAL COMMENTS	JTB	DBH		
0						
REV. DATE	REMARKS		DMN	CHK	APVL	SHOP
MATERIAL: M270-50W (UN)		SURFACE PREP. & PAINT: SEE DWG GN1	HOLES: AS NOTED		SHOP BOLTS: NONE	
DESCRIPTION: LATERAL BRACING & UTILITY SUPPORT						
CASCO BAY STEEL STRUCTURES, INC.						
1 WALLACE AVE.		PHONE (207) 780-6722				
SOUTH PORTLAND, ME 04106		FAX. (207) 780-6726				
STRUCTURE: BRISTOL - BRIDGE NO. 31			DRAWN:	DATE:		
VT ROUTE NO. 115 (SOUTH STREET)			JTB	08/14		
OVER NEW HAVEN RIVER			CHKD:	DATE:		
			DBH	08/07		
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO.	DWG NO.		
PROJ NO. BRO 1445 (32)			534		6	
CUSTOMER: BLOW AND COTE					REV.	

NOTES:
 1. FOR GENERAL NOTES SEE DRAWING GN1.
 2. BTS - DENOTES BOLT TO SHIP.



PLAN VIEW OF ASSEMBLY
ABUT 1 TO ABUT 2 - LINES 2 & 3

LINE 2					LINE 3				
	POINT	OFFSET	ALONG BL	ELEV		POINT	OFFSET	ALONG BL	ELEV
ABUT 1	53	0	0	1'-4 $\frac{5}{16}$		52	8'-0	2'-10 $\frac{5}{16}$	1'-7 $\frac{11}{16}$
	65	0	24'-4 $\frac{5}{16}$	1'-5 $\frac{13}{16}$		64	8'-0	27'-3 $\frac{7}{8}$	1'-9 $\frac{3}{16}$
	69	0	48'-4 $\frac{3}{4}$	1'-5 $\frac{11}{16}$		68	8'-0	51'-3 $\frac{11}{16}$	1'-9
	73	0	72'-1 $\frac{1}{2}$	1'-2 $\frac{7}{16}$		72	8'-0	75'-0 $\frac{7}{16}$	1'-5 $\frac{8}{16}$
	77	0	96'-1 $\frac{5}{16}$	8 $\frac{1}{8}$		76	8'-0	99'-0 $\frac{1}{4}$	11 $\frac{7}{16}$
ABUT 2	57	0	120'-6 $\frac{1}{4}$	0		56	8'-0	123'-5 $\frac{3}{16}$	3 $\frac{3}{8}$



SECTION X-X
CROSSFRAMES NOT SHOWN

- PLAN VIEW ASSEMBLY NOTES:**
1. FOR GENERAL NOTES SEE DRAWING GNL.
 2. ALL LONGITUDINAL EXTENSION DIMENSIONS (ALONG BL) ARE GIVEN FROM REFERENCE LINE "A".
 3. ALL TRANSVERSE EXTENSION DIMENSIONS (OFFSET) ARE GIVEN FROM REFERENCE LINE "B".
 4. ALL ELEVATIONS (ELEV) ARE GIVEN TO THE BOTTOM OF WEB TO A HORIZONTAL DATUM PLANE.

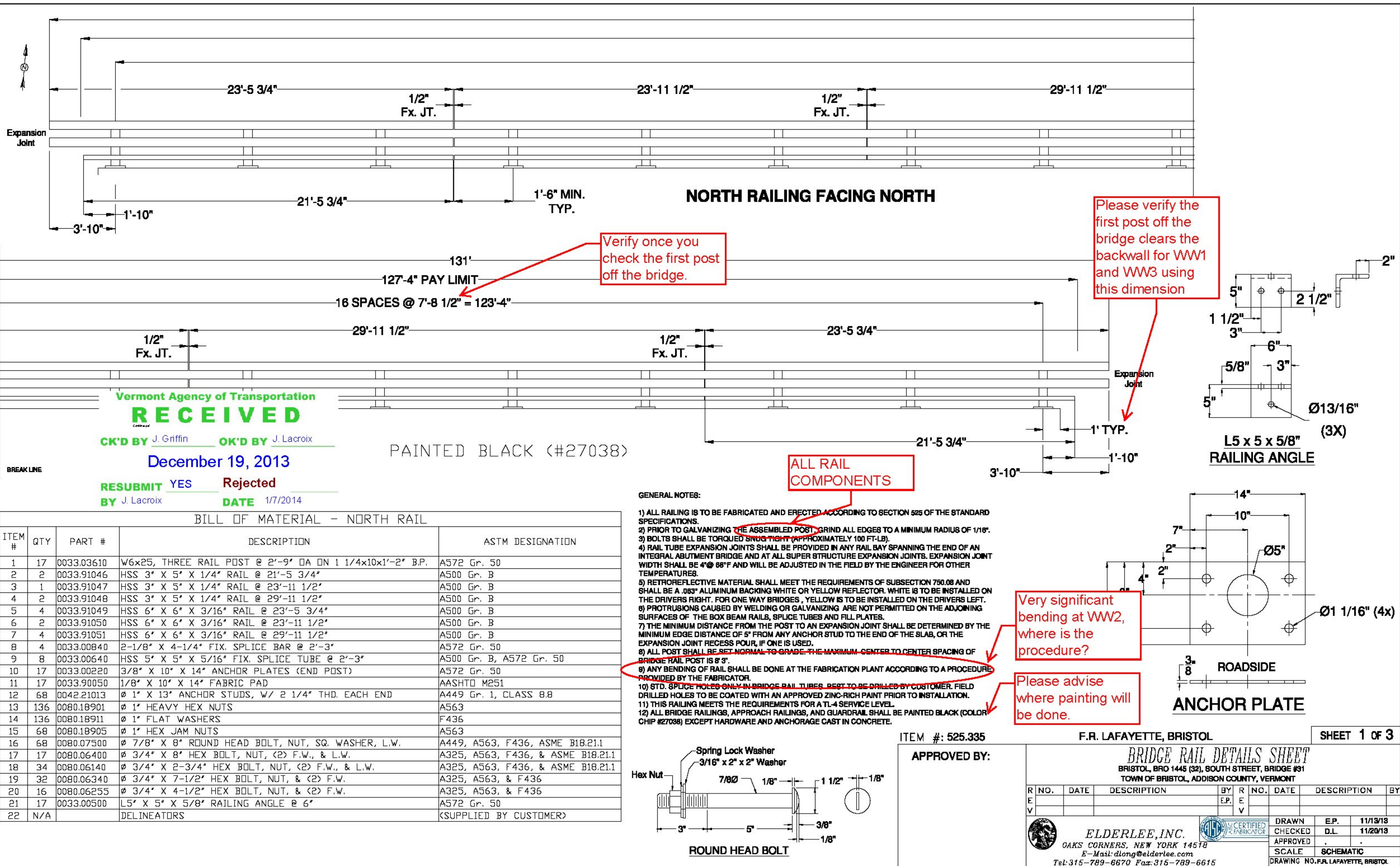
☐ Approved	☐ Revise and Resubmit
☒ Approved as Noted (indicate for record)	☐ Rejected (see Resubmitting - 5.10)

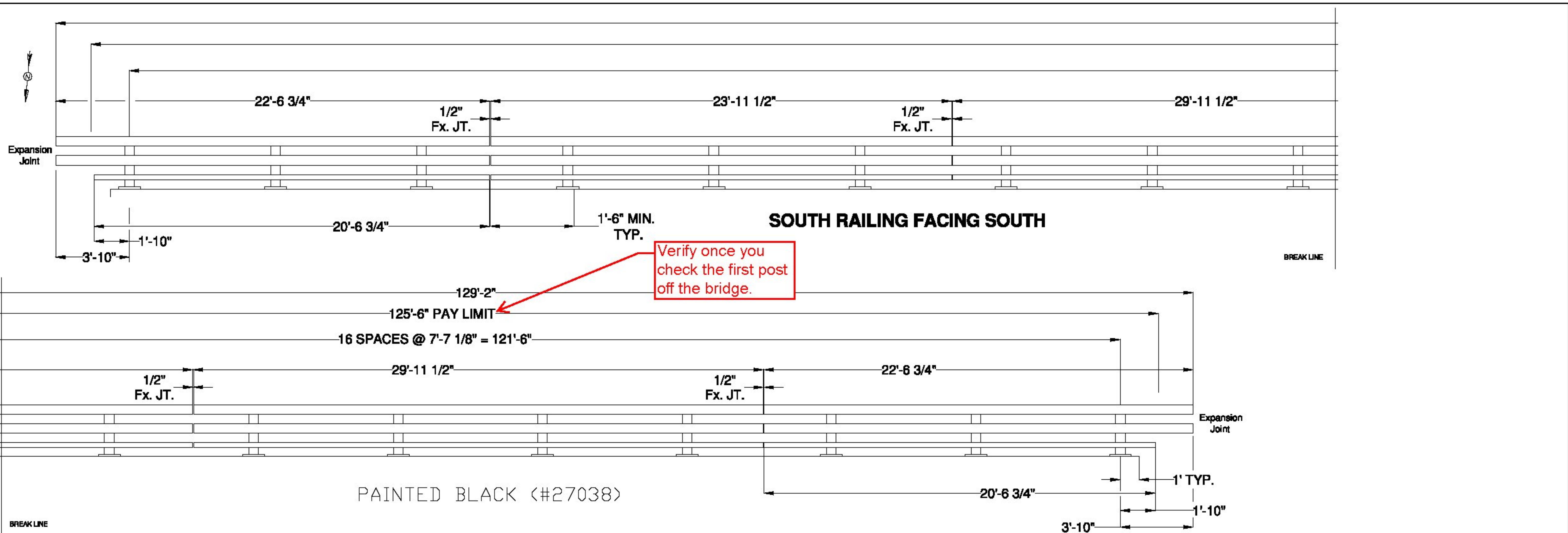
Hoyle, Tanner & Associates, Inc. Project No. 854226

Approval is only for general conformance with the design concept to the Project and the information given in the Contract Documents. Contractor is responsible for verification of all dimensions and locations at the job site. Information that pertains solely to the fabrication process or to the manner and methods of construction is not a part of the design and is not to be used for construction. This approval does not modify Contractor's duty of compliance with contract.

Reviewed By: AAS Date: 11/12/13
 Approved By: JAC Date: 11/12/13

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:		SURFACE PREP. & PAINT:	HOLES:		SHOP BOLTS:	
DESCRIPTION: SHOP ASSEMBLY						
CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04106 FAX (207) 780-6726						
STRUCTURE: BRISTOL - BRIDGE NO. 31 VT ROUTE NO. 115 (SOUTH STREET) OVER NEW HAVEN RIVER			DRAWN: JTB CHKD: DBH	DATE: 10/19 DATE: 10/21		
LOCATION: TOWN OF BRISTOL, VT (ADDISON COUNTY)			JOB NO. 534		DWG NO. SA1	
PROJ NO. BRO 1445 (32)			CUSTOMER: BLOM AND COTE		REV.	





BILL OF MATERIAL - SOUTH RAIL				
ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	17	0033.03610	W6x25, THREE RAIL POST @ 2'-9" OA ON 1 1/4x10x1'-2" B.P.	A572 Gr. 50
2	2	0033.91058	HSS 3' X 5' X 1/4" RAIL @ 20'-6 3/4"	A500 Gr. B
3	1	0033.91059	HSS 3' X 5' X 1/4" RAIL @ 23'-11 1/2"	A500 Gr. B
4	2	0033.91060	HSS 3' X 5' X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
5	4	0033.91061	HSS 6' X 6' X 3/16" RAIL @ 22'-6 3/4"	A500 Gr. B
6	2	0033.91062	HSS 6' X 6' X 3/16" RAIL @ 23'-11 1/2"	A500 Gr. B
7	4	0033.91063	HSS 6' X 6' X 3/16" RAIL @ 29'-11 1/2"	A500 Gr. B
8	4	0033.00840	2-1/8" X 4-1/4" FIX. SPLICE BAR @ 2'-3'	A572 Gr. 50
9	8	0033.00640	HSS 5' X 5' X 5/16" FIX. SPLICE TUBE @ 2'-3'	A500 Gr. B, A572 Gr. 50
10	17	0033.00220	3/8" X 10" X 14" ANCHOR PLATES (END POST)	A572 Gr. 50
11	17	0033.90050	1/8" X 10" X 14" FABRIC PAD	AASHTO M251
12	68	0042.21013	Ø 1" X 13" ANCHOR STUDS, W/ 2 1/4" THD. EACH END	A449 Gr. 1, CLASS 8.8
13	136	0080.18901	Ø 1" HEAVY HEX NUTS	A563
14	136	0080.18911	Ø 1" FLAT WASHERS	F436
15	68	0080.18905	Ø 1" HEX JAM NUTS	A563
16	68	0080.07500	Ø 7/8" X 8" ROUND HEAD BOLT, NUT, SQ. WASHER, L.W.	A449, A563, F436, ASME B18.21.1
17	17	0080.06400	Ø 3/4" X 8" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
18	34	0080.06140	Ø 3/4" X 2-3/4" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
19	32	0080.06340	Ø 3/4" X 7-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
20	16	0080.06255	Ø 3/4" X 4-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
21	17	0033.00500	L5" X 5" X 5/8" RAILING ANGLE @ 6"	A572 Gr. 50
22	N/A		DELINEATORS - NOT SHOWN	(SUPPLIED BY CUSTOMER)

Vermont Agency of Transportation
RECEIVED
CK'D BY J. Griffin OK'D BY J. Lacroix
December 19, 2013
RESUBMIT YES Rejected
BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335

F.R. LAFAYETTE, BRISTOL

SHEET 2 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET
BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

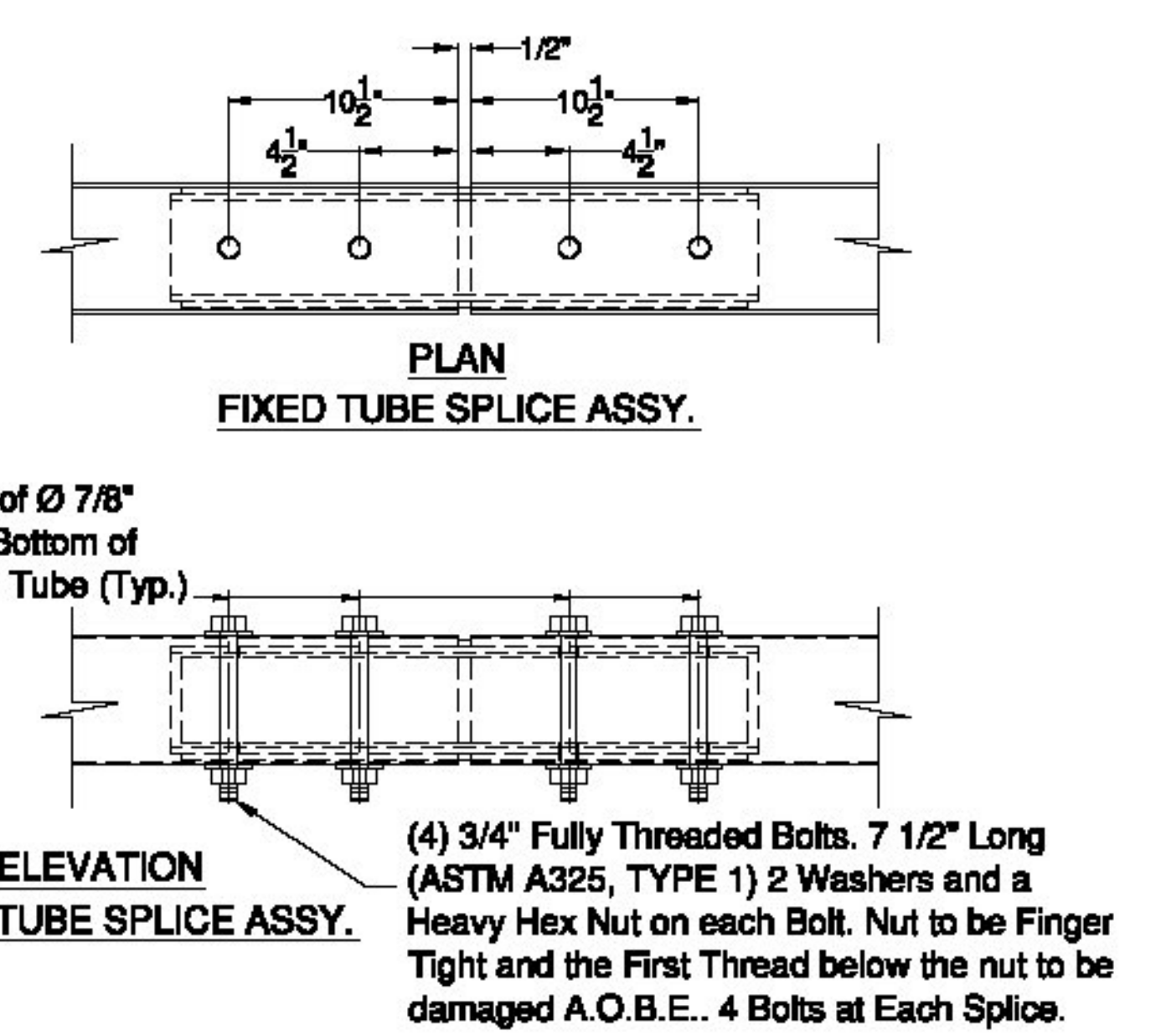
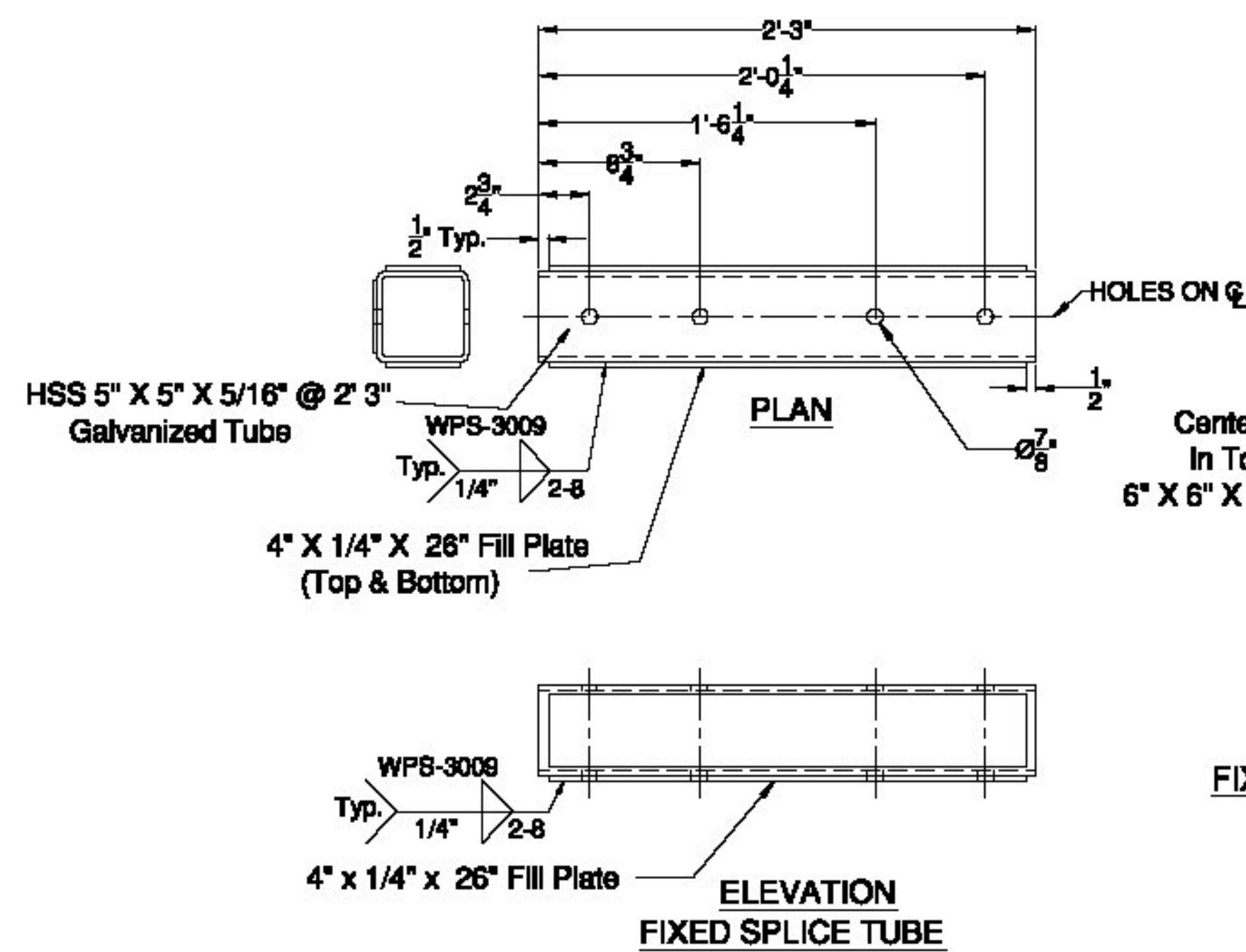
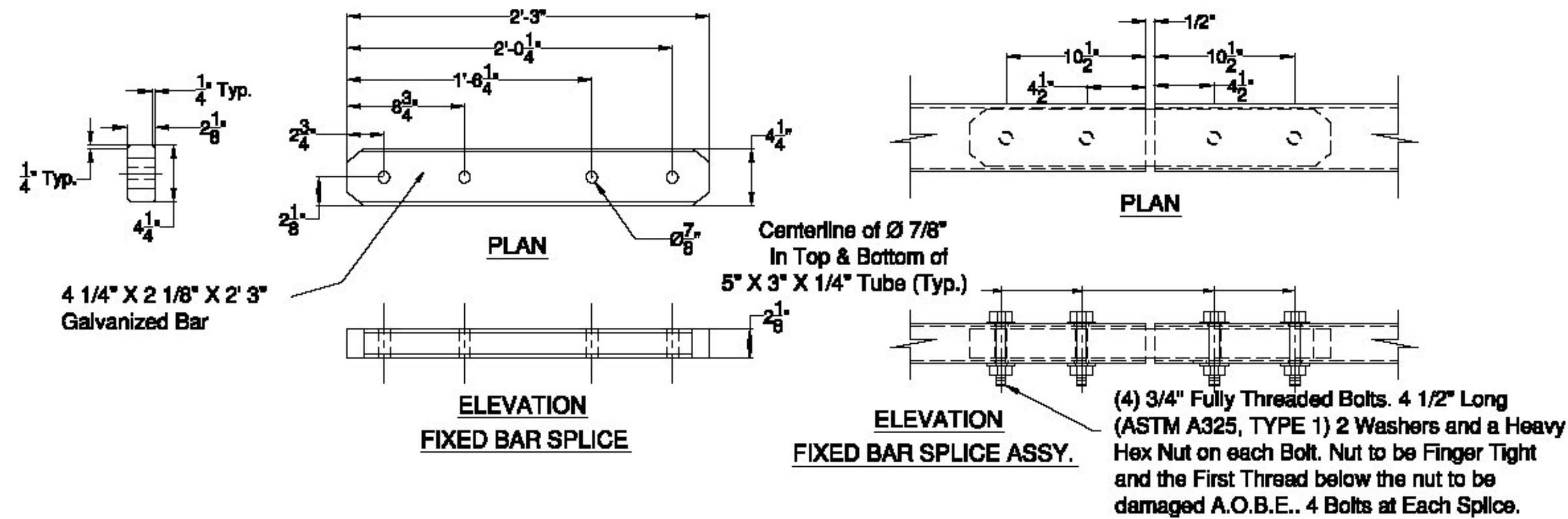
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E				E.P.	E				
V				V					

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: diong@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

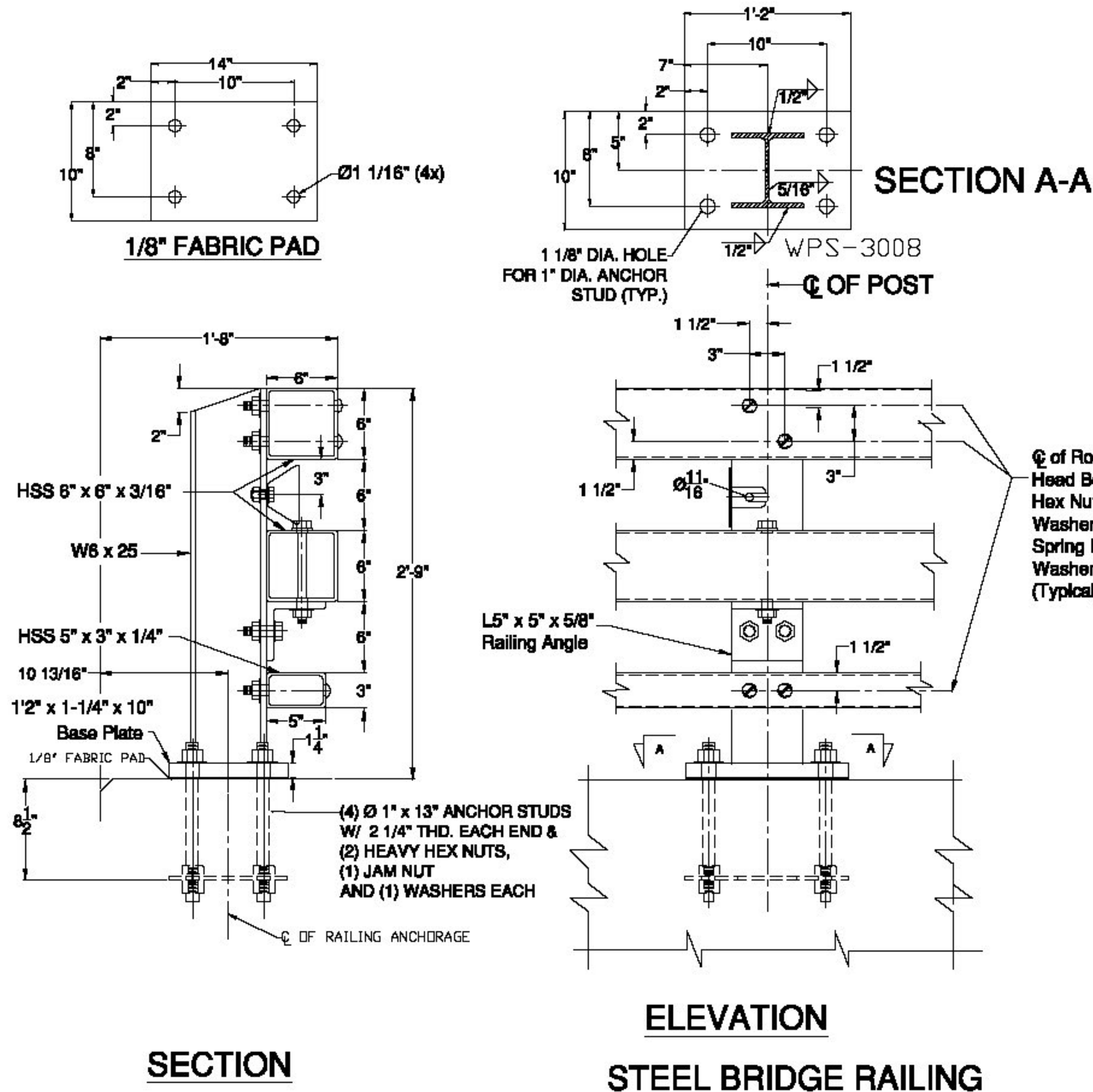
ASME CERTIFIED FABRICATOR

DRAWN	E.P.	11/13/18
CHECKED	D.L.	11/20/18
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO. F.R. LAFAYETTE, BRISTOL		

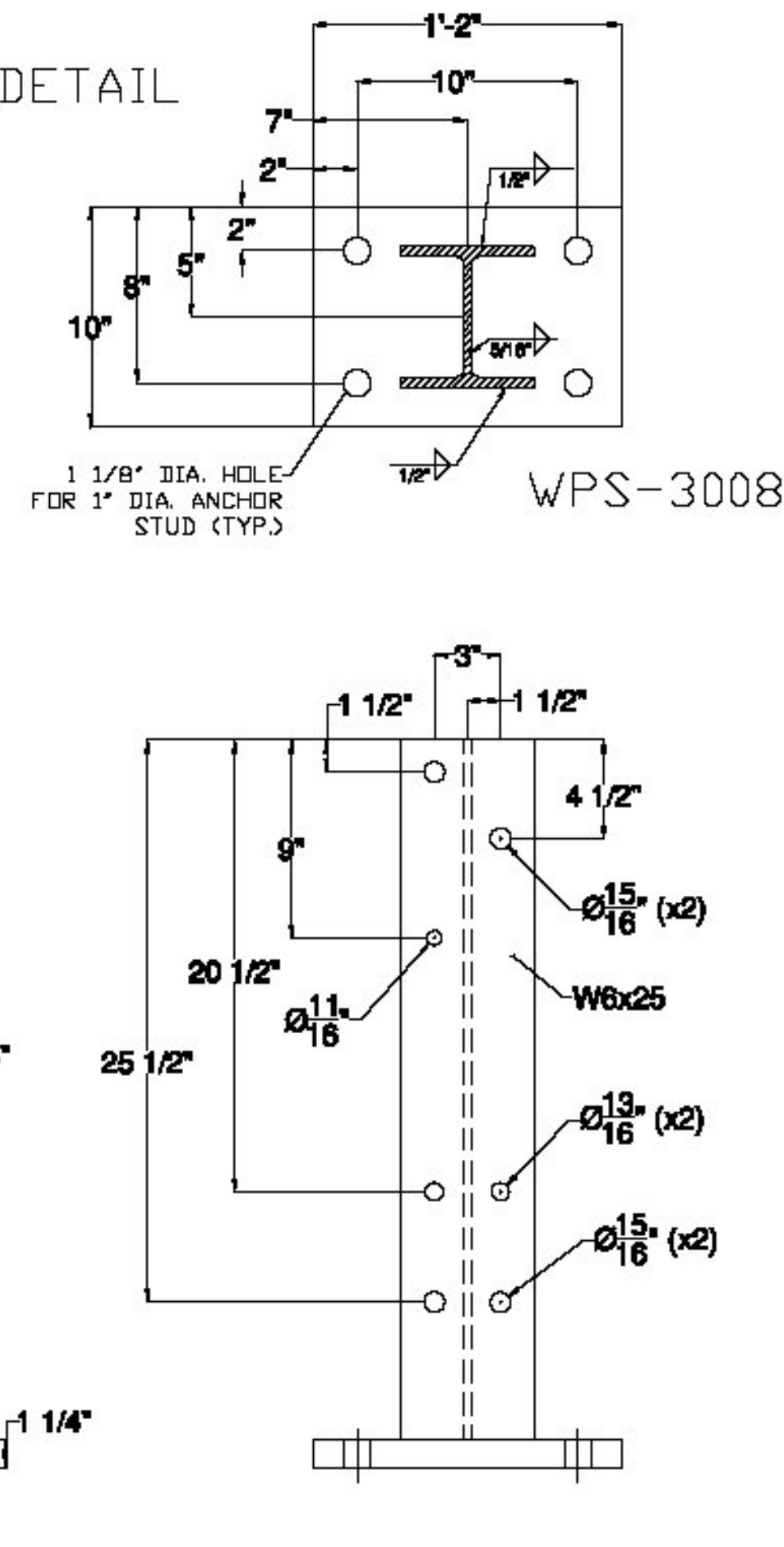
SPLICE BAR - FIXED



SPLICE TUBE - FIXED



BRIDGE POST DETAIL



Vermont Agency of Transportation

RECEIVED

CK'D BY J. Griffin OK'D BY J. Lacroix

December 19, 2013

RESUBMIT NO Approved
BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335

F.R. LAFAYETTE, BRISTOL

SHEET 3 OF 3

APPROVED BY:

BRIDGE RAIL DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

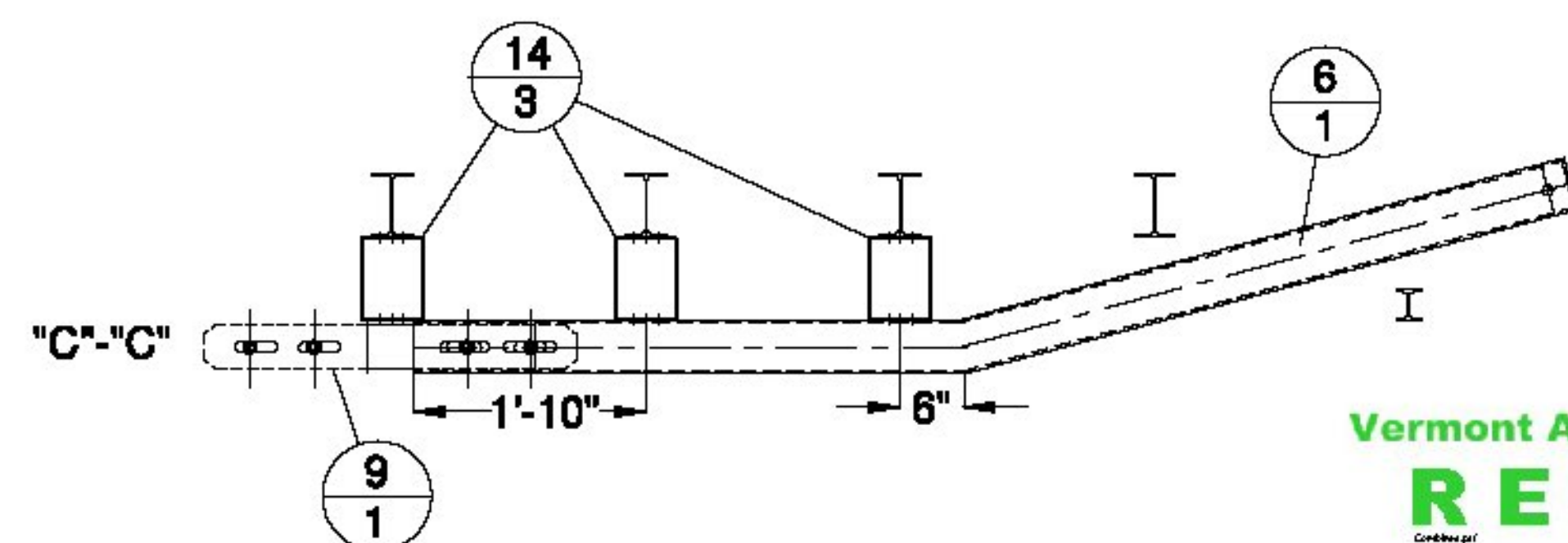
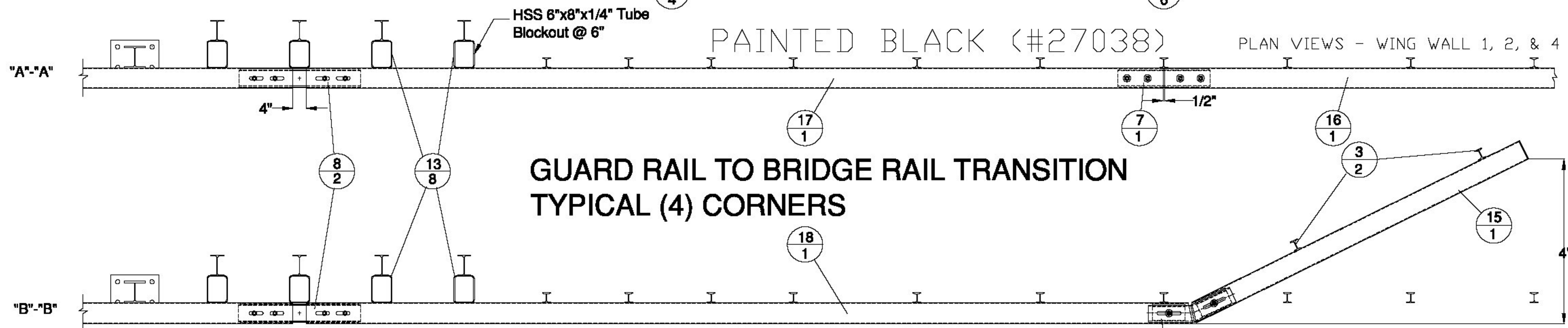
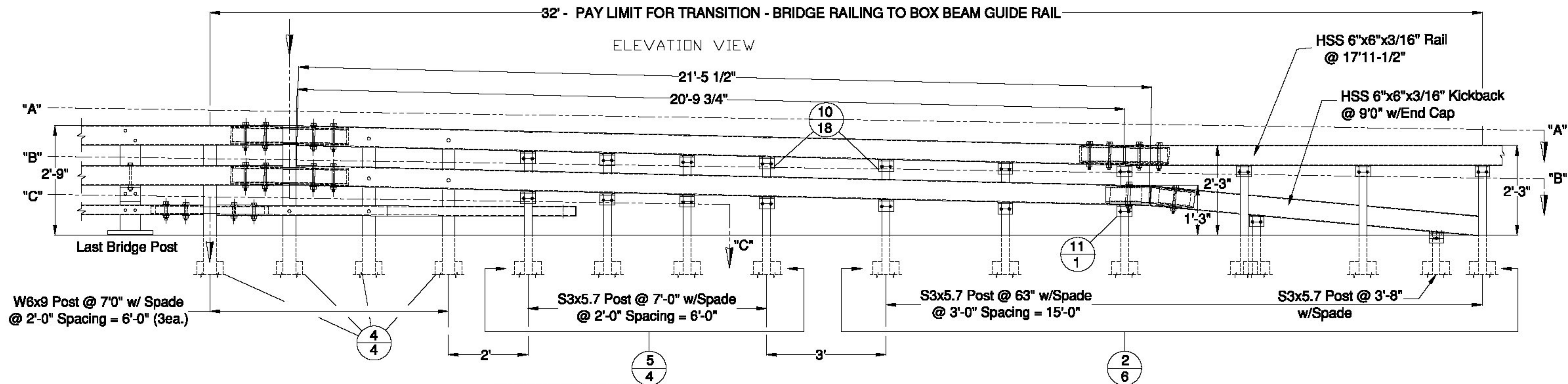


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NO.	DATE	DESCRIPTION	BY
1	11/13/13	DRAWN	E.P.
2	11/20/13	CHECKED	D.L.
3		APPROVED	
4		SCALE	SCHEMATIC

DRAWING NO. F.R. LAFAYETTE, BRISTOL



Vermont Agency of Transportation

RECEIVED

CK'D BY J. Griffin

OK'D BY J. Lacroix

December 19, 2013

RESUBMIT YES
BY J. Lacroix

Rejected
DATE 1/7/2014

Plan view of bent
approach rail or
details located
somewhere else?

ITEM #: 525.335

APPROVED BY:

F.R. LAFAYETTE, BRISTOL

SHEET 1 OF 4

GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

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

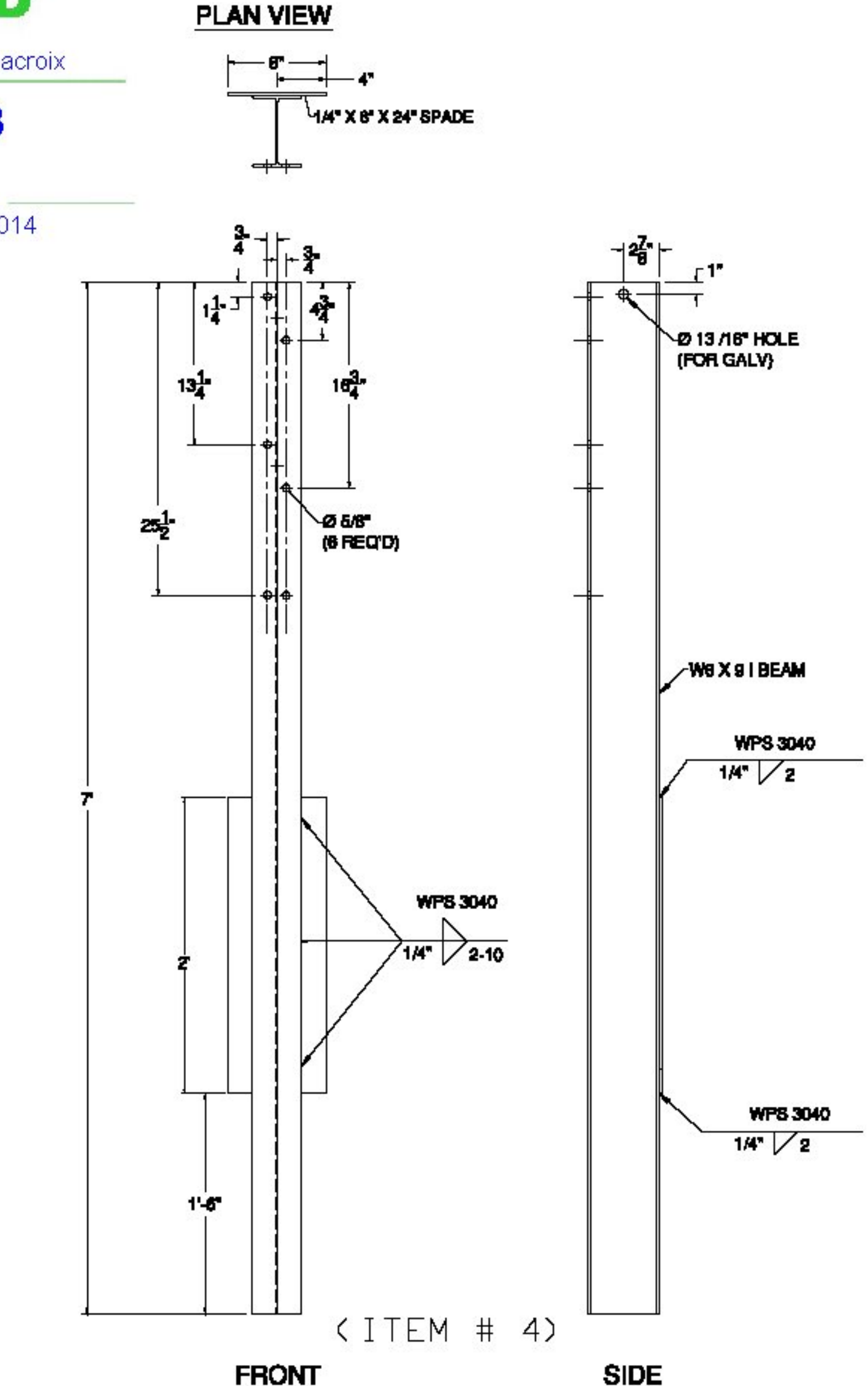
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CHECKED	D.L.	11/20/13
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	F.R. LAFAYETTE, BRISTOL	



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



CERTIFIED
FABRICATOR



BILL OF MATERIALS, (WW4)						
ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)		
2	6	0013.05712	3" I-POST, PUNCH #1, & 20" W/SPD @ 63° LG	AASHTO M 270M	Gr.250 DR	ASTM A36
3	2	0013.07460	3" I-POST, PUNCH W/SPD @ 3° LG	AASHTO M 270M	Gr.250 DR	ASTM A36
4	4	0013.05901	W6X9 POST @ 7" W/SPD & 5/8" HOLES	AASHTO M 270M	Gr.250 DR	ASTM A36
5	4	0013.57010	3" I-POST, PUNCH #1 & 20", W/8X32" SPADE #7	AASHTO M 270M	Gr.250 DR	ASTM A36
6	1	0033.06403	3KX5 BTM TRANS RAIL W/5'-0" KB, EXP END	AS500 Gr. B		
7	1	0033.06646	HSS 5X5 TUBE SPILCE #27" LG W/ 1/4" SHIMS	AS500 Gr. B	F / AS72 Gr 50	
8	2	0033.07330	HSS 5X5 EXP TUBE SPILCE @ 36" LG W/ 1/4" SHIMS	AS500 Gr. B	F / AS72 Gr 50	
9	1	0033.06930	BR EXP BAR SPILCE 2'-1/8" X 4'-1/4" @ 36" LG	AASHTO M 270M	Gr.250 DR	ASTM A36
10	1	0054.00050	REG BB SHELF ANGLES @ 4'-1/2"	AASHTO M 270M	Gr.250 DR	ASTM A36
11	1	0054.00092	WV BB SHELF ANGLES @ 4'-1/2"	AASHTO M 270M	Gr.250 DR	ASTM A36
12	1	0054.00074	HSS 5X5 TUB. END END SPR @ 27" LG	AS500 Gr. B	F / AS72 Gr 50	
13	8	0054.00563	6X8" TRANS. TUBE 8/0 @ 5' LG	AS500 Gr. B		
14	8	0054.00565	6X8" TRANS. TUBE 8/0 @ 3' LG	AS500 Gr. B		
15	1	0054.09000	6X6" BB @ 9'-0" KICKBACK, W/ CAP	AS500 Gr. B	F / A36	
16	0.5	0054.18100	6X6" BB @ 17'-11 1/2", DRILL 3" CC	AS500 Gr. B		
17	1	0054.90092	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END	AS500 Gr. B		
18	1	0054.90093	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END	AS500 Gr. B		
19	17	0060.03355	3/8" X 7 1/2" BOLT, NUT, & 2 FV	A307, A563, F436		
20	19	0060.04100	1/2" X 1-1/2" BOLT, NUT, & FV	A307, A563, F436		
21	22	0060.04120	1/2" X 1-1/2" BOLT, NUT, & FV & LW	A307, A563, F436		
22	06	0060.0435	3/4" X 4-1/2" BOLT, NUT, & FV	A325, A563, F436		
23	12	0060.06340	3/4" X 7-1/2" BOLT, NUT, & FV	A325, A563, F436		
24	6	0060.06370	3/4" X 8" CARR BOLT, NUT, FV & LW	A307, A563, F436		
25	2	0060.06400	3/4" X 8" BOLT, NUT, & FV & LW	A325, A563, F436		

BILL OF MATERIALS, (CW3)				
ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL CASTING
1	6	001302716	3" I-POST, PUNCH Ø 2" W/SPND @ 63" LG	AASHTO M 270M Gr-250 DR ASTM A36
3	2	001302706	3" I-END POST W/SPND @ 3"-8" LG	AASHTO M 270M Gr-250 DR ASTM A36
4	4	001349001	W6X9 POST, Ø 7" W/SPND 1/4" 5/8" HOLES	AASHTO M 270M Gr-250 DR ASTM A36
5	4	001357010	3" I-POST, PUNCH Ø 8" & 20", W/ØX32 SPADE Ø2"	AASHTO M 270M Gr-250 DR ASTM A36
6	1	003380403	3X5" BTM TRANS RAIL W/5"-Ø KB, EXP END	A500 Gr. B
7	1	003300640	HSS 5X5 TUBE SPLICE Ø27" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
8	2	003300730	HSS 5X5 EXP TUBE SPLICE @ 36" LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
9	2	003300930	BR EXP BAR SPLICE 2-1/8" X 4-1/4" @ 36" LG	AASHTO M 270M Gr-250 DR ASTM A36
10	18	005400060	RSB 3/8" SBL ANGLES @ 4"-12" LG	AASHTO M 270M Gr-250 DR ASTM A36
11	005400052	DVY 3/8 SBL ANGLES @ 4"-12" LG	AASHTO M 270M Gr-250 DR ASTM A36	
12	1	005400074	HSS 5X5 DBL BEND TUBE SPL @ 27" LG	A500 Gr. B / A572 Gr 50
13	8	005400563	6X8" TRANS. TUBE 3/Ø @ 6" LG	A500 Gr. B
14	3	005400565	6X8" TRANS. TUBE 3/Ø @ 3" LG	A500 Gr. B
15	1	005400900	6X6" BB @ 9'-0" KICKBACK, W/ CAP	A500 Gr. B / A36
16	0.5	0054 X	6X6" BB @ 17'-11 1/2", DRILL 3" CC, W/ (TBD) BEND	A500 Gr. B
17	1	005400909	6X6" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END	A500 Gr. B
18	1	005400959	6X6" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END	A500 Gr. B
19	17	008004010	3/8" X 7-1/2" BOLT, NUT, & FW	A307, A563, F436
20	008004010	1/2" X 1-1/2" BOLT, NUT, & FW	A307, A563, F436	
21	22	008004120	1/2" X 1-1/2" BOLT, NUT, 2 FW & LW	A307, A563, F436
22	4	008006255	3/4" X 4-1/2" BOLT, NUT, 2 FW	A325, A563, F436
23	12	008006340	3/4" X 7-1/2" BOLT, NUT, 2 FW	A325, A563, F436
24	6	008006370	3/4" X 8" CARR BOLT, NUT, FW & LW	A307, A563, F436
25	2	008006400	3/4" X 8" BOLT, NUT, 2 FW & LW	A325, A563, F436

HARDWARE NOTES	
ITEM #	FUNCTION
19	BOLT RAIL TO SHELF ANGLE (ITEM #10)
20	BOLT SHELF ANGLE (ITEM #'S 10 & 11) TO POST
21	BOLT BLOCK-OUTS (ITEM #'S 13 & 14) TO HEAVY POST
22	(4) PER SPLICE BAR (ITEM #9)
23	(4) PER SPLICE TUBING (ITEM #'S 7 & 8)
24	BOLT RAIL CITEMS #'S 6,17, & 18 TO BLOCK-OUTS (ITEM #'S 13 & 14) (WHERE FASTENED)
25	BOLT TUBING F-BEND SPLICE TUBE (ITEM #12) TO RAIL (ITEM #18) & KICKBACK (ITEM #15) & ITEM #11)

ITEM #: 525.335

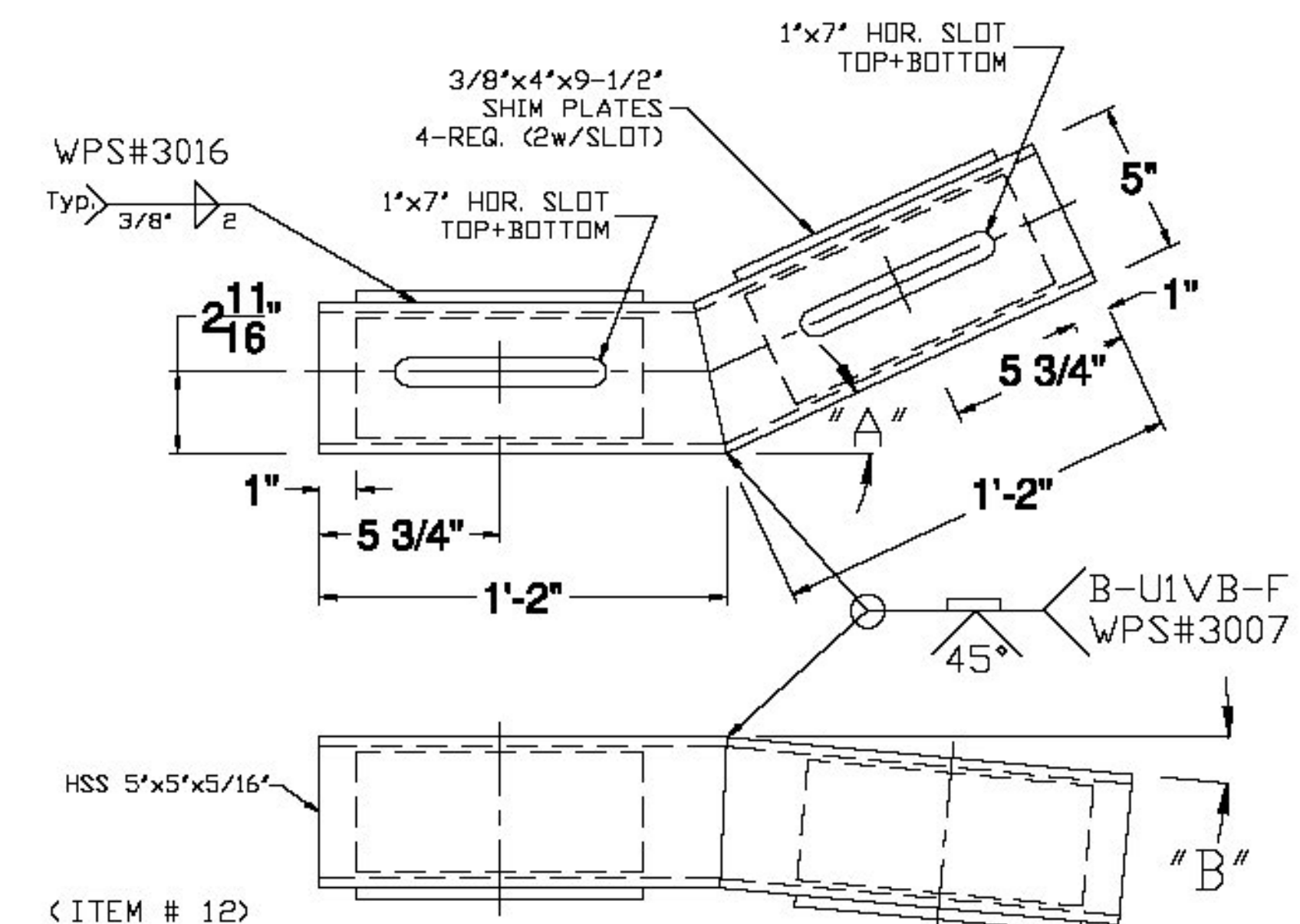
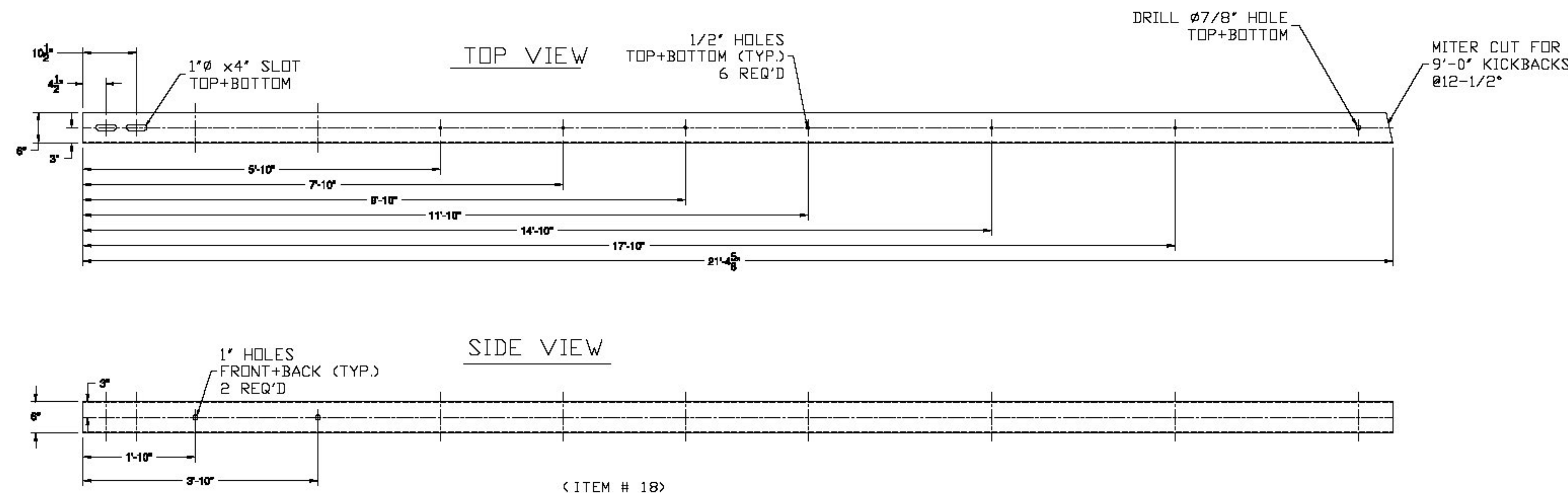
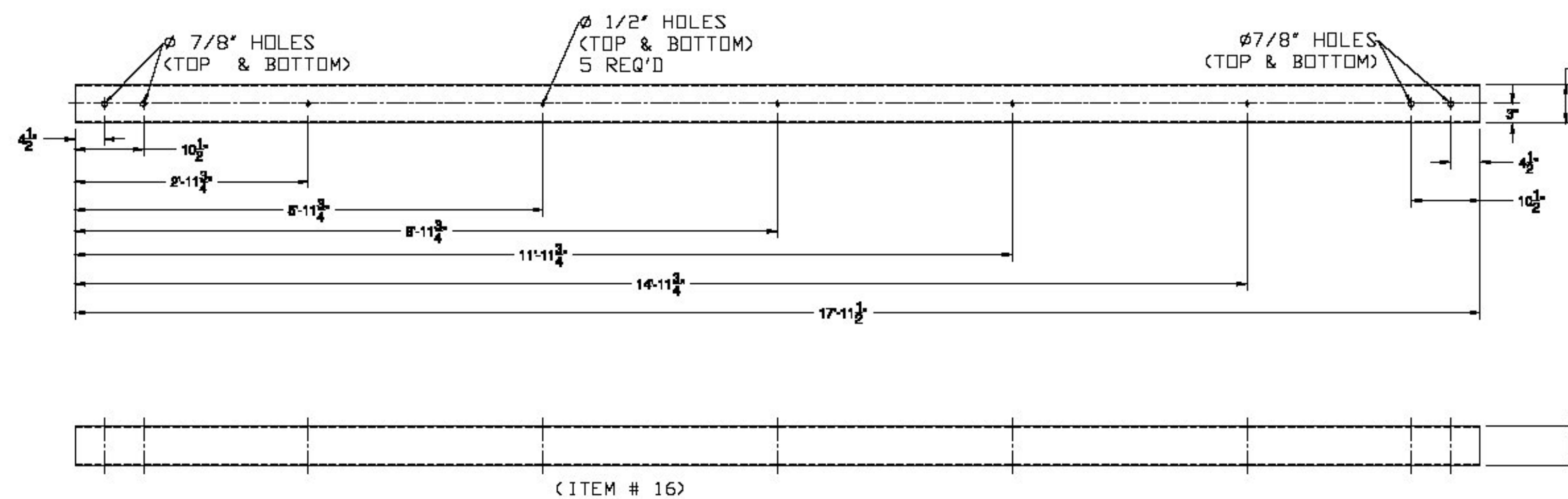
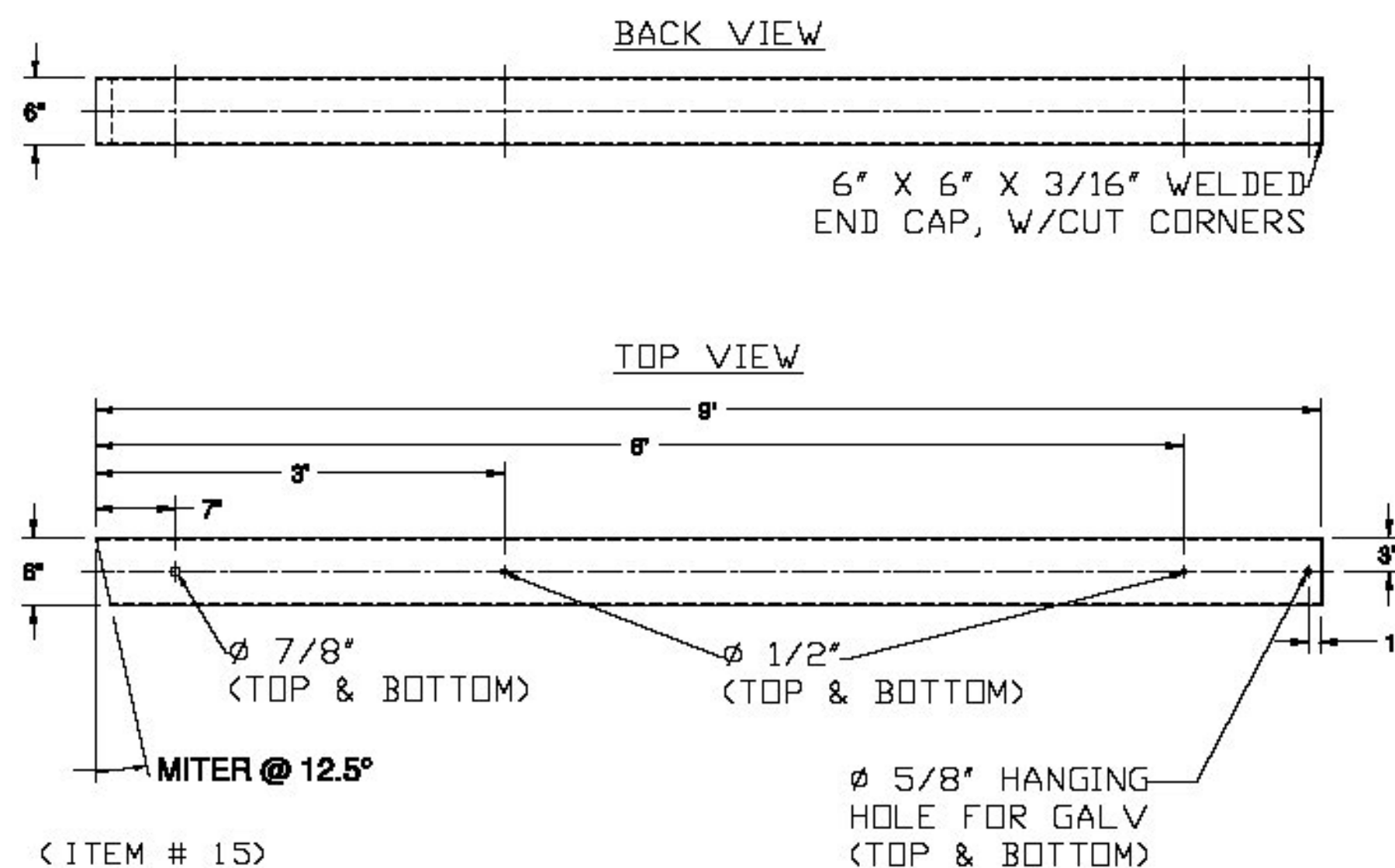
APPROVED BY:

F.R. LAFAYETTE, BRISTOL

GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET
BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL ADDISON COUNTY, VERMONT

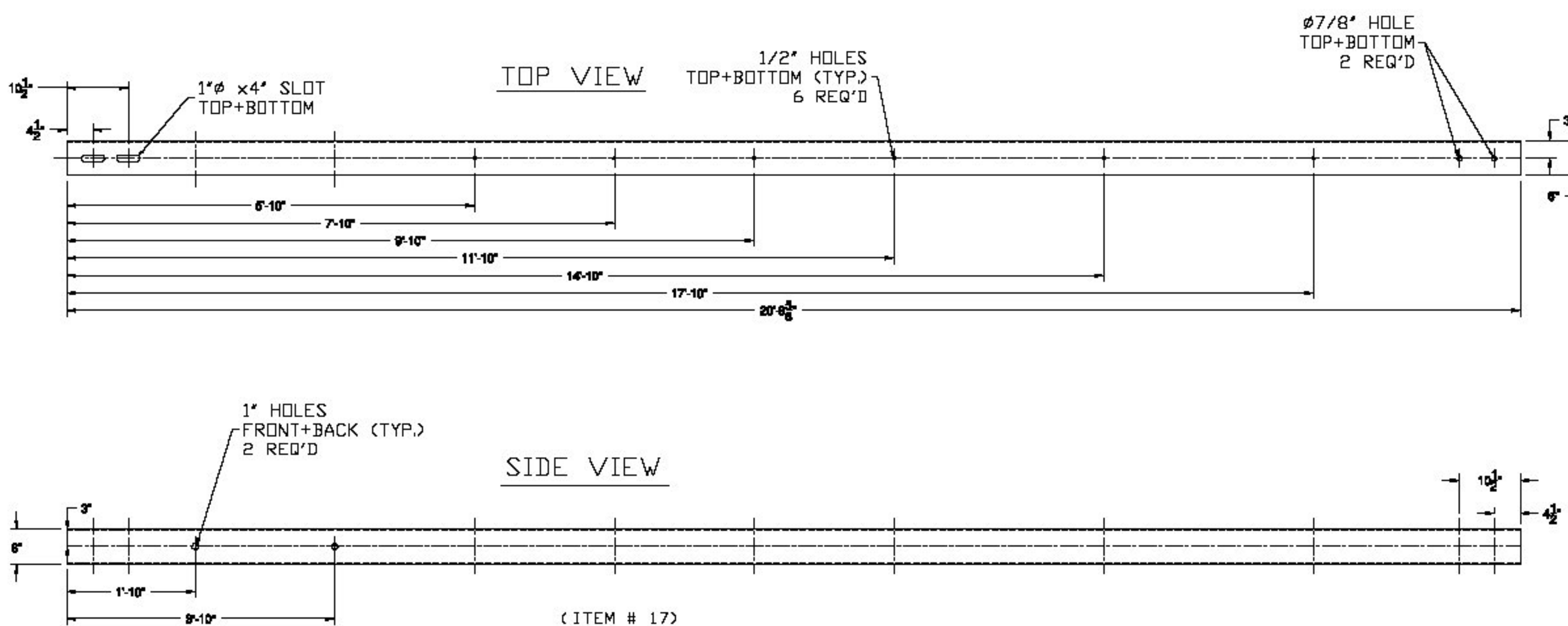
SHEET 2 OF 4

R E V	NO.	DATE	DESCRIPTION	BY	R E V	NO.	DATE	DESCRIPTION	BY															
 ELDERLEE, INC. OAKS CORNERS, NEW YORK 14578 E-Mail: diong@elderlee.com Tel: 315-780-1020 Fax: 315-780-2045						 ASME CERTIFIED FABRICATOR		<table><tr><td>DRAWN</td><td>E.P.</td><td>11/13/13</td></tr><tr><td>CHECKED</td><td>D.L.</td><td>11/20/13</td></tr><tr><td>APPROVED</td><td>-</td><td>-</td></tr><tr><td>SCALE</td><td colspan="2">SCHEMATIC</td></tr><tr><td colspan="3">DRAWING NO. EBJASVEVTE BIRTHY</td></tr></table>		DRAWN	E.P.	11/13/13	CHECKED	D.L.	11/20/13	APPROVED	-	-	SCALE	SCHEMATIC		DRAWING NO. EBJASVEVTE BIRTHY		
DRAWN	E.P.	11/13/13																						
CHECKED	D.L.	11/20/13																						
APPROVED	-	-																						
SCALE	SCHEMATIC																							
DRAWING NO. EBJASVEVTE BIRTHY																								



"A" - SEE PLAN FOR TURN BACK DISTANCE, SET ANGLE ACCORDINGLY.
"B" - TURN DOWN ANGLE SET BY THE 9' MEASUREMENT AT THE END OF THE BOX BEAM.

What are the values
for 'A' and 'B' for each
approach section?



Vermont Agency of Transportation
RECEIVED

CK'D BY J. Griffin OK'D BY J. Lacroix

December 19, 2013

RESUBMIT YES Rejected
BY J. Lacroix DATE 1/7/2014

ITEM #: 525.335

APPROVED BY:

F.R. LAFAYETTE, BRISTOL

SHEET 3 OF 4

GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

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

DRAWN	E.P.	11/13/13
CHECKED	D.L.	11/20/13
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	F.R. LAFAYETTE, BRISTOL	



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OAKS CORNERS, NEW YORK 14518
E-Mail: diong@elderlee.com
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CERTIFIED
FABRICATOR

Technical drawing of a mechanical part showing three views: TOP VIEW, FRONT VIEW, and PLAN VIEW.

TOP VIEW: Shows a rectangular plate with a central slot labeled $1/2" \times 3"$ SLOT. The slot is positioned $3/4"$ from the left and right edges. The overall width is $4\frac{1}{2}"$ and the height is $5"$. Three holes are indicated by circles, with a note: $\emptyset 1"$ HOLES 3 REQ'D (TYP.).

FRONT VIEW: Shows the front of the part with a central slot labeled $5/8" \times 2"$ SLOT. The slot is positioned $3\frac{1}{2}"$ from the left edge and $2"$ from the top edge. The overall width is $4\frac{1}{2}"$ and the height is $3\frac{1}{2}"$. The part is made of $3\frac{1}{2}" \times 5" \times 3/8"$ ANGLE.

PLAN VIEW: Shows the top of the part with a central slot labeled $5/8" \times 2"$ SLOT. The slot is positioned $3\frac{1}{2}"$ from the left edge and $2"$ from the top edge. The overall width is $4\frac{1}{2}"$ and the height is $3\frac{1}{2}"$. The part is made of $3\frac{1}{2}" \times 5" \times 3/8"$ ANGLE.

< ITEM # 11>

PLAN

HSS 5" X 5" X 5/16" @ 2' 3"

Galvanized Tube

WPS 3009

Typ. 1/4" 2-8

4" X 1/4" X 26" Fill Plate (Top & Bottom)

ELEVATION

FIXED SPLICE TUBE

Dimensions: 2'-3", 2'-0 1/4", 1'-6 1/4", 3/4", 1/2" Typ., 2 3/4", 1/2", 2 3/4", 7/8"

PLAN
FIXED TUBE SPLICE ASSY.

Centerline of $\varnothing 7/8"$
in Top & Bottom of
HSS $6 \times 6 \times 3/16"$ Tube (Typ.)

ELEVATION
FIXED TUBE SPLICE ASSY.

(4) $3/4"$ Fully Threaded Bolts. $7 \frac{1}{2}"$ Long
(ASTM A325, TYPE 1) 2 Washers and a
Heavy Hex Nut on each Bolt. Nut to be Finger
Tight and the First Thread below the nut to be
damaged A.O.B.E.. 4 Bolts at Each Splice.

Vermont Agency of Transportation
RECEIVED
Codebook

CK'D BY J. Griffin **OK'D BY** J. Lacroix

December 19, 2013

RESUBMIT NO **Approved**

BY J. Lacroix **DATE** 1/7/2014

Technical drawing showing the Top and Front views of a mechanical part.

Top View:

- Overall length: $10\frac{1}{2}"$
- Overall width: $2\frac{1}{2}"$
- Left section width: $4\frac{1}{2}"$
- Left section length: $5"$
- Feature: $1" \times 4"$ SLOT (TOP & BOTTOM)
- Feature: $\phi 1"$ DRAIN HOLE (TOP & BOTTOM)
- Angle: 45°
- Angle: 15°
- Section length: $4'-4"$
- Section length: $6"$
- Section length: $5"$
- Feature: TACK WELD ON $1/4"$ END CAP

Front View:

- Overall length: $3'-10"$
- Section length: $1'-10"$
- Section width: $1\frac{1}{2}"$
- Feature: $\phi 1"$ HOLES (FRONT & BACK)

Annotations:

- (WPS-3007)
- (1)B-U1VB
- (ITEM # 6)

Orthographic projection of a mechanical part. The views and dimensions are as follows:

- FRONT VIEW (POST SIDE):** A vertical rectangle with a total height of 6" and a total width of 6". It features a central vertical slot that is 3" wide and 4" deep. The slot is positioned 1 1/4" from the left edge and 1 1/4" from the bottom edge. There are two circular holes, each with a diameter of 5/8" (2X), located at the top and bottom of the slot. The top hole is 3" from the top edge, and the bottom hole is 3" from the bottom edge. The distance between the two holes is 4".
- BACK VIEW (RAIL SIDE):** A vertical rectangle with a total height of 6" and a total width of 6". It features a central vertical slot that is 3" wide and 4" deep. The slot is positioned 1 1/4" from the left edge and 1 1/4" from the bottom edge. There are two circular holes, each with a diameter of 5/8" (2X), located at the top and bottom of the slot. The top hole is 3" from the top edge, and the bottom hole is 3" from the bottom edge. The distance between the two holes is 4".
- Top View:** A rectangle with a total width of 8" and a total height of 1 1/4". It features a central vertical slot that is 3" wide and 4" deep. The slot is positioned 1 1/4" from the left edge and 1 1/4" from the bottom edge. There are two circular holes, each with a diameter of 5/8" (2X), located at the top and bottom of the slot. The top hole is 3" from the top edge, and the bottom hole is 3" from the bottom edge. The distance between the two holes is 4".

C ITEM # 130

Orthographic projection of a mechanical part showing front, top, and back views with dimensions:

- FRONT VIEW:** Shows a rectangular part with a total height of 3" and a total width of 12". There is a central circular hole with a diameter of $\varnothing 1"$. The hole is positioned 12" from the left edge and 12" from the bottom edge.
- TOP VIEW:** Shows a rectangular part with a total width of 3" and a total height of 8".
- BACK VIEW:** Shows a rectangular part with a total width of 12" and a total height of 21". There are two circular holes, each with a diameter of $\varnothing \frac{5}{8}"$. The holes are positioned 12" from the left edge and 12" from the bottom edge.

APPROVED BY:

SHEET 4 OF 4

BRISTOL, BRO 1445 (32), SOUTH STREET, BRIDGE #31
TOWN OF BRISTOL, ADDISON COUNTY, VERMONT

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

ELDERLEE, INC.

OAKS CORNERS, NEW YORK 14578

E-Mail: diong@elderlee.com

Tel: 315-789-6670 Fax: 315-789-6615

DRAWN E.P. 11/13/13

CHECKED D.L. 11/20/13

APPROVED . .

SCALE **SCHEMATIC**

DRAWING NO. FRL LAFAYETTE, BRISTOL

RECEIVED

CK'D BY JWC

OK'D BY

December 19, 2013

WELDING PROCEDURE SPECIFICATION

RESUBMIT NO

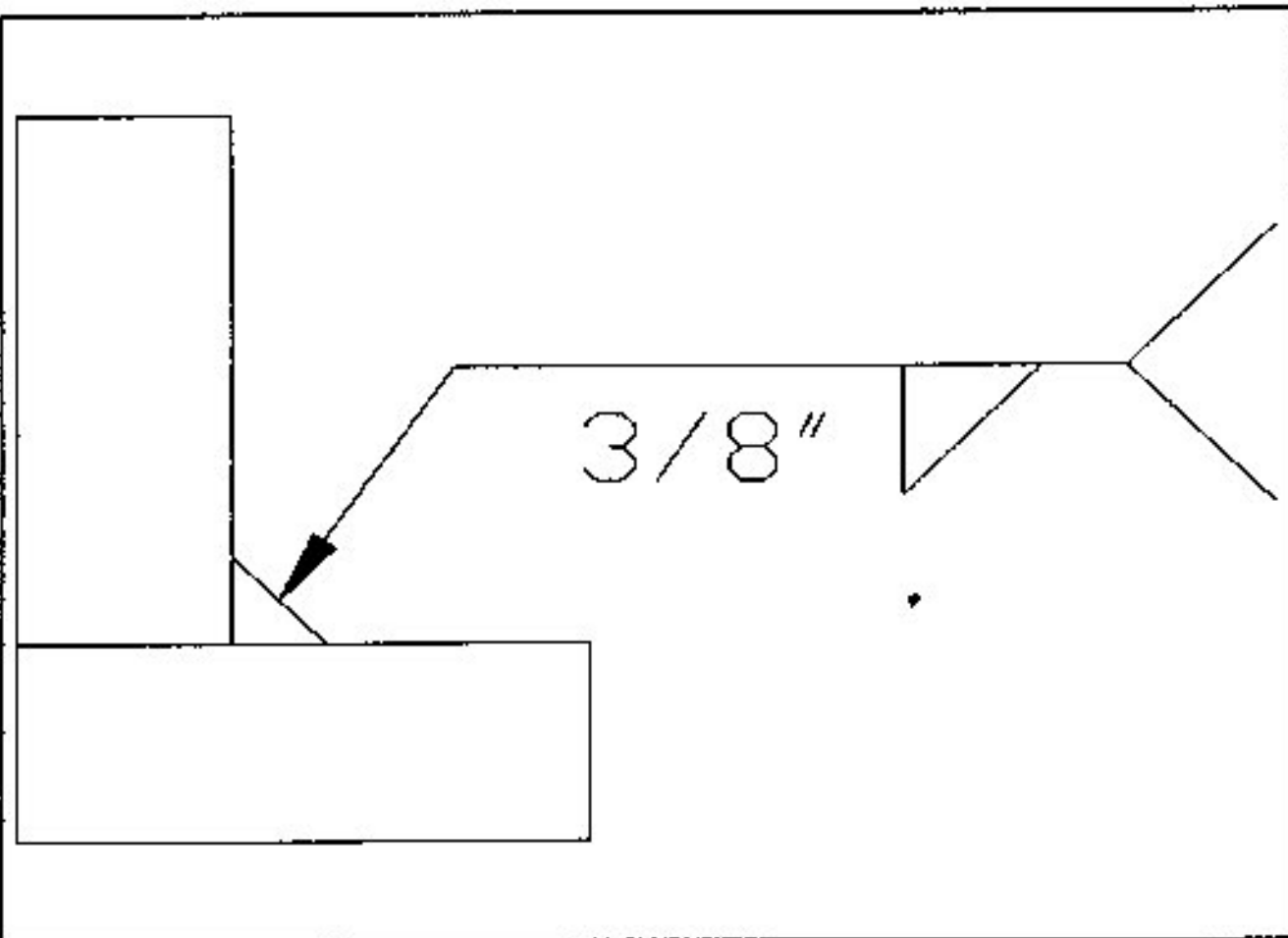
Approved

BY J. Lacroix

DATE 1/7/2014

Material Specification	ASTM-A36 A709 GR 36 CVN
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.20- 95
Filler Metal Classification	E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
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	300	26	14	
Variable	LIMITS	270	24	12.6	
		TO	TO	TO	
		330	28	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. 3016

Contractor Elderlee, Inc.

Revision No. _____

Authorized By RANDY SCOTT

Date 1/3/2013

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CK'D BY JWC

OK'D BY

December 19, 2013

WELDING PROCEDURE SPECIFICATIONRESUBMIT NO
BY J. LacroixApproved
DATE 1/7/2014

Material Specification	A36
Welding Process	GMAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT
Filler Metal Specification	A5.18
Filler Metal Classification	L-50 .052 LINCOLN
Flux	N/A
Shielding Gas	90% ARGON /10% CO2 Dew Point -40DEG F Flow Rate 50 CFM
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	430	32	13	
		387	29	12	
		TO	TO	TO	
		473	34	14	

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

Procedure No. 3040

Contractor Elderlee, Inc.

Revision No.

Authorized By RANDY SCOTT

Date 12/20/2011

RECEIVED

CK'D BY JWC

OK'D BY

December 19, 2013

WELDING PROCEDURE SPECIFICATIONRESUBMIT NO
BY J. LacroixApproved
DATE 1/7/2014

Material Specification A500 GR B
 Welding Process FCAW
 Manual or Machine SEMIAUTOMATIC
 Position of Welding FLAT
 Filler Metal Specification A5.20 - 95
 Filler Metal Classification E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
 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	TO	TO	
		330	28	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. 3007

Contractor Elderlee, Inc.

Revision No. _____

Authorized By RANDY SCOTT

Date 5/29/2013

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RESUBMIT NO

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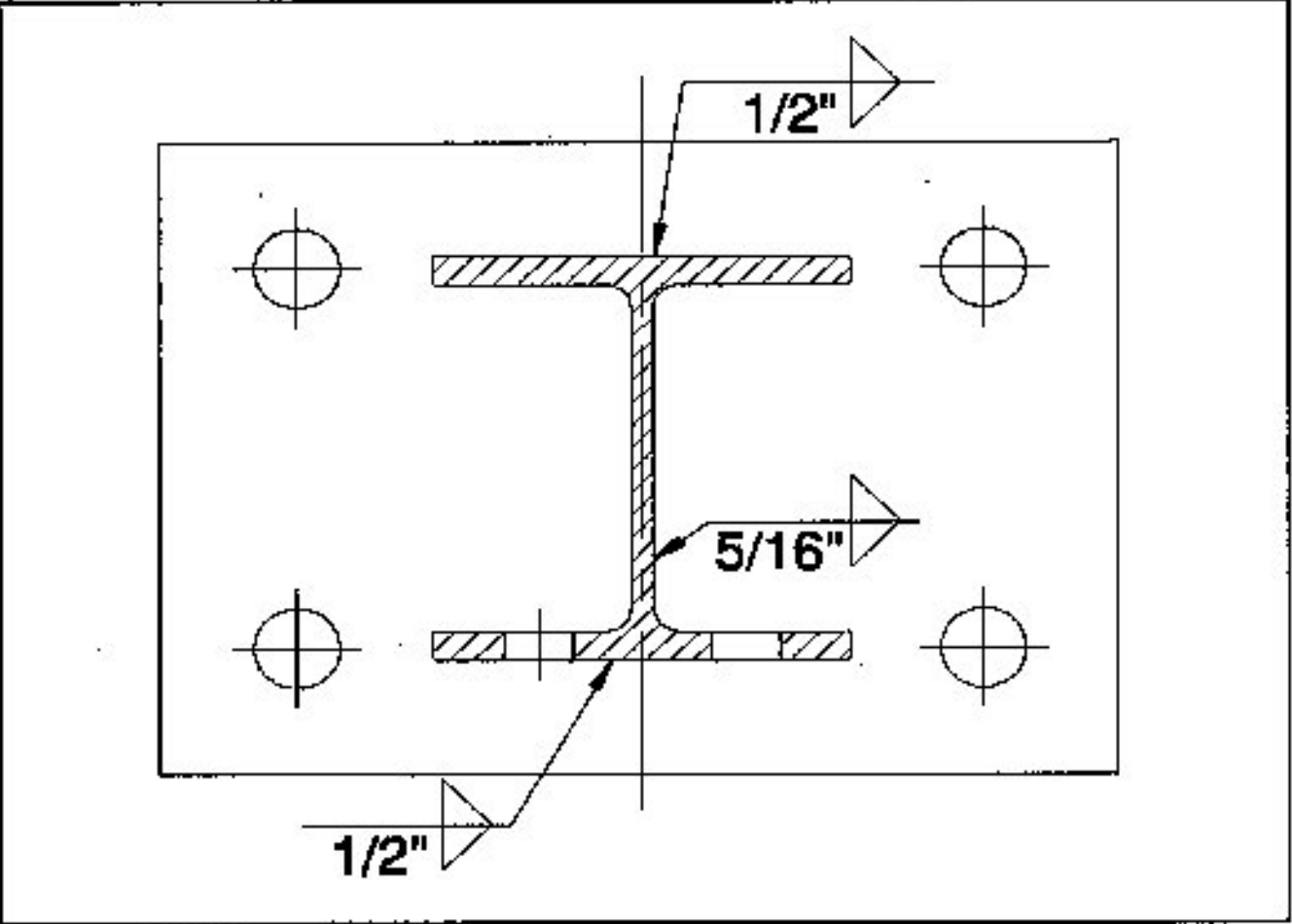
BY J. Lacroix

DATE 1/7/2014

WELDING PROCEDURE SPECIFICATION

Material Specification A572 GRD. 50 /A992-06a
Welding Process FCAW
Manual or Machine SEMAUTOMATIC
Position of Welding FLAT
Filler Metal Specification A5.20
Filler Metal Classification E70 LINCOLN OUTERSHEILD
Flux N/A
Shielding Gas CO 2 Dew Point -40DEG F Flow Rate 50 CFM
Single or Multiple Pass SINGLE (45 TO 63 CFM)
Single or Multiple Arc N/A
Welding Current DC
Polarity DCEP
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	3/32	390	27	12	
Variable	LIMITS	351 TO 429	25 TO 29	11 TO 13	

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

Procedure No. 3008

Contractor Elderlee, Inc.

Revision No. _____

Authorized By RANDY SCOTT

Date 5/29/2013

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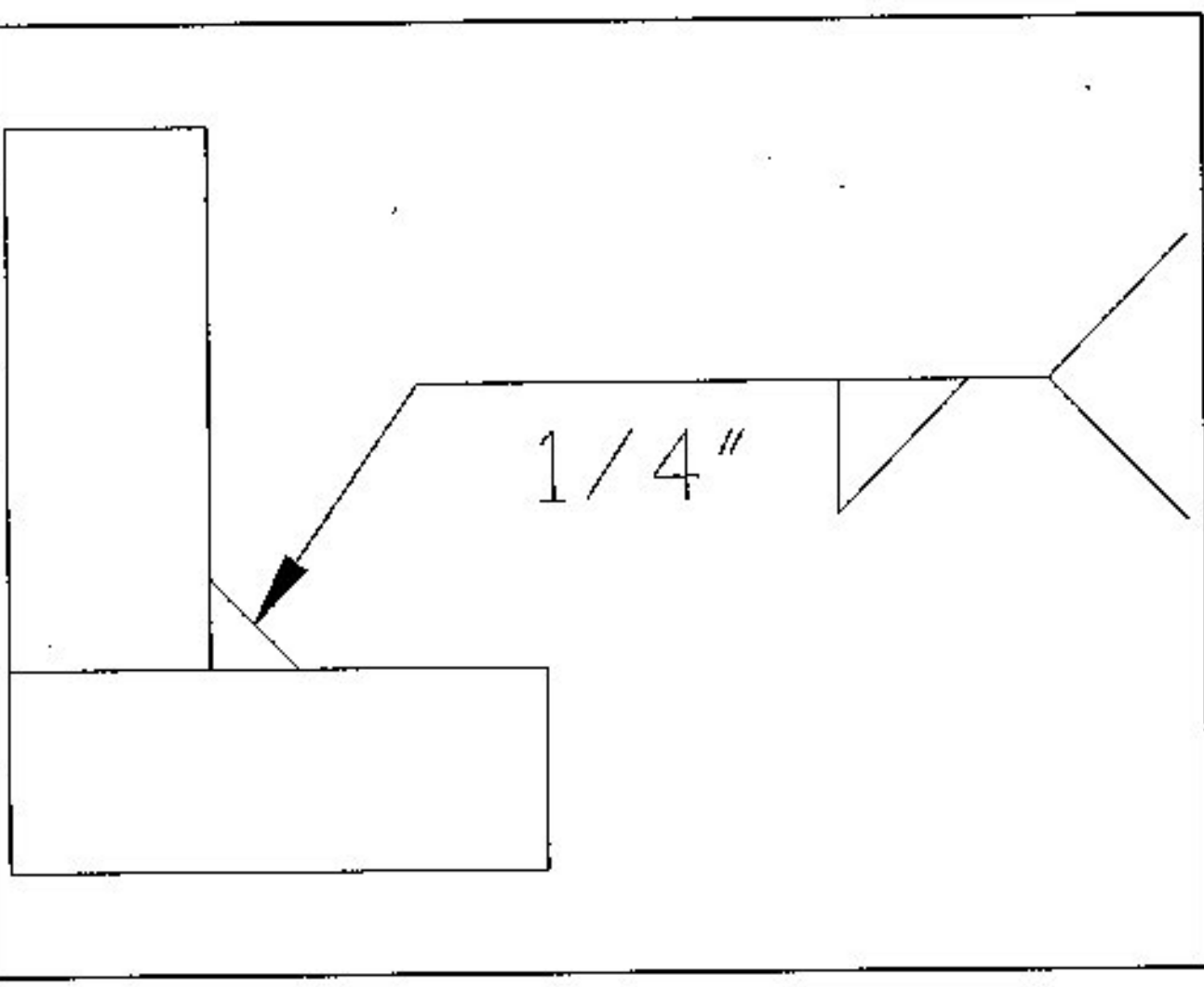
OK'D BY

December 19, 2013

WELDING PROCEDURE SPECIFICATIONRESUBMIT NO
BY J. LacroixApproved
DATE 1/7/2014

Material Specification A709 TO A500 GR B
Welding Process FCAW
Manual or Machine SEMAUTOMATIC
Position of Welding FLAT
Filler Metal Specification A5.20 - 95
Filler Metal Classification E71T-1H8 E71T-9H8 LINCOLN ULTRACORE
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	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. 3009

Contractor Elderlee, Inc.

Revision No.

Authorized By RANDY SCOTT

Date 5/22/2013

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 + 50W
 Welding process Submerged ARC welding
 Manual or machine Machine
 Position of welding Flat + Horizontal
 Filler metal specification AWS A5-23
 Filler metal classification E8A2-ENiK-Ni1-H8
 Flux Lincoln 960-Elec LA-75
 Shielding gas NA Flow rate NA
 Single or multiple pass Single + Multiple
 Single or multiple arc Single
 Welding current DC
 Polarity DCRP
 Welding progression See Detail
 Root treatment Grind-wire Brush-Area Free of slag-RUST & Moisture
 Preheat and interpass temperature See Table
 Postheat temperature NA
 Heat Input Min 51.3 kJ/in Max 73.4 kJ/in PCR-1 = 64.1 kJ/in

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DATE 11/08/13

VT-AOT; Bristol

Bridge No. 31

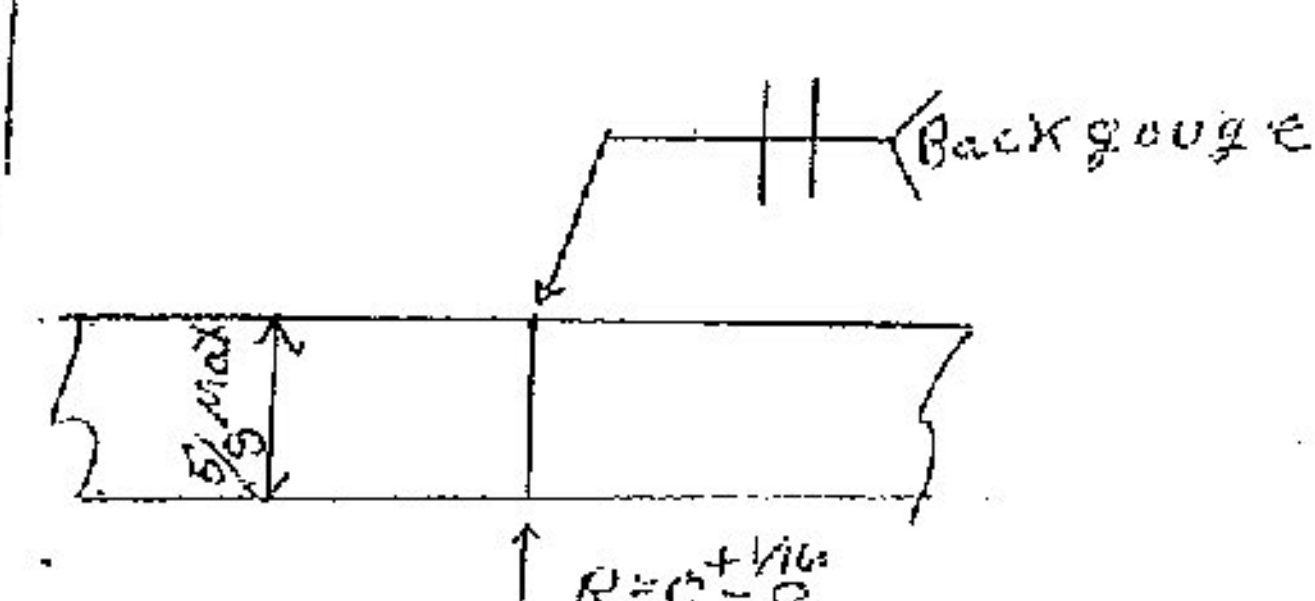
Proj No. BRD 1445 (30)

C.B.S.S. No. 534

Welding Process (Base Metal)	Thickness of Thickest Part at Point of Welding, mm (in)			
	To 20 mm [3/4 in] Incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
SAW; OMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Cr. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; OMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Cr. HPS 485W [HPS 70W], 690 [100], 690W [100W])	10 [50]	30 [125]	80 [175]	110 [225]

WELDING PROCEDURE

Max Interpass - 430°F

Pass no.	Electrode size	Welding current		Travel speed	Sec 5.13
		Amperes	Volts		
<u>5</u> <u>32</u>	<u>5</u>	<u>620</u>	<u>31</u>	<u>18 IPM</u>	<u>AWS D1-5</u> Joint detail <u>BL1a-S</u> 
		<u>570</u>	<u>29</u>	<u>15</u>	
		<u>70</u>	<u>70</u>	<u>70</u>	
		<u>650</u>	<u>33</u>	<u>20</u>	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 202A ST OF VT

Revision no. _____

Contractor Casco Bay Steel

Authorized By Paul E. [Signature]

Date April-13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 + 50W
 Welding process Submerged ARC welding
 Manual or machine Machine
 Position of welding Flat + Horizontal
 Filler metal specification AWS A5-23
 Filler metal classification E8018-Ni1-K-Ni1-H8
 Flux Lincoln 960-Elec LA-75
 Shielding gas NA Flow rate NA
 Single or multiple pass Single + Multiple
 Single or multiple arc Single
 Welding current DC
 Polarity DC EP
 Welding progression See Detail
 Root treatment Grind - wire brush - Area free of slag - RUST & Moisture
 Preheat and interpass temperature See Table
 Postheat temperature NA
 Heat Input Min 51.3 KJ/in Max 73.4 KJ/in PQR-1-64.1 KJ/in

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November 4, 2013

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 BY James Lacroix DATE 11/08/2013

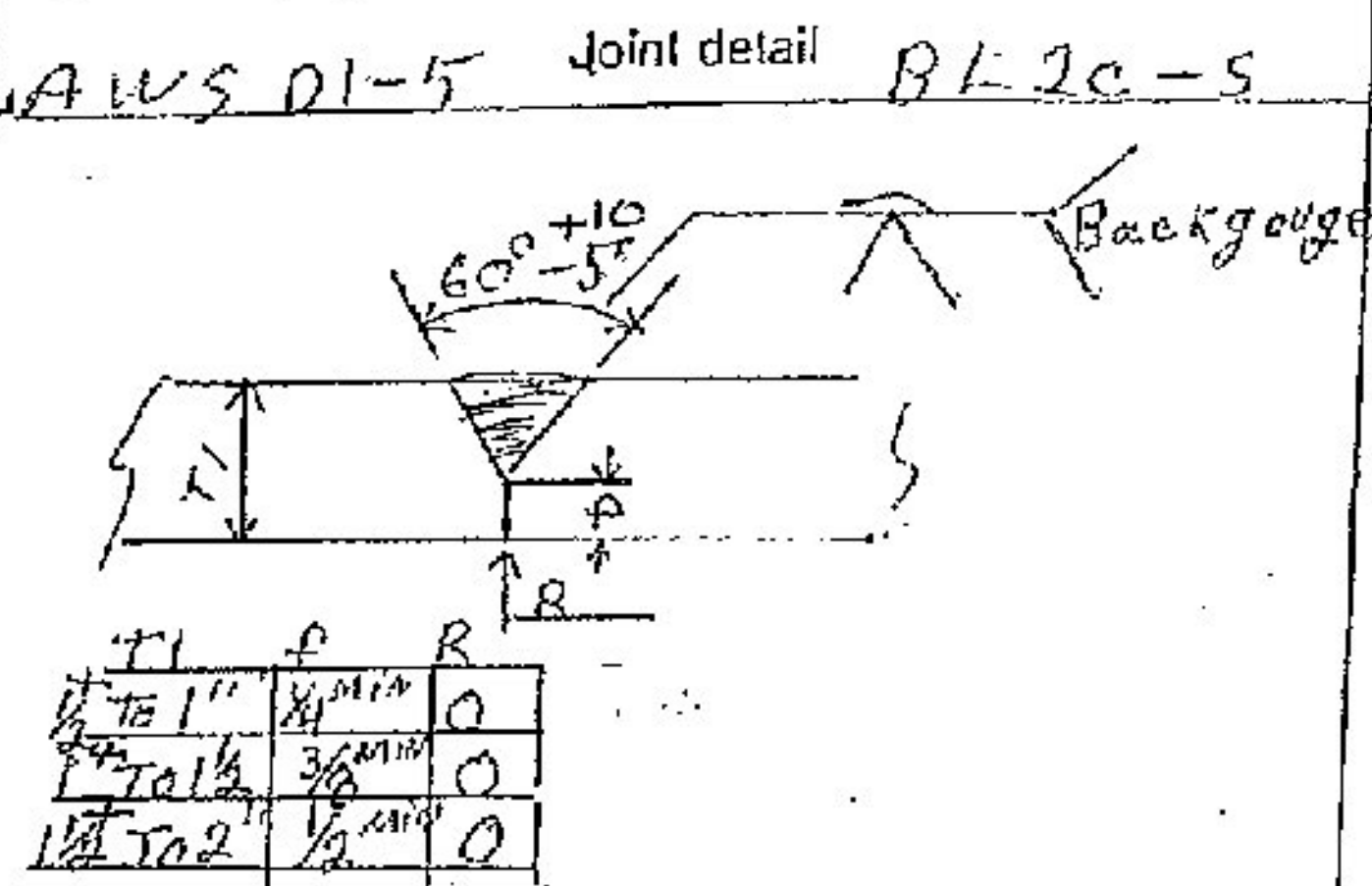
VT-ACT, Bristol
 Bridge No. 31
 Proj. No. BRD 1445(32)
 C.B.S. NO. 534

Welding Process (Base Metal)	Minimum Preheat and Interpass Temperature, °C (°F)			
	Thickness of Thickest Part at Point of Welding, mm (in)	Over 20 mm (3/4 in) to 40 mm (1-1/2 in) Incl.	Over 40 mm (1-1/2 in) to 65 mm (2-1/2 in) Incl.	Over 65 mm (2-1/2 in)
SAW; OMAW; FCAW; SMAW (M270M (M270) (A 709M (A 709)) Gr. 250 (36), 345 (50), 345 W (50W), HPS 345W (HPS 50W))	To 20 mm (3/4 in) Incl.	10 (50)	20 (70)	65 (150)
SAW; OMAW; FCAW; SMAW (M270M (M270) (A 709M (A 709)) Gr. 485 W (HPS 70W), 690 (100), 690 W (100W))	To 20 mm (3/4 in) Incl.	10 (50)	50 (125)	80 (175)

WELDING PROCEDURE

Max Interpass - 430°F

Pass no.	Electrode size	Welding current		Travel speed	See 5.13
		Amperes	Volts		
5 32	5	620	31	18 IPM	AWS D1-5 Joint detail RL-2c-5
		570	29	15	
		TO	TO	TO	
		650	33	20	



This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 202^B ST OF VT

Revision no. _____

Contractor Casco Bay Steel

Authorized By Paul E. J. J.

Date April 13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 + 50W
 Welding process Submerged ARC welding
 Manual or machine Machine
 Position of welding Flat + Horizontal
 Filler metal specification AWS A5-23
 Filler metal classification E8018-EN11K-Ni1-H8
 Flux Lincoln 960-Elec LA-75
 Shielding gas Ar Flow rate Ar
 Single or multiple pass Single & Multiple
 Single or multiple arc Single
 Welding current DC
 Polarity DCRP
 Welding progression See Detail
 Root treatment Grind - wire brush - Area free of slag - RUST & Moisture
 Preheat and interpass temperature See Table
 Postheat temperature Ar
 Heat Input Min 51.3 kJ/in Max 73.4 kJ/in PCR-1 = 64.1 kJ/in

Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	To 20 mm [3/4 in] Incl.	Thickness of Thickest Part at Point of Welding, mm [in]			Over 65 mm [2-1/2 in]
		Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]	
SAW; OMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Or. 250 [3G], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]	
SAW; OMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Or. HPS 485W [HPS 70W], 690 [100], 690W [100W])	10 [50]	50 [125]	80 [175]	110 [225]	

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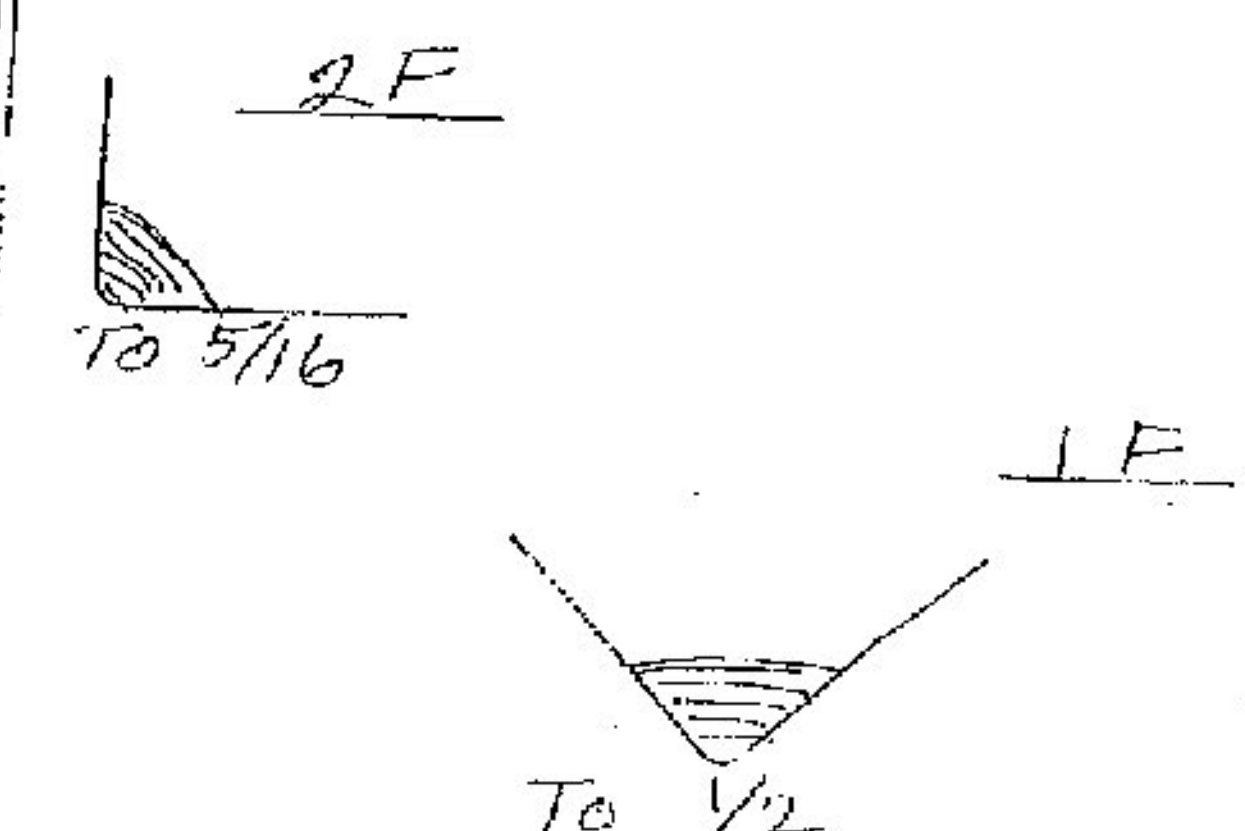
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BY James Lacroix

DATE 11/08/2013

VT-ACT; Bristol
 Bridge No. 31
 Proj. No. BRD 1445 (32)
 C.B.S.S. NO. 534

WELDING PROCEDURE

Pass no.	Electrode size	Welding current		Travel speed	See 5.13
		Amperes	Volts		
		620	31	18 IPM	AWS D1-5 Joint detail Fillet 
		570	29	15	
		70	70	70	
		650	33	20	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 201 - ST OF VT 1

Contractor Casco Bay Steel

Revision no. _____

Authorized By Paul E. [Signature]

Date April 13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM - Gr 50-50w
Welding process Submerged ARC welding Power source Power source
Manual or machine Machine
Position of welding Flat + Horizontal
Filler metal specification A5-23
Filler metal classification E802-ENi1-Ni1-H8
Flux Lincoln 960-Elec LA 75
Shielding gas NA Flow rate NA
Single or multiple pass Single + Multiple
Single or multiple arc Single
Welding current Alternating
Polarity AC
Welding progression See Details
Root treatment Grind - wire brush - Area Free of SLAG - RUST - Moisture
Preheat and interpass temperature See Table
Postheat temperature NA
Heat input Min 47.1 KJ/in Max 74.0 KJ/in PQR - PWT - 67.3 KJ/in

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Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	To 20 mm [3/4 in] Incl.	Thickness of Thickest Part at Point of Welding, mm [in]		Over 65 mm [2-1/2 in]
		Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Or. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Or. HPS 485W [HPS 70W], 690 [100], 690W [100W])	10 [50]	50 [125]	80 [175]	110 [225]

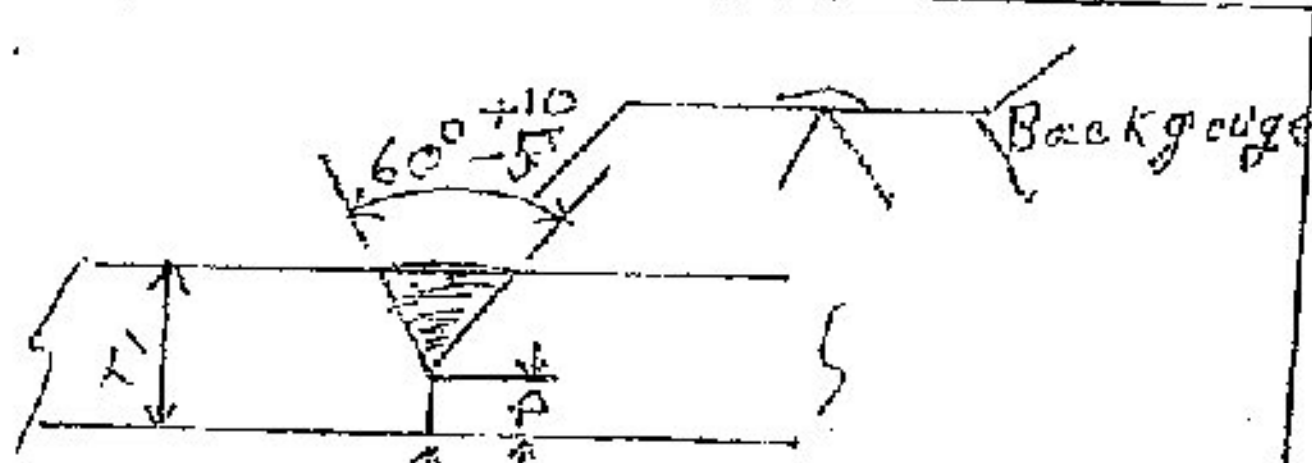
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November 4, 2013

RESUBMIT No Approved
BY James Lacroix DATE 11/08/2013

VT-AOT, Bristol
Bridge No. 31
Proj No. BRD 1445 (30)
CBSS No. 534

WELDING PROCEDURE

Max Interpass = 460°F

Pass no.	Electrode size	Welding current		Travel speed	See 5.13
		Amperes	Volts		
AS Reg.	5/32	827	38	28 IPM	
		744	35	24	
		70	70	70	
		910	41	32	

71	1/8	0
72	1/8	0
73	1/8	0

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. PW202B ST of VT

Contractor Casco Bay Steel

Authorized By Paul E. Woodale

Date April-13-2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM - Gr 50 - 50W
 Welding process Submerged ARC welding Power source
 Manual or machine Machine
 Position of welding Flat + Horizontal
 Filler metal specification A5-23
 Filler metal classification E8A2-ENi1-Ni1-H8
 Flux Lincoln 960 - Elec. LA 75
 Shielding gas NA Flow rate NA
 Single or multiple pass Single - Multiple
 Single or multiple arc Single
 Welding current Alternating
 Polarity AC
 Welding progression See Details
 Root treatment Grind - wire brush - Area free of slag - rust - moisture
 Preheat and interpass temperature See Table
 Postheat temperature NA
 Heat input Min 47.1 KJ/in Max 24.0 KJ/in PQR - PW1 - 67.3 KJ/in

Minimum Preheat and Interpass Temperature, °C [°F]

Welding Process (Base Metal)	To 20 mm [3/4 in] Incl.	Thickness of Thickest Part at Point of Welding, mm [in]		
		Over 20 mm [3/4 in] to 40 mm [1-1/2 in] Incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] Incl.	Over 65 mm [2-1/2 in]
SAW; OMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W (HPS 50W))	10 [50]	20 [70]	65 [150]	110 [225]
SAW; OMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. HPS 485W (HPS 70W), 690 [100], 690W [100W])	10 [50]	50 [125]	80 [175]	110 [225]

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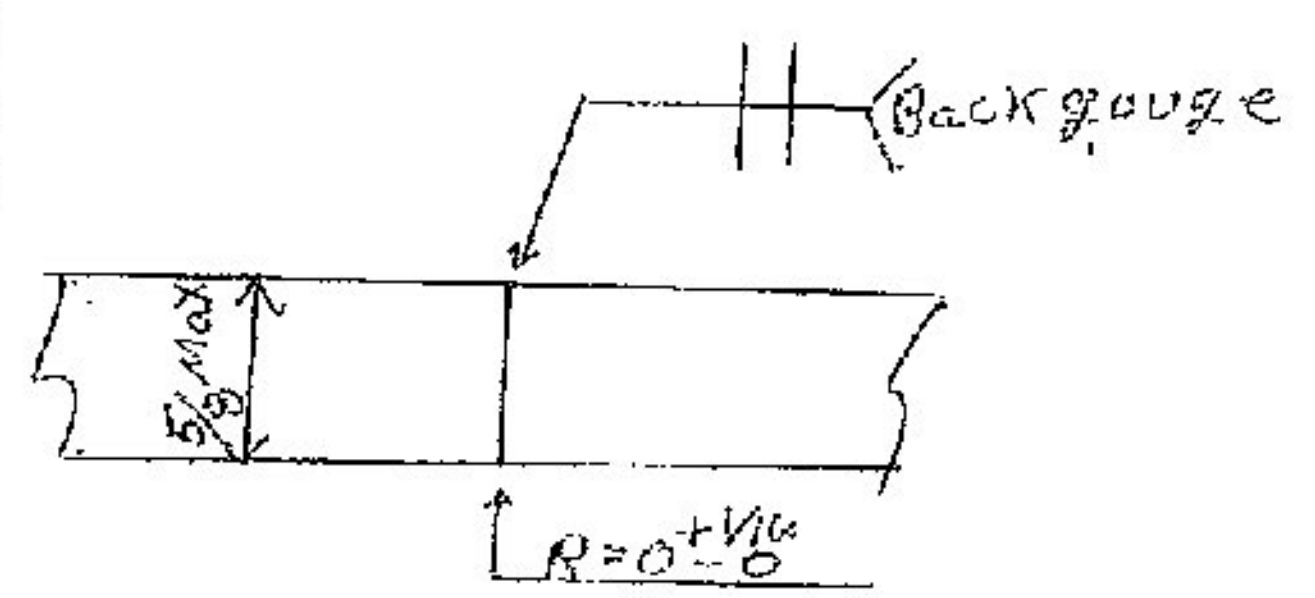
BY James Lacroix

DATE 11/08/2013

VT-AOT, Bristol
Bridge No. 31
Proj. No. BRD 1445 (D)
CBSS NO. 534

WELDING PROCEDURE

Max Interpass: 480°F

Pass no.	Electrode size	Welding current		Travel speed	Sec 5.13 A.W.S. D1-5 Joint detail B.L1a-5
		Amperes	Volts		
AS Reg.	5/32	827	38	28 IPM	
		744	35	24	
		70	70	70	
		910	41	32	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. PW 2020 - ST of VT

Contractor Casco Bay Steel

Authorized By Paul E. Woodale

Date April 13 - 2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50-50W
Welding process Shielded Metal ARC
Manual or machine Manual
Position of welding Flat, Horizontal
Filler metal specification ANSI/AWS A5.1-A5-5
Filler metal classification E7018-E8018 CVC3
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass single & multiple
Single or multiple arc single
Welding current AC/DC
Polarity STRAIGHT & Reverse
Welding progression See Detail
Root treatment Grind-wire brush-Area Free of slag-RUST-Moisture
Preheat and interpass temperature
Postheat temperature NA
Heat Input Min NA Max NA

Minimum Preheat and Interpass Temperature, °C (°F)

Welding Process (Base Metal)	Thickness of Thickest Part at Joint of Welding, mm (in)			
	To 20 mm (3/4 in) Incl.	Over 20 mm (3/4 in) to 40 mm (1-1/2 in) Incl.	Over 40 mm (1-1/2 in) to 65 mm (2-1/2 in) Incl.	Over 65 mm (2-1/2 in)
SAW: GMAW; FCAW; SMAW (M270M (M270) (A 709M (A 709)) Or, 250 (36), 345 (50), 345W (50W), HPS 345W (HPS 50W)	10 (50)	20 (70)	65 (150)	110 (225)

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CBSS NO. 534

WELDING PROCEDURE

Pass no.	Electrode size	Welding current		Travel speed	AWS D1-5 Joint detail
		Amperes	Volts		
AS REQ	<u>7018</u>			AS REQ	<u>2F</u>
	1/8	70 To 170	22-26		
	5/32	120 To 225	22-26		3/16 To 5/16
	3/16	170 To 300	24-27		<u>1F</u>
	<u>8018</u>				
	1/8	90 To 160	22-26		3/16 To 5/16
	5/32	120 To 225	22-26		
	3/16	180 To 290	24-27		

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 401

Contractor Casco Bay Steel

Revision no. _____

Authorized By Paul E. Dondorf

Date April 13, 2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM - Gr 50 - 50W NOTE - 1
Welding process Submerged ARC welding
Manual or machine Machine
Position of welding Flat - Horizontal
Filler metal specification AWS A5-23
Filler metal classification E802-ENiK-Ni1-H8
Flux Lincoln 960-Elec-LA 75
Shielding gas NA Flow rate NA
Single or multiple pass Single & Multiple
Single or multiple arc Single
Welding current DC
Polarity DCEN
Welding progression See Detail
Root treatment Grind - wire brush - Area free of slag - Rust - Moisture
Preheat and interpass temperature See Table
Postheat temperature NA
Heat Input Min 40.9 KJ/in Max 64.2 KJ/in P.Q.R # 2-58.4 KJ/in

Minimum Preheat and Interpass Temperature, °C [°F]

Thickness of Thickest Part at Point of Welding, mm [in]

Over 20 mm
[3/4 in] to 40 mm
[1-1/2 in] incl.

Over 40 mm
[1-1/2 in] to 65 mm
[2-1/2 in] incl.

Over 65 mm
[2-1/2 in]

Welding Process (Base Metal)	To 20 mm [3/4 in] incl.	Over 20 mm [3/4 in] to 40 mm [1-1/2 in] incl.	Over 40 mm [1-1/2 in] to 65 mm [2-1/2 in] incl.	Over 65 mm [2-1/2 in]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. 250 [36], 345 [50], 345W [50W], HPS 345W [HPS 50W])	10 [50]	20 [70]	65 [150]	110 [225]
SAW; GMAW; FCAW; SMAW (M270M [M270] [A 709M (A 709)] Gr. HPS 485W [HPS 70W], 690 [100], 690W [100W])	10 [50]	50 [125]	80 [175]	110 [225]

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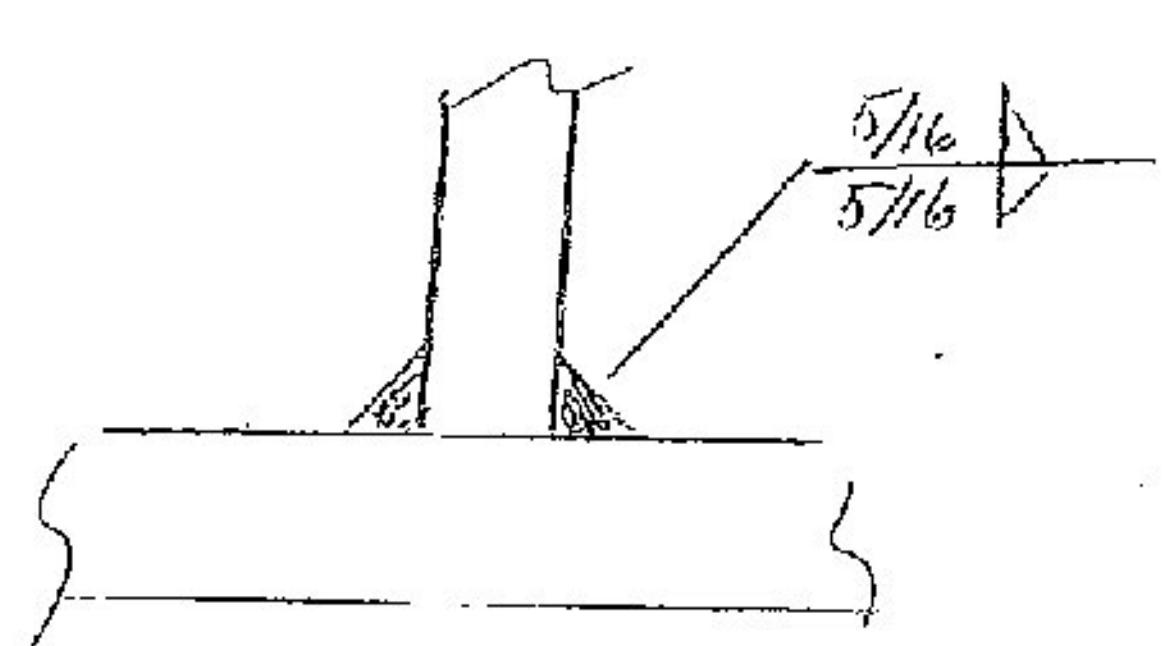
BY James Lacroix

DATE 11/08/2013

VT-ACT, Bristol
Bridge No. 31
Proj. No. BRD 1445 (32)
CBS No. 534

WELDING PROCEDURE

Max. Interpass = 450°

Pass no.	Electrode size	Welding current		Travel speed	Sec 5-13 AWS D1-5 Joint detail Fillet
		Amperes	Volts		
		365	32	12 IPM	
	3/32	320	30	11	
		10	10	10	
		350	33	14	

NOTE - 1

use for welding Gr 50-50W to G40HP50

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 250 ST of VT

Contractor Casco Bay Steel

Authorized By [Signature]

Date April 13 - 2012

Casco Bay Steel Structures, Inc.

WELDING PROCEDURE SPECIFICATION

Material specification ASTM Gr 50 (345)
Welding process Flux Cored Arc Welding (FCAW)
Manual or machine Semi Auto
Position of welding Flat & Horizontal
Filler metal specification AWS D1.5
Filler metal classification E71T-1 - Lincoln Ultracore 71A75 D1.5
Flux NA
Shielding gas 75% AR / 25% CO₂ Flow rate 35 CFH #8/-4 Elec. stickout
Single or multiple pass Single & Multiple
Single or multiple arc Single
Welding current DC
Polarity DC EP
Welding progression See Detail
Root treatment blast clean - wire brush - area free of slag, rust & moisture
Preheat and interpass temperature See Table
Postheat temperature AS Req.
Heat Input Min 22.4 kJ/in Max 35.2 kJ/in PQR # FCM-SP2, 32 kJ/in

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Minimum Preheat and Interpass Temperature, °C [°F]

Thickness of Thickest Part at
Point of Welding, mm [in]

Over 20 mm
[3/4 in]
to 40 mm
[1-1/2 in] incl.

Over 40 mm
[1-1/2 in]
to 65 mm
[2-1/2 in] incl.

Over 65 mm
[2-1/2 in]

VT-ACT, Bristol
Bridge No. 31
Proj. No. BRD 144513
C.B.S.S. No. 534

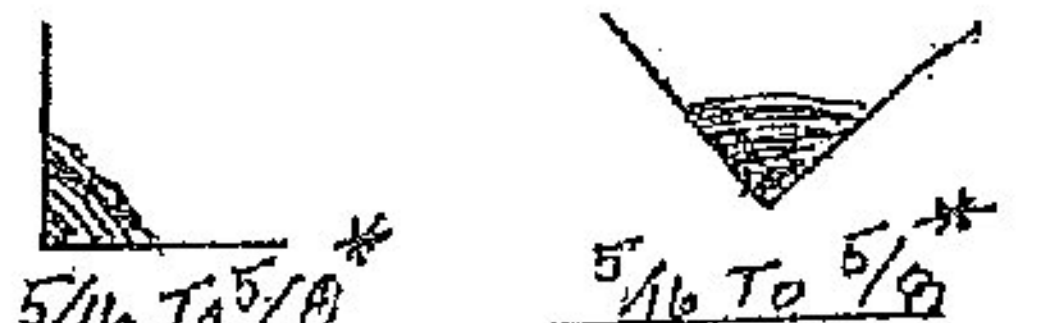
Welding Process (Base Metal)

AW: SMAW; FCAW; SMAW (M270M (M270)
170% (A 700) Or 250 (36), 345 (50), 345W
OW: HP3 245W (HP3 30W)

FCM-Gr 50 150°F 200°F 225°F 325°F - H8

WELDING PROCEDURE

Max Interpass 400°F

Pass no.	Electrode size	Welding current		Travel speed	Sec. 5.12.4.2 AWS D1.5 Joint detail Fillet	
		Amperes	Volts			
1	1/16	297	29	16.4	2F	1F
To		326	31	18.9		
4		267.3	27	13.9		

* Weld size may use multiple Pass

This procedure may vary due to fabrication sequence, fit up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications.

Procedure no. 101-C-ST VT ACT
Revision no. REV #1

Contractor Casco Bay Steel
Authorized By Paul E. Crodale
Date 1-11-2013