

NOTE: FOR A LIST OF SHEETS AND STANDARDS, SEE SHEET 2

STATE OF VERMONT AGENCY OF TRANSPORTATION



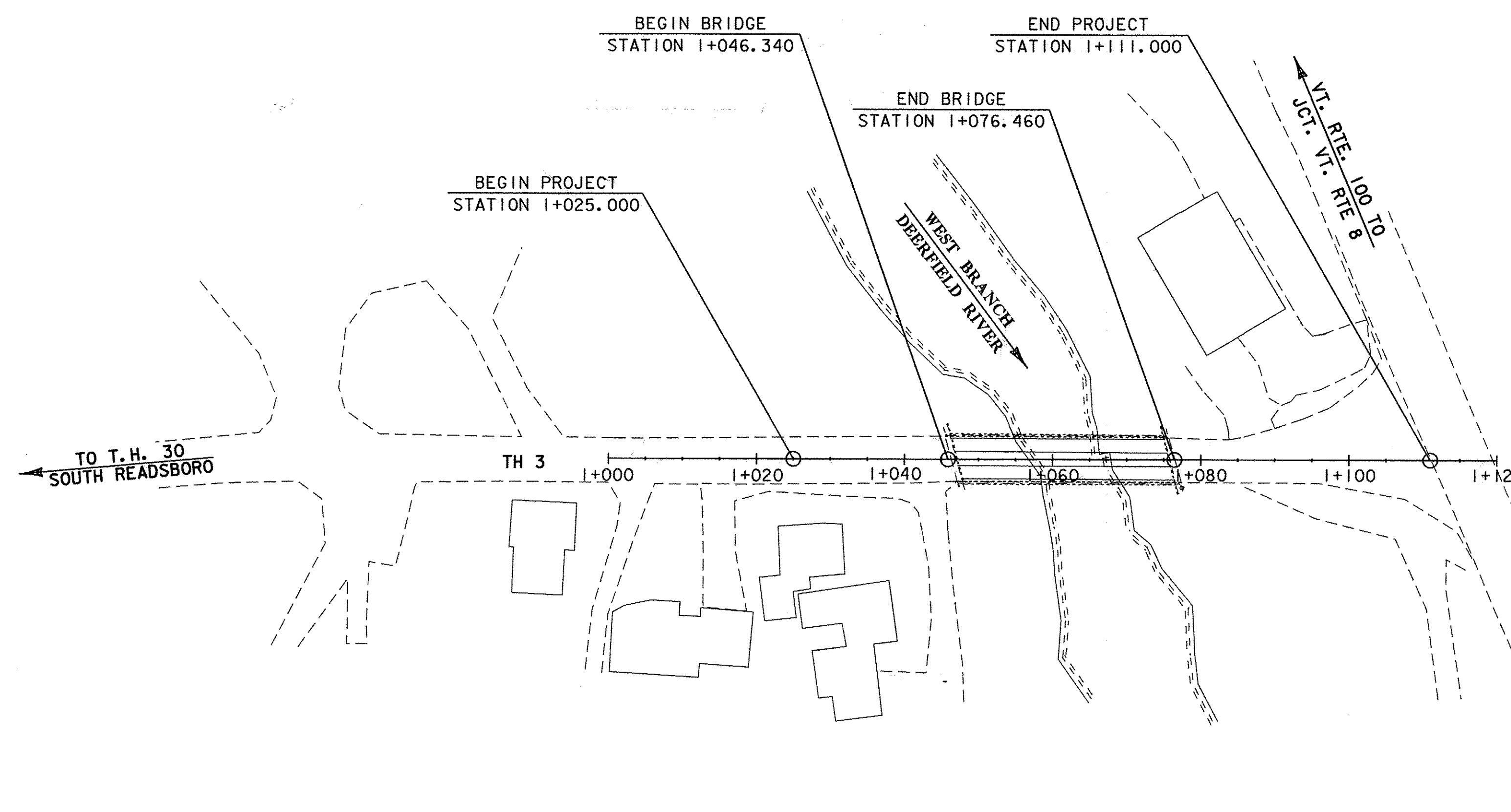
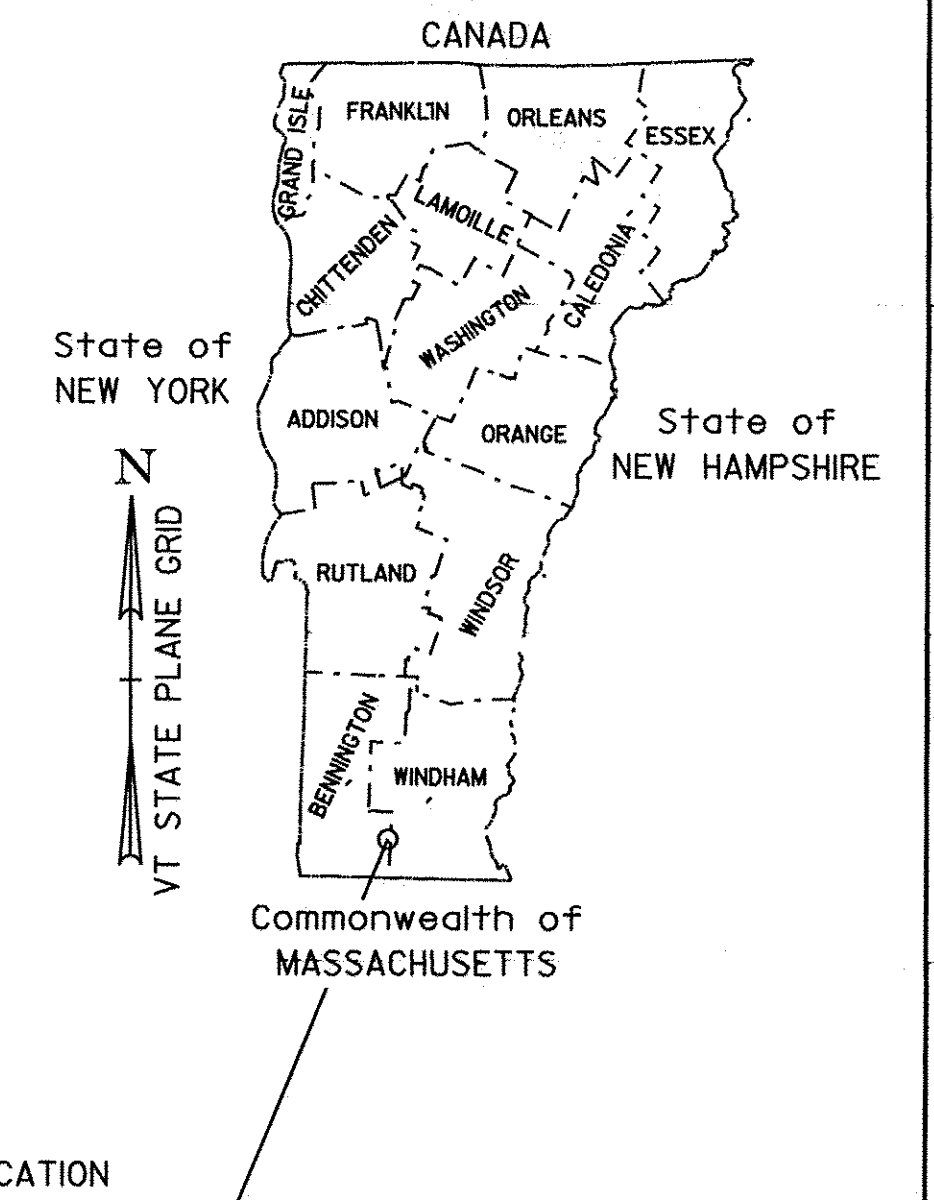
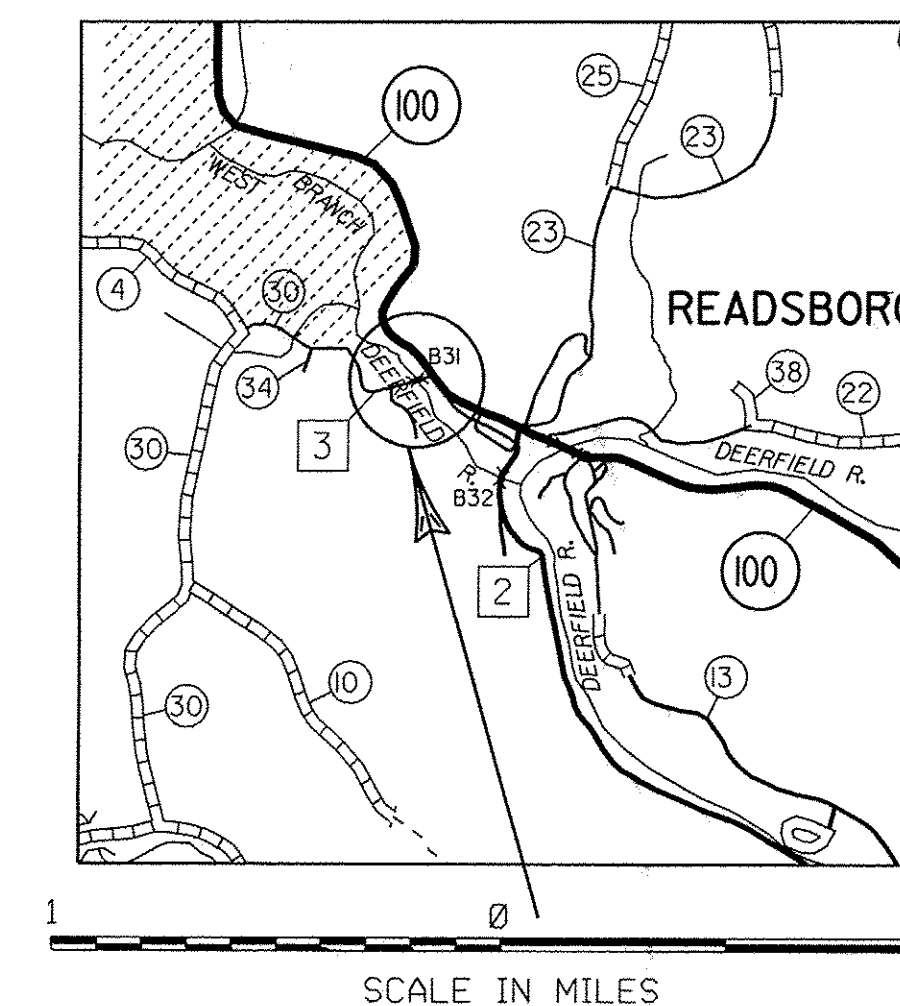
PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF READSBORO COUNTY OF BENNINGTON

ROUTE NO : TOWN HIGHWAY 3 (CLASS 2), LOCAL ROAD, BRIDGE NUMBER : 31

PROJECT LOCATION : BEGINNING AT A POINT ON TH 3 APPROXIMATELY 0.12 KM WEST OF THE INTERSECTION OF TH 3 AND VT. RTE 100 AND PROCEEDING EASTERLY ALONG TH 3 FOR 0.09 KM.

PROJECT DESCRIPTION : THE PROJECT SHALL CONSIST OF THE REPLACEMENT OF THE EXISTING STRUCTURE WITH A NEW STRUCTURE INCLUDING ALL NECESSARY APPROACH ROADWAY AND CHANNEL WORK.

LENGTH OF STRUCTURE = 30.120 METERS
LENGTH OF ROADWAY = 55.880 METERS
LENGTH OF PROJECT = 86.000 METERS



CONVENTIONAL SYMBOLS

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

SURVEYED BY : L. ORVIS
SURVEYED DATE : JANUARY 1995

DATUM

VERTICAL : NAVD 88
HORIZONTAL : NAD 83/92

0 10 20 30
SCALE 1:500

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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

/PW/94J070/sj070bdr.dgn sj070+1.i PLOTTED 05-JAN-2010

Metric

UNLESS NOTED OTHERWISE
STATIONS ARE IN KILOMETERS
ELEVATIONS ARE IN METERS
DIMENSIONS ARE IN MILLIMETERS

DIRECTOR OF PROGRAM DEVELOPMENT

APPROVED DATE 1-5-10

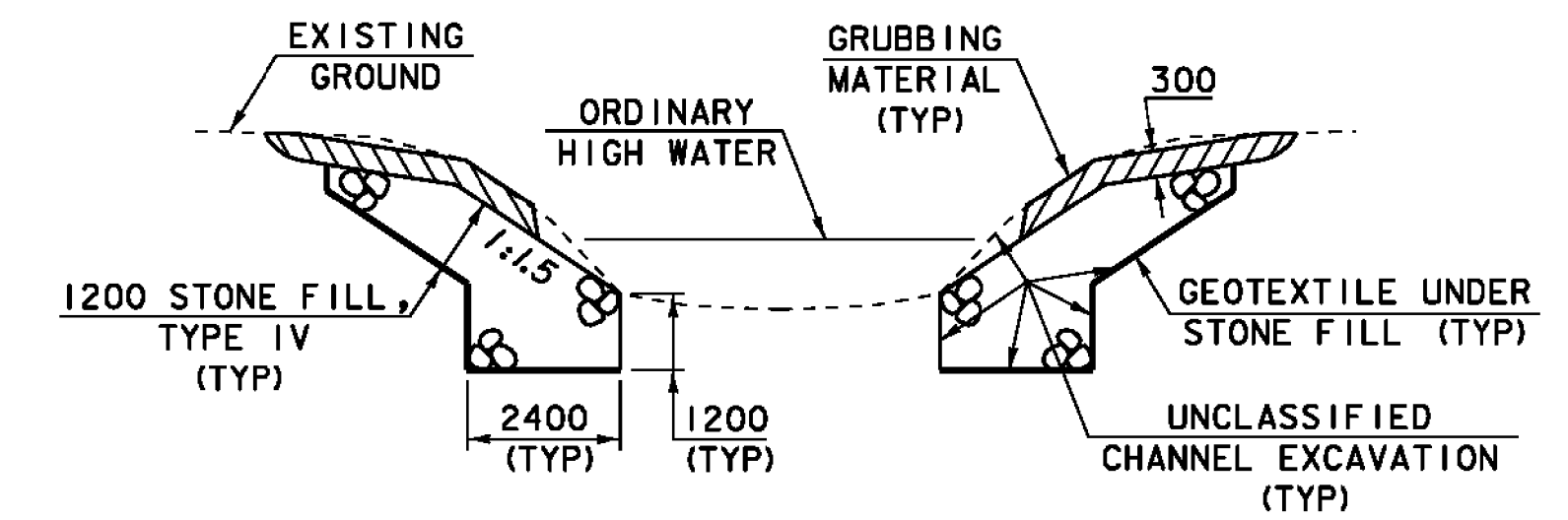
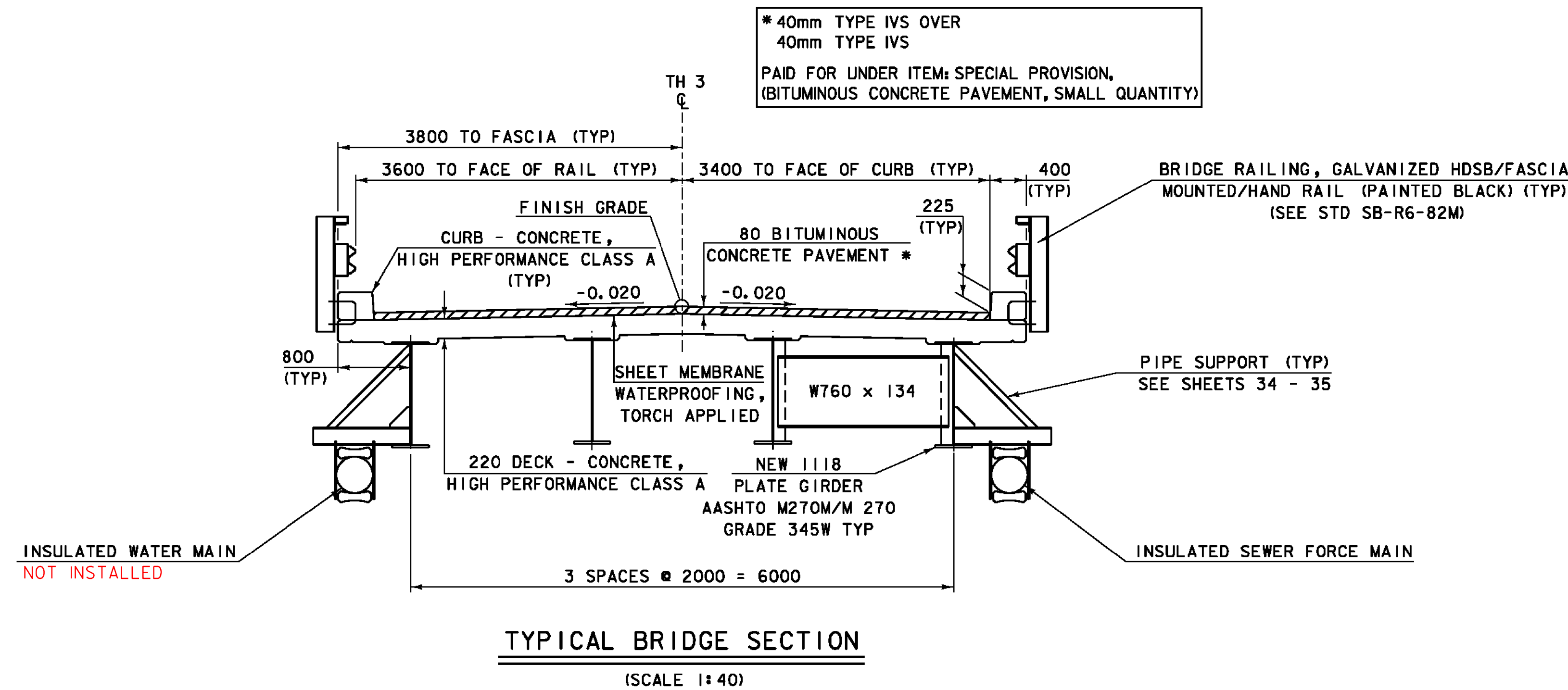
PROJECT MANAGER : C.P. WILLIAMS

PROJECT NAME : READSBORO
PROJECT NUMBER : BRO 1441 (25)

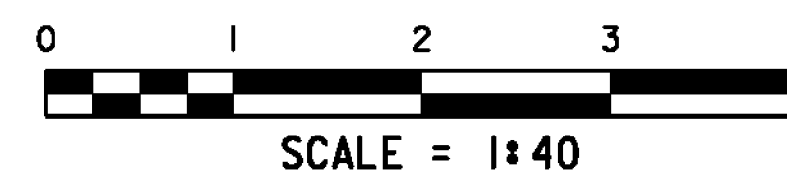
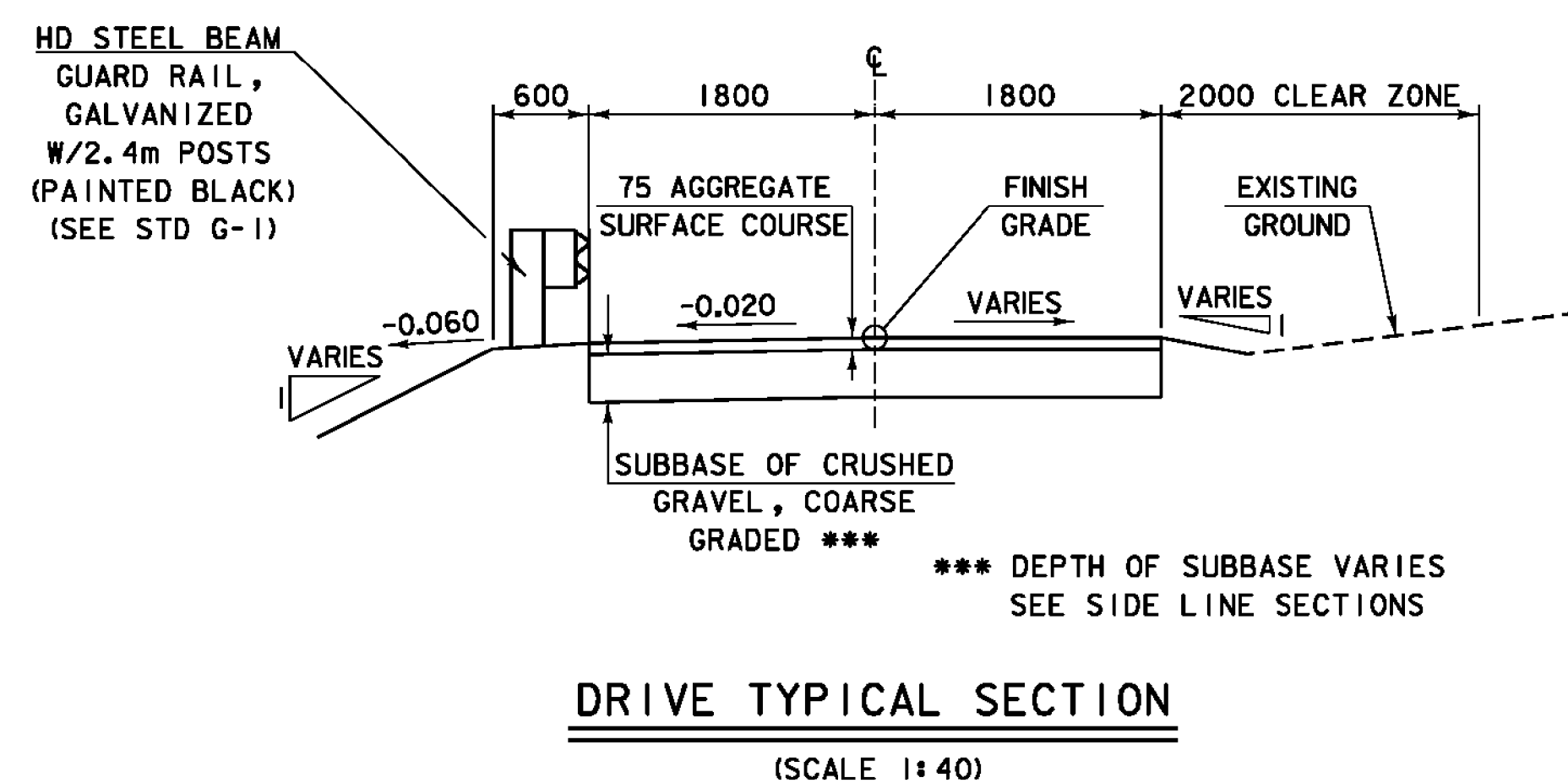
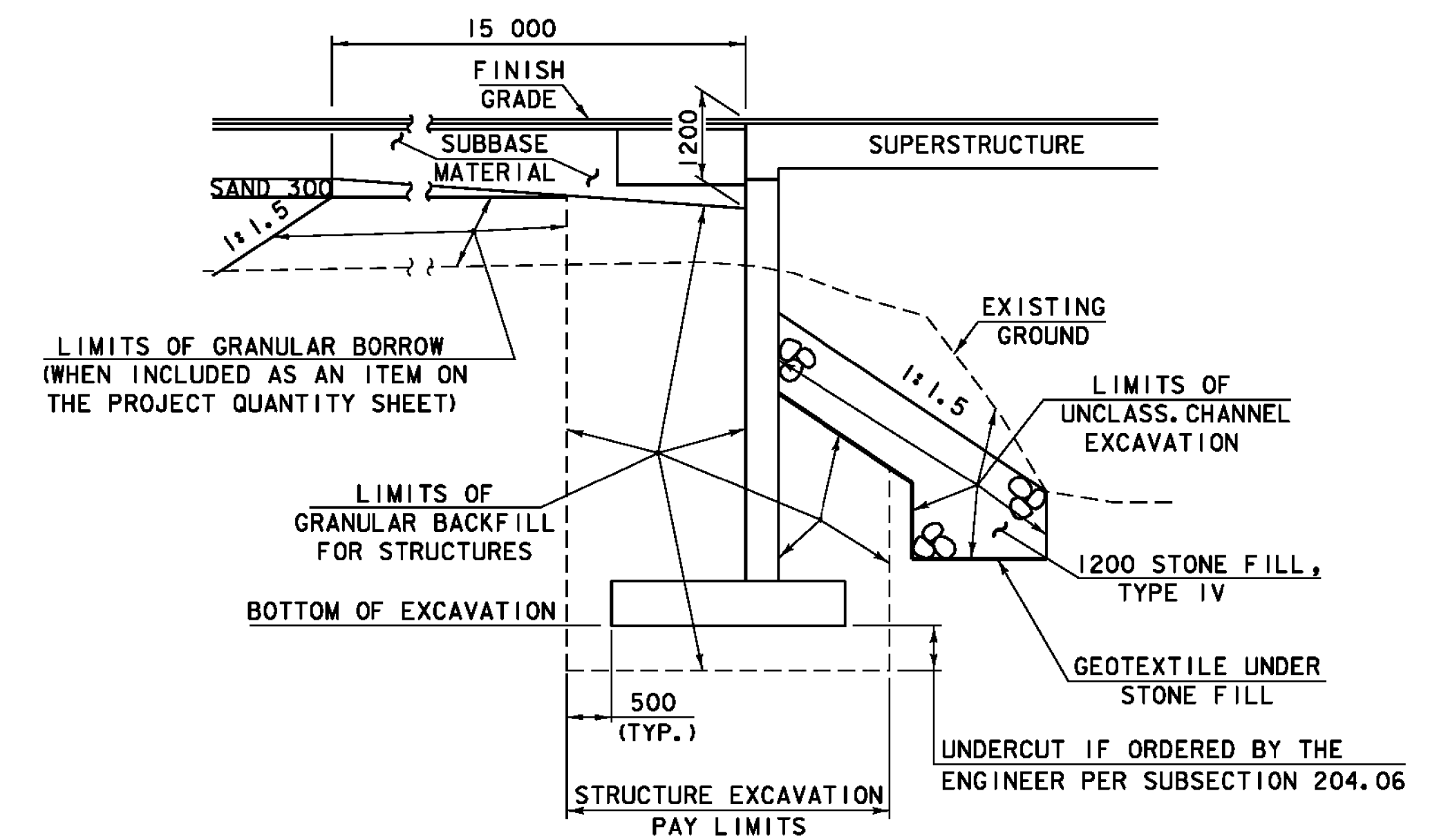
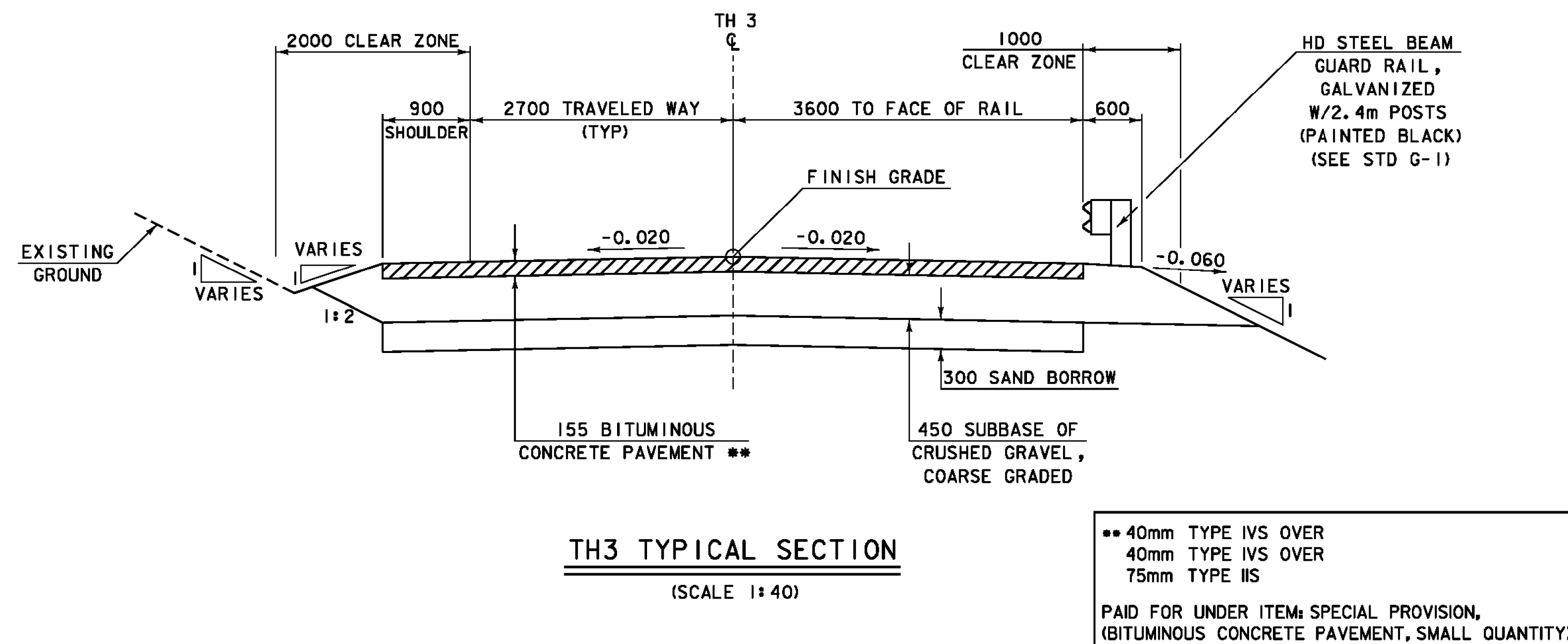
SHEET 1 OF 60 SHEETS

	LIST OF STANDARDS	
A-76	STANDARD FOR DEVELOPMENT ROADS	3/3/2003
B-71	RESIDENTIAL AND COMMERCIAL DRIVES	7/8/2005
C-3A	SIDEWALK RAMPS	3/10/2008
D-3	TREATED GUTTERS	6/1/1994
D-6	REINFORCED CONCRETE DROP INLET W/GRATE (DITCHES)	6/1/1994
D-15	PRECAST REINFORCED CONC. MH-GRATES (BICYCLE SAFE)	6/1/1994
	CAST IRON GRATE WITH FRAME, TYPE D	
	CAST IRON GRATE WITH FRAME, TYPE E	
D-33	REINFORCED CONCRETE STRAIGHT HEADWALL	3/2/2007
E-100	CONSTRUCTION APPROACH SIGNS	1/2/2004
E-100A	SIDE ROAD CONSTRUCTION - APPROACH SIGNS	1/2/2004
E-101	CONSTRUCTION SIGN DETAILS	5/30/2003
E-102	CONSTRUCTION SIGN DETAILS	6/30/2003
E-102A	CONSTRUCTION SIGN DETAILS	5/1/2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS	3/1/2004
E-107	DELINEATION, BARRICADES, AND DETOURS FOR CONSTRUCTION AREAS	6/30/2003
E-107A	BREAKAWAY BARRICADE DETAILS	6/8/2009
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-138	MILEMARKER DETAILS - STATE & TOWN HIGHWAYS	5/30/2003
E-141	REGULATORY SIGN DETAILS	9/20/1995
E-142	REGULATORY SIGN DETAILS	9/20/1995
E-143	REGULATORY SIGN DETAILS	6/15/2004
E-164	SQUARE STEEL SIGN POST	6/8/2009
E-191	PAVEMENT MARKING DETAILS	2/1/1999
E-193	PAVEMENT MARKING DETAILS	8/18/1995
G-1	STEEL BEAM GUARDRAIL (50MPH & OVER)	1/3/2000
	HEAVY DUTY STEEL BEAM GUARDRAIL	
	TWISTED END TERMINAL	
	ANCHOR FOR STEEL BEAM RAIL	
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS)	1/3/2000
	HEAVY DUTY STEEL BEAM GUARDRAIL	
	STEEL BEAM MEDIAN BARRIER	
	ANCHOR FOR STEEL BEAM RAIL	
R6-82M	BRIDGE RAILING - HEAVY DUTY STEEL BEAM	7/10/1997

FILE NAME: /TransFANS/94j070/sj070pi.xls	PLOT DATE: 1/13/2010
PROJECT MANAGER: C.P. WILLIAMS	DRAWN BY: H.I. SALLS
DESIGNED BY: H.I. SALLS	CHECKED BY: K.M. HIGGINS
PRELIMINARY INFORMATION SHEET	SHEET 2 OF 60



NOTE: 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.



MATERIAL ITEM	TOLERANCE
PAVEMENT	± 5 mm TOTAL THICKNESS
SUBBASE	± 30 mm
SAND BORROW	± 30 mm
GRANULAR BORROW	± 30 mm

PROJECT:	READSBORO	PROJECT NO.:	BRO 1441 (25)
DESIGN FILE NAME:	94j070\structures\sj070typ.dgn	PLOT DATE:	05-JAN-2010
IPARM FILE NAME:	sj070typ.i	DRAWN BY:	H. I. SALLS
DESIGNED BY:	H. I. SALLS	CHECKED BY:	R. S. YOUNG
SQUAD LEADER:	C. P. WILLIAMS	TYPICAL SECTIONS	SHEET: 3 OF 60

QUANTITY SHEET 1



SUMMARY OF ESTIMATED QUANTITIES												TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	UTILITIES	UTILITIES (NO FEDERAL/STATE)	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1						1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				
						575						575		CM	COMMON EXCAVATION	203.15				EARTHWORKS SUMMARY
										110		110		CM	UNCLASSIFIED CHANNEL EXCAVATION	203.27		565 CM		FILL AVAILABLE
						90		6.5	6			102.5		CM	SAND BORROW	203.31		33 CM		COMMON EXCAVATION (565 x 1.0)
								40	20			60		CM	TRENCH EXCAVATION OF EARTH	204.20		40.5 CM		CHANNEL EXCAVATION (110 x 0.3)
						1		1	1			3		CM	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22		1.5 CM		STRUCTURE EXCAVATION (135 x 0.3)
										135		135		CM	STRUCTURE EXCAVATION	204.25				ROUNDING
										90		90		CM	GRANULAR BACKFILL FOR STRUCTURES	204.30		640 CM		TOTAL FILL AVAILABLE
						65						65		SM	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
						350						350		CM	SUBBASE OF CRUSHED GRAVEL, COARSE GRADED	301.25		25 CM		FILL REQUIRED
						5						5		CM	AGGREGATE SURFACE COURSE	401.10		28.75 CM		PLANMETERED FILL
						1						1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50		1.25 CM		FACTORED FILL (x 1.15)
										70		70		CM	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				ROUNDING
										74		74		CM	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
										36085		36085		KG	STRUCTURAL STEEL, PLATE GIRDER	506.55				
										3365		3365		KG	REINFORCING STEEL	507.15				
										14		14		M	DRILLING AND GROUTING DOWELS	507.16				
										11430		11430		KG	EPOXY COATED REINFORCING STEEL	507.17				
										1		1		LS	SHEAR CONNECTORS (632 - 22 X 178)	508.15				
										1		1		LS	STRUCTURAL PAINTING, SHOP APPLIED	513.25				
										1		1		LS	SURFACE PREPARATION, SHOP	513.40				
										50		50		L	WATER REPELLENT, SILANE	514.10				
										15		15		M	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
										205		205		SM	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
						1						1		LS	ONE-WAY TEMPORARY BRIDGE (162 SM - EST.)	528.10				
										185		185		SM	REMOVAL OF BRIDGE PAVEMENT	529.10				
										1		1		EACH	REMOVAL OF STRUCTURE (192.5 SM - EST.)	529.15				
										8		8		EACH	BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD	531.10				
								3	3			6		CM	CONCRETE, CLASS B	541.25				
						4						4		EACH	CHANGING ELEVATION OF DROP INLETS, CATCH BASINS, OR MANHOLES	604.40				
						2						2		EACH	CHANGING ELEVATION OF SEWER MANHOLES	604.42				
						1						1		EACH	CAST IRON GRATE WITH FRAME, TYPE E	604.48				
							10					10		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
							1					1		T	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
							10					10		CM	STONE FILL, TYPE I	613.10				
										30		30		CM	STONE FILL, TYPE II	613.11				
										130		130		CM	STONE FILL, TYPE IV	613.13				
						1						1		EACH	RELOCATE MAILBOX, SINGLE SUPPORT	617.10				
						7						7		SM	PORTLAND CEMENT CONCRETE SIDEWALK, 125 MM	618.10				
						5						5		T	BITUMINOUS CONCRETE SIDEWALK	618.15				

PROJECT NAME:	READSBORO
PROJECT NUMBER:	BRO 1441(25)
FILE NAME: s94970exc0.dgn	PLOT DATE: 01/19/2010
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: H.L.SALLS	CHECKED BY: R.S.YOUNG
QUANTITY SHEET #1	SHEET 4 OF 60

QUANTITY SHEET 2



SUMMARY OF ESTIMATED QUANTITIES											TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
						ROADWAY	EROSION CONTROL	UTILITIES	UTILITIES (NO FEDERAL/STATE)	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						0.74						0.74		SM	DETECTABLE WARNING SURFACE	618.30				
						52						52		M	HD STEEL BEAM GUARDRAIL, GALVANIZED W/2.4 M POSTS (PAINTED BLACK)	621.215				
						4						4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
						12						12		M	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
						3						3		EACH	REMOVAL AND DISPOSAL OF GUIDE POSTS	621.81				
								17				17		M	DUCTILE IRON PIPE, CEMENT-LINED (100 MM)	628.28				
								1				1		LS	TRANSFER TO NEW SYSTEM, SANITARY SEWER	628.42				
									2			2		M	SEAMLESS COPPER WATER TUBE (25 MM)	629.23				
									14			14		M	DUCTILE IRON PIPE, CEMENT-LINED (200 MM)	629.24				
								1				1		EACH	GATE VALVE WITH VALVE BOX (100MM)	629.27				
									1			1		EACH	GATE VALVE WITH VALVE BOX (200 MM)	629.27				
									1			1		EACH	CORPORATION STOP (25 MM)	629.39				
									1			1		LS	TRANSFER TO NEW SYSTEM, WATER SYSTEM	629.42				
						20						20		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
						240						240		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				
											1	1		LU	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.25				
						1						1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
						1						1		LS	TRAFFIC CONTROL	641.10				
						82						82		M	DURABLE 100 MM WHITE LINE	646.400				
						214						214		M	DURABLE 100 MM YELLOW LINE	646.410				
						4						4		M	DURABLE 600 MM STOP BAR	646.480				
						4						4		EACH	DURABLE LETTER OR SYMBOL	646.490				
						27						27		M	DURABLE CROSSWALK MARKING	646.500				
							30			160		190		SM	GEOTEXTILE UNDER STONE FILL	649.31				
							100					100		SM	GEOTEXTILE FOR SILT FENCE	649.51				
							1					1		SM	GEOTEXTILE FOR FILTER CURTAIN	649.61				
							10					10		KG	SEED	651.15				
							10					10		KG	SEED, WINTER RYE	651.17				
							50					50		KG	FERTILIZER	651.18				
							1					1		T	AGRICULTURAL LIMESTONE	651.20				
							1					1		T	HAYMULCH	651.25				
							5					5		CM	TOPSOIL	651.35				
							120					120		SM	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				
							330					330		SM	TEMPORARY EROSION MATTING	653.20				

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

QUANTITY SHEET 3

[illegible]

PROJECT NAME: READSBORO	
PROJECT NUMBER: BRO 1441(25)	
FILE NAME: s94j070excet.dgn	PLOT DATE: 01/19/2010
PROJECT LEADER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: H.I.SALLS	CHECKED BY: R.S.YOUNG
QUANTITY SHEET #3	SHEET 6 OF 60

PROJECT NAME:	READSBORO		
PROJECT NUMBER:	BRO 1447(25)		
FILE NAME: #B0707000.dwg		PLOT DATE:	01/05/2010
PROJECT LEADER: C.P.WILLIAMS		DRAWN BY:	D.D.BEARD
DESIGNED BY: H.SALLIS		CHECKED BY:	R.S.YOUNG
BRIDGE QUANTITY SHEET #1		SHEET:	7 OF 50

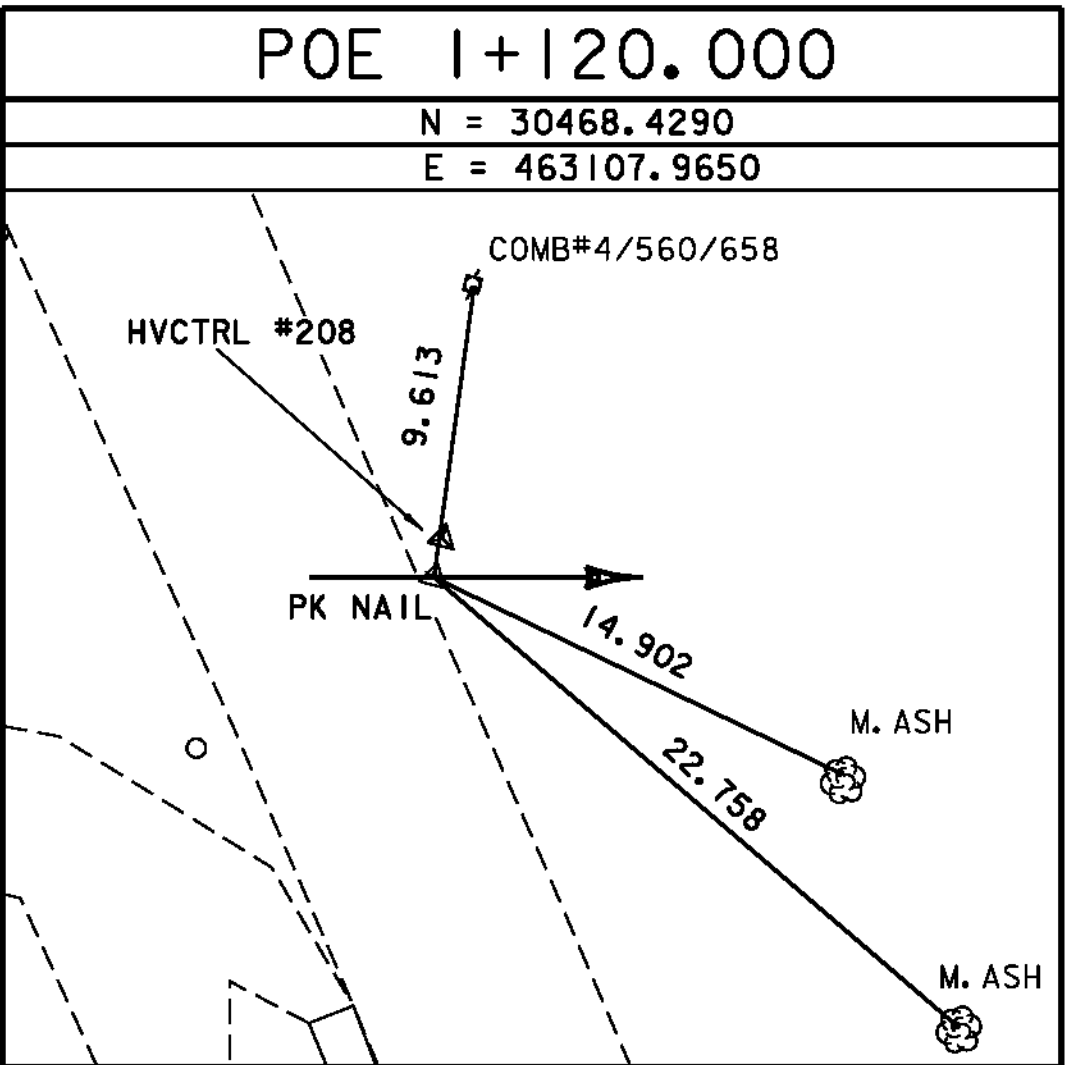
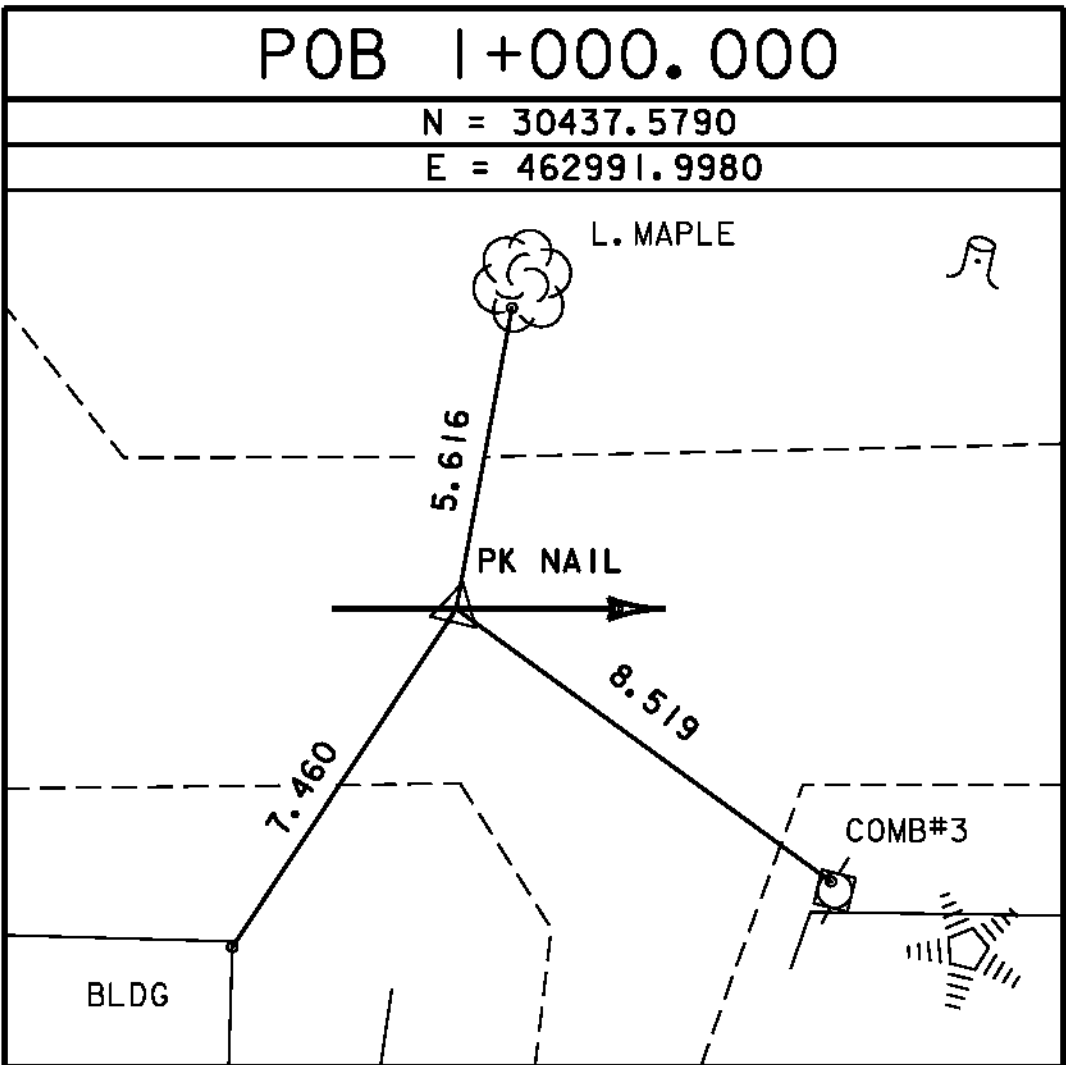
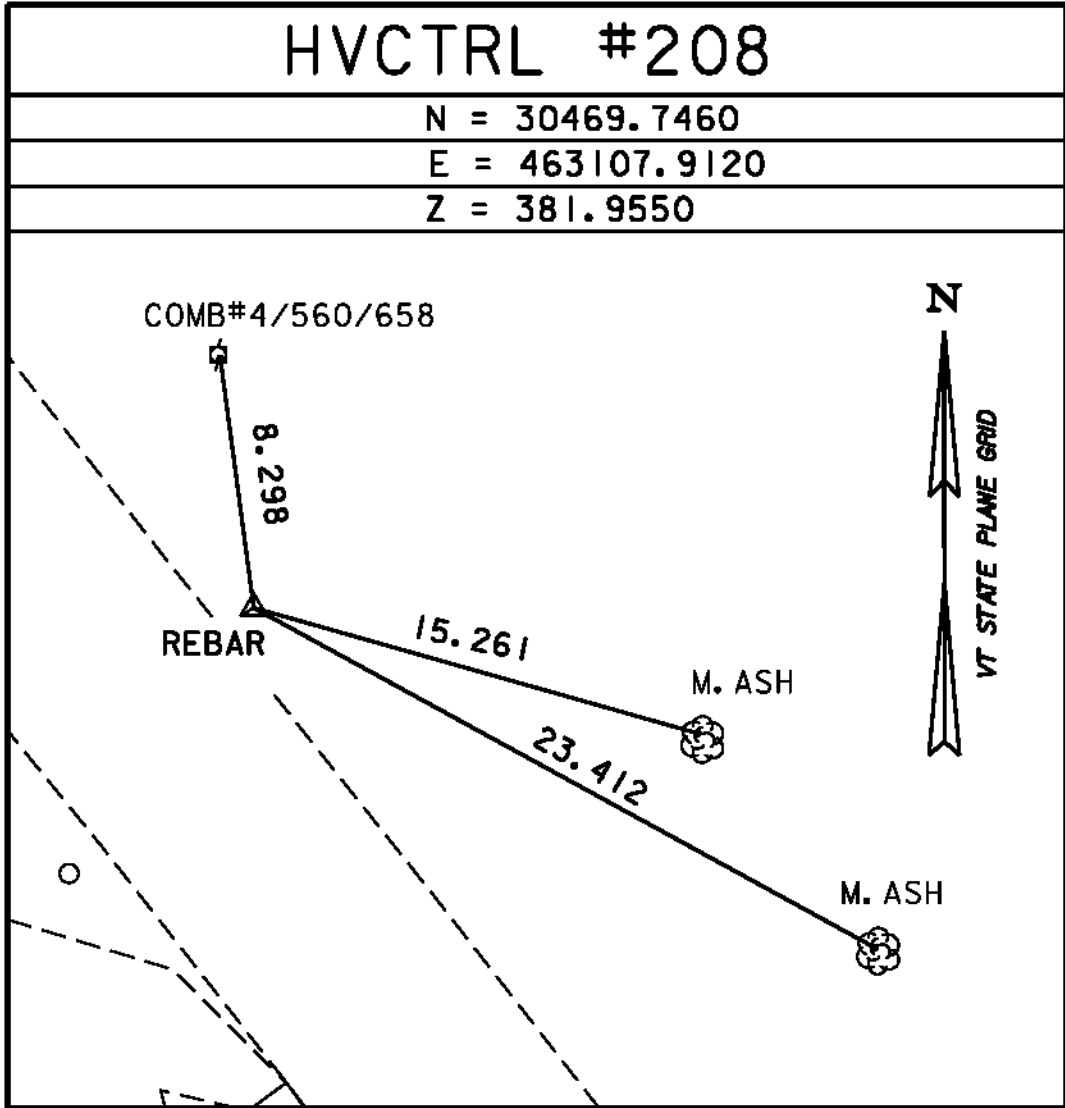
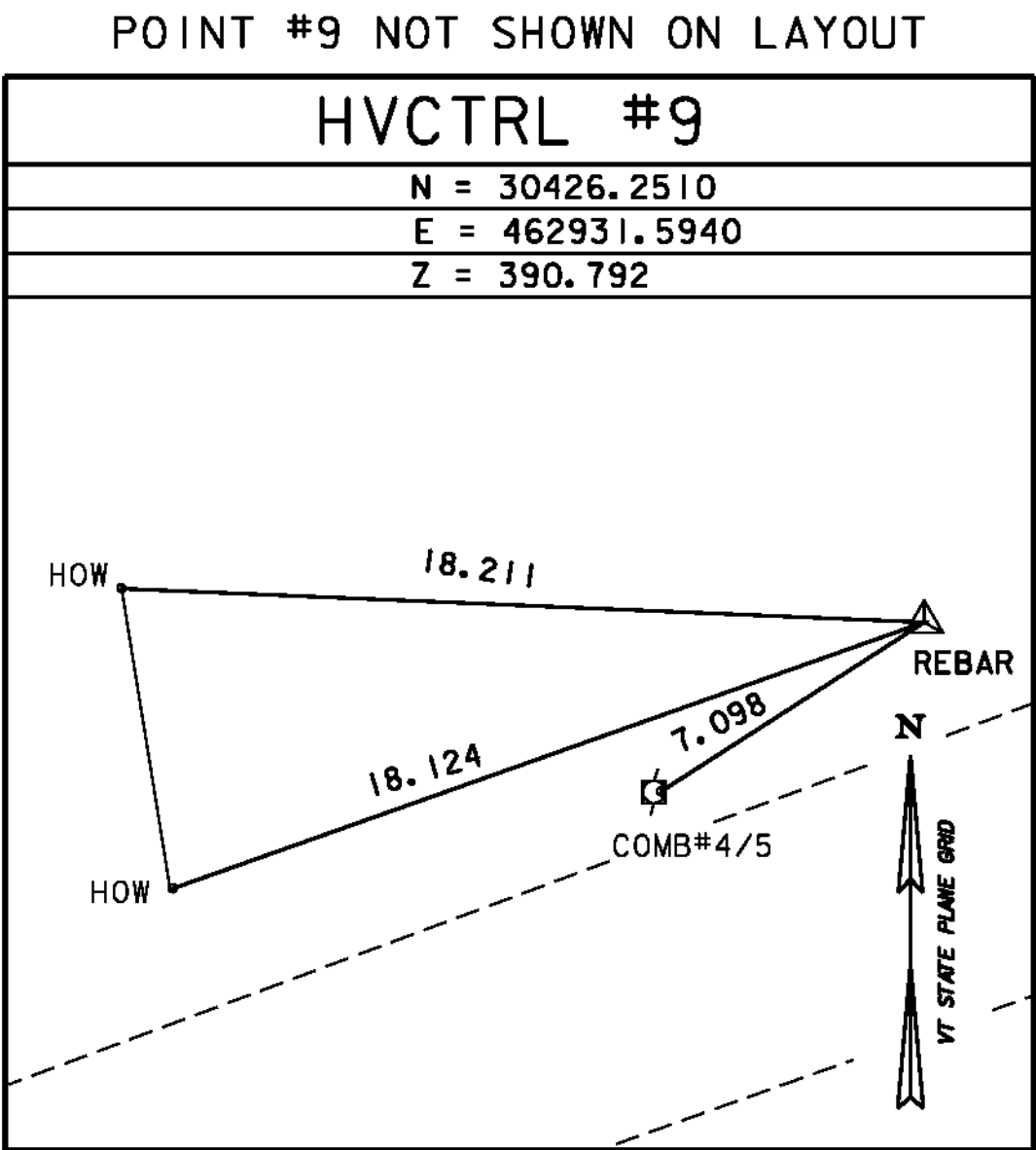
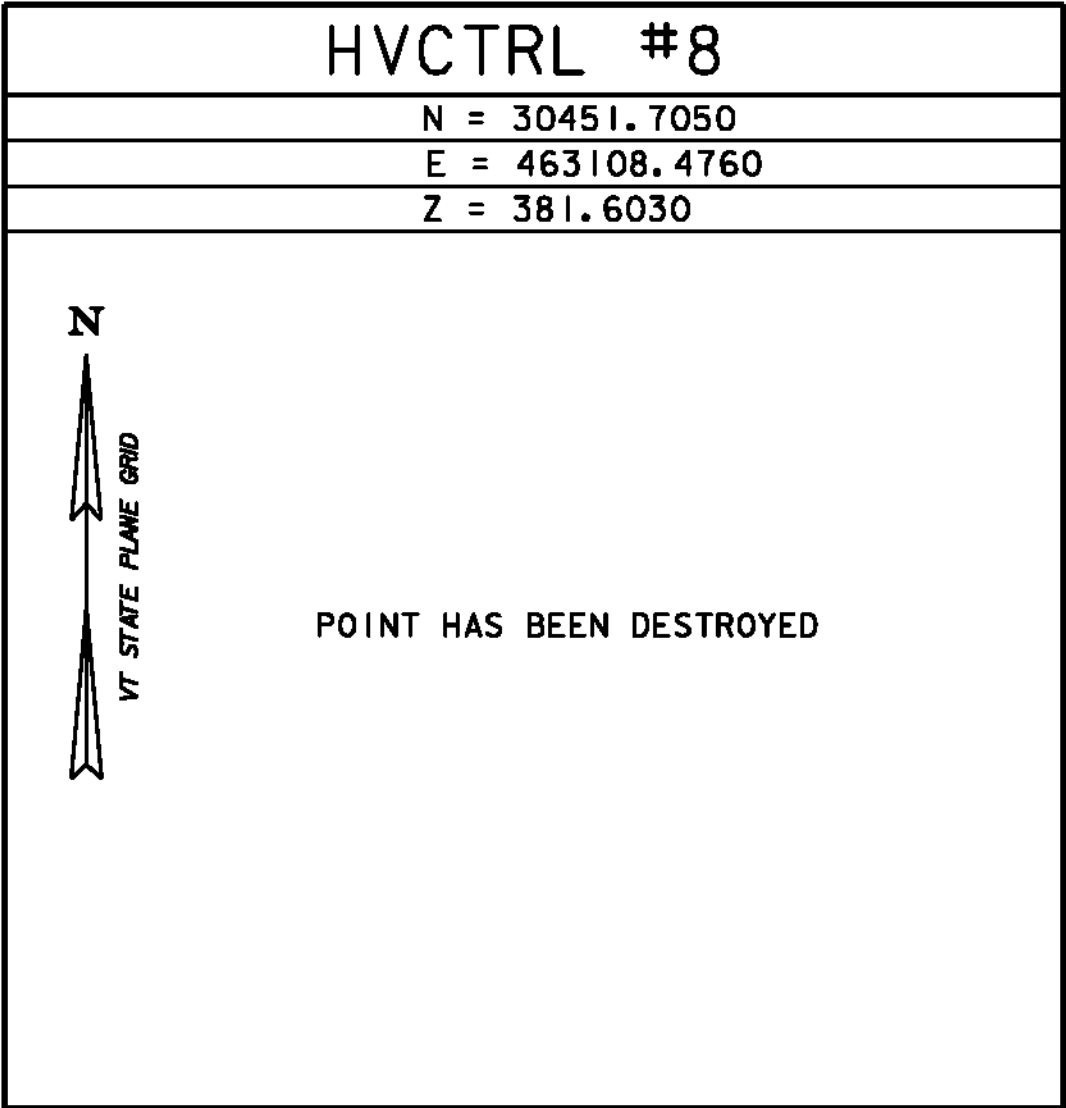


CONTROL #2

"F 33 1942"
ELEV: 356.5739

RECOVERED AS DESCRIBED WITH THE FOLLOWING ADDITION. TO REACH FROM THE INTERSECTION OF VT ROUTES 8 AND 100 IN HEARTWELLVILLE GO SOUTHEAST ALONG VT ROUTE 100 FOR 4.9 MI (7.9 KM) TO THE INTERSECTION OF TUNNEL ROAD RIGHT, IN READSBORO VILLAGE. TURN RIGHT AND GO SOUTH ALONG TUNNEL ROAD FOR 0.5 MI (0.8 KM) TO THE SITE OF THE MARK ON THE LEFT.

*ALL THAT THIS POINT WAS USED FOR WAS FOR ELEVATION.



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (92)

PROJECT NAME: READSBORO	
PROJECT NUMBER: BRO 144I(25)	
FILE NAME: xj070+1.dgn	PLOT DATE: 05-JAN-2010
PROJECT LEADER: Chris Williams	DRAWN BY: J.HULETT
DESIGNED BY: H.I.SALLS	CHECKED BY: P.HODGE
Tie Sheet	SHEET 8 OF 60

HD STEEL BEAM GUARDRAIL,
GALVANIZED W/2.4M POSTS (PAINTED BLACK)
STA 1+025.200 LT TO STA 1+044.125 LT
STA 2+010.110 LT TO STA 1+046.335 RT
STA 1+076.530 LT TO STA 1+082.172 LT
STA 1+078.530 RT TO STA 1+089.780 RT
SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED
HDSB/FASCIA MOUNTED/HAND RAIL (PAINTED BLACK))
STA 1+044.125 LT TO STA 1+076.530 LT
STA 1+046.335 RT TO STA 1+078.530 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 1+033.967 LT TO STA 1+045.158 LT
CONSTRUCT DRIVES
STA 1+015.000 RT W/2000 PAVED APRON WIDTH 4.38m
STA 1+043.000 RT W/2500 PAVED APRON WIDTH 4.57m
STA 1+086.500 LT W/1500 PAVED APRON WIDTH 5.52m
STA 1+094.000 RT W/1500 PAVED APRON WIDTH 8.57m

CHANGING ELEVATION OF DROP INLETS,
CATCH BASINS, OR MANHOLES

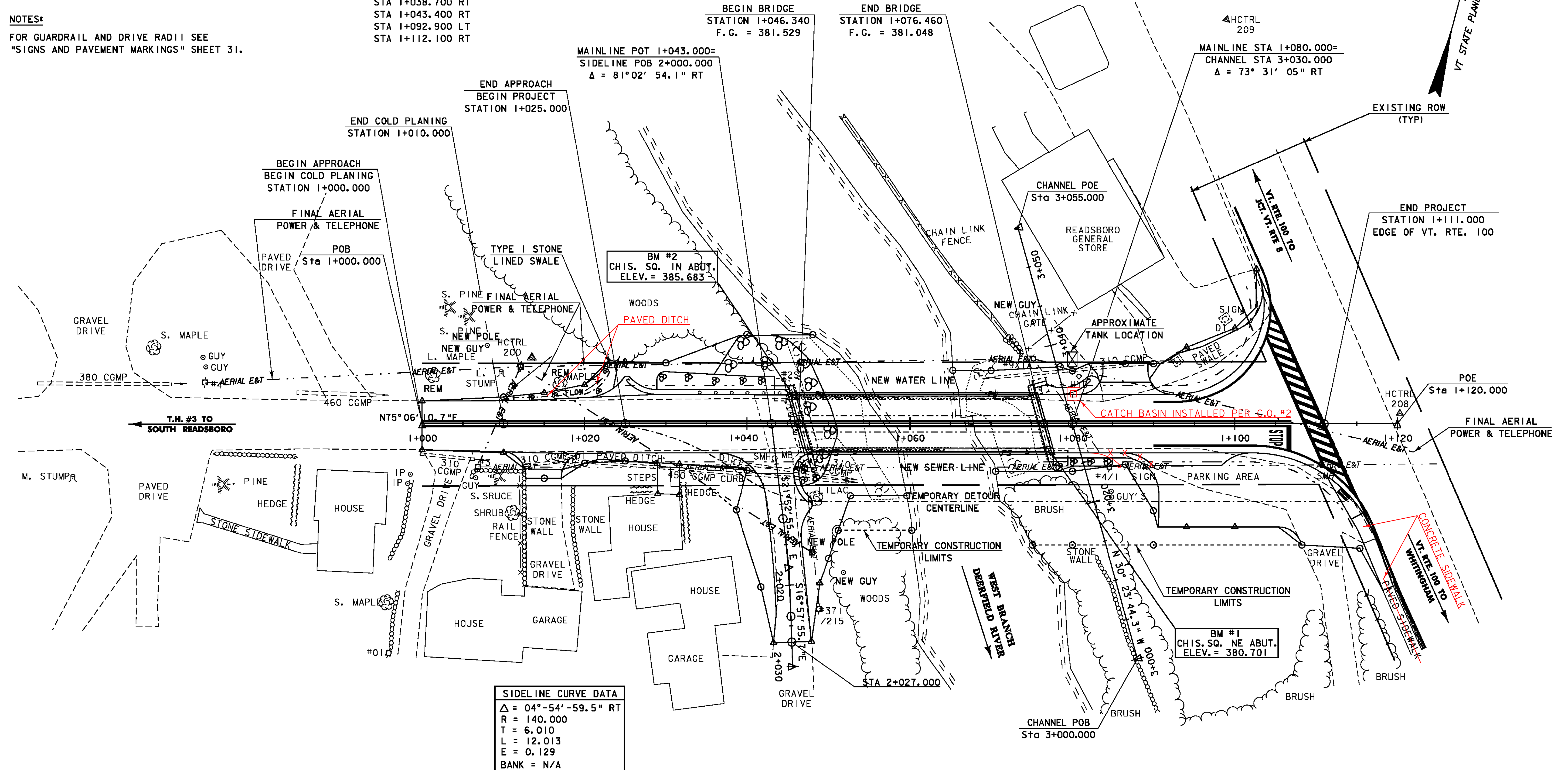
STA 1+018.200 RT
STA 1+038.700 RT
STA 1+043.400 RT
STA 1+092.900 LT
STA 1+112.100 RT

ANCHOR FOR STEEL BEAM RAIL
STA 1+026.800 LT
STA 1+046.500 RT
STA 1+077.300 LT
STA 1+088.000 RT
REMOVAL AND DISPOSAL OF GUIDE POSTS
SIDE LINE STA 2+005.000 LT (3 POSTS)
BITUMINOUS CONCRETE SIDEWALK
STA 1+115.040 RT -1+118.857 RT

CAST IRON GRATE WITH FRAME, TYPE E
STA 1+038.700 RT
RELOCATE MAILBOX, SINGLE SUPPORT
SIDE LINE STA 2+005.750 LT
SPECIAL PROVISION (REMOVE AND
REPLACE RESIDENTIAL WALKWAY)
STA 1+030.00 RT

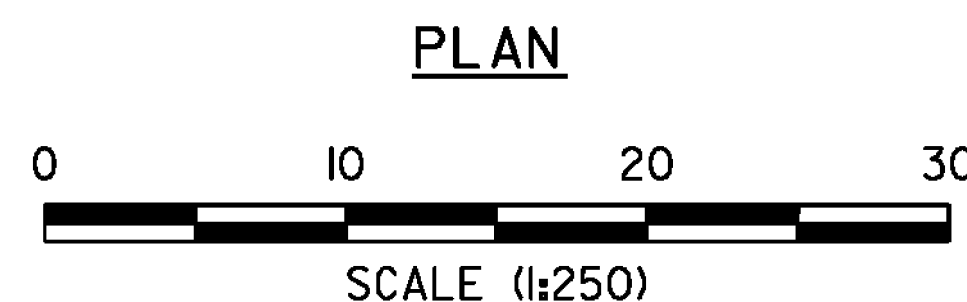
BITUMINOUS CONCRETE GUTTERS
STA 1+019.00 RT TO STA 1+037.500 RT
STA 1+089.00 LT TO STA 1+104.00 LT
DETECTABLE WARNING SURFACE
STA 1+113.40 RT
PORTLAND CEMENT CONCRETE SIDEWALK, 125mm
STA 1+111.270 RT TO STA 1+115.040 RT

NOTES:
FOR GUARDRAIL AND DRIVE RADII SEE
"SIGNS AND PAVEMENT MARKINGS" SHEET 31.

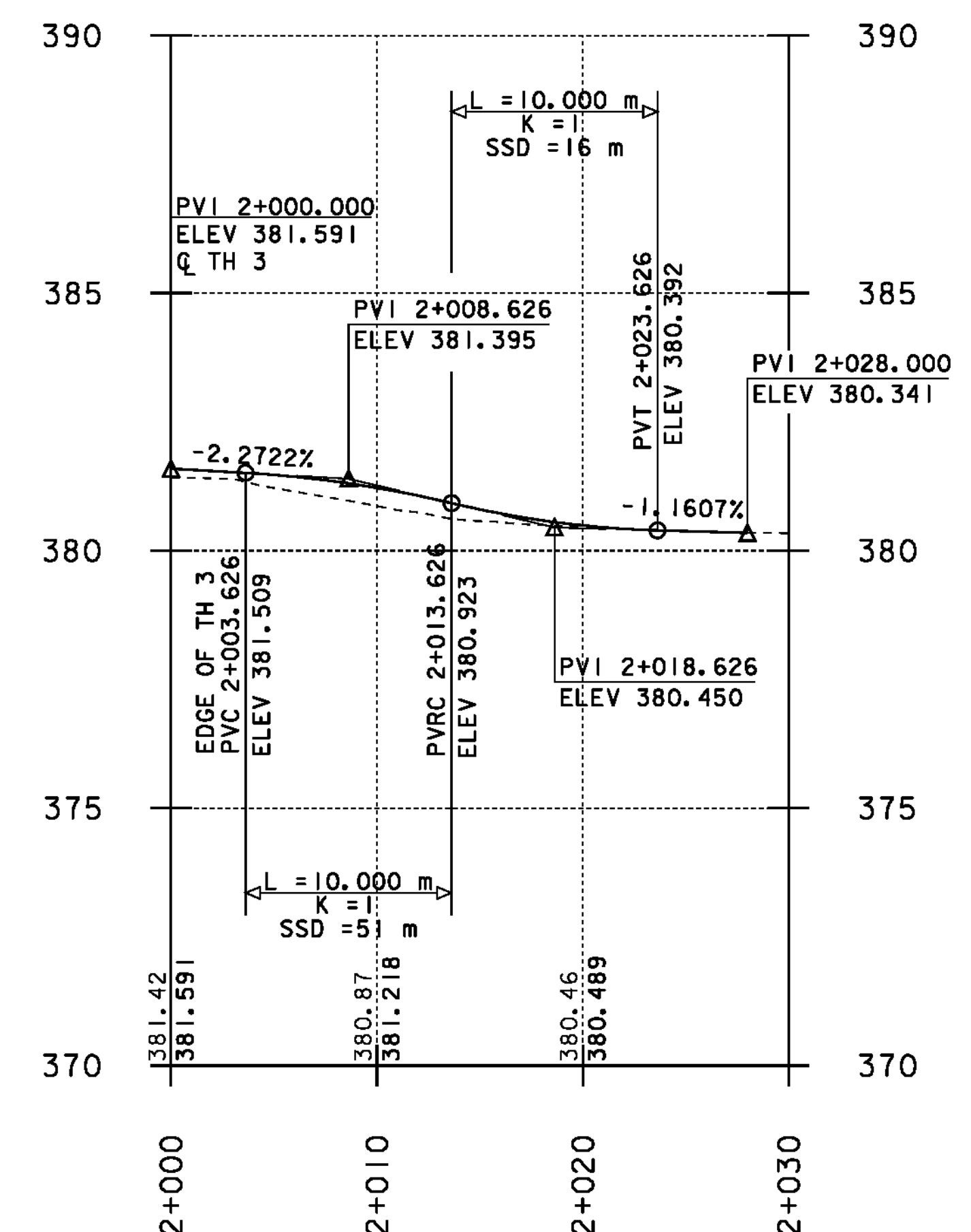
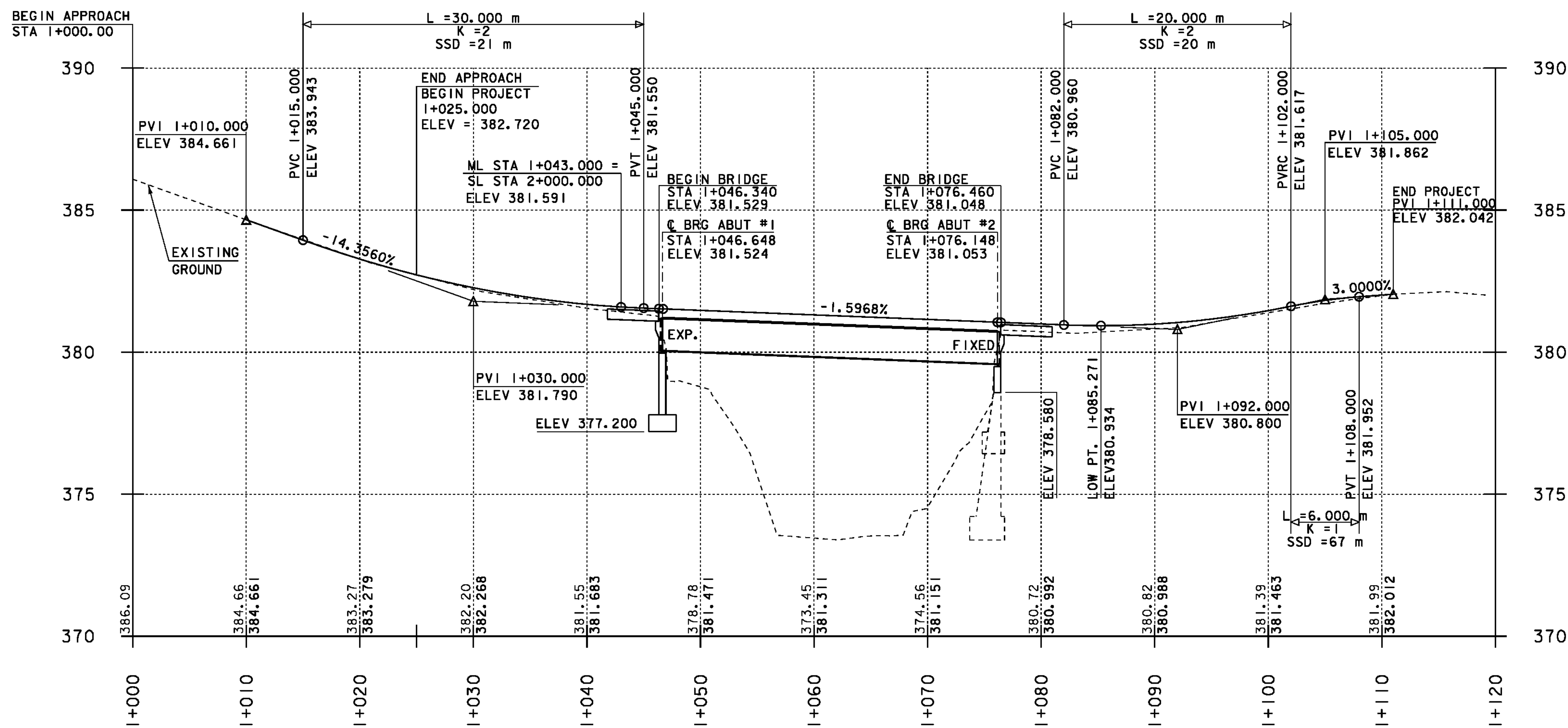


EXISTING BRIDGE DATA	
SINGLE SPAN BRIDGE	178 mm CONCRETE DECK
4 ~ 914WF136 (36WF300) ROLLED BEAMS	CONCRETE SKELETAL ABUTMENTS
OVERALL SPAN = 30.175 m	FASCIA-FASCIA WIDTH = 6.858 m
FACE CURB-FACE CURB WIDTH = 6.096 m	YEAR BUILT: 1948

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83/92

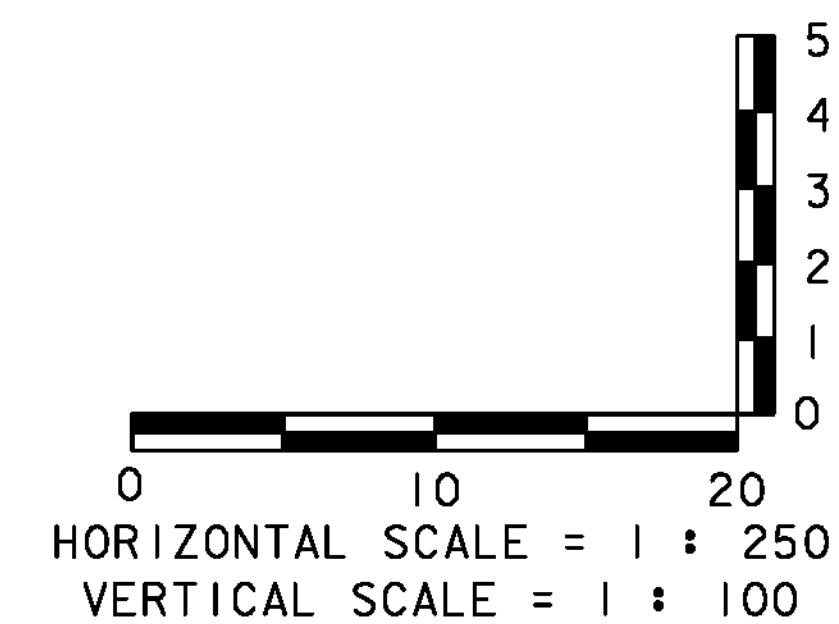


PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94j070\structures\sj070bdr.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070lay.i	DESIGNED BY: H. I. SALLS
SQUAD LEADER: C. P. WILLIAMS	DRAWN BY: H. I. SALLS
PLAN SHEET	CHECKED BY: R. S. YOUNG
	SHEET: 9 OF 60



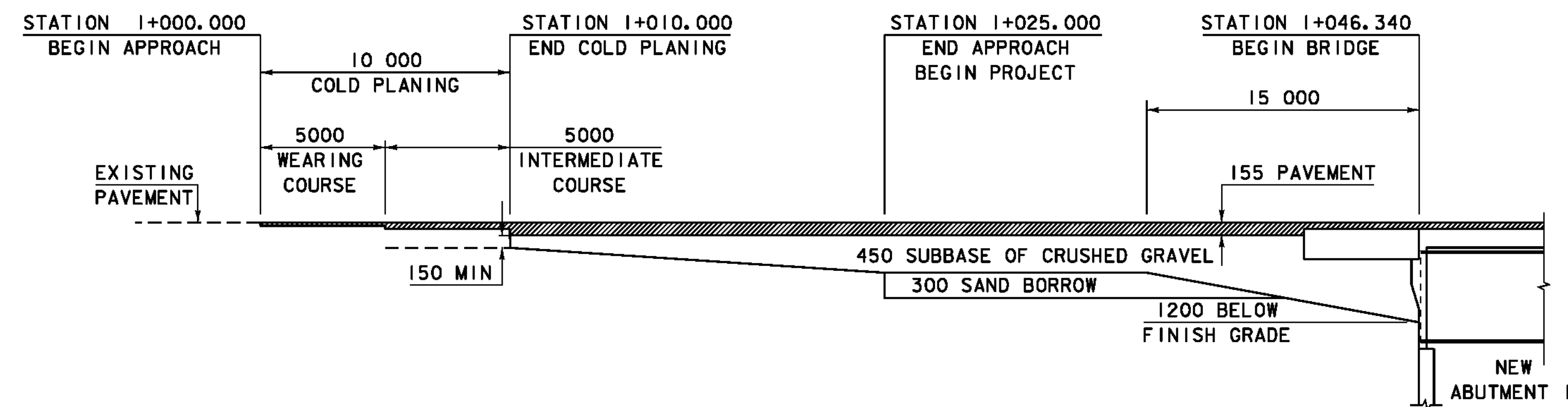
TH3 PROFILE

DRIVE PROFILE

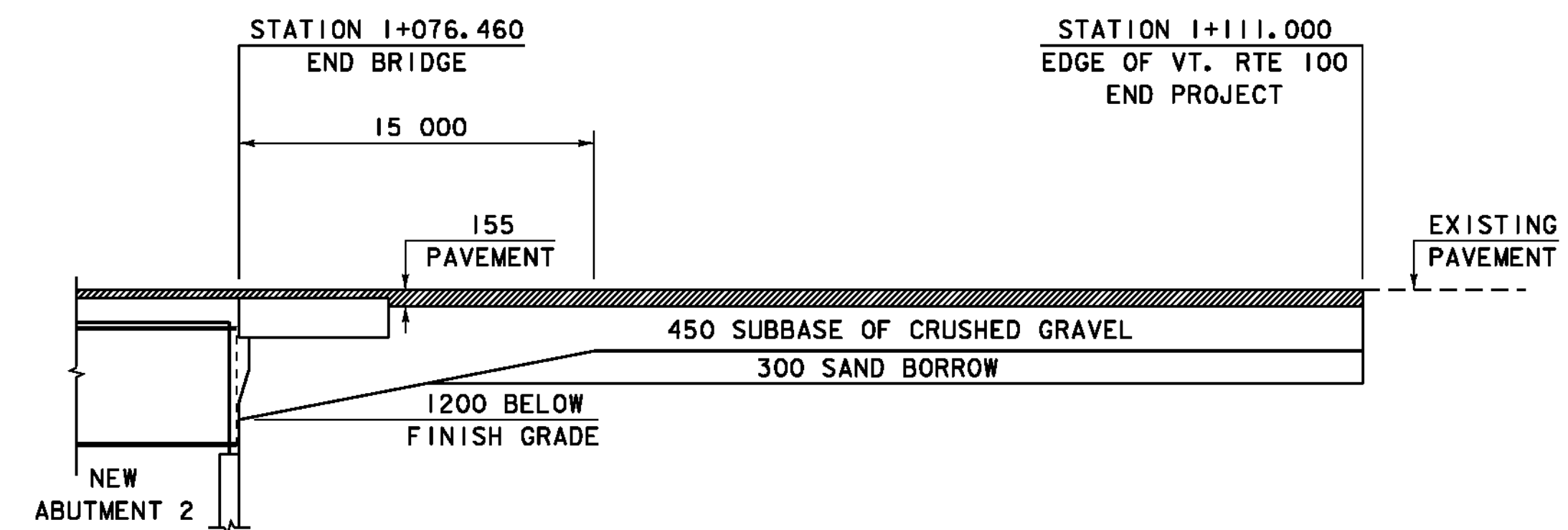


THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE OLD GROUND ALONG THE CENTERLINE. THE GRADES SHOWN TO THE NEAREST THOUSANDTH ARE THE PROPOSED FINISHED GRADE ALONG THE CENTERLINE.

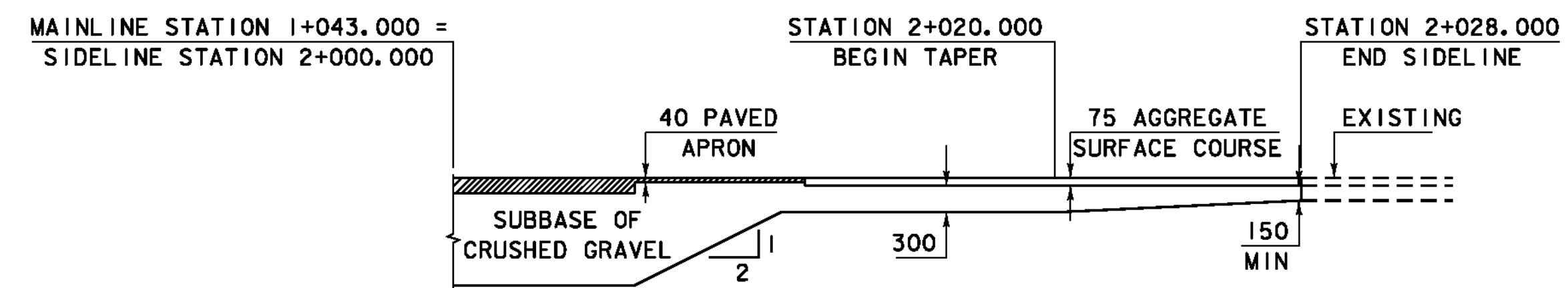
PROJECT NAME:	READSBORO
PROJECT NUMBER:	BRO 1441(25)
FILE NAME:	sj070pro.dgn
PROJECT LEADER:	C.P. WILLIAMS
DESIGNED BY:	H.I. SALLS
PROFILE SHEET	
PLOT DATE:	05-JAN-2010
DRAWN BY:	H.I. SALLS
CHECKED BY:	K.M. HIGGINS
SHEET 10	OF 60



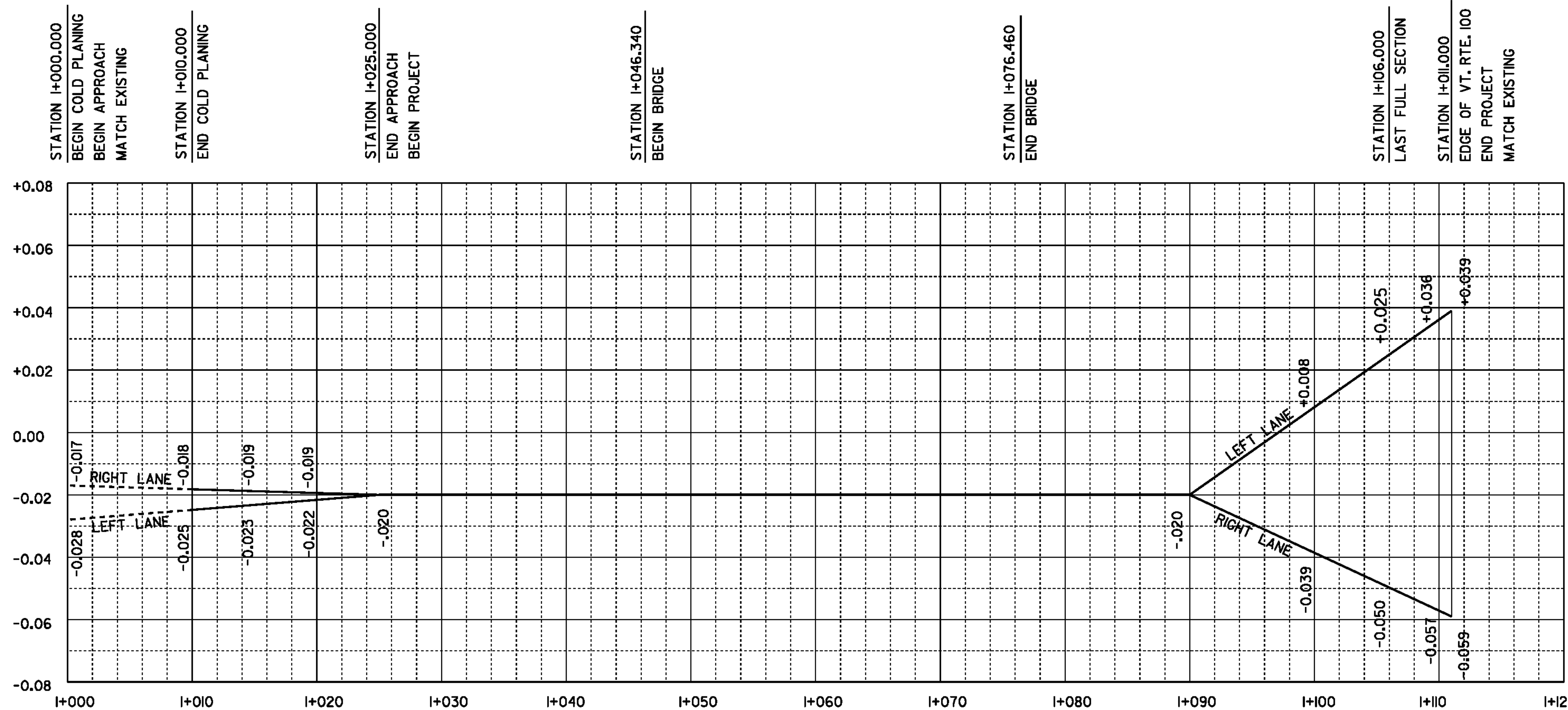
BEGIN MAINLINE SUBBASE TRANSITION DIAGRAM
(NOT TO SCALE)



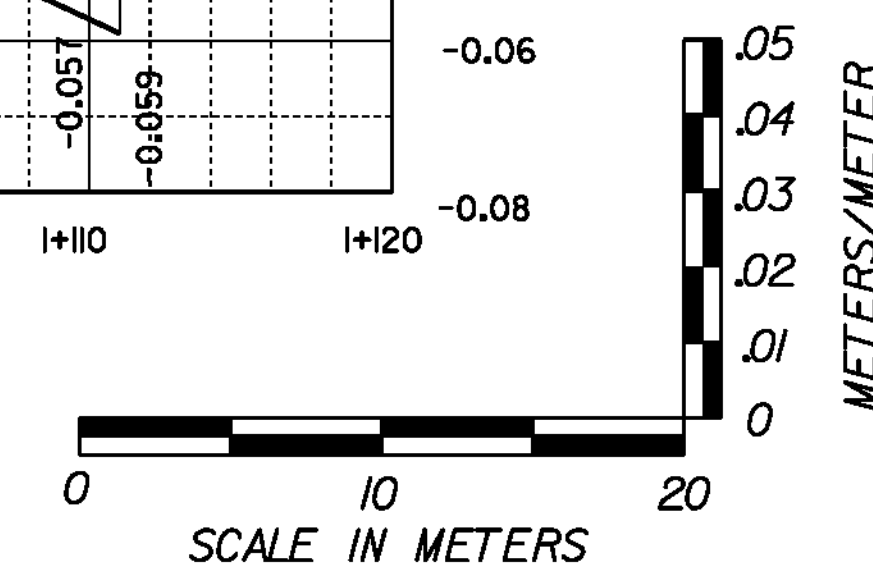
END MAINLINE SUBBASE TRANSITION DIAGRAM
(NOT TO SCALE)



SIDELINE SUBBASE TRANSITION DIAGRAM
(NOT TO SCALE)



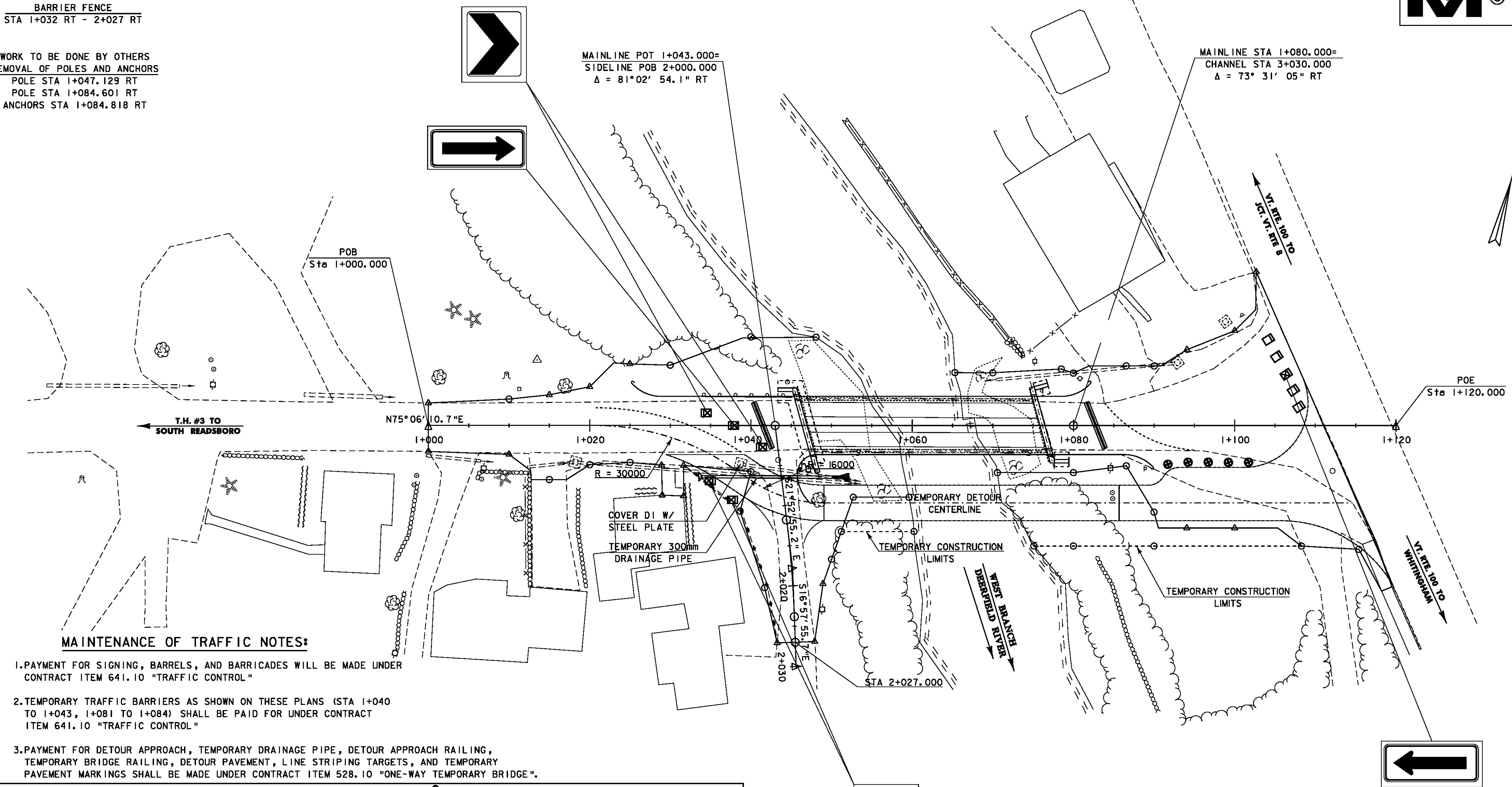
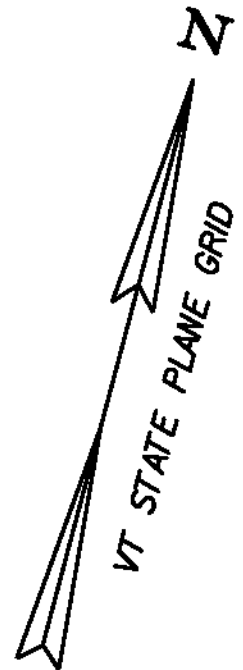
MAINLINE BANKING DIAGRAM



PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94\070\structures\sj070xs.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070mbd.i	DRAWN BY: K. UPMAL
DESIGNED BY: K. UPMAL	CHECKED BY: E.L. RUSTAY
SQUAD LEADER: C.P. WILLIAMS	SHEET: 11 OF 60
BANKING AND TRANSITION DIAGRAMS	

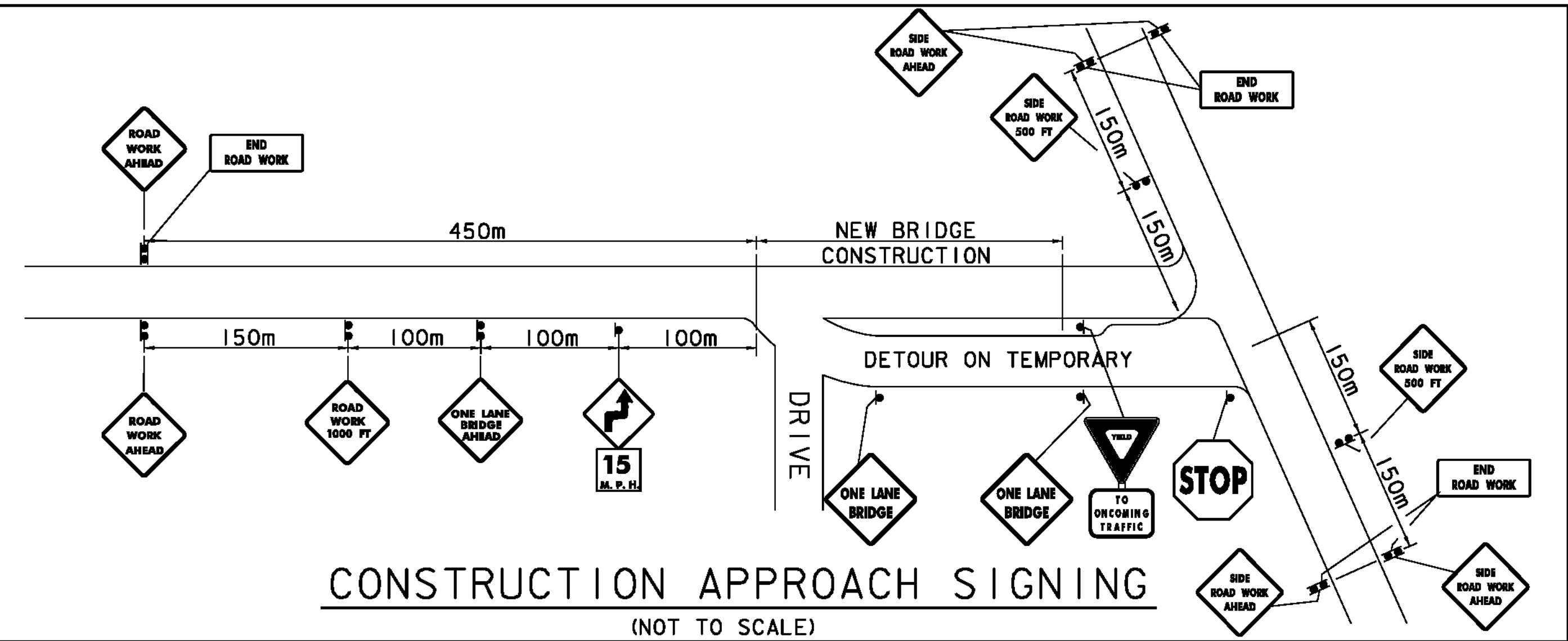
BARRIER FENCE
STA 1+032 RT - 2+027 RT

WORK TO BE DONE BY OTHERS
REMOVAL OF POLES AND ANCHORS
POLE STA 1+047.129 RT
POLE STA 1+084.601 RT
ANCHORS STA 1+084.818 RT



MAINTENANCE OF TRAFFIC NOTES:

1. PAYMENT FOR SIGNING, BARRELS, AND BARRICADES WILL BE MADE UNDER CONTRACT ITEM 641.10 "TRAFFIC CONTROL"
2. TEMPORARY TRAFFIC BARRIERS AS SHOWN ON THESE PLANS (STA 1+040 TO 1+043, 1+081 TO 1+084) SHALL BE PAID FOR UNDER CONTRACT ITEM 641.10 "TRAFFIC CONTROL"
3. PAYMENT FOR DETOUR APPROACH, TEMPORARY DRAINAGE PIPE, DETOUR APPROACH RAILING, TEMPORARY BRIDGE RAILING, DETOUR PAVEMENT, LINE STRIPING TARGETS, AND TEMPORARY PAVEMENT MARKINGS SHALL BE MADE UNDER CONTRACT ITEM 528.10 "ONE-WAY TEMPORARY BRIDGE".



- LEGEND**
- TYPE III BARRICADE
 - TYPE III (MOD) BARRICADE
 - REFLECTIVE DRUM
 - TEMPORARY TRAFFIC BARRIER
 - BARRIER FENCE



PROJECT:	READSBORO	PROJECT NO.:	BRO 1441 (25)
DESIGN FILE NAME:	94\070\structures\sj070.tcs.dgn	PLOT DATE:	05-JAN-2010
IPARM FILE NAME:	sj070.tcs.i	DRAWN BY:	H. I. SALLS
DESIGNED BY:	H. I. SALLS	CHECKED BY:	R. S. YOUNG
SQUAD LEADER:	C. P. WILLIAMS	SHEET:	12 OF 60
TRAFFIC CONTROL:			

SOIL CLASSIFICATION

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

COMMONLY USED SYMBOLS

▼	Water Elevation
⊕	Standard Penetration Boring
⊗	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per 300 mm For: 50.8 mm O.D. Sampler 35.0 mm I.D. Sampler Hammer Weight Of 63.5 kg. Hammer Fall Of 762 mm
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 30.1mm
BX	Core Size 42.0 mm
NX	Core Size 54.7 mm
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
SI	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)

ROCK QUALITY DESIGNATION

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

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN kPa	CONSISTENCY
<12	Very Soft
12-24	Soft
24-48	Med. Stiff
48-96	Stiff
96-192	Very Stiff
>192	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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

COLOR

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

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 304.8 mm.

COBBLE - Rock fragments with an average dimension between 76.2 and 304.8 mm.

GRAVEL - Rounded particles of rock < 76.2 mm and > 2 mm (#10 sieve).

SAND - Particles of rock < 2 mm (#10 sieve) and > 75 µm (#200 sieve).

SILT - Soil < 75 µm (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material).

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

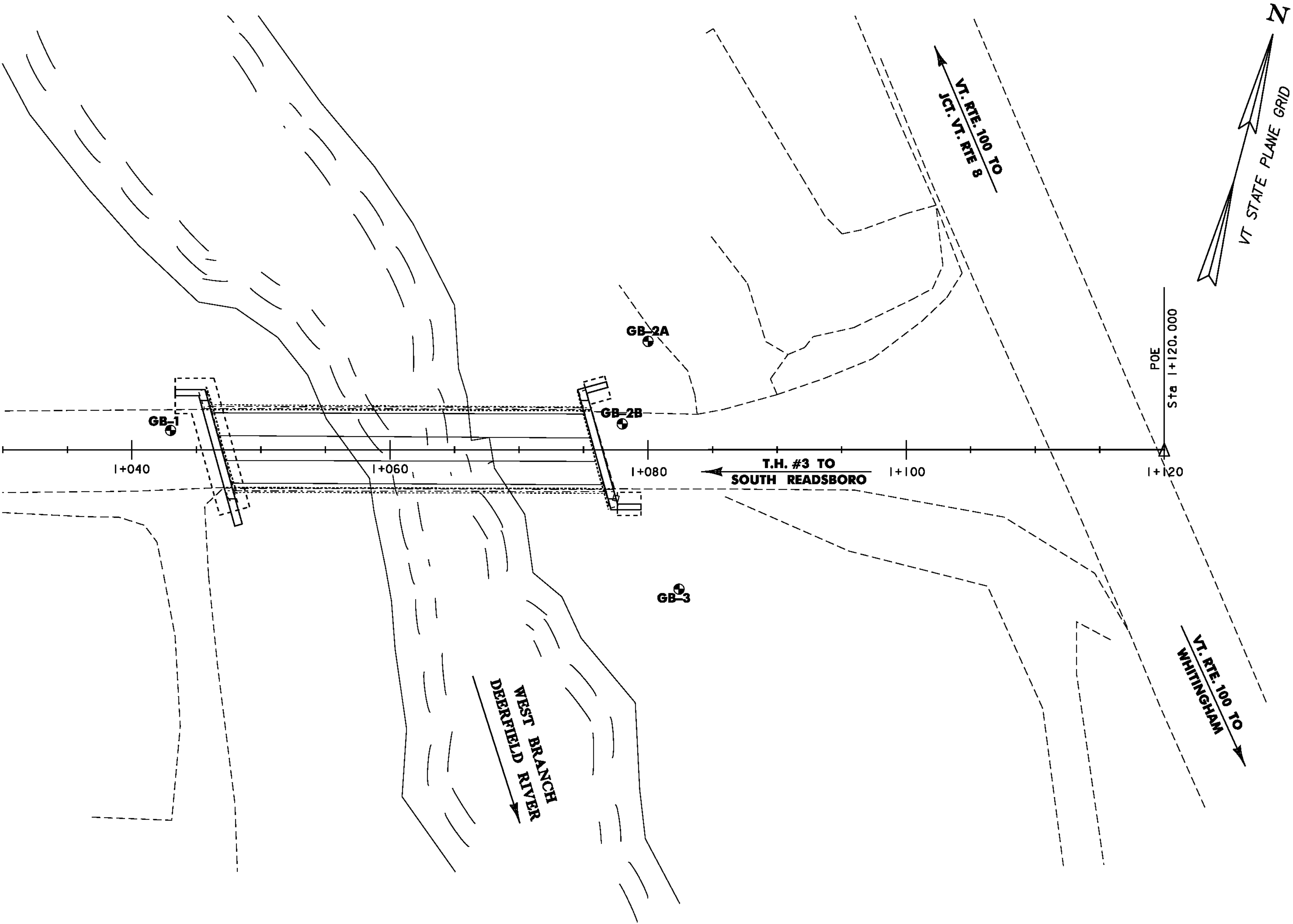
FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

- The subsurface explorations shown herein were made between April 22 and May 2, 2002 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.



BORING LAYOUT



SCALE = 1:200

BORING NO.	STATION	OFFSET
GB-1	I+043	1.50m LT
GB-2A	I+080	8.40m LT
GB-2B	I+078	2.00m LT
GB-3	I+084.4	10.80m RT

PROJECT: READSBORO		PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94\070\structures\sj070bor.dgn		PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070bor.i		DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS		CHECKED BY: R. S. YOUNG
SQUAD LEADER: C. P. WILLIAMS		SHEET: 13 OF 60
BORING LAYOUT SHEET		

BOTTOM OF FOOTING
ELEV. = 377.200

GEODESIGN INCORPORATED										BORING LOG										Boring No.: GB-1	
P.O. Box 699 Winchester, VT 05498 Tel: (802) 876-2633										1233 Shelburne Road, Suite E-1 South Burlington, VT 05403 Tel: (802) 432-2140										Page No.: 1 of 3	
Project Name: Readsboro BHO 1441 (25)										File No.: 750-3.7m										Checked By: RSA	
Boring Company: M.S.W. Sub Engineering										Client: Readsboro										Boring No.: GB-1	
Personnel: Jim Ferguson										Date: April 22, 2002										Page No.: 2 of 3	
Coring Depth: 11.0m										Date: April 22, 2002										File No.: 750-3.7m	
Date Started: April 22, 2002										Date Finished: April 22, 2002										Checked By: RSA	
N. Coordinate: 317.81 m										E. Coordinate: -1.54 m											
Ground Surface Elevation (meters): 381.45										Bore Type: Open Track Borehole											
Station: 1441										Office: 1441											
Sample Information										Sample Description										Strata Description	
Depth (m)	Core Number	Type	Penetration (kg/cm²)	Length (m)	Notes	Depth (m)	Core Number	Type	Penetration (kg/cm²)	Length (m)	Notes	Depth (m)	Core Number	Type	Penetration (kg/cm²)	Length (m)	Notes				
0.0	1	Gravel	0.1	0.1	0.1	0.0	1	Gravel	0.1	0.1	0.1	0.0	1	Gravel	0.1	0.1	0.1				
0.1	1	Gravel	0.1	0.1	0.1	0.1	1	Gravel	0.1	0.1	0.1	0.1	1	Gravel	0.1	0.1	0.1				
0.2	1	Gravel	0.1	0.1	0.1	0.2	1	Gravel	0.1	0.1	0.1	0.2	1	Gravel	0.1	0.1	0.1				
0.3	1	Gravel	0.1	0.1	0.1	0.3	1	Gravel	0.1	0.1	0.1	0.3	1	Gravel	0.1	0.1	0.1				
0.4	1	Gravel	0.1	0.1	0.1	0.4	1	Gravel	0.1	0.1	0.1	0.4	1	Gravel	0.1	0.1	0.1				
0.5	1	Gravel	0.1	0.1	0.1	0.5	1	Gravel	0.1	0.1	0.1	0.5	1	Gravel	0.1	0.1	0.1				
0.6	1	Gravel	0.1	0.1	0.1	0.6	1	Gravel	0.1	0.1	0.1	0.6	1	Gravel	0.1	0.1	0.1				
0.7	1	Gravel	0.1	0.1	0.1	0.7	1	Gravel	0.1	0.1	0.1	0.7	1	Gravel	0.1	0.1	0.1				
0.8	1	Gravel	0.1	0.1	0.1	0.8	1	Gravel	0.1	0.1	0.1	0.8	1	Gravel	0.1	0.1	0.1				
0.9	1	Gravel	0.1	0.1	0.1	0.9	1	Gravel	0.1	0.1	0.1	0.9	1	Gravel	0.1	0.1	0.1				
1.0	1	Gravel	0.1	0.1	0.1	1.0	1	Gravel	0.1	0.1	0.1	1.0	1	Gravel	0.1	0.1	0.1				
1.1	1	Gravel	0.1	0.1	0.1	1.1	1	Gravel	0.1	0.1	0.1	1.1	1	Gravel	0.1	0.1	0.1				
1.2	1	Gravel	0.1	0.1	0.1	1.2	1	Gravel	0.1	0.1	0.1	1.2	1	Gravel	0.1	0.1	0.1				
1.3	1	Gravel	0.1	0.1	0.1	1.3	1	Gravel	0.1	0.1	0.1	1.3	1	Gravel	0.1	0.1	0.1				
1.4	1	Gravel	0.1	0.1	0.1	1.4	1	Gravel	0.1	0.1	0.1	1.4	1	Gravel	0.1	0.1	0.1				
1.5	1	Gravel	0.1	0.1	0.1	1.5	1	Gravel	0.1	0.1	0.1	1.5	1	Gravel	0.1	0.1	0.1				
1.6	1	Gravel	0.1	0.1	0.1	1.6	1	Gravel	0.1	0.1	0.1	1.6	1	Gravel	0.1	0.1	0.1				
1.7	1	Gravel	0.1	0.1	0.1	1.7	1	Gravel	0.1	0.1	0.1	1.7	1	Gravel	0.1	0.1	0.1				
1.8	1	Gravel	0.1	0.1	0.1	1.8	1	Gravel	0.1	0.1	0.1	1.8	1	Gravel	0.1	0.1	0.1				
1.9	1	Gravel	0.1	0.1	0.1	1.9	1	Gravel	0.1	0.1	0.1	1.9	1	Gravel	0.1	0.1	0.1				
2.0	1	Gravel	0.1	0.1	0.1	2.0	1	Gravel	0.1	0.1	0.1	2.0	1	Gravel	0.1	0.1	0.1				
2.1	1	Gravel	0.1	0.1	0.1	2.1	1	Gravel	0.1	0.1	0.1	2.1	1	Gravel	0.1	0.1	0.1				
2.2	1	Gravel	0.1	0.1	0.1	2.2	1	Gravel	0.1	0.1	0.1	2.2	1	Gravel	0.1	0.1	0.1				
2.3	1	Gravel	0.1	0.1	0.1	2.3	1	Gravel	0.1	0.1	0.1	2.3	1	Gravel	0.1	0.1	0.1				
2.4	1	Gravel	0.1	0.1	0.1	2.4	1	Gravel	0.1	0.1	0.1	2.4	1	Gravel	0.1	0.1	0.1				
2.5	1	Gravel	0.1	0.1	0.1	2.5	1	Gravel	0.1	0.1	0.1	2.5	1	Gravel	0.1	0.1	0.1				
2.6	1	Gravel	0.1	0.1	0.1	2.6	1	Gravel	0.1	0.1	0.1	2.6	1	Gravel	0.1	0.1	0.1				
2.7	1	Gravel	0.1	0.1	0.1	2.7	1	Gravel	0.1	0.1	0.1	2.7	1	Gravel	0.1	0.1	0.1				
2.8	1	Gravel	0.1	0.1	0.1	2.8	1	Gravel	0.1	0.1	0.1	2.8	1	Gravel	0.1	0.1	0.1				
2.9	1	Gravel	0.1	0.1	0.1	2.9	1	Gravel	0.1	0.1	0.1	2.9	1	Gravel	0.1	0.1	0.1				
3.0	1	Gravel	0.1	0.1	0.1	3.0	1	Gravel	0.1	0.1	0.1	3.0	1	Gravel	0.1	0.1	0.1				
3.1	1	Gravel	0.1	0.1	0.1	3.1	1	Gravel	0.1	0.1	0.1	3.1	1	Gravel	0.1	0.1	0.1				
3.2	1	Gravel	0.1	0.1	0.1	3.2	1	Gravel	0.1	0.1	0.1	3.2	1	Gravel	0.1	0.1	0.1				
3.3	1	Gravel	0.1	0.1	0.1	3.3	1	Gravel	0.1	0.1	0.1	3.3	1	Gravel	0.1	0.1	0.1				
3.4	1	Gravel	0.1	0.1	0.1	3.4	1	Gravel	0.1	0.1	0.1	3.4	1	Gravel	0.1	0.1	0.1				
3.5	1	Gravel	0.1	0.1	0.1	3.5	1	Gravel	0.1	0.1	0.1	3.5	1	Gravel	0.1	0.1	0.1				
3.6	1	Gravel	0.1	0.1	0.1	3.6	1	Gravel	0.1	0.1	0.1	3.6	1	Gravel	0.1	0.1	0.1				
3.7	1	Gravel	0.1	0.1	0.1	3.7	1	Gravel	0.1	0.1	0.1	3.7	1	Gravel	0.1	0.1	0.1				
3.8	1	Gravel	0.1	0.1	0.1	3.8	1	Gravel	0.1	0.1	0.1	3.8	1	Gravel	0.1	0.1	0.1				
3.9	1	Gravel	0.1	0.1	0.1	3.9	1	Gravel	0.1	0.1	0.1	3.9	1	Gravel	0.1	0.1	0.1				
4.0	1	Gravel	0.1	0.1	0.1	4.0	1	Gravel	0.1	0.1	0.1	4.0	1	Gravel	0.1	0.1	0.1				
4.1	1	Gravel	0.1	0.1	0.1	4.1	1	Gravel	0.1	0.1	0.1	4.1	1	Gravel	0.1	0.1	0.1				
4.2	1	Gravel	0.1	0.1	0.1	4.2	1	Gravel	0.1	0.1	0.1	4.2	1	Gravel	0.1	0.1	0.1				
4.3	1	Gravel	0.1	0.1	0.1	4.3	1	Gravel	0.1	0.1	0.1	4.3	1	Gravel	0.1	0.1	0.1				
4.4	1	Gravel	0.1	0.1	0.1	4.4	1	Gravel	0.1	0.1	0.1	4.4	1	Gravel	0.1	0.1	0.1				
4.5	1	Gravel	0.1	0.1	0.1	4.5	1	Gravel	0.1	0.1	0.1	4.5	1	Gravel	0.1	0.1	0.1				
4.6	1	Gravel	0.1	0.1	0.1	4.6	1	Gravel	0.1	0.1	0.1	4.6	1	Gravel	0.1	0.1	0.1				
4.7	1	Gravel	0.1	0.1	0.1	4.7	1	Gravel	0.1	0.1	0.1	4.7	1	Gravel	0.1	0.1	0.1				
4.8	1	Gravel	0.1	0.1	0.1	4.8	1	Gravel	0.1	0.1	0.1	4.8	1	Gravel	0.1	0.1	0.1				
4.9	1	Gravel	0.1	0.1	0.1	4.9	1	Gravel	0.1	0.1	0.1	4.9	1	Gravel	0.1	0.1	0.1				
5.0	1	Gravel	0.1	0.1	0.1	5.0	1	Gravel	0.1	0.1	0.1	5.0	1	Gravel	0.1	0.1	0.1				
5.1	1	Gravel	0.1	0.1	0.1	5.1	1	Gravel	0.1	0.1	0.1	5.1	1	Gravel	0.1	0.1	0.1				
5.2	1	Gravel	0.1	0.1	0.1	5.2	1	Gravel	0.1	0.1	0.1	5.2	1	Gravel	0.1	0.1	0.1				
5.3	1	Gravel	0.1	0.1	0.1	5.3	1	Gravel	0.1	0.1	0.1	5.3	1	Gravel	0.1	0.1	0.1				
5.4	1	Gravel	0.1	0.1	0.1	5.4	1	Gravel	0.1	0.1	0.1	5.4	1	Gravel	0.1	0.1	0.1				
5.5	1	Gravel	0.1	0.1	0.1	5.5	1	Gravel	0.1	0.1	0.1	5.5	1	Gravel	0.1	0.1	0.1				
5.6	1	Gravel	0.1	0.1	0.1	5.6	1	Gravel	0.1	0.1	0.1	5.6	1	Gravel	0.1	0.1	0.1				
5.7	1	Gravel	0.1	0.1	0.1	5.7	1	Gravel	0.1	0.1	0.1	5.7	1	Gravel	0.1	0.1	0.1				
5.8	1	Gravel	0.1	0.1	0.1	5.8	1	Gravel	0.1	0.1	0.1	5.8	1	Gravel	0.1	0.1	0.1				
5.9	1	Gravel	0.1	0.1	0.1	5.9	1	Gravel	0.1	0.1	0.1	5.9	1	Gravel	0.1	0.1	0.1				
6.0	1	Gravel	0.1	0.1	0.1	6.0	1	Gravel	0.1	0.1	0.1	6.0	1	Gravel	0.1	0.1	0.1				
6.1	1	Gravel	0.1	0.1	0.1	6.1	1	Gravel	0.1	0.1	0.1	6.1	1	Gravel	0.1	0.1	0.1				
6.2	1	Gravel	0.1	0.1	0.1	6.2	1	Gravel	0.1	0.1	0.1	6.2	1	Gravel	0.1	0.1	0.1				
6.3	1	Gravel	0.1	0.1	0.1	6.3	1	Gravel	0.1	0.1	0.1	6.3	1	Gravel	0.1	0.1	0.1				
6.4	1	Gravel	0.1	0.1	0.1	6.4	1	Gravel	0.1	0.1	0.1	6.4	1	Gravel	0.1	0.1	0.1				
6.5	1	Gravel	0.1	0.1	0.1	6.5	1	Gravel	0.1	0.1	0.1	6.5	1	Gravel	0.1	0.1	0.1				
6.6	1	Gravel	0.1	0.1	0.1	6.6	1	Gravel	0.1	0.1	0.1	6.6	1	Gravel	0.1	0.1	0.1				
6.7	1	Gravel	0.1	0.1	0.1	6.7	1	Gravel	0.1	0.1	0.1	6.7	1	Gravel	0.1	0.1	0.1				
6.8	1	Gravel	0.1	0.1	0.1	6.8	1	Gravel	0.1	0.1	0.1	6.8	1	Gravel	0.1	0.1	0.1				
6.9	1	Gravel	0.1	0.1	0.1	6.9	1	Gravel	0.1	0.1	0.1	6.9	1	Gravel	0.1	0.1	0.1				
7.0	1	Gravel	0.1	0.1	0.1	7.0	1	Gravel	0.1	0.1	0.1	7.0	1	Gravel	0.1	0.1					

[illegible][illegible]



**GEODESIGN
INCORPORATED**

P.O. Box 670
Wichita, VT 05692
Tel: (802) 744-2325

1201 Shattuck Street, Suite E-1
South Burlington, VT 05403
(802) 683-5444

BORING LOG

Project Name _____

Readsboro BFO 1441 (25)

Readsboro, VT

Boring No.: **GB-3**

Page No.: **1 of 1**

File No.: **736-3**

Checked By: **RSB**

Drilling Company: M & S Soil Engineering

Operator: Jim Ferguson

Geology Dept: 2001050901

Date Started: 06/25/2002

N. Coordinate: 320.55 m

Ground Surface Elevation: 352.51

Soils: 3034 **Office:** 3034 0107

Type: DESIGN **Scale:** 1:50

TD (m): 11.00 **5.00**

Remarks: Wt. 100 47/501 845.00 2.99 317.33 2.00

For Test: ASCE 130.00 4.15 2.937 0.00

Geotechnical Observations:

Depth (m)	Flow rate (m)	Notes
0.00	0.00	
1.00	0.00	
2.00	0.00	
3.00	0.00	
4.00	0.00	
5.00	0.00	
6.00	0.00	
7.00	0.00	
8.00	0.00	
9.00	0.00	
10.00	0.00	
11.00	0.00	

Sample Information

Depth (m)	Type	Location	Depth (m)	Notes
0.00	1	0.15	0.15	0.15
1.00	2	0.15	0.15	0.15
2.00	3	0.15	0.15	0.15
3.00	4	0.15	0.15	0.15
4.00	5	0.15	0.15	0.15
5.00	6	0.15	0.15	0.15
6.00	7	0.15	0.15	0.15
7.00	8	0.15	0.15	0.15
8.00	9	0.15	0.15	0.15
9.00	10	0.15	0.15	0.15
10.00	11	0.15	0.15	0.15
11.00	12	0.15	0.15	0.15

Sample Description

Classification: TOPSOIL

Remarks: 1.00 302.00 0.40 0.40 0.40

Notes: 1.00 302.00 0.40 0.40 0.40

Strata Description

Strata: TOPSOIL

Notes: 1.00 302.00 0.40 0.40 0.40

Drilling Company: M & S Soil Engineering

Operator: Jim Ferguson

Geology Dept: 2001050901

Date Started: 06/25/2002

N. Coordinate: 320.55 m

Ground Surface Elevation: 352.51

Soils: 3034 **Office:** 3034 0107

Type: DESIGN **Scale:** 1:50

TD (m): 11.00 **5.00**

Remarks: Wt. 100 47/501 845.00 2.99 317.33 2.00

For Test: ASCE 130.00 4.15 2.937 0.00

Geotechnical Observations:

Depth (m)	Flow rate (m)	Notes
0.00	0.00	
1.00	0.00	
2.00	0.00	
3.00	0.00	
4.00	0.00	
5.00	0.00	
6.00	0.00	
7.00	0.00	
8.00	0.00	
9.00	0.00	
10.00	0.00	
11.00	0.00	

Sample Information

Depth (m)	Type	Location	Depth (m)	Notes
0.00	1	0.15	0.15	0.15
1.00	2	0.15	0.15	0.15
2.00	3	0.15	0.15	0.15
3.00	4	0.15	0.15	0.15
4.00	5	0.15	0.15	0.15
5.00	6	0.15	0.15	0.15
6.00	7	0.15	0.15	0.15
7.00	8	0.15	0.15	0.15
8.00	9	0.15	0.15	0.15
9.00	10	0.15	0.15	0.15
10.00	11	0.15	0.15	0.15
11.00	12	0.15		

PROJECT NAME:	READSBORO
PROJECT NUMBER:	BRO 1441(25)

FILE NAME: sJ070ref.dgn
PROJECT LEADER: C.P. WILLIAMS
DESIGNED BY: H.I. SALLS
BORING LOG SHEET 2

PLOT DATE: 05-JAN-2010
DRAWN BY: L.J. STONE
CHECKED BY: K.M. HIGGINS
SHEET 15 OF 60

GEODESIGN

INCORPORATED

PO Box 690
Windsor, VT 05089
Tel: (802) 874-7035

1233 Shelburne Road, Suite E-1
South Burlington, VT 05403
Tel: (802) 657-5140

BORING LOG

Project Name

Readsboro BHO 1441 (25)
Readsboro, VT

Boring No.: GB-3

Page No.: 2 of 2

File No.: 750-3.7m

Checked By: RSA

Boring Company: M & V Stable Engineering

Personnel: Jim Ferguson

Client/Design Rep.: Jason Gaudette

Date Started: April 25, 2010

N. Coordinate: 580.53 m

Ground Surface Elevation (meters): 380.51

Station: 1088.4

Client: M & V Stable Engineering

Type: H.S.A. SS

LD (O.D.): 11.2m

Remotes Wt.: NA

Remotes Pkg.: NA

Log Type: Ackar Track Mounted

Other:

Sampling

Date and Time

Depth (m)

Elevation (m)

Notes

Groundwater Observations

2.89

377.55

Open Hole

4.75

373.91

Open Hole

Sample Information

Sample Description

Strata Description

Depth (m)

Coring Method

Core Number

Type

Penetration (cm)

Recovery (%)

Depth (m)

Blows / 0.1 s interval

0-15

15-30

30-45

45-60

60-75

75-90

90-105

105-120

120-135

135-150

150-165

165-180

180-195

195-210

210-225

225-240

240-255

255-270

270-285

285-300

300-315

315-330

330-345

345-360

360-375

375-390

390-405

405-420

420-435

435-450

450-465

465-480

480-495

495-510

510-525

525-540

540-555

555-570

570-585

585-600

600-615

615-630

630-645

645-660

660-675

675-690

690-705

705-720

720-735

735-750

750-765

765-780

780-795

795-810

810-825

825-840

840-855

855-870

870-885

885-900

900-915

915-930

930-945

945-960

960-975

975-990

990-1005

1005-1020

1020-1035

1035-1050

1050-1065

1065-1080

1080-1095

1095-1110

1110-1125

1125-1140

1140-1155

1155-1170

1170-1185

1185-1200

1200-1215

1215-1230

1230-1245

1245-1260

1260-1275

1275-1290

1290-1305

1305-1320

1320-1335

1335-1350

1350-1365

1365-1380

1380-1395

1395-1410

1410-1425

1425-1440

1440-1455

1455-1470

1470-1485

1485-1500

1500-1515

1515-1530

1530-1545

1545-1560

1560-1575

1575-1590

1590-1605

1605-1620

1620-1635

1635-1650

1650-1665

1665-1680

1680-1695

1695-1710

1710-1725

1725-1740

1740-1755

1755-1770

1770-1785

1785-1800

1800-1815

1815-1830

1830-1845

1845-1860

1860-1875

1875-1890

1890-1905

1905-1920

1920-1935

1935-1950

1950-1965

1965-1980

1980-1995

1995-2010

2010-2025

2025-2040

2040-2055

2055-2070

2070-2085

2085-2100

2100-2115

2115-2130

2130-2145

2145-2160

2160-2175

2175-2190

2190-2205

2205-2220

2220-2235

2235-2250

2250-2265

2265-2280

2280-2295

2295-2310

2310-2325

2325-2340

2340-2355

2355-2370

2370-2385

2385-2400

2400-2415

2415-2430

2430-2445

2445-2460

2460-2475

2475-2490

2490-2505

2505-2520

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2610-2625

2625-2640

2640-2655

2655-2670

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2700-2715

2715-2730

2730-2745

2745-2760

2760-2775

2775-2790

2790-2805

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2865-2880

2880-2895

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2955-2970

2970-2985

2985-3000

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3015-3030

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3045-3060

3060-3075

3075-3090

3090-3105

3105-3120

3120-3135

3135-3150

3150-3165

3165-3180

3180-3195

3195-3210

3210-3225

3225-3240

3240-3255

3255-3270

3270-3285

3285-3300

3300-3315

3315-3330

3330-3345

3345-3360

3360-3375

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3465-3480

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3570-3585

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4185-4200

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4230-4245

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4440-4455

4455-4470

4470-4485

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5775-5790

5790-5805

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5955-5970

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9105-9120

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11990-12005

12005-12020

12020-12035

12035-12050

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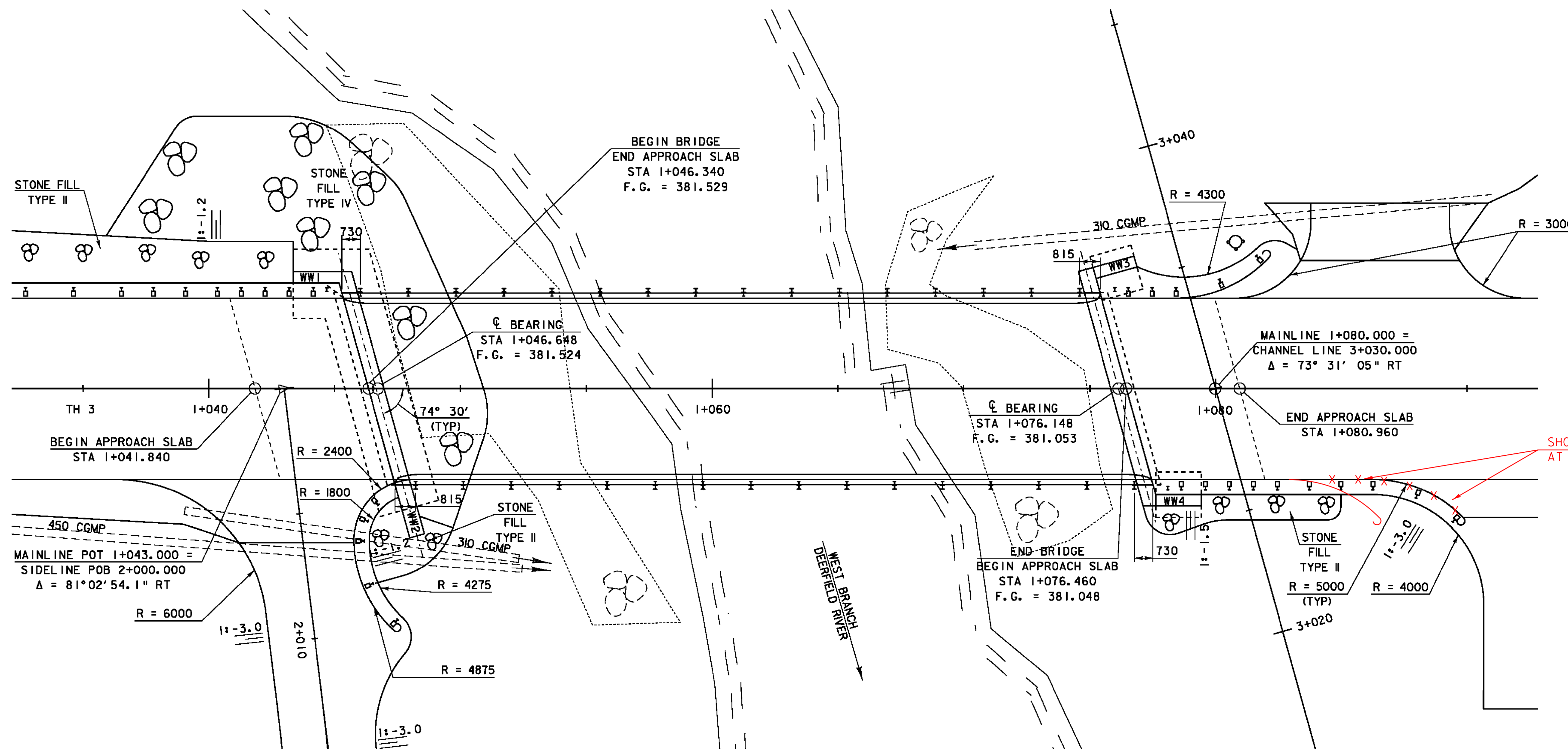
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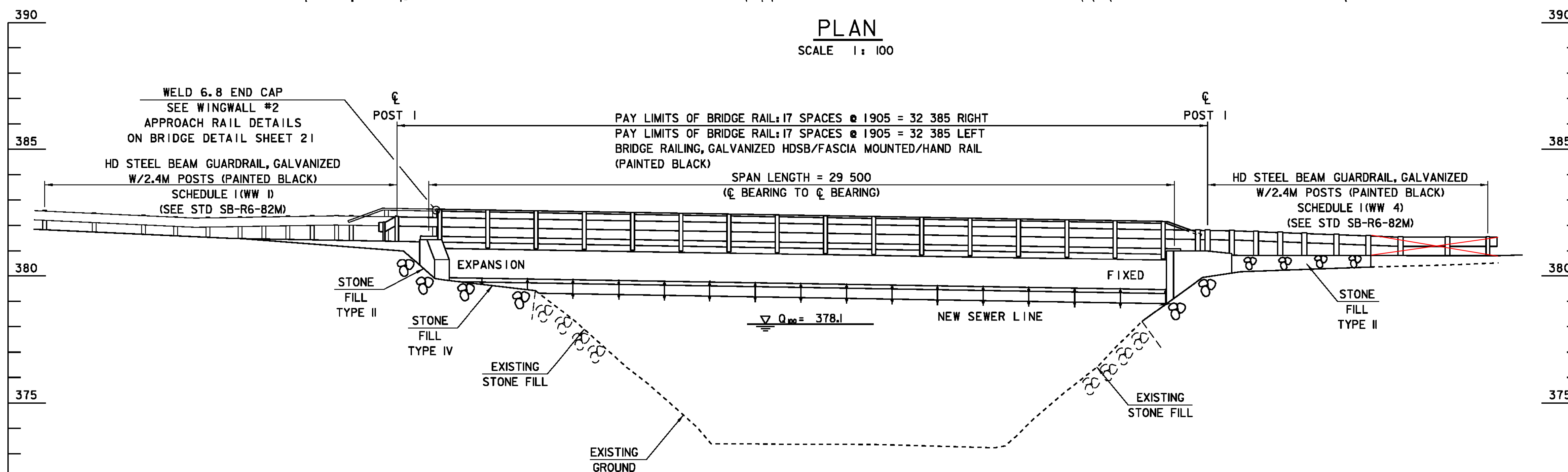
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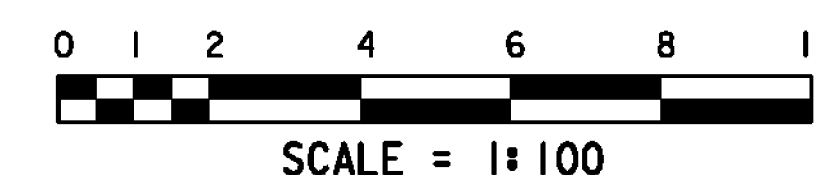
PLAN
SCALE 1:100

BRIDGE APPROACH RAILING
AT WINGWALLS 2 AND 3

POST #	SPACING	PAYMENT FACTOR
1	952.5	1.4X1905
2	952.5	1.0
3	1905	1.0
4	(TYP)	(TYP)



ELEVATION @ DOWNSTREAM FASCIA
SCALE 1:100



PROJECT:	READSBORO	PROJECT NO.:	BRO 1441 (25)
DESIGN FILE NAME:	94\070\structures\sj070pe.dgn	PLOT DATE:	05-JAN-2010
IPARM FILE NAME:	sj070pe.i	DRAWN BY:	H. I. SALLS
DESIGNED BY:	H. I. SALLS	CHECKED BY:	R. S. YOUNG
SQUAD LEADER:	C. P. WILLIAMS	SHEET:	17 OF 60
PLAN AND ELEVATION			



GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOURTH EDITION, DATED 2007, AND ITS LATEST REVISIONS. ALSO THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, SECOND EDITION 2004 AND ALL ITS INTERIMS.
2. THE BRIDGE IS DESIGNED FOR THE HL-93 LIVE LOAD.
3. DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20 DEGREES CELSIUS, UNLESS NOTED OTHERWISE.
4. EXISTING SIGNS NOT REUSED SHALL REMAIN THE PROPERTY OF THE TOWN OF READSBORO AND SHALL BE STOCKPILED ON THE PROJECT SITE. THE TOWN ROAD FOREMAN, BARRY HOWES, SHALL BE NOTIFIED TO PICK UP THE SIGNS AT (802) 423-5730.
5. ITEM 529.15 “REMOVAL OF STRUCTURE” SHALL BE USED FOR REMOVAL OF THE EXISTING SUPERSTRUCTURE INCLUDING THE EXISTING SEWER LINE AND ANY PORTION OF THE ABUTMENTS AND WINGWALLS OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION. ABUTMENT NO. 2 SHALL BE REMOVED TO THE ELEVATION SHOWN ON THE PLANS AND ABUTMENT NO.1 IS TO BE REMOVED IN ITS ENTIRETY.
6. DURING CONSTRUCTION, TRAFFIC SHALL BE MAINTAINED ON A ONE-WAY TEMPORARY BRIDGE CONSTRUCTED DOWNSTREAM OF THE EXISTING STRUCTURE. THE TEMPORARY BRIDGE AND THE APPROACHES TO THE TEMPORARY BRIDGE SHALL BE PAYED WITH 75mm OF PAVEMENT. THE DESIGN OF THE TEMPORARY BRIDGE SHALL INCLUDE THE WEIGHT OF A TEMPORARY SEWER FORCE MAIN.
7. DURING CONSTRUCTION, THE DI AT 1+038.70 RT SHALL BE COVERED BY A STEEL PLATE DESIGNED TO PROTECT IT FROM THE TEMPORARY DETOUR. PAYMENT FOR THE DESIGN AND INSTALLATION OF THE PLATE SHALL BE INCLUDED IN THE COST OF ITEM 528.10 “ONE-WAY TEMPORARY BRIDGE”.
8. A TEMPORARY SEWER FORCE MAIN SHALL BE ATTACHED TO THE TEMPORARY BRIDGE. THE DESIGN AND INSTALLATION OF THE TEMPORARY SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DONE IN ACCORDANCE WITH THE PLANS AND SECTION 628. THE SYSTEM SHALL BE THE SAME SIZE AND MAINTAIN THE SAME DESIGN FLOWS AS THE EXISTING SYSTEM. PAYMENT FOR THE TEMPORARY SEWER FORCE MAIN AND ANY PIPES, FITTINGS, ATTACHMENTS, TESTING AND ANY EXCAVATION REQUIRED TO BUILD A COMPLETE FUNCTIONING SYSTEM TO THE SATISFACTION OF THE ENGINEER SHALL BE INCLUDED IN THE COST OF ITEM 528.10 “ONE-WAY TEMPORARY BRIDGE.
9. THE REMOVAL AND REPLACEMENT OF THE CONCRETE WALKWAY AND WOODEN STAIRS AT STA 1+030.00 SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (REMOVE AND REPLACE RESIDENTIAL WALKWAY).

EARTHWORK AND RELATED ITEMS

10. THE AREA DISTURBED BY THE TEMPORARY DETOUR SHALL BE SEEDED AND MULCHED AFTER ALL FILL HAS BEEN REMOVED TO THE ORIGINAL GROUND SURFACE. THE COST OF THE SEED, FERTILIZER, AND MULCH WILL BE PAID FOR UNDER THE BID PRICE FOR THE RESPECTIVE ITEMS. TOP SOIL SHALL BE USED WHEN RESTORING THE LAWN FROM STA 1+031.65 - 1+043.57 RT.
11. CURRENTLY THERE IS AN INVASIVE WEED (JAPANESE KNOTWEED) ON THE SOUTHEAST CORNER OF THE PROJECT THAT THE TOWN DOES NOT WANT SPREAD. ALL EARTH DISTURBING EQUIPMENT SHALL BE WASHED BEFORE LEAVING THE SOUTHEAST CORNER OF THE PROJECT.
12. ALL VEGETATION AND TOP SOIL EXCAVATED FROM THE SOUTHEAST CORNER SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY. CLEAN FILL SHALL BE USED AS REPLACEMENT MATERIAL TO THE SATISFACTION OF THE RESIDENT ENGINEER.
13. “STONE FILL, TYPE IV” SHALL BE USED TO STABILIZE THE EXISTING STONE FILL OUTSIDE THE STONE FILL LIMITS SHOWN ON THE PLANS. SMALLER STONES SHALL BE USED TO FILL GAPS BETWEEN THE EXISTING LARGER STONES TO THE SATISFACTION OF THE RESIDENT ENGINEER. WORK SHALL BE WITHIN THE CONSTRUCTION LIMITS INDICATED ON THE PLANS.
14. “STONE FILL, TYPE I” SHALL BE USED FOR EROSION CONTROL AT THE DISCRETION OF THE RESIDENT ENGINEER.
15. THE CONTRACTOR WILL TAKE ALL PRECAUTIONS NECESSARY NOT TO DAMAGE EXISTING SEWER, WATER, AND DRAINAGE PIPES. ANY DAMAGE TO THESE ITEMS BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR WITH NO EXTRA COMPENSATION.

STRUCTURAL STEEL

16. 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.
17. STRUCTURAL STEEL SHALL BE AASHTO M 270MM/M270 GRADE 345W. MEMBERS DESIGNATED “CVN” IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
18. ANY CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
19. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER. THESE ELEVATIONS SHALL BE USED IN DETERMINING FINISHED GRADES.
20. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE DESIGNED BY THE CONTRACTOR, BUT SHALL BE SPACED A MAXIMUM OF 1.2 METERS.
21. ANY BOLT HOLES IN THE WEBS OF FASCIA GIRDERS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS. THE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.

PAINTING

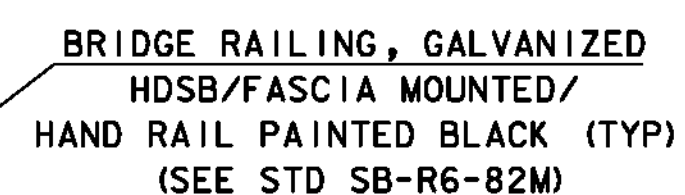
22. THE BRIDGE RAIL AND APPROACH GUARDRAIL SHALL BE PAINTED BLACK ACCORDING TO SECTION 513. THE “W” BEAM SECTIONS OF RAIL, STEEL OFFSET BLOCKS, BOX BEAM RAIL AND SUPPORT ANGLES, AND POSTS SHALL BE PAINTED TO FEDERAL STANDARD NO. 595, COLOR CHIP #27038.

CONCRETE

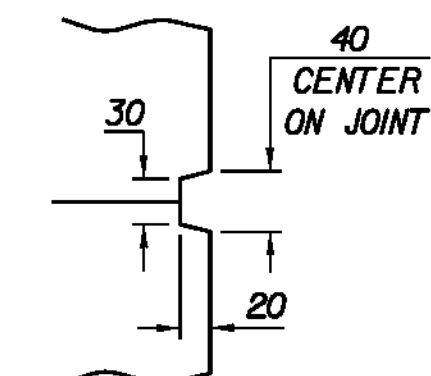
23. THE CONCRETE USED FOR THE BRIDGE DECK AND CURBS SHALL BE PAID FOR UNDER ITEM 501.33 “CONCRETE, HIGH PERFORMANCE CLASS A”. THE APPROACH SLABS AND SUBSTRUCTURE CONCRETE SHALL BE PAID FOR UNDER ITEM 501.34 “CONCRETE, HIGH PERFORMANCE CLASS B”. THE CONCRETE USED FOR THE THRUST BLOCKS SHALL BE PAID FOR UNDER ITEM 541.25 “CONCRETE, CLASS B”.
24. NO CONCRETE IN THE ABUTMENTS OR WINGWALLS SHALL BE PLACED ABOVE THE BRIDGE SEAT ELEVATIONS UNTIL THE GIRDERS HAVE BEEN PLACED AND THE FINISHED GRADE OF THE DECK HAS BEEN DETERMINED.
25. IN ACCORDANCE WITH SUBSECTION 506.23(A) OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND AS DIRECTED BY THE RESIDENT ENGINEER, THE CONTRACTOR SHALL TAKE ALL 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 SHALL 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.
26. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25mm X 25mm.
27. ITEM 514.10 “WATER REPELLENT, SILANE” SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, EXCEPT THE UNDERSIDE OF THE DECK BETWEEN DRIP NOTCHES. ALL SURFACES SHALL BE CLEANED BEFORE THE WATER REPELLENT IS APPLIED.
28. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:
SPACING: +/- 25 mm
CLEARANCE: +/- 6mm
29. TEMPORARY APPROACH TRAFFIC SIGNS SHALL BE LOCATED ACCORDING TO VERMONT STATE STANDARDS E-107 AND E-100A AND THE 2003 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
30. FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
31. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE STANDARDS E-100, E-100A, E-101, E-102A, E-106, AND E-142.

32. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL TEMPORARY SIGNS ON AND OFF-PROJECT ALONG WITH BARRICADES AS SHOWN IN THE PLANS AND AS DIRECTED BY THE RESIDENT ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 641.10 “TRAFFIC CONTROL”.
33. THE CONTRACTOR SHALL COVER OR REMOVE ANY SIGNS THAT CONTRADICT TEMPORARY TRAFFIC CONTROL SIGNS. ALL SIGNS REMOVED OR COVERED BY THE CONTRACTOR SHALL BE REPLACED OR UNCOVERED BY THE CONTRACTOR WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED. PAYMENT FOR REMOVAL AND REPLACEMENT, COVERING AND UNCOVERING OF SIGNS AND PLACEMENT AND REMOVAL OF TEMPORARY OVERLAYS SHALL BE INCIDENTAL TO ITEM 641.10, "TRAFFIC CONTROL". ANY DAMAGE TO EXISTING SIGNS BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR WITH NO EXTRA COMPENSATION.

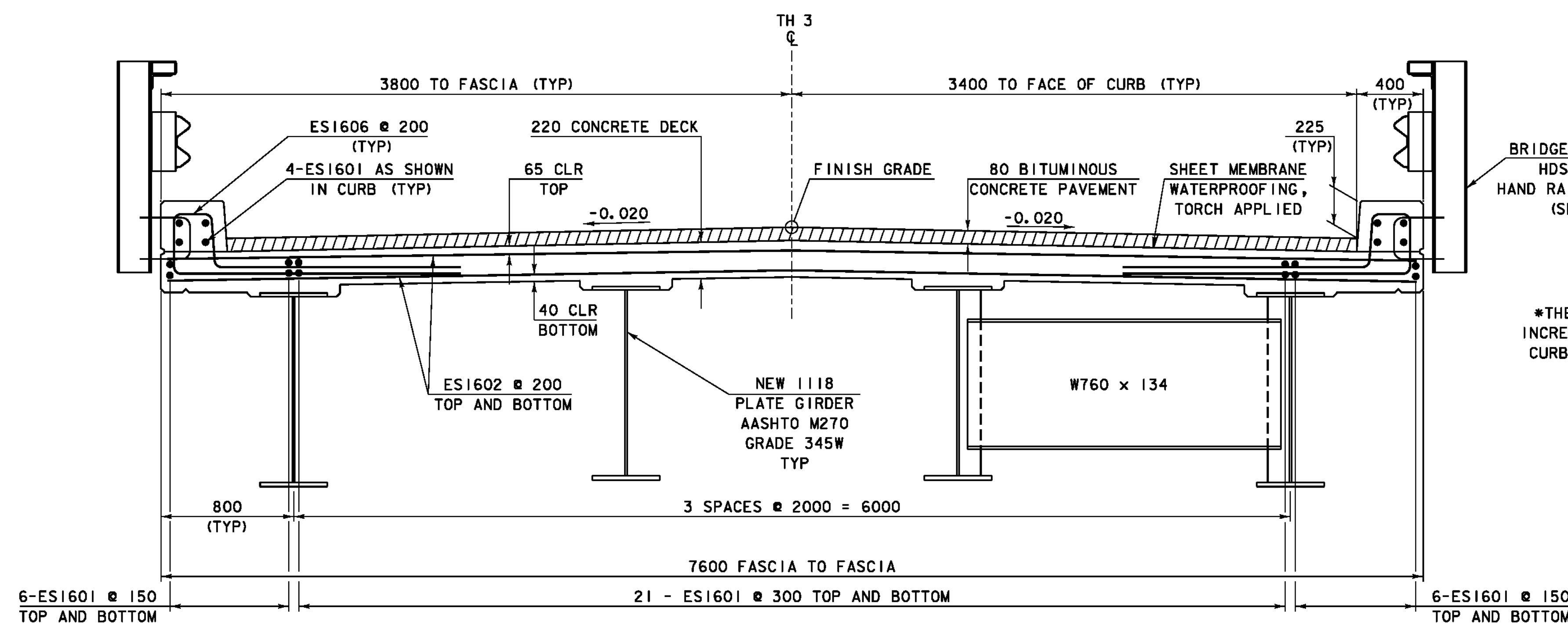
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DESIGNED BY: H. I. SALLS	DRAWN BY: H. I. SALLS
SQUAD LEADER: C. P. WILLIAMS	CHECKED BY: R. S. YOUNG
GENERAL NOTES	SHEET: 18 OF 60



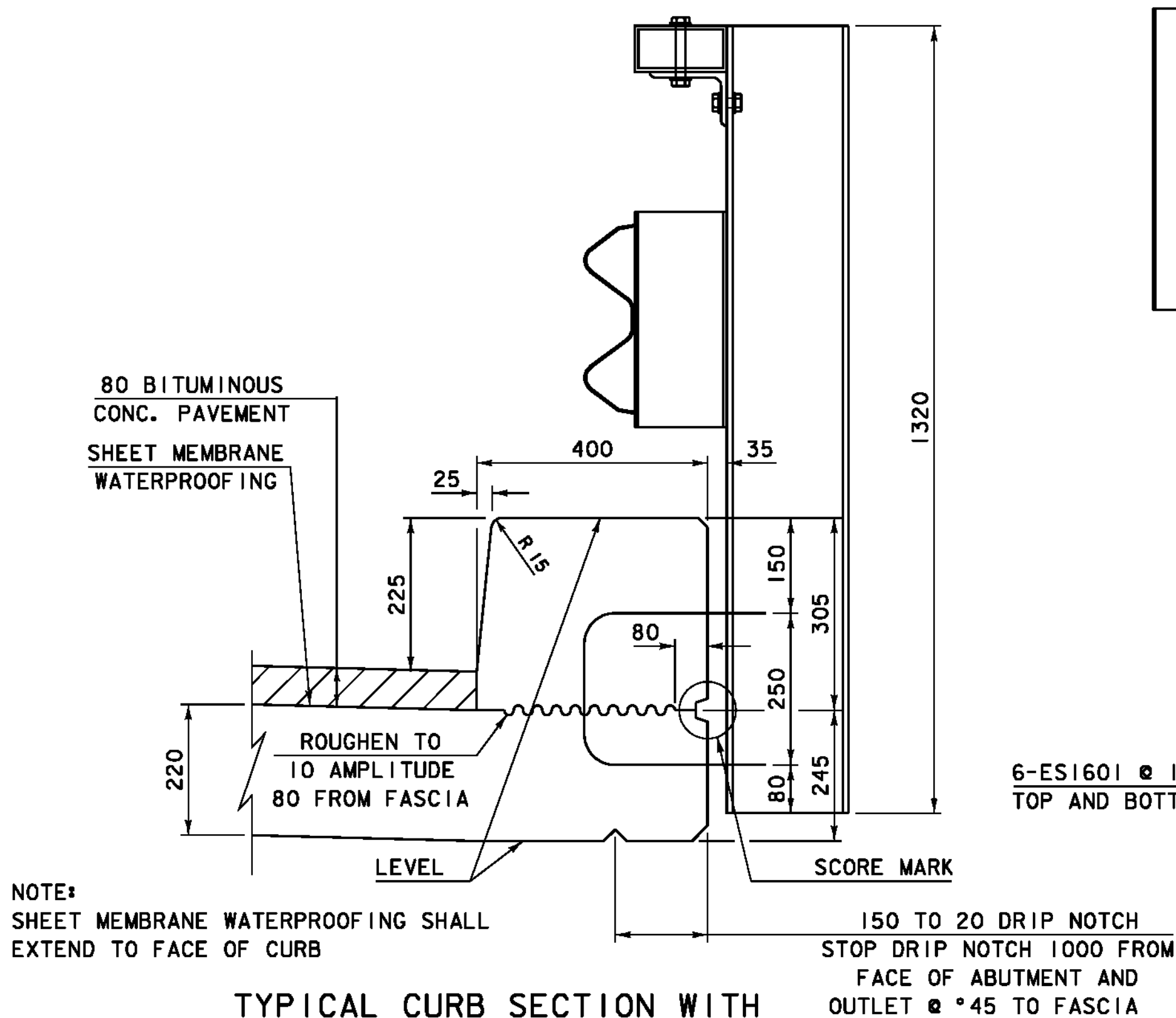
*THE POST LENGTH HAS BEEN INCREASED BY 50. SEE TYPICAL CURB SECTION WITH MODIFIED ANCHORAGE DETAIL.



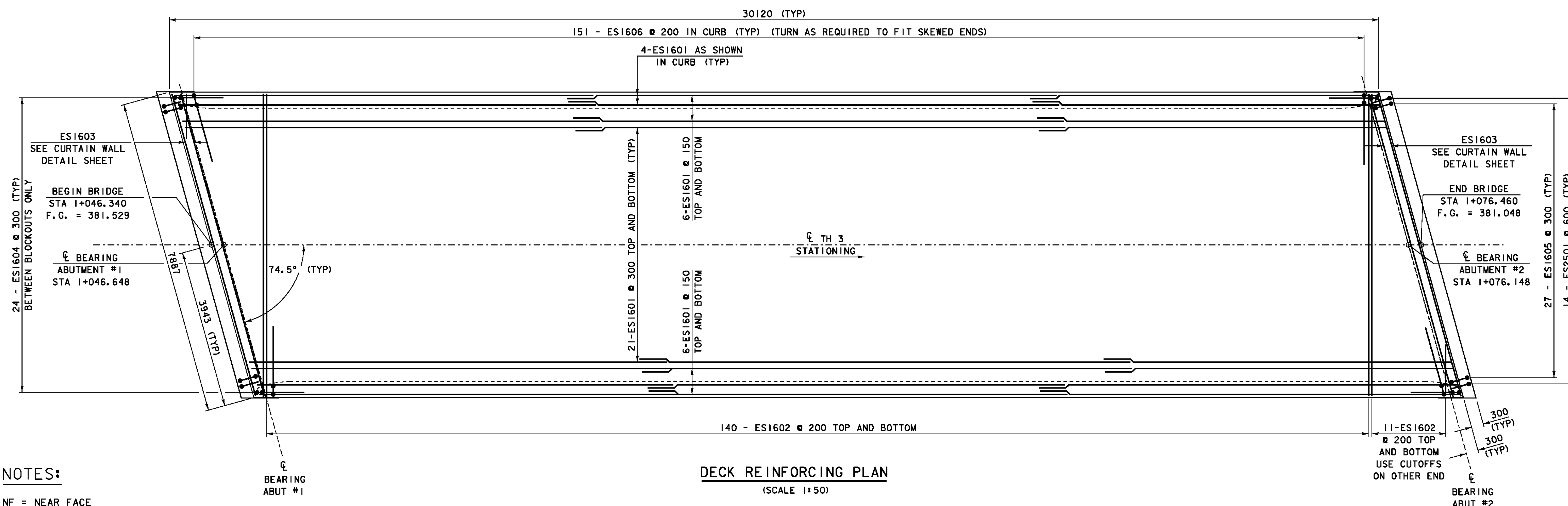
SCORE MARK DETAIL



TYPICAL BRIDGE REINFORCING
(SCALE 1:20)



**TYPICAL CURB SECTION WITH
MODIFIED ANCHORAGE DETAIL**
(NOT TO SCALE)



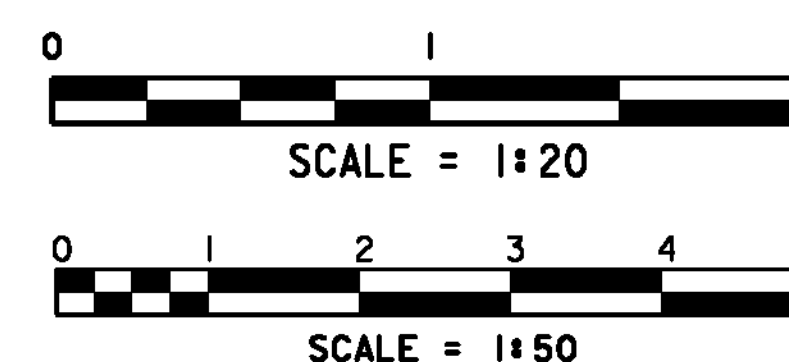
DECK REINFORCING PLAN
(SCALE 1:50)

NOTES:

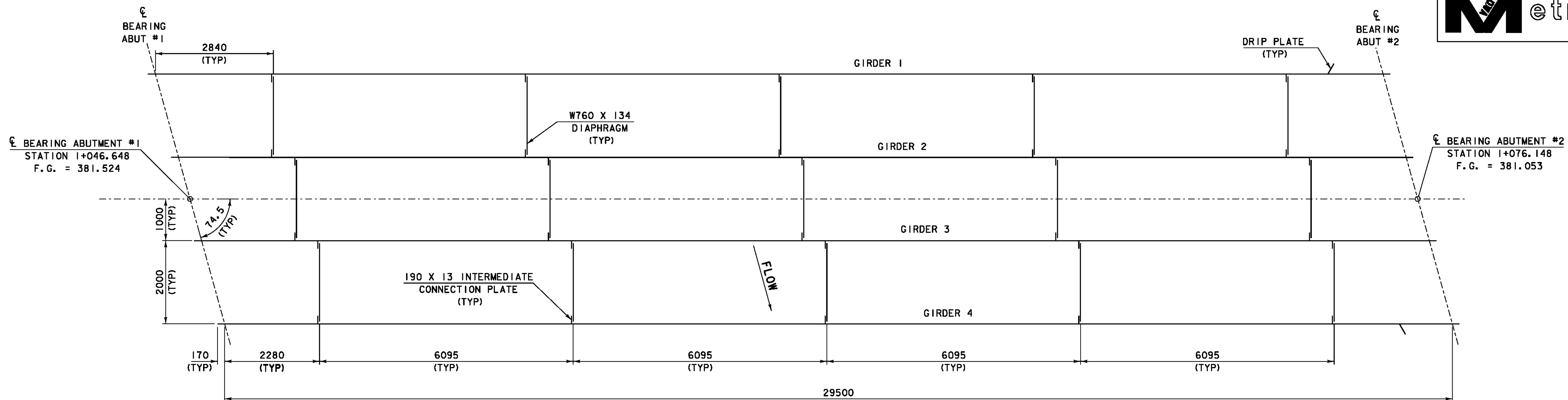
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD

80 CLEAR UNLESS OTHERWISE
SPECIFIED ON THE PLANS

ALL LAPS 660 UNLESS
OTHERWISE NOTED.

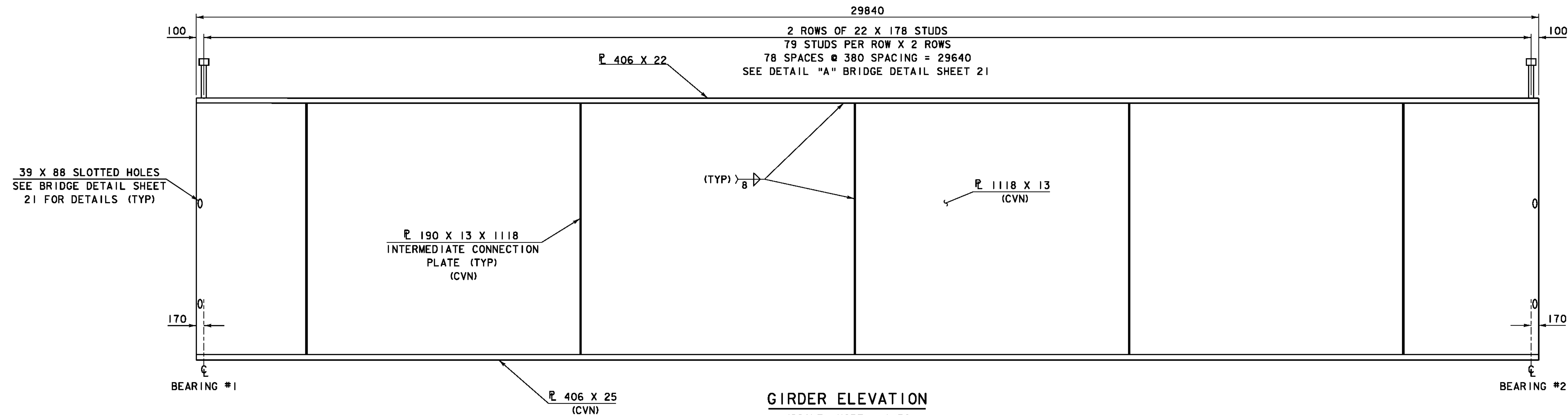


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DESIGNED BY: H. I. SALLS	DRAWN BY: D. D. BEARD
SQUAD LEADER: C. P. WILLIAMS	CHECKED BY: R. S. YOUNG
DECK REINFORCING PLAN	SHEET: 19 OF 60



DECK FRAMING PLAN

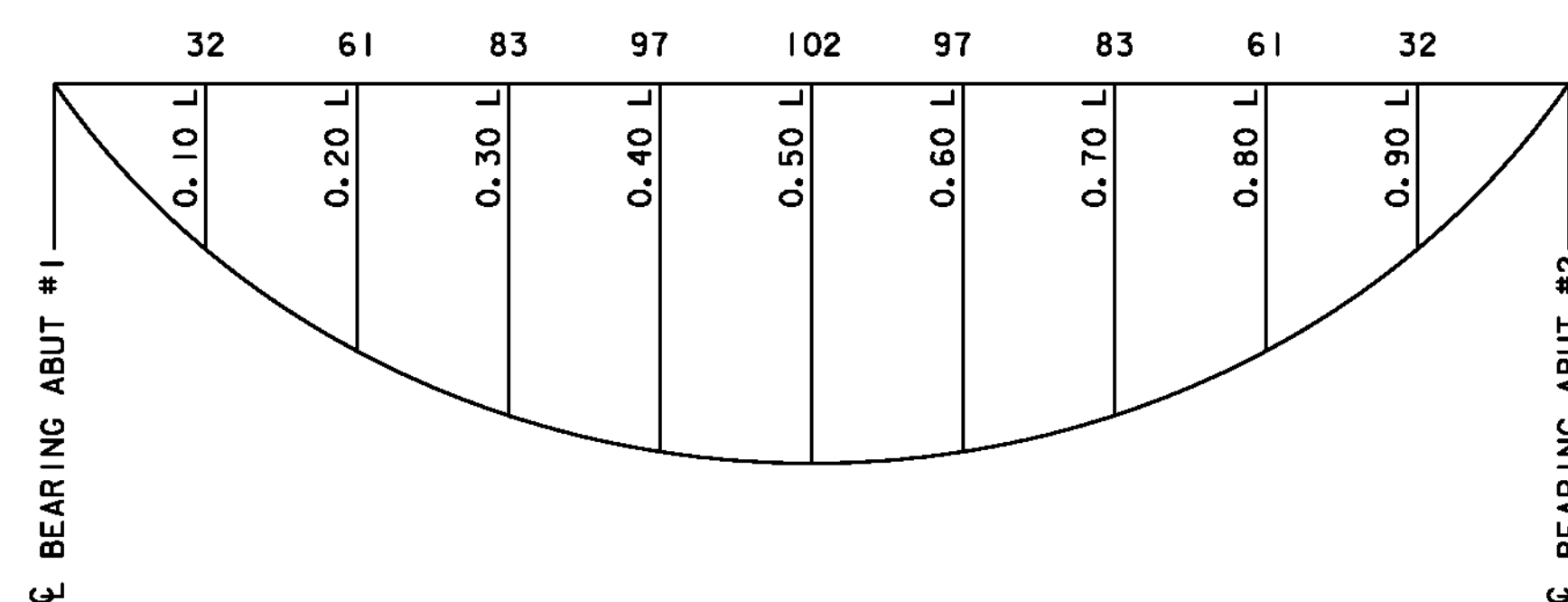
(SCALE 1:50)



GIRDER ELEVATION

(SCALE: HORZ = 1:50
VERT = 1:10)

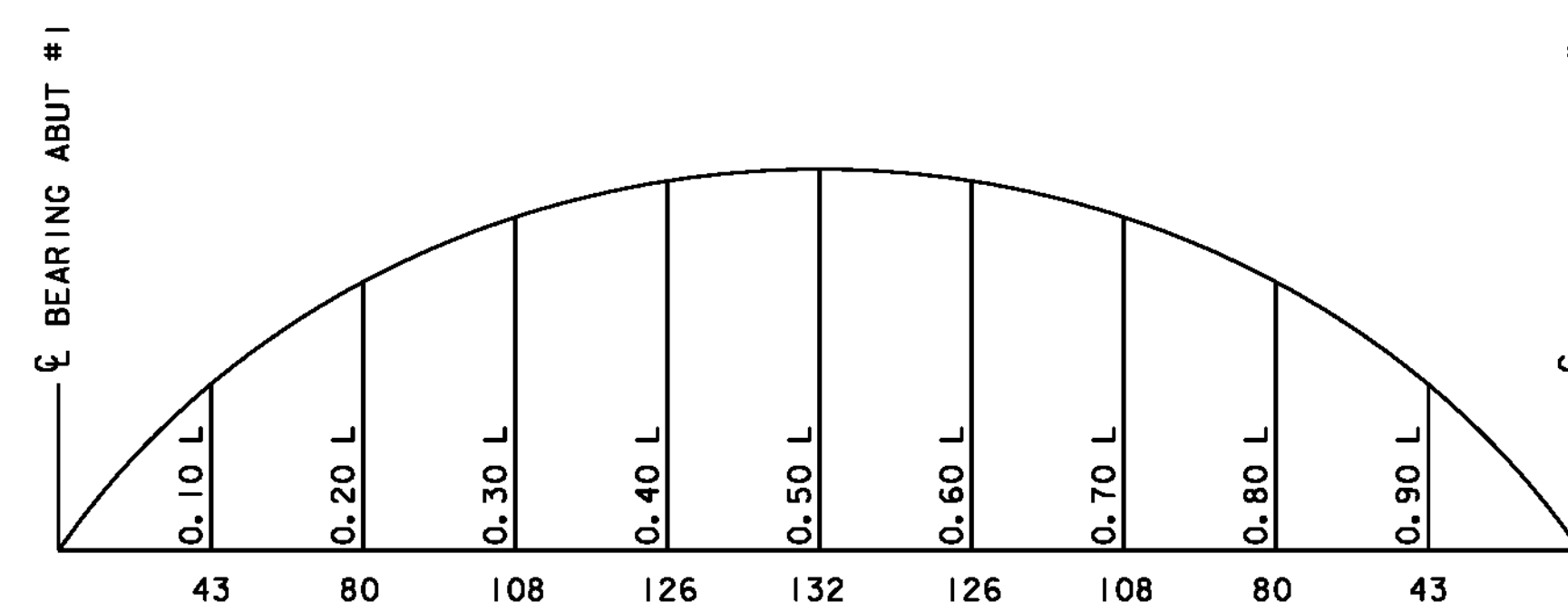
NOTE: ALL STEEL MARKED "CVN" SHALL
BE CHARPY V-NOTCH TESTED



TOTAL DEAD LOAD DEFLECTION DIAGRAM

(NOT TO SCALE)

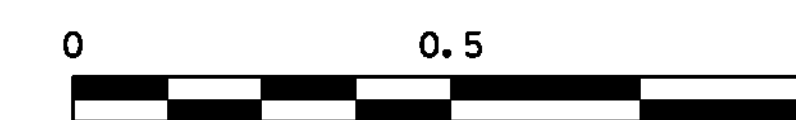
INCLUDES 17 MM DEFLECTION DUE TO BEAM DEAD LOAD



TOTAL CAMBER DIAGRAM

(NOT TO SCALE)

CALCULATED CAMBER AT MID SPAN WHEN BEAM IS SUPPORTED AT BEARINGS = 115 MM

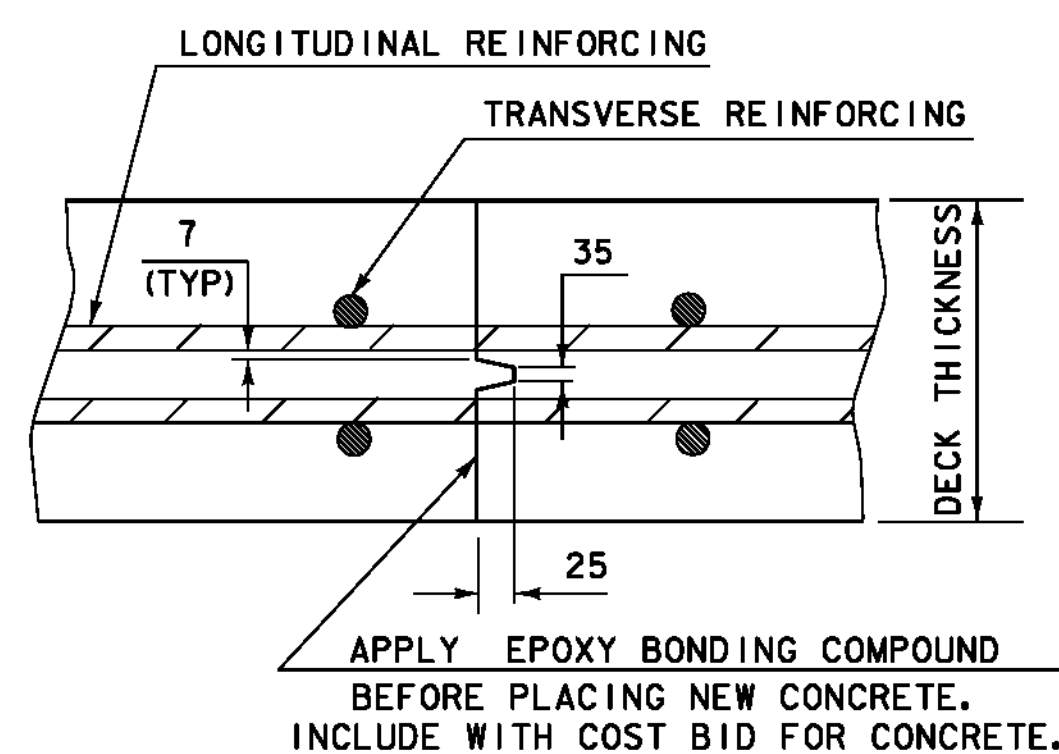


SCALE = 1:10

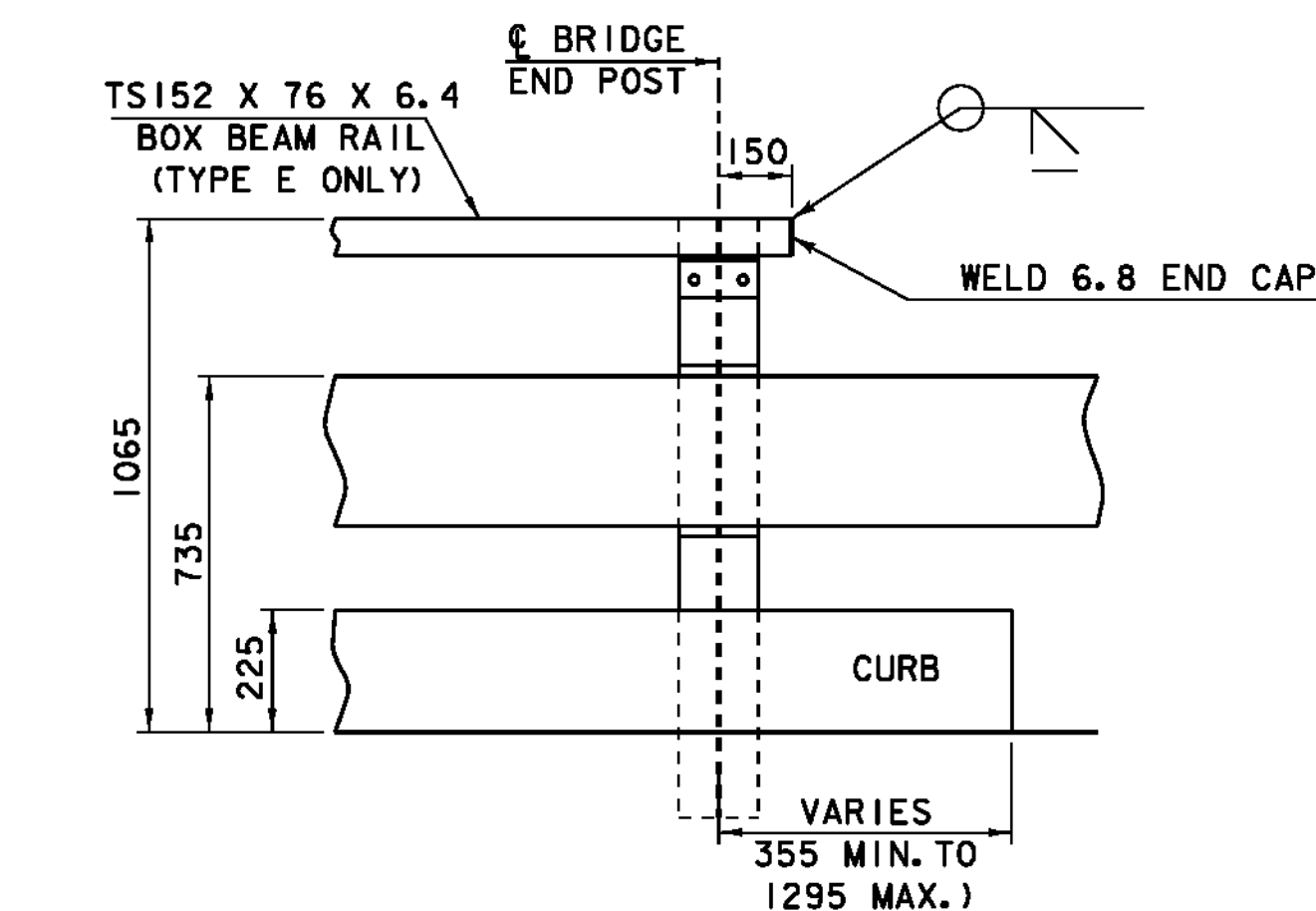


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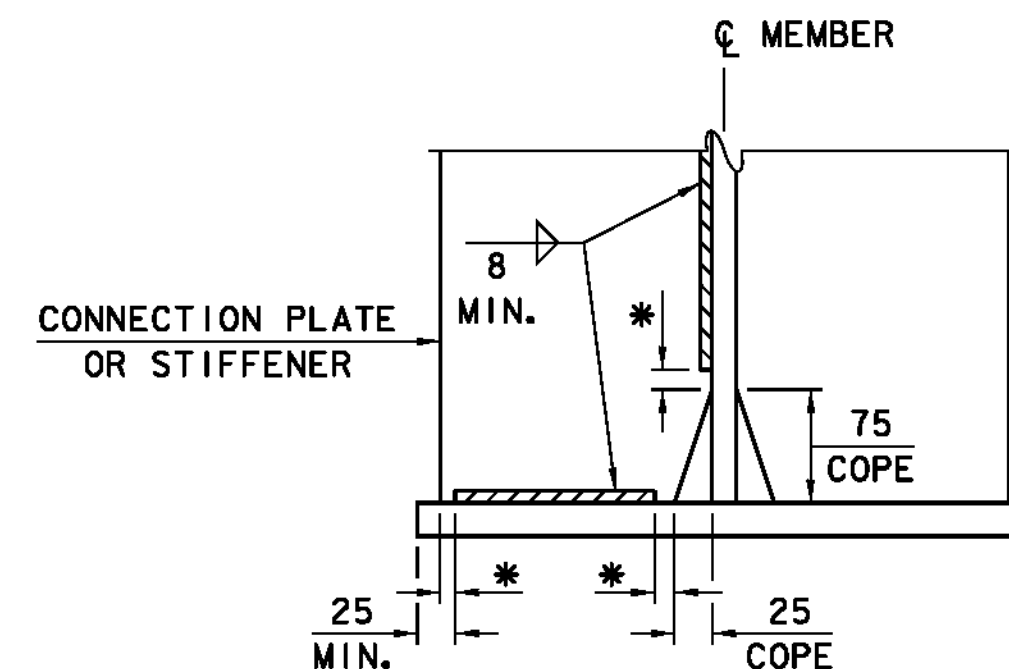
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DESIGNED BY:	H. I. SALLS	DRAWN BY:	D. D. BEARD
SQUAD LEADER:	C. P. WILLIAMS	CHECKED BY:	R. S. YOUNG
DECK FRAMING AND GIRDER ELEVATION SHEET:	20	OF	60



**TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS**

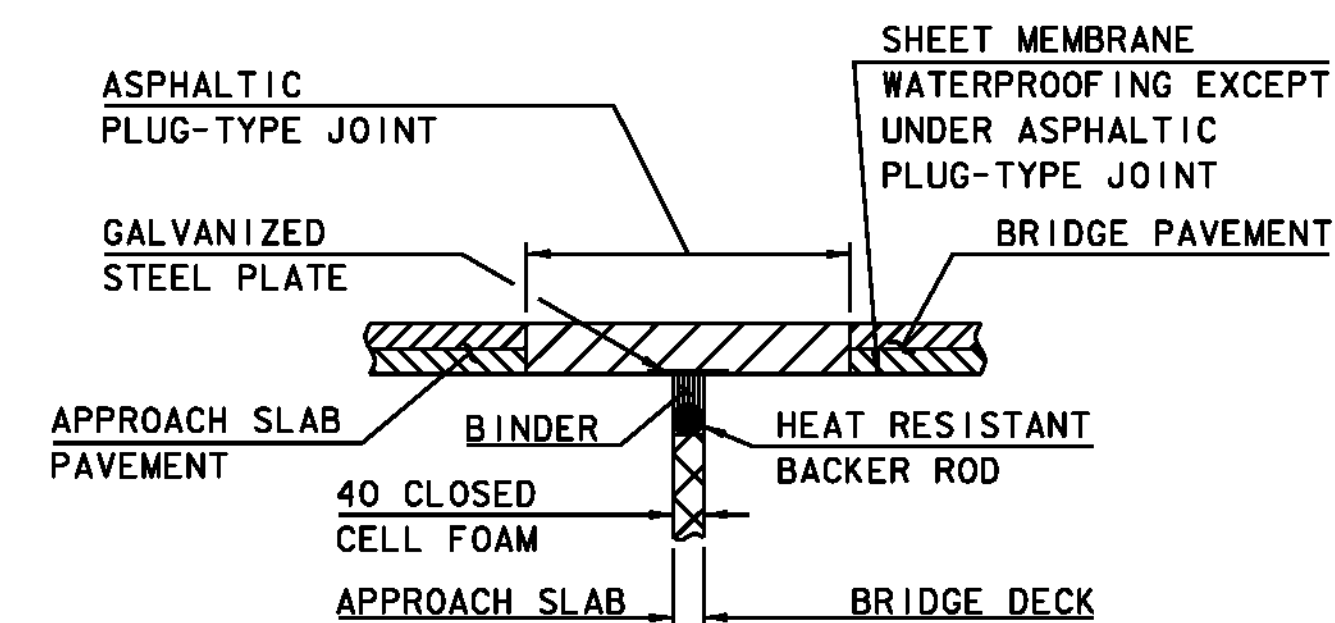


WINGWALL #2 APPROACH RAIL DETAILS



**WELD TERMINATION
AND COPING DETAIL FOR
STEEL MEMBERS**

* NO WELD FOR 10 MIN., 22 MAX. (EXCEPT MUST MAINTAIN 25 MIN. FROM EDGE OF FLANGE)

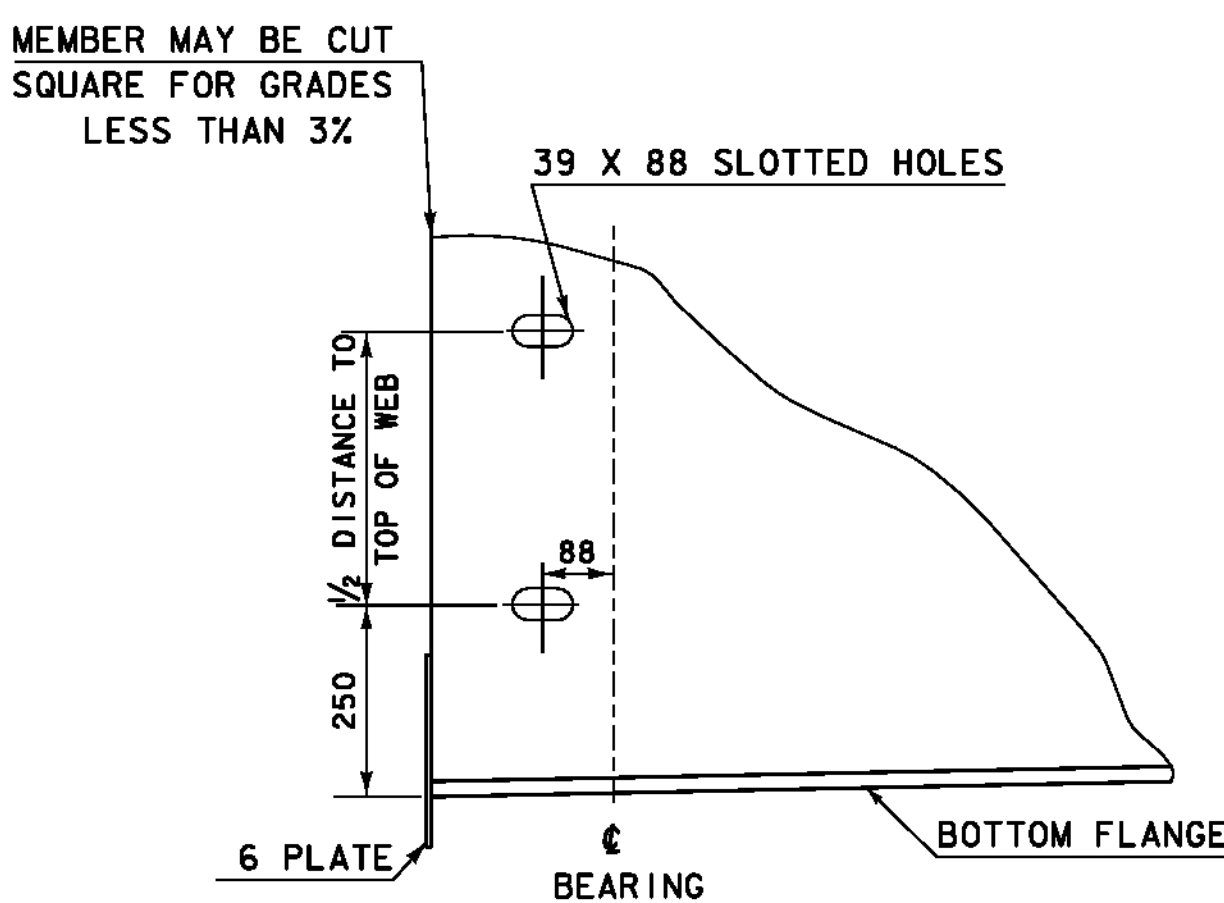


**ASPHALTIC PLUG-TYPE
JOINT DETAIL
(NOT TO SCALE)**

ASPHALTIC PLUG JOINT NOTES

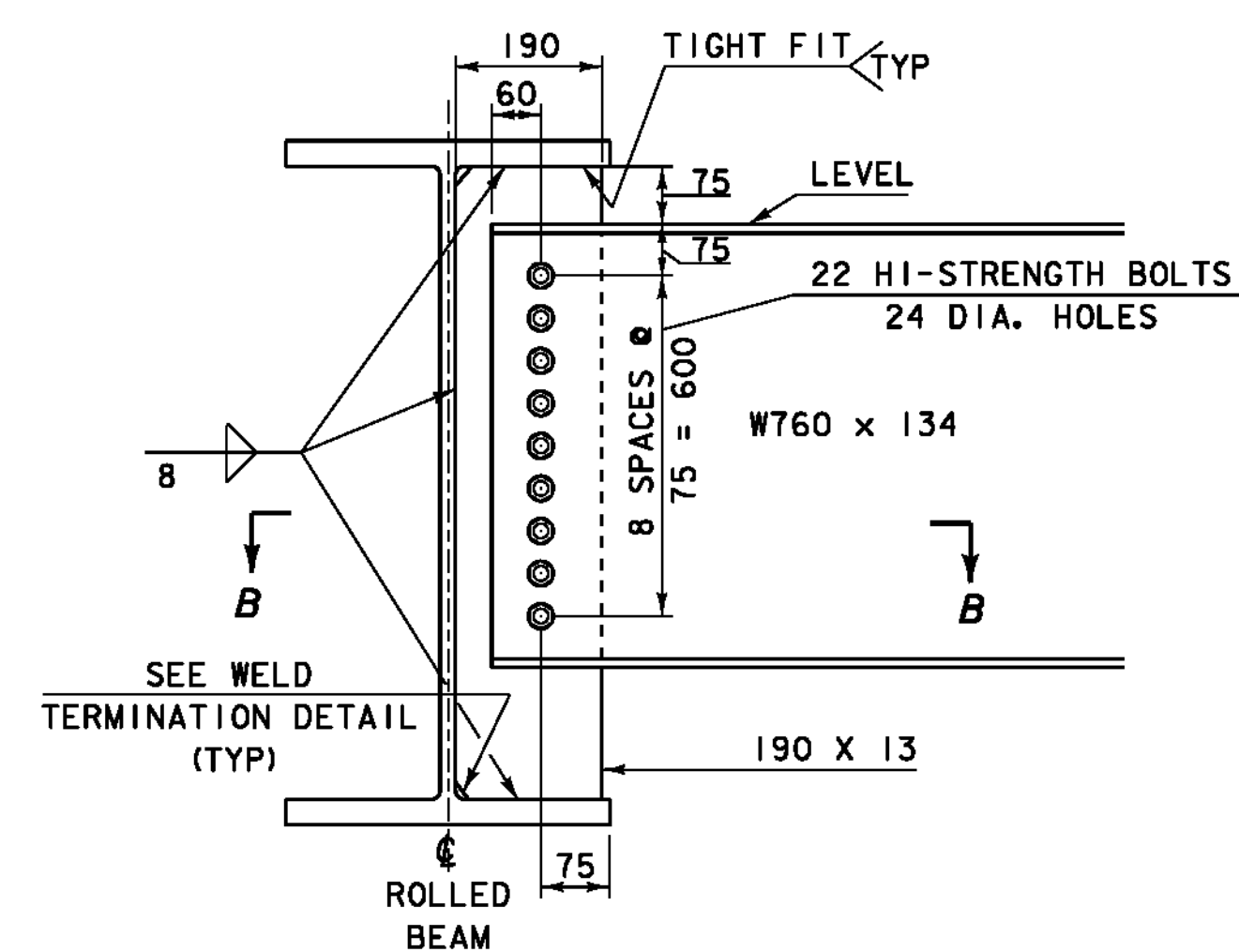
I. INSTALLATION

- LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
 - REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
 - BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
 - REPAIR SPALLED AND DEFECTIVE CONCRETE WITH AN APPROVED MATERIAL AS AGREED UPON BY THE ENGINEER.
 - PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 25 +/- OF BINDER ABOVE THE ROD.
 - HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
 - PLACE 8 THICK BY 200 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.
 - HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
 - INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
 - IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
 - ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAYBE USED TO EXPEDITE THE COOLING PROCESS.
 - PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.
- 2. WEATHER LIMITATIONS. (APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER):**
- THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
 - THE ROAD SURFACE IS DRY.
 - WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.



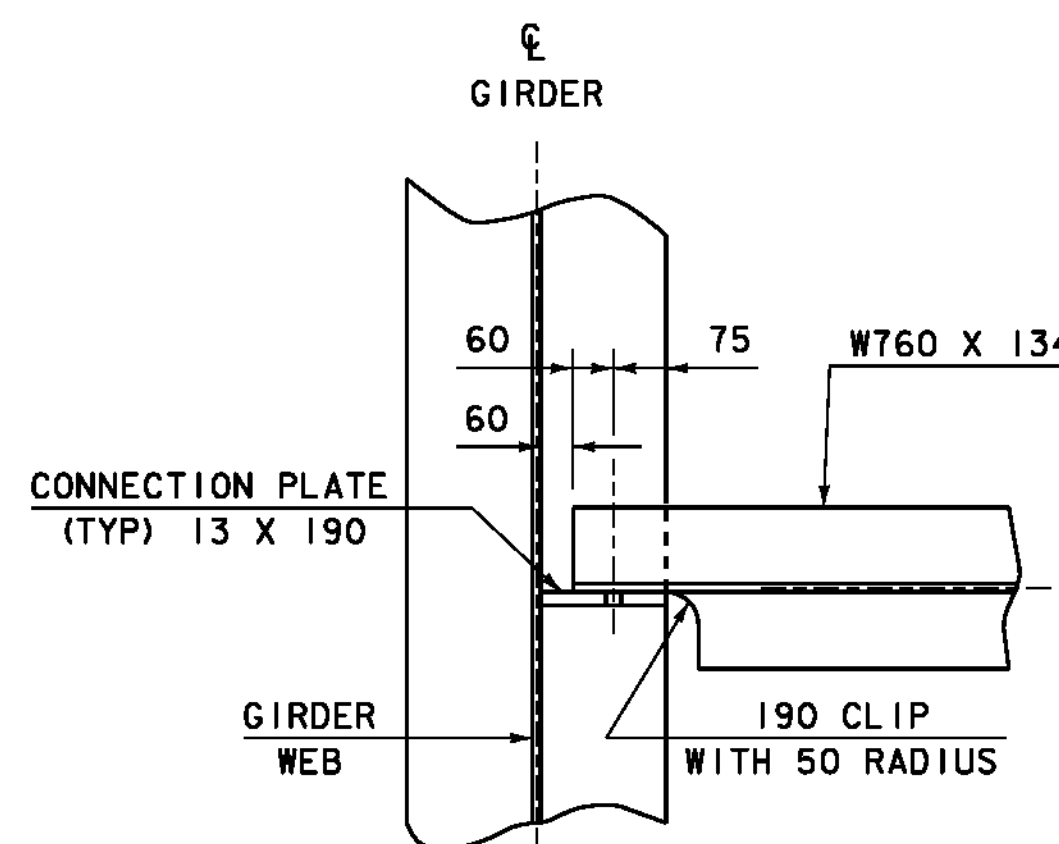
**ELEVATION VIEW END OF
STEEL MEMBER AT ABUTMENT**

SLOTTED HOLES ARE FOR HORIZONTAL REINFORCING BARS IN FRONT FACE OF CURTAIN WALL.



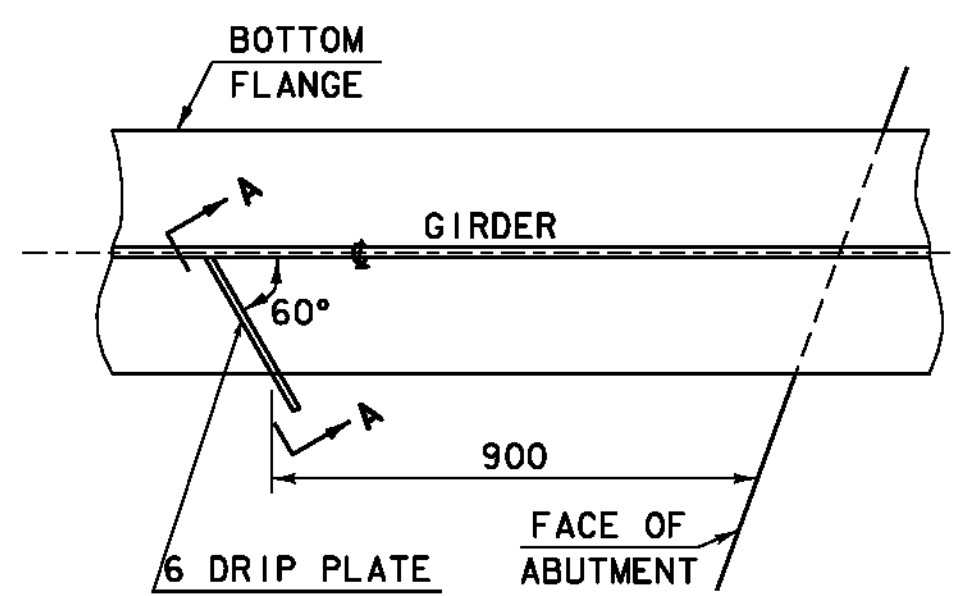
NOTE: HI-STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM TO AASHTO M164M.

INTERMEDIATE DIAPHRAGMS

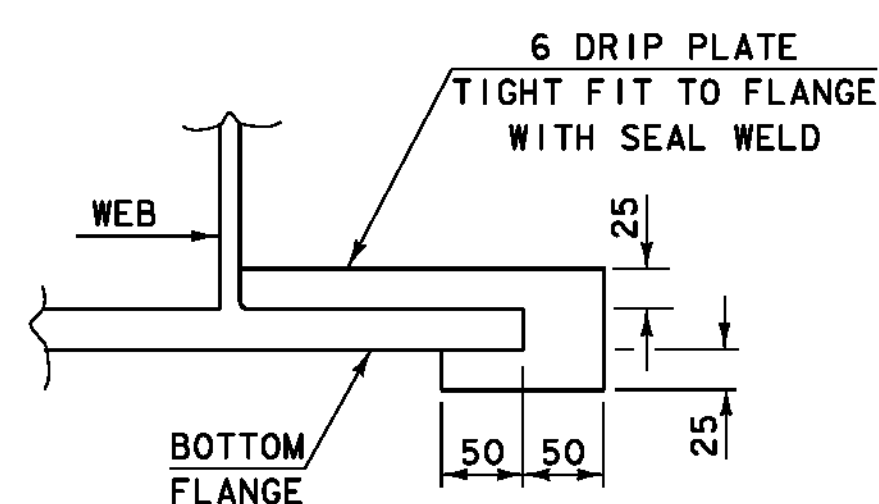


ALL CONNECTIONS SHALL BE MADE USING 22 DIAMETER, AASHTO M164M BOLTS. ALL HOLES IN THE DIAPHRAGMS SHALL BE 24 DIAMETER, ALL HOLES IN THE CONNECTION PLATES SHALL BE 24 DIAMETER.

SECTION B - B

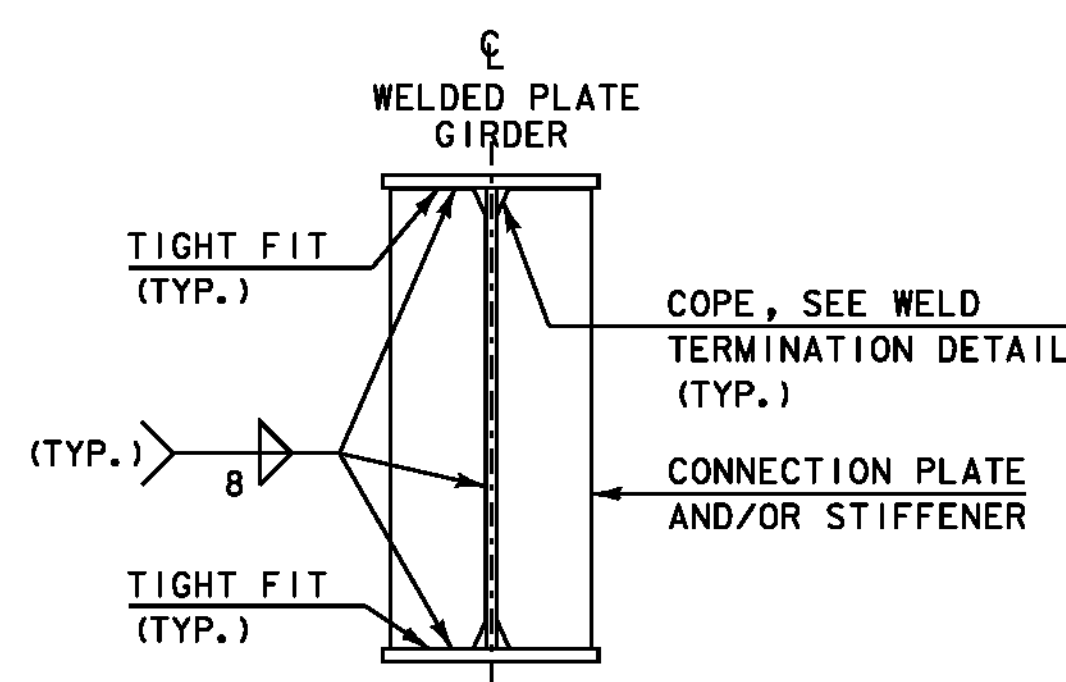


PLAN DRIP PLATE



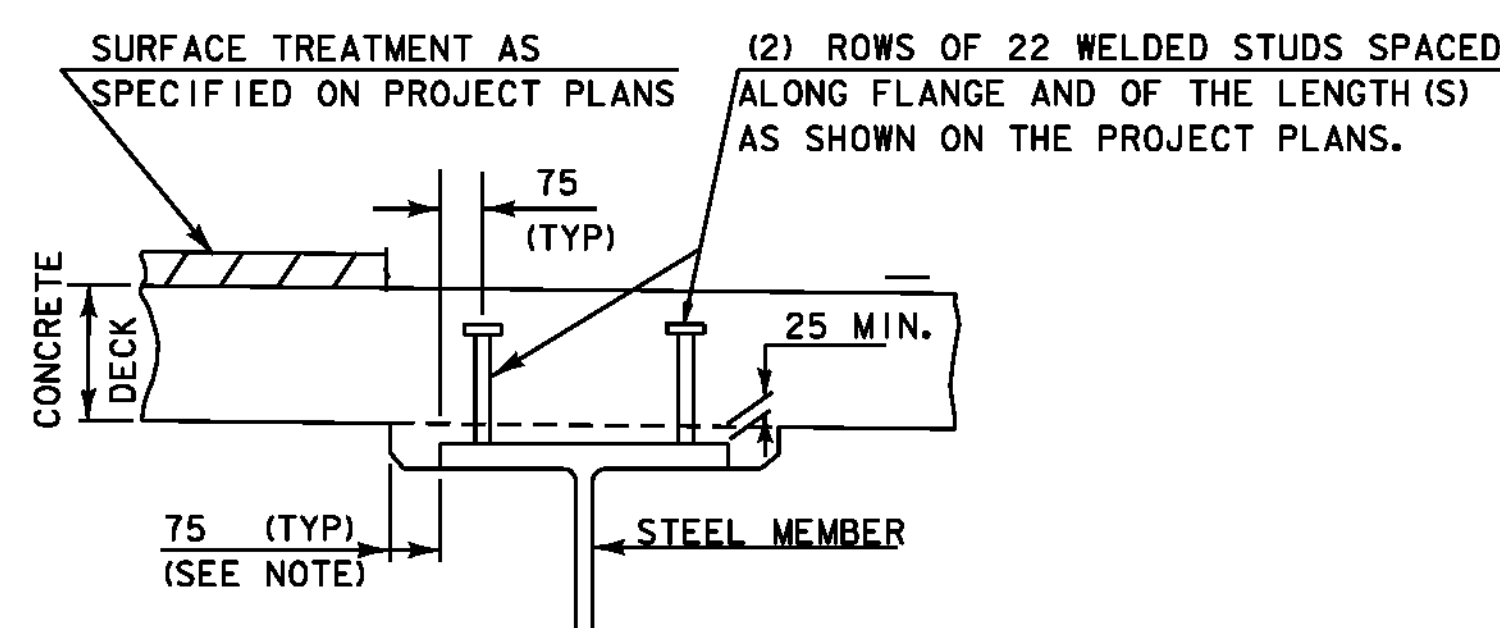
SECTION A-A

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.



**INTERMEDIATE CONNECTION PLATES
AND/OR STIFFENERS FOR WELDED
PLATE GIRDERS**

(NOT TO SCALE)

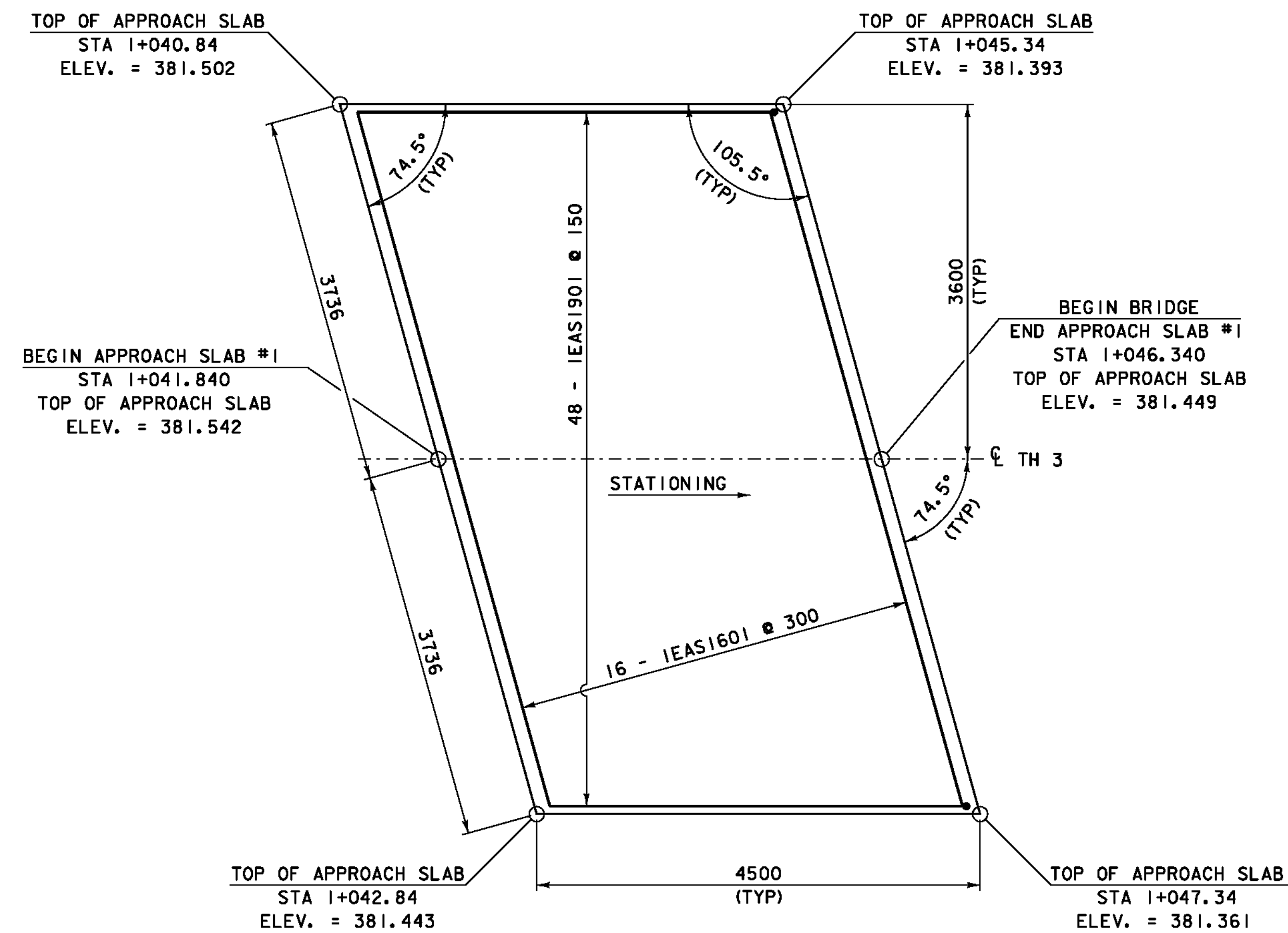


NOTE: THE 75 HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

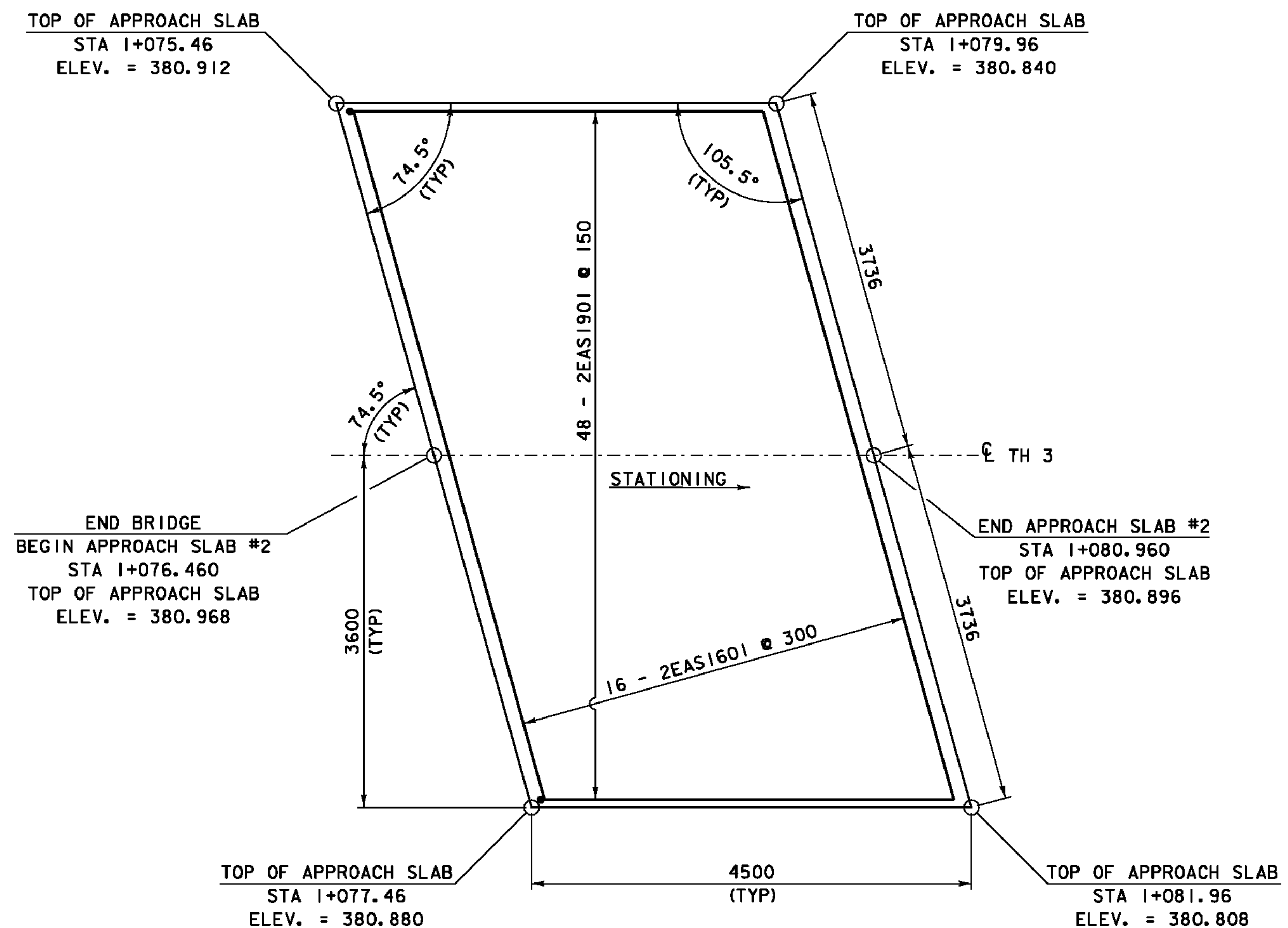
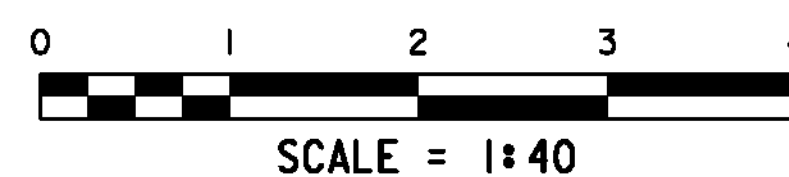
DETAIL "A"

HAUNCH AND SHEAR CONNECTOR DETAILS

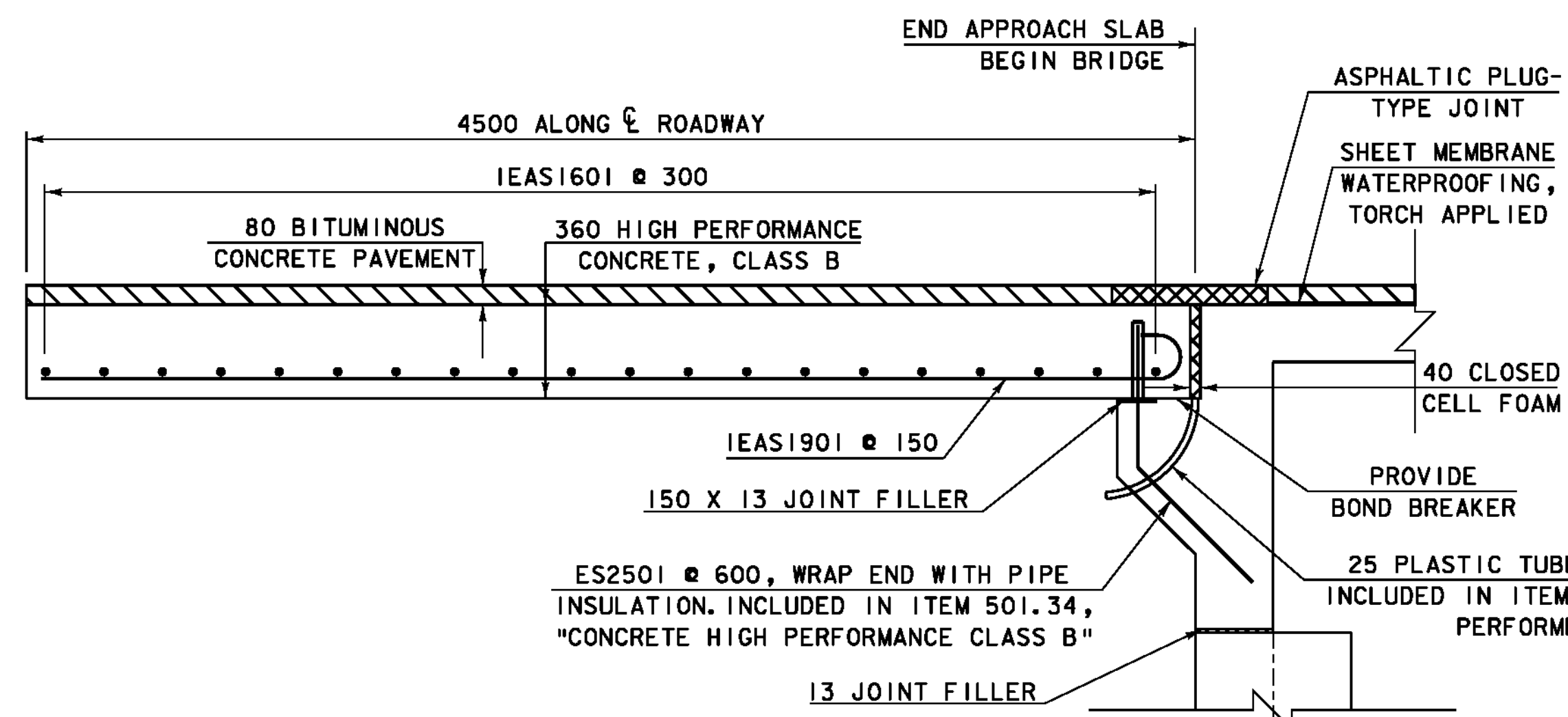
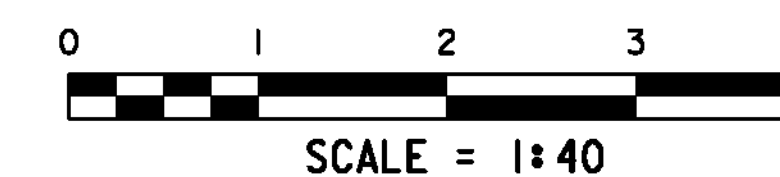
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DESIGN FILE NAME: 94J070Structures\sj070sup.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: 94J070girdr.i	DRAWN BY: D.D. BEARD
DESIGNED BY: H. I. SALLS	CHECKED BY: R. S. YOUNG
SQUAD LEADER: C. P. WILLIAMS	SHEET: 21 OF 60
BRIDGE DETAIL SHEET	



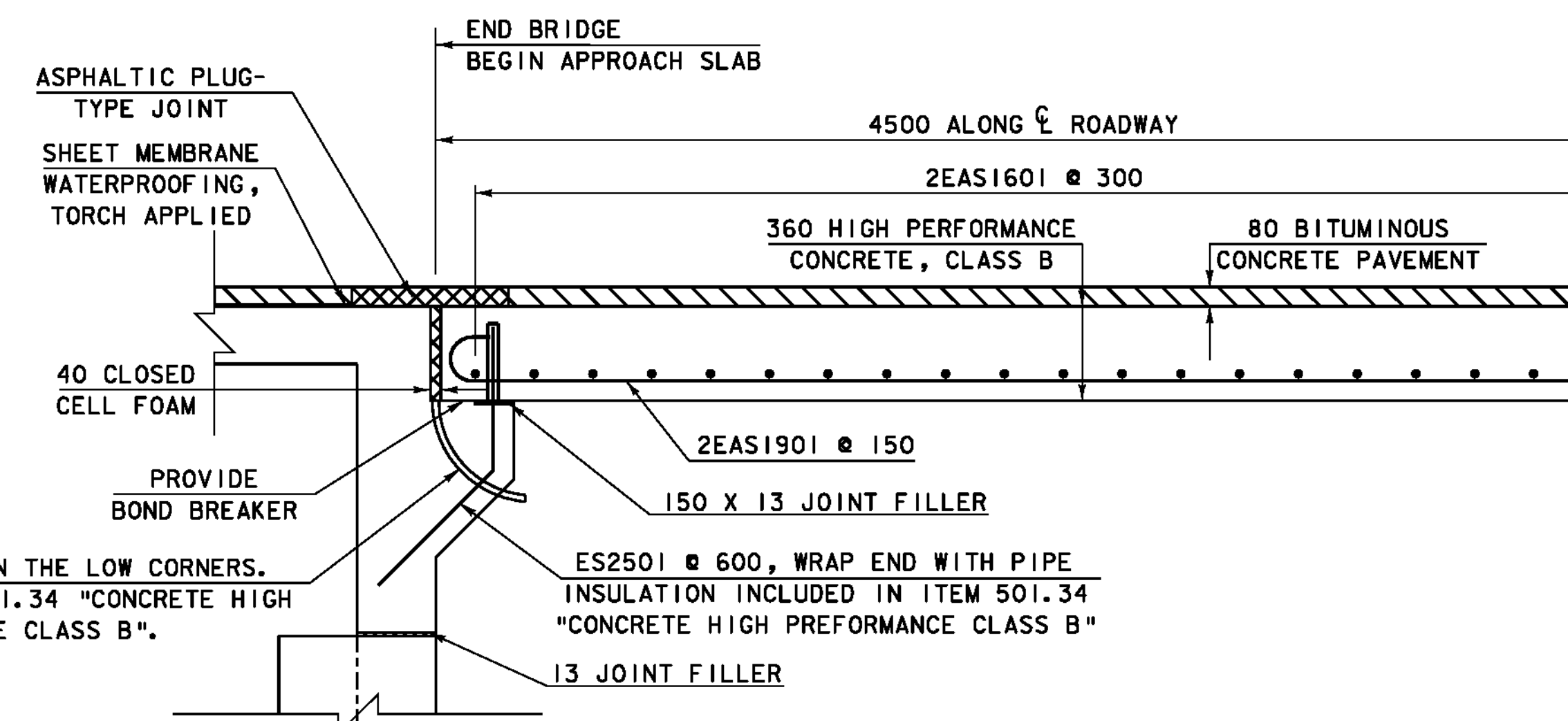
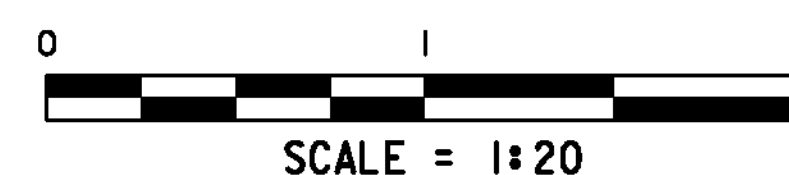
PLAN VIEW
APPROACH SLAB #1
SCALE 1:40



PLAN VIEW
APPROACH SLAB #2
SCALE 1:40



ABUT #1 APPROACH SLAB TYPICAL SECTION
SCALE 1:20

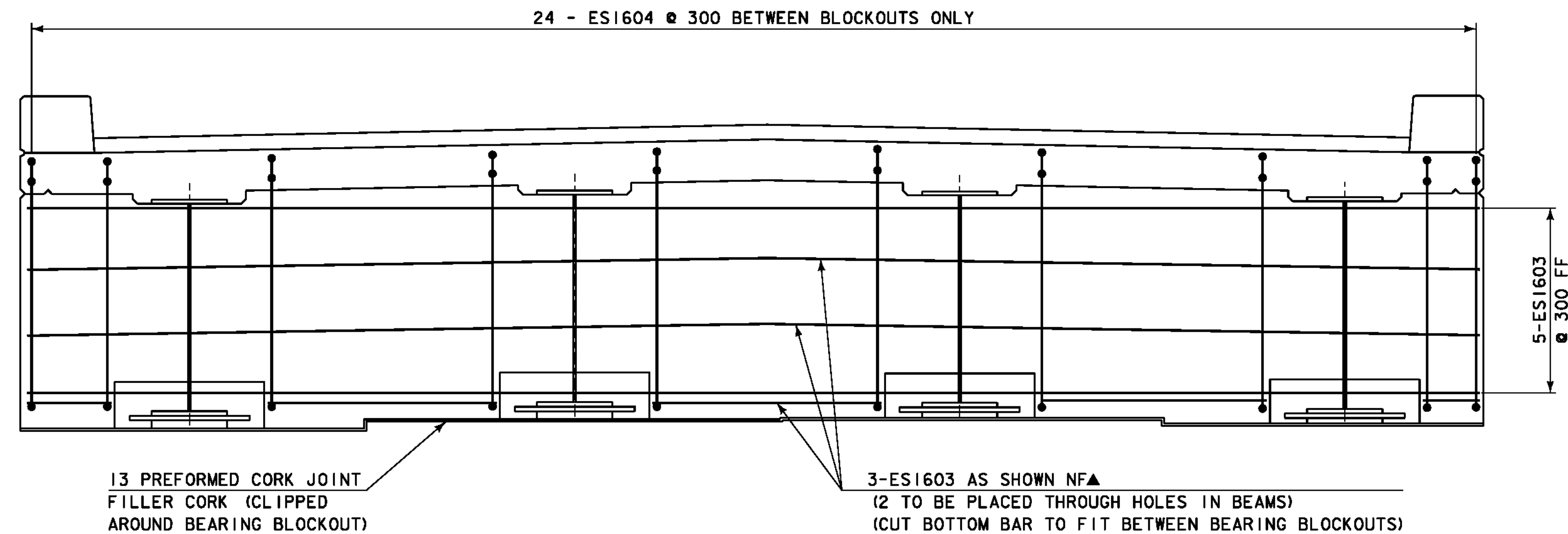


ABUT #2 APPROACH SLAB TYPICAL SECTION
SCALE 1:20

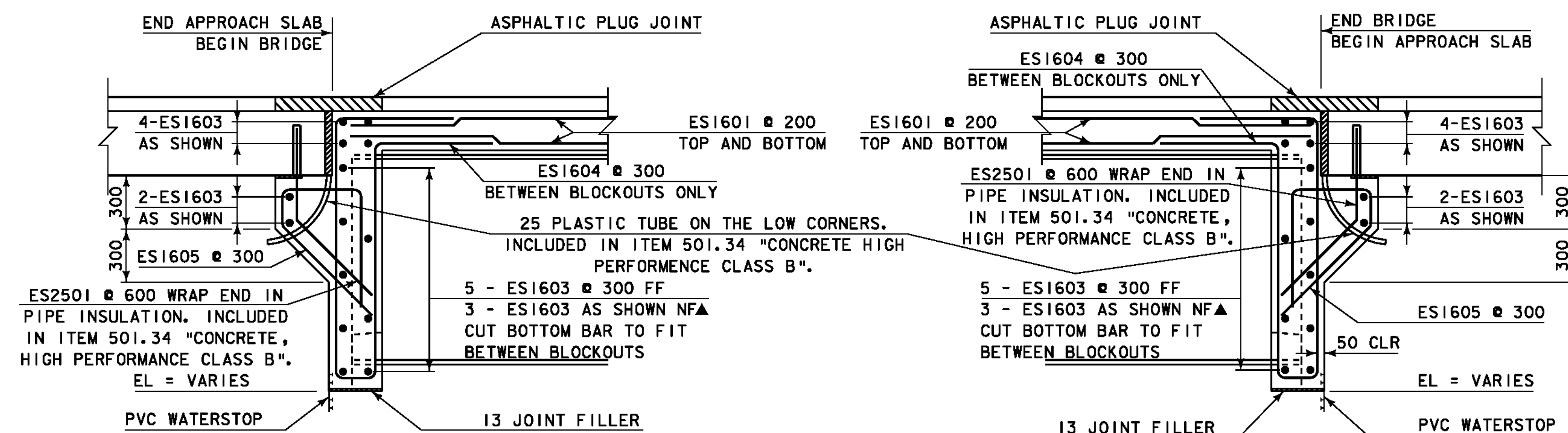
NOTES:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 80 CLEAR UNLESS OTHERWISE SPECIFIED ON THE PLANS
- ALL LAPS 660 UNLESS OTHERWISE NOTED.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED.

PROJECT:	READSBORO	PROJECT NO.:	BRO 1441 (25)
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DESIGNED BY:	H. I. SALLS	CHECKED BY:	R. S. YOUNG
SQUAD LEADER:	C. P. WILLIAMS	SHEET:	22 OF 60
APPROACH SLAB DETAILS			



TYPICAL CURTAIN WALL ELEVATION
SCALE = 1:20



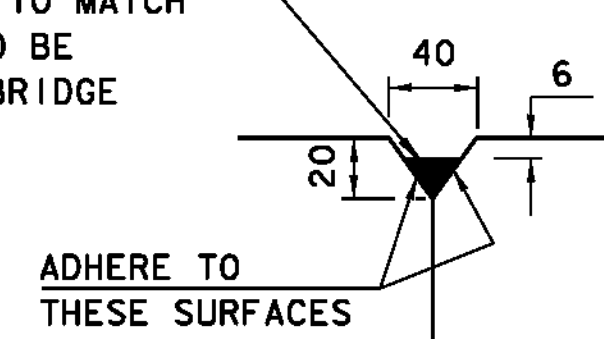
ABUTMENT #1 CURTAIN WALL SECTION
SCALE = 1:20

ABUTMENT #2 CURTAIN WALL SECTION
SCALE = 1:20

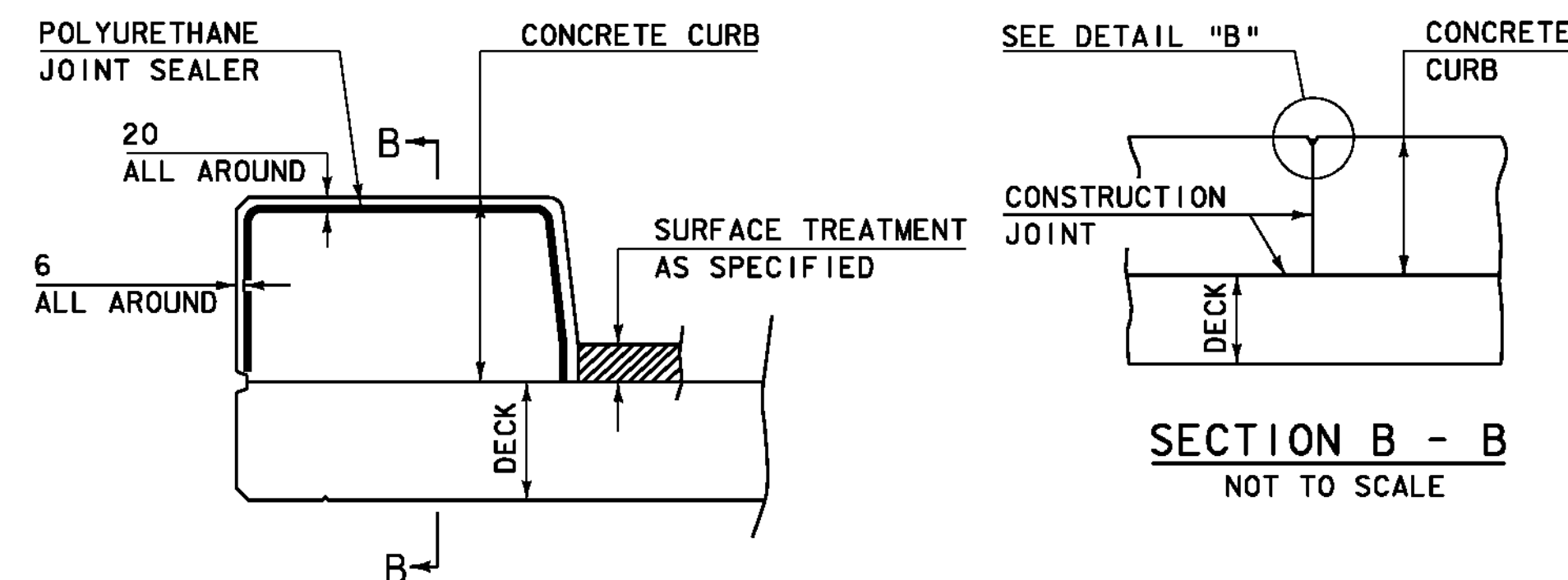
CONCRETE CURB JOINT NOTES

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 4570 CENTER TO CENTER AND 610 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 2135 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.

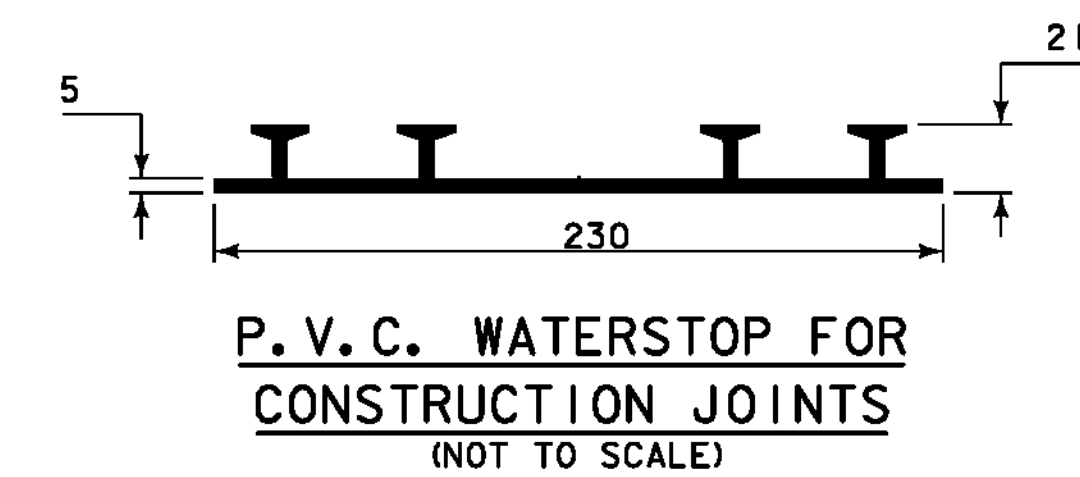
POLYURETHANE JOINT SEALER MEETING THE REQUIREMENTS OF SECTION 524. COLOR TO MATCH CONCRETE. PAYMENT TO BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM



DETAIL "B"
NOT TO SCALE

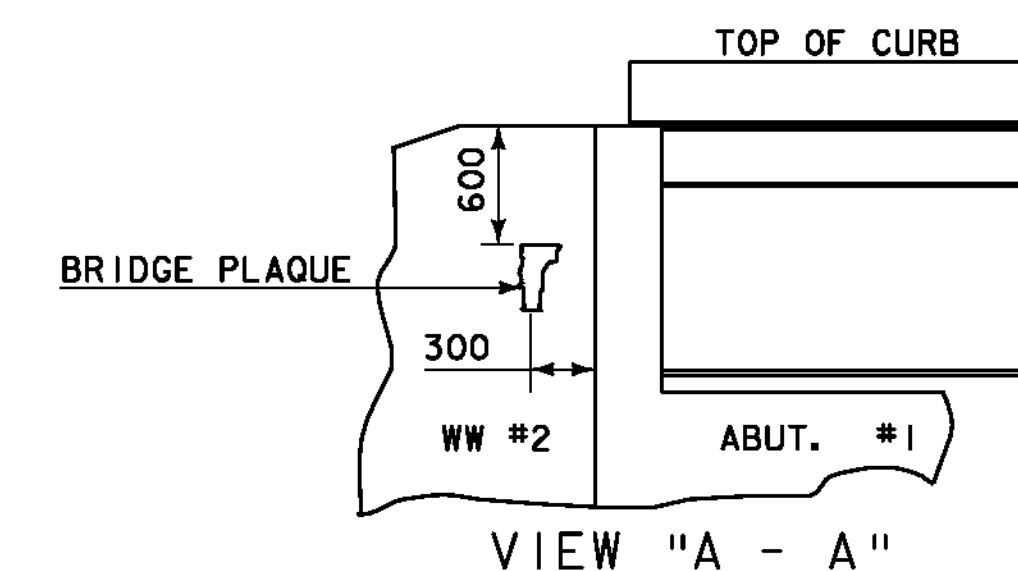
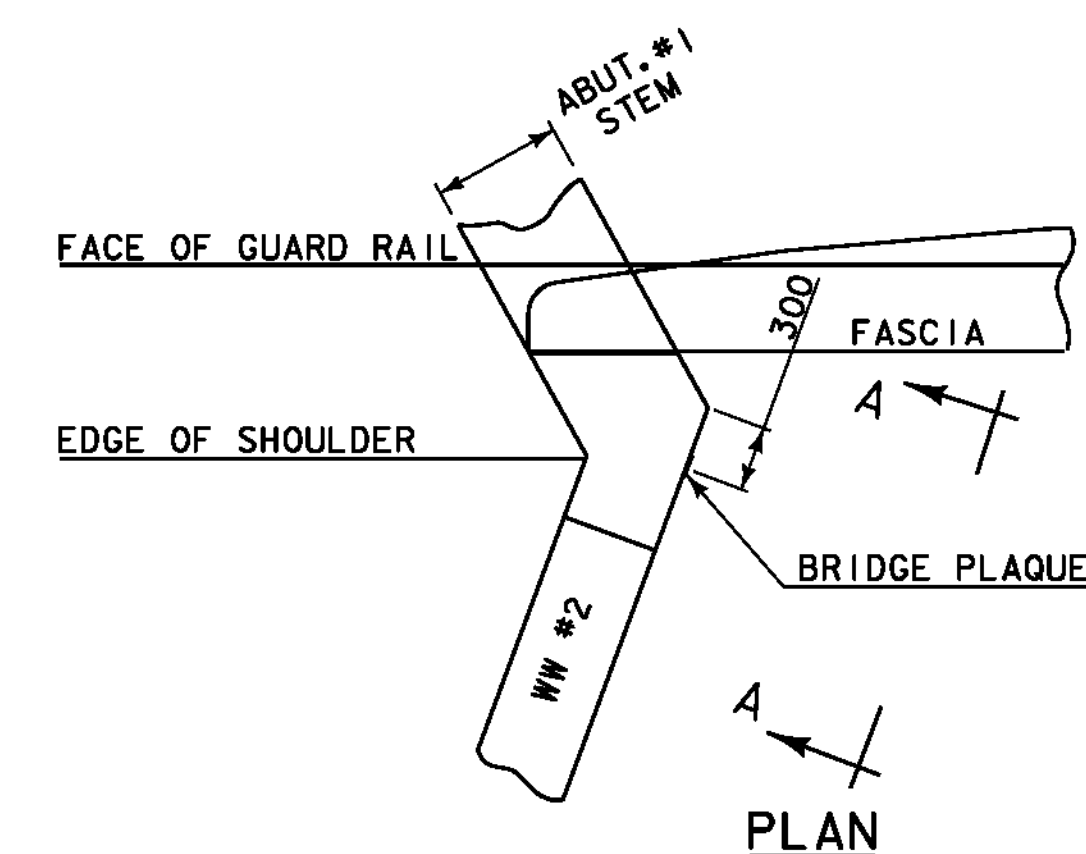


CONCRETE CURB JOINT SECTION
NOT TO SCALE



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.



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.

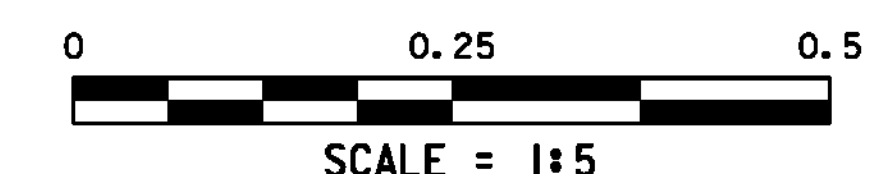
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
80 CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
660 BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94\070\Structures\sj070sub.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070misc.i	DESIGNED BY: R.S. YOUNG
SQUAD LEADER: C.P. WILLIAMS	DRAWN BY: D.D. BEARD
CURTAIN WALL AND MISC DETAIL SHEET SHEET: 23 OF 60	CHECKED BY: R.S. YOUNG

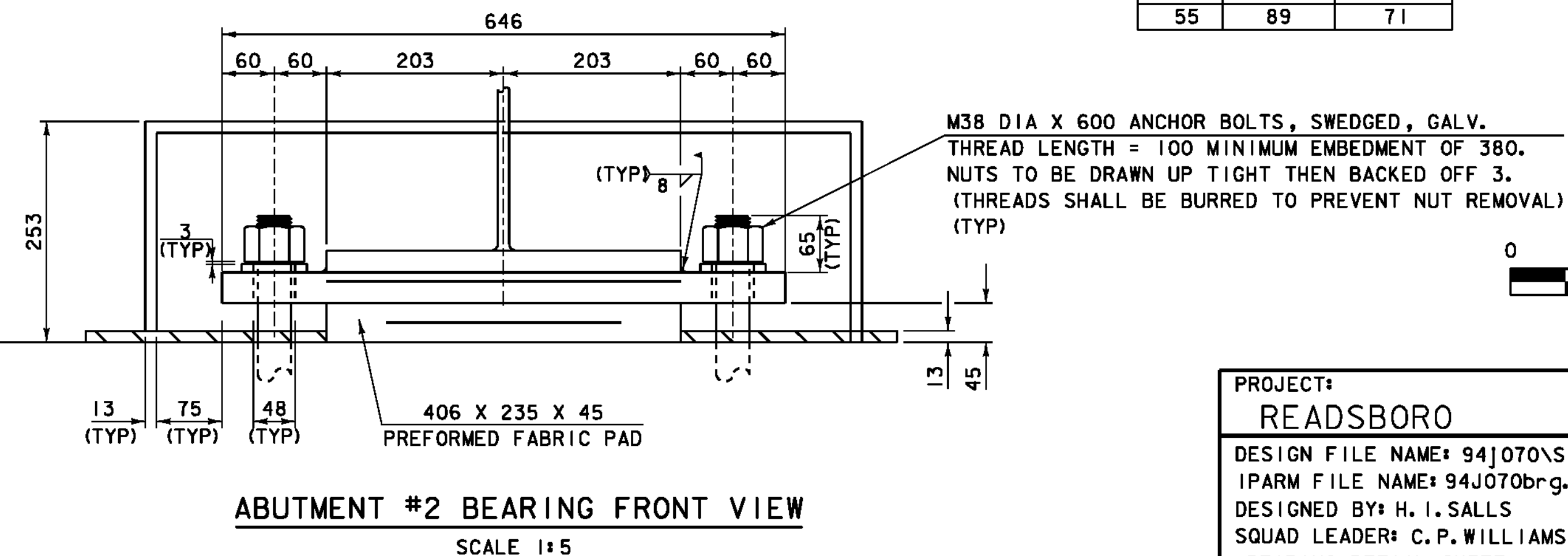
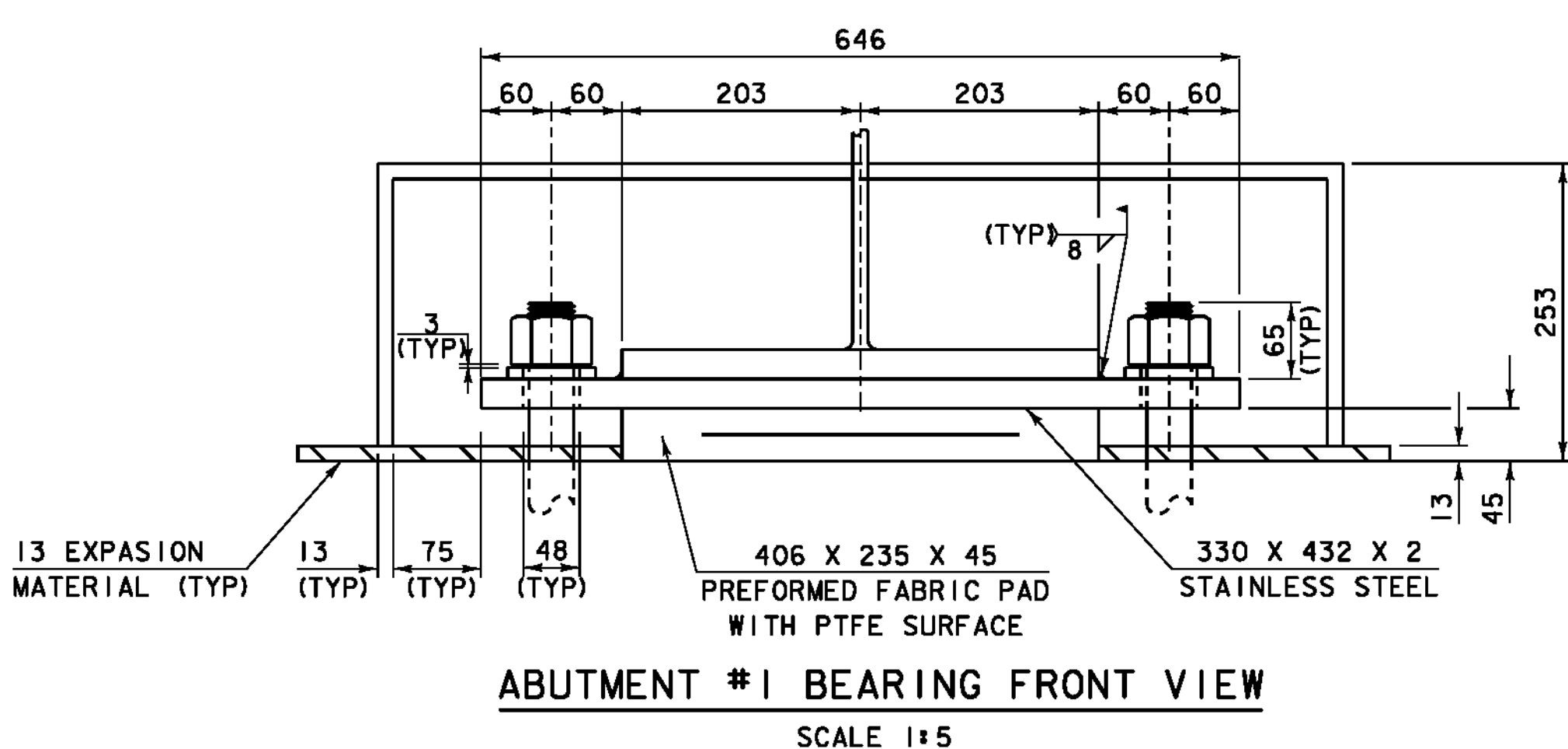
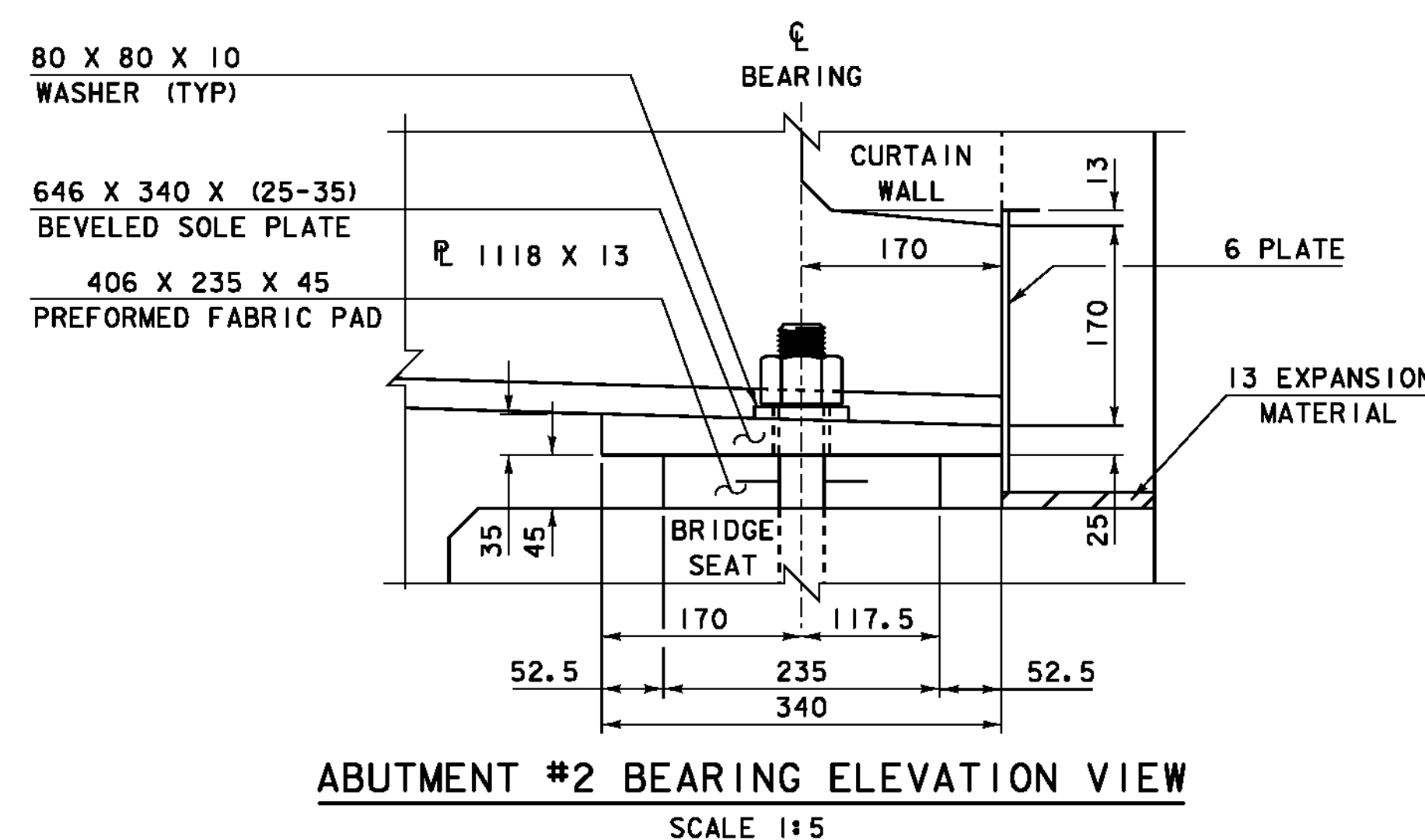
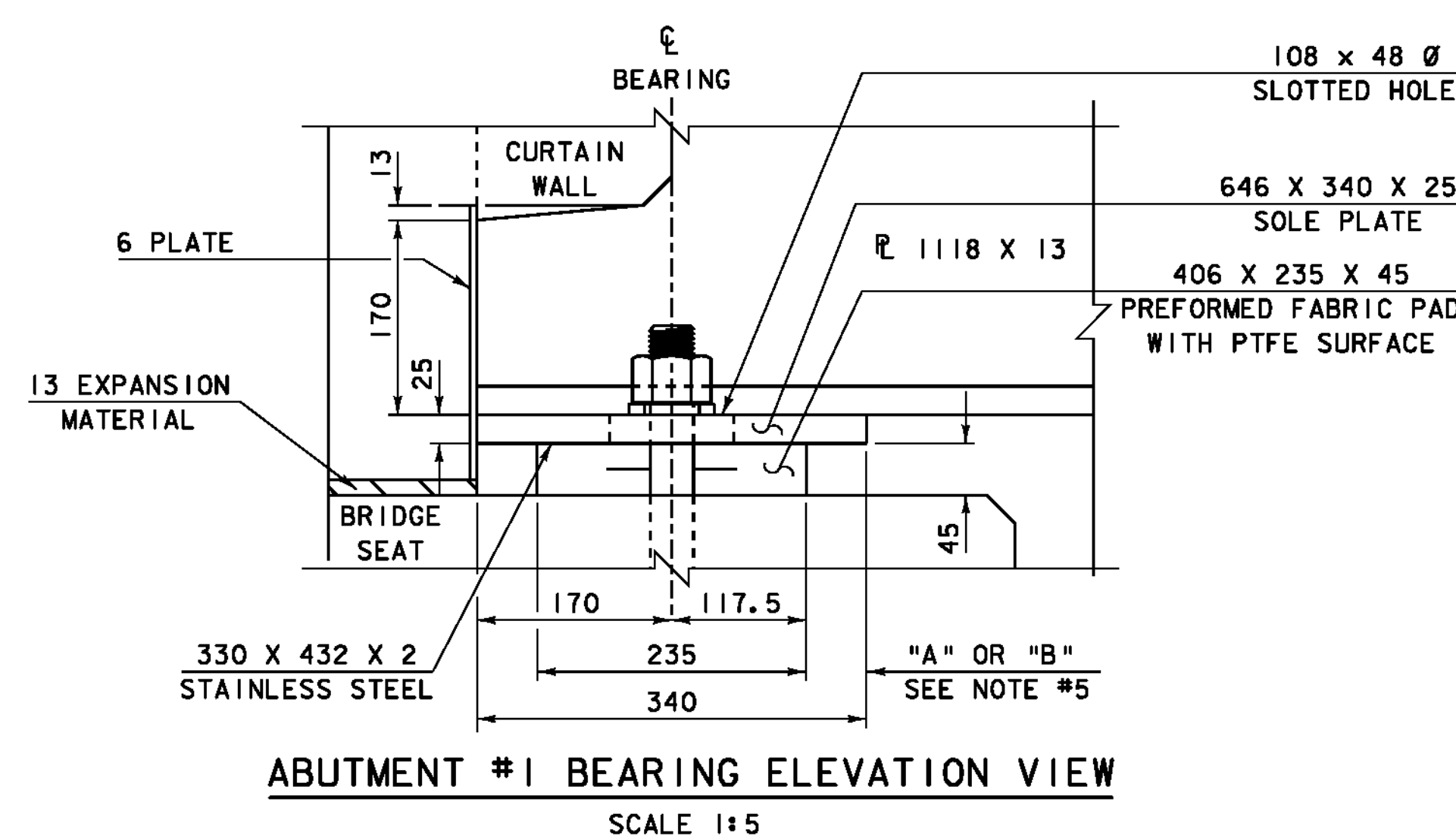
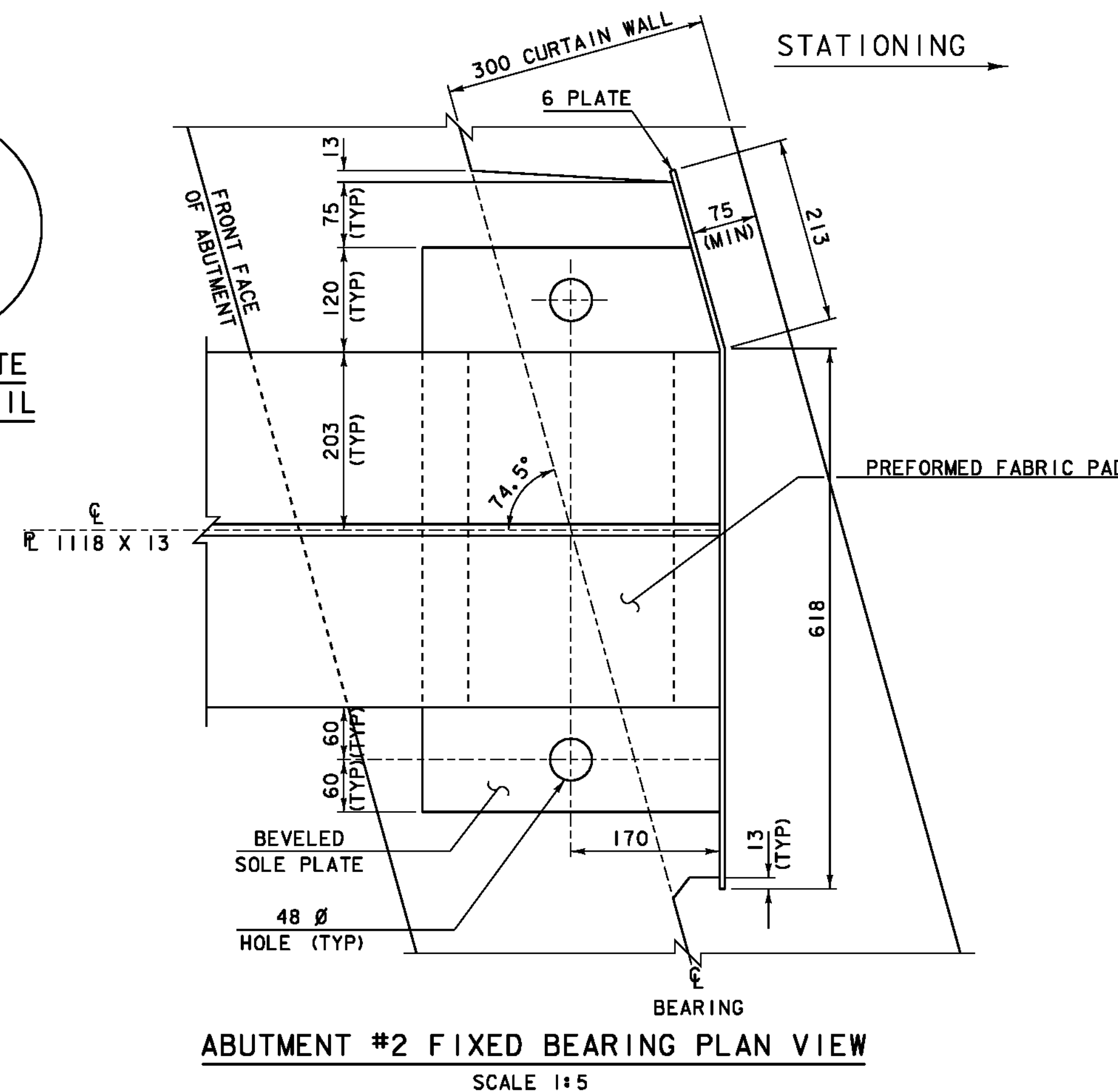
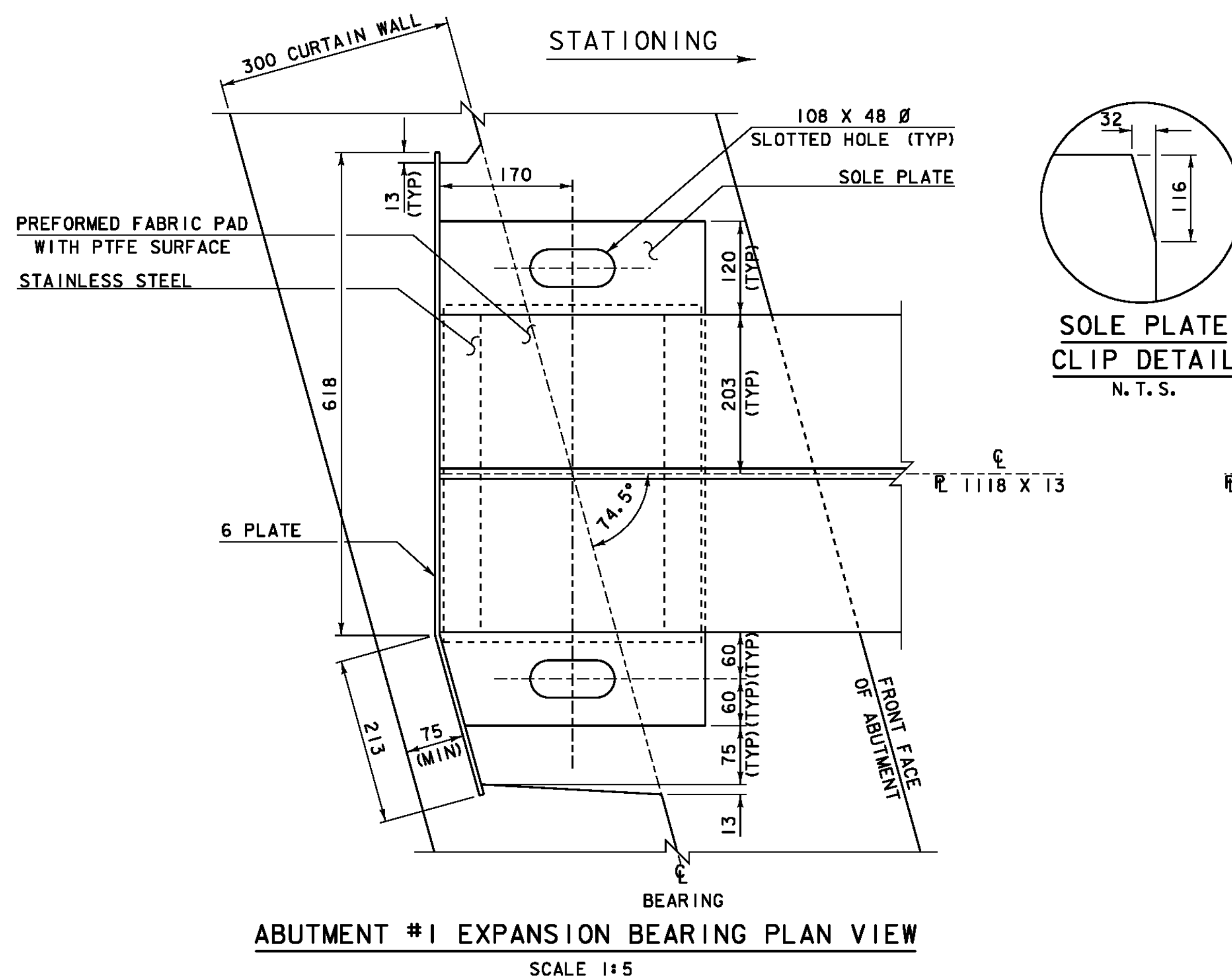
BEARING NOTES

1. BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.10 "BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. THE FIELD WELD CONNECTING THE BOTTOM FLANGE WITH THE BEARING DEVICE SHALL BE MADE WITH E7018 RODS. AREAS OF GALVANIZING OR METALIZING DAMAGED BY WELDING AND/OR HANDLING SHALL BE PAINTED WITH A ZINC RICH PAINT IN ACCORDANCE WITH SECTION 513.
3. ALTERNATE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THIS SHEET, AND SHALL MAINTAIN THE ANCHORAGE SYSTEM SHOWN.
4. BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATE CONFIGURATION.
5. THE "A" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOAD IS ADDED TO THE GIRDERS. THE "B" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED AFTER THE DECK CURBS HAVE BEEN POURED. THE DIFFERENCE IS THE THEORETICAL ELONGATION OF THE BOTTOM FLANGE DUE TO DEAD LOAD DEFLECTION FROM THE DECK AND CURBS. THE FINAL "B" DISTANCE MUST BE REACHED WITHIN 3mm.
6. DESIGN CRITERIA:
 - A: BASE PLATE TO CONCRETE DESIGN PRESSURE = 7500 kPa.
 - B: MINIMUM ALLOWABLE DESIGN ROTATION = 0.015 RADIAN.
 - C: HORIZONTAL CAPACITY SHALL BE A MINIMUM 10% OF VERTICAL LOAD.
 - D: DESIGN LOAD PER BEARING = 655.22 kN.
 - DL = 260.67 kN
 - L + I = 353.32 kN
 - SDL = 41.23 kN
 -
 - 655.22 kN
7. FABRICATION DRAWINGS CONFORMING TO SECTION 531 SHALL BE SUBMITTED AND INCLUDE ANY NECESSARY WELDING OR BONDING PROCEDURES.
8. SOLE PLATES, ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED OR METALIZED AS PER SUBSECTION 531.04(b) AND 506.15(a) & (b). IF THE BEARINGS ARE METALIZED THEY SHALL BE SEALED WITH AN APPROVED PRIMER AS SPECIFIED IN SUBSECTION 506.15(b). ALL WASHERS SHALL BE 9.5mm PLATE MINIMUM. PAYMENT FOR ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE UNIT BID PRICE OF 531.10 "BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD".
9. THE CONCRETE SURFACE AROUND THE BEARING SHALL SLOPE TOWARDS THE FACE OF ABUTMENT AT A MINIMUM RATE OF 2.0% OR AS PRACTICAL. THE CONCRETE SURFACE DIRECTLY UNDER THE BEARING SHALL BE LEVEL.
10. ALL STEEL IN BEARING DEVICES (EXCEPT STAINLESS STEEL) AS WELL AS THE 6mm PLATE SHALL BE AASHTO M 270 M/M 270 GRADE 345.

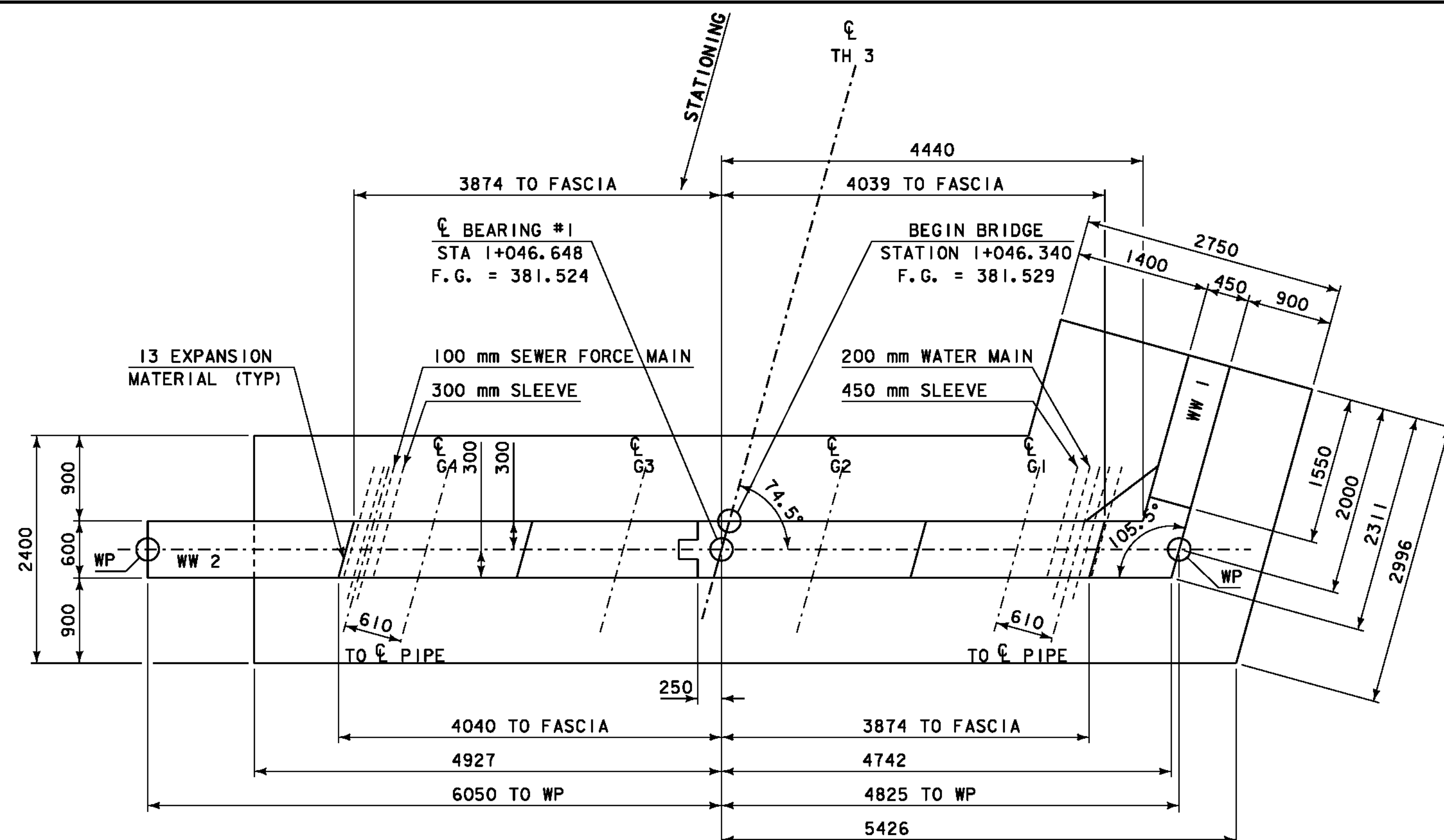
TEMP °C	"A" DIST	"B" DIST
-35	58	39
-30	60	41
-20	63	45
-10	67	48
0	70	52
10	74	55
20	77	58
30	81	62
40	84	65
50	88	69
55	89	71



PROJECT:	PROJECT NO.:
READSBORO	BRO 1441 (25)
DESIGN FILE NAME: 94J070Structures\sj070sup.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: 94J070brg.i	DRAWN BY: D.D.BEARD
DESIGNED BY: H.I.SALLS	CHECKED BY: R.S.YOUNG
SQUAD LEADER: C.P.WILLIAMS	SHEET: 24 OF 60
BEARING DETAIL SHEET	



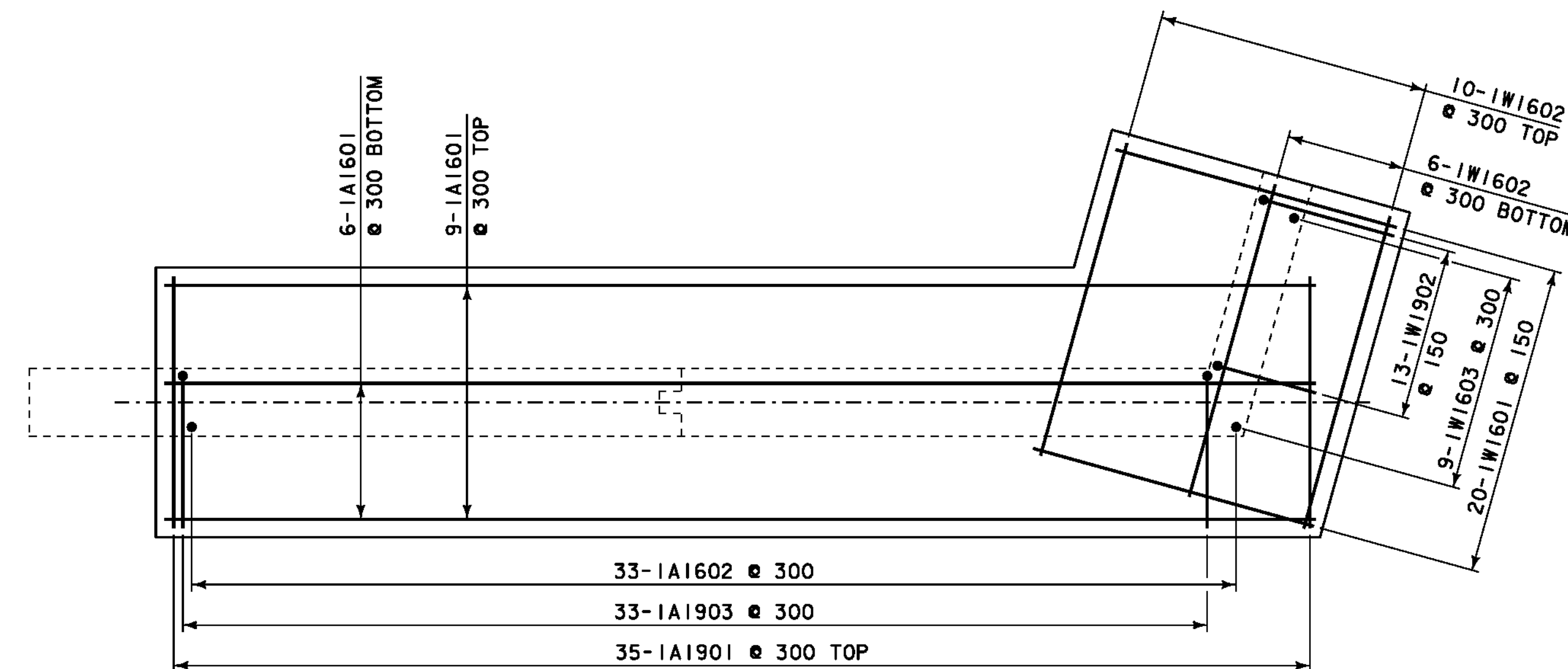
M38 DIA X 600 ANCHOR BOLTS, SWEDGED, GALV.
THREAD LENGTH = 100 MINIMUM EMBEDMENT OF 380.
NUTS TO BE DRAWN UP TIGHT THEN BACKED OFF 3.
(THREADS SHALL BE BURRED TO PREVENT NUT REMOVAL)
(TYP)



ABUTMENT #1 LAYOUT

SCALE 1:40

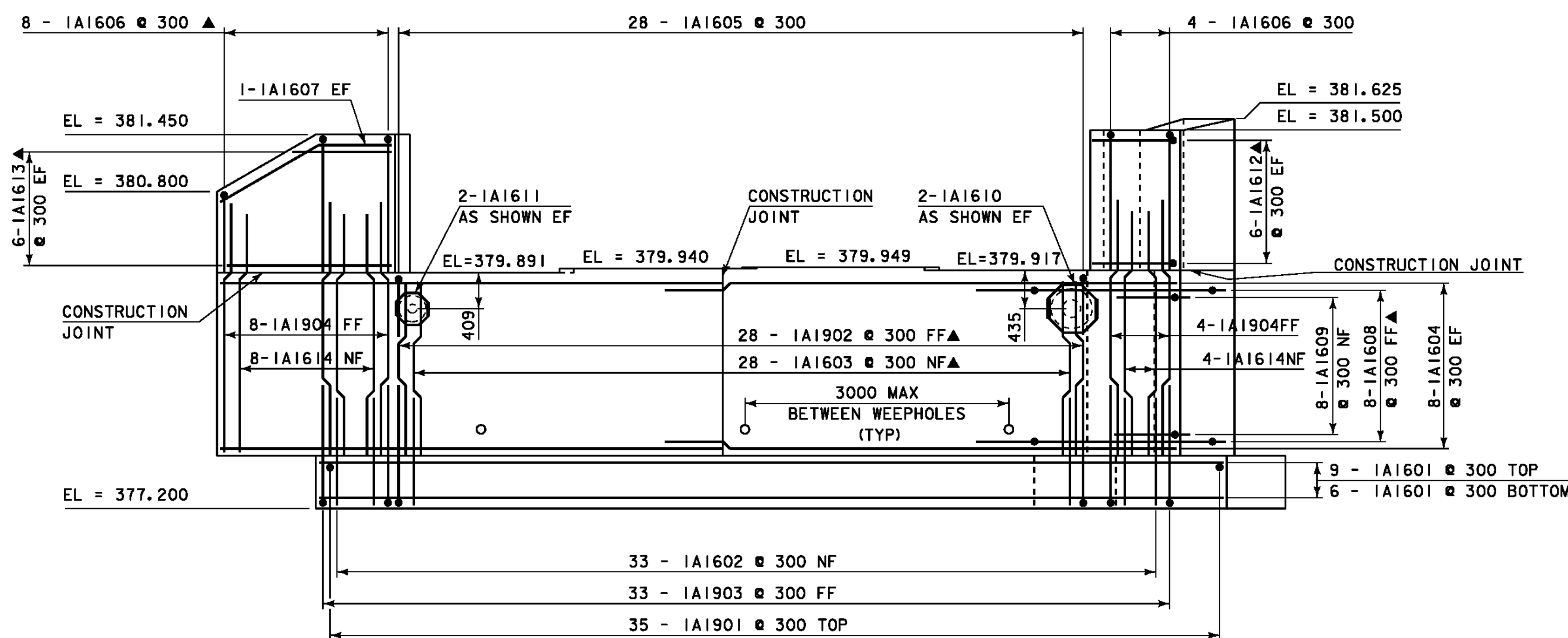
FLOW



ABUTMENT #1 FOOTING DETAIL

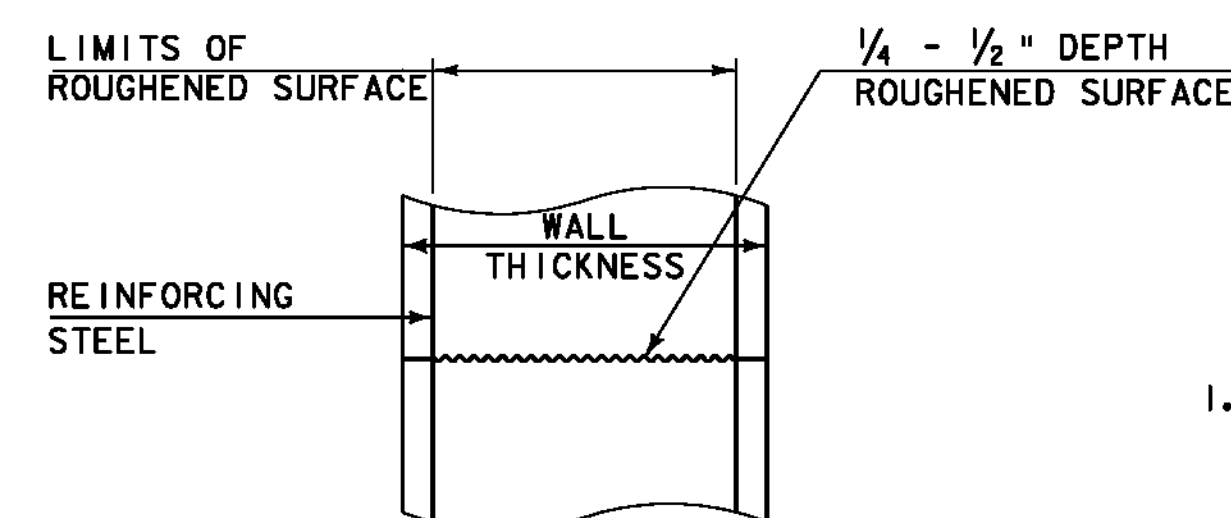
SCALE 1:40

FLOW

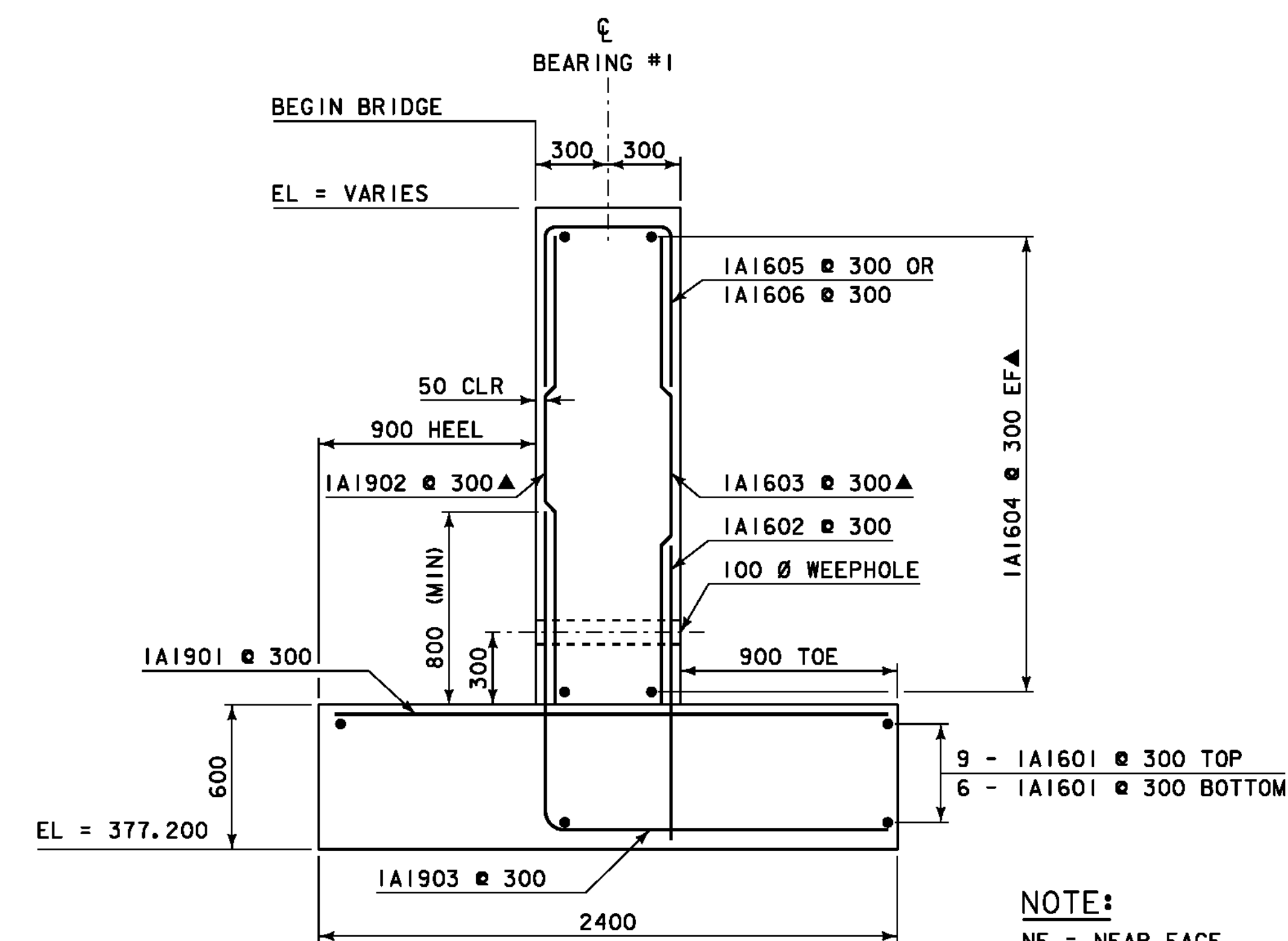


ABUTMENT #1 ELEVATION

SCALE 1:40



TYPICAL CONCRETE CONSTRUCTION JOINT (NOT TO SCALE)



ABUTMENT #1 TYPICAL SECTION

SCALE 1:20

NOTE:
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 660 BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.



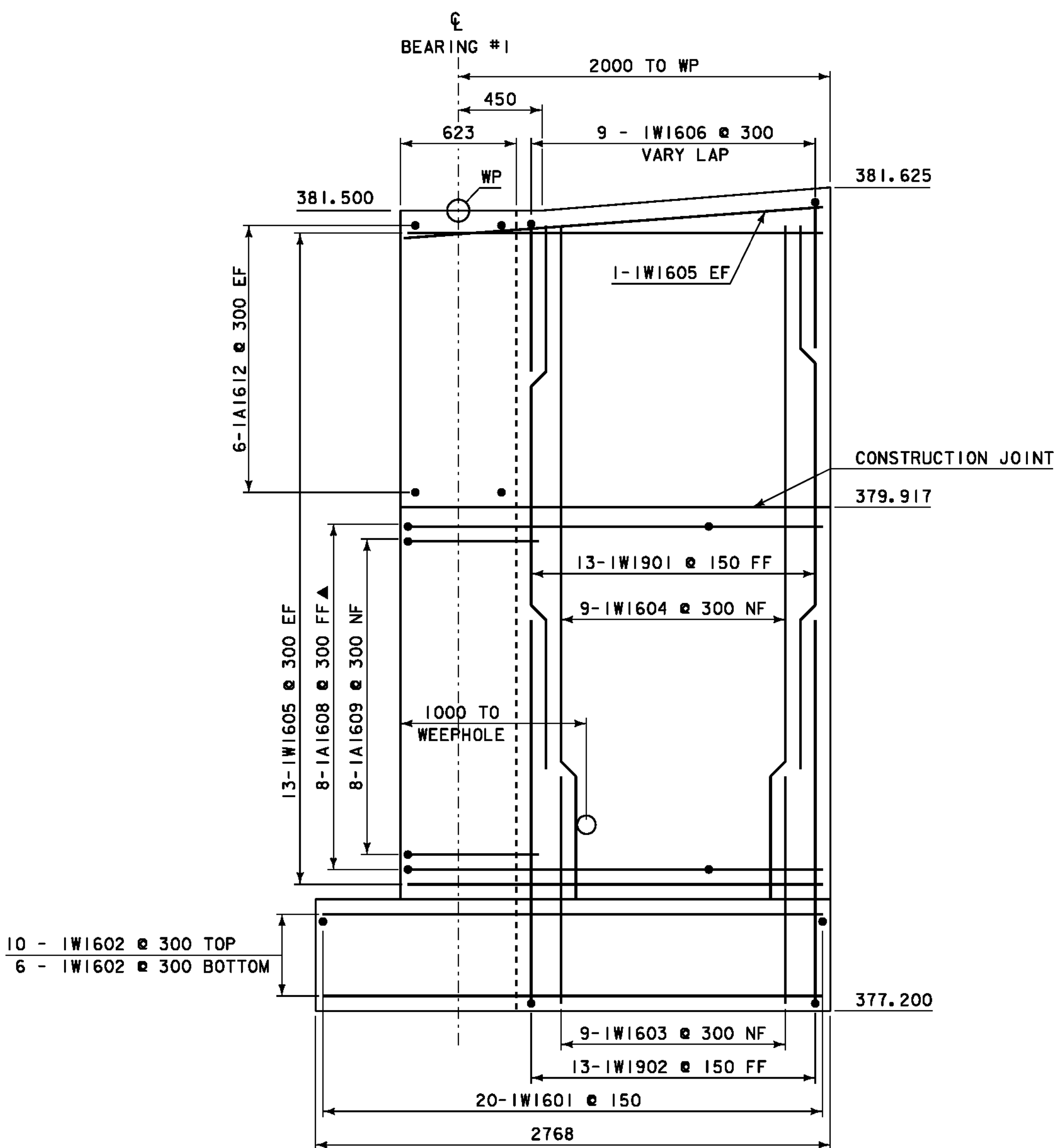
SCALE = 1:20



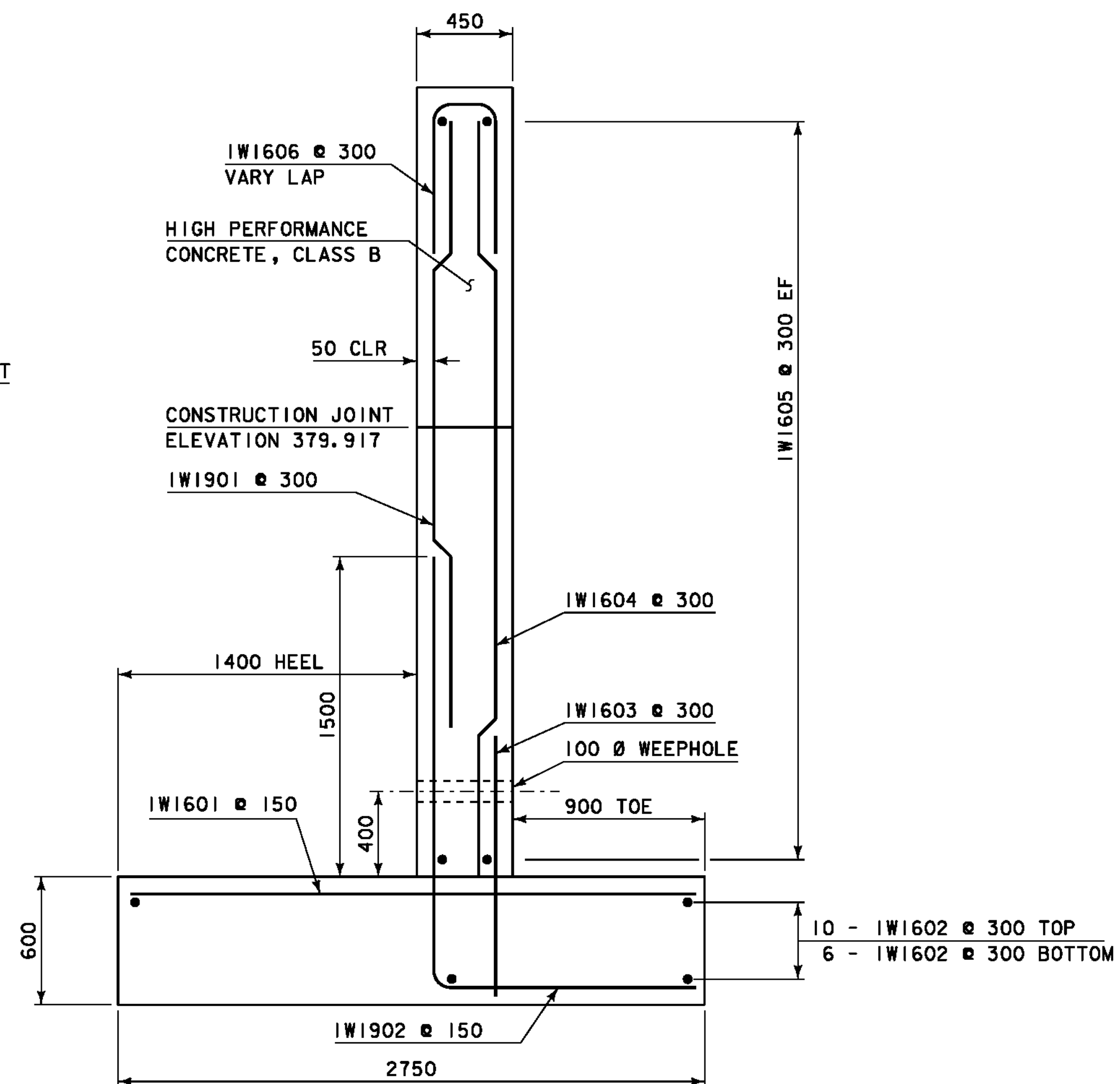
SCALE = 1:40

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.

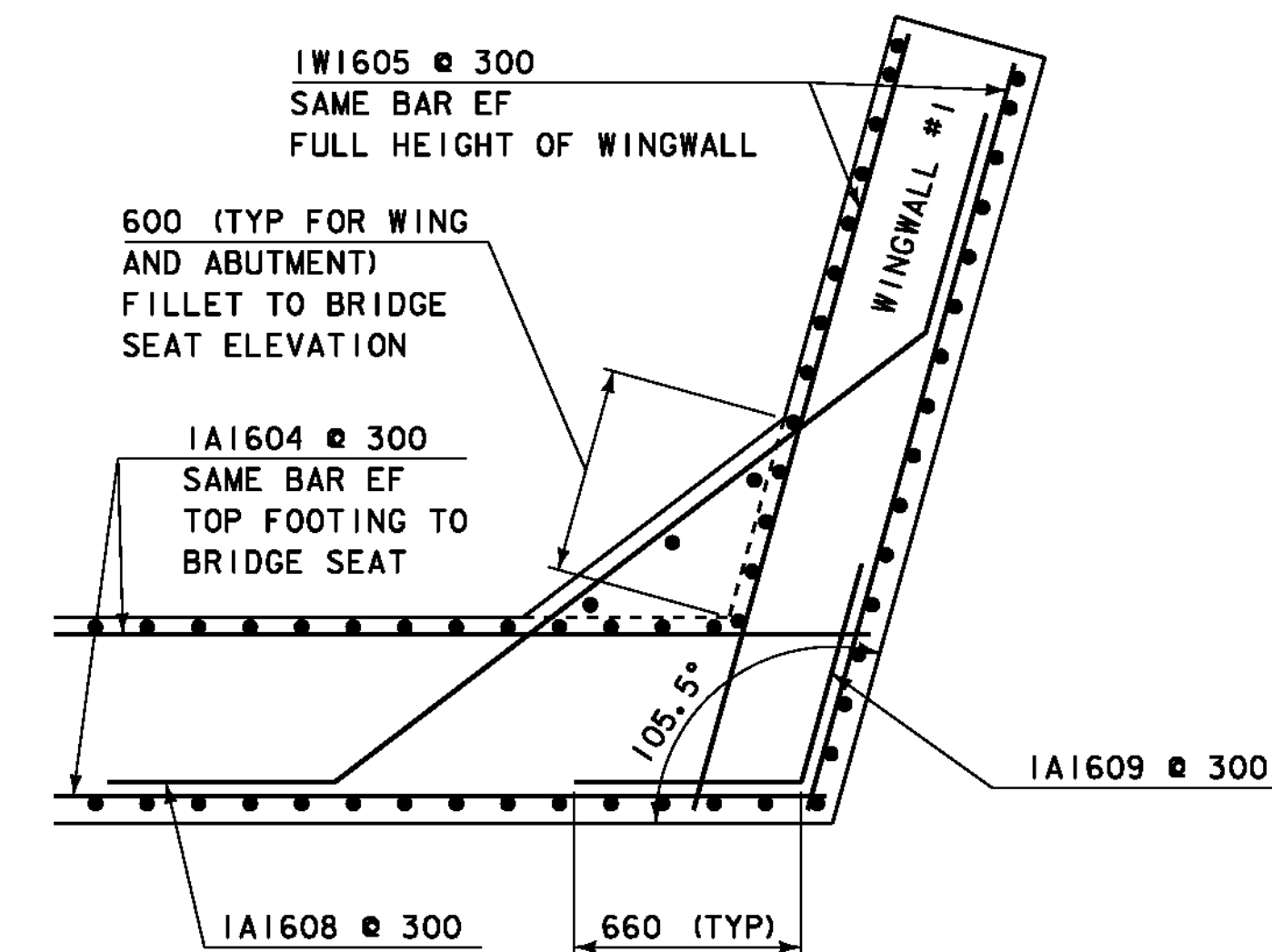
PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94J070\Structures\sj070sub.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070abut1.i	DRAWN BY: D.D.BEARD
DESIGNED BY: H.I.SALLS	CHECKED BY: R.S.YOUNG
SQUAD LEADER: C.P.WILLIAMS	SHEET: 25 OF 60
ABUTMENT #1 DETAILS	



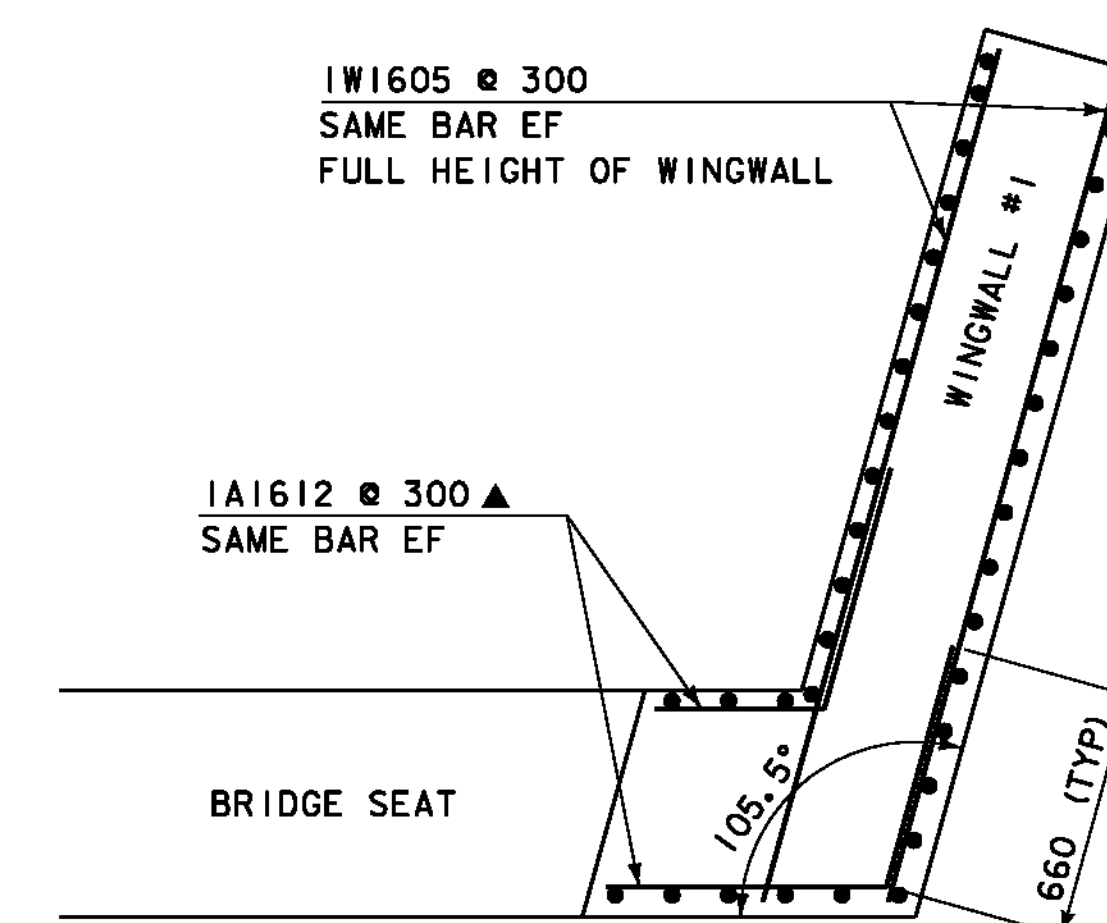
WINGWALL #1 ELEVATION
SCALE = 1:20



WINGWALL #1 SECTION
SCALE = 1:20



WINGWALL #1 CORNER DETAIL BELOW BRIDGE SEAT
SCALE = 1:20

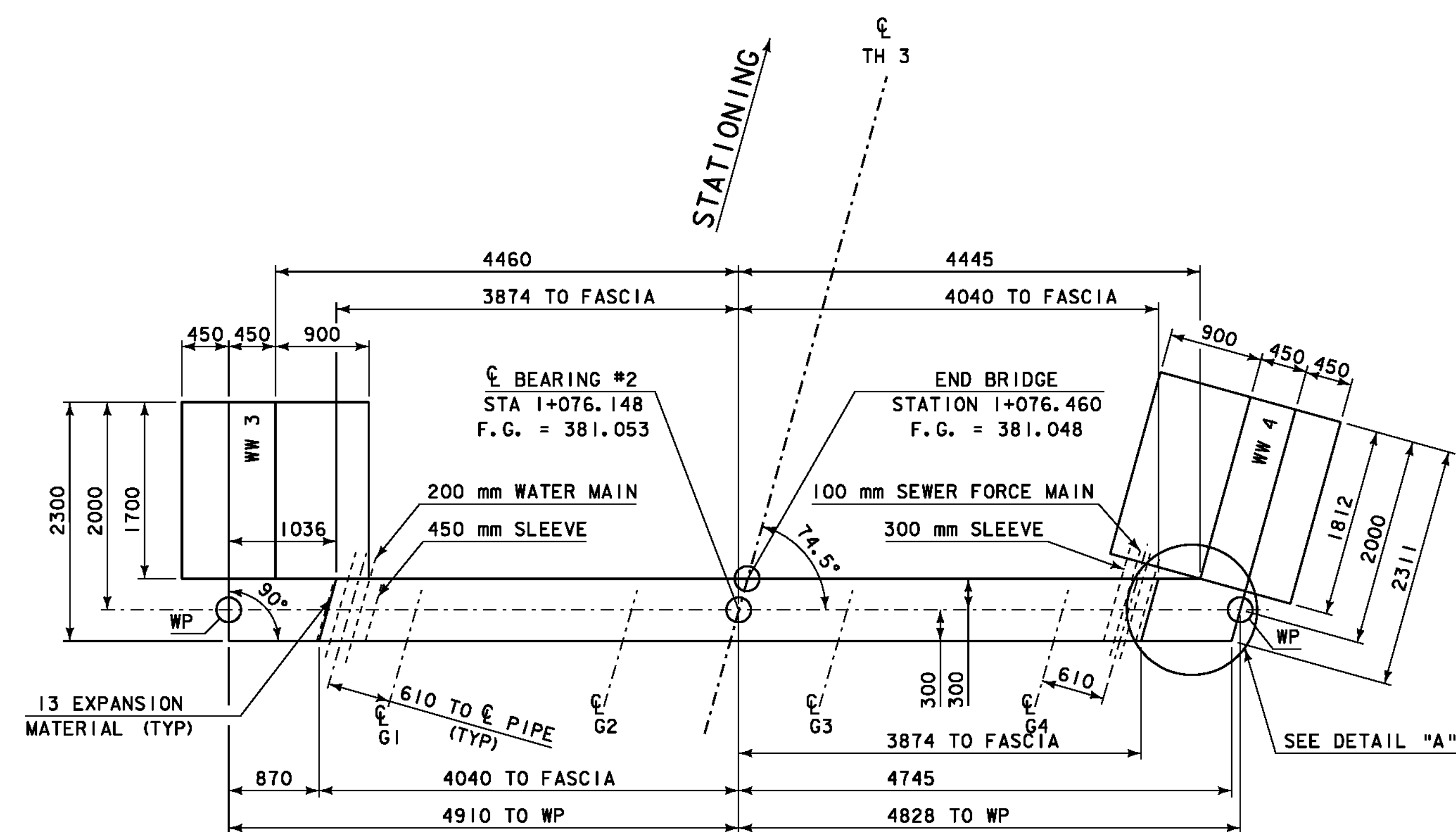


WINGWALL #1 CORNER DETAIL ABOVE BRIDGE SEAT
SCALE = 1:20

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660 BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.



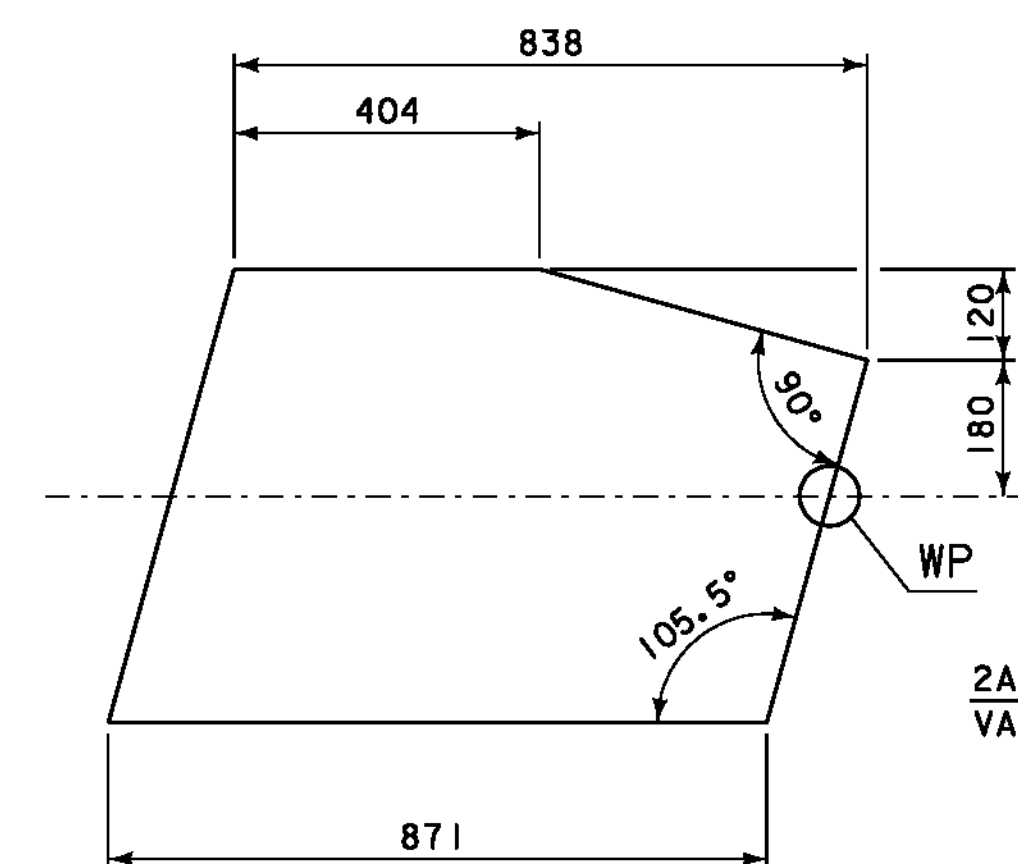
PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94J070\Structures\sj070sub.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070wde1.i	DRAWN BY: D.D.BEARD
DESIGNED BY: H.I.SALLS	CHECKED BY: H.I.SALLS
SQUAD LEADER: C.P.WILLIAMS	SHEET: 26 OF 60
WINGWALL #1 DETAILS	



ABUTMENT #2 LAYOUT

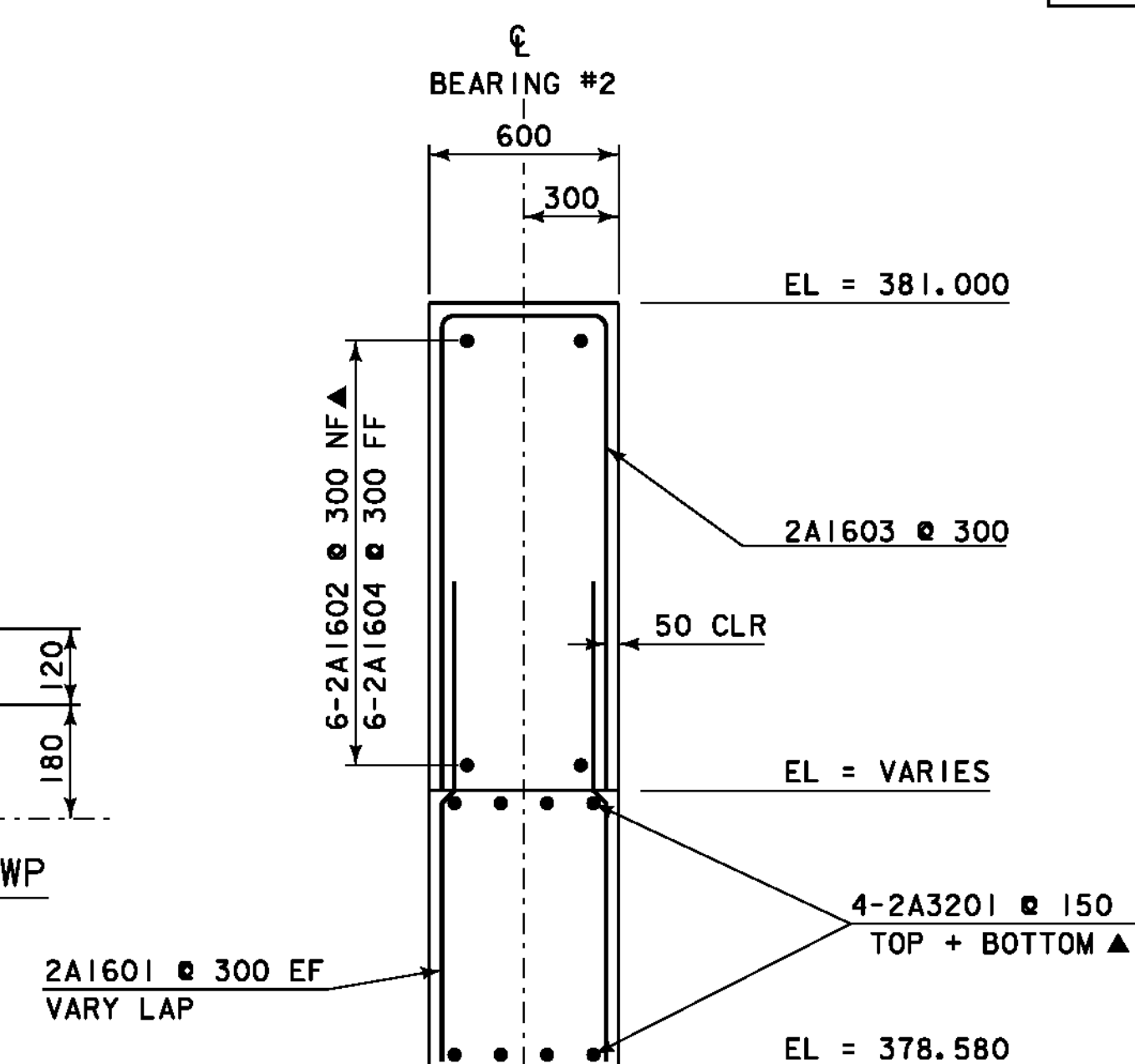
SCALE 1:40

FLOW



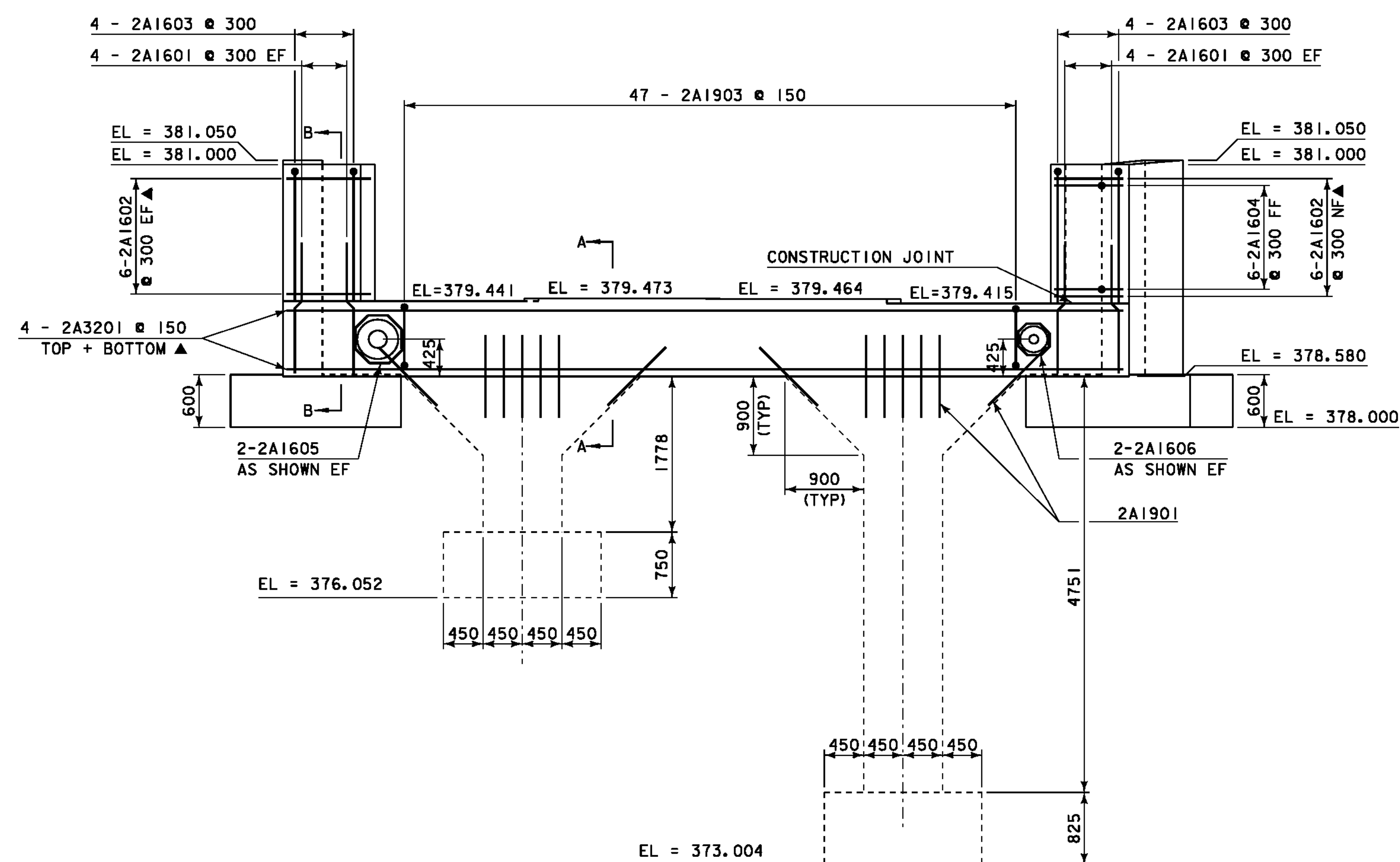
DETAIL A

SCALE 1:10



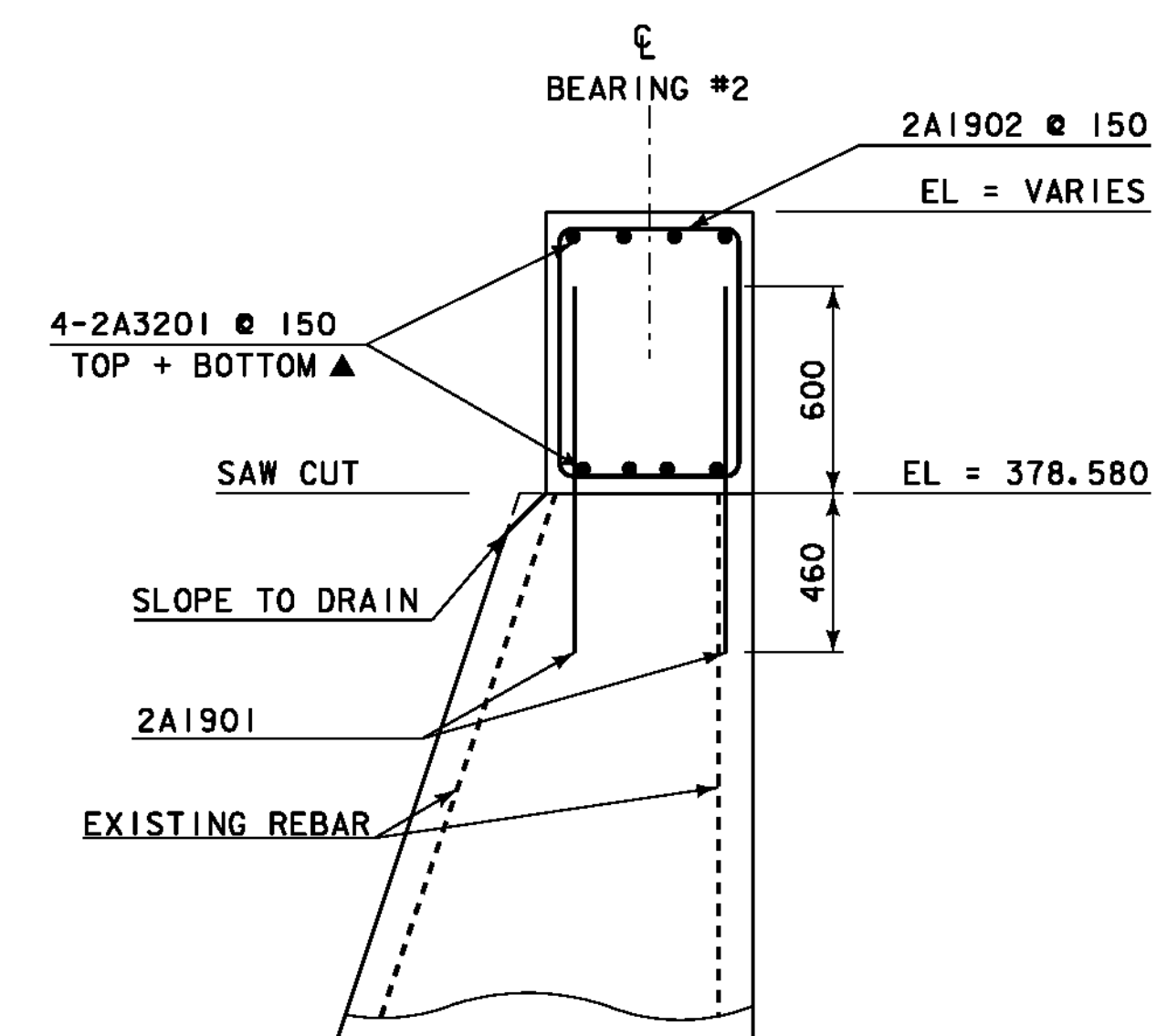
ABUTMENT #2 SECTION "B-B"

SCALE 1:20



ABUTMENT #2 ELEVATION

SCALE 1:40



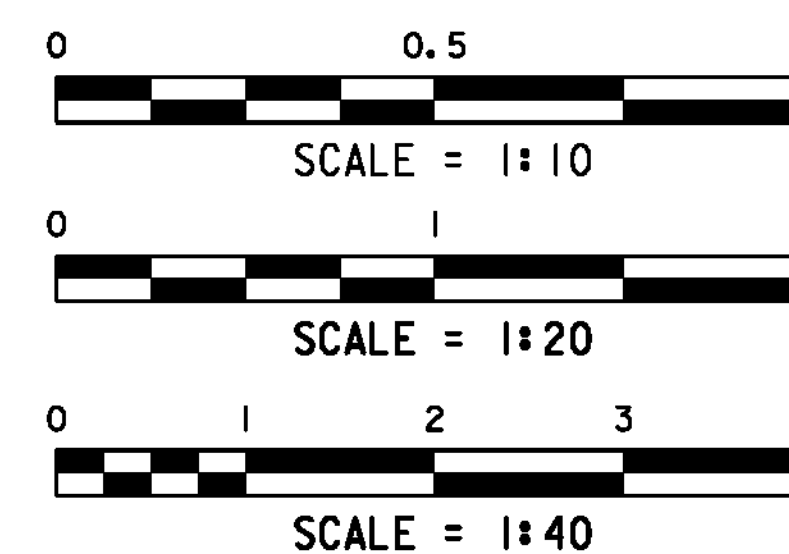
ABUTMENT #2 SECTION "A-A"

SCALE 1:20

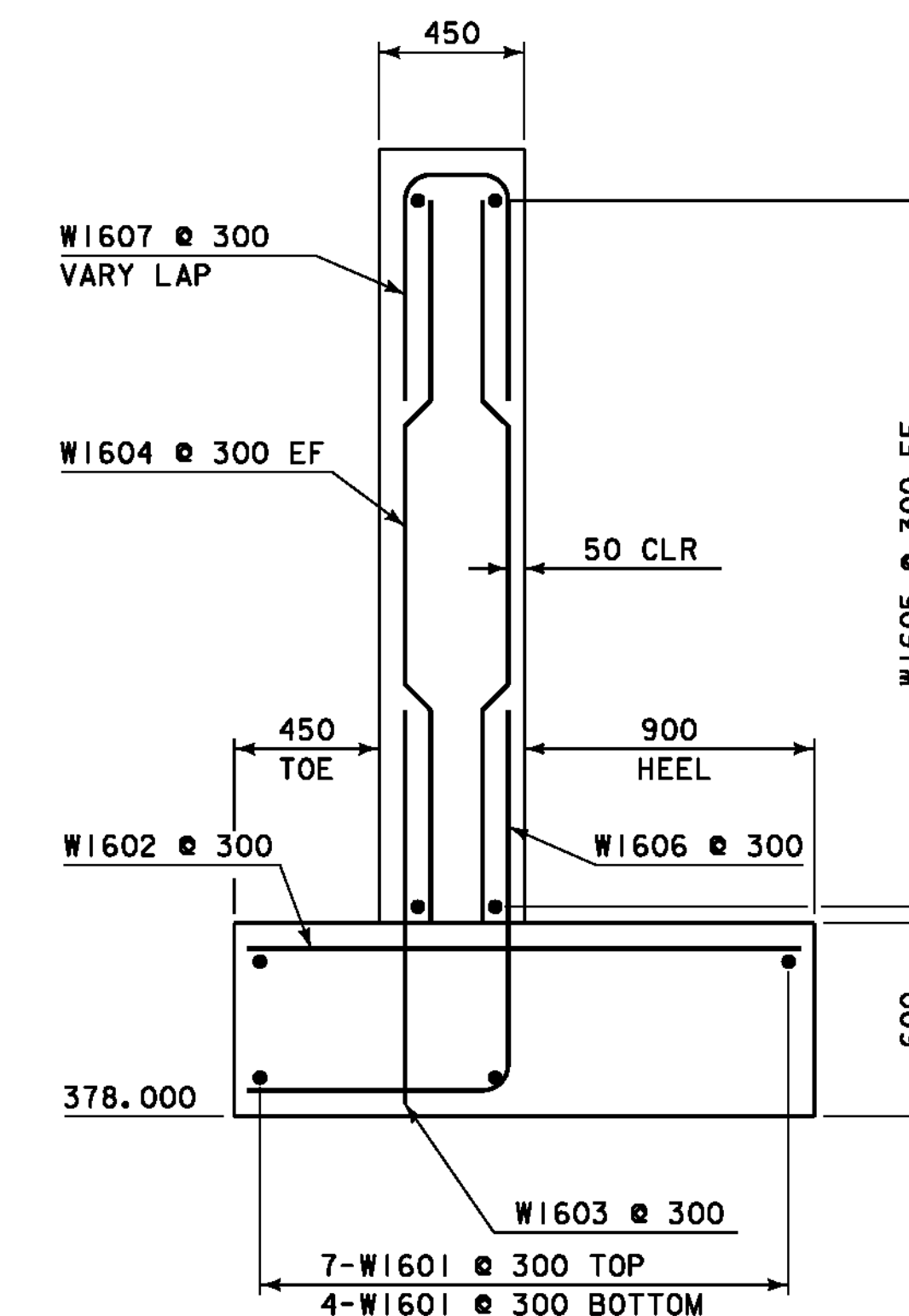
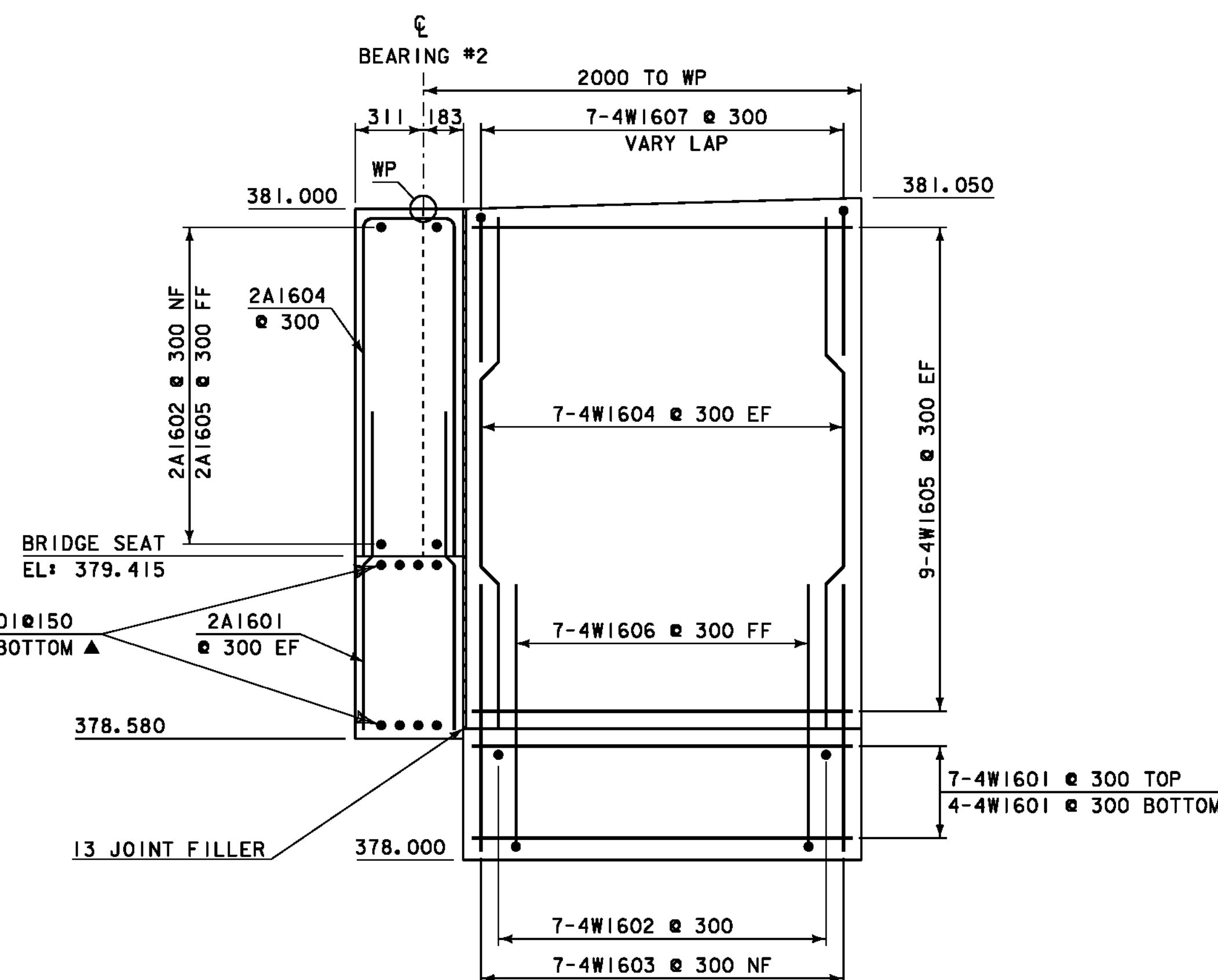
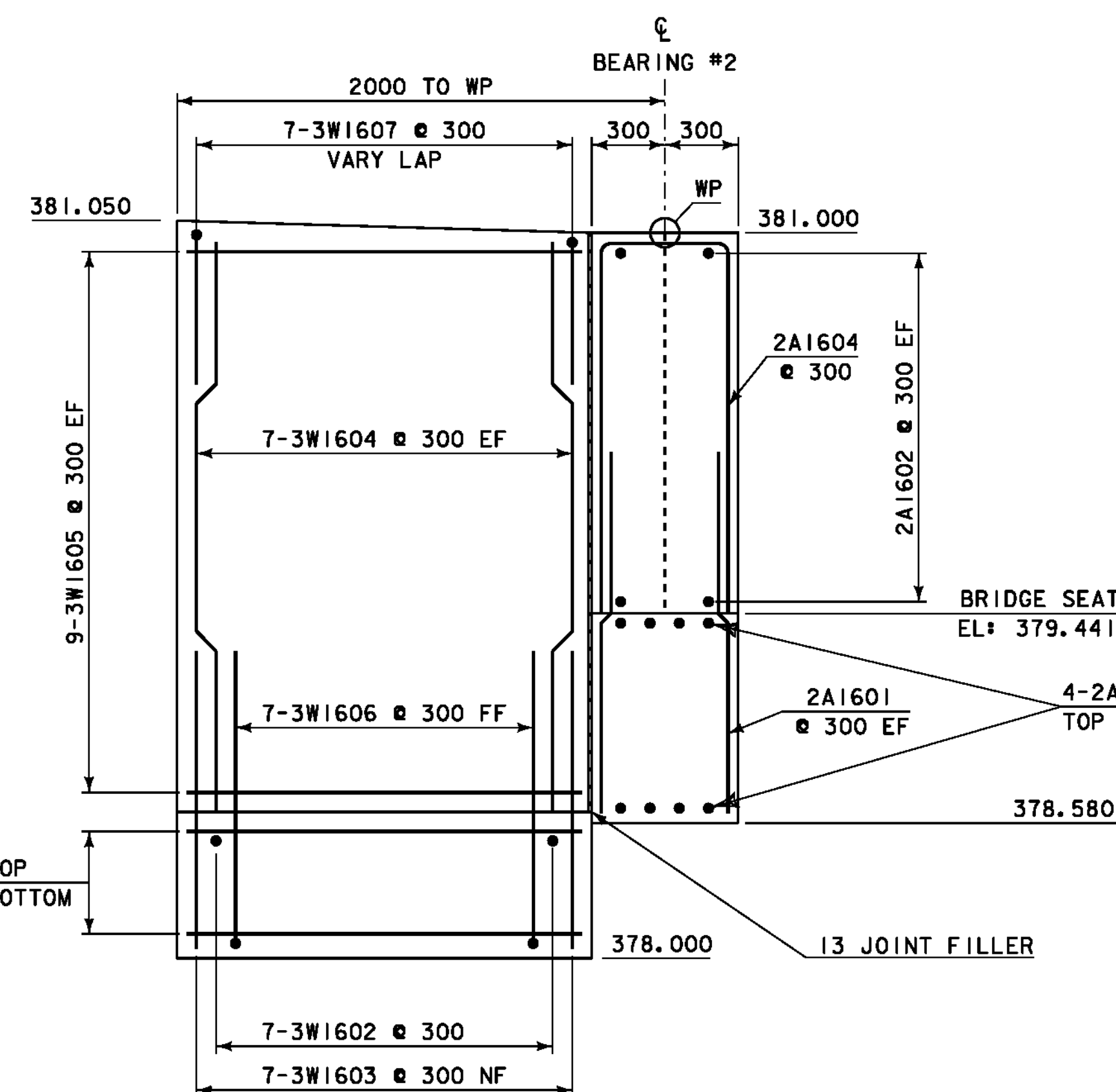
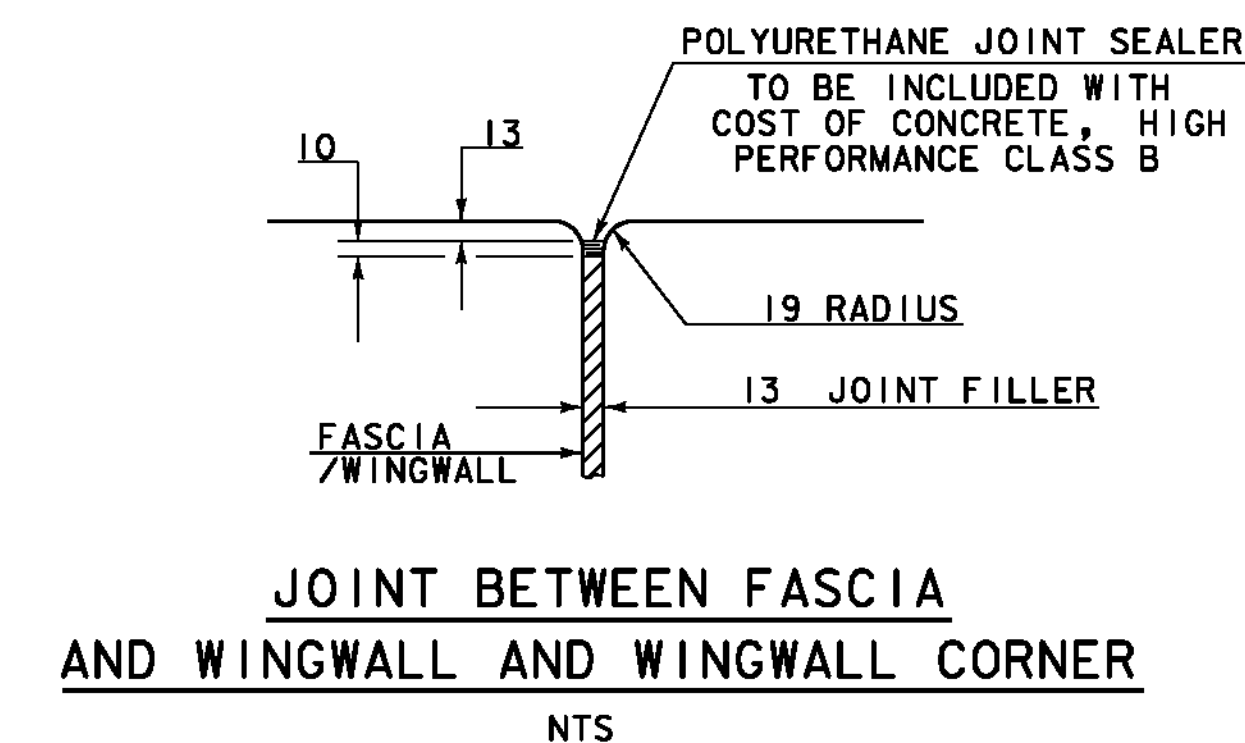
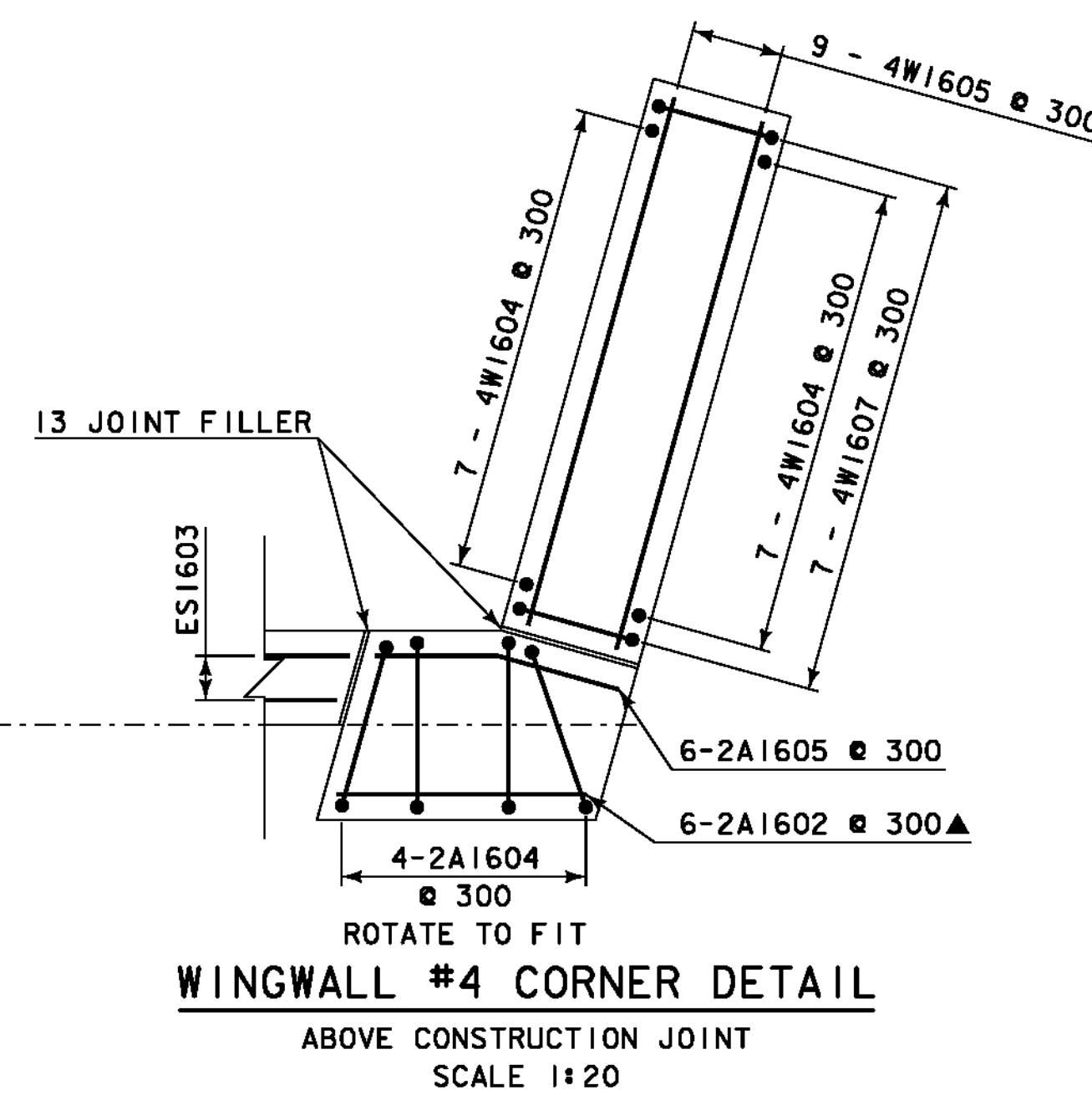
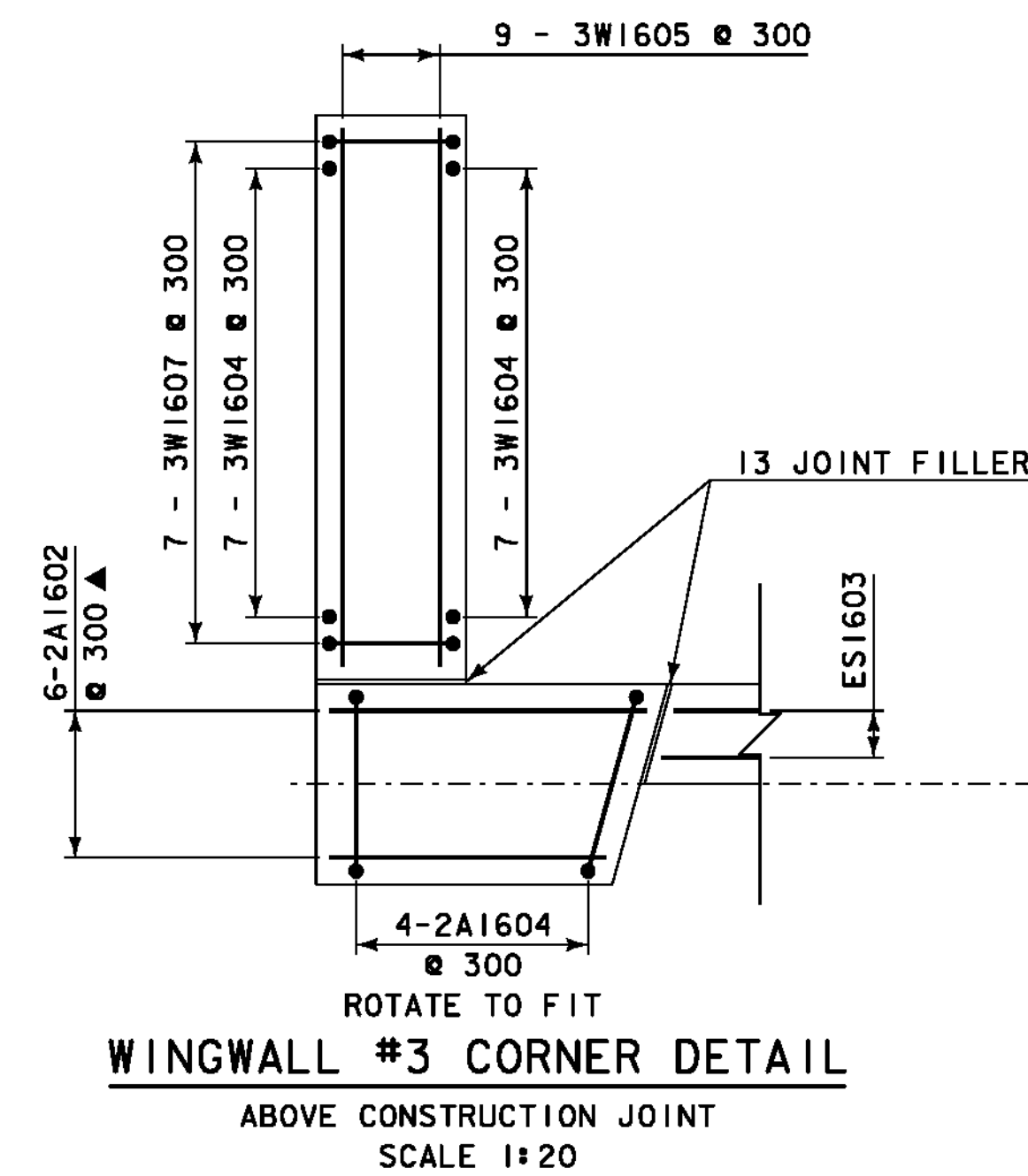
NOTE: THE EXISTING REBAR IS TO BE CUT OFF AND REPLACED WITH BARS 2A1901 WHICH ARE TO BE DRILLED AND GROUTED INTO THE EXISTING CONCRETE.

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SPECIFIED ON THE PLANS.
660 BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.



PROJECT:	PROJECT NO.:
READSBORO	BRO 1441 (25)
DESIGN FILE NAME: s4j070\Structures\s4j070sub.dgn	
IPARM FILE NAME: sj070abut2.i	PLOT DATE: 05-JAN-2010
DESIGNED BY: H. J. SALLS	DRAWN BY: D. D. BEARD
SQUAD LEADER: C. P. WILLIAMS	CHECKED BY: R. S. YOUNG
ABUTMENT #2 DETAILS	SHEET: 27 OF 60



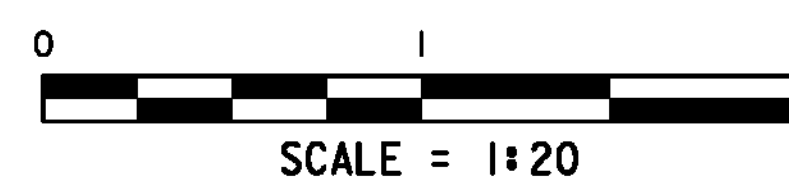
WINGWALL #3 ELEVATION
SCALE 1:20

WINGWALL #4 ELEVATION
SCALE 1:20

WINGWALL #3 & 4 SECTION
SCALE 1:20

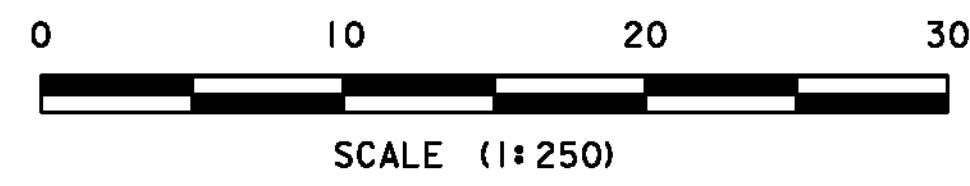
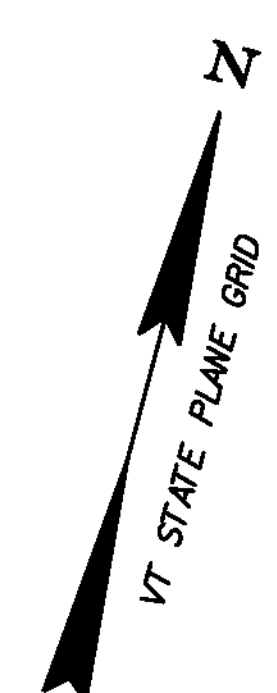
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SPECIFIED ON THE PLANS.
660 BAR LAP UNLESS OTHERWISE
SPECIFIED ON THE PLANS.

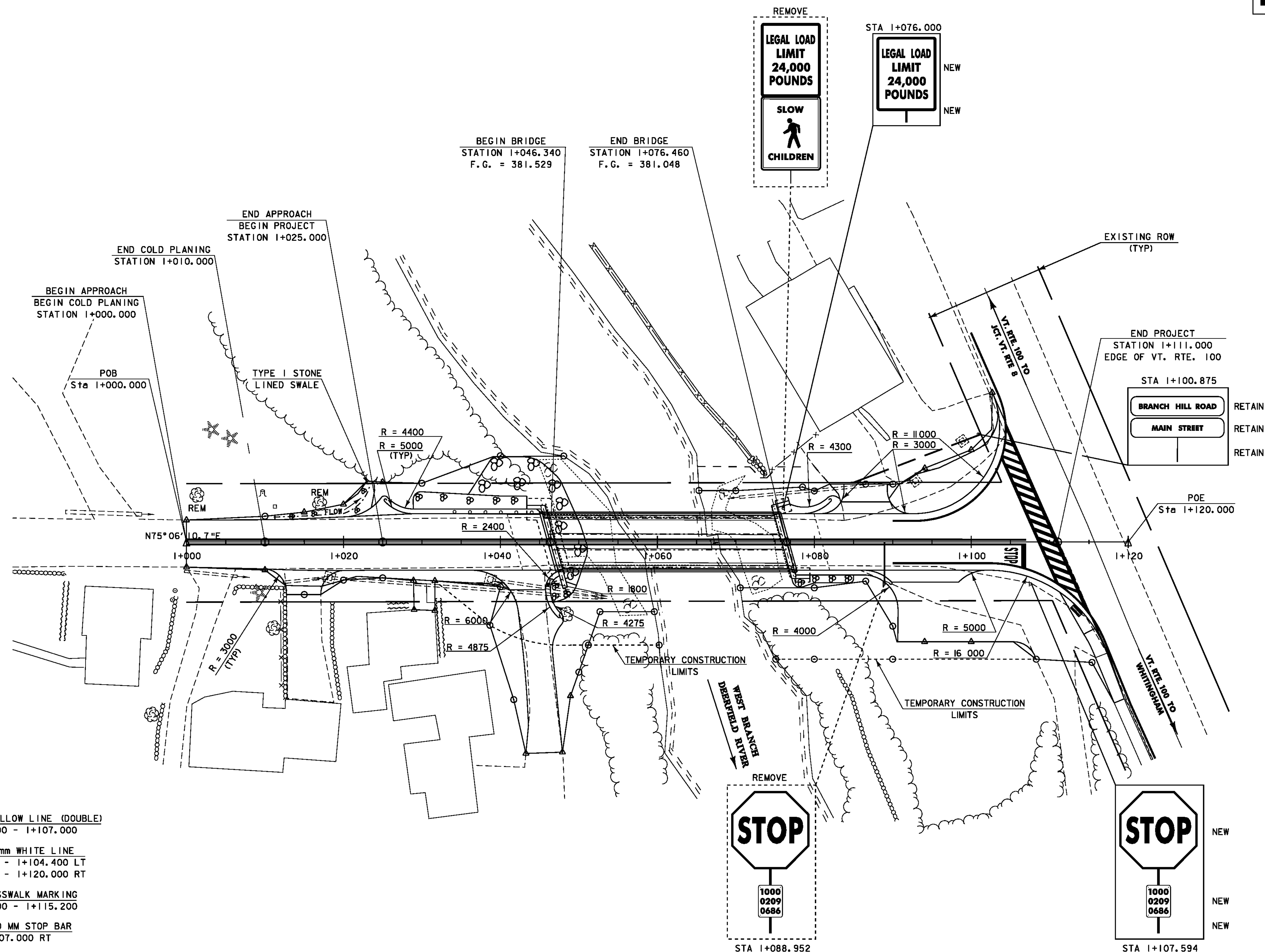
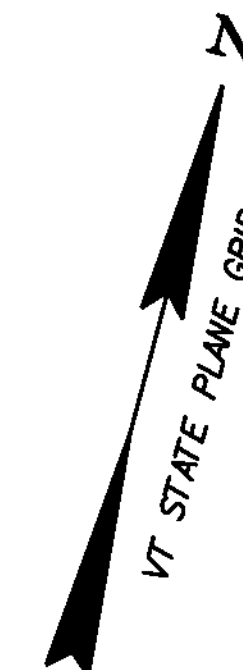


PROJECT:	READSBORO	PROJECT NO.:	BRO 1441 (25)
DESIGN FILE NAME:	94J070\Structures\sj070sub.dgn	PLOT DATE:	05-JAN-2010
IPARM FILE NAME:	sj070wwdet2.i	DRAWN BY:	D.D. BEARD
DESIGNED BY:	H. I. SALLS	CHECKED BY:	H. I. SALLS
SQUAD LEADER:	C.P. WILLIAMS		
WINGWALL #3 & #4 DETAILS		SHEET:	28 OF 60

PROJECT NAME: READSBORO	
PROJECT NUMBER: BRO 1441(25)	
FILE NAME: 94j070\Structures\94j070\excel.dgn	PLOT DATE: 12/15/2009
PROJECT MANAGER: C.P.WILLIAMS	DRAWN BY: D.D.BEARD
DESIGNED BY: E.L.RUSTAY	CHECKED BY: R.S.YOUNG
REINFORCING STEEL SCHEDULE SHEET #1	SHEET 29 OF 60



PROJECT:	PROJECT NO.:
READSBORO	BRO 1444 (25)
DESIGN FILE NAME: 94J070\structures\sj070asc.dgn	
IPARM FILE NAME: sj070rsc.i	PLOT DATE: 05-JAN-2010
DESIGNED BY: H. I. SALLS	DRAWN BY: H. I. SALLS
SQUAD LEADER: C. P. WILLIAMS	CHECKED BY: R. S. YOUNG
ENVIRONMENTAL RESOURCES	SHEET: 30 OF 60



DURABLE 100mm YELLOW LINE (DOUBLE)
STA 1+000.000 - 1+107.000

DURABLE 100mm WHITE LINE
STA 1+090.000 - 1+104.400 LT
STA 1+090.000 - 1+120.000 RT

DURABLE CROSSWALK MARKING
STA 1+103.800 - 1+115.200

DURABLE 600 MM STOP BAR
STA 1+107.000 RT

DURABLE LETTER OR SYMBOL
STA 1+105.000 RT

TRAFFIC SIGNS, TYPE A
STA 1+076.000 LT
STA 1+107.594 RT

REMOVING SIGNS
STA 1+076.000 LT
STA 1+088.900 RT

TRAFFIC SIGN AND PAVEMENT MARKINGS

0 10 20 30



SCALE (1:250)

PROJECT:	READSBORO	PROJECT NO.:	BRO 1444 (25)
DESIGN FILE NAME:	94\070\structures\sj070sgn.dgn	PLOT DATE:	05-JAN-2010
IPARM FILE NAME:	sj070sgl.i	DRAWN BY:	H. I. SALLS
DESIGNED BY:	H. I. SALLS	CHECKED BY:	R. S. YOUNG
SQUAD LEADER:	C. P. WILLIAMS	SHEET:	31 OF 60
SIGNS AND PAVEMENT MARKINGS			

KILOMETER MARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS		NEW & SALVAGED SIGNS				EXIST POST RE TAIN E	S ALV AGE	NO. OF POST S	NEW SIGN POSTS																		RE Q U I R E D S I G N E	REMARKS	SIGN DETAIL	
											FLANGED CHANNEL			SQUARE STEEL (mm)			ANCHOR S P L I T		TUBULAR ALUMINUM Ø (mm)			TUBULAR STEEL Ø (mm)				W-SHAPE STEEL					WEIGHT	POST SIZE
		kg/m			44	50	63				75	100	100 MOD	FOUND- ATION	75	89			100	125	FTG. SIZE		POST SIZE									
		kg/m			kg/m						kg/m				kg/m				600 mm	750 mm												
		1.7	3.0	4.5	2.8	3.6	5.0				1.9	2.5	2.5	11.3	13.4	16.1	21.7	600 mm	750 mm													
OPTION ITEMS																																
STA 1+076.000 L+.		600	750	0.45						I					X		I												VR-017		E-141	
STA 1+07.594 Rt.		750	750	0.56						I					X		I												RI-1		E-143	
STA 1+07.594 Rt.		150	200	0.03																									VD-700		E-138	

FINAL POST LENGTHS ARE TO BE DETERMINED
IN THE FIELD. POST SIZES ARE COMPUTED
BASED ON INFORMATION FURNISHED ON THE
STANDARD SHEETS AND THE VTRANS "SIGN
POST DESIGN GUIDELINE."

TOTALS	m ² 1.04	m ²	EA.	m ²		m	m			m			kg			EA.	kg			EA.	EA.	kg
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PROJECT:
READSBORO

PROJECT NO.:
BRO 1444 (25)

DESIGN FILE NAME: 94j070\structures\sj070sgn.dgn
IPARM FILE NAME: sj070sg2.i
DESIGNED BY: H. I. SALLS
SQUAD LEADER: C. P. WILLIAMS
TRAFFIC SIGN SUMMARY

PLOT DATE: 05-JAN-2010
DRAWN BY: H. I. SALLS
CHECKED BY: R. S. YOUNG
SHEET: 32 OF 60

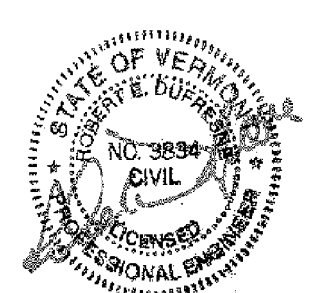


Dufresne & Associates, P.C.
459 Portland Street, Suite 106
St. Johnsbury, Vermont 05819
Tel: (802) 748-8605 Fax: (802) 748-4512
E-mail: duf@dufresneassociates.com
Home page: http://www.dufresneassociates.com

Project # 416006
Project Mgr. RAW
Design RNG
Drawn EAE
Checked by R.E. DUFRESNE
Date December 09
Scale AS SHOWN
Approved by RED

Revisions:
10-27-09: REVISIONS PER VTRANS COMMENTS
12-23-09: REVISIONS PER VTRANS COMMENTS

NO. 3836
CIVIL
REGISTERED PROFESSIONAL ENGINEER
12-29-09



BRIDGE #31

WATER MAIN AND FORCE MAIN PLAN
LEGEND, ABBREVIATIONS,
AND GENERAL NOTES

READSBORO, VERMONT

C1

DWG. NO. 416006-C1-ed
SHEET 1 OF 1

LEGEND	
EXISTING:	
	EDGE OF RIVER
	EDGE OF PAVEMENT
	EDGE OF GRAVEL
	FORCE MAIN
	SEWER LINE
	OVERHEAD UTILITY
	TREE LINE
	SWALE
	UTILITY POLE
	GUY WIRE
	CATCH BASIN
PROPOSED:	
	WATERLINE
	FORCE MAIN
	GATE VALVE
	END CAP
	M.J. PIPE FITTINGS
	MANUAL AIR RELEASE
	CLEAN OUT

ABBREVIATIONS	
ABUT	ABUTMENT
BM	BENCHMARK
CI	CAST IRON PIPE
CGMP	CORRUGATED GALVANIZED METAL PIPE
CHIS	CHISELED
OMP	CORRUGATED METAL PIPE
OPP	CORRUGATED PLASTIC PIPE
CU	COPPER PIPE
DI	DUCTILE IRON PIPE
ELEV	ELEVATION
ER	EROSION
HCTRL	HORIZONTAL CONTROL
HYD	FIRE HYDRANT
FM	FORCE MAIN
INV	INVERT
IP	IRON PIPE
MAR/OIP	MANUAL AIR RELEASE/CHLORINE INJECTION POINT
MJ	MECHANICAL JOINT
NE	NORTHEAST
P	ELECTRICAL POWER
ROW	RIGHT OF WAY
S	SEWER
SMH	SEWER MANHOLE
STA	STATION
SQ	SQUARE
TBM	TEMPORARY BENCH MARK
TSFM	TEMPORARY SEWER FORCE MAIN
TYP	TYPICAL
VC	VITRIFIED CLAY
W	WATER MAIN
WSO	WATER SHUT OFF
WV	WATER VALVE

READSBORO
BRO 1441(25)
WATER MAIN PLAN
SHEET 33 OF 60

INTERCONNECTION
- REMOVE EXISTING 150MM CAP AND INSTALL 150MM - 200MM D.I. REDUCER
- 200MM D.I. NIPPLE, LENGTH AS REQUIRED
- 200MM - 45° D.I., BEND, MJ
- 200MM D.I. NIPPLE, LENGTH AS REQUIRED
- 200MM GATE VALVE, MJ W/BOX
- 200MM D.I. NIPPLE, LENGTH AS REQUIRED
- 200MM - 45° D.I., BEND, MJ
NOT DONE PER C.O. #1

EXPLORATORY EXCAVATION REQUIRED TO DETERMINE EXACT LOCATION AND DEPTH OF 150MM END CAP

EXISTING 150MM D.I. WATER MAIN AND HYDRANT

TIE INTO EXISTING 100MM C.I. FORCE MAIN WITH MJ SOLID SLEEVE. EXPLORATORY EXCAVATION REQUIRED TO DETERMINE EXACT LOCATION AND DEPTH

EXISTING 100MM C.I. SEWER FORCE MAIN

BM # 1
CHIS. SQ. NE ABUT.
ELEV. = 380.701 M
ABOVE SEA LEVEL,
NAVD 83

TEMPORARY SEWER FORCE MAIN TO BE ATTACHED TO TEMPORARY BRIDGE. THIS PIPE CANNOT BE INSTALLED IN RIVER.

SEQUENCE OF CONSTRUCTION

1. TEMPORARY SEWER FORCE MAIN SHALL BE CONNECTED TO EXISTING FORCE MAIN PRIOR TO ABANDONING EXISTING BRIDGE CROSSING. TESTING OF THE TEMPORARY SEWER FORCE MAIN SHALL BE IN ACCORDANCE WITH ANR WASH-WA-WR MANAGEMENT DIVISION.
2. CONTRACTOR SHALL CUT EXISTING FORCE MAIN, INSTALL 100MM 90° BEND AND FLEXIBLE COUPLING FOR USE WITH TEMPORARY FORCE MAIN AND CAP EXISTING MAIN FOR FUTURE USE.
3. UPON COMPLETION OF PROJECT, REMOVE TEMPORARY FORCE MAIN AND RECONNECT TO EXISTING FORCE MAIN WITH DI PIPE & FLEXIBLE COUPLING.

LOCAL VALVE OPERATION

1. EXISTING AND PROPOSED MAIN LINE GATE VALVES SHALL OPEN LEFT OR COUNTER CLOCKWISE. OPERATION OF GATE VALVES WILL BE PERFORMED BY THE OWNER'S STAFF ONLY.
2. ALL INTERCONNECTIONS TO THE EXISTING SYSTEM CAN ONLY BE MADE WITH THE WRITTEN PERMISSION OF THE TOWN OF READSBORO.

NEW METER PEDESTAL WITH HEAT TRACE SYSTEM CONTROLS AND CONDUIT TO BOTH MAINS. SEE DETAIL ON SHEET 37 & 38 (E1 & E2)

SEE SHEET 35 (C3) FOR WATER MAIN BRIDGE CROSSING DETAILS

EXISTING 100MM C.I. FORCE MAIN

100MM - 45° D.I. BEND, MJ (TYP)

PROVIDE CLEANOUT, SEE DETAIL ON SHEET 35 (C3)

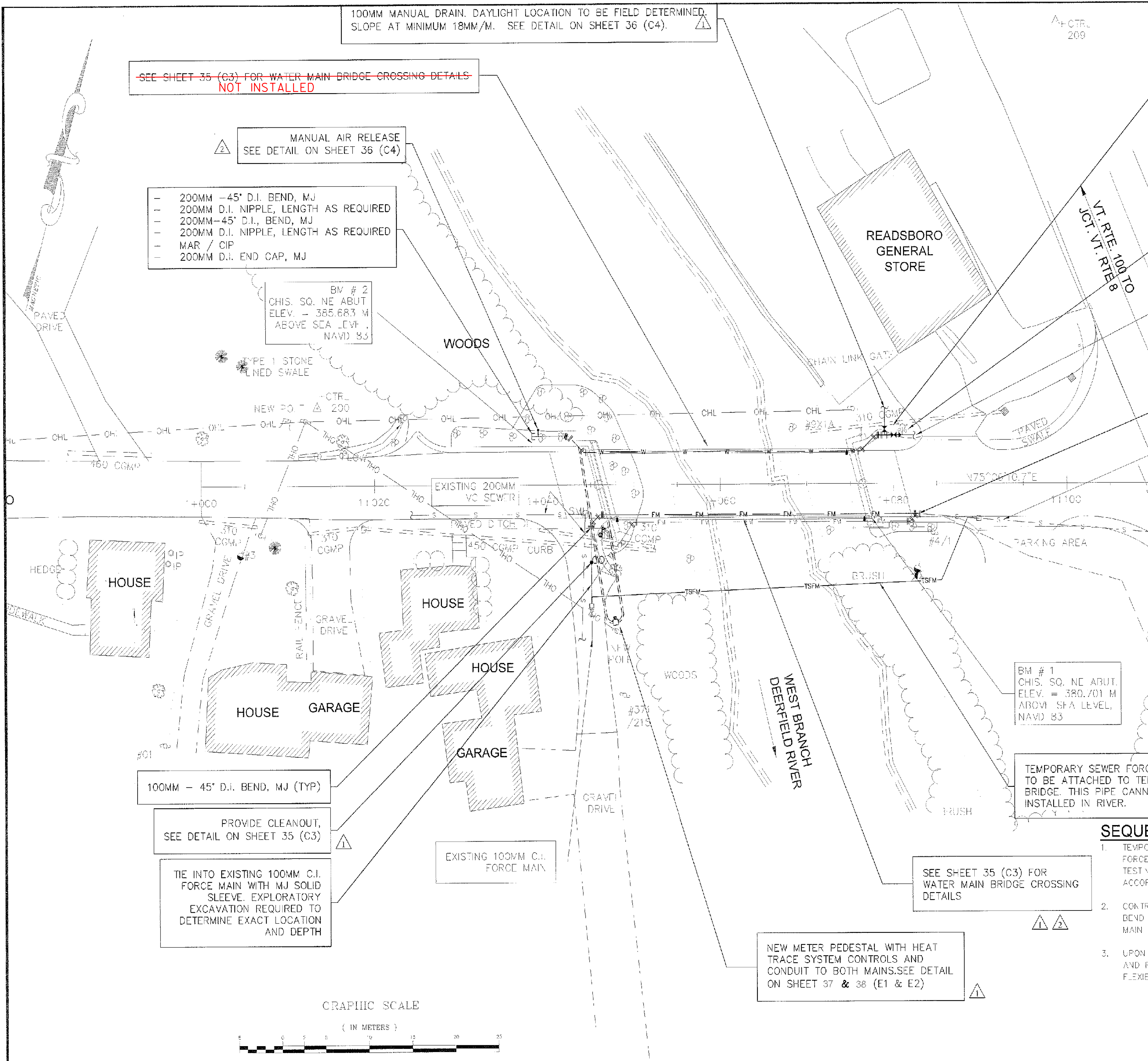
TIE INTO EXISTING 100MM C.I. FORCE MAIN WITH MJ SOLID SLEEVE. EXPLORATORY EXCAVATION REQUIRED TO DETERMINE EXACT LOCATION AND DEPTH

- 200MM - 45° D.I. BEND, MJ
- 200MM D.I. NIPPLE, LENGTH AS REQUIRED
- 200MM - 45° D.I., BEND, MJ
- 200MM D.I. NIPPLE, LENGTH AS REQUIRED
- MAR / CIP
- 200MM D.I. END CAP, MJ

MANUAL AIR RELEASE
SEE DETAIL ON SHEET 36 (C4)

100MM MANUAL DRAIN. DAYLIGHT LOCATION TO BE FIELD DETERMINED. SLOPE AT MINIMUM 18MM/M. SEE DETAIL ON SHEET 36 (C4)

SEE SHEET 35 (C3) FOR WATER MAIN BRIDGE CROSSING DETAILS. NOT INSTALLED



GENERAL NOTES:

1. DRAWINGS PROVIDED BY VTRANS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY THE TOWN OF READSBORO. THIS IS NOT A BOUNDARY SURVEY.
2. EXPLORATORY EXCAVATION IS REQUIRED TO LOCATE UNDERGROUND UTILITIES. CONTRACTOR SHALL USE EXTREME CAUTION TO PREVENT DAMAGE TO EXISTING UTILITIES. CONTRACTOR SHALL COORDINATE WITH THE TOWN OF READSBORO A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION.
3. LOCATION OF PROPOSED WATER MAIN IS INTENDED NOT TO DISTURB ROOT SYSTEMS OF EXISTING TREES OR SHRUBS. CONTRACTOR SHALL EXERCISE DUE CARE TO PREVENT DAMAGE THERE TO. ALL DISTURBED AREAS SHALL BE RESTORED TO PRECONSTRUCTION CONDITIONS.
4. ALL WORK IS TO BE DONE SHALL BE IN PUBLIC RIGHT OF WAY OR EASEMENT. INFORMATION PROVIDED BY TOWN OF READSBORO.
5. LISTING OF ADAPTERS, FITTINGS, NIPPLES, ETC. IS FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. ADDITIONAL MATERIAL MAY BE REQUIRED. SO DUFFY COUPLINGS WILL BE REQUIRED FOR CONNECTION TO EXISTING MAINS.
6. MINIMUM VERTICAL CLEARANCE BETWEEN NEW WATER MAINS AND ALL EXISTING UTILITIES, EXCEPT SEWERS AND STORM DRAINS TO BE 150MM AT CROSSING LOCATIONS.
7. ALL BURIED FITTINGS MUST BE BLOCKED. REFER TO THURST BLOCK DETAILS, AND REFERENCE DETAIL SHOWN ON SHEET 36 (C4).
8. MECHANICAL JOINT FITTINGS SHALL BE USED WHERE VALVES WILL BE SUBJECTED TO SERVICE PRESSURES ON ONE SIDE BEFORE BEING FULLY INCORPORATED INTO THE DISTRIBUTION SYSTEM.
9. WATER MAINS TO HAVE 1650MM MINIMUM COVER UNLESS OTHERWISE STATED OR SHOWN ON THE PROFILES. WHEN 1650MM OF COVER CANNOT BE MAINTAINED 100MM RIGID BOARD INSULATION SHALL BE USED. DEPTH OF COVER SHALL NOT BE LESS THAN 1200MM EVEN WITH INSULATION. SEE MATERIAL SPECIFICATION SECTION 735.01.
10. ALL MECHANICAL JOINT FITTINGS AND VALVES SHALL INCORPORATE A WING-LOCK RETAINER GLAND INSTEAD OF THE COMMON FLY GEAR GLAND. PAYMENT SHALL BE INCIDENTAL TO WATERLINE ITEMS.
11. ALL EXISTING UNDERGROUND UTILITIES WERE LOCATED USING THE BEST AVAILABLE INFORMATION. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL UTILITIES WHETHER OR NOT THEY ARE SHOWN ON THE PLANS. ALL REPAIRS TO DAMAGED UTILITIES SHALL BE MADE BY THE CONTRACTOR USING MATERIALS APPROVED BY THE ENGINEER PRIOR TO INSTALLATION, AT THE CONTRACTOR'S EXPENSE.
12. CONTRACTOR IS RESPONSIBLE FOR FLUSHING, PRESSURE TESTING AND DISINECTING ALL NEW WATER AND SEWER MAIN. CHLORINE INJECTION POINTS SHALL BE INSTALLED WHERE REQUIRED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION AND REMOVED UPON COMPLETION OF TESTING.
13. CONTRACTOR SHALL VERIFY LOCATION OF ALL OVERHEAD AND UNDERGROUND ELECTRIC, CABLE AND TELEPHONE LINES AND TAKE NECESSARY PRECAUTIONS IN STRICT ACCORDANCE WITH OSHA STANDARDS DURING CONSTRUCTION. CONTRACTOR SHALL CONTACT THE LOCAL POWER UTILITY AND TELEPHONE UTILITY REGARDING ANY NECESSARY SUPPORT OF ANY UTILITY LINES DURING CONSTRUCTION. LOCAL ELECTRIC UTILITY IS GREEN MOUNTAIN POWER COMPANY (888) 835-4572. LOCAL PHONE UTILITY IS FAIRPOINT COMMUNICATIONS (802) 423-5245.
14. GENERALLY HEAVY OR DARK LINE WORK OR NOTES REFER TO PROPOSED IMPROVEMENTS. LIGHT LINE WORK OR SCREENED GENERALLY DENOTES EXISTING FEATURES.
15. TECHNICAL SPECIFICATIONS PROVIDE NECESSARY INFORMATION AND ARE PART OF THE CONTRACT DOCUMENTS FOR THIS PROJECT.
16. CONTRACTOR SHALL DRAIN NEW WATER MAIN UPON SUCCESSFUL COMPLETION OF TESTING.

FILE: P:\2009 Plans\Readsboro VT Bridge 3141-865-C1.dwg (10/28/09) 12/29/09



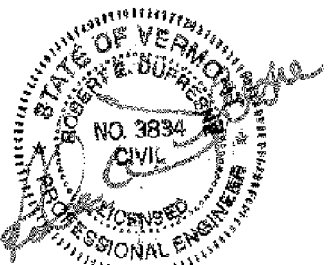
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459 Portland Street, Suite 106
St. Johnsbury, Vermont 05819
Tel: (802) 748-8605 Fax: (802) 748-4512
E-mail: dufresne@vermont.net
Home page: <http://www.dufresneassociates.com>

Project #	416006
Project Mgr.	RAW
Design	RNG
Drawn	EAE
Checked by	R.E. DUFRESNE
Date	December 09
Scale	AS SHOWN
Approved by	RED

Revisions:
△ 10-27-09 : REVISIONS PER VTRANS COMMENTS
△ 11-20-09: REVISE SLEEVE SIZE
△ 12-28-09 : GENERAL REVISIONS

THE DRAWING FOR THIS PROJECT SHALL BE THE WHOLE OR A PORTION IN ANY WAY WITHOUT THE WRITTEN APPROVAL AND AUTHORITY OF DUFRESNE & ASSOCIATES, P.C. ANY CHANGES SHALL BE MADE BY THE ENGINEER.

Dufresne & Associates, P.C.



12-29-09

BRIDGE #31

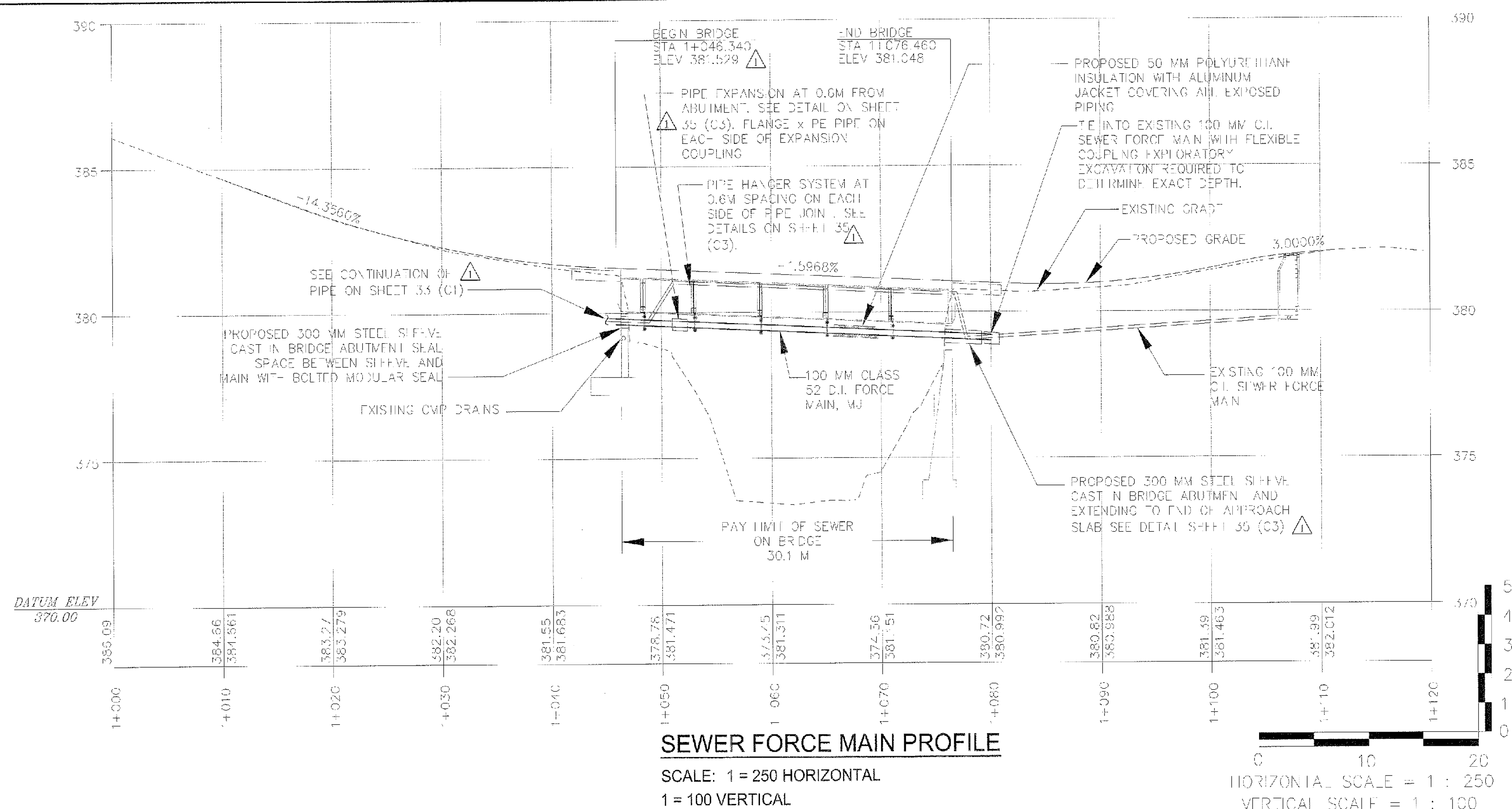
WATER AND SEWER FORCE MAIN PROFILE

READSBORO, VERMONT

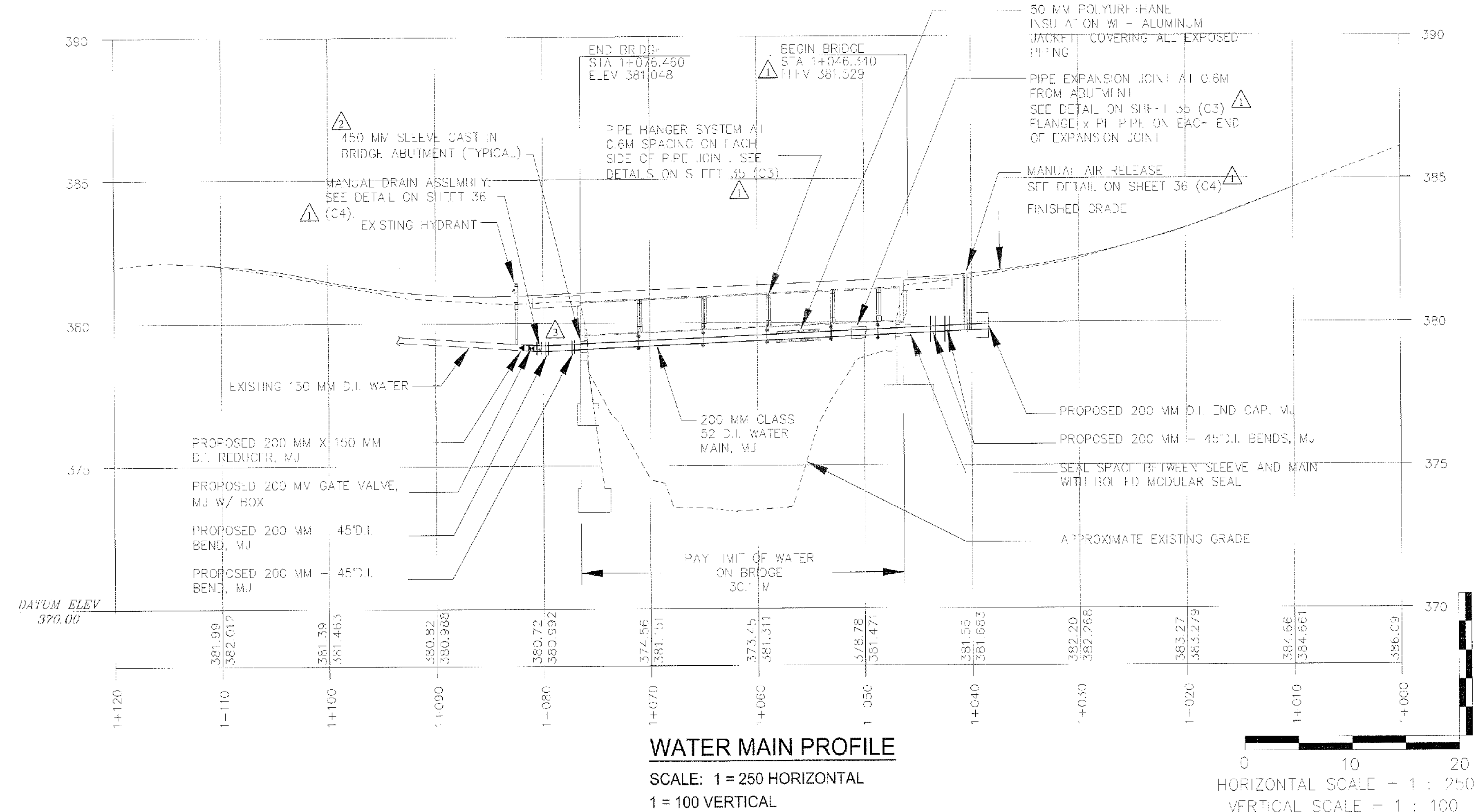
C2

READSBORO
BRO 1441(25)
WATER AND SEWER MAIN FORCE PROFILE
SHEET 34 OF 60

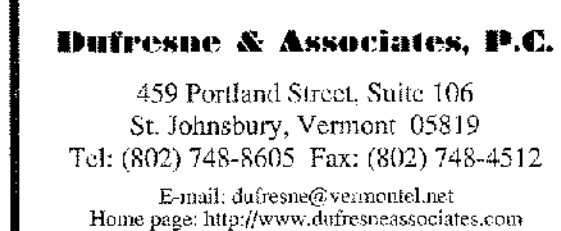
DWG. NO.	416006-C2ED
SHEET	1 OF 1



NO WATER MAIN WAS INSTALLED,
ONLY THE SLEEVE THROUGH THE
ABUTMENTS AND THE HANGER
SUPPORT BRACKETS ON THE BRIDGE
WERE INSTALLED



- NOTES:**
1. THE DIMENSIONS AND STATIONING SHOWN ON THIS DRAWING FOR BRIDGE SUPPORTS ARE APPROXIMATE AND MAY BE ALTERED ON THE BASIS OF APPROVED BRIDGE FABRICATION DRAWINGS. THE CONTRACTOR SHALL NOT FABRICATE THE CROSS BRIDGE PIPING UNTIL APPROVED BRIDGE FABRICATION DRAWINGS ARE AVAILABLE.
 2. THE FABRICATED PIPE SUPPORTS ATTACHED TO THE BRIDGE SHALL BE HOT DIPPED GALVANIZED AFTER COMPLETE FABRICATION. ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS AS WELL AS THE PIPE SUPPORT ROLLERS AND SUPPORTING ELEMENTS SHALL BE ELECTROGALVANIZED.
 3. THE PIPE LOCATED BETWEEN BRIDGE ABUTMENT SHALL BE INSULATED AND HAVE HEAT TRACING INSTALLED AFTER PLACEMENT.
 4. THE PIPE SYSTEM SHALL BE SUPPORTED AND RESTRAINED BY ROLLER PIPE SUPPORTS, SIZED TO PROVIDE FULL SUPPORT FOR THE INSULATED PIPING. THE CONTRACTOR SHALL FURNISH GALVANIZED INSULATION SHIELDS WHERE THE INSULATED PIPE COMES IN CONTACT WITH THE ROLLERS.
 5. A HANGED EXPANSION FITTING SHALL BE FURNISHED AND INSTALLED ON THE WEST SIDE OF THE BRIDGE ABUTMENT AS SHOWN ON THE DRAWING. THE EXPANSION JOINT SHALL HAVE A MINIMUM OF 100 MM OF EXPANSION AND BE PROVIDED WITH INTEGRAL EXPANSION STOPS.
 6. PIPE FOR BRIDGE CROSSING SHALL BE MECHANICAL JOINT CLASS 52, DUCTILE IRON WITH MEGA-A-LUG RETAINER GLANDS. EACH SECTION OF PIPE SHALL BE SUPPORTED BY AT LEAST TWO PIPE SUPPORTS.
 7. ALL GATE VALVES MUST CONFORM TO THE TOWN OF READSBORO STANDARD AND OPEN LEFT (COUNTER CLOCKWISE).
 8. ALL PIPING SHALL BE TESTED FOR ELECTRICAL CONTINUITY BEFORE BACKFILLING TRENCH OR INSULATION IS APPLIED.
 9. "WATER MAIN ON BRIDGE 900.645 SPECIAL PROVISION (WATER MAIN ON BRIDGE)(200MM)" SHALL COVER ALL WORK FROM BRIDGE ABUTMENT BACKWALL TO BRIDGE ABUTMENT BACKWALL. ALL WORK OUTSIDE OF THESE LIMITS WILL BE PAID FOR UNDER THE APPROPRIATE ITEMS.
 10. "SEWER FORCE MAIN ON BRIDGE 900.645 (SEWER MAIN ON BRIDGE)(100MM)" SHALL COVER ALL WORK FROM BRIDGE ABUTMENT BACKWALL TO BRIDGE ABUTMENT BACKWALL. ALL WORK OUTSIDE OF THESE LIMITS WILL BE PAID FOR UNDER THE APPROPRIATE ITEMS.



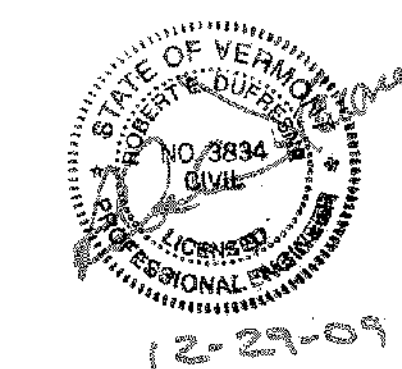
Project #	416006
Project Mgr.	RAW
Design	RNG
Drawn	EAE
Checked by	R.E. DUFRESNE
Date	December 09
Scale	AS SHOWN
Approved by	RNG

Revisions:

1	10-27-09 : REVISIONS PER VTRANS COMMENTS
2	12-23-09 : REVISIONS PER VTRANS COMMENTS

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Dufresne & Associates, PC



BRIDGE #31

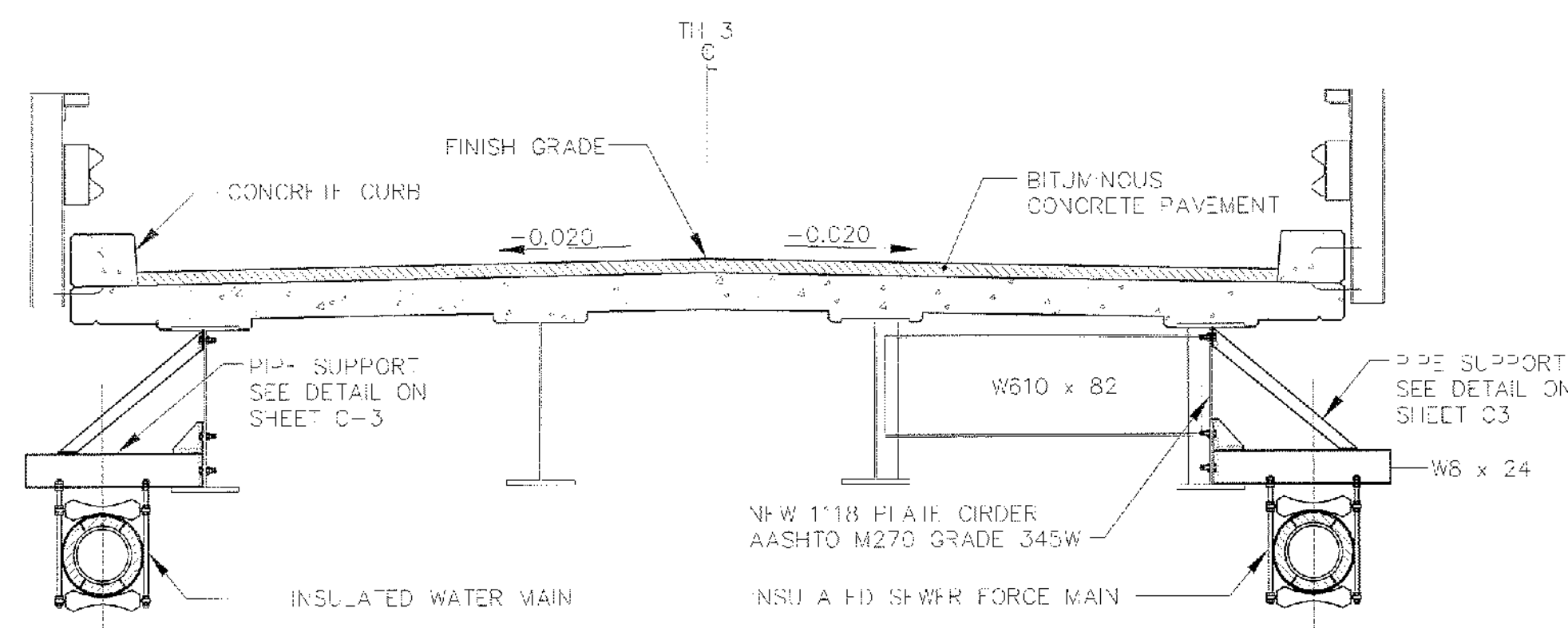
GENERAL DETAILS

READSBORO, VERMONT

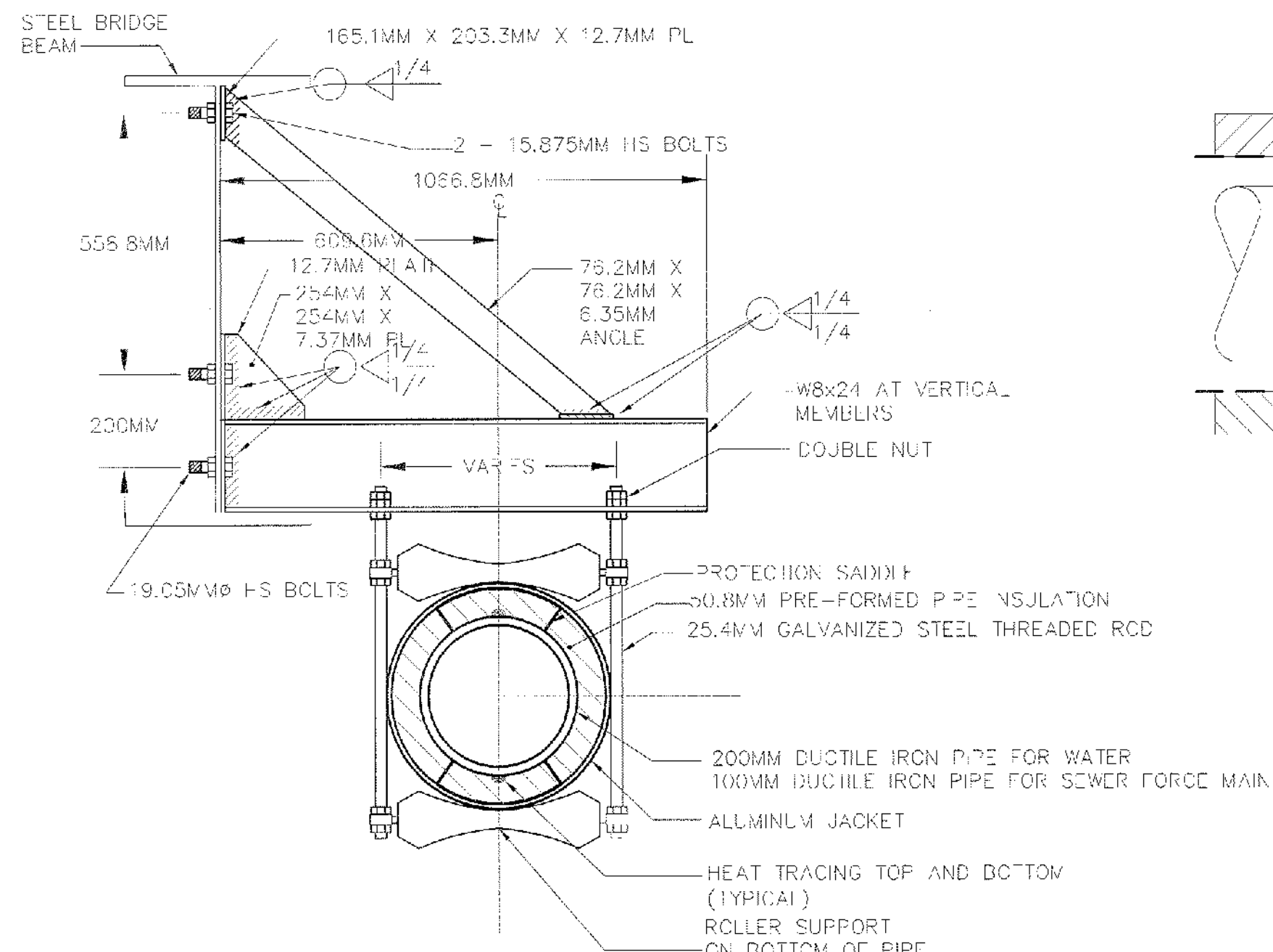
C3

DWG. NO. 416006-C3ED

SHEET 1 OF 1



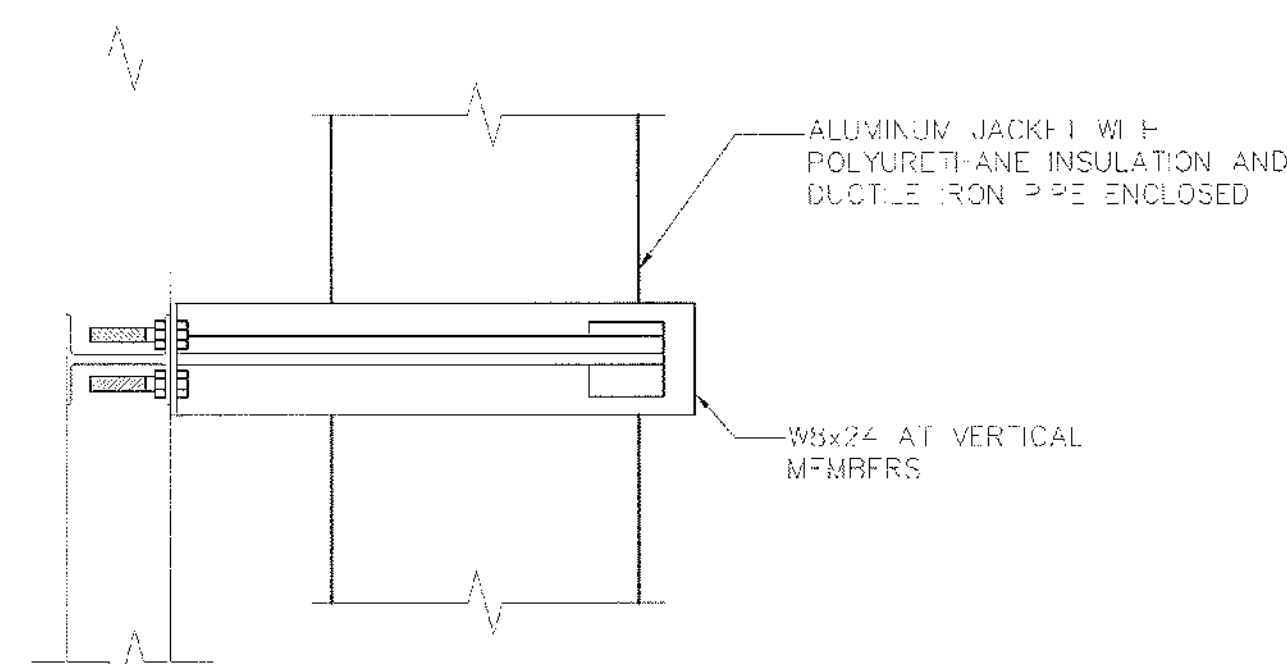
TYPICAL PIPE CROSSING BRIDGE SECTION
NOT TO SCALE



NOTES:

1. ALL BOLTS, NUTS AND WASHERS TO BE HOT DIPPED GALVANIZED.
2. ALL STEEL FABRICATIONS AND CASTINGS SHALL BE HOT DIPPED GALVANIZED.

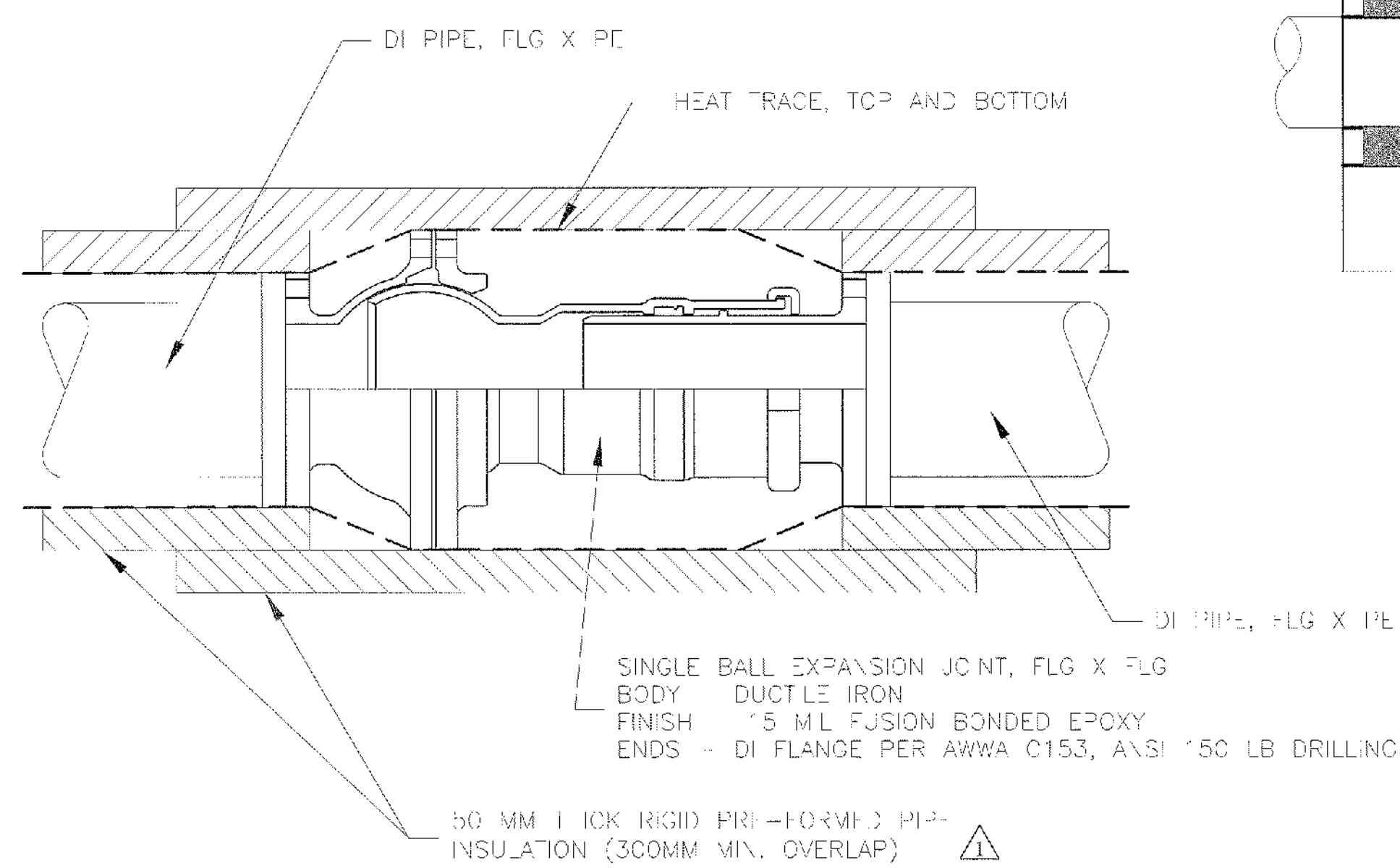
PIPE SUPPORT DETAIL - SECTION VIEW
NOT TO SCALE



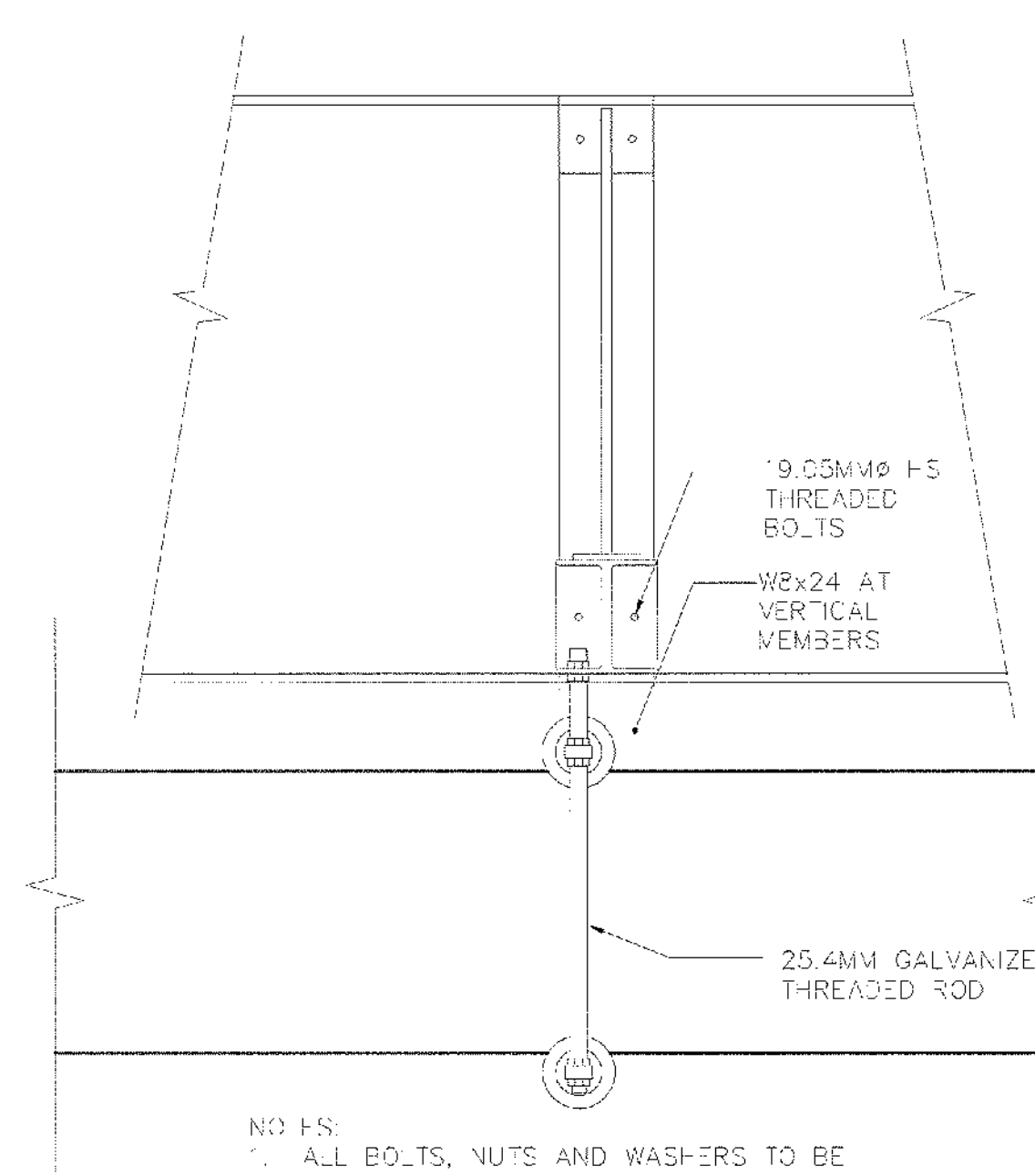
NOTES:

1. ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED.
2. ALL STEEL FABRICATIONS AND CASTINGS SHALL BE HOT DIPPED GALVANIZED.
3. ALL ALUMINUM SHALL BE ANODIZED BLACK.

PIPE SUPPORT DETAIL - PLAN VIEW



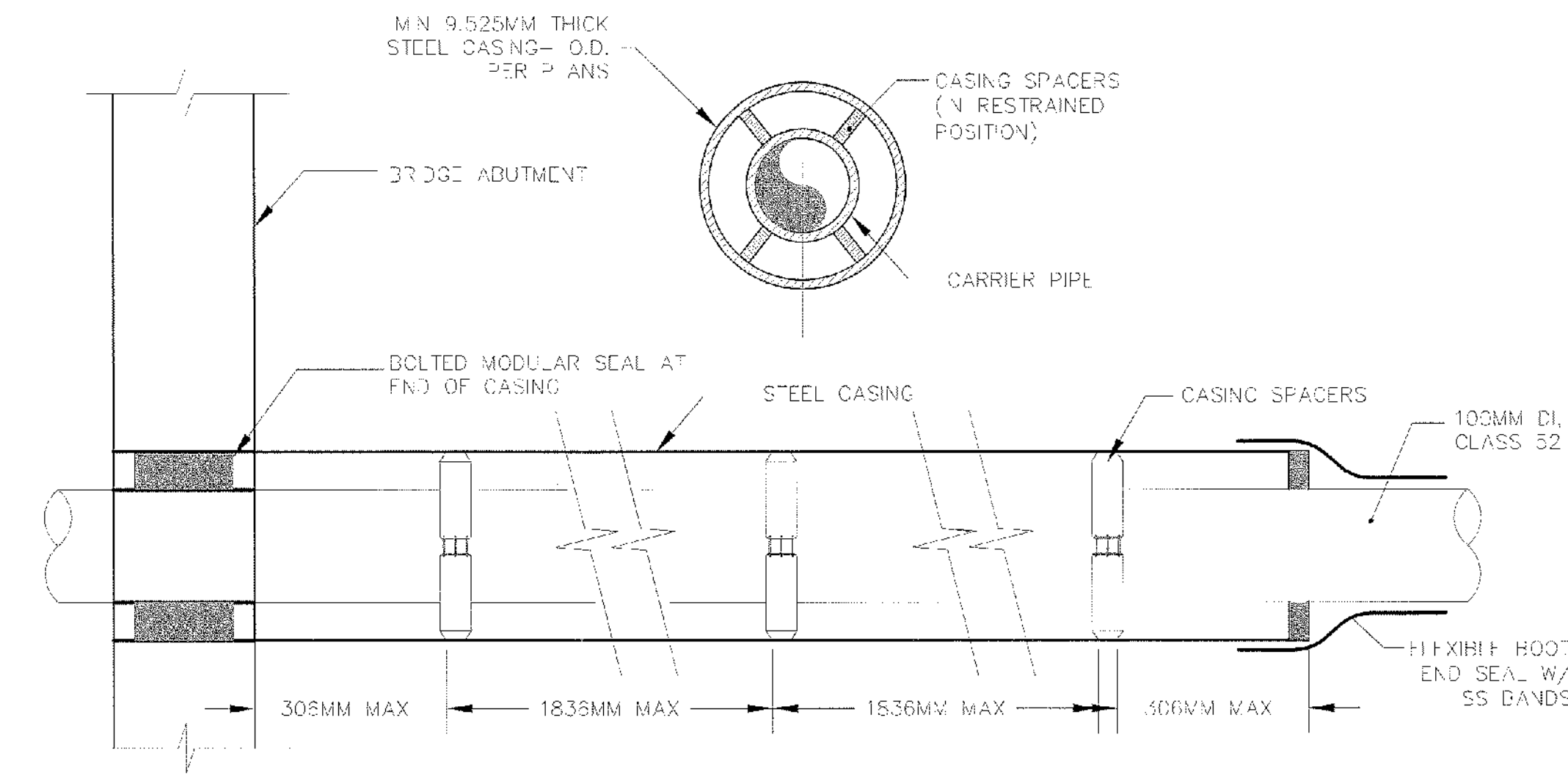
EXPANSION JOINT DETAIL



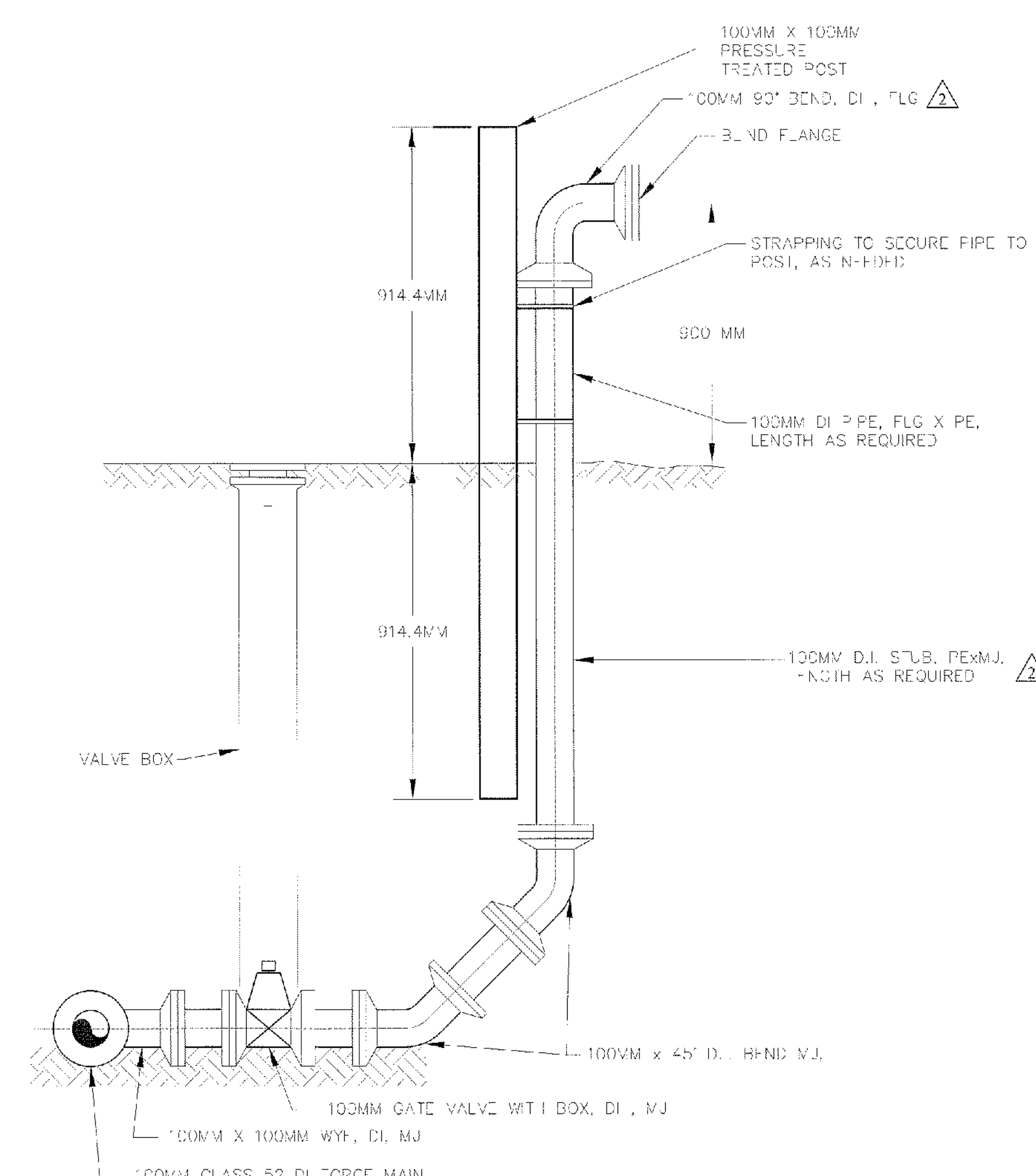
NO FS:

1. ALL BOLTS, NUTS AND WASHERS TO BE GALVANIZED.
2. ALL STEEL FABRICATIONS AND CASTINGS SHALL BE HOT DIPPED GALVANIZED.

PIPE SUPPORT DETAIL - ELEVATION VIEW



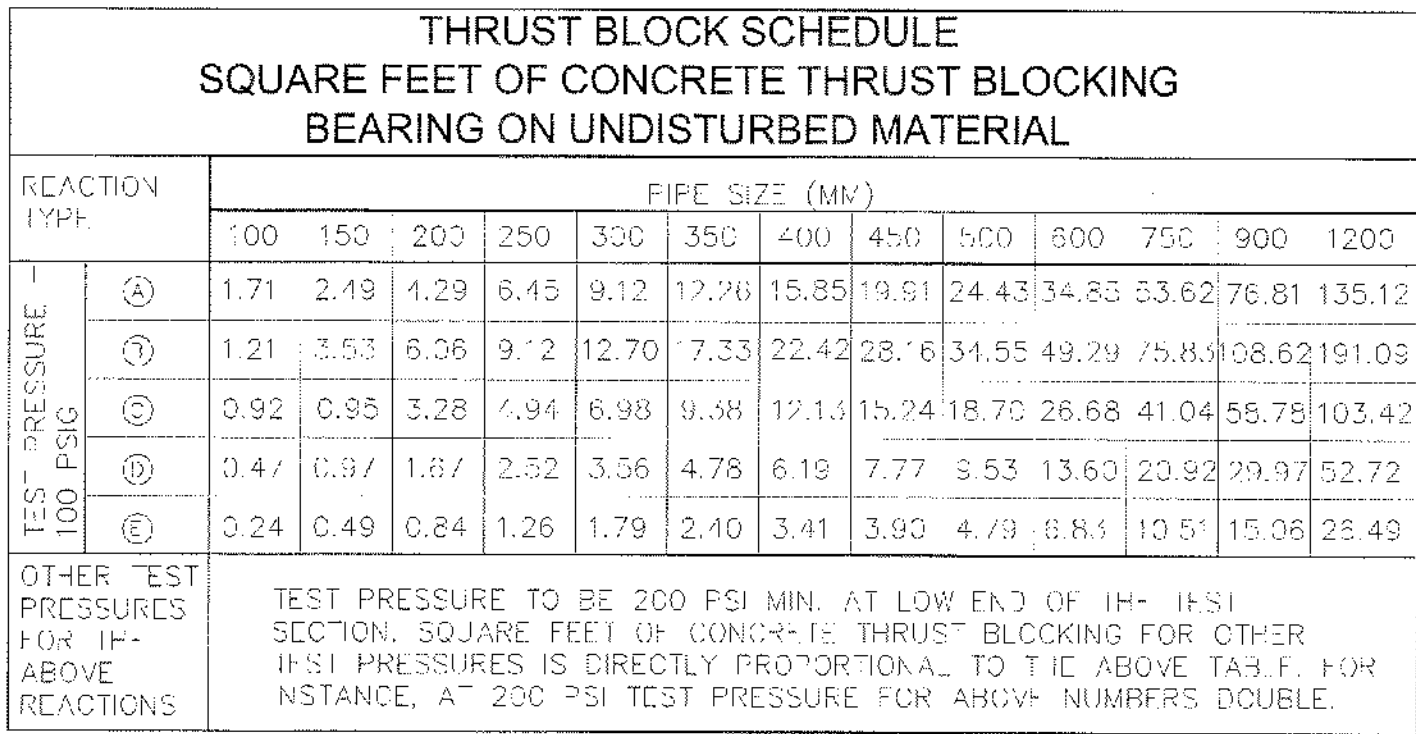
CASING AND SPACER DETAIL
NOT TO SCALE



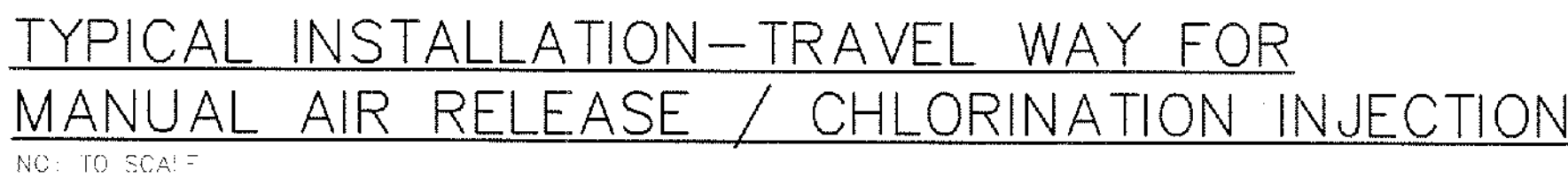
FORCE MAIN CLEANOUT
NOT TO SCALE

READSBORO
BRO 1441(25)
PIPE DETAILS
SHEET 35 OF 60

U.S. Patent and Trademark Office, 2009-09-14



1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE RE-ANCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE CONCRETE PADS TO BLOCKS IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCK.
4. MEGA-LUG RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINTS. THESE GLANDS DO NOT REQUIRE THE REQUIREMENTS FOR RESTRAINT.
5. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE OR BUILDING PAPER PRIOR TO INSTALLATION OF CONCRETE RESTRAINT.
6. THREADED ROD SHALL BE ANSI A242 TYPE PIPE RESTRAINT NUTS TO MATCH APPROPRIATE. THREADED RODS AND NUTS TO BE FIELD COATED WITH BITUMINOUS PAINT.
7. THRUST RESTRAINT IS REQUIRED FOR ALL TEES, BENDS, REDUCERS, CAPS, PLUGS, OR CROSSES.
8. INSTALL LIFT HOOKS INTO THRUST BLOCKS AT END CAPS AND PLUGS.
9. THRUST BLOCK AREA IS BASED ON SILT SOILS WITH A BEARING STRENGTH OF 1500 PSF/SF AND A SAFETY FACTOR OF 1.5.



READSBORO, VERMONT

SHEET 1 OF



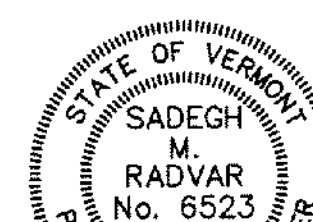
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Project #	416006
Project Mgr.	RAW
Design	JWC
Drawn	JWC
Checked by	RED
Date	December 09
Scale	AS SHOWN
Approved by	RED

Revisions:

THE DRAWINGS FOR THIS PROJECT SHALL NOT BE REUSE
OR ALTERED IN ANY WAY WITHOUT THE WRITTEN APPROVAL
AND AUTHORITY OF DUFRESNE & ASSOCIATES, P.C. ANY
REVISIONS SHALL BE MADE BY THE ENGINEER.

Dufresne & Associates, PC ©



Asa L. M. Parker

BRIDGE #31

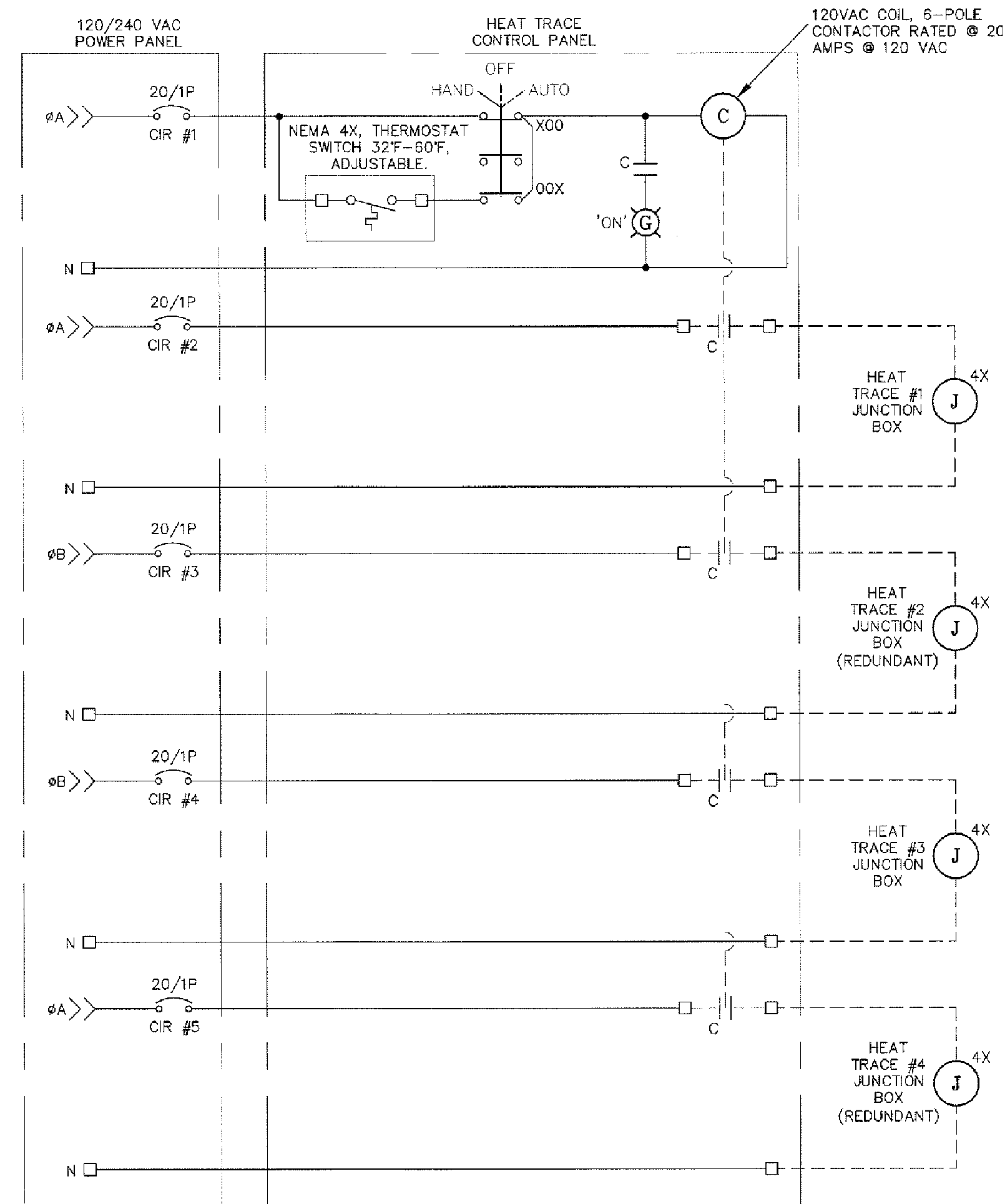
ELECTRICAL WIRING DIAGRAMS AND DETAILS

READSBORO, VERMONT

E2

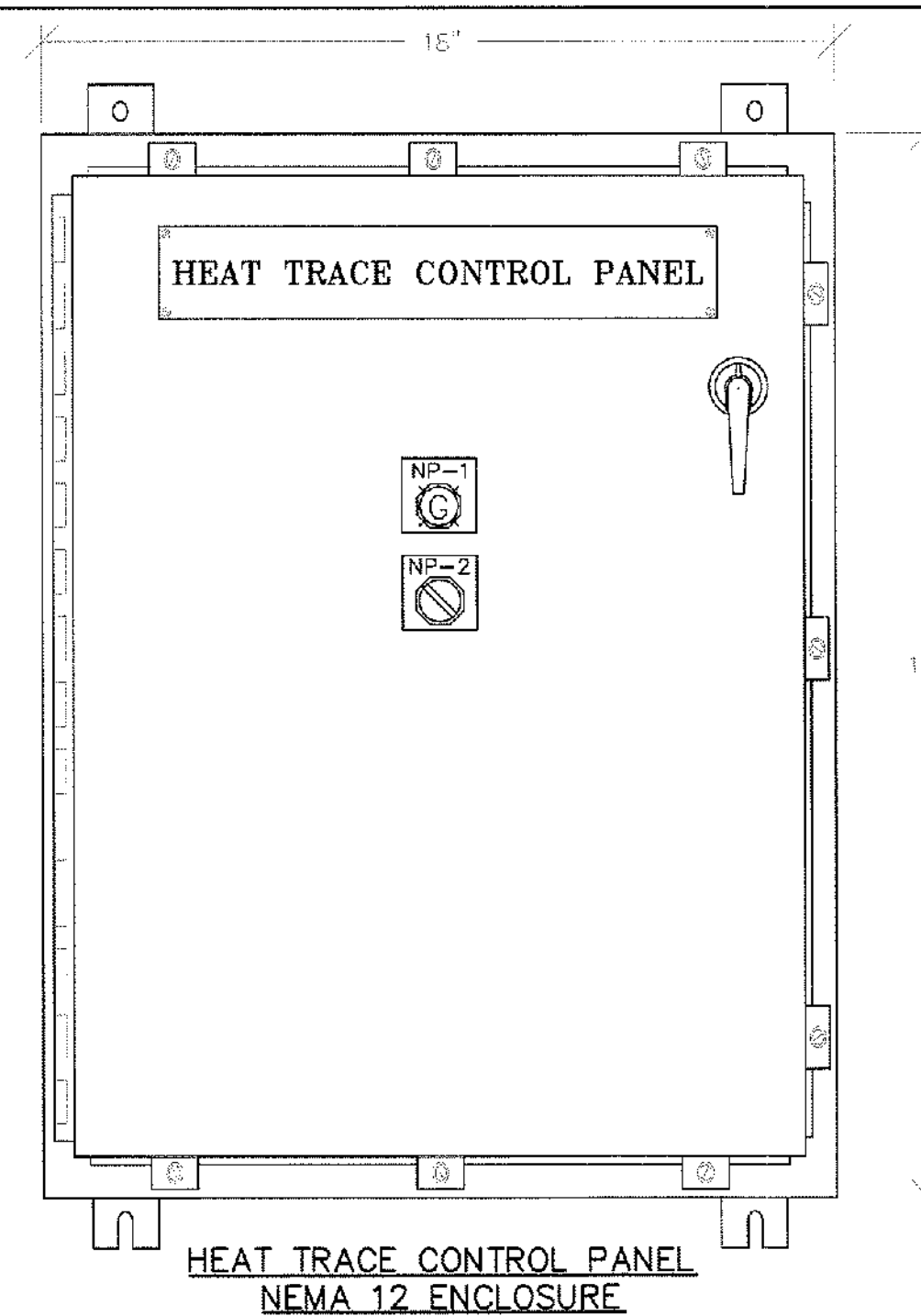
DWG. NO. 416008-E1-SP

SHEET 5 OF 1



HEAT TRACE CONTROL PANEL WIRING DIAGRAM 1

SCALE: NONE E2



HEAT TRACE CONTROL PANEL ELEVATION 2
SCALE: NONE E2

PLC PANEL NAMEPLATE SCHEDULE:

- NP-1 HEAT TRACE 'ON'
NP-2 HEAT TRACE 'H-O-A' SWITCH
(PUSH TO TEST TYPE)

TYPICAL CONTROL PANEL SYMBOLS:

- INDICATING LIGHTS PUSH TO TEST TYPE
- | | |
|----------|-----------|
| A: AMBER | R: RED |
| B: BLUE | W: WHITE |
| G: GREEN | Y: YELLOW |

HD STEEL BEAM GUARDRAIL,
GALVANIZED W/2.4M POSTS (PAINTED BLACK)
STA 1+025.200 LT TO STA 1+044.125 LT
STA 2+010.110 LT TO STA 1+046.335 RT
STA 1+076.530 LT TO STA 1+082.172 LT
STA 1+078.530 RT TO STA 1+089.780 RT

SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED
HDSB/FASCIA MOUNTED/HAND RAIL (PAINTED BLACK))
STA 1+044.125 LT TO STA 1+076.530 LT
STA 1+046.335 RT TO STA 1+078.530 RT

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 1+033.967 LT TO STA 1+045.158 LT

CONSTRUCT DRIVES
STA 1+015.000 RT W/2000 PAVED APRON WIDTH 4.38m
STA 1+043.000 RT W/2500 PAVED APRON WIDTH 4.57m
STA 1+086.500 LT W/1500 PAVED APRON WIDTH 5.52m
STA 1+094.000 RT W/1500 PAVED APRON WIDTH 8.57m

CHANGING ELEVATION OF DROP INLETS,
CATCH BASINS, OR MANHOLES

STA 1+018.200 RT
STA 1+038.700 RT
STA 1+043.400 RT
STA 1+092.900 LT
STA 1+112.100 RT

ANCHOR FOR STEEL BEAM RAIL

STA 1+026.800 LT
STA 1+046.500 RT
STA 1+077.300 LT
STA 1+088.000 RT

REMOVAL AND DISPOSAL OF GUIDE POSTS
SIDELINE STA 2+005.000 LT (3 POSTS)

BITUMINOUS CONCRETE SIDEWALK
STA 1+115.040 RT - 1+118.857 RT

CAST IRON GRATE WITH FRAME, TYPE E
STA 1+038.700 RT

RELOCATE MAILBOX, SINGLE SUPPORT
SIDELINE STA 2+005.750 LT

SPECIAL PROVISION (REMOVE AND
REPLACE RESIDENTIAL WALKWAY)
STA 1+030.00 RT

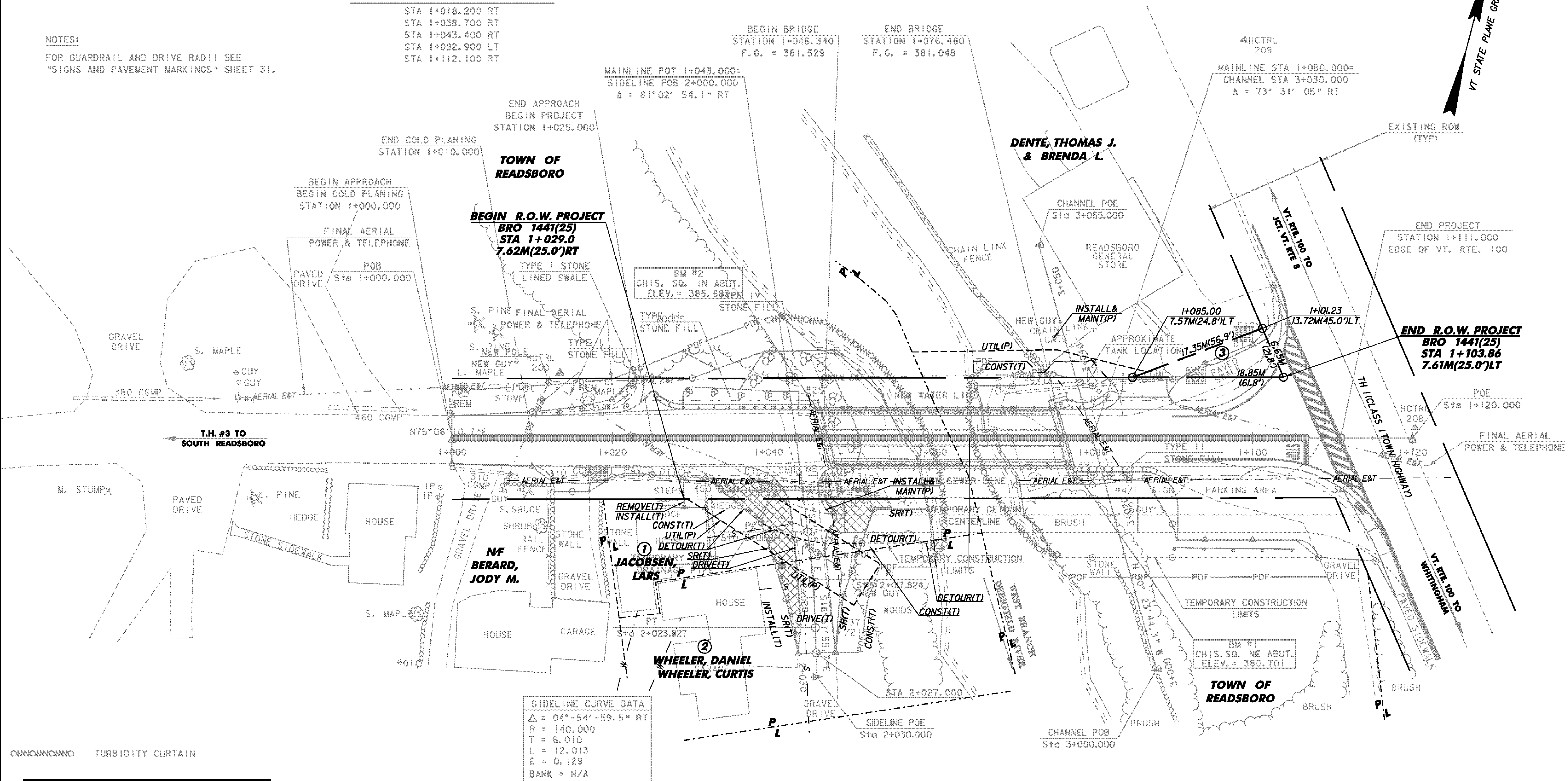
BITUMINOUS CONCRETE GUTTERS
STA 1+019.00 RT TO STA 1+037.500 RT
STA 1+089.00 LT TO STA 1+104.00 LT

DETECTABLE WARNING SURFACE
STA 1+111.270 RT TO STA 1+115.040 RT

PORTLAND CEMENT CONCRETE SIDEWALK, 125mm
STA 1+111.270 RT TO STA 1+115.040 RT

NOTES:

FOR GUARDRAIL AND DRIVE RAIL SEE
"SIGNS AND PAVEMENT MARKINGS" SHEET 31.



EXISTING BRIDGE DATA

SINGLE SPAN BRIDGE
178 mm CONCRETE DECK
4 ~ 9/4WFI36 (36WF300) ROLLED BEAMS
CONCRETE SKELETAL ABUTMENTS
OVERALL SPAN = 30.175 m
FASCIA-FASCIA WIDTH = 6.858 m
FACE CURB-FACE CURB WIDTH: 6.096 m
YEAR BUILT: 1948

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

PLAN



FOR R.O.W. USE ONLY

PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94j070\structures\sj070bdr.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070lay.i	DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS	CHECKED BY: R. S. YOUNG
SOLID I FADFR: C. P. WILLIAMS	SHEET 39 OF 60
ROW SHEET 11 OF 11	

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83/92

PLAN LEGEND			
	EXISTING RIGHT-OF-WAY		TOE OF SLOPE
	TAKING WITH ACCESS		TOP OF CUT
	TAKING WITHOUT ACCESS		SLOPE RIGHT
	CLEAR ZONE		CONSTRUCTION RIGHT
	PROPERTY LINE		PROJECT DEMARCATION FENCE

EC	-EROSION CONTROL
(P)	-PERMANENT
(T)	-TEMPORARY
DR.	-DRAINAGE RIGHT
DIT.	-DITCHING RIGHT
CH.	-CHANNEL RIGHT
DRIVE	-DRIVE RIGHT
CUL.	-CULVERT RIGHT
C&T	-CLEARING & TRIMMING RIGHT
SR	-SLOPE RIGHT
UE	-UTILITY EASEMENT

PROJECTNAME: READSBORO	
PROJECTNUMBER: BRO 1441 (25)	
FILE NAME: 94j070.XLS	PLOT DATE: 03/14/07
PROJECT LEADER: C.P. WILLIAMS	DRAWN BY: JAB
DESIGNED BY: H.I. SALLS	CHECKED BY: EGG
R.O.W. SHEET 10 OF 11	SHEET 40 OF 60



EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #31, INCLUDING ALL OF ABUTMENT #1 AND THE REHABILITATION OF ABUTMENT #2, ALONG WITH MINIMAL APPROACH AND CHANNEL WORK. COFFERDAMS WILL NOT BE REQUIRED WITHIN THE WATERWAY. BRIDGE #31 IS LOCATED IN THE TOWN OF READSBORO ON TH 3 AT THE INTERSECTION OF VT RT 100 AND TH 3, AND SPANS THE WEST BRANCH OF THE DEERFIELD RIVER. A ONE-WAY TEMPORARY BRIDGE WILL BE LOCATED DOWNSTREAM FROM THE EXISTING BRIDGE TO MAINTAIN TRAFFIC DURING CONSTRUCTION. THE NEW BRIDGE IS A CONCRETE DECK ON FOUR STEEL BEAMS SPANNING 29.5 METERS, ALL SLOPES AND ALL NON INVASIVE VEGETATION WILL BE RETURNED TO THEIR ORIGINAL CONDITION THROUGH STANDARD SEED AND MULCH PRACTICES. STONE FILL TYPE IV WILL BE USED TO STABILIZE THE RIVER BANKS. EXISTING STONE FILL WILL BE STABILIZED, WITHIN THE STONE FILL LIMITS, WHERE DEEMED NECESSARY BY THE RESIDENT ENGINEER.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.495 ACRES.

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE PROJECT SITE IS A FAIRLY LEVEL RESIDENTIAL AREA WITH PATCHES OF WOODED AREAS. THE LAND AT THE PROJECT SITE HAS MODERATE SLOPES WITH STEEP RIVER BANKS. THERE ARE A NUMBER OF HOMES AND BUILDINGS NEAR THE PROJECT SITE AND AN OVERHEAD UTILITY LINE THAT IS GOING TO BE RELOCATED. THERE IS ALSO A PIPE HINGING OFF THE SIDE OF THE BRIDGE THAT WILL NEED TO BE RELOCATED ALONG WITH A SEWER AND/OR WATER LINE.

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

THE WEST BRANCH OF THE DEERFIELD RIVER IS THE ONLY WATER SOURCE ON OR NEAR THE PROJECT LOCATION. THE RIVER IS CLASSIFIED AS SINUOUS, NON-ALLUVIAL, WITH A STABLE CHANNEL AND A STREAMBED MADE UP OF COBBLES AND BOULDERS. THERE ARE A NUMBER OF DROP INLETS NEARBY THAT DRAIN FROM THE ROADWAY TO THE RIVER. THE TRIBUTARY AREA AT THE BRIDGE CROSSING IS 79.38 SQ. KM. THIS RIVER DOES HAVE A TENDENCY OF RISING RAPIDLY.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA IS MADE UP OF GRASS AND A FEW SMALL TREES AND SHRUBS. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS AFFECTED BY CONSTRUCTION OF THE TEMPORARY BRIDGE AND THE REMOVAL AND REPLACEMENT OF THE SUPERSTRUCTURE AND ABUTMENT 1. UPON PROJECT COMPLETION, THE SLOPES WILL BE STABILIZED WITH STONE FILL AND DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF BENNINGTON, VERMONT. SOIL ON THE PROJECT SITE IS COLTON, GRAVELLY LOAMY SAND, 3% TO 8% SLOPES, THE SOIL IS EXTREMELY STONY WITH A "K FACTOR" = 0.28. THE SOIL IS CONSIDERED MODERATELY ERODIBLE.

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

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: THE ENTIRE REGION IS AN HISTORICAL DISTRICT. THE LAWN IMPACTED BY THE DETOUR IS DEEMED TO BE AN ARCHEOLOGICAL\HISTORICAL\PREHISTORICAL AREA.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: WEST BRANCH OF THE DEERFIELD RIVER
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION 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, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR 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 WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. THEREFORE, STABILIZE ALL DISTURBED AREAS PROMPTLY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED. 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.

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.

REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

1.4.1 MARK SITE BOUNDARIES
DELINEATE THE LIMITS CONSTRUCTION EQUIPMENT CAN ACCESS. PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO MARK SITE BOUNDARIES. BARRIER FENCE (PBF) SHALL BE USED TO MARK THE BOUNDARIES OF SENSITIVE RESOURCE AREAS.

1.4.2 LIMIT DISTURBANCE AREA
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.

1.4.3 STABILIZE CONSTRUCTION EXIT
STABILIZED CONSTRUCTION ENTRANCE SHALL BE UTILIZED AS SHOWN ON THE PLANS TO MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS AND REDUCE THE POTENTIAL FOR RUNOFF INTO RECEIVING WATERS. IT SHALL BE INSTALLED PRIOR TO CONSTRUCTION.

1.4.4 INSTALL SEDIMENT BARRIERS
SEDIMENT BARRIERS SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AS SHOWN ON THE PLANS AND AS NECESSARY. THIS SHALL INCLUDE SILT FENCE.

1.4.7 CONSTRUCT PERMANENT CONTROLS
PERMANENT STORMWATER TREATMENT PRACTICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS. THESE SHALL INCLUDE OUTLET PROTECTION AND APPROPRIATE CLASS I DROP INLET PROTECTION.

1.4.8 STABILIZE EXPOSED SOILS
ALL AREAS OF DISTURBANCE MUST AT A MINIMUM HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE

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

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

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

1.4.10 STABILIZE SOIL AT FINAL GRADE
EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE. SEEDING, MULCHING, AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPED STEEPER THAN 1:3.

1.4.12 INSPECT YOUR SITE
INSPECT THE PROJECT SITE IN ACCORDANCE WITH SPECIAL PROVISION REQUIREMENTS.

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

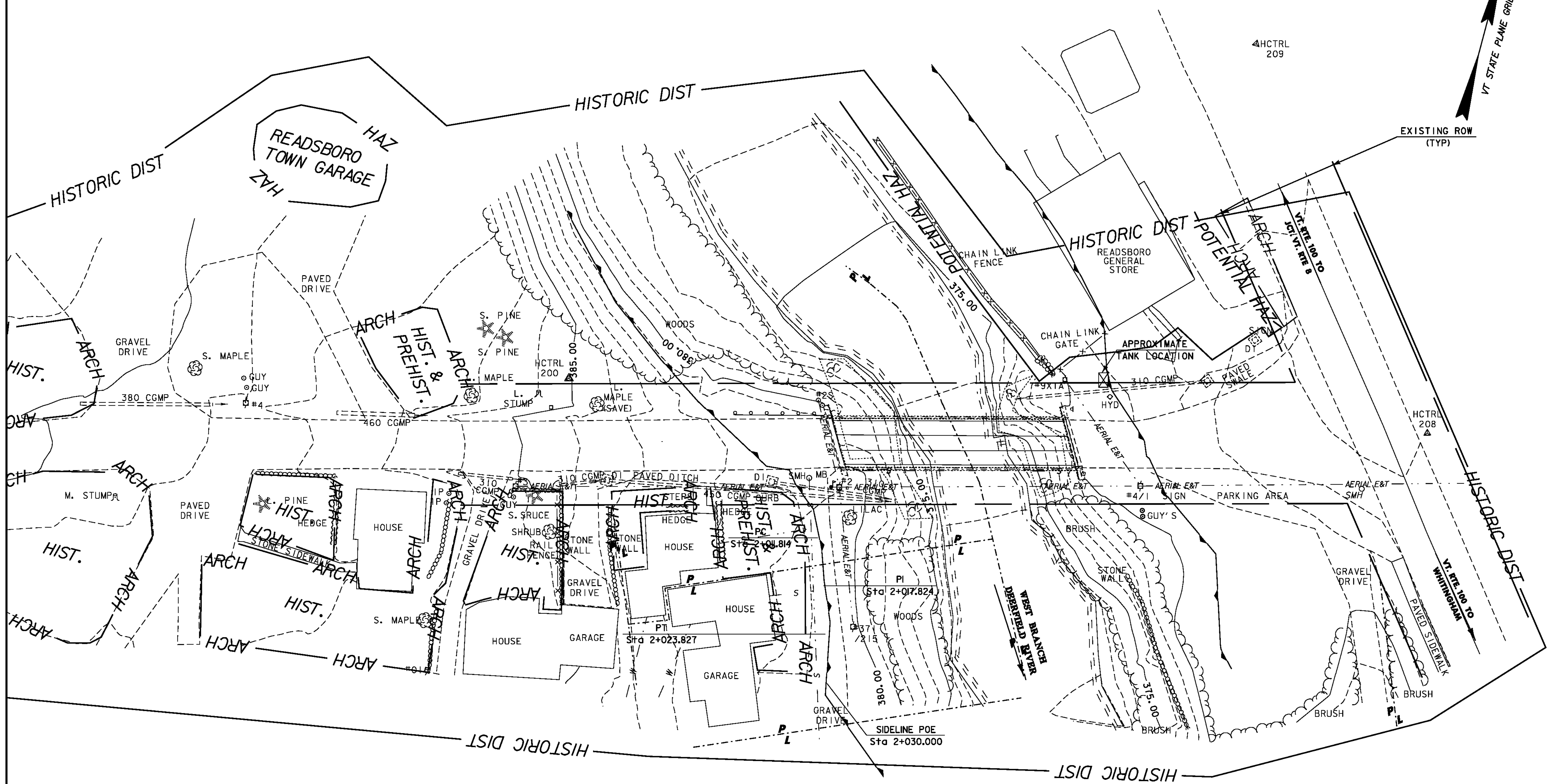
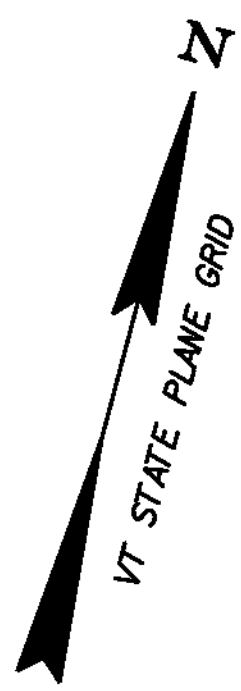
1.5.2 OFF-SITE ACTIVITIES
IN ADDITION TO THE CONTRACTOR CHECKLIST, ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTION 105.25-105.29 OF THE STANDARD SPECIFICATIONS.

1.5.3 UPDATES

PROJECT: READSBORO	PROJECT NO.: BRO 1441(25)
DESIGN FILE NAME: 94J070/Structures/sj070ero.dgn IPARM FILE NAME: sj070econar.l SURVEYED BY: L.ORVIS SQUAD LEADER: C. P. WILLIAMS EROSION CONTROL NARRATIVE	PLOT DATE: 07-JAN-2010 SURVEY DATE: 01/95 DRAWN BY: D.D.BEARD SHEET: 41 OF 60

EXISTING BRIDGE DATA

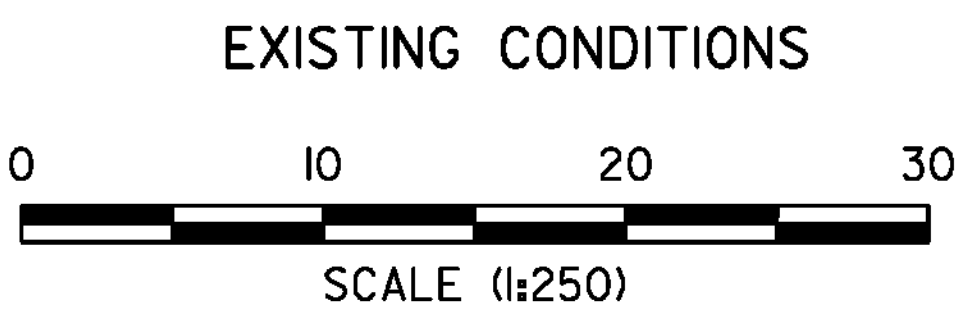
SINGLE SPAN BRIDGE
178 mm CONCRETE DECK
4 ~ 914WF136 (36WF300) ROLLED BEAMS
CONCRETE SKELETAL ABUTMENTS
OVERALL SPAN = 30.175 m
FASCIA-FASCIA WIDTH = 6.858 m
FACE CURB-FACE CURB WIDTH: 6.096 m
YEAR BUILT: 1948



LEGEND

— RIPARIAN BUFFER ZONE

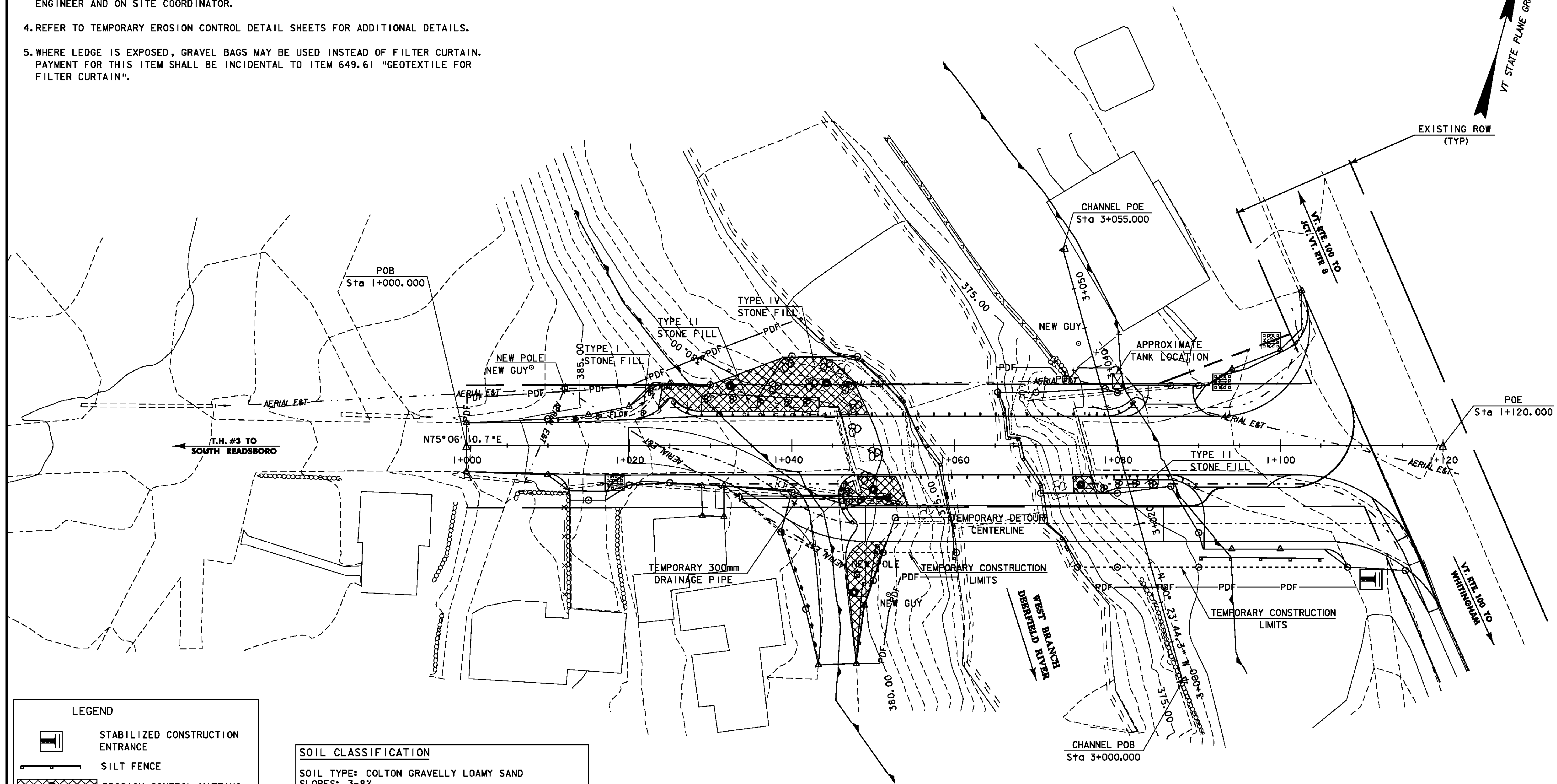
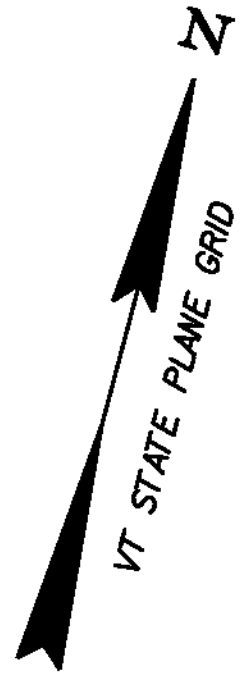
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HORIZONTAL	NAD 83 (92)



PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94j070\Structures\s\j070bdr_ero.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: s\j070excon.i	DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 42 OF 60
EXISTING CONDITIONS	

NOTES:

1. THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR MUST SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL.
2. TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN. THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE RESIDENT ENGINEER AND ON SITE COORDINATOR. SILT FENCE SHALL NOT BE INSTALLED ACROSS COUNTOURS.
3. THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER AND ON SITE COORDINATOR.
4. REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.
5. WHERE LEDGE IS EXPOSED, GRAVEL BAGS MAY BE USED INSTEAD OF FILTER CURTAIN. PAYMENT FOR THIS ITEM SHALL BE INCIDENTAL TO ITEM 649.61 "GEOTEXTILE FOR FILTER CURTAIN".



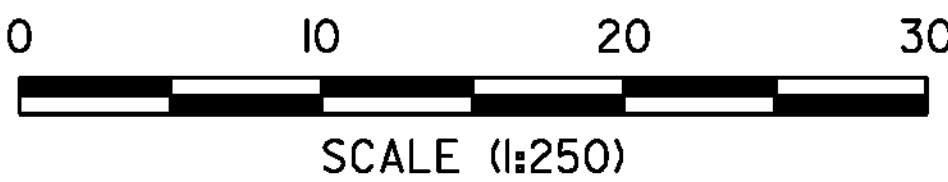
LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- SILT FENCE
- EROSION CONTROL MATTING
- OUTLET PROTECTION
- PROJECT DEMARCATION FENCE
- BARRIER FENCE
- RIPARIAN BUFFER ZONE
- DROP INLET PROTECTION

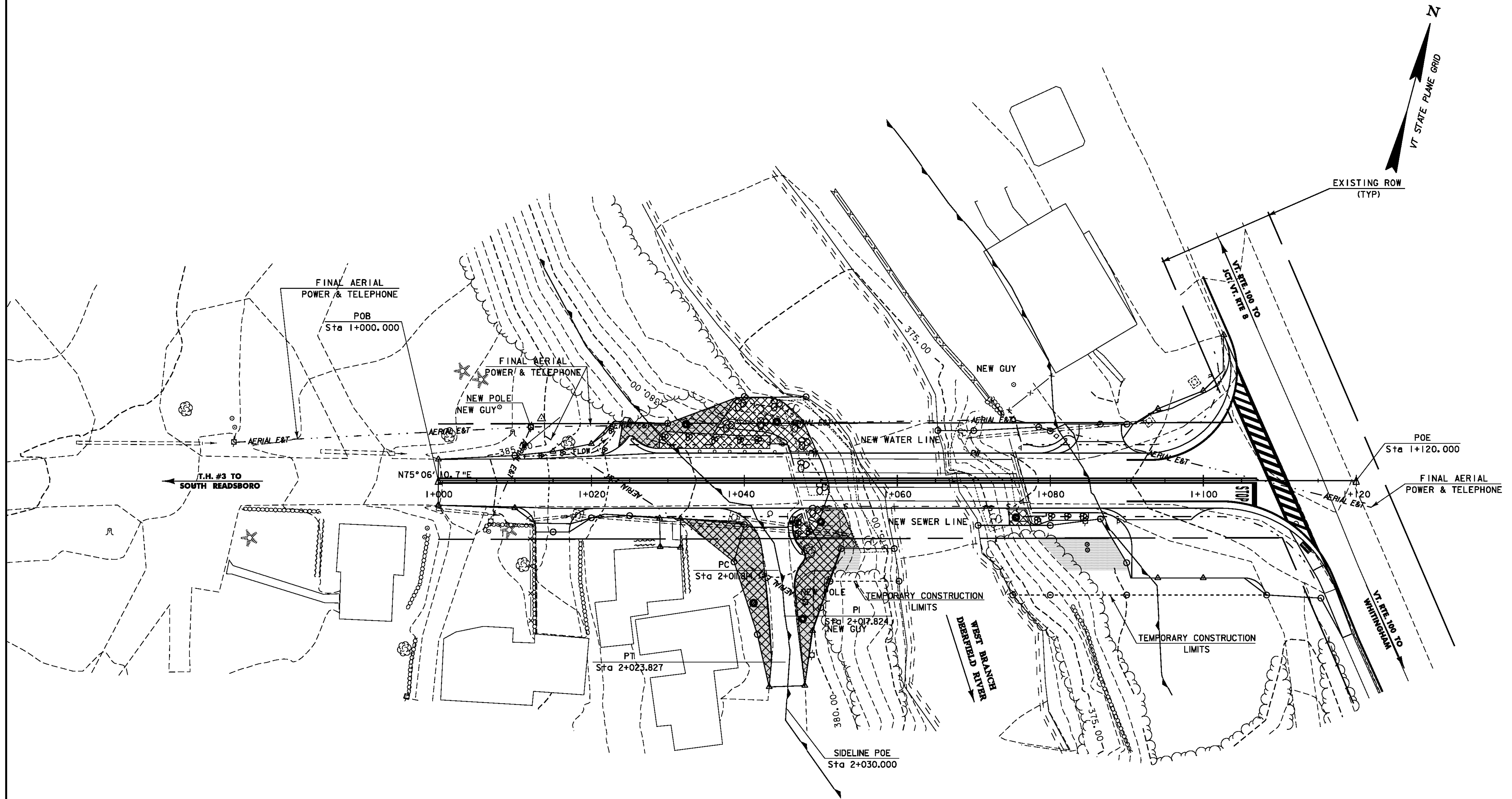
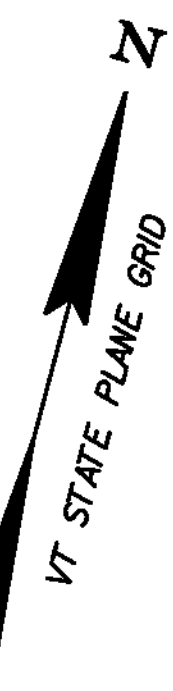
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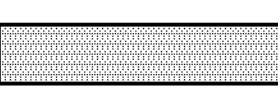
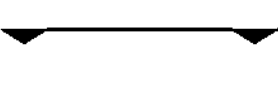
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SLOPES: 3-8%
"K FACTOR" 0.28
CLASSIFIED: POTENTIALLY MODERATELY ERODIBLE LAND

EROSION PREVENTION AND SEDIMENT CONTROL PLAN

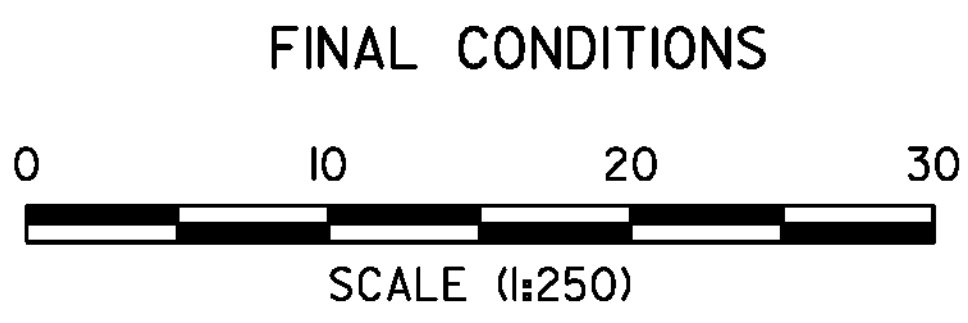


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SQUAD LEADER: C. P. WILLIAMS	SHEET: 43 OF 60
EPSC PLAN	

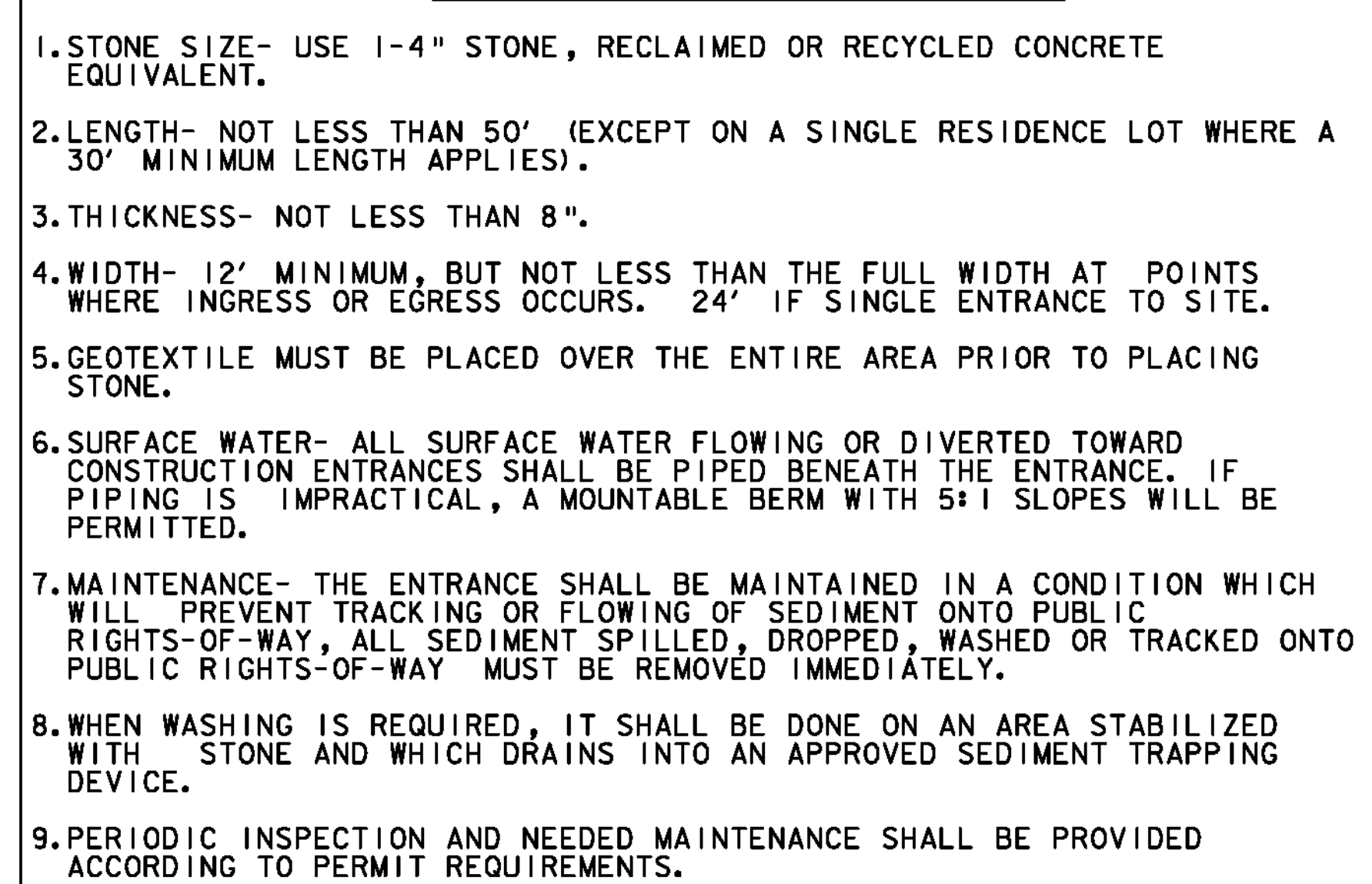


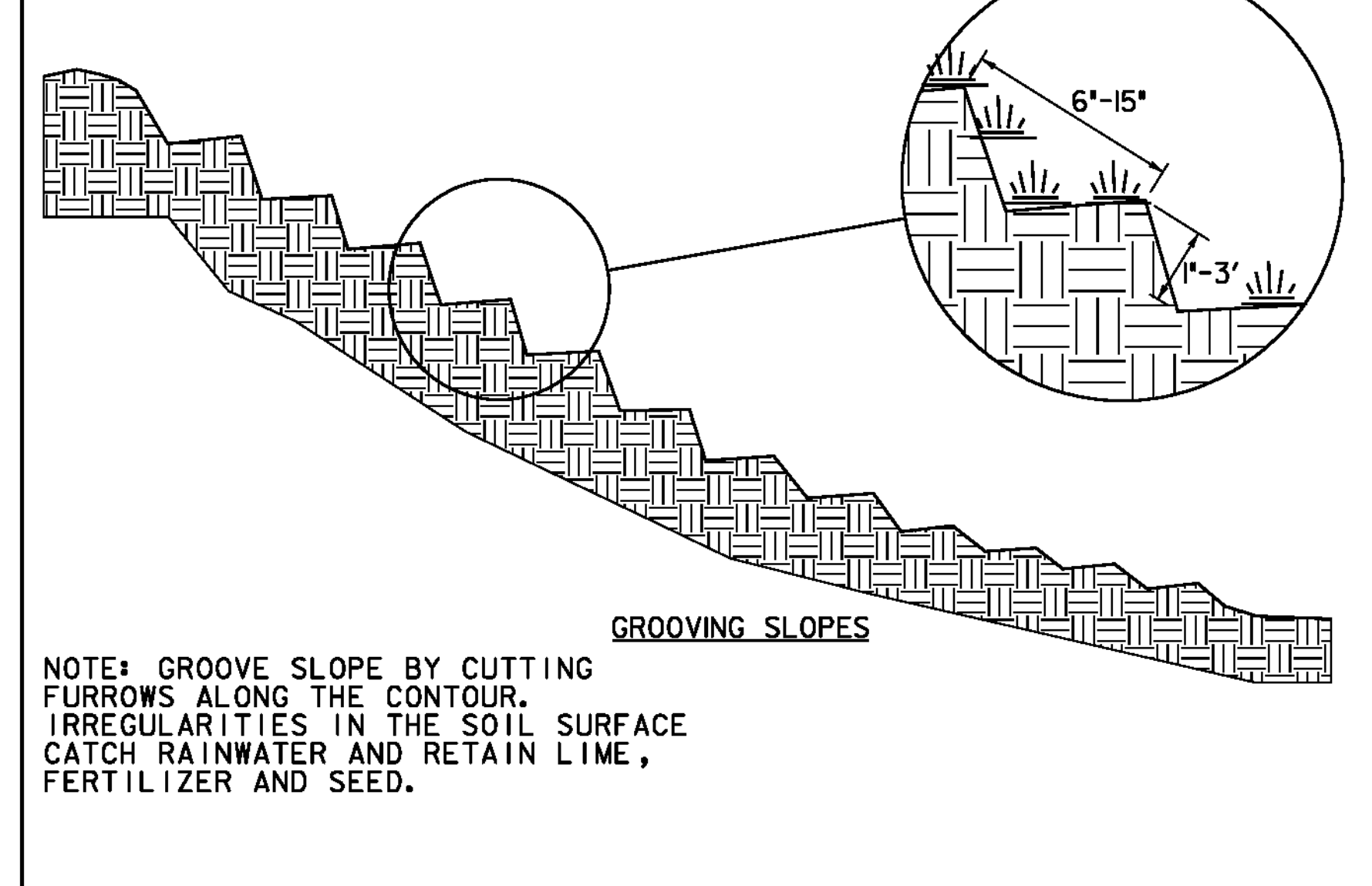
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	SEED AND MULCH
	RIPARIAN BUFFER ZONE

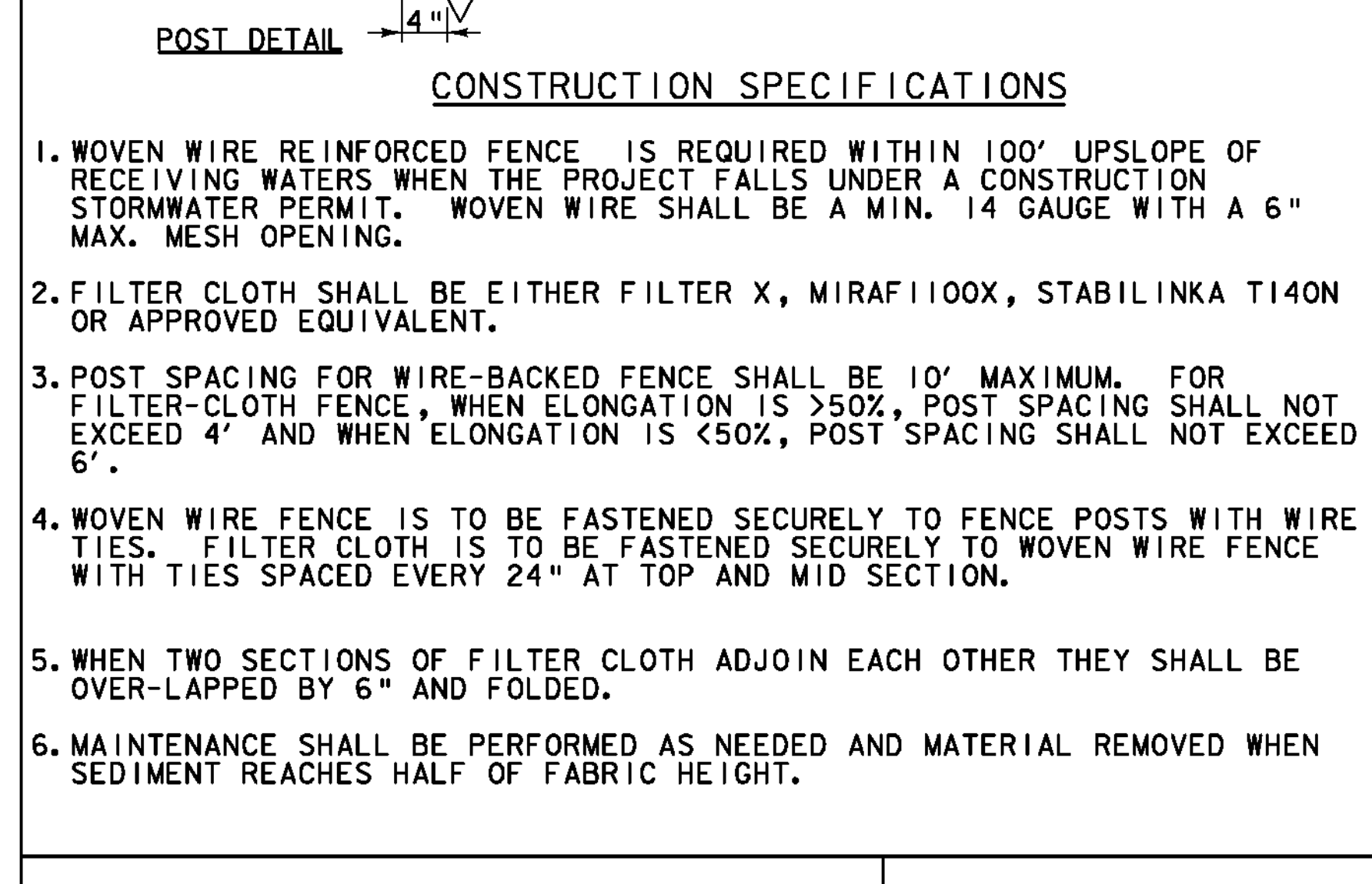
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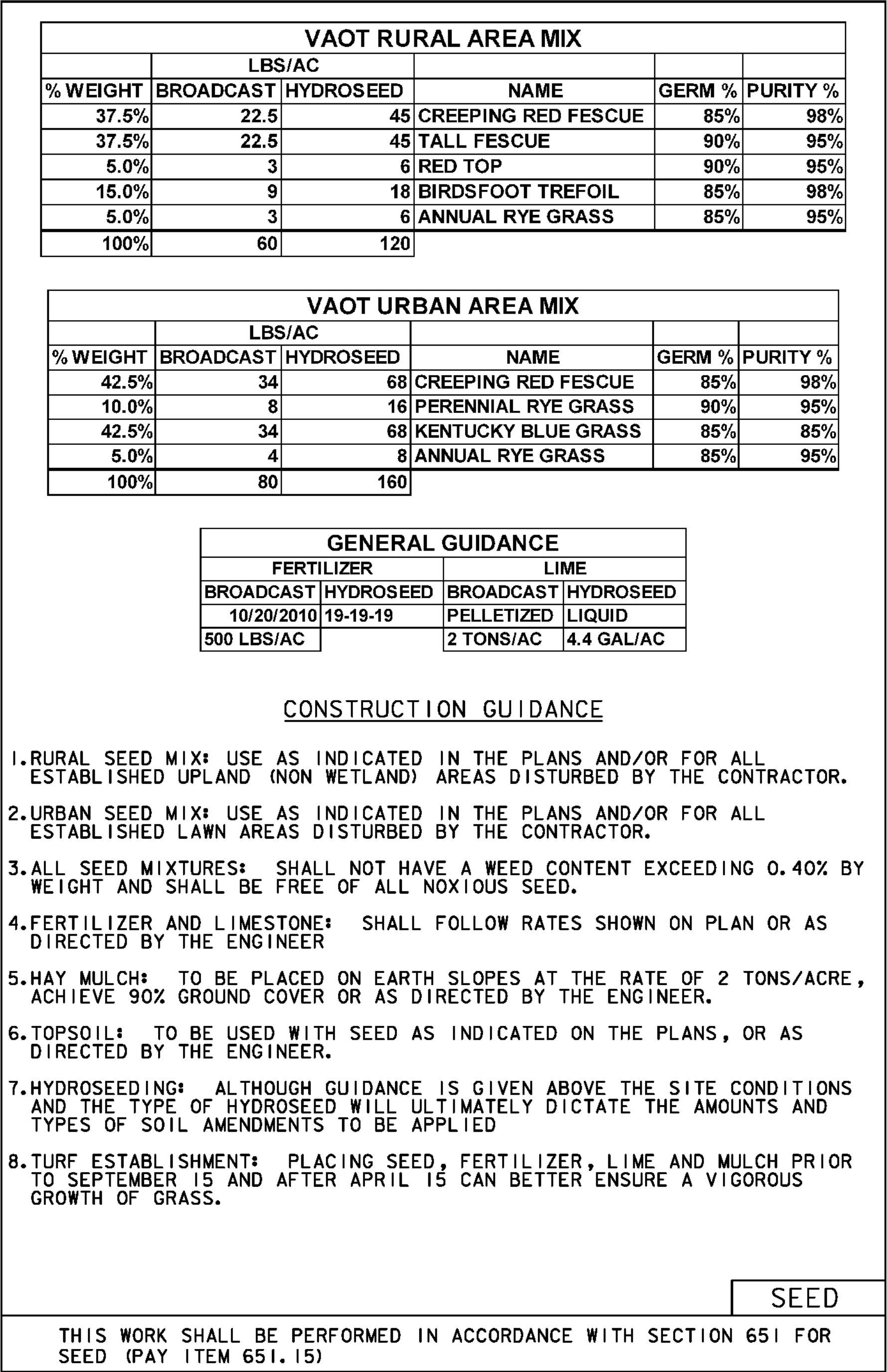
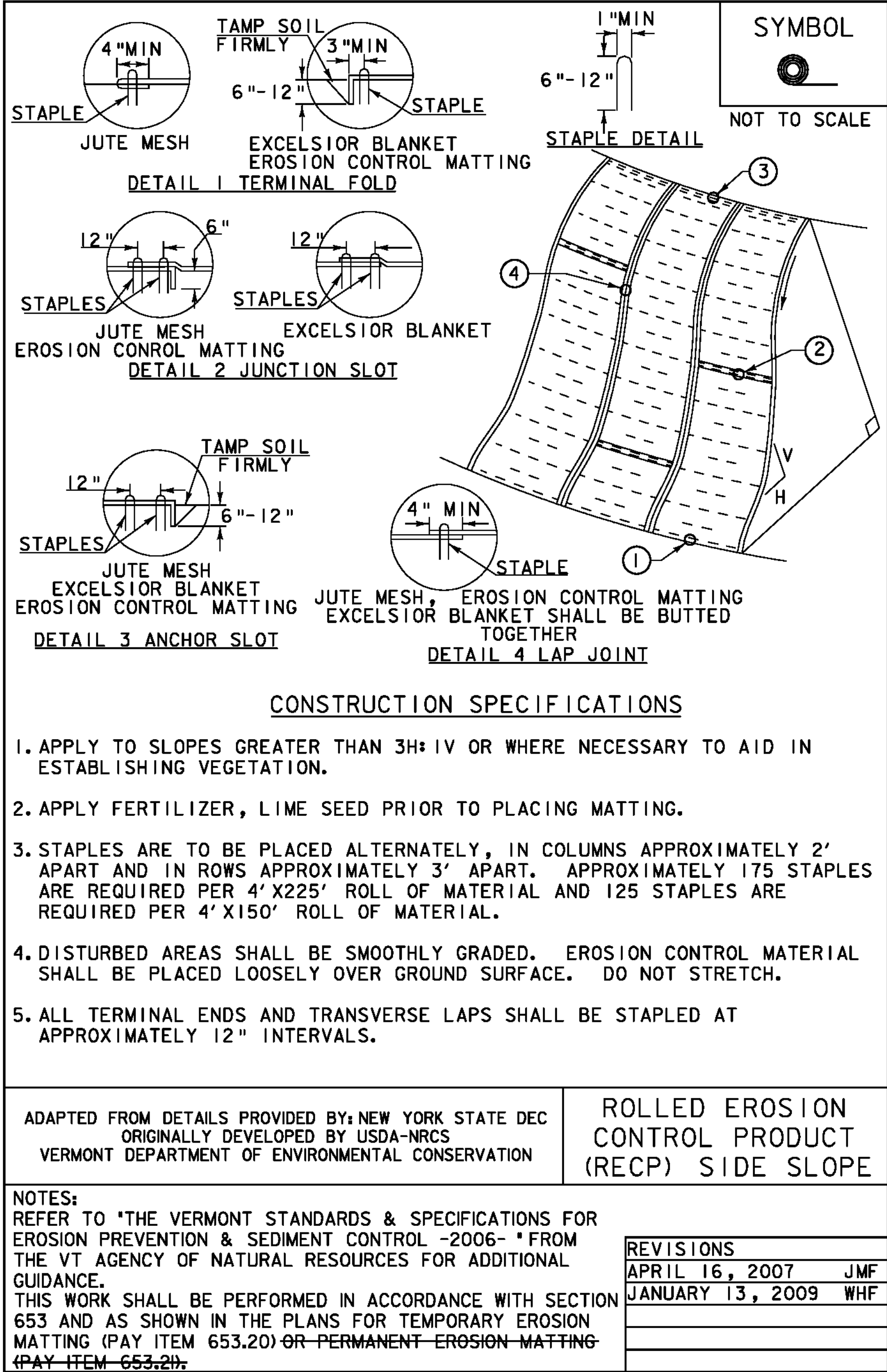
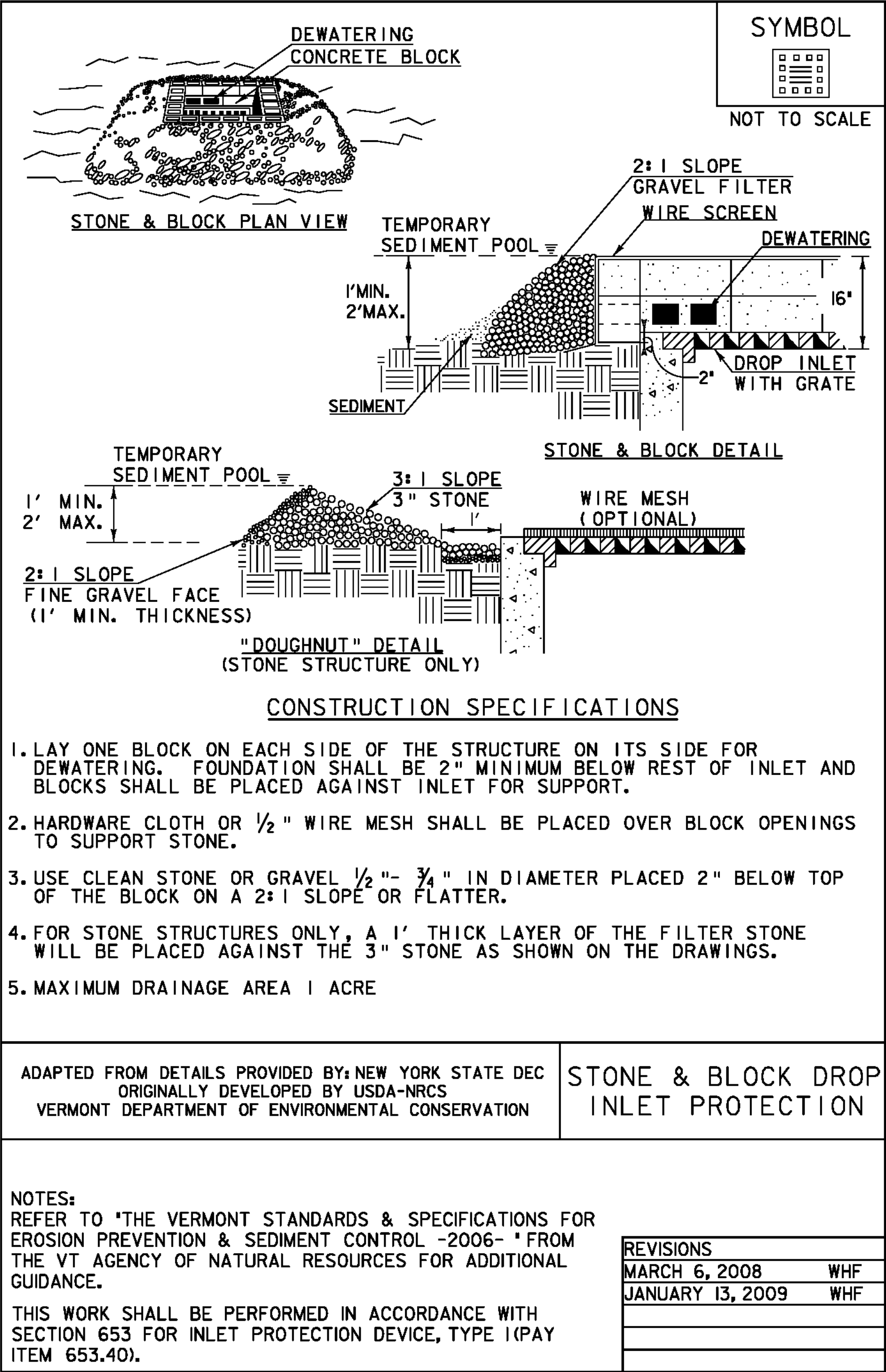


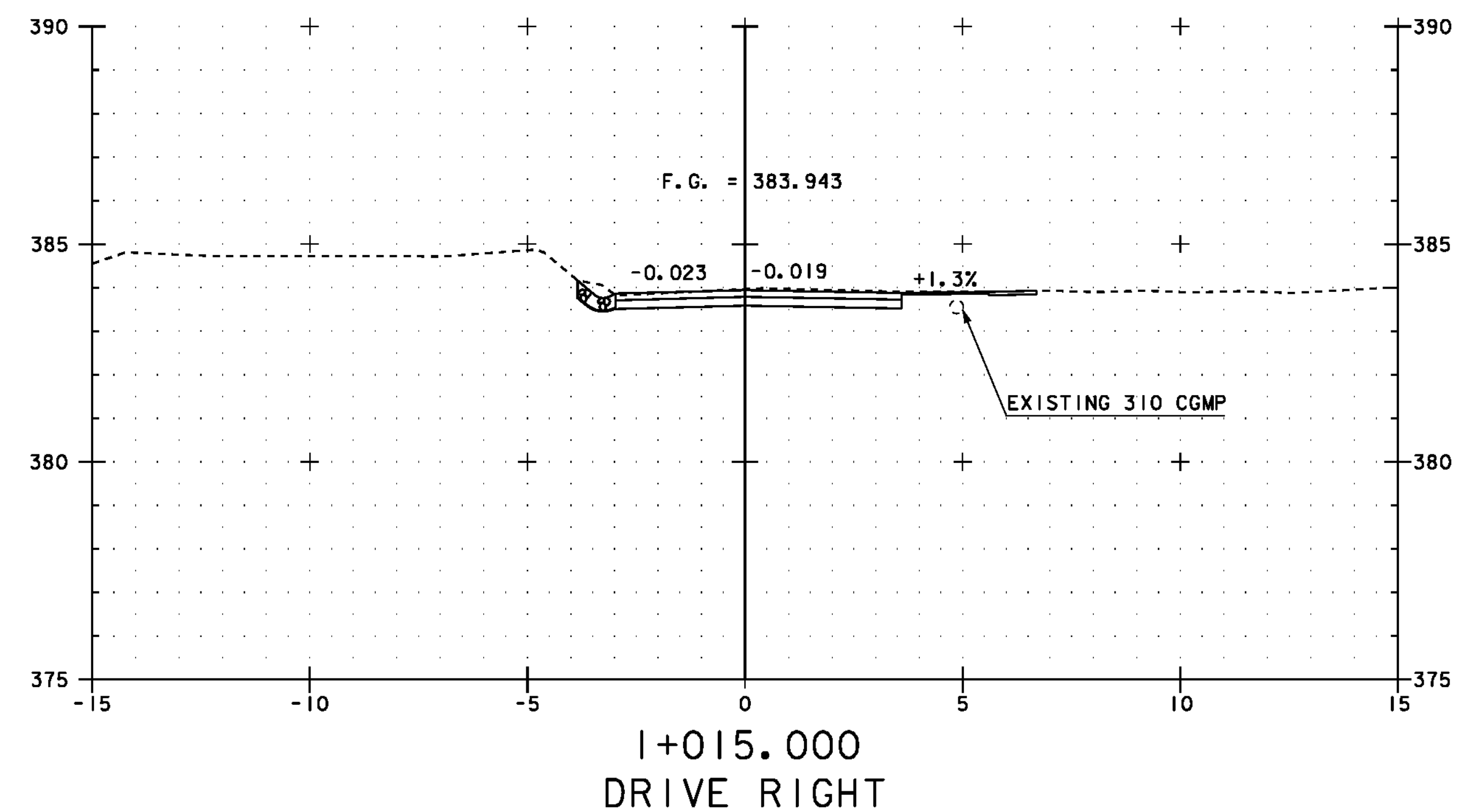
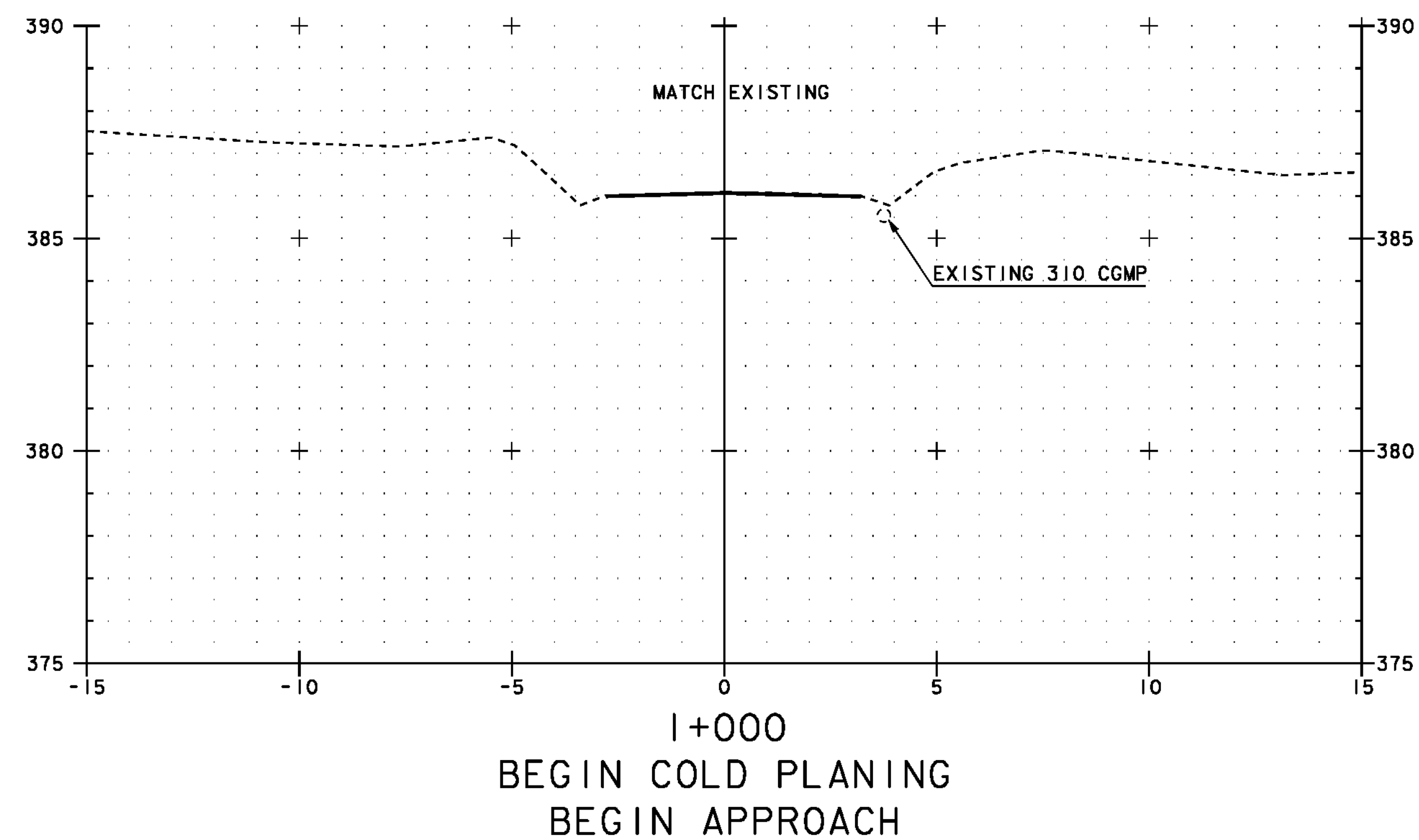
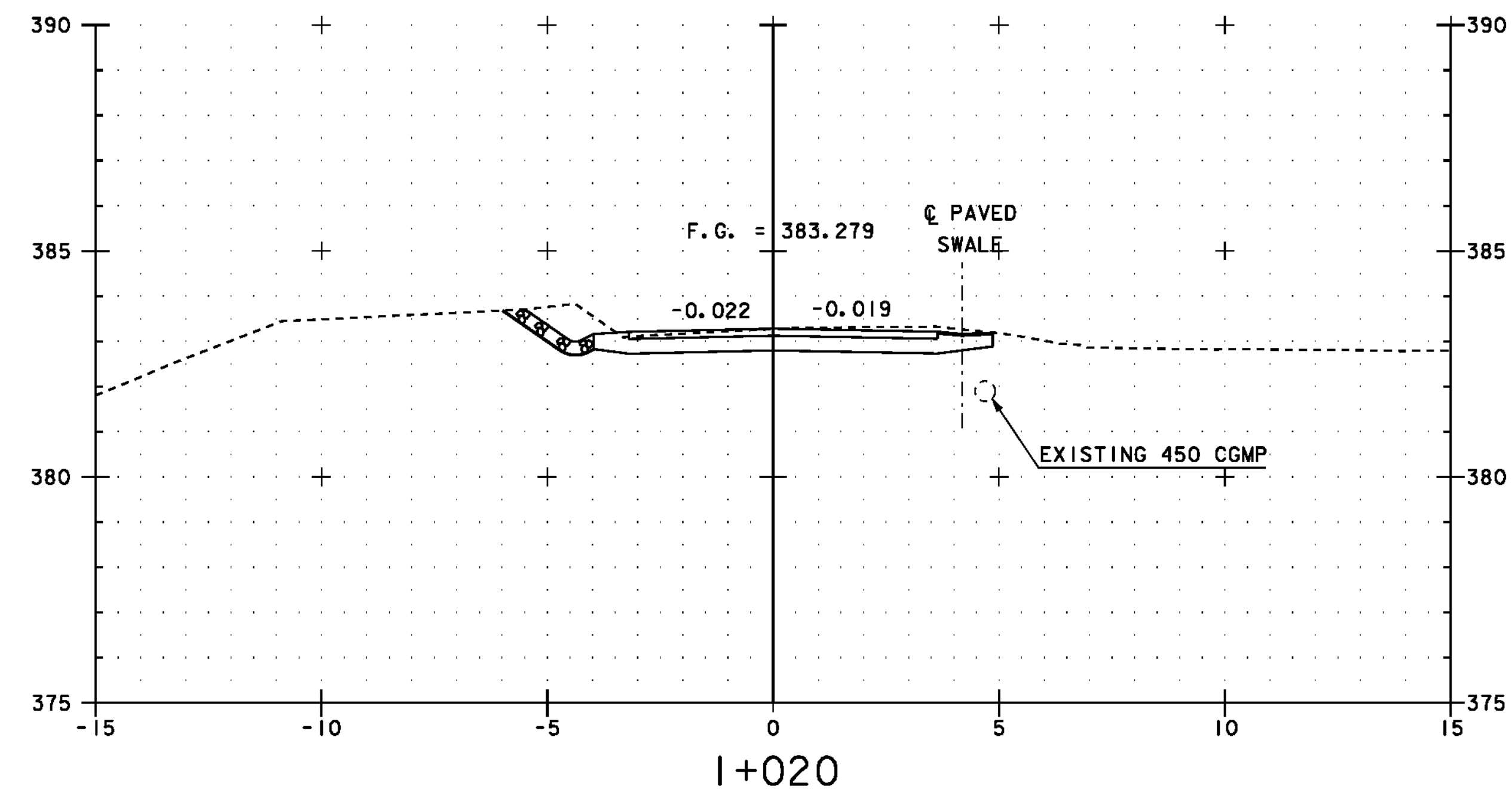
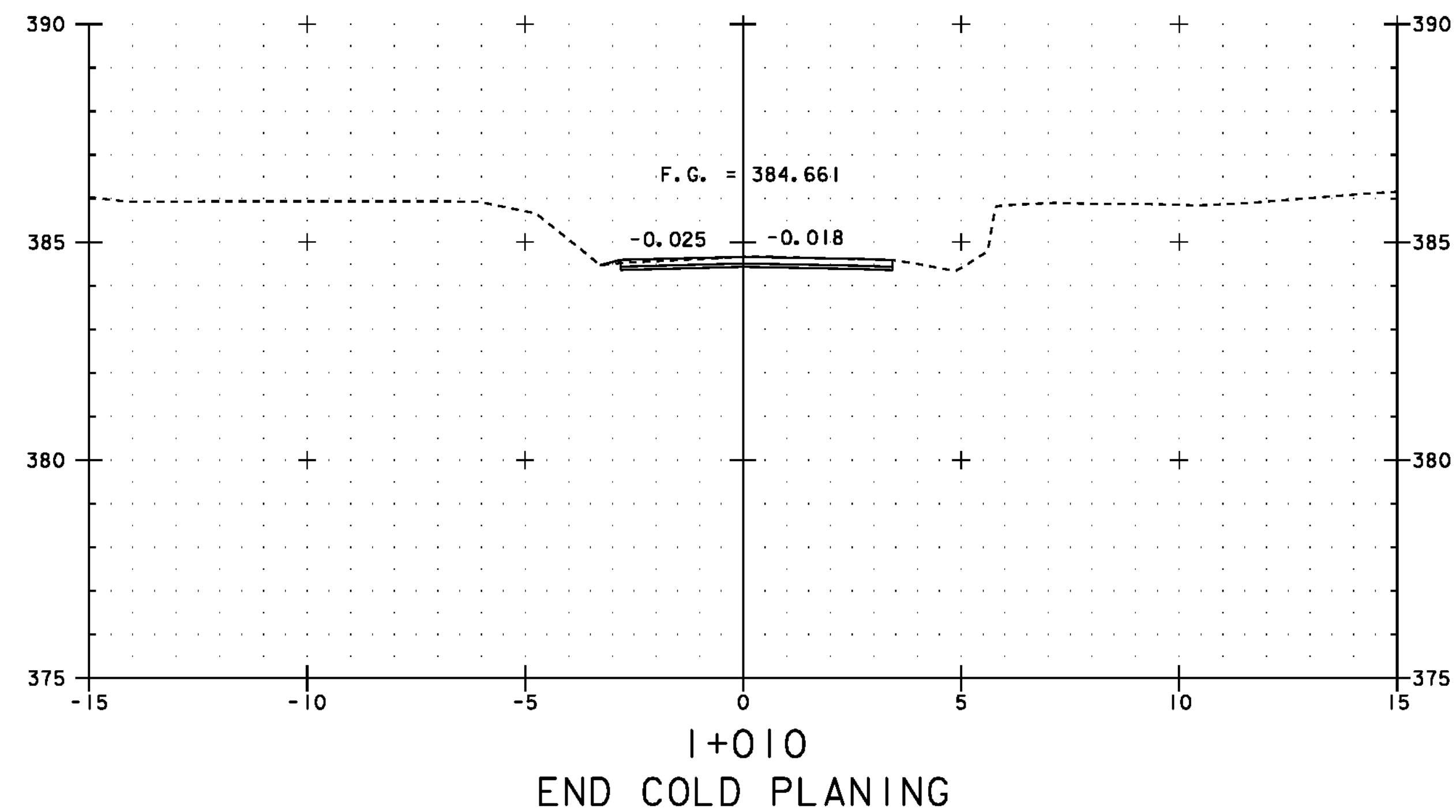
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IPARM FILE NAME:	sj070fincon.i	DRAWN BY:	H. I. SALLS
DESIGNED BY:	H. I. SALLS	CHECKED BY:	E. L. RUSTAY
SQUAD LEADER:	C. P. WILLIAMS	SHEET:	44 OF 60
FINAL CONDITIONS			





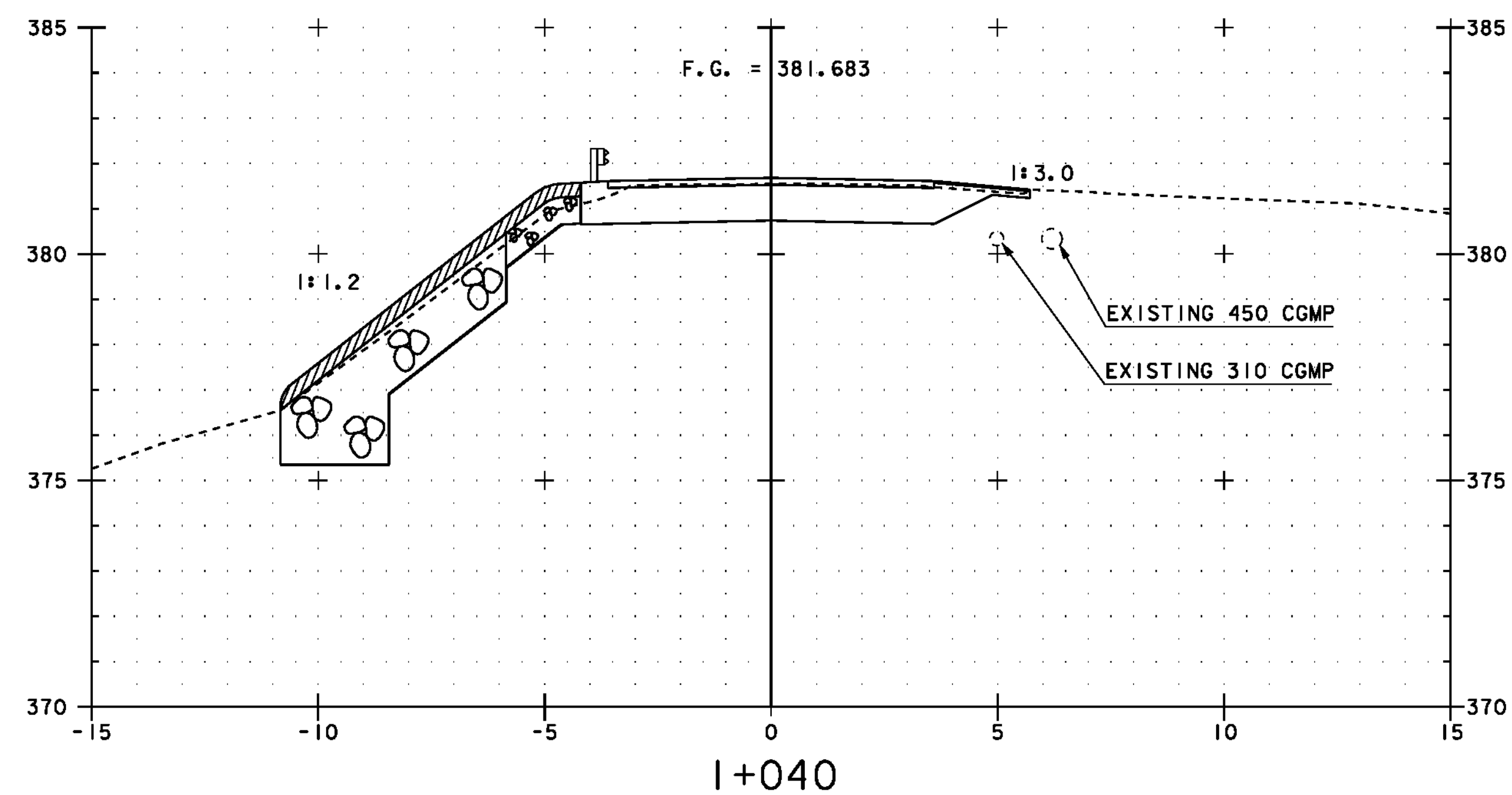
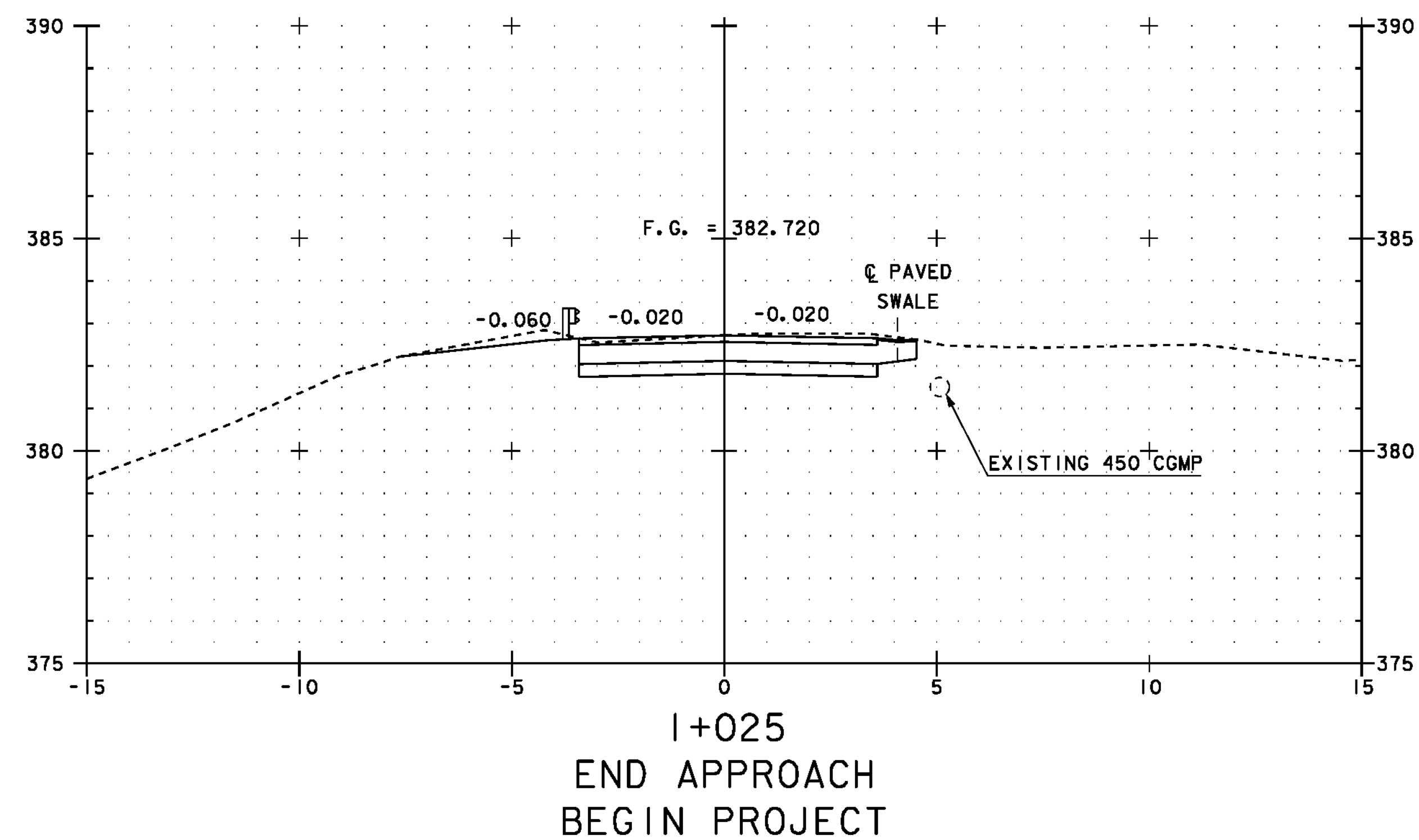
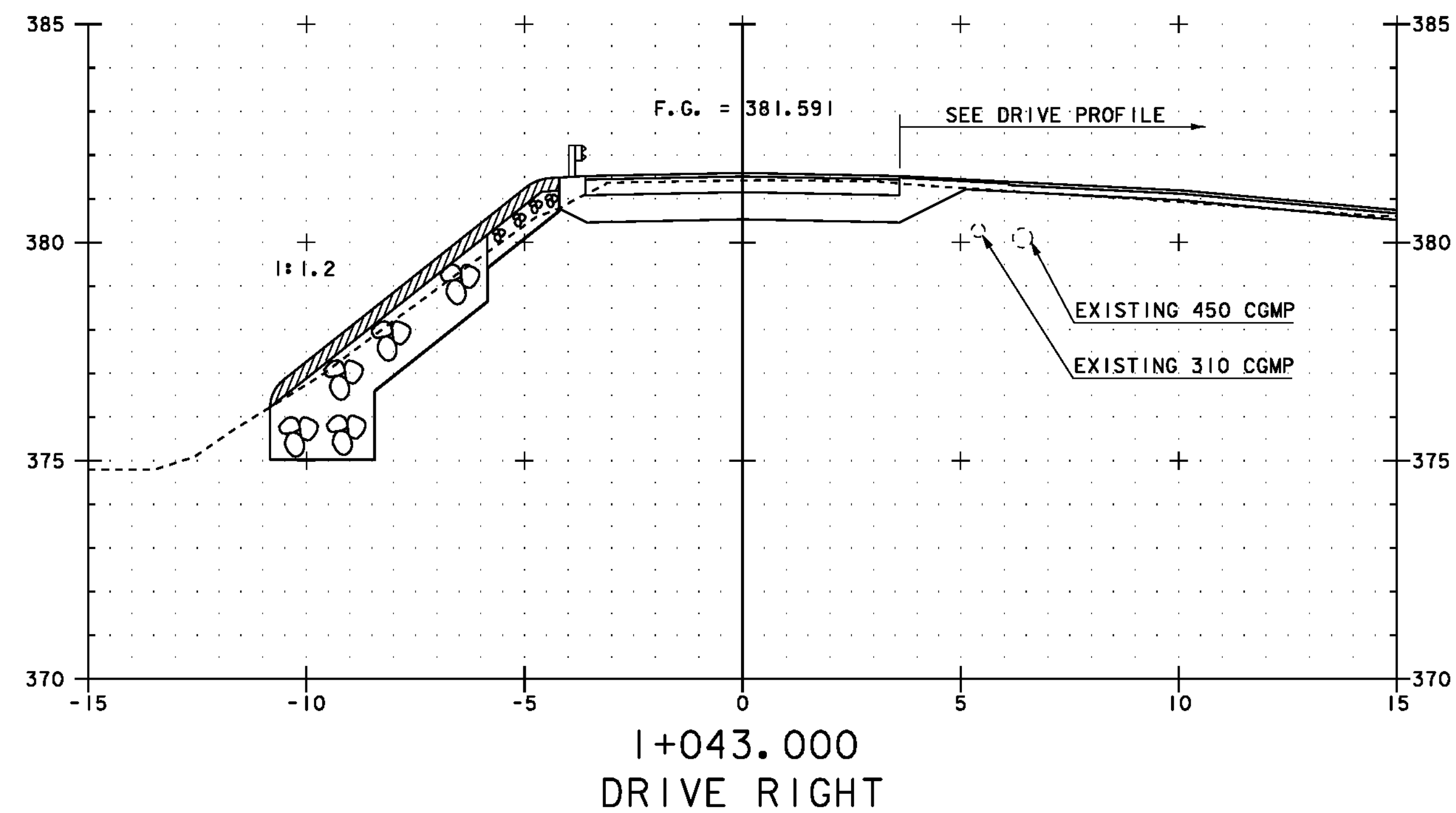
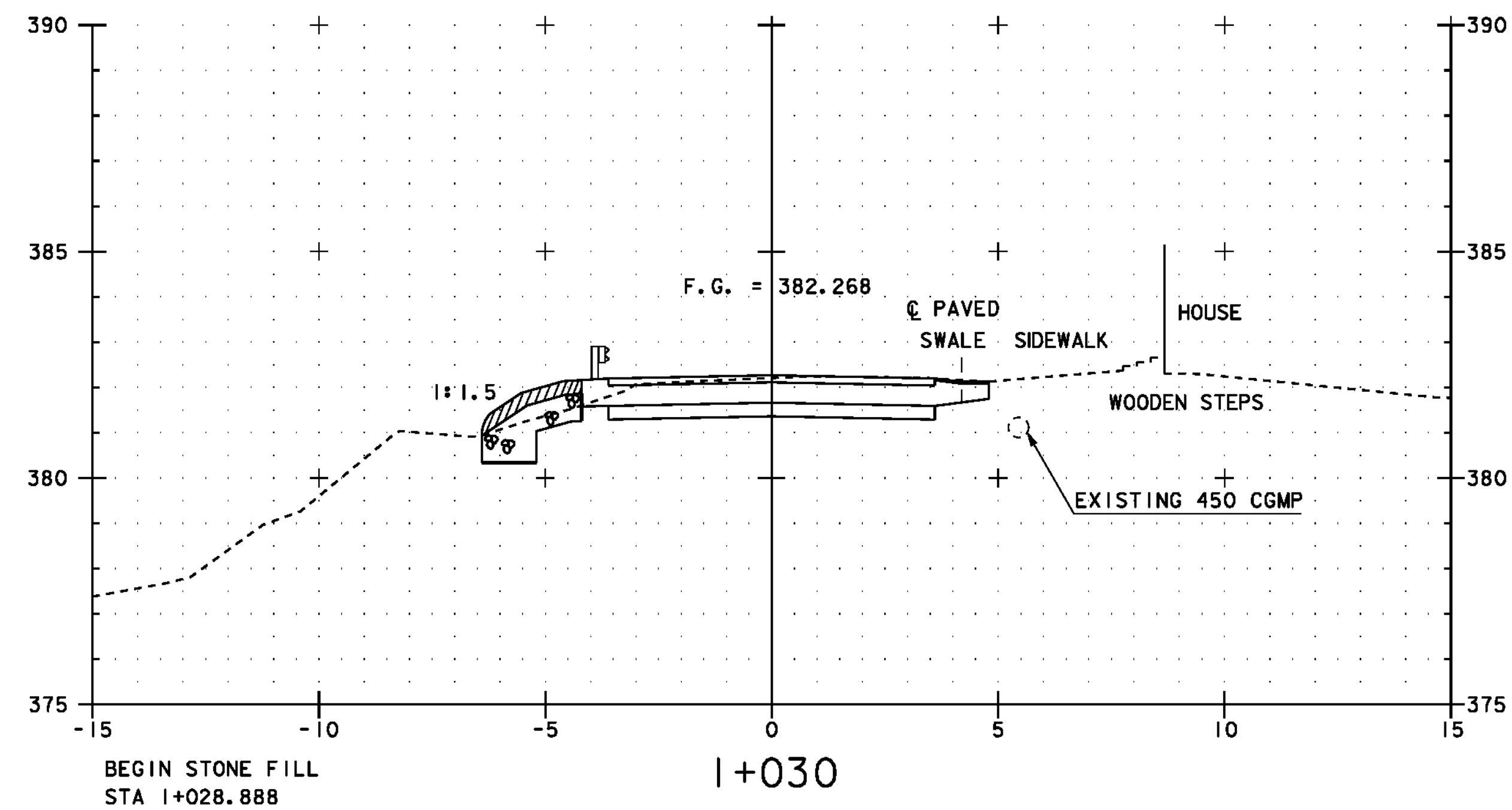






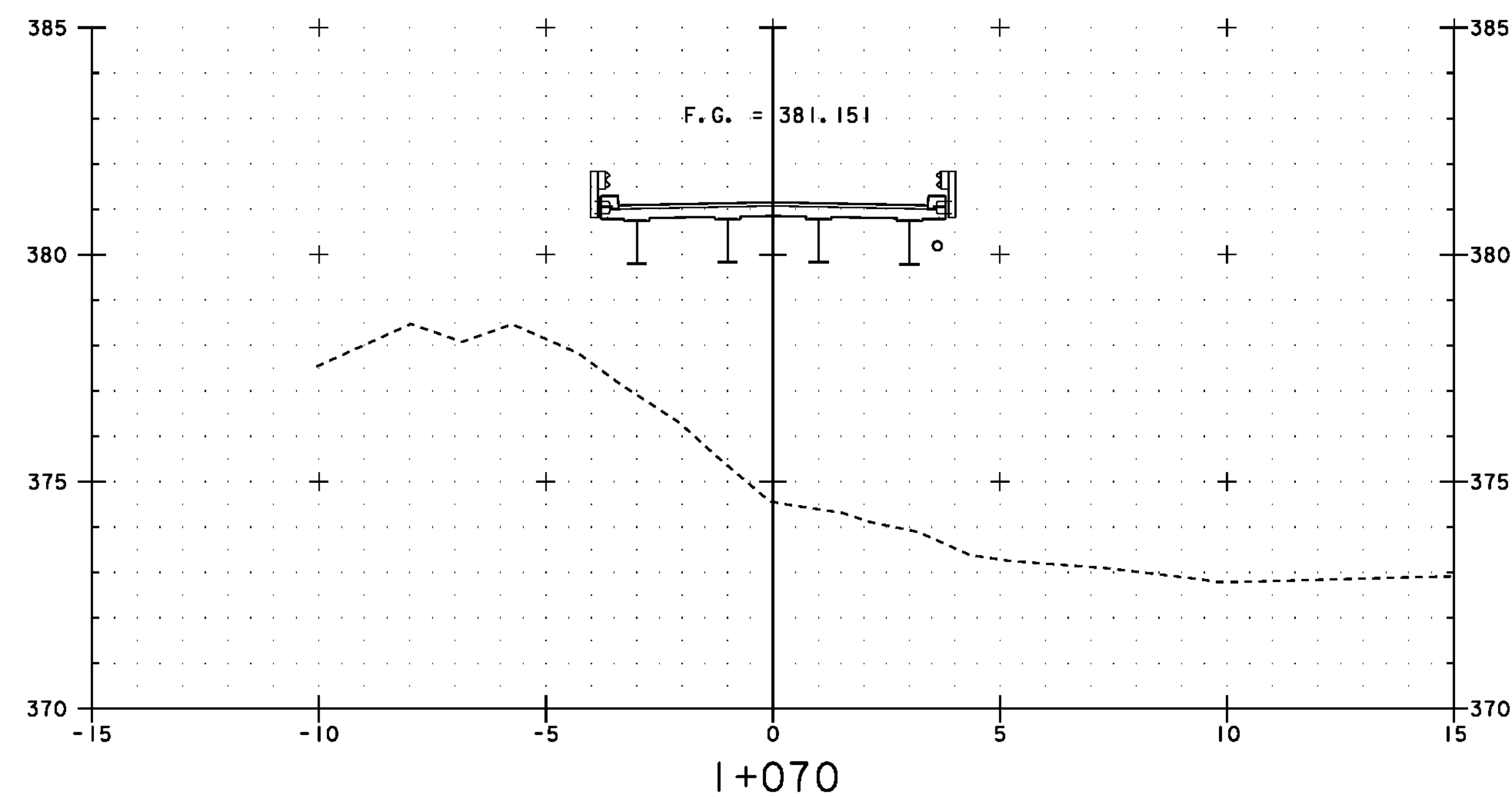
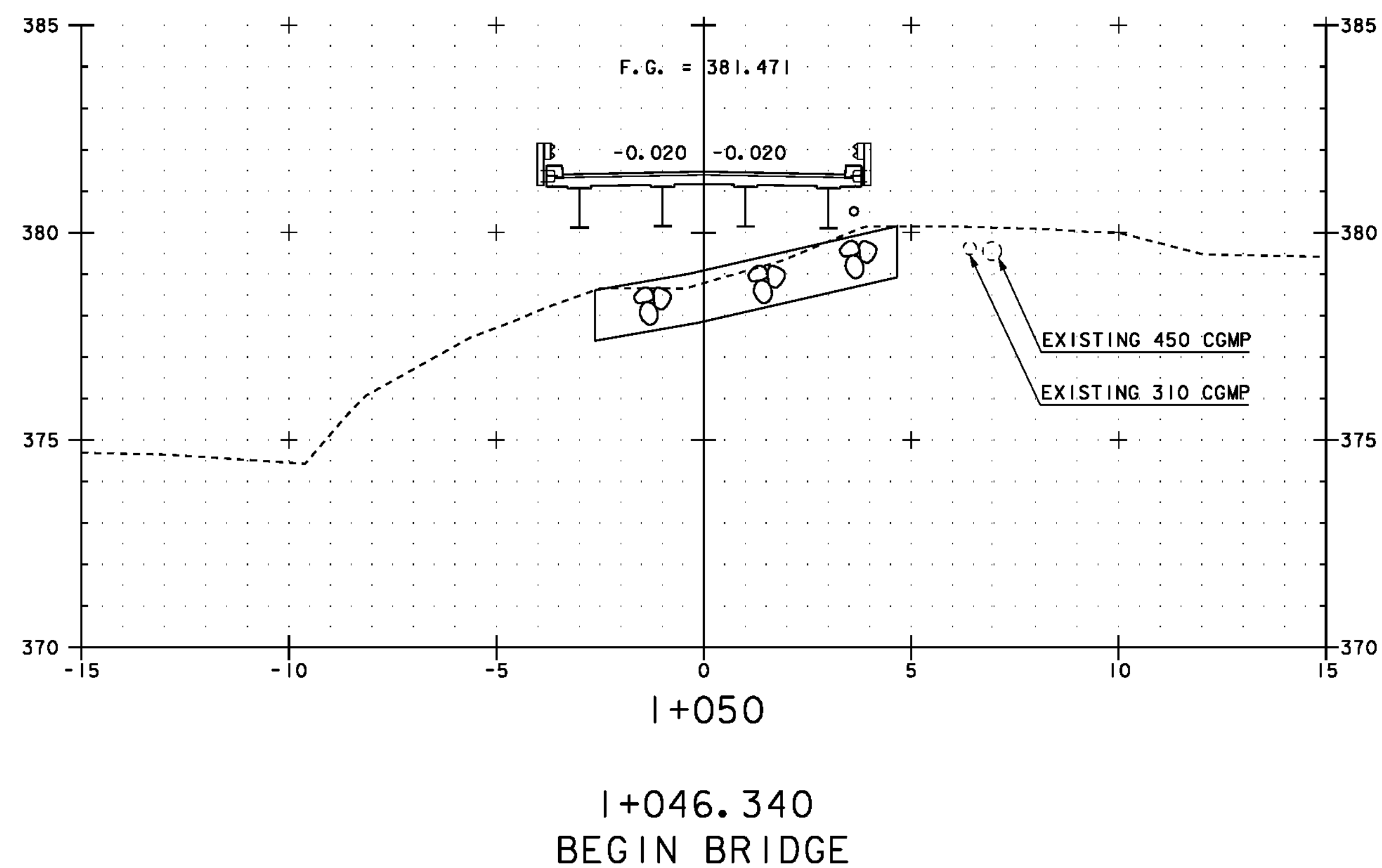
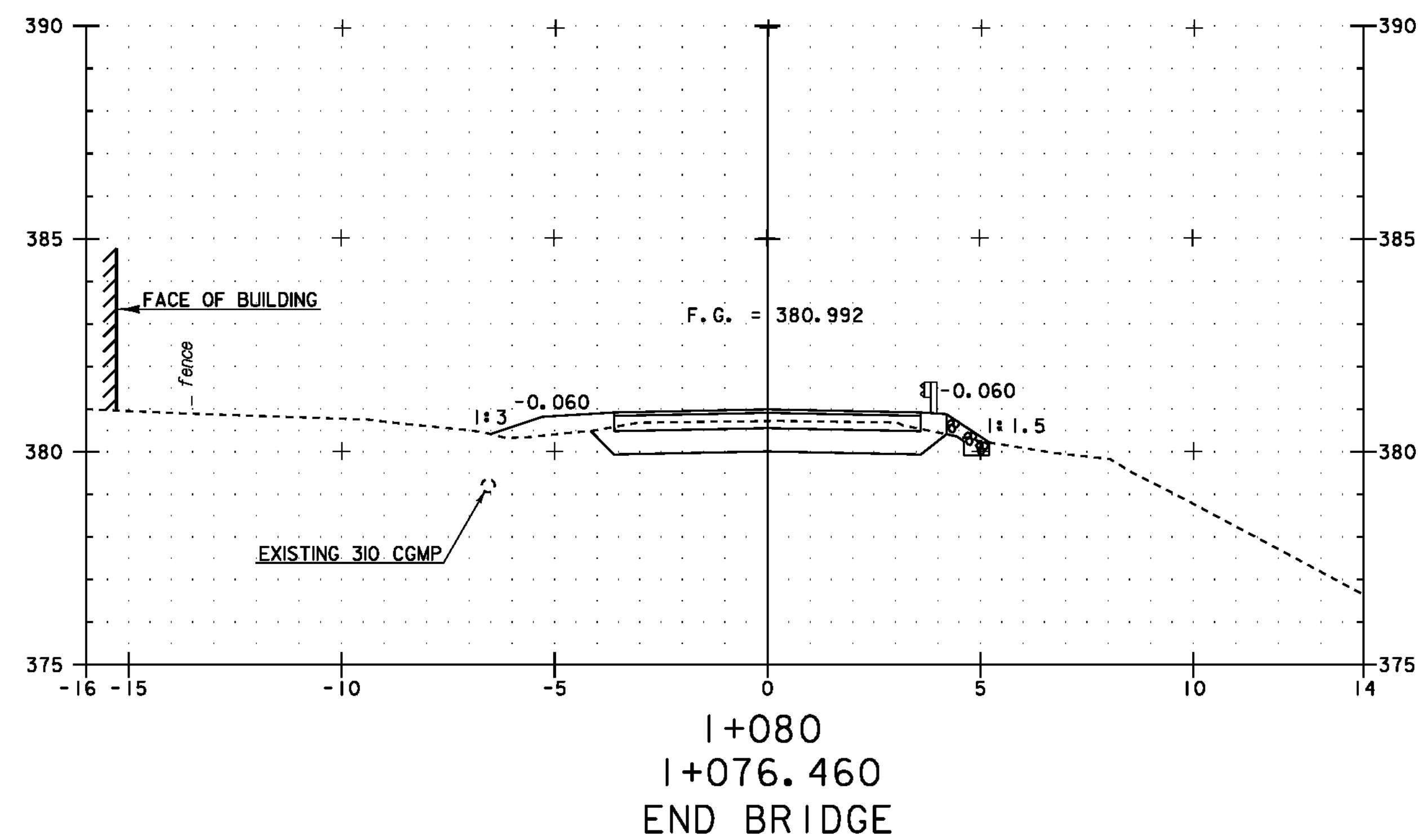
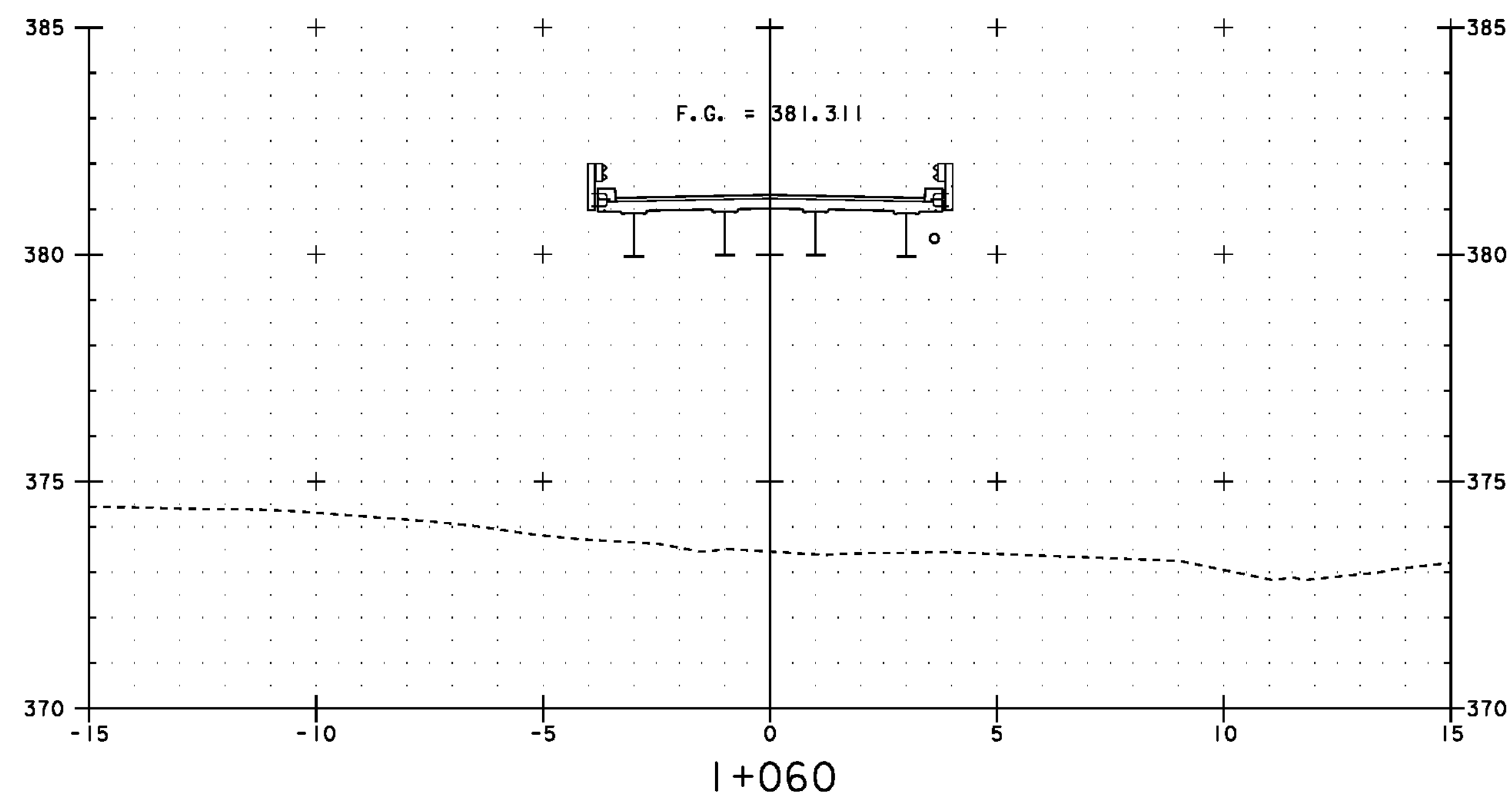
STA 1+000 TO STA 1+020

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DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 47 OF 60
MAINLINE CROSS SECTIONS 1	



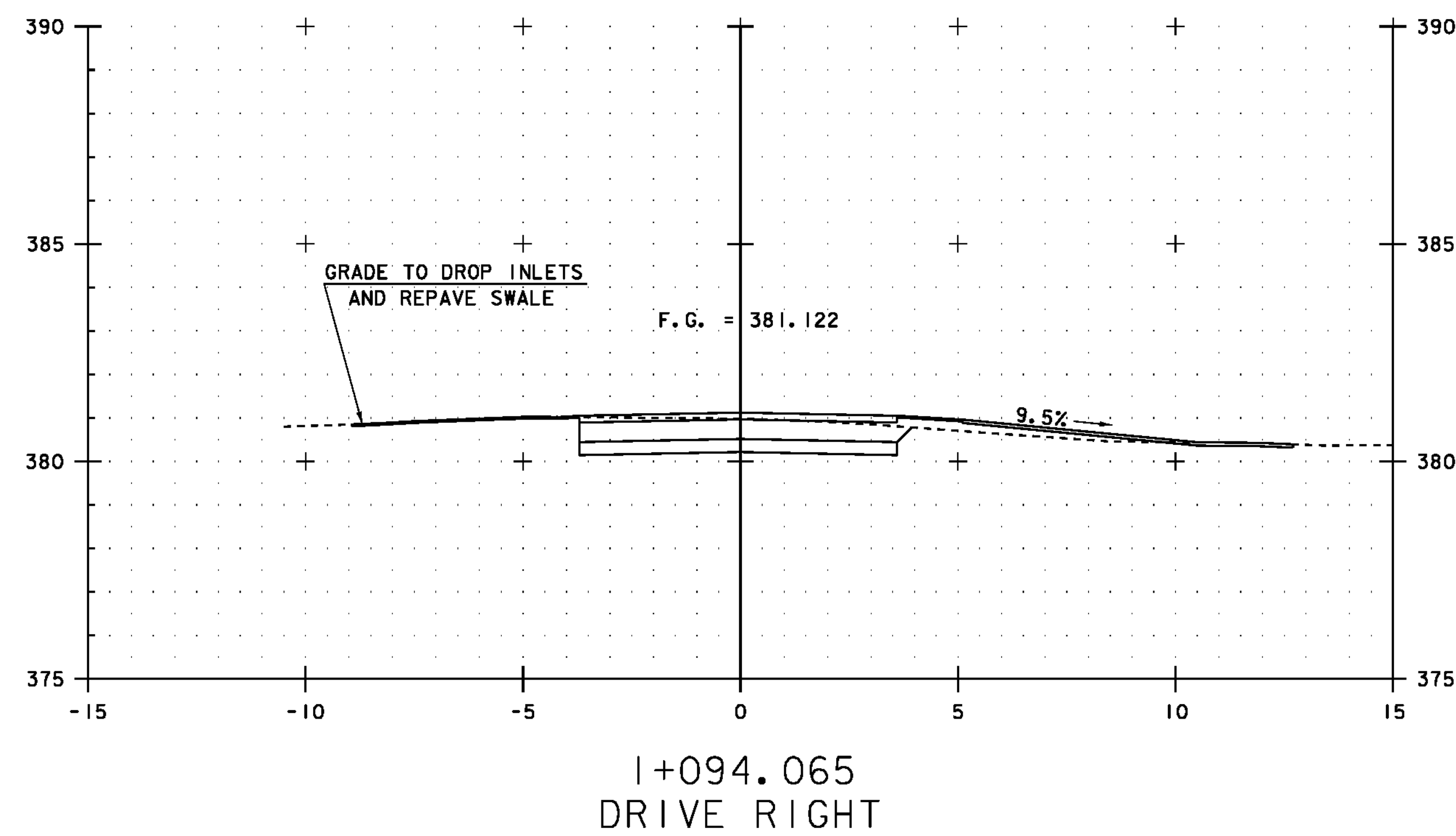
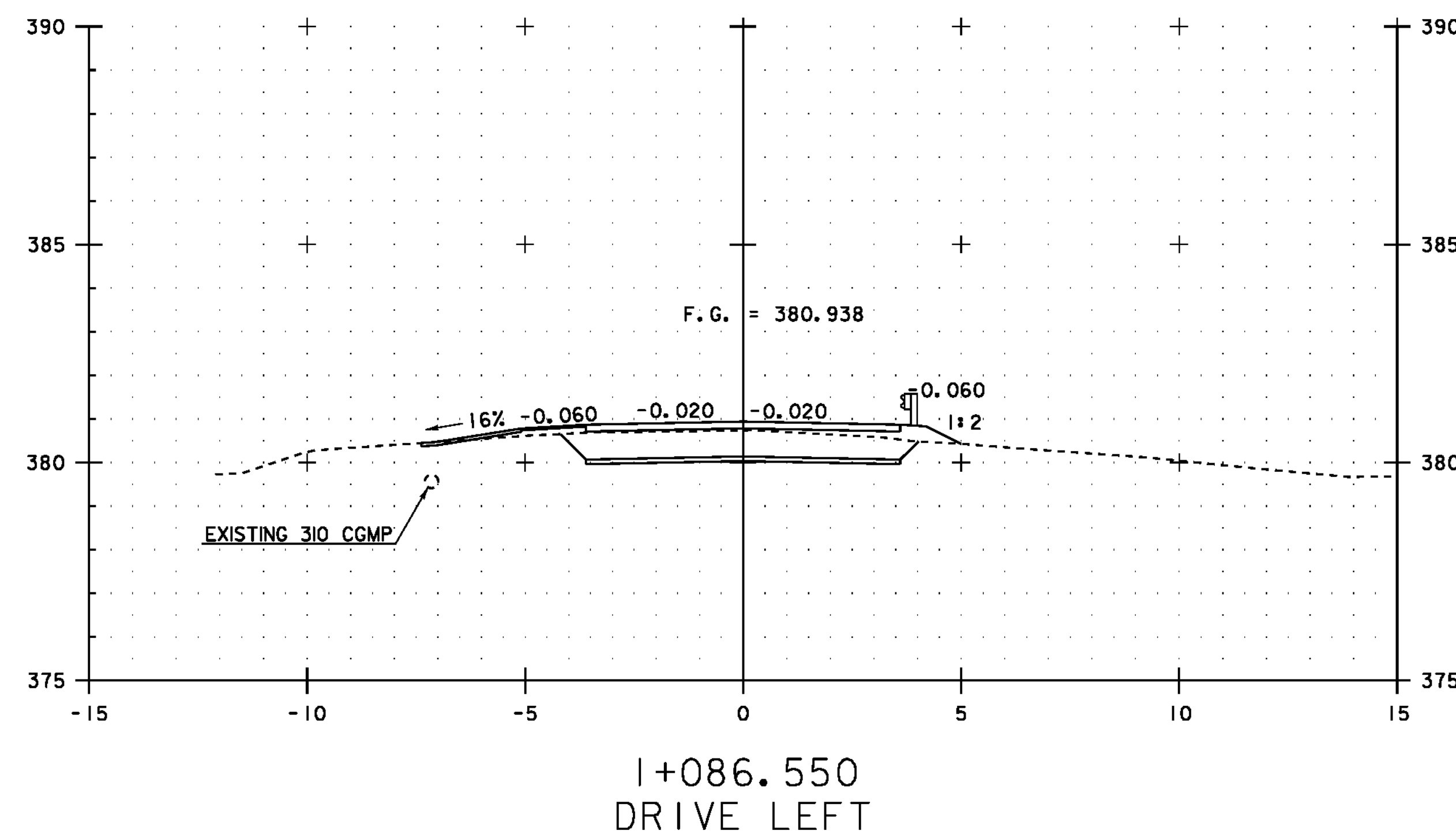
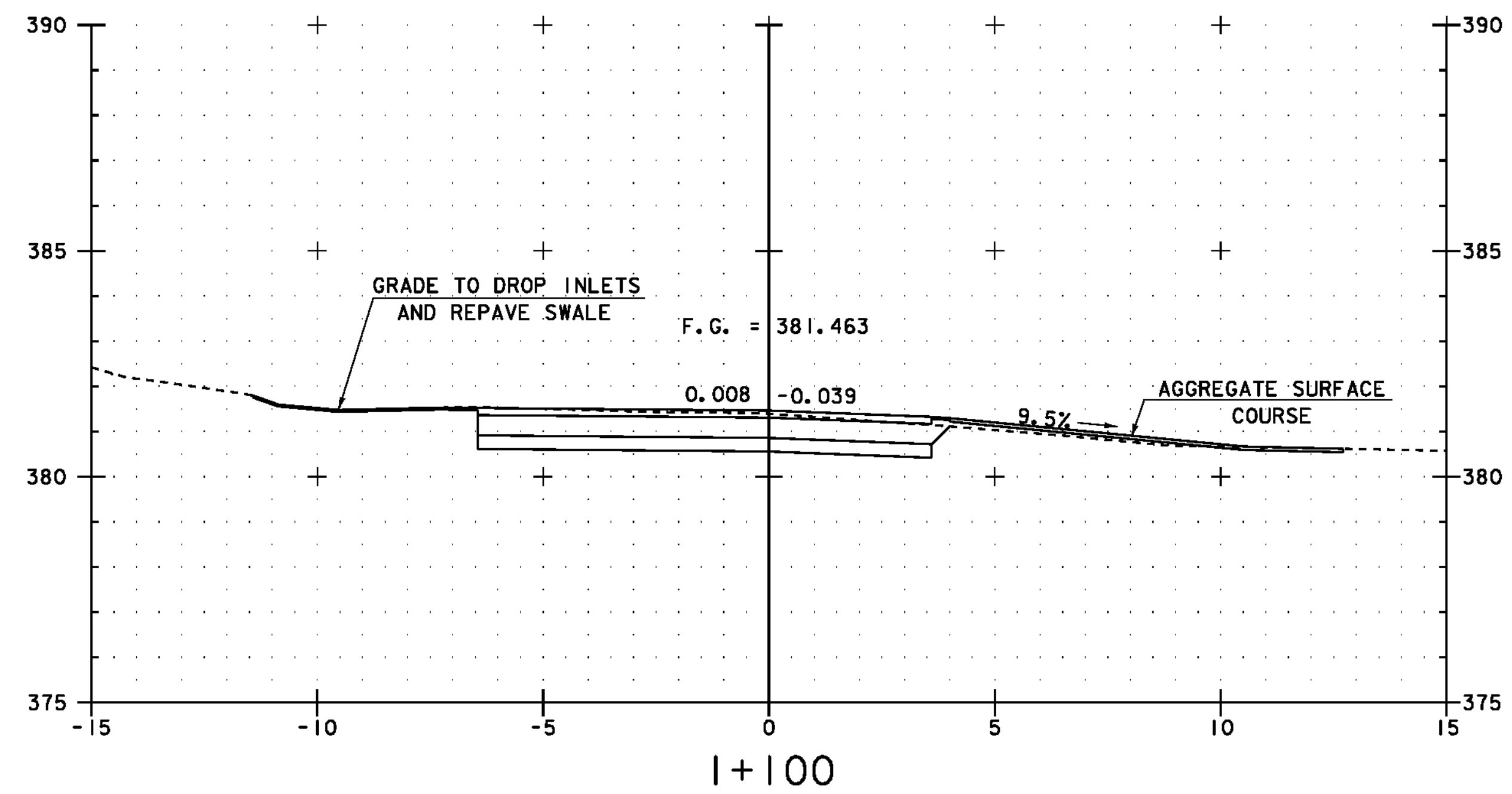
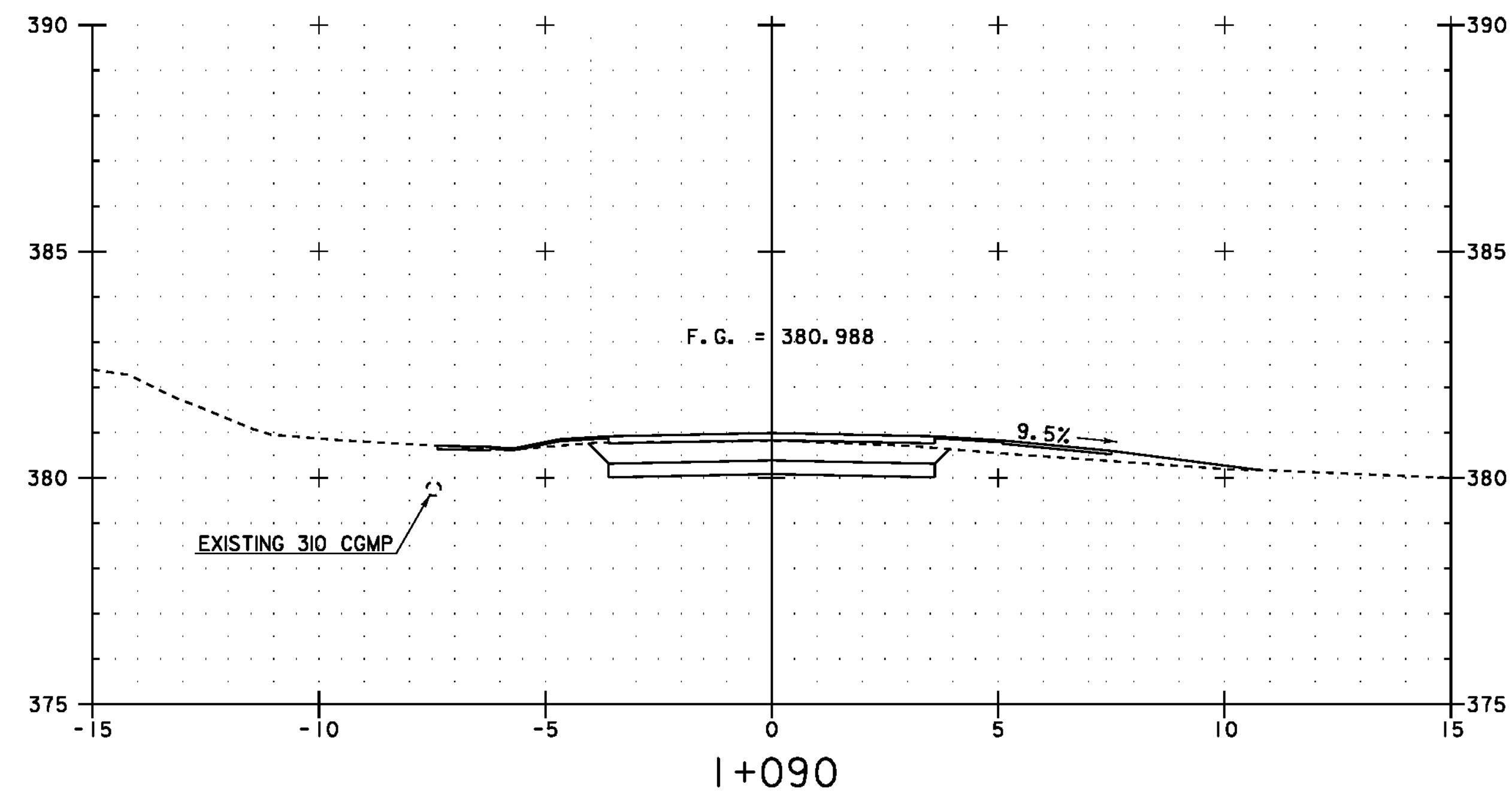
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DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 48 OF 60
MAINLINE CROSS SECTIONS 2	



STA I+050 TO STA I+080

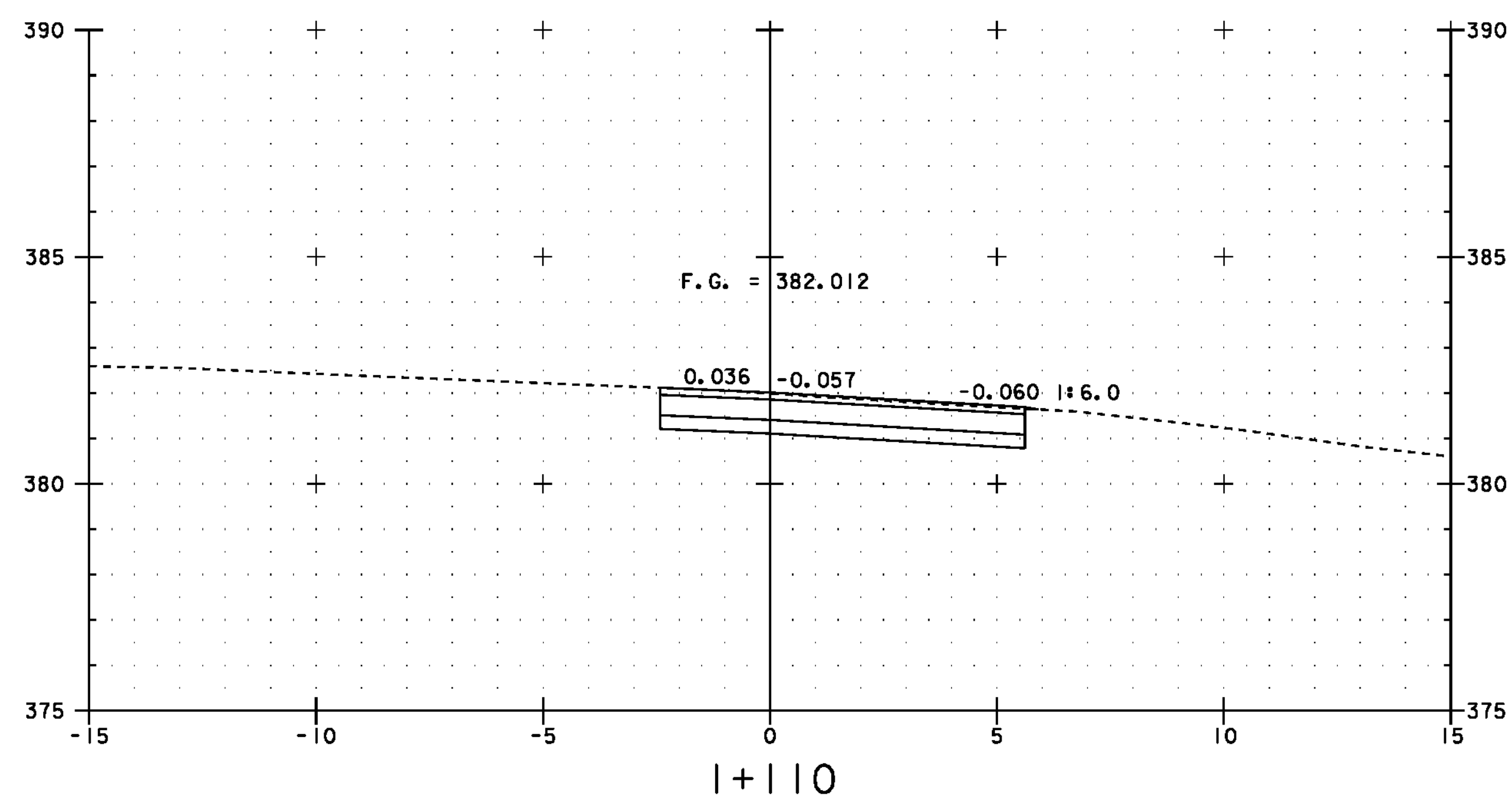
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DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 49 OF 60
MAINLINE CROSS SECTIONS 3	



STA I+086.55 TO STA I+100

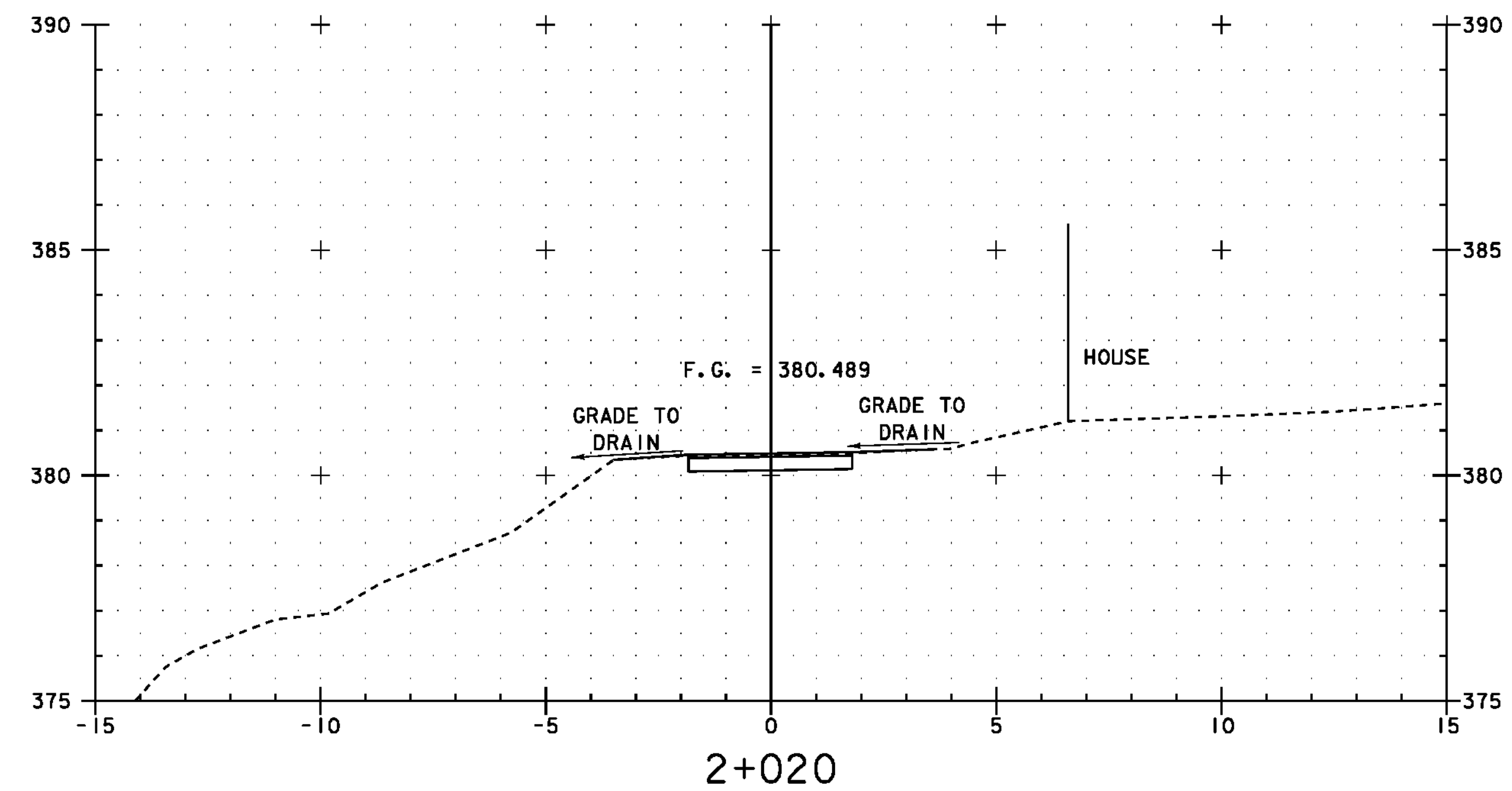
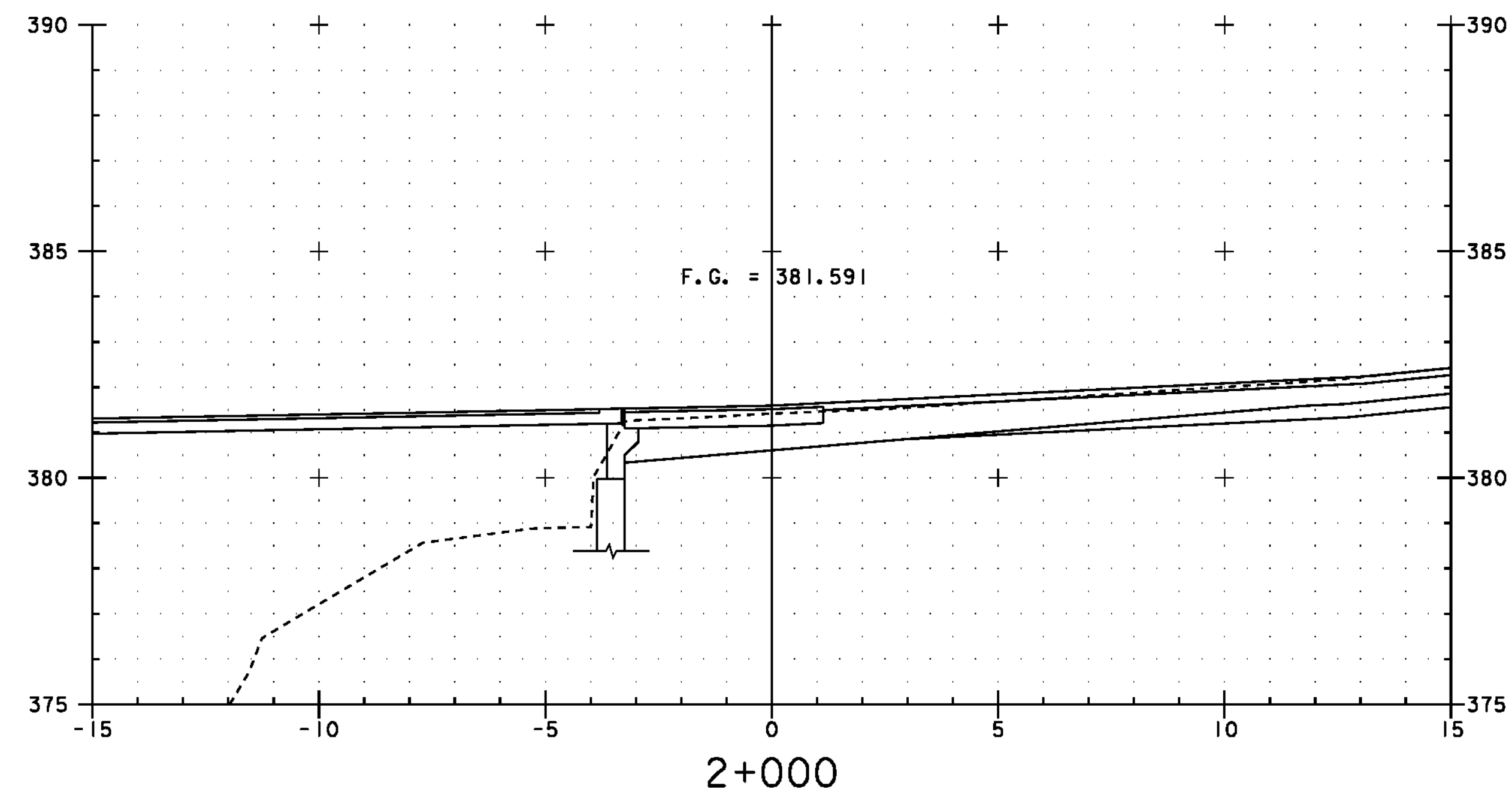
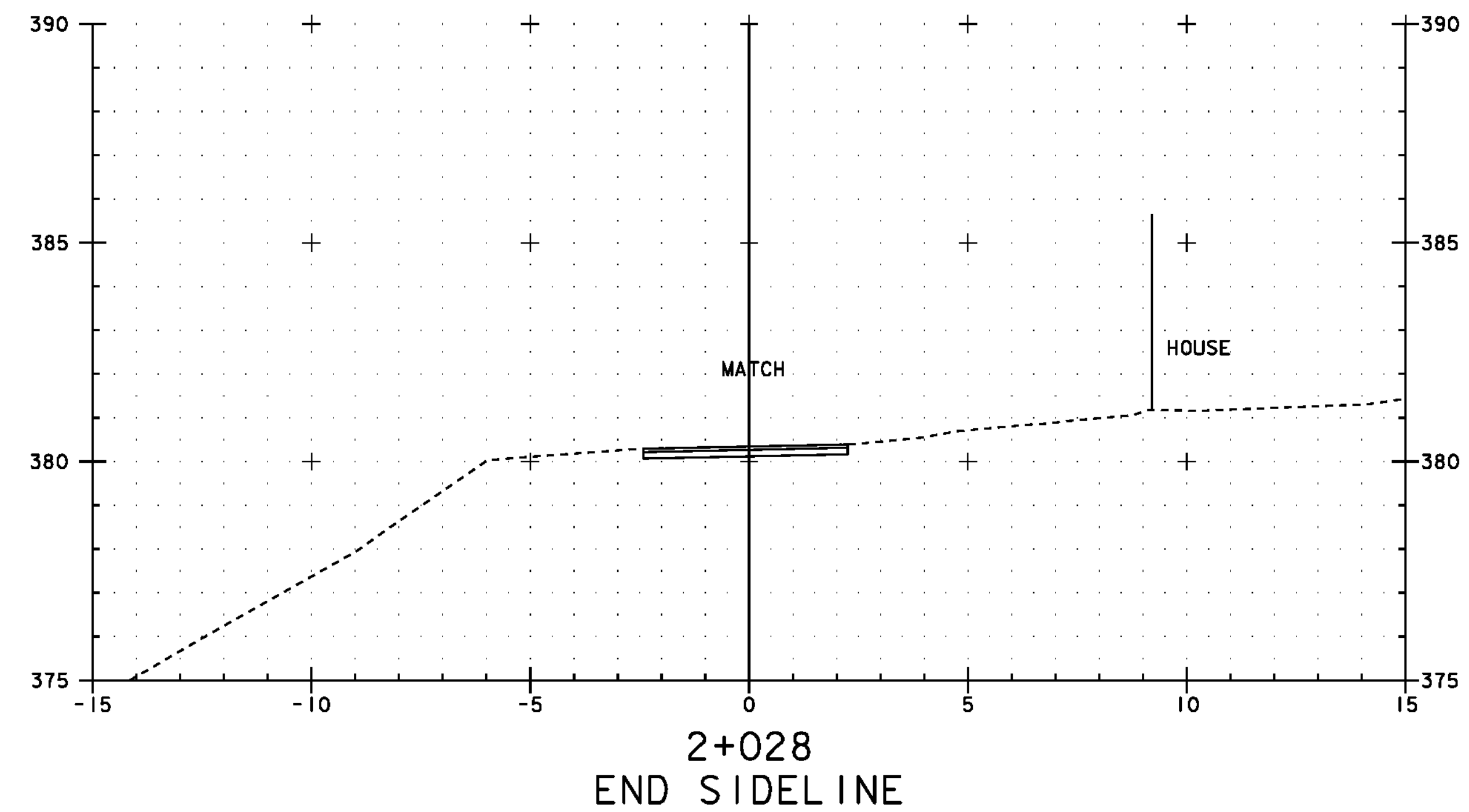
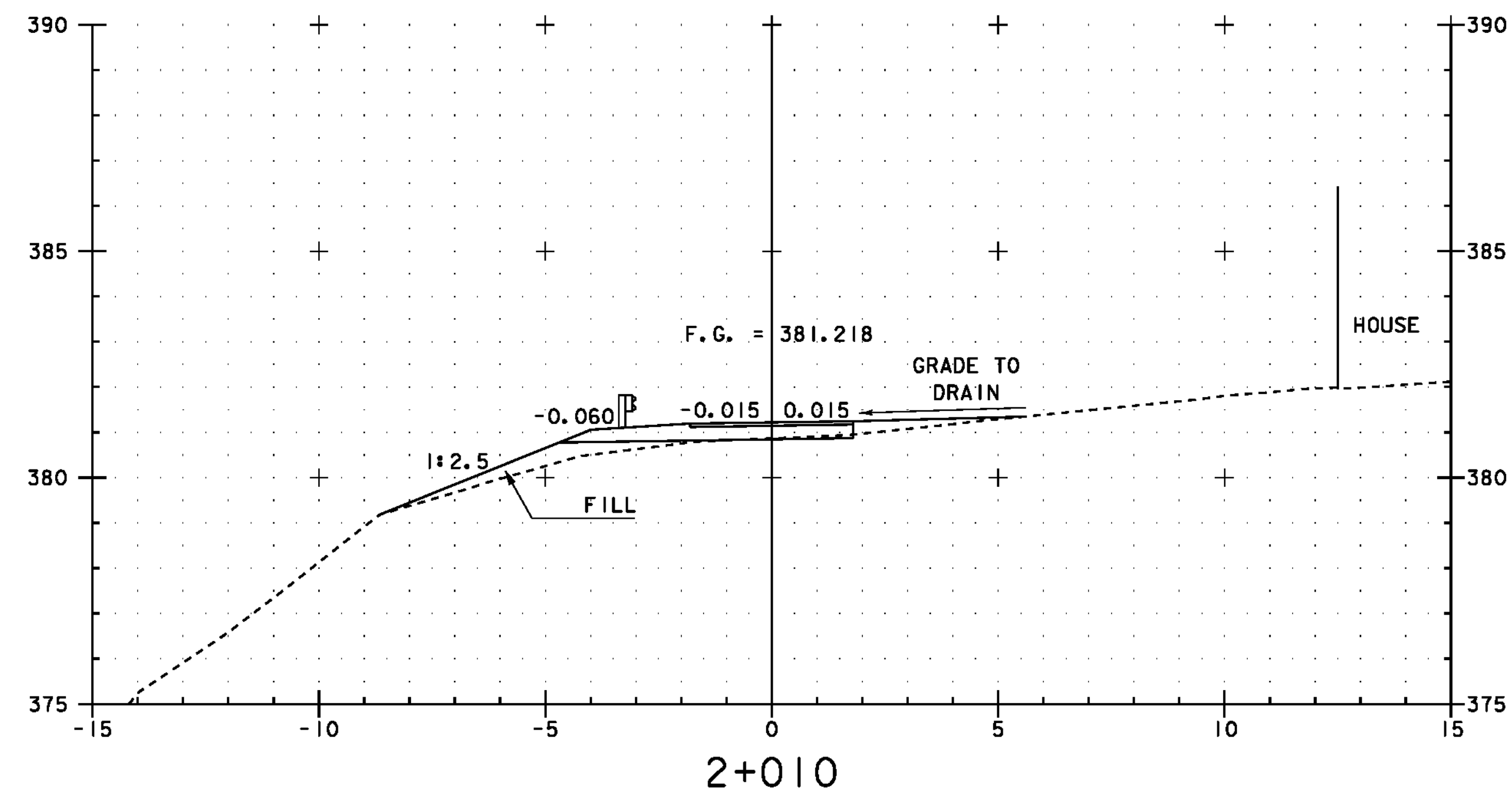
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DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 50 OF 60
MAINLINE CROSS SECTIONS 4	

END PROJECT
EDGE OF VT RTE 100
STA 1+111.000
MATCH EXISTING



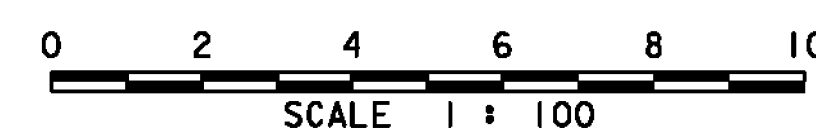
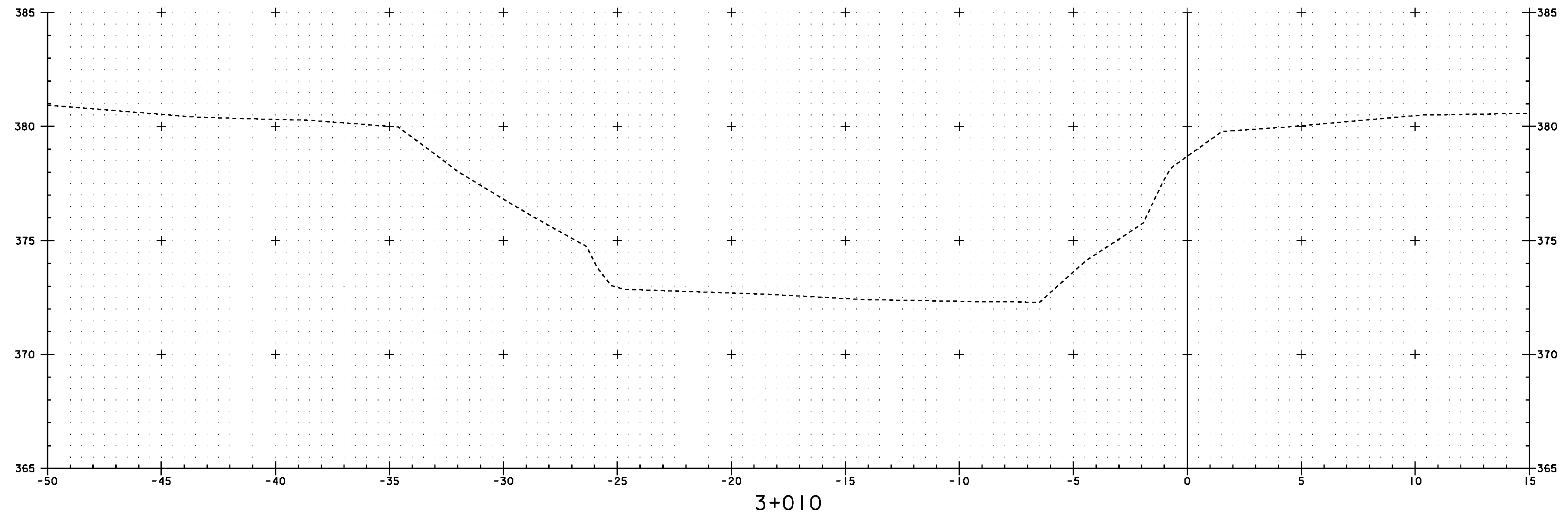
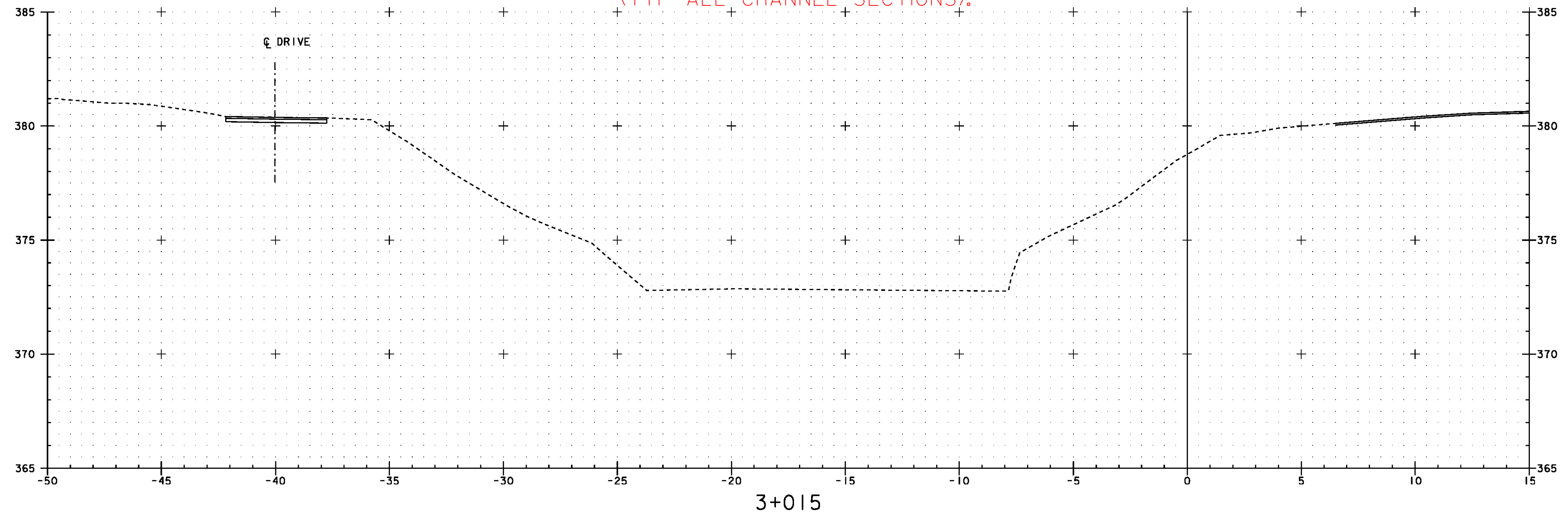
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DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 51 OF 60
MAINLINE CROSS SECTIONS 5	

STA 1+110



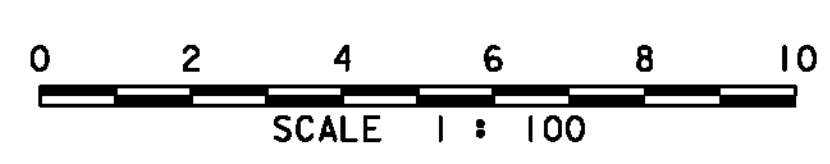
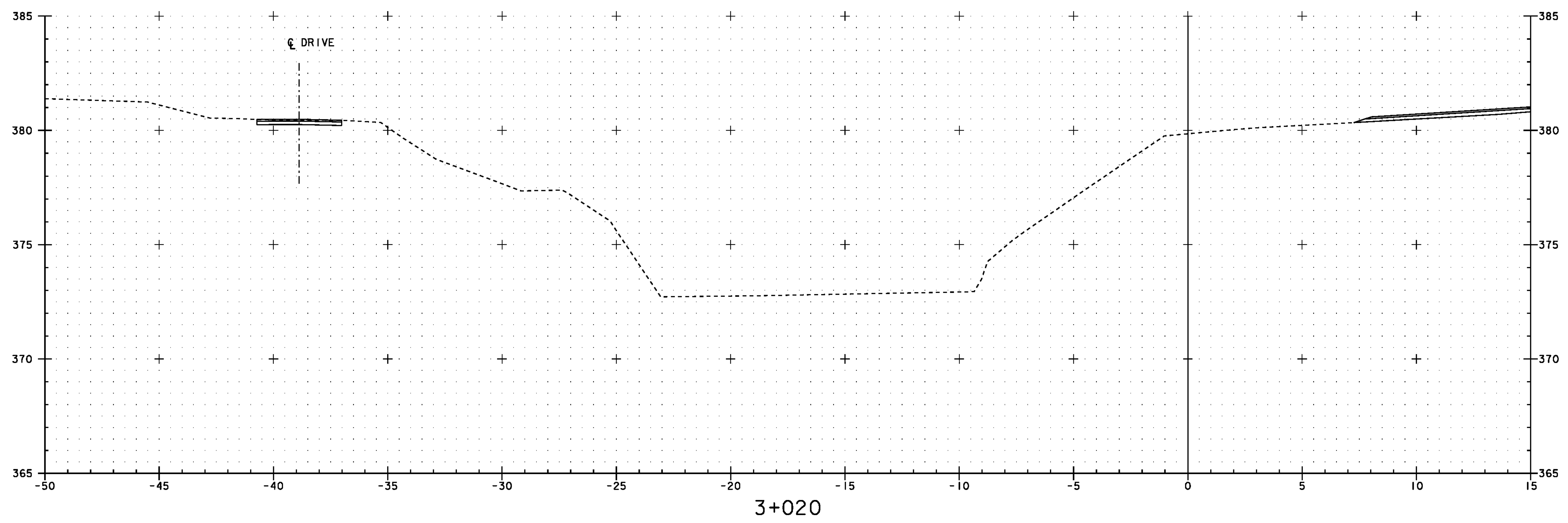
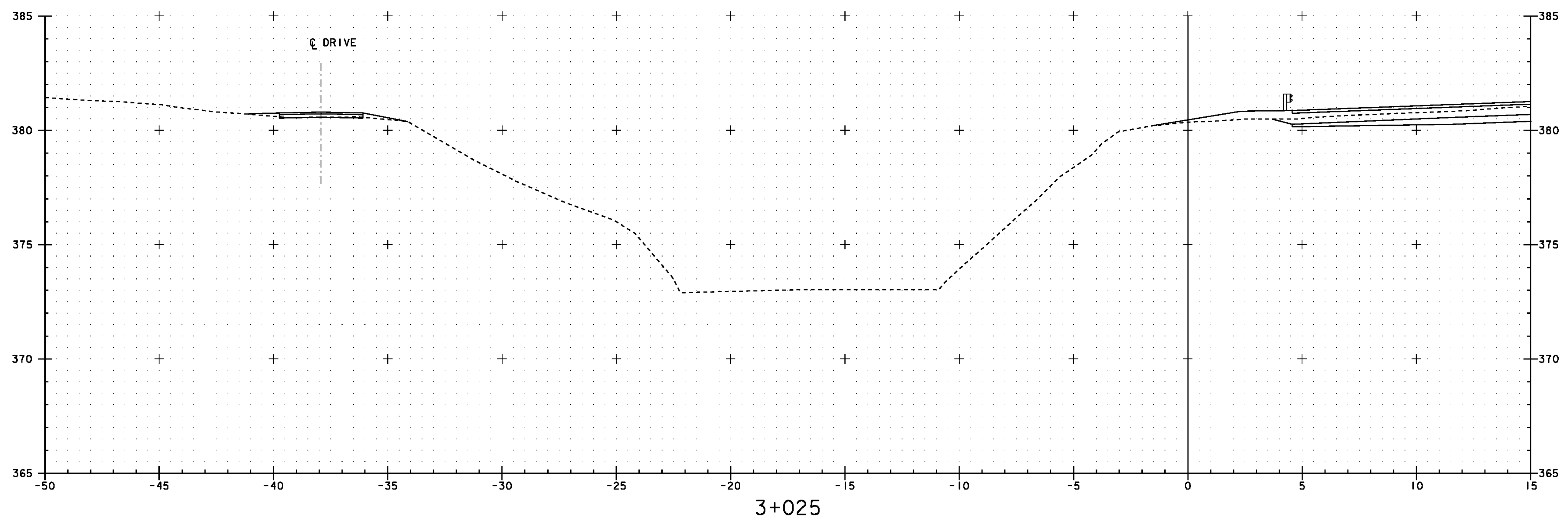
PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94J070\Structures\sj070xs.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070sxi.i	DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 52 OF 60
SIDELINE CROSS SECTIONS	

CHANNEL SECTIONS ARE NOW DIFFERENT, CHANNEL WAS MODIFIED BY A FEMA PROJECT
WINTER OF 2011 AFTER T.S.I. WASHED STONE FILL FROM AROUND THE ABUTMENTS
(TYP ALL CHANNEL SECTIONS).



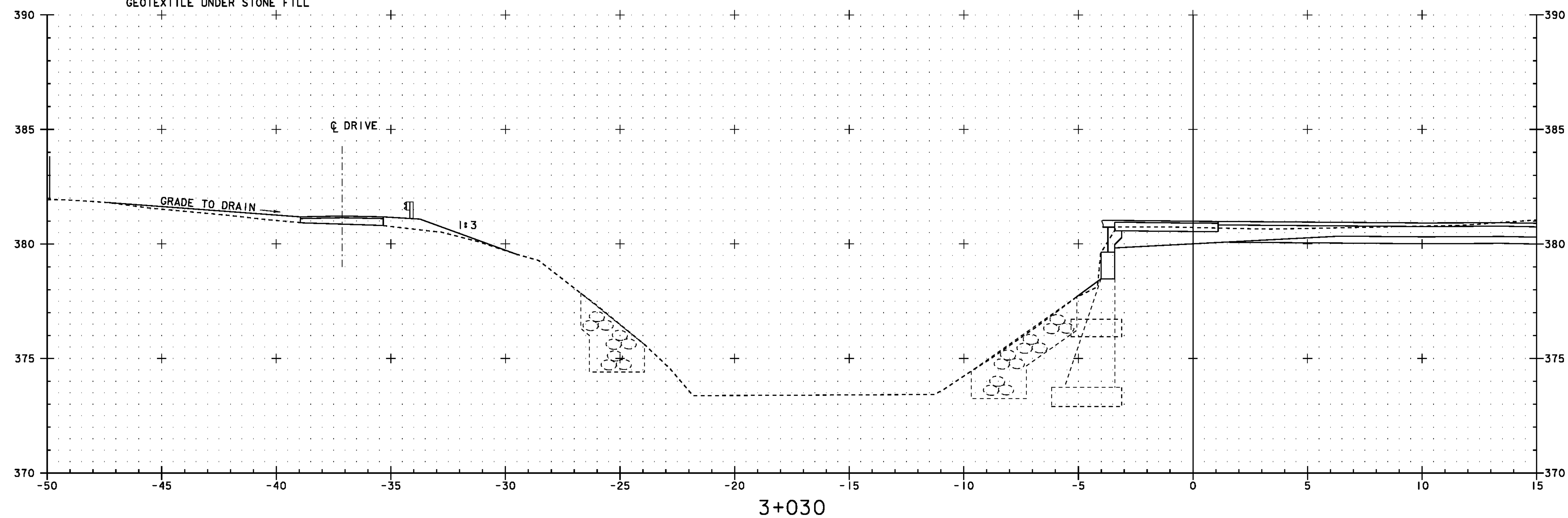
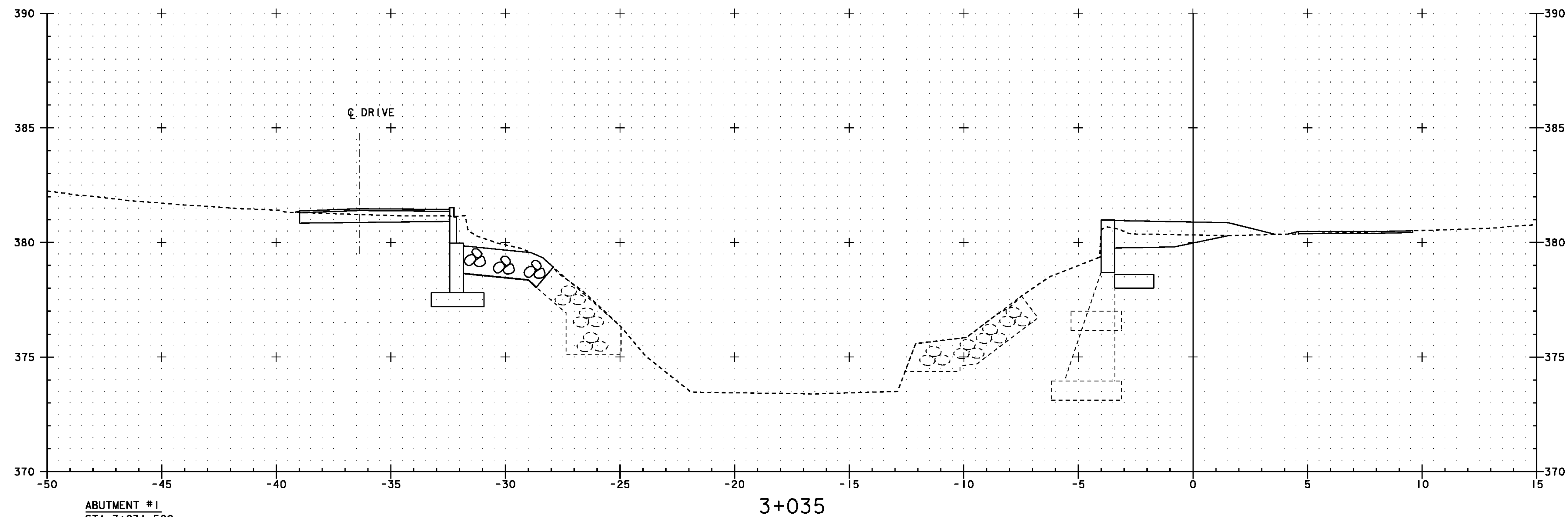
STA 3+010 TO STA 3+015

PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94\070\Structures\sj070xs.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070cx2.i	DRAWN BY: H.I.SALLS
DESIGNED BY: H.I.SALLS	CHECKED BY: E.L.RUSTAY
SQUAD LEADER: C.P.WILLIAMS	SHEET: 53 OF 60
CHANNEL CROSS SECTIONS I	



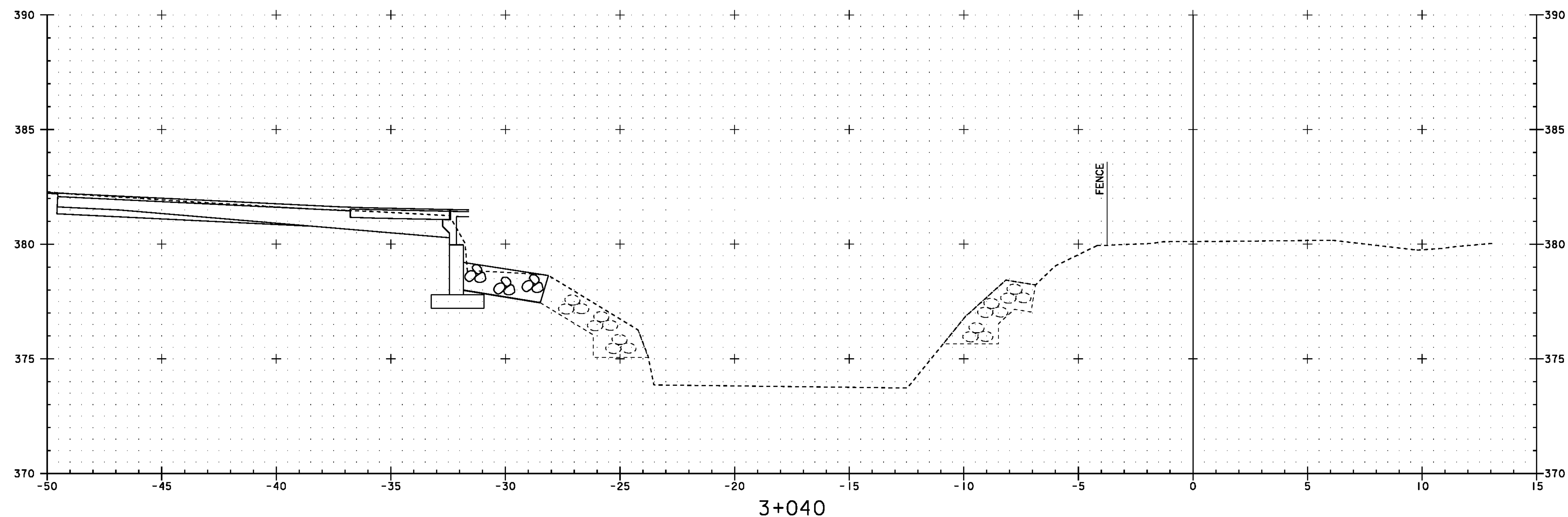
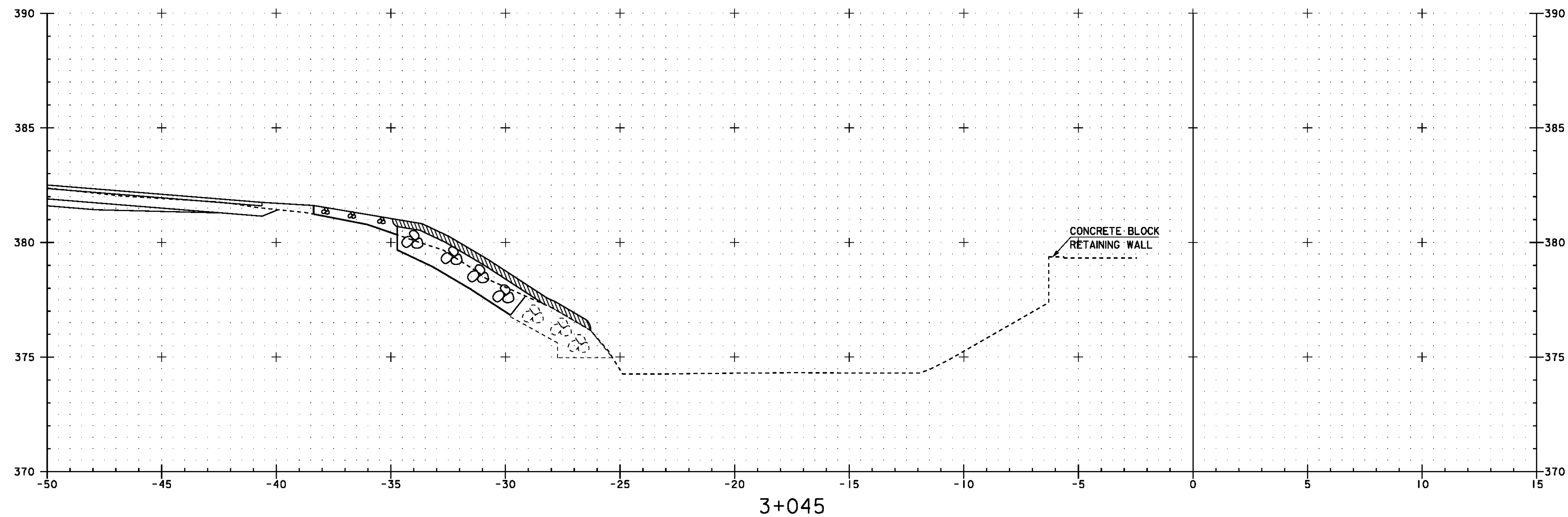
STA 3+020 TO STA 3+025

PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94\070\Structures\sj070xs.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070cx3.i	DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 54 OF 60
CHANNEL CROSS SECTIONS 2	



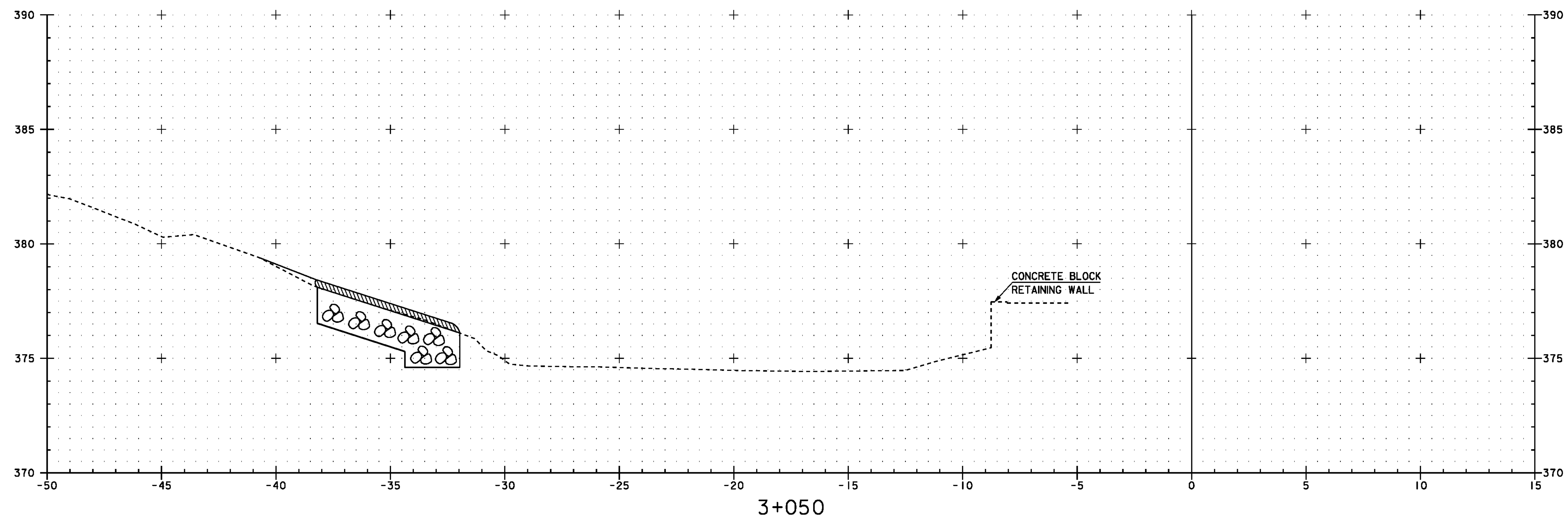
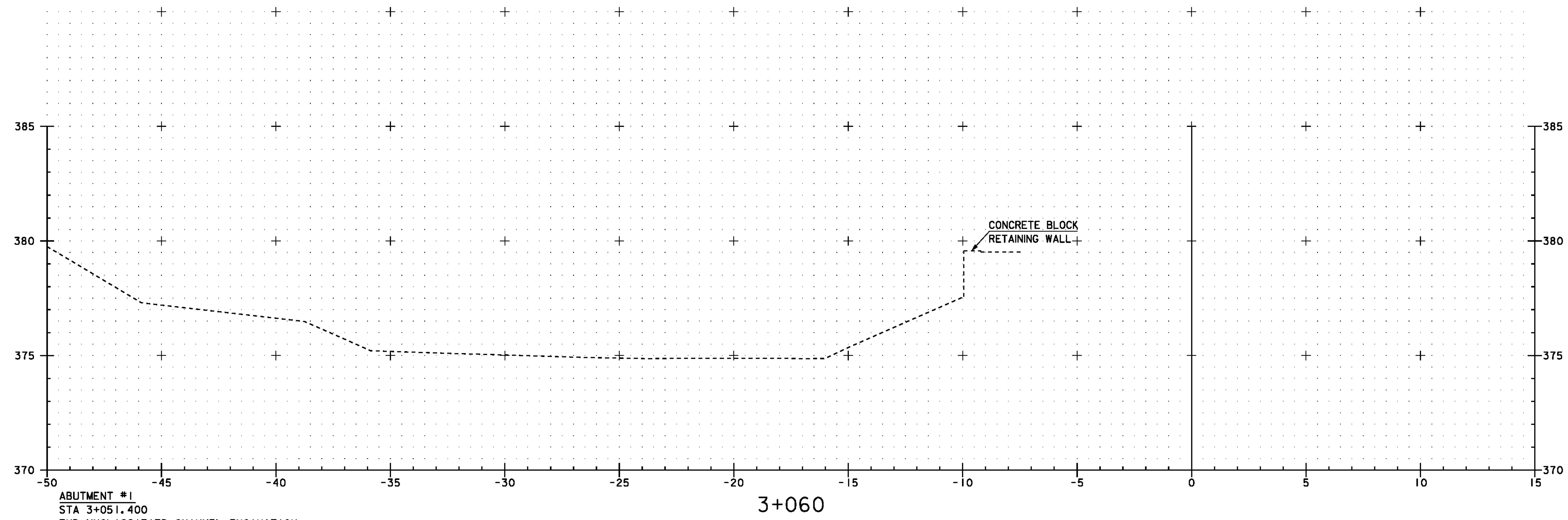
STA 3+030 TO STA 3+035

PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94\070\Structures\sj070xs.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070cx4.i	DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 55 OF 60
CHANNEL CROSS SECTIONS 3	



STA 3+040 TO STA 3+045

PROJECT:	READSBORO	PROJECT NO.:	BRO 1441 (25)
DESIGN FILE NAME:	94\070\Structures\sj070xs.dgn	PLOT DATE:	05-JAN-2010
IPARM FILE NAME:	sj070cx5.i	DRAWN BY:	H. I. SALLS
DESIGNED BY:	H. I. SALLS	CHECKED BY:	E. L. RUSTAY
SQUAD LEADER:	C. P. WILLIAMS	SHEET:	56 OF 60
CHANNEL CROSS SECTIONS:	4		



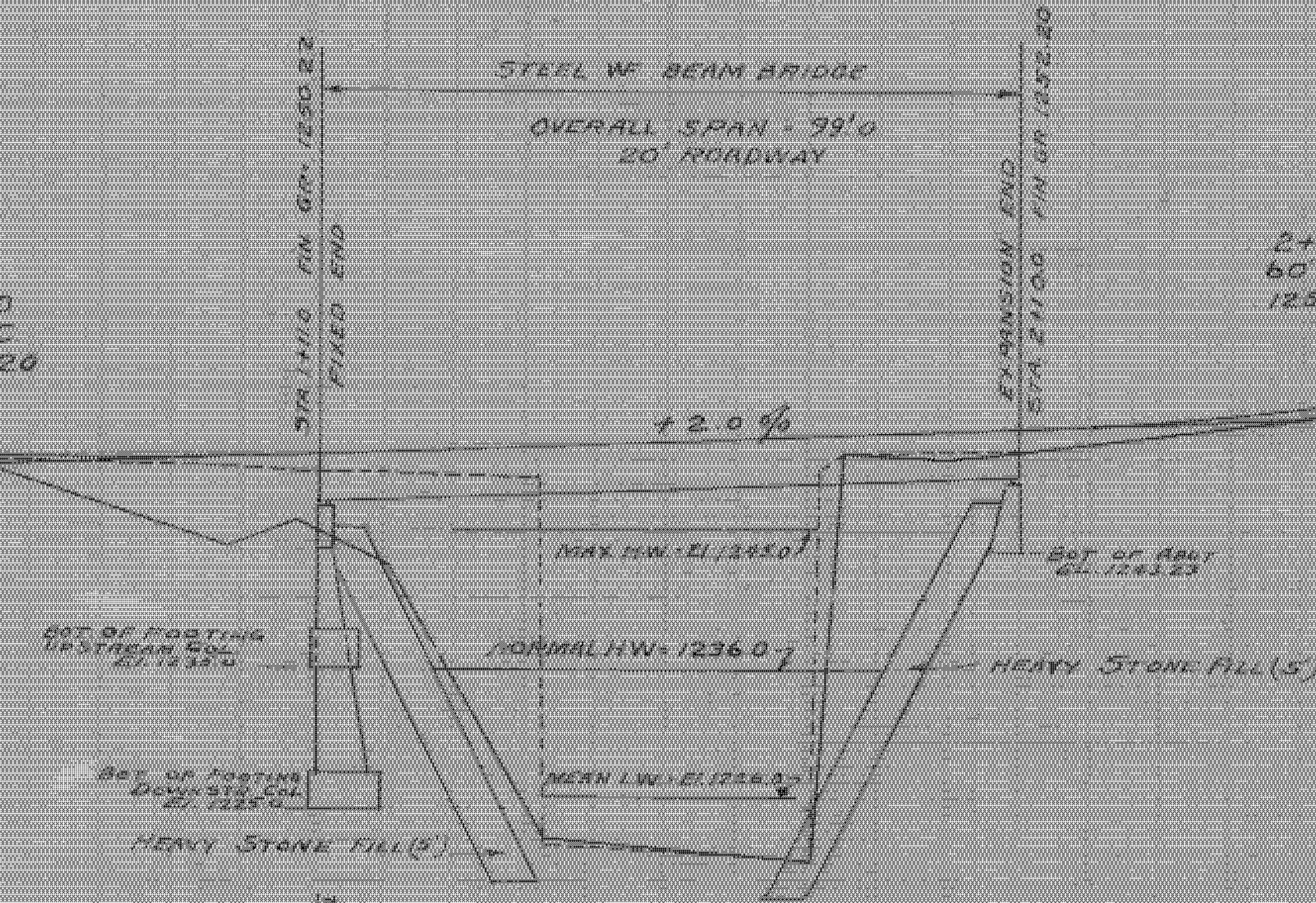
STA 3+050 TO STA 3+055

PROJECT: READSBORO	PROJECT NO.: BRO 1441 (25)
DESIGN FILE NAME: 94J070\Structures\sj070xs.dgn	PLOT DATE: 05-JAN-2010
IPARM FILE NAME: sj070cx6.i	DRAWN BY: H. I. SALLS
DESIGNED BY: H. I. SALLS	CHECKED BY: E. L. RUSTAY
SQUAD LEADER: C. P. WILLIAMS	SHEET: 57 OF 60
CHANNEL CROSS SECTIONS 5	

BRIDGE DATA		
	PRESENT	PROPOSED
TYPE	LT. ST. TRUSS	STEEL W. BEAM
OVERALL SPAN ALONG & OF ROAD	44'-0"	59'-0"
ROADWAY WIDTH, FACE TO FACE OF CURB	11'-4"	20'-0"
CLEAR SPAN ALONG & OF ROAD	35'-3"	34'-0"
CLEAR SPAN NORMAL TO STREAM	33'-3"	31'-9"
CLEAR HEIGHT TO LOW BRIDGE SEAT	22'-6"	24'-2"
WATERWAY (TO LOW BRIDGE SEAT)	880"	1550"
STREAM VELOCITY	SWIFT	SWIFT
DRIFT	MEDIUM	MEDIUM
SCOUR	HEAVY	HEAVY

ESTIMATED QUANTITIES		
ITEM	QUANTITY	UNIT
10-11 COMMON EXC. INC. BORROW	150	CY
12 TRENCH EXCAVATION	50	CY
15 CHANNEL EXCAVATION	1611	CY
16 STRUCTURE EXCAVATION	110	CY
22 GRAVEL SURFACE COURSE	192	CY
41A CONCRETE, CLASS "A"	88	CY
41B " " "B"	19	CY
42 REINFORCING STEEL	15486	LBS.
43B STEEL SUPERSTRUCTURE (22693 ⁰⁰) PAINTING & ERECTING ONLY	1	LS.
45 CEMENT RUBBLE MASONRY	3	CY
52E 18" CORR. GALV. METAL PIPE, A.C.	64	LF.
57 REMOVAL OF PRESENT SUPERSTR.	1	LS.
69A HEAVY STONE FILL	1273	CY
80A CABLE GUARD RAIL	368	LF.
80B ANCHORS FOR CABLE GUARD RAIL	8	EA.

Dispose of excess excavation
as directed by engineer.

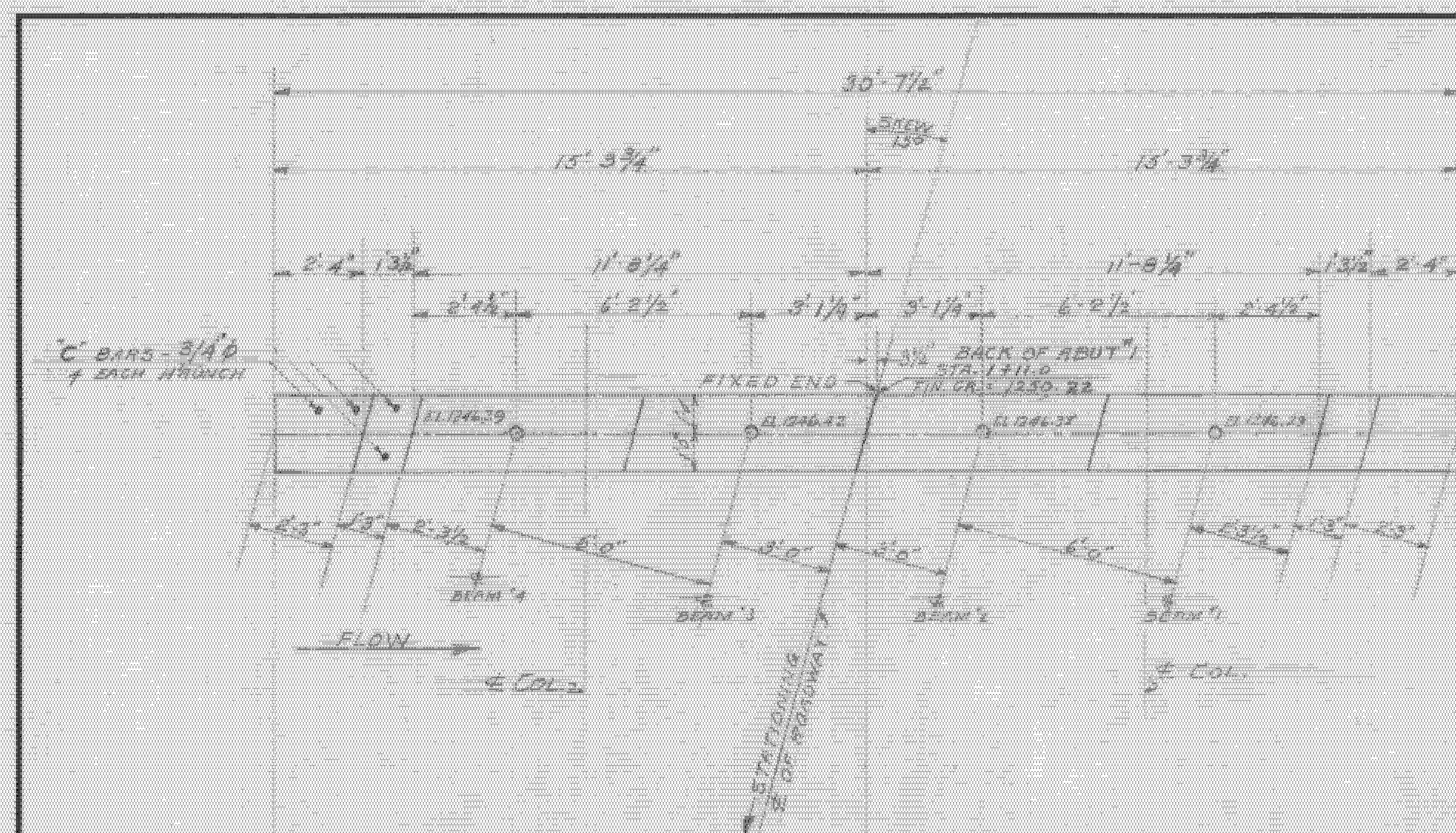


LIST OF SHEETS		
SHEET 1 OF 12	PLAN & PROFILE	
" 2 " 12	DETAILS OF ABUTMENT NO. 1	
" 3 " 12	" " " " NO. 2	
" 4 " 12	DWG. CE-20-5. DETAILS OF SUPER-STRUCTURE	
" 5 " 12	DWG. S-28. STANDARD STRUCTURES	
" 6 " 12	DWG. S-30. CABLE GUARD RAIL & ANCHORS	
" 7 " 12	DWG. SA-11. SIGNS, LIGHTS & BARRICADES	
" 8-12 " 12	SECTIONS	

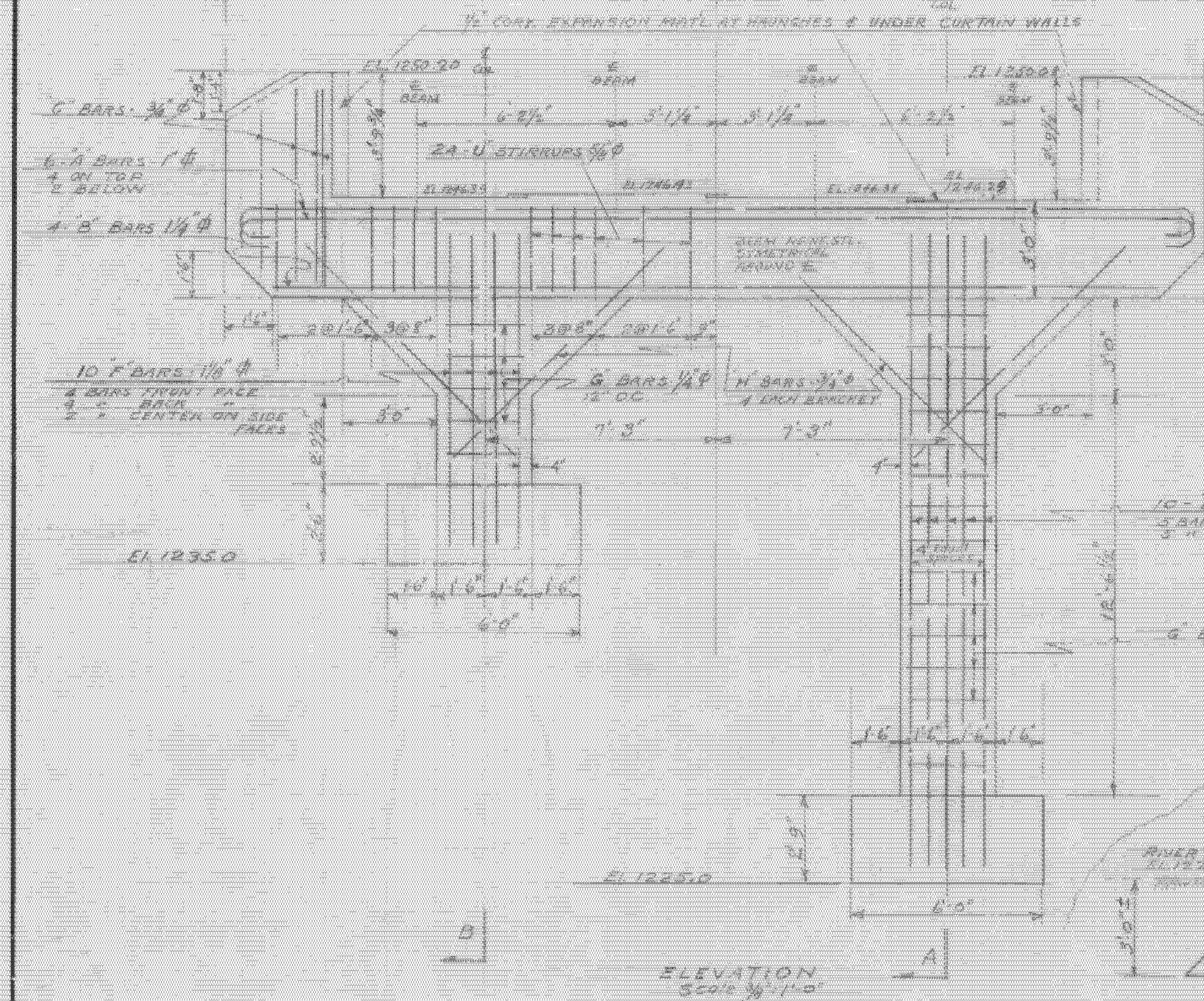
CHAIR SHOP BRIDGE
READSBORO VT.
SA 37 1948

READSBORO
BRO 1441(25)
REFERENCE PLANS
SHEET 58 OF 60

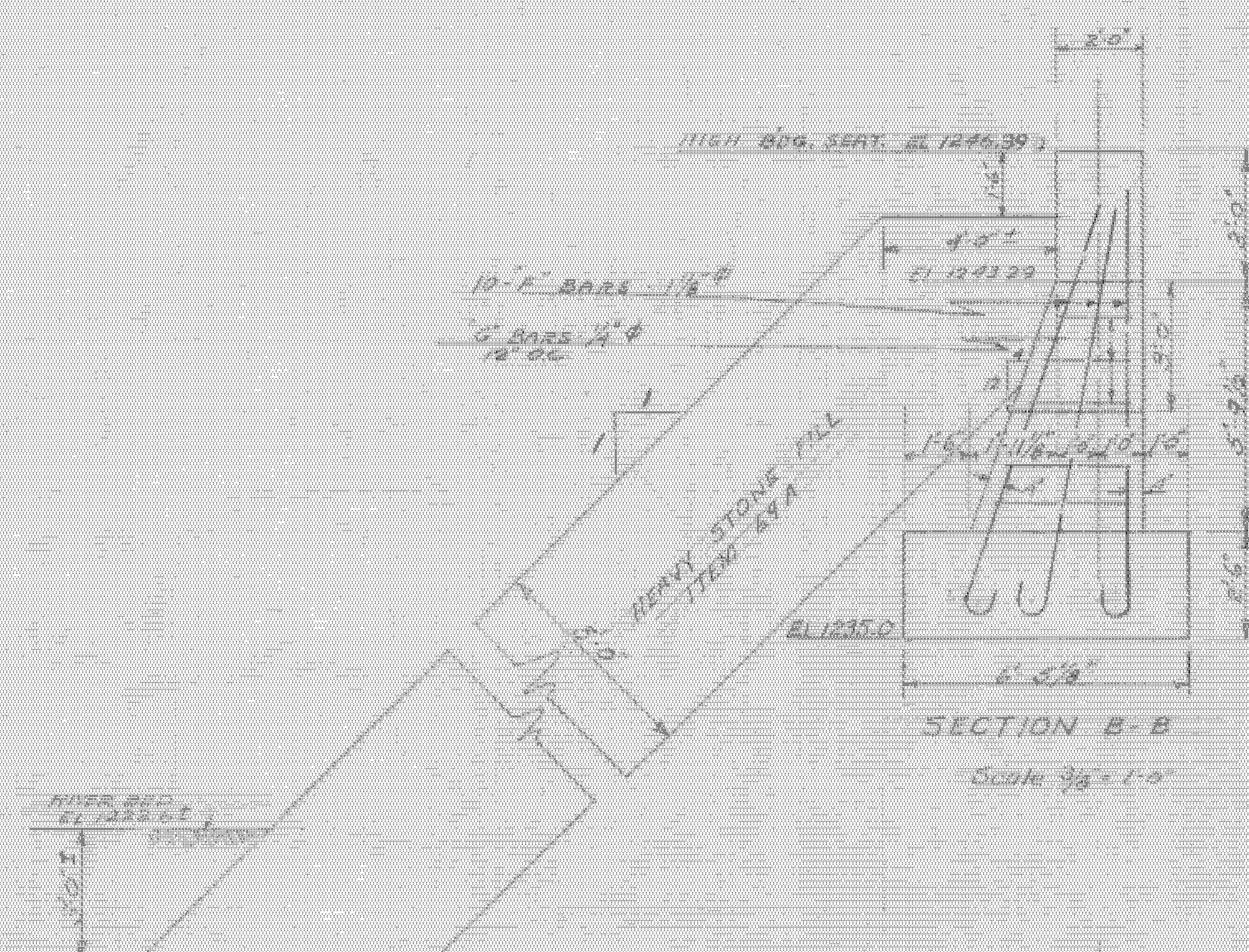
Approved Aug. 2, 1948
Sam S. Pelaw
District Highway Commissioner 1970
Correct
Adolf Zinlof
Bridge Engineer 1260
Approved Aug. 5, 1948
W.E. Sargent
Commissioner of Highways 1250



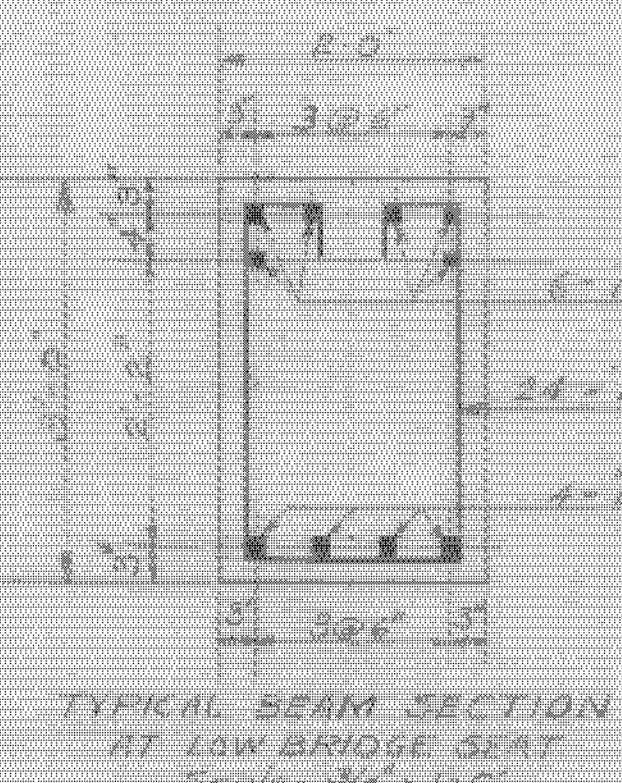
PLAN
Scale 3/8" = 1'-0"



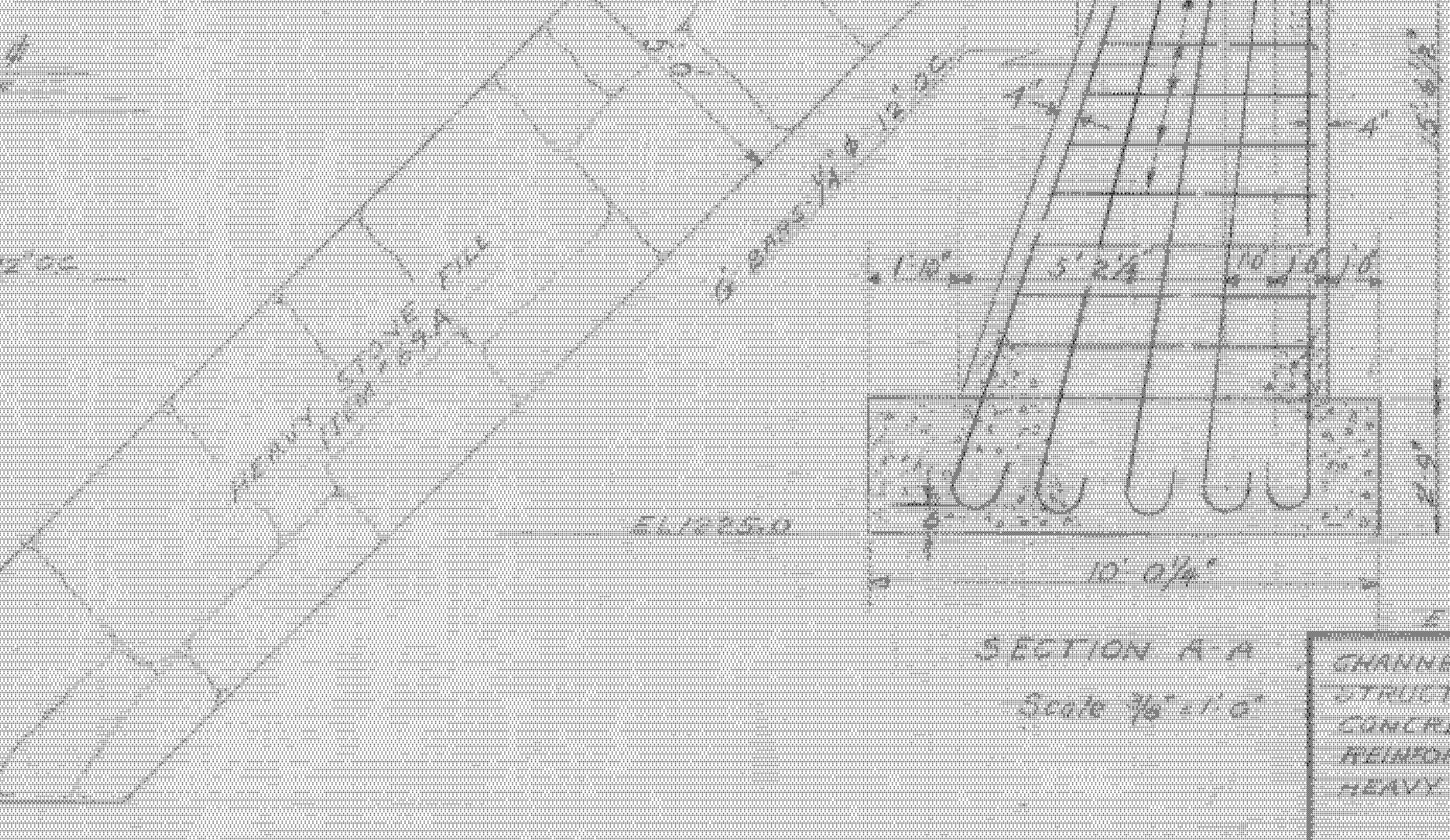
ELEVATION
Scale 3/8" = 1'-0"



SECTION B-B
Scale 3/8" = 1'-0"



TYPICAL BEAM SECTION
AT LOW BRIDGE SEAT
Scale 3/8" = 1'-0"



SECTION A-A
Scale 3/8" = 1'-0"

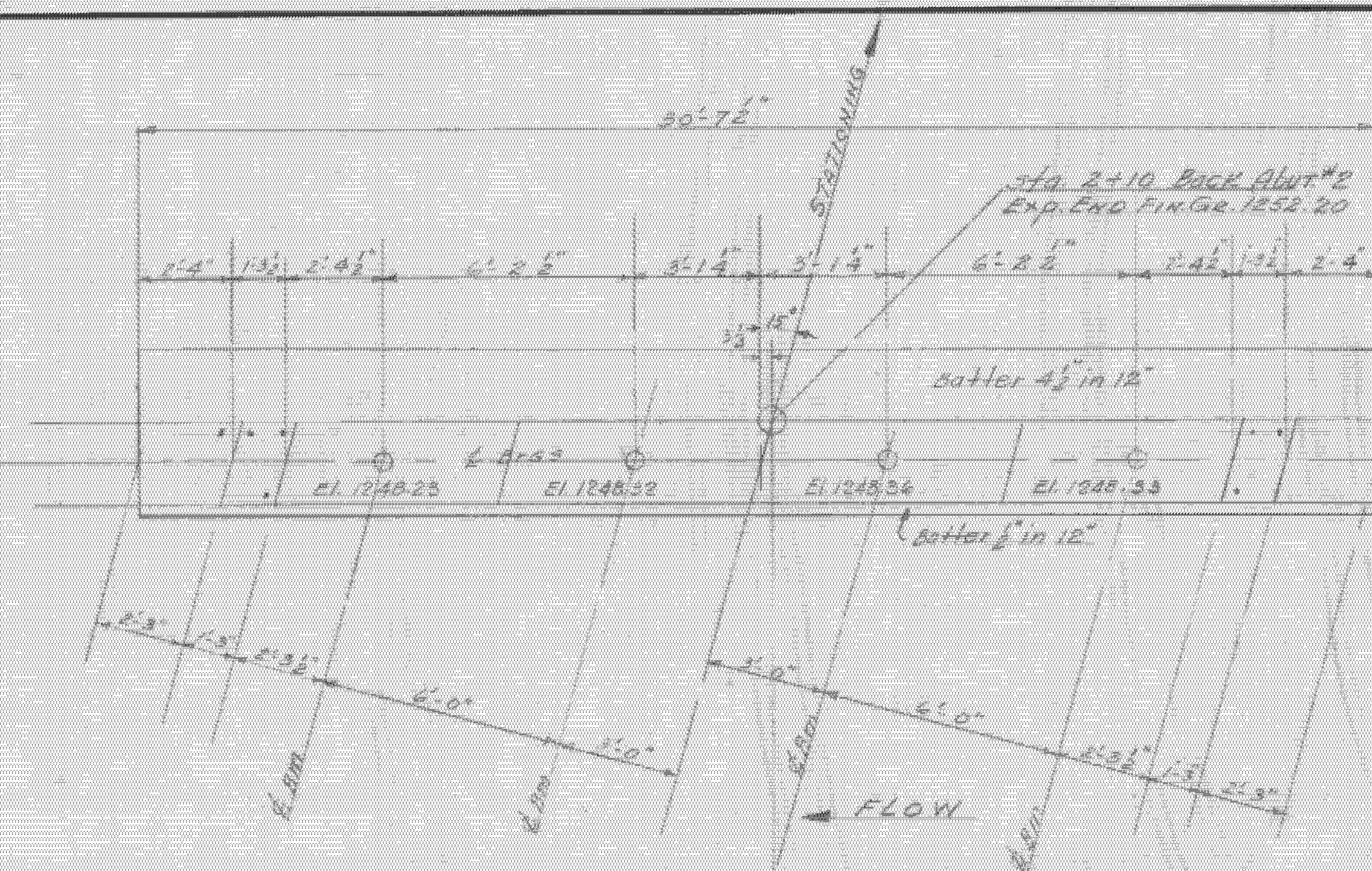
REINFORCING STEEL SCHEDULE				
BAR SIZE	NO.	TOTAL LENGTH	X	DETAIL
A	1"	6	32'-6"	20'-0" 5'-0" R
B	1 1/2"	4	21'-5"	STRAIGHT
C	3/4"	8	5'-6"	STRAIGHT
D	1 1/2"	10	21'-1"	19'-4" 5'-0" R 2'-0" R
E	1 1/2"	6	13'-9"	12'-0" 5'-0" R 2'-0" R
F	1 1/2"	10	11'-3"	5'-0" R 2'-0" R
G	3/4"	20	AVERAGE LENGTH 13'-4"	STRAIGHT- BEND IN FIELD
H	3/4"	12	9'-6"	STRAIGHT

NOTES:
ALL REINFORCING STEEL TO BE INTERMEDIATE GRADE.
REINFT. STL. DIMENSIONS TO CENTER OF BARS.
ALL CONCRETE SHOWN ON THIS SHEET TO BE 17.5% CHAMPES ALL EXPOSED JOINTS & EDGES TO BE FINISHED QUAL. BE ROURED AFTER SUPER-STRUCTURE IS COVERED.
FOR SUPERSTRUCTURE USE STD. DWG. CI. 20-5 FOR 22'-0" OVERALL SPAN.

DE Abut Z IT N°1
CF RIDGE T.
READSBORO BRO 1441(25) REFERENCE PLANS SHEET 59 OF 60

ESTIMATED QUANTITIES	
CHANNEL EXCAV.	871.21
STRUCTURE	65.51
CONCRETE, CLASS A	39.65
REINFORCING STEEL	3220.85
HEAVY STONE FILL	646.67

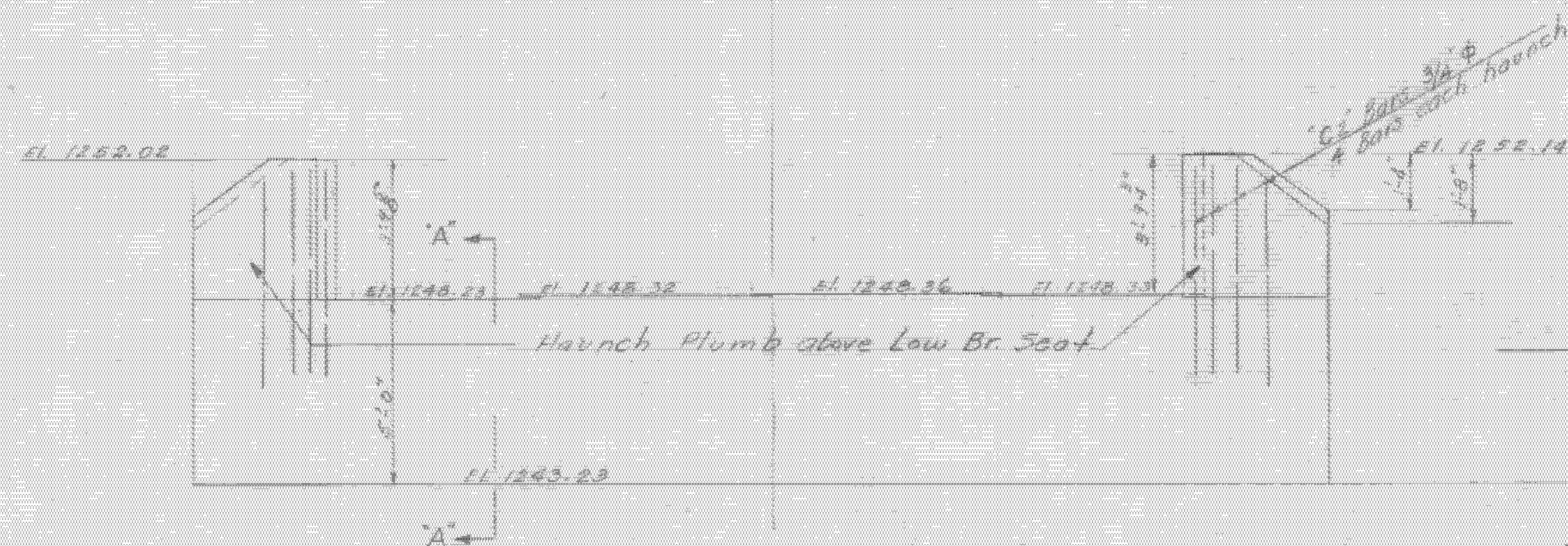
Surveyed by
Designed by
Drawn by SN
Traced by
Checked by
Series 5A No. 52/1948
Sheet 2 of 12 Sheets



PLAN OF ABUT #2

Ce. Bars $\frac{3}{4}$ " - 5'-6" Long - 3 Req.

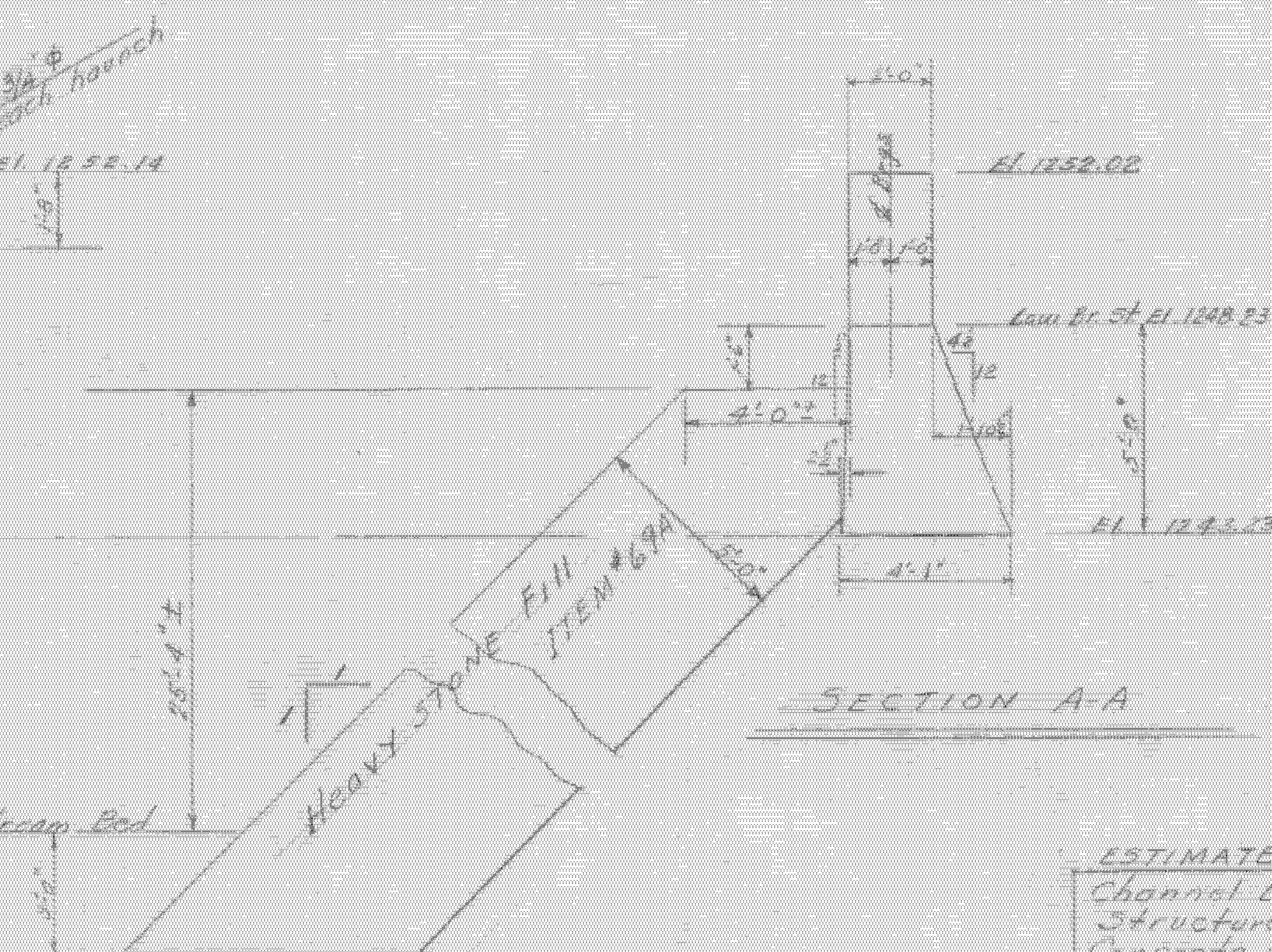
NOTE: This drawing to be used with
CL 20.5 - 99'0" span.
Chamfer all exposed edges $\frac{1}{2}$ "
Haunches shall be poured after Super-
structure is placed.
All Concrete to be Class "B"



ELEVATION OF ABUT #2

ABUT #2 To BE CONCRETE CLASS "B"

EL 1221.4 Stream Bed



SECTION A-A

DETAIL
CHAI
R

Abut 1 2
06E

READSBORO
BRO 1441(25)
REFERENCE PLANS
SHEET 60 OF 60

ESTIMATED QUANTITIES

Channel Excav.	800
Structure Excav.	450
Concrete Class-B	1900
Reinforcing Steel	6840
Heavy Stone Fill	62760

Surveyed by
Designed by
Drawn by H.E.C.
Traced by
Checked by J.L.H.
Series GA, No. 37-1948
Sheet 3 of 12 Sheets



~~61~~ BRIDGE
BEARING

State of Vermont
PDD/Structures Design Section
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

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

June 22, 2010

Amscot Structural Products Corp.
241 E. Blackwell St.
Dover, NJ 07801

Re: Readsboro BRO 1441(25) TH 3, Bridge 31

The following bearing details [Item #531.10, Bearing Device Assembly, Preformed Fabric Pad] as well as welding and bonding procedures for the above project (Job No. 3426) that were received in this office on 6/2/10, have been reviewed and are being returned herewith.

All drawings are Approved as noted. Please see comments in blue on the attached plans. The bonding/welding procedures are Approved.

You must provide written notice to this office as to the date fabrication represented by these drawings will begin. That notice must be received at least seven days prior to that date, as per Specification 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Christopher P. Williams, P.E.
Structures Project Manager

Attachments

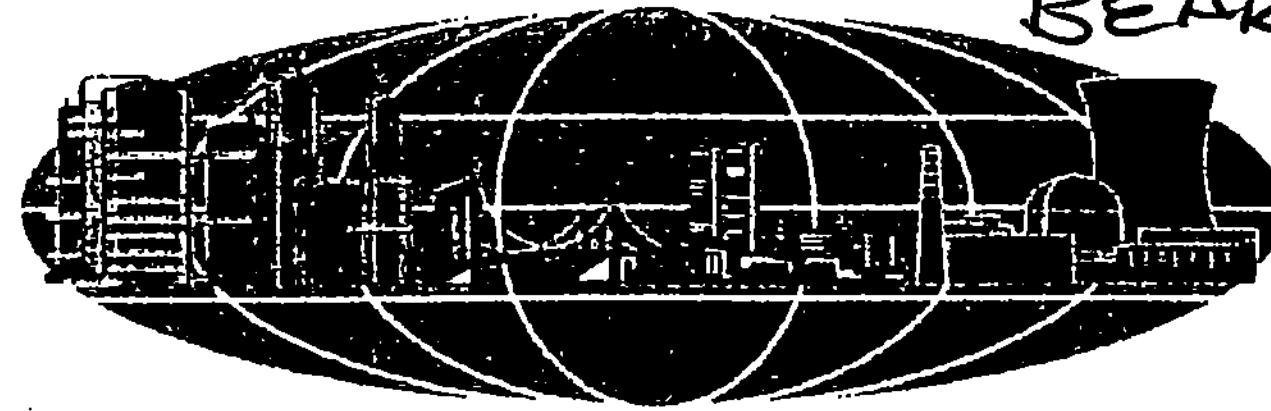
cc: ☒ Resident Engineer – Eric Foster
☒ Shop Inspector – Jeff Clark
☒ Contractor – Cold River Bridges
☒ Materials & Research (C&IA Unit) - letter only
☒ Construction Division - letter only
☒ Files (CPW)





A World of Structural Bearings
and Custom Fabricated Metal Components.

241 E. Blackwell Street
Dover, NJ 07801



62 BRIDGE
BEARING

**AMSCOT STRUCTURAL PRODUCTS – PREFORMED FABRIC PAD TO PTFE
BOND PROCEDURE**

RECEIVED

CK'D BY _____ OK'D BY _____

FACTORY BOND PROCEDURE:

JUN , 2 2010

Material preparation procedure as follows:

RESUBMIT _____ APPROVED ☒
BY CAN DATE 6/22/10

1. Preformed fabric reinforced elastomeric pad (90 ± 5 Shore A Durometer)- bond surface to be roughened by scoring full surface area with wire brush.
2. Substrate sheet to be either 1/16" phenolic sheet and shall be prepped by abrading both surfaces or 18 gauge steel sheet and shall be prepped by sand blasting both surfaces to a SSPC-SP10 classification.
3. All foreign materials to be removed from PTFE sheet, Substrate sheet (18 gauge steel and or Phenolic sheet), and Fabric Pad bonding surfaces.
4. Two part epoxy bond adhesive material; Armstrong style no. A-271 parts A and B shall be thoroughly mixed together as per manufactures mix ratio.
5. Mixed epoxy shall be applied with trowel providing uniformity of epoxy on all bonding surface areas.
6. PTFE (Polytetrafluorethylene)-(virgin, not reprocessed) shall be placed etched face surface with the applied epoxy coating against prepared substrate sheet. Epoxy coated substrate sheet opposite face shall be placed against preformed fabric pad material.
7. The fabric pad with substrate & PTFE shall be placed into hydraulic heated press for a duration of 15-20 minutes @ 180° F to allow proper cure time of epoxy material. (Longer time periods required when material pad thickness exceeds 1" thick).
8. Preformed reinforced Bearing pad bonded to PTFE shall be allowed to cool for 60 minutes before handling.
9. Excess PTFE shall be removed from perimeter of pad. Pad shall be sanded smooth on all sides.
10. Finished Preformed fabric bearing pad w/PTFE to be inspected by Q/C personnel prior to packaging for shipment.

Recommended storage procedures: PTFE materials shall be kept covered from direct UV light exposure for any long periods of time.

"The Quality of the Past, The Innovation of the Future."

241 E. Blackwell Street, Dover, NJ 07801 • Tel: 973-989-8800 Fax: 973-989-5651

WELDING PROCEDURE SPECIFICATION ☒
OR
PROCEDURE QUALIFICATION RECORD ☐

63 BRIDGE
BEARING

Specification No.: 57948

Customer: Standard Fusion of T-304 to CS Backing Plate Customer P.O.#: _____

Base Metals: _____ P-NO.: 8 Group NO.: _____ to P-NO.: 1 Group NO.: 1

Material Specification Type & Grade: T-304 S.S. to Carbon Steel Backing Plate

Welding Process: G.T.A.W. 1/2" dia. nozzle w/gas lens

Manual or Machine: Manual

Position of Welding: 1G Flat

Filler Metal Specification: N/A

Filler Metal Classification: N/A

Shielding Gas: Argon 20-30 cfh

Single or Multiple Pass: Single

Single or Multiple Arc: Single

Welding Current: Direct

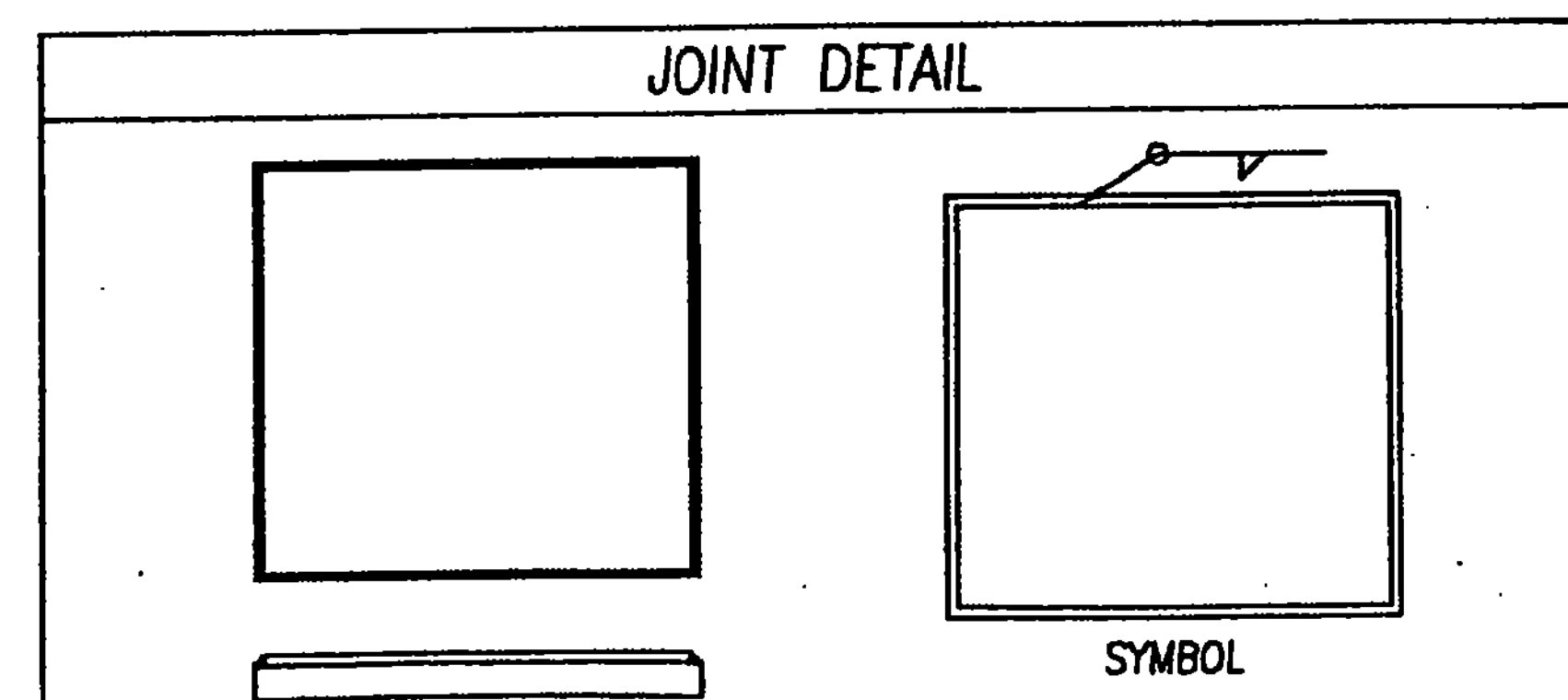
Polarity: Straight

Root Treatment: Remove all oil, grease, scale etc. on weld preparation face and adjacent plate surface

Preheat and Interpass Temp: N/A

Post weld Heat Treatment: N/A

Filler Metal			Pass No.	Process	Welding Current		Fillet Size
Class	Dia.	F No.			Amperes	Voltage	
N/A	N/A		1	G.T.A.W.	100-170	19-23	Fuse Materials



Manufacturer: Amscot Structural Products Authorized By: _____

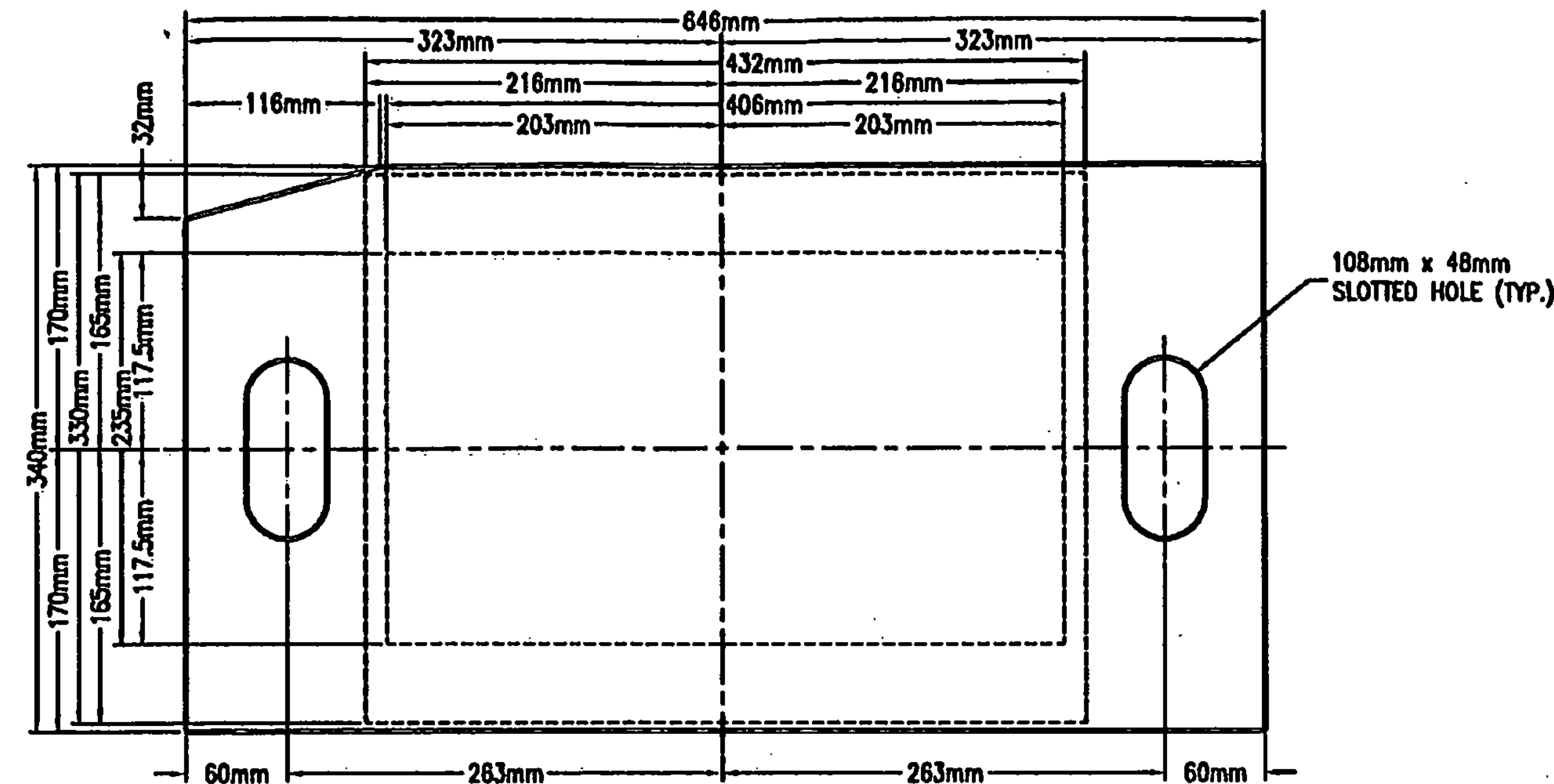
Date: _____

REVISIONS			
ZONE	REV	DESCRIPTION	DATE

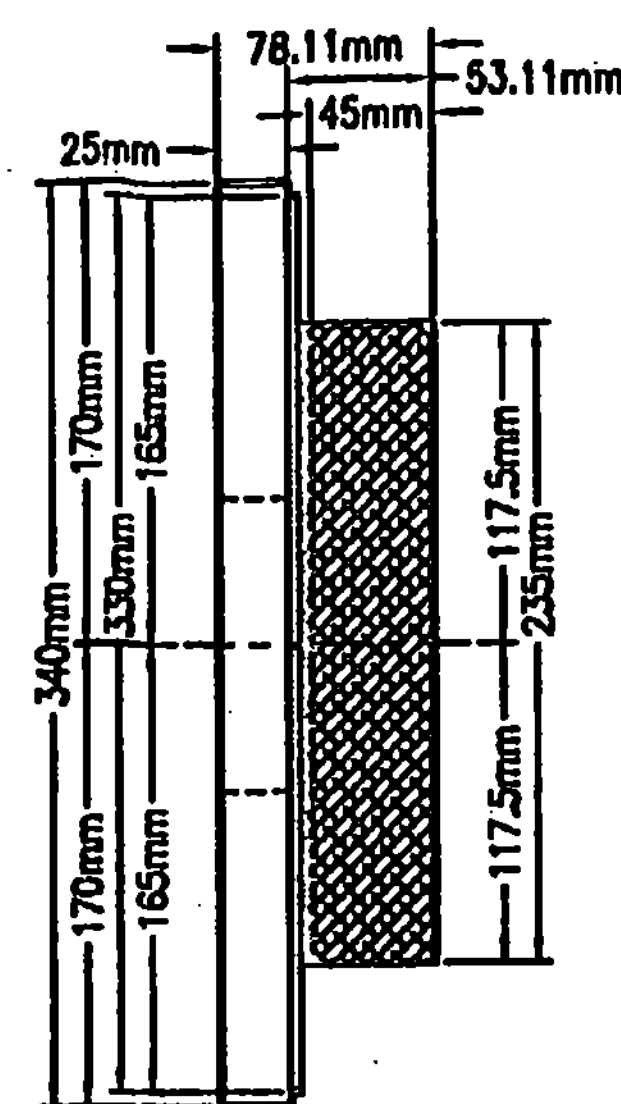
64-BRIDGE BEARING

NOTES:

- BEARINGS TO BE MANUFACTURED ACCORDING TO AREMA PART-II, CHPT. 15: ASHTO Standard Specifications for Highway Bridges, 17th Edition, 2002.
- THE BEARINGS ARE DESIGNED SO THAT THE SUPERSTRUCTURE MAY BE ERECTED WHEN THE AMBIENT AIR TEMPERATURE IS WITHIN THE RANGE OF 39.2°F. TO 89.6°F.
- ALL STEEL IN BEARINGS (EXCEPT FOR STAINLESS STEEL) SHALL BE ASHTO M270 M/M 270 GRADE 345.
- ANCHOR BOLTS SHALL CONFORM TO ASTM F568 CLASS 4.8.
- STAINLESS STEEL SHALL BE ASTM A240 TYPE 304 W/ 2B-POLISHED-FINISH. ~~THE CONTACT FINISH SHALL BE LESS THAN 0.15 MICROMETERS RMS PER AIAA AND VTI'S SPEC. 431.05~~
- ALL STEEL PRODUCED IN THE U.S.A.
- CONTACT PETER SOMOGYI, COORDINATOR.
- TOLERANCES: THICKNESS -0+1.6mm
PLAN -0+1.6mm
- MANUFACTURING FACILITY LOCATION:
AMSCOT STRUCTURAL PRODUCTS, INC.
241 EAST BLACKWELL STREET
DOVER, NJ 07801
- ALL DIMENSIONS ARE IN MILLIMETERS.
- ALL BEARING DEVICES SHALL BE GALVANIZED AS PER STANDARD SPECIFICATIONS 508.15 AND 531.04(b), AS MODIFIED BY THE GENERAL SPECIAL PROVISIONS.
- ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED.
- PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC. SHALL BE GROUNDED TO A 1/16" RADIUS (TYP).
- THE SURFACE FINISH OF THE CONTACT (SLIDING) FACE OF THE STAINLESS STEEL SHALL HAVE 2B-POLISHED-FINISH. ~~THE CONTACT FINISH SHALL BE LESS THAN 0.15 MICROMETERS RMS PER AIAA AND VTI'S SPEC. 431.05~~
- THREADS OF ANCHOR BOLTS SHALL BE BURRED OFF AT FACE WITH A POINTED TOOL AFTER ASSEMBLY. BURRED AREAS SHALL BE TOUCHED UP WITH AN APPROVED ZINC RICH PAINT.

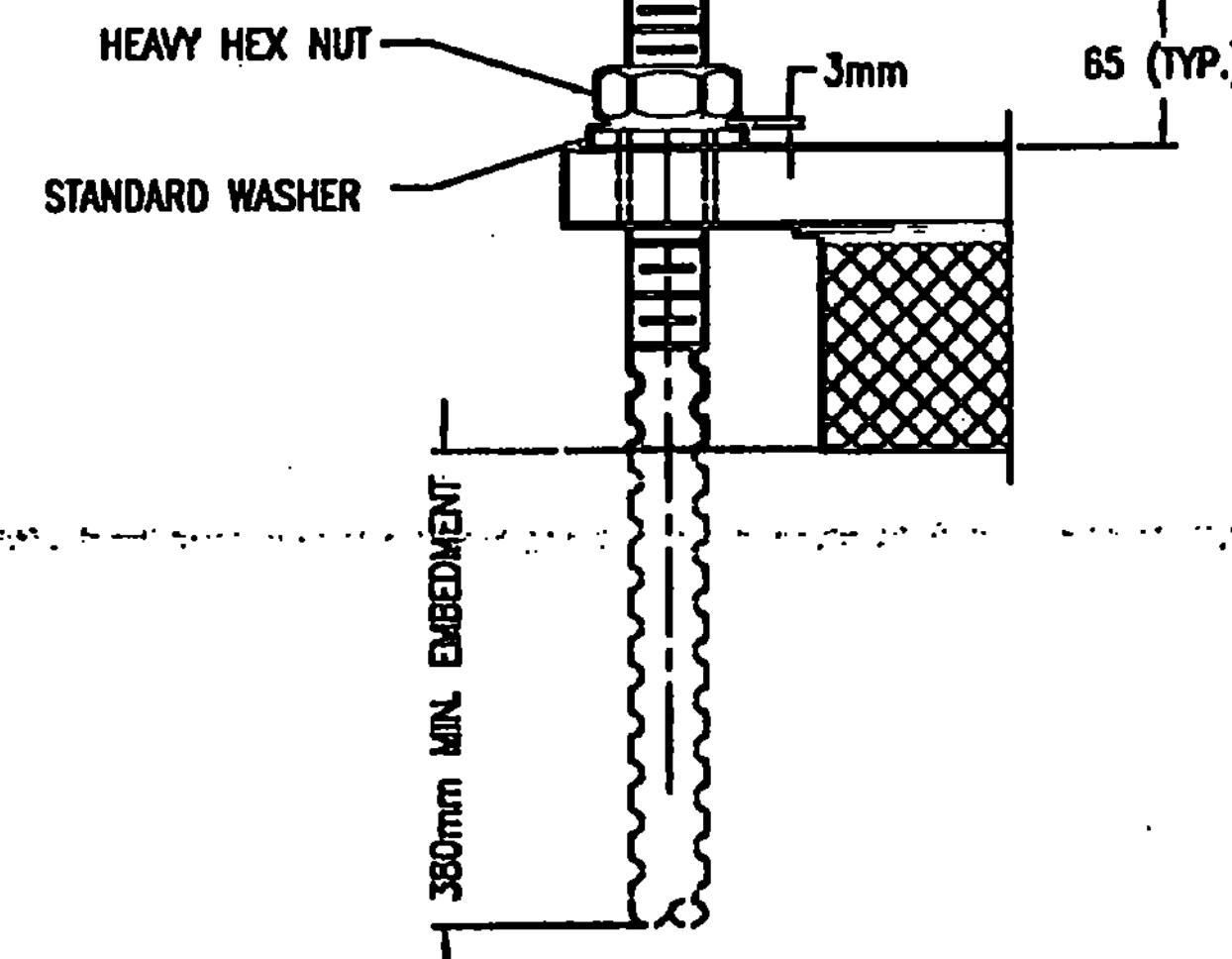


PLAN VIEW



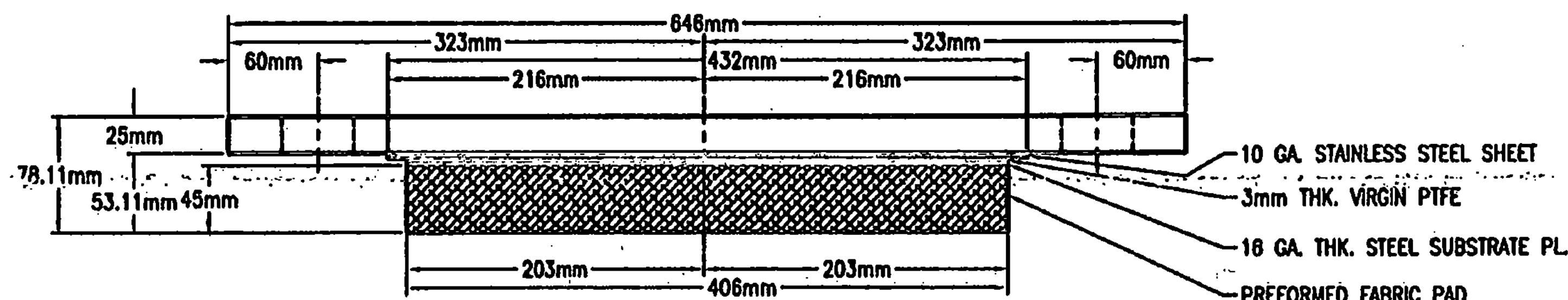
SIDE VIEW

M380 x 600 SWEDGED ANCHOR BOLT W/ 100mm OF THREAD. THREADS SHALL BE BURRED TO PREVENT NUT REMOVAL.



ANCHOR BOLT DETAIL

QTY REQ'D = 16 ASSY.



ELEVATION VIEW

QTY REQ'D = 4 ASSY.
ABUTMENT NO. 1

RECEIVED

CH'D BY: HLT OK'D BY: DD13

JUN 02 2010

RESUBMIT APPROVED As Noted
BY opw DATE 6/22/10

VERMONT AGENCY OF TRANSPORTATION
TOWN OF READSBORO
VTR BRIDGE NO. 31 OVER DEERFIELD RIVER
PROJECT NO. BR1441 (25)

EXPANSION PREFORMED FABRIC
BEARING DETAIL

AMSCOT

STRUCTURAL PRODUCTS CORP.
DOVER, NJ

JOB # 3426

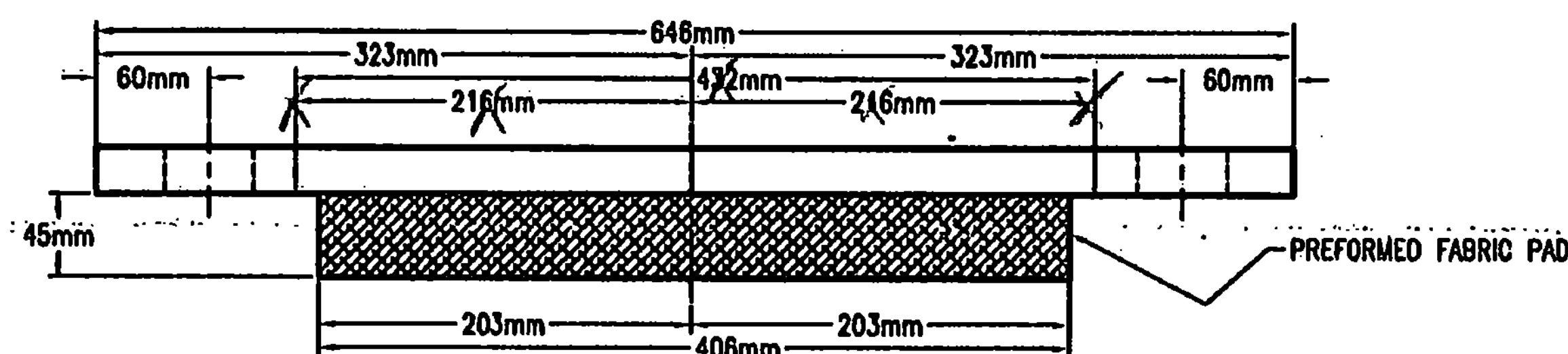
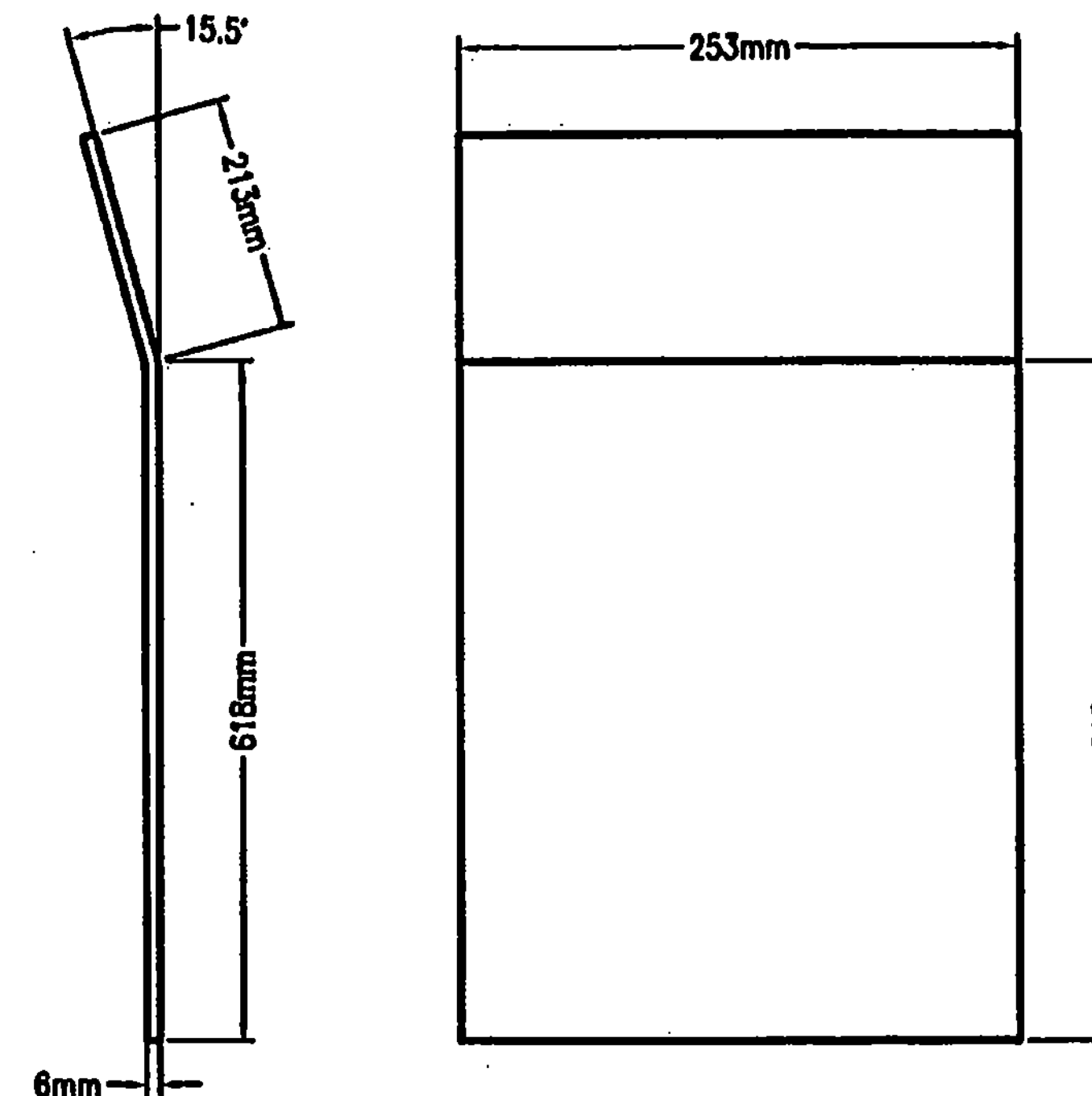
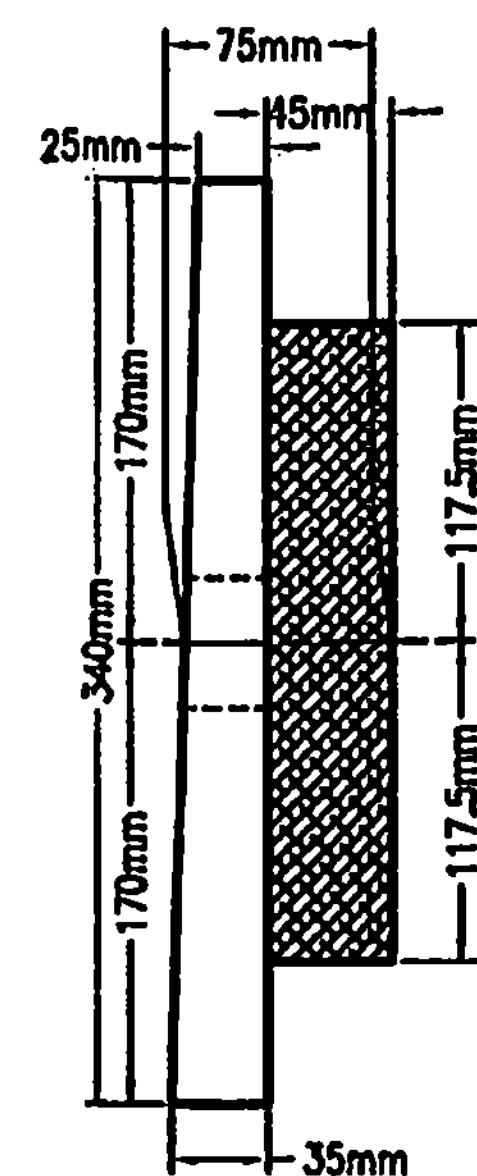
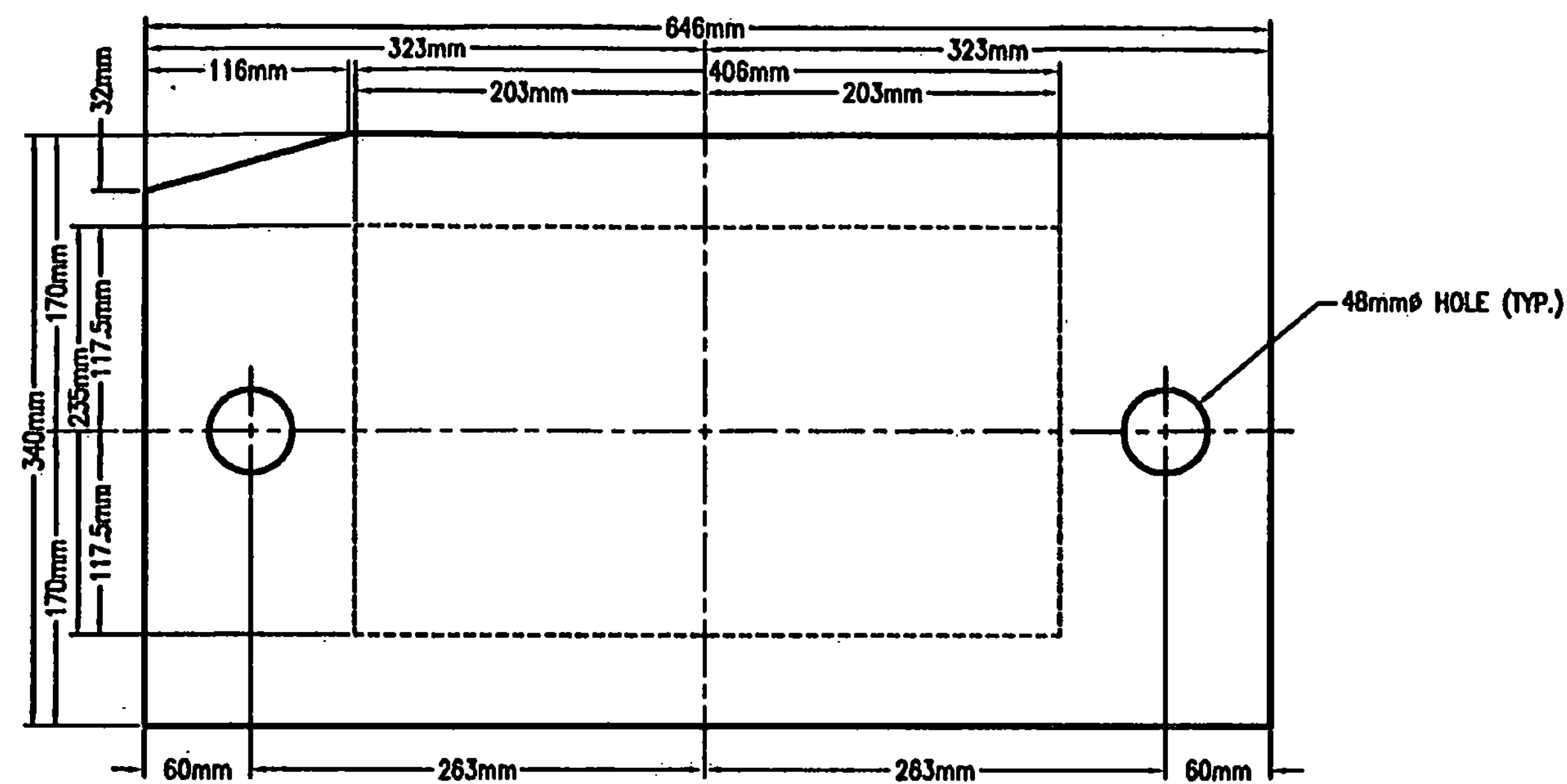
SCALE: N.T.S. APPR'D: B.F. DRAWN BY: C.A.M.
DATE: 4/30/10 REVISION: 0

FOR: COLD RIVER BRIDGE, LLC

DWG NO: CRB10A1R0 SHEET NO. 1 OF 2

REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	

65- BRIDGE BEARING



RECEIVED
 OK'D BY 1115 OK'D BY DDT3
 JUN 02 2010
 RESUBMIT As Noted APPROVED As Noted
 BY CPW DATE 6/22/10

VERMONT AGENCY OF TRANSPORTATION TOWN OF READSBORO VTR BRIDGE NO. 31 OVER DEERFIELD RIVER PROJECT NO. BR1441 (25)		
FIXED PREFORMED FABRIC BEARING DETAIL		
AMSCOT STRUCTURAL PRODUCTS CORP. DOVER, NJ JOB # 3426		
SCALE: N.T.S.	APPRVD: B.F.	DRAWN BY: C.A.M.
DATE: 4/30/10	REVISION: 0	
FOR: COLD RIVER BRIDGE, LLC		
DWG NO: CRB10A2RO	SHEET NO. 2 OF 2	

66 - STRUCTURAL
STEEL



State of Vermont
PDD/Structures Design Section
One National Life Drive
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

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

July 1, 2010

Casco Bay Steel Structures, Inc.
75 Spring Hill road
Saco, Maine 04072

Re: Readsboro BRO 1441(25) TH 3, Bridge 31

The following Structural Steel details [Item #506.55, Structural Steel, Plate Girder] for the above project (Vendor's Job #445) received in this office on 6/28/10 have been reviewed and are being returned herewith.

All sheets and weld procedures are Approved.

You must provide written notice to this office as to the date fabrication represented by these drawings will begin. That notice must be received at least seven days prior to that date, as per Specification 506.03. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Christopher P. Williams, P.E.
Structures Project Manager

Attachments

cc: ☒ Resident Engineer Eric Foster
☒ Shop Inspector - Jeff Clark
☒ Contractor - Cold River Bridges
☒ Materials & Research (C&IA Unit) - letter only
☒ Construction Division - letter only
☒ Files (CPW)



Casco Bay Steel Structures, Inc. **67 STRUCTURAL STEEL** WELDING PROCEDURE SPECIFICATION

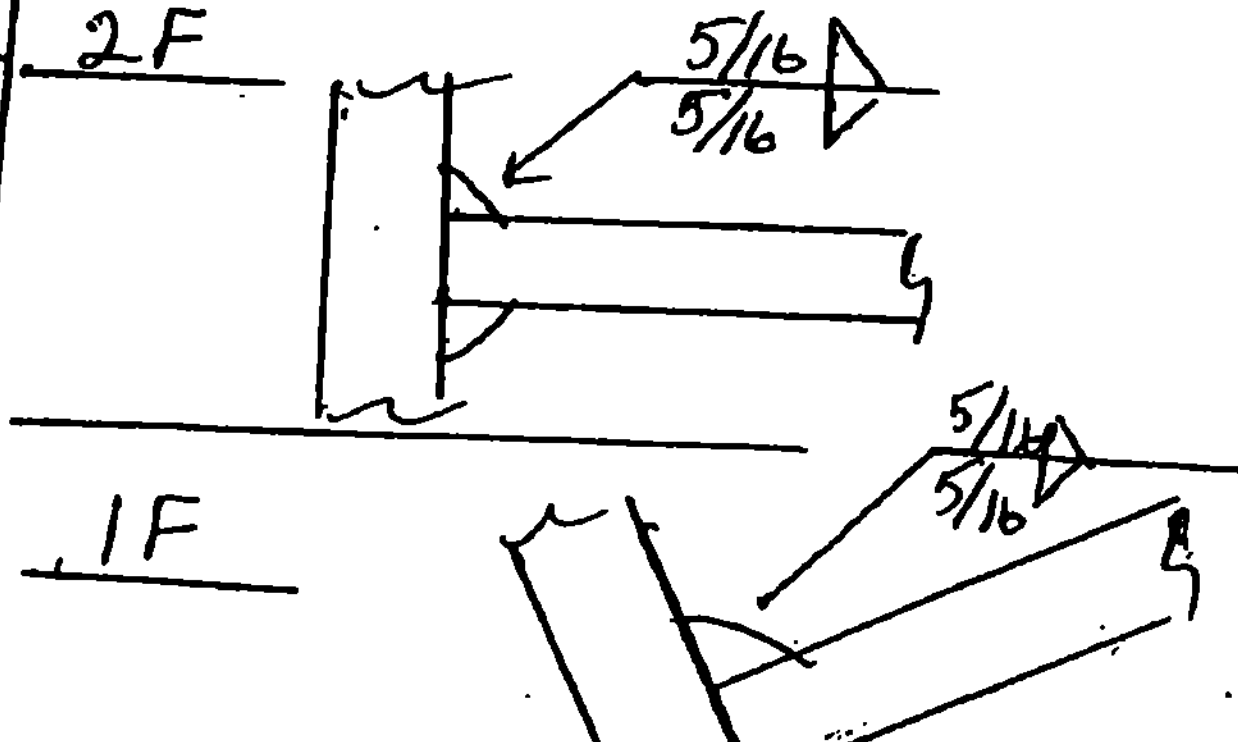
Material specification ASTM A 709 - Gr 36-50-50W
Welding process Submerged Arc Welding
Manual or machine Machine
Position of welding Flat + Horizontal
Filler metal specification A5-23
Filler metal classification E802-ENIK-NII-HB
Flux Lincoln 960 - Electrode LA-75
Shielding gas NA Flow rate NA
Single or multiple pass Both
Single or multiple arc Single
Welding current DC
Polarity DC EP
Welding progression See Detail
Root treatment Grind-wirebrush-Free of Mill scale, Slag-Rust & Moisture
Preheat and interpass temperature See Table
Postheat temperature AS Req
Heat Input Min 39.8 Max 62.5 FCM 14-56.8 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.	
SAW; CMAW; 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; CMAW; 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]

VT-AOT - Read Boro
Br. NO. 31
Proj NO - BRO-1441(25)
CBSS 445

WELDING PROCEDURE

WELDING PROCEDURE					
Pass no.	Electrode size	Welding current		Travel speed	Sec. 5-13 AWS D1-5 Joint detail <i>Fillet</i>
		Amperes	Volts		
AS REQ	5/32	600	30	19	
		640	32	21	
		70	70	70	
		28	28	17	
		RECEIVED			
CK'D BY		OK'D BY JWC		IF	
APR 22 2010					
RESUBMIT		APPROVED			

BY _____ DATE 05/04/10
This procedure may vary due to fabrication sequence, fit-up, pass sequence, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 201-A

Revision no. _____

PAUL E. GOODALE

CM 83100201

Contractor Casco Bay Steel

Authorized By Paul E. Goodale

Date 1-11-10

Casco Bay Steel Structures, Inc. 68-STRUCTURAL STEEL

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A 709 - Gr 36 - 50 - 50W
Welding process Submerged Arc Welding
Manual or machine Machine
Position of welding Flat + Horizontal
Filler metal specification A5-23
Filler metal classification E8A2-ENIK-Ni1-HB
Flux Lincoln 960 - Electrode LA-75
Shielding gas NA Flow rate NA
Single or multiple pass Both
Single or multiple arc Single
Welding current DC
Polarity DC E P
Welding progression See Detail
Root treatment Grind-wire brush - Free of Mill scale, Slag-Rust & Moisture
Preheat and interpass temperature See Table
Postheat temperature As Req
Heat Input Min 39.8 Max 62.5 FCM 14 - 56.8 kJ/in

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APR 22 2010
RESUBMIT ☒ APPROVED ☒
BY JWC DATE 05/04/10

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; CMAW; 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; CMAW; 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]

VT-AOT - Read Board
Br. NO. 31
Proj NO - BRD-1441(25)
CBSS 445

WELDING PROCEDURE

Pass no.	Electrode size	Welding current		Travel speed	Sec. 5-13 AWS D1-5 Joint detail B-L2C-5
		Amperes	Volts		
AS REQ	5/32	600	30	19	
		640	32	21	
		TO	TO	TO	
		560	28	17	T1 $\frac{1}{4}$ TO 1" $\frac{1}{4}$ MIN T2 $\frac{1}{2}$ TO 1" $\frac{3}{8}$ MIN P $\frac{1}{2}$ MIN

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-A

Revision no. _____



PAUL E. GOODALE
CWI 83100201
QC1 EXP. 10/01/10

Contractor Casco Bay Steel
Authorized By Paul E. Goodale
Date 1-11-10

Casco Bay Steel Structures, Inc. 69 STRUCTURAL STEEL

75 Spring Hill Road
Saco, Maine 04072

Phone: (207) 282-7360

Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM-A709/A709M Gr36(250) - A50(345) - A50W(345)
Welding process Submerged Arc welding
Manual or machine Machine
Position of welding Horizontal (2F)
Filler metal specification AWS A5-23
Filler metal classification E802-ENiLK-Mil Lincoln
Flux Lincoln 960 with LA75 Elec.
Shielding gas NA Flow rate NA
Single or multiple pass single
Single or multiple arc single
Welding current DC
Polarity DCEN
Welding progression See Joint Detail
Root treatment Blast Clean - wire brush - Free of loose scale & moisture
Preheat and interpass temperature 3/4-50°, 9/4 To 1 1/2-70°, 1 1/2 To 2 1/2-150° over 2 1/2-225
Postheat temperature NA
Heat Input Min 30.3 KJ/in Max 47.6 KJ/in PQR-FCM #9-43.3 KJ/in

WELDING PROCEDURE

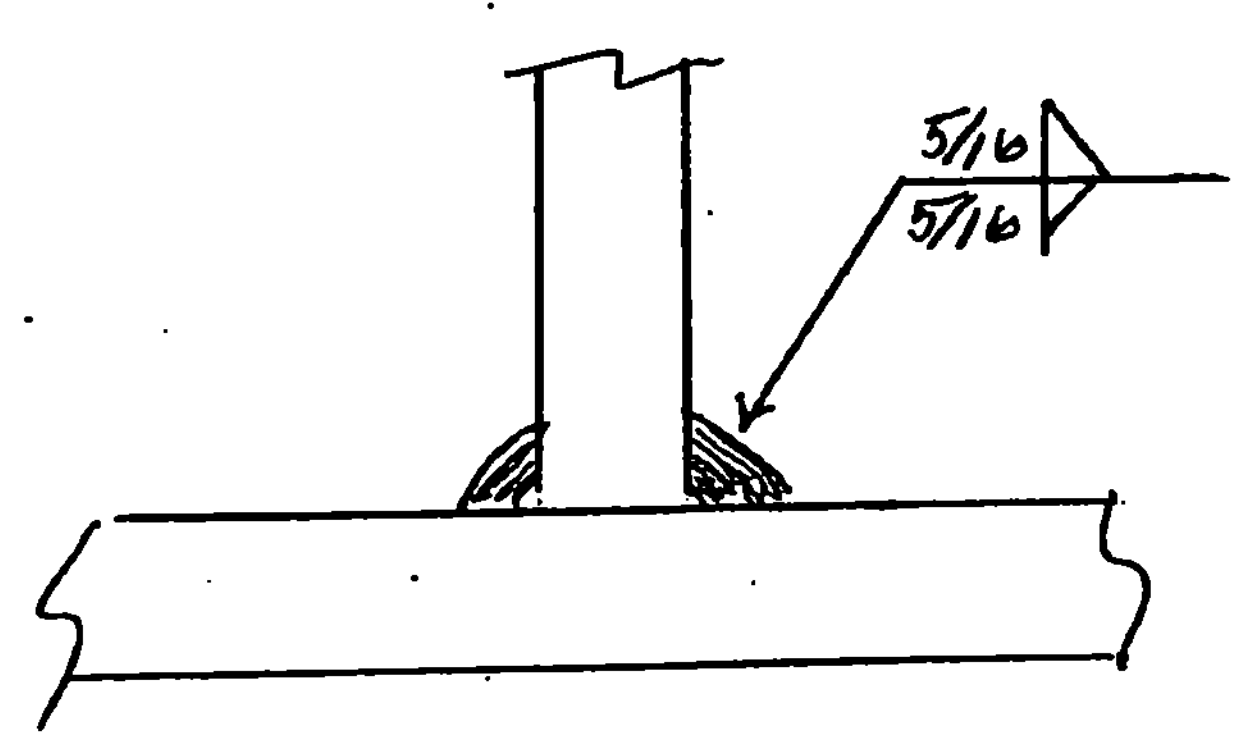
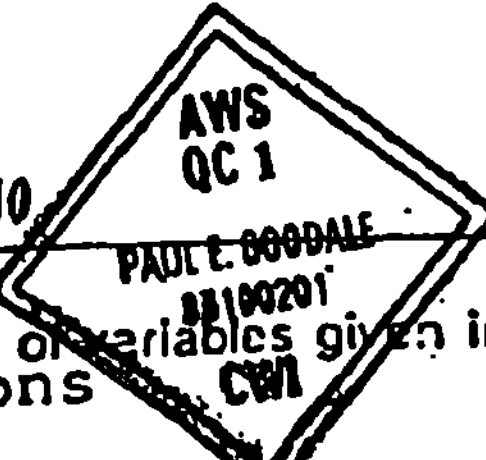
VT-AOT - Read Board

Br. No. 31

Proj No - BRD-1441(25)

CBSS 445

Joint detail Fillet

Pass no.	Electrode size	Welding current		Travel speed	AWS D1-5
		Amperes	Volts		
		293	32	13 IPM	
		270	30	11	
		TO	TO	TO	
	3/32	322	34	14	
OK'D BY OK'D BY JWC APR 22 2010 RESUBMIT APPROVED DATE 05/04/10					
  PAUL E. GOODALE CWI 83100201 QC1 EXP. 10/01/10 					

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 - 1055

Revision no. _____

Form III-2

Contractor Casco Bay Steel

Authorized By Paul E. Goodale

Date 12-6-06

Casco Bay Steel Structures, Inc. 70-STRUCTURAL

75 Spring Hill Road
Saco, Maine 04072

STEEL

Phone: (207) 282-7360

Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM-A240-Gr304-304L / A240M-Gr304-304L
Welding process Flux Cored Arc Welding (FCAW)
Manual or machine Semi AUTO
Position of welding Flat - Horizontal
Filler metal specification AWS A5-29
Filler metal classification E80T1-Ni-H4 ESAB
Flux NA
Shielding gas 75% AR - 25% CO₂ Flow rate 35 CFH ± 4
Single or multiple pass Single / Multiple Elec Ex 5/8 ± 1/4
Single or multiple arc Single
Welding current DC
Polarity DC EP
Welding progression See detail
Root treatment wire brush - area to be free of loose scale, slag, rust & moisture
Preheat and interpass temperature 20^{min} (74) 10(50) 20^{min} (74) 40(104) 20(70) 40(104) 60(140) 65(155)
Postheat temperature NA
Heat Input Min 27.7 kJ/in Max 43.6 kJ/in PQR FCM # 8 39.6 kJ/in
VT-AOT - Read Bored
Br. NO. 31
Proj NO - BRD-1441(25)
CBSS 445

WELDING PROCEDURE

Pass no.	Electrode size	Welding current		Travel speed	AWS 5-13 AWS D1-5 Joint detail Fillet
		Amperes	Volts		
		287	29	13	
	1/16	258	26.8	11.4	
		TO	TO	TO	
		315	31	14	

TRANS RECEIVED
CK'D BY _____ OK'D BY JWC
APR 22 2010
RESUBMIT _____ APPROVED _____
BY _____ DATE 05/04/10

AWS OC1
PAUL GOODALE
83100201
CW

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

Revision no. _____

Form III-2

Contractor Casco Bay Steel

Authorized By Paul Goodale

Date 12-6-06

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

71 STRUCTURAL
STEEL

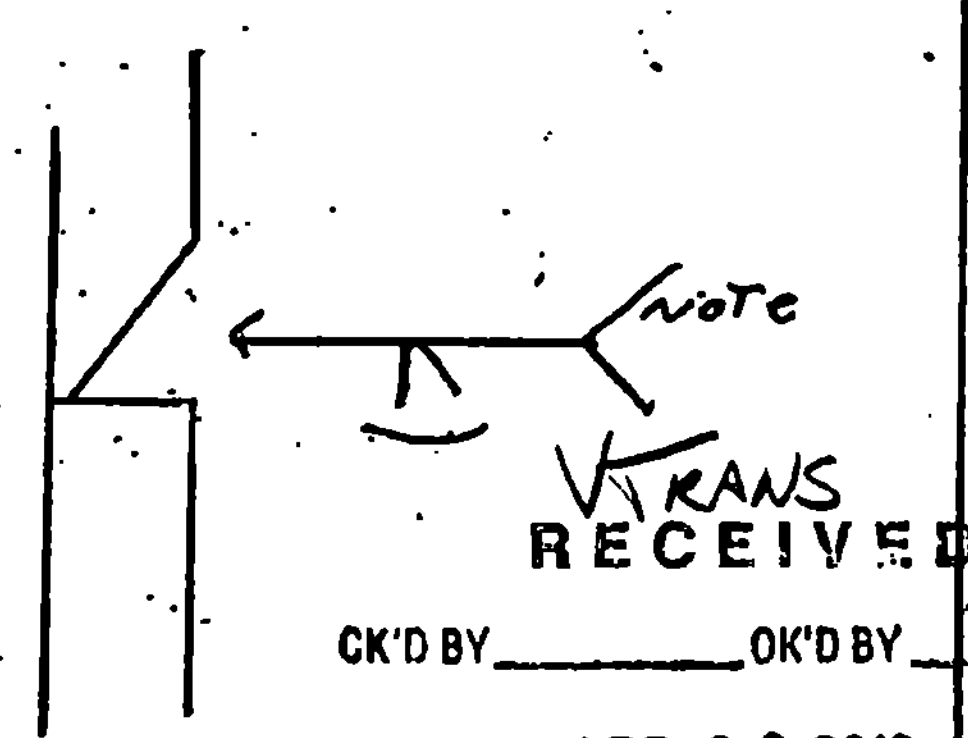
Phone: (207) 282-7360

Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A709/A709M - Grade 36 (250) 50 (345) 50W (345W)
Welding process Flux Cored Arc welding (FCAW)
Manual or machine Semi Auto
Position of welding Flat (1G) Horizontal (2G)
Filler metal specification AWS A5-20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40 CFH ± 5
Single or multiple pass Single and Multiple - Electrode Extension 5/8" ± 1/4" (15.87 ± 6.35)
Single or multiple arc Single
Welding current DC
Polarity Reverse
Welding progression See Joint Detail
Root treatment To meet AWS specification
Preheat and interpass temperature To 3/4" (19) = 50° (10) - 3/4" (19) To 1 1/2" (38) = 70° (20) - 1 1/2" (38) To 2 1/2" (63) = 150° (65)
Postheat temperature NA
Heat Input Min _____ Max _____

VT-AOT - Read Boro
Br. NO. 31
Proj No - BRO-1441(25)
CBSS 445

(METRIC)					WELDING PROCEDURE	
Pass no.	Electrode size	Welding current		Travel speed	AWS D1.5	Joint detail T6 P4-F
		Amperes	Volts			
	1/16	275	28.8	11.6		
		247.5	26.8	10.4		
		To	To	To		
		302.5	30.8	12.8		
	1.6	(METRIC)		294.6		
		275	28.8	294.6		
		247.5	26.8	264.2		
		To	To	To		
		302.5	30.8	325.12		

CK'D BY _____ OK'D BY JW

APR 22 2010

RESUBMIT _____ APPROVED ☒

BY _____ DATE 05/04/10

Note: Grind Flush as Req

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. 103

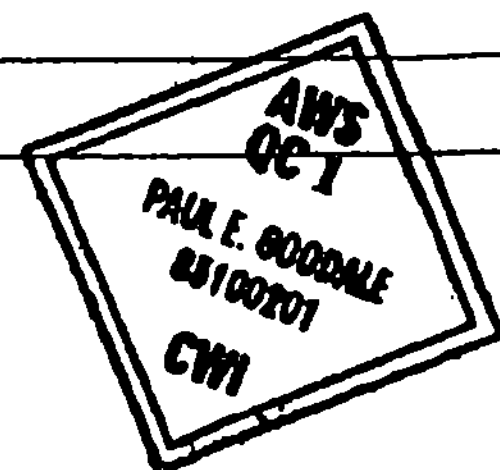
Revision no. _____

Form III-2

Contractor Casco Bay Steel

Authorized By Paul E. Goodale

Date 3/23/00



Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

72 STRUCTURAL
STEEL

Phone: (207) 772-2533

Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A36-50-50W (250-345-345W)
Welding process Shielded Metal Arc Welding (SMAW)
Manual or machine Manual
Position of welding Flat (1F), Horizontal (2F)
Filler metal specification ANSI/AWS A5.1 - A5.5
Filler metal classification E7018 - 8018 C/C - 7028
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single and multiple
Single or multiple arc single
Welding current AC/DC
Polarity STRAIGHT / Reverse
Welding progression
Root treatment MEET AWS SPECIFICATION
Preheat and interpass temperature To 3/4 (9) 50° (10°) 3/4 (9) To 1 1/2 (38) 70° (20°) 1 1/2 (38) To 2 1/2 (63.5) 150° (65°)
Postheat temperature NA
Heat Input Min NA Max NA

VT TRANS
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CK'D BY OK'D BY JWC

APR 22 2010

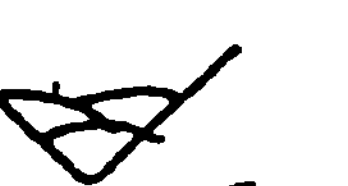
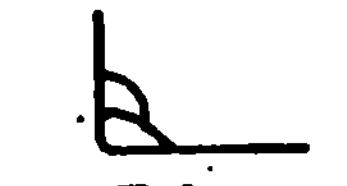
RESUBMIT APPROVED

BY DATE 05/04/10

WELDING PROCEDURE

VT-AOT - Read Board
Br. NO. 31
Proj NO - BRC-1441(25)
CBSS 445

(Metric)

Pass no.	Electrode size	Welding current		Travel speed	AWS D1.5 Joint detail
		Amperes	Volts		
AS REQ.	<u>7018</u>				<u>1F</u>
	<u>1/8 (3.2)</u>	<u>70-170</u>	<u>22-26</u>	<u>AS REQ.</u>	  
	<u>5/32 (3.9)</u>	<u>120-225</u>	<u>22-26</u>		
	<u>3/16 (4.8)</u>	<u>170-300</u>	<u>24-27</u>		
	<u>8018</u>				
	<u>1/8 (3.2)</u>	<u>90-160</u>	<u>22-26</u>		
	<u>5/32 (3.9)</u>	<u>120-225</u>	<u>22-26</u>		
	<u>3/16 (4.8)</u>	<u>180-290</u>	<u>24-27</u>		
	<u>7028</u>				
	<u>5/32 (3.9)</u>	<u>170-270</u>	<u>22-26</u>		
	<u>3/16 (4.8)</u>	<u>210-330</u>	<u>24-27</u>		
					<u>2F</u>   
					<u>3/16 To 5/16 (5 To 8)</u> <u>3/8 (10)</u> <u>7/16 To 5/8 (11 To 16)</u>

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

Procedure no. 401

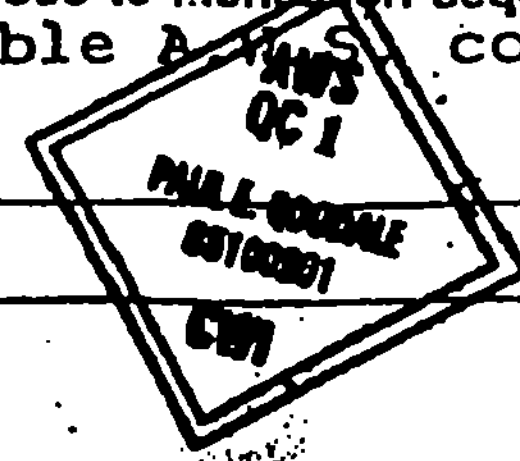
Revision no. _____

Form III-2

Contractor Casco Bay Steel

Authorized By Paul E. Hoodale

Date 3/2/00



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 2006 WITH LATEST REVISIONS AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 2004 AND ITS LATEST REVISIONS.

MATERIAL SPECIFICATIONS

- 1). UNLESS OTHERWISE NOTED, ALL STEEL TO BE AASHTO M270M GRADE 345W.
- 2). MATERIAL NOTED "CVN" OR "H2-3" 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: $\frac{7}{8}$ " ϕ ASTM A325 TYPE 3 IN $\frac{15}{16}$ " ϕ HOLES (UN). NUTS SHALL BE A563 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.



~~All steel shall be detailed to meet the following requirements~~ CPW 7/1/10.

WELDING

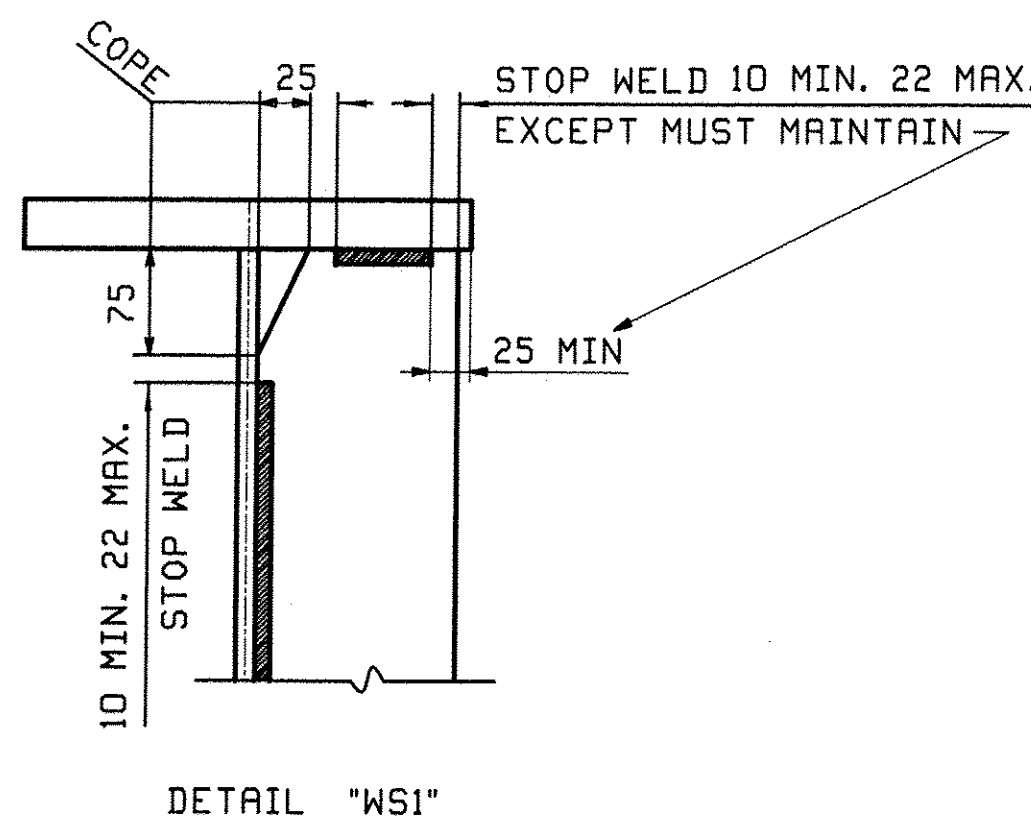
- 1). THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-02 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.
- 2). WELDING OF MAIN LOAD CARRYING 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 DETAIL "WS1" ON THIS DRAWING FOR WELD TERMINATION DETAIL.

CLEANING

1. ALL STEEL SHALL BE BLAST CLEANED IN ACCORDANCE WITH SSPC SP-6.
2. STRUCTURAL STEEL SHALL NOT BE PAINTED.

FIELD CONNECTIONS

- 1). ALL FIELD CONNECTIONS SHALL BE MADE WITH $\frac{7}{8}$ " DIAMETER HIGH STRENGTH A-325 TYPE 3 BOLTS (UN), INSTALLED PER SECTION 506.19(c). SEE DWG E1 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"

RECEIVED

JUN 25 2010

COLD RIVER
BRIDGES LLC

6/23	Remove hole drilling note	WL	SF	6/24/10	
REV.	DATE	REMARKS	DWN	CHK	APVL
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:	
DESCRIPTION:		GENERAL NOTES			
CASCO BAY STEEL STRUCTURES, INC. 75 SPRING HILL ROAD SACO, MAINE 04072 PHONE (207) 282-7360 FAX. (207) 282-1179					
STRUCTURE:		BRIDGE NO. 31 ON TOWN HIGHWAY NO. 3 BRIDGE PROJECT READSBORO County of BENNINGTON		DRAWN:	DATE:
				JTB	03/23
				CHKD:	DATE:
				ELC	4/14/10
LOCATION:		TOWN OF READSBORO, VERMONT		JOB NO.	DWG NO.
PROJ NO.		BRO 1441(25)		445	GN1
CUSTOMER:		COLD RIVER BRIDGE LLC		REV.	

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

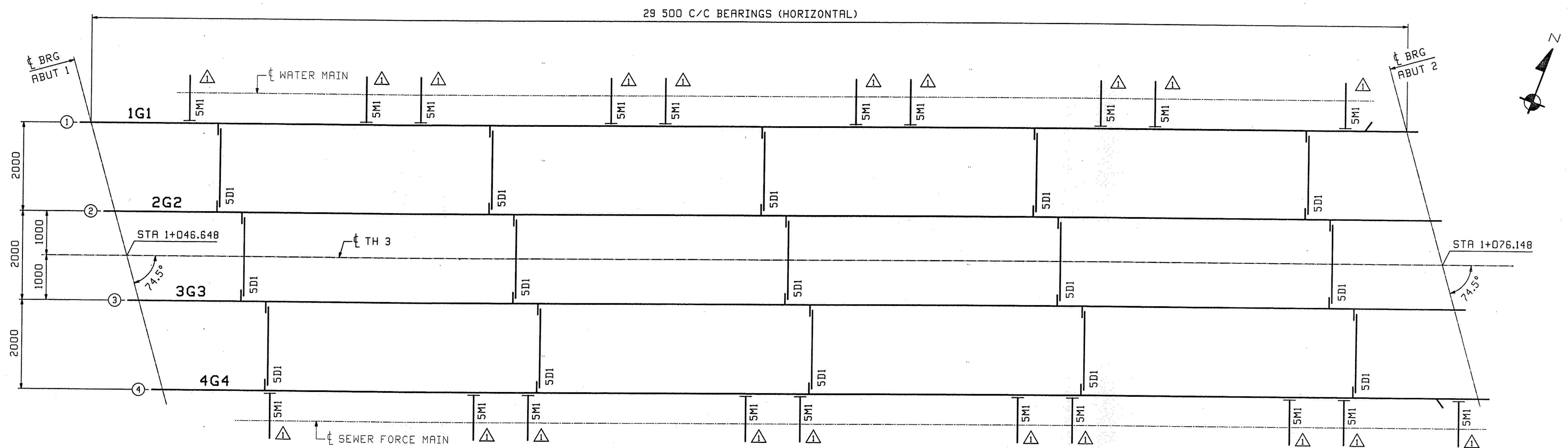
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CHK'D BY: HES OK'D BY: DBB

JUN 28 2010

RESUBMIT: APPROVED: ✓

BY: CPW DATE: 7/1/10



FRAMING PLAN

FIELD BOLT LIST											A325 Type 3 BOLTS									
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS						
1																INT. DIAPHRAGMS				
2	270	7/8	2 1/2	9	30	25	12	13						1		DIAPHRAGM WEB TO CONNECTION PLATE				
3																				
WASHER CODES																				
1: 1 Hard Flat Washer																				

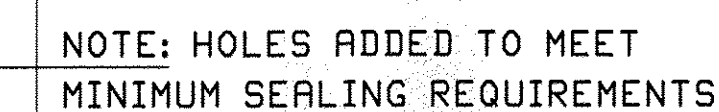
FIELD BOLT LIST										A325 Type 1 BOLTS (GALV)											
LINE	NO	REQ'D.	BOLT	BOLT	BOLTS	OF	DIAM.	LEN.	CONN.	CONN.	GRIP	THICKNESS OF PCS. CONNECTED					WASH	PIECES CONNECTED AND REMARKS			
																	CODE				
4																		UTILITY SUPPORTS			
5	120		3/4	2 1/4	6	20	26	13	13								1	BOTTOM PLATE TO GIRDER WEB			
6	40		5/8	2 1/4	2	20	26	13	13								1	DIAGONAL END PLATE TO GIRDER WEB			
WASHER CODES																					
1: 1 Hard Flat Washer																					

FIELD BOLT SUMMARY						EXACT COUNT - NONE EXTRA						
LINE	NO. OF BOLTS	BOLT DIAM.	TYPE	BOLT LEN	ACTUAL COUNT	REMARKS						
1	40	5/8	A325 Type 1	2 1/4	40	GALVANIZED			⚠			
2	40	Hard Flat Washers	for	5/8 Ø	BOLT	GALVANIZED F436-1			⚠			
3												
4												
5	120	3/4	A325 Type 1	2 1/4	120	GALVANIZED			⚠			
6	120	Hard Flat Washers	for	3/4 Ø	BOLT	GALVANIZED F436-1			⚠			
7												
8												
9	270	7/8	A325 Type 3	2 1/2	270							
10	270	Hard Flat Washers	for	7/8 Ø	BOLT	F436-3						
11												

NOTE:
1. ALL BOLT DIAMETERS AND LENGTHS ARE SHOWN IN INCHES (ENGLISH UNIT OF MEASUREMENT).
2. ALL GRIP VALUES ARE SHOWN IN METRIC UNITS.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0	6/23	REV. UTILITY SPACING & BOLTS	JTB	SF	6/24/10	4/16/10
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
DESCRIPTION: FRAMING PLAN & FIELD BOLTS						
CASCO BAY STEEL STRUCTURES, INC. 75 SPRING HILL ROAD SACO, MAINE 04072 PHONE (207) 282-7360 FAX. (207) 282-1179						
STRUCTURE: BRIDGE NO. 31 ON TOWN HIGHWAY NO. 3 BRIDGE PROJECT READSBORO County of BENNINGTON			DRAWN: JTB CHKD: ELC		DATE: 03/24 4/14/10	
LOCATION: TOWN OF READSBORO, VERMONT			JOB NO. 445		DWG NO. E1	
PROJ. NO. BRO 1441(25)			COLD RIVER BRIDGE LLC		REV. A	

RECEIVED
JUN 28 2010
APPROVED
DATE 7/1/10



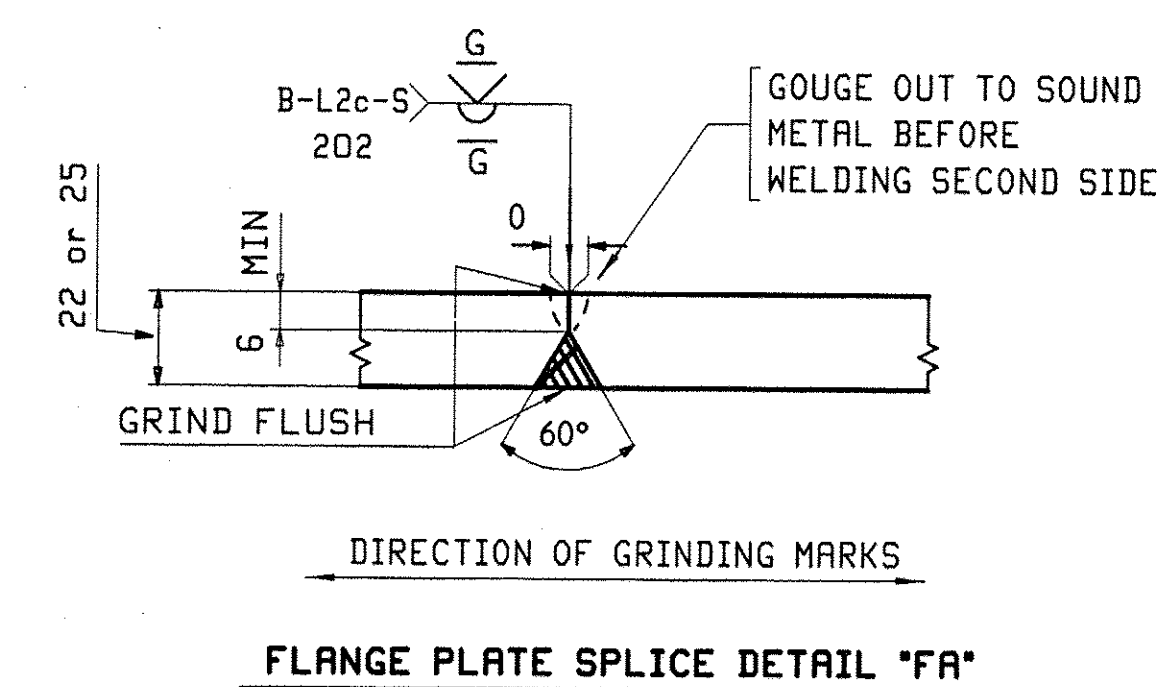
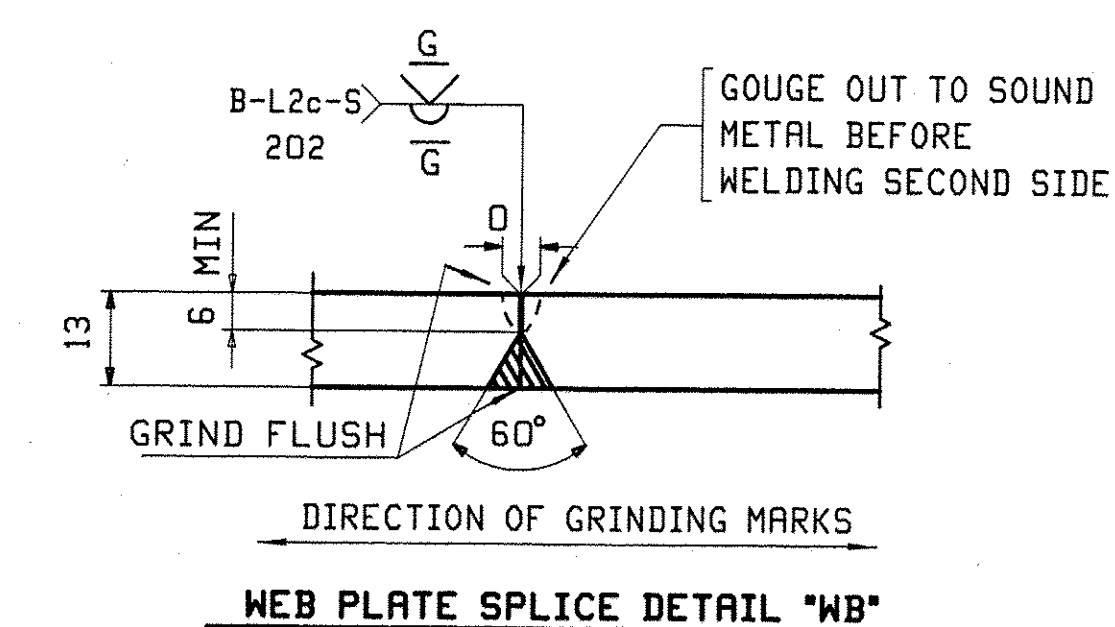
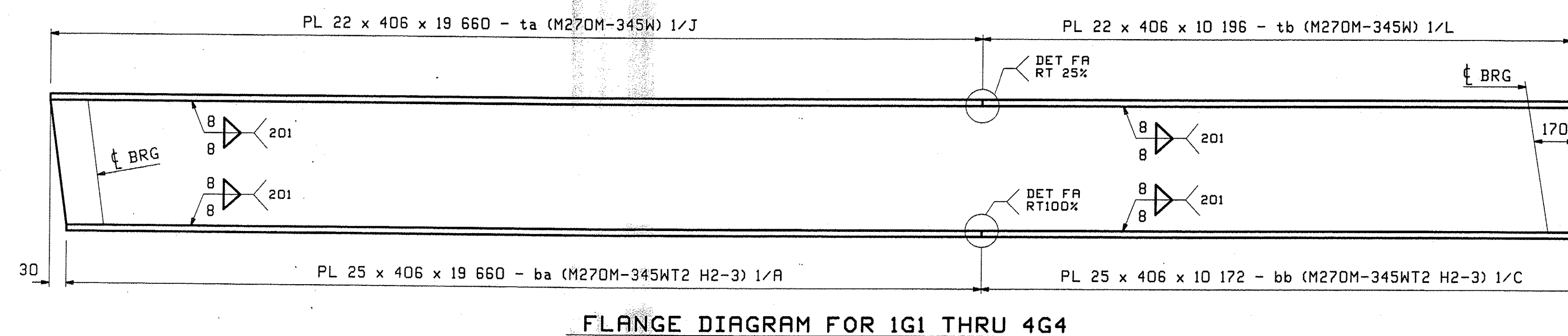
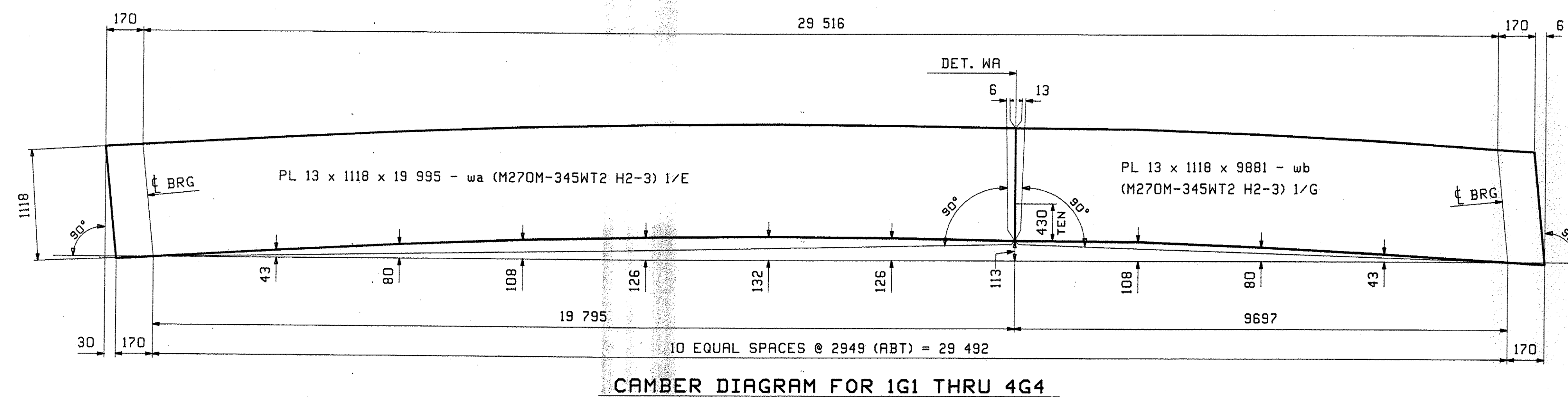
SECTION A

1. MATERIAL SHALL BE ASTM M270 GRADE 345W (UN).
2. ALL BOLT HOLES SHALL BE $\frac{15}{16}$ " ϕ FOR $\frac{7}{8}$ " ϕ HSB (UN).
3. MATERIAL FOR UTILITY SUPPORT SHALL BE HOT DIPPED GALVANIZED.

1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTTOM OF WEBS WITH CORRECTIONS MADE FOR DL CAMBER & GRADE (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE (UN).
3. ARROW POINTS TOWARD LOW END OF MEMBER.
4. ENDS OF GIRDERS ARE VERTICAL AFTER DL ROTATION.
5. DIAPHRAGM STIFFENERS ARE NORMAL TO GRADE.
6. BOTTOM POINT NUMBERS = TOP POINT NUMBERS + 100
7. COMBINE INT. DIAPHRAGMS FOR DIFF IN DROPS OF ± 4 mm.

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION AND CONNECTION SPACING. THIS DWG IS SUBMITTED FOR INFORMATION ONLY & IS NOT INTENDED FOR SHOP FABRICATION. DETAIL DWGS WILL SHOW ALL WELDING AND DIMENSIONS REQ'D FOR FABRICATION.

[illegible]

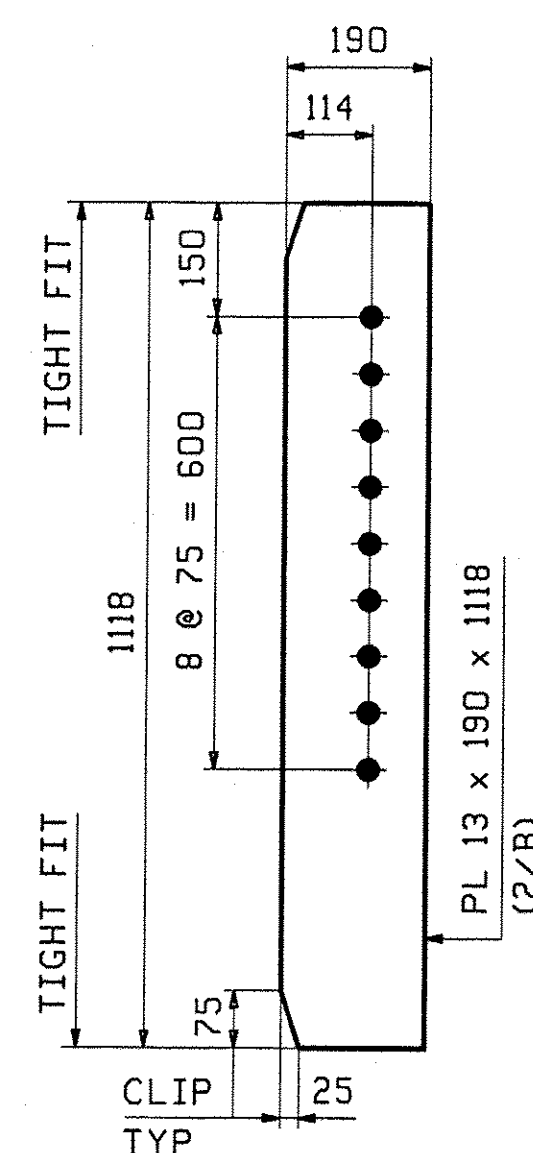


NOTES:

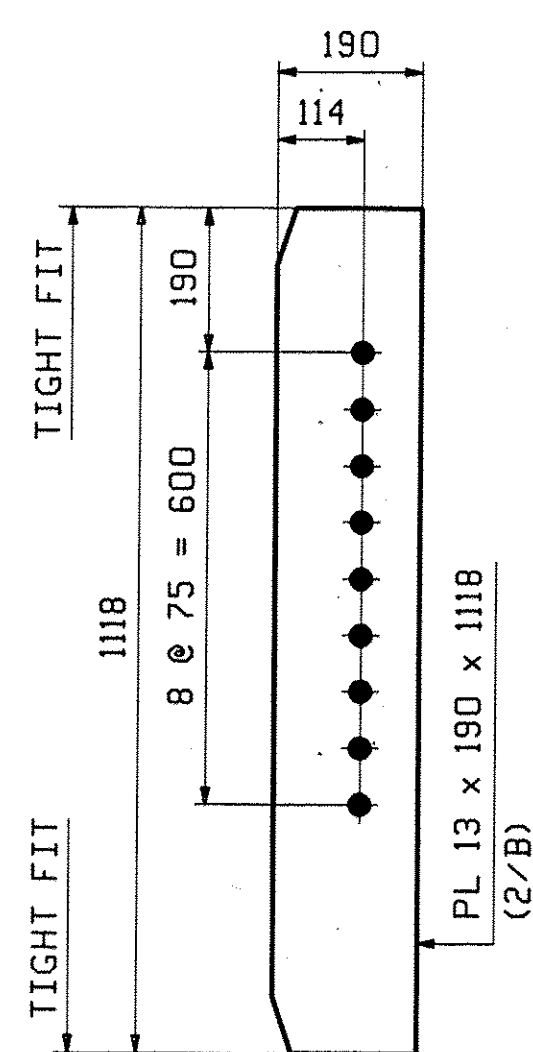
1. FOR GENERAL NOTES SEE DRAWING GNI.
2. H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

								6/24/10	
								APR 13 2010	
0									
REV.	DATE	REMARKS			DWN	CHK	APVL	SHOP	
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:			
M270-345W(UN)		SEE DWG GNI							
DESCRIPTION: CAMBER DIAGRAM									
CASCO BAY STEEL STRUCTURES, INC.									
75 SPRING HILL ROAD					SACO, MAINE 04072				
PHONE (207) 282-7360					FAX. (207) 282-1179				
									
STRUCTURE: BRIDGE NO. 31 ON TOWN HIGHWAY NO. 3						DRAWN:		DATE:	
BRIDGE PROJECT						JTB		03/23	
READSBORO						CHKD:		DATE:	
County of BENNINGTON						ELC		4/14/10	
LOCATION: TOWN OF READSBORO, VERMONT						JOB NO.		DWG NO.	
PROJ NO. BRO 1441(25)						445		C1	
CUSTOMER: COLD RIVER BRIDGE LLC								REV. 1	

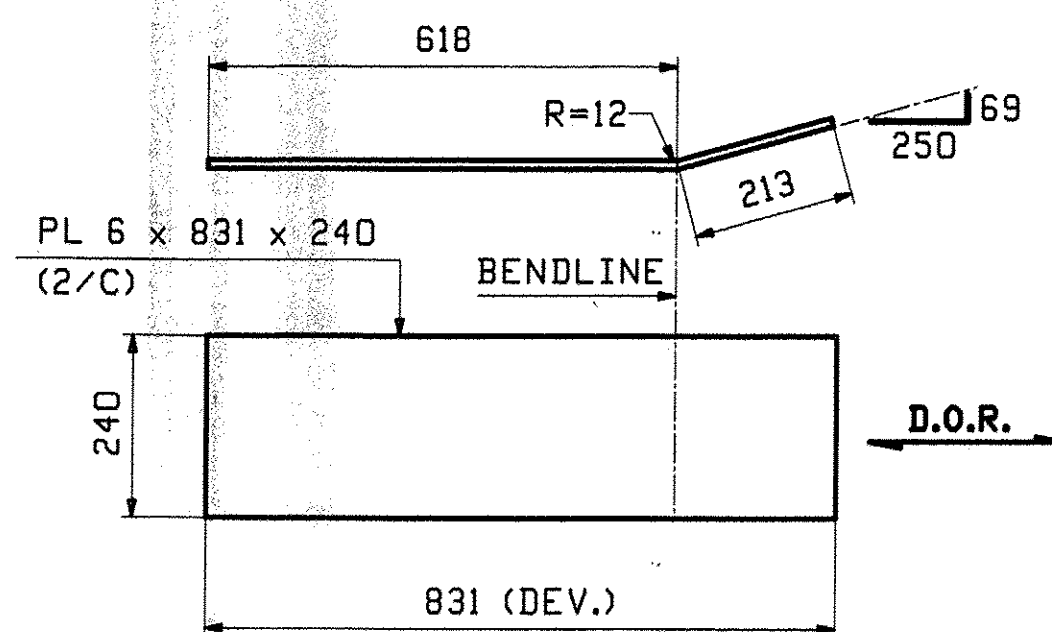
RECEIVED
 CHKD BY: JTB OK'D BY: DDB
 JUN 26 2010
 RESUBMIT: APPROVED
 BY: Cpw DATE: 7/1/10



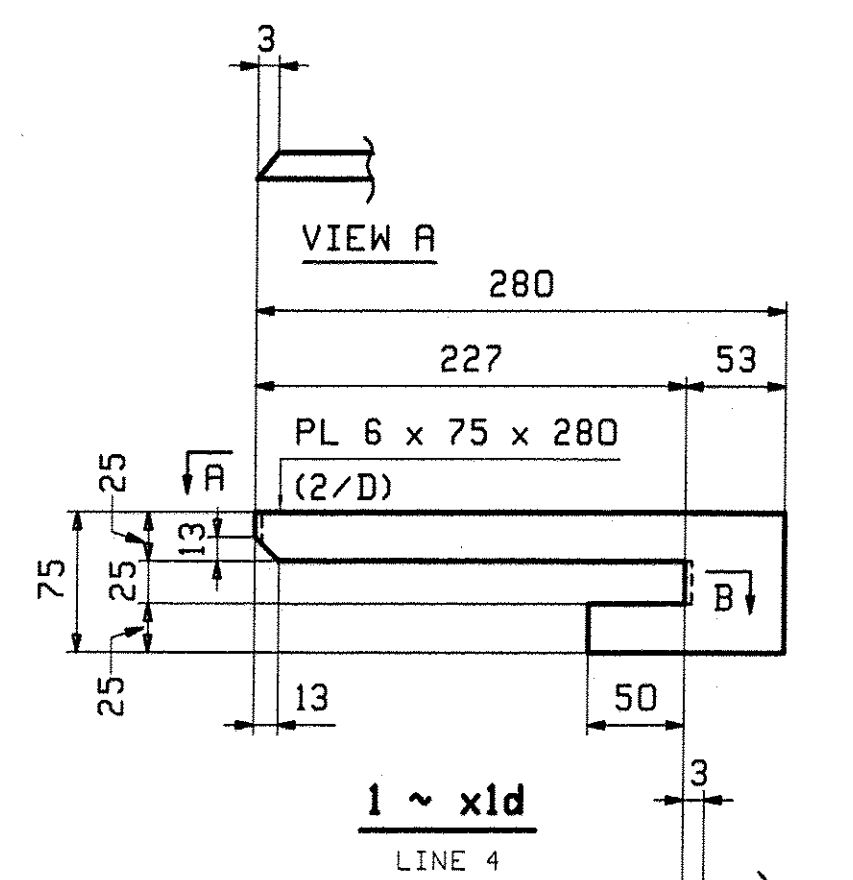
20 ~ x1a
INT DIAPH CONN
(LOW END & DROP = 0)



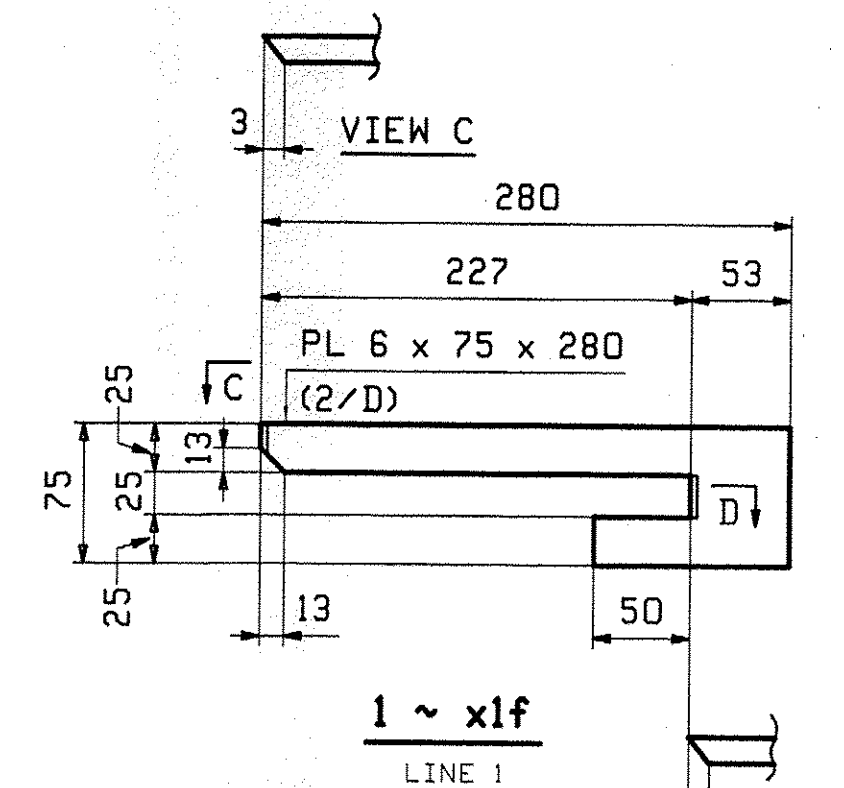
10 ~ x1b
INT DIAPH CONN
(HIGH END)



8 ~ x1c
END PLATE AT BTH OF GIRDER
TYP EACH END OF GIRDERS



SECTION B



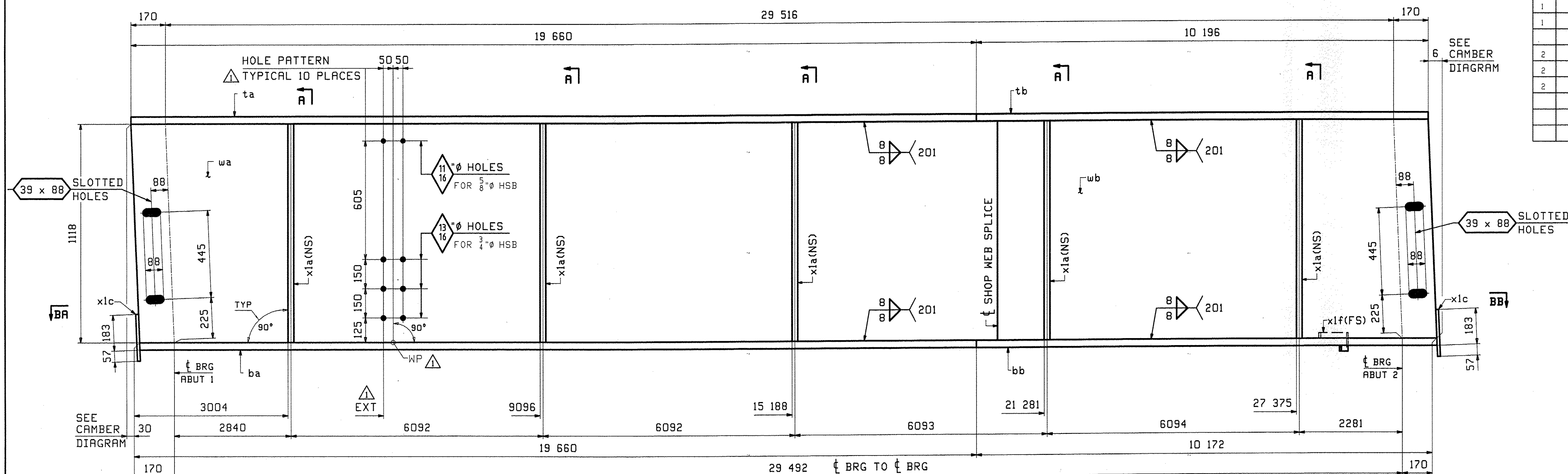
SECTION D

- NOTES:
1. FOR GENERAL NOTES SEE DRAWING GNI.
 2. **D.O.R.** DENOTES DIRECTION OF MILL ROLLING.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270-345W		SEE DWG GNI		15/16" Ø		NONE
DESCRIPTION: GIRDER STANDARD DETAILS						
CASCO BAY STEEL STRUCTURES, INC.						
75 SPRING HILL ROAD SACO, MAINE 04072						
PHONE (207) 282-7360 FAX. (207) 282-1179						
STRUCTURE:			DRAWN:		DATE:	
BRIDGE NO. 31 ON TOWN HIGHWAY NO. 3			JTB		03/23	
BRIDGE PROJECT			CHKD:		DATE:	
READSBORO			ELC		4/14/10	
County of BENNINGTON						
LOCATION:			JOB NO.		DWG NO.	
TOWN OF READSBORO, VERMONT			445		X1	
PROJ NO.			REV.			
BRO 144(25)						
CUSTOMER:						
COLD RIVER BRIDGE LLC						

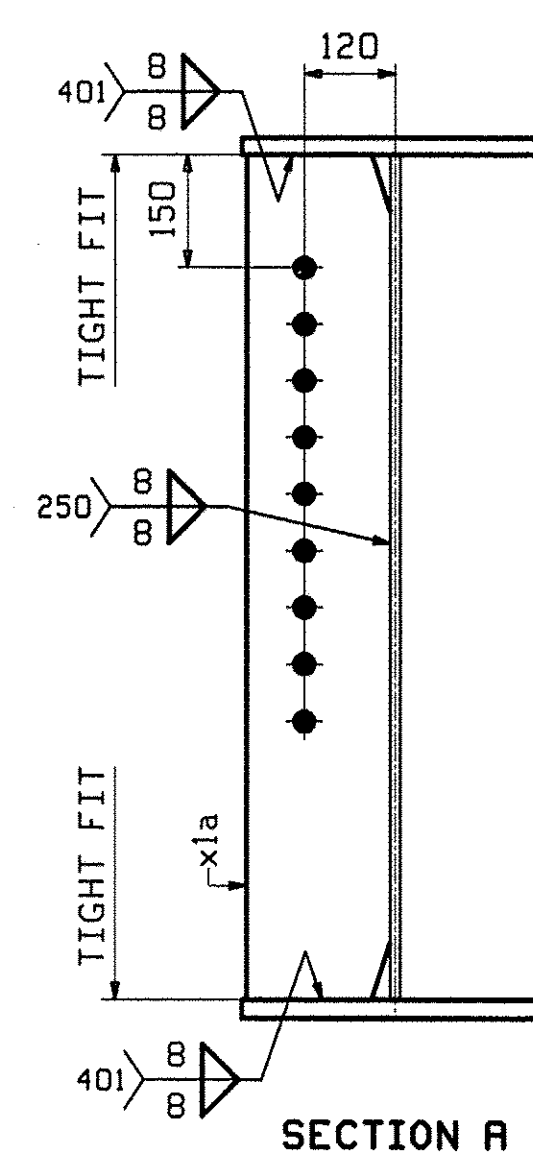
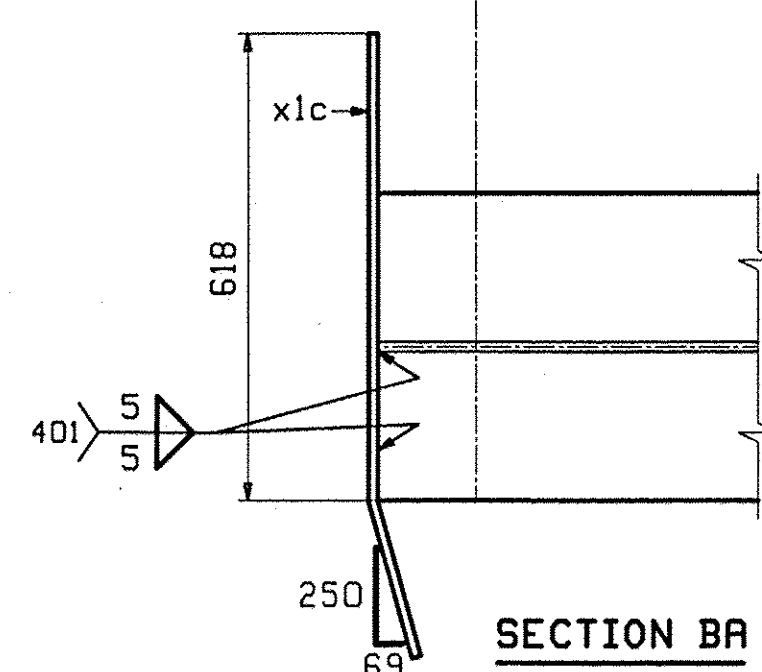
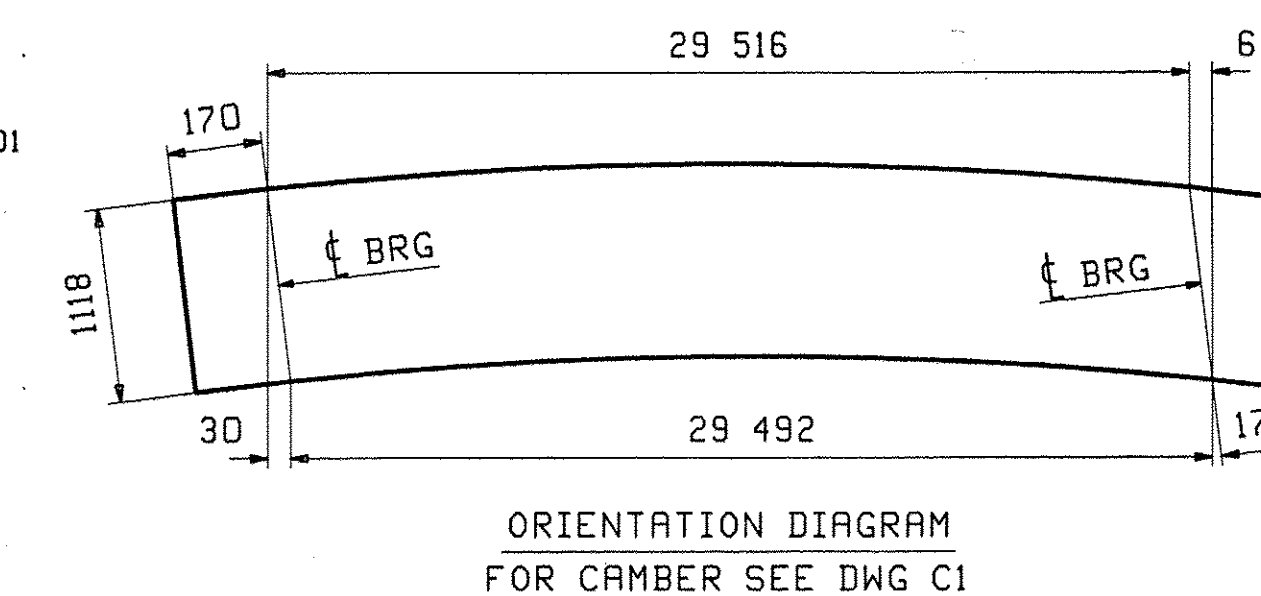
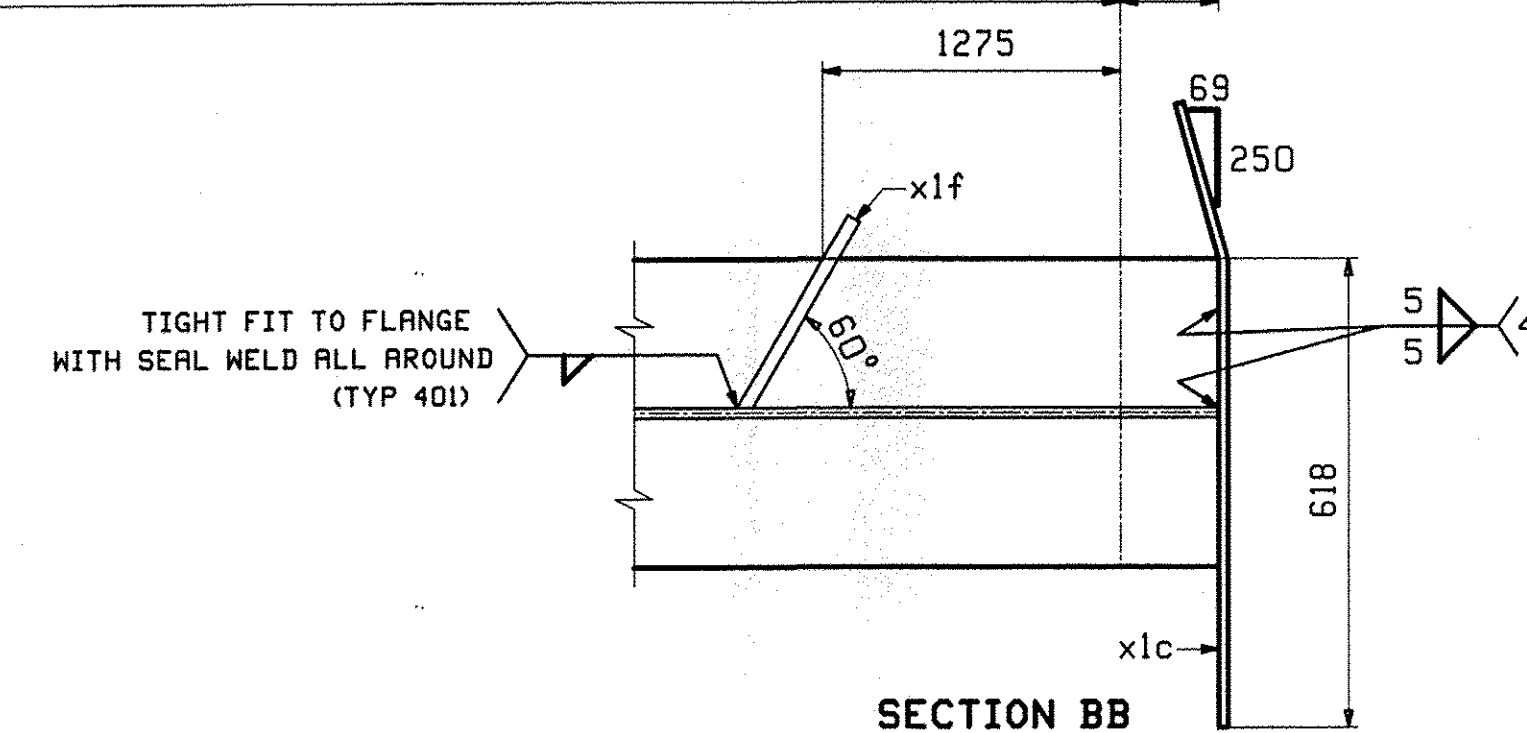
RECEIVED
CHKD BY: WJF OK'D BY: DDB
JUN 28 2010
RESUBMIT: ✓ APPROVED: ✓
BY: apw DATE: 7/1/10

ABM INFO		SHIP	BILL OF MATERIAL				JOB NO. 445		DRAWING NO. 1		REV. 4
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH		REMARKS	WT	PROCUREMENT NOTES	
						m	mm				
		IG1	1		GIRDER				8007 kg 7652 lbs		
1	E		1	wa	PL 13x1118	19	995	M270M-345WT2 (H2-3)			
1	G		1	wb	PL 13x1118	9	881	M270M-345WT2 (H2-3)			
1	J		1	ta	PL 22x406	19	660				
1	L		1	tb	PL 22x406	10	196				
1	A		1	ba	PL 25x406	19	660	M270M-345WT2 (H2-3)			
1	C		1	bb	PL 25x406	10	172	M270M-345WT2 (H2-3)			
2	B		5	x1a	PL 13x190	1	118	BENT			
2	C		2	x1c	PL 6x831	0	240				
2	D		1	x1f	PL 6x75	0	280				



ONE - GIRDER - IG1

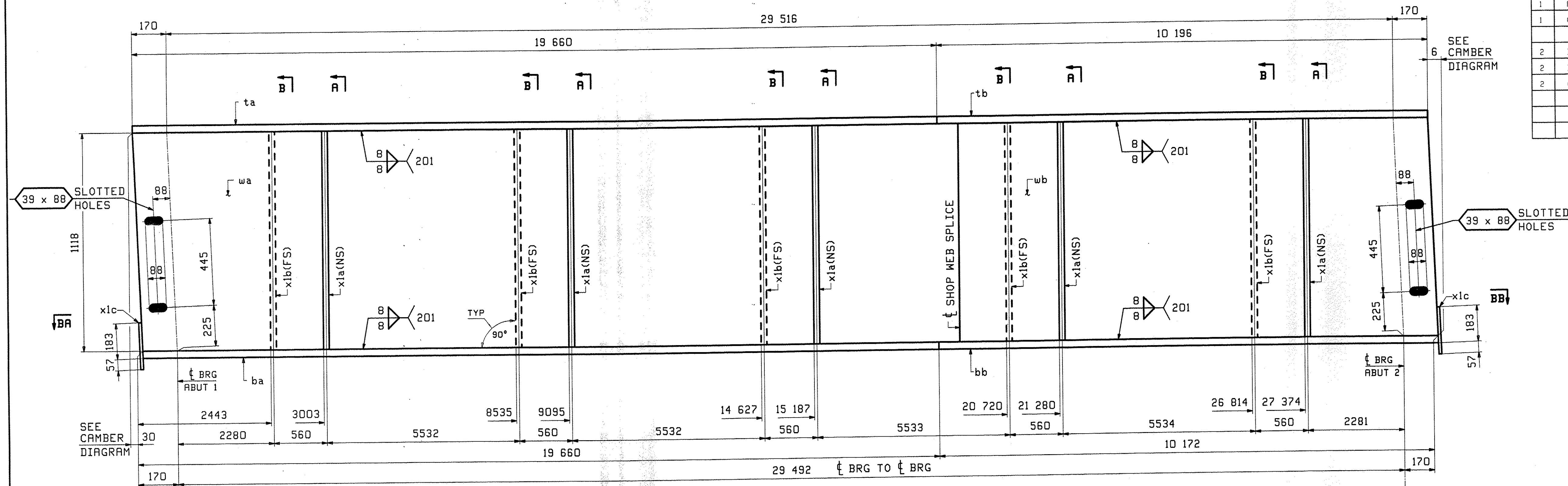
FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GNI.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



WP	EXT	
1	2327	2207 (CL BRG TO WP 1)
2	6289	3962 (WP 1 to 2)
3	7508	1219 (WP 2 to 3)
4	11 775	4267 (WP 3 to 4)
5	12 994	1219 (WP 4 to 5)
6	17 261	4267 (WP 5 to 6)
7	18 480	1219 (WP 6 to 7)
8	22 747	4267 (WP 7 to 8)
9	23 966	1219 (WP 8 to 9)
10	28 233	4267 (WP 9 to 10)

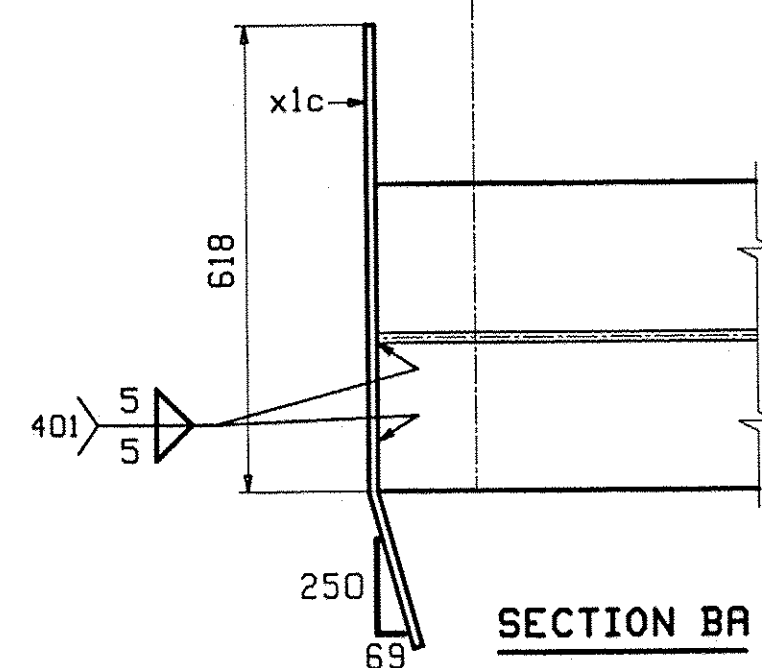
RECEIVED
CK'D BY: *HL* OK'D BY: *DOT*
JUN 28 2010
RESUBMIT: *OPW* APPROVED: *✓* DATE: 7/1/10

	6/23	REV. UTILITY HOLE SPACING	JTB	SF		6/24/10			
0						4/16/10			
REV.	DATE	REMARKS		DWN	CHK	APVL	SHOP		
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:			
M270M-345W(UN)		SEE DWG GNI		15 16 Ø (UN)		NONE			
DESCRIPTION: GIRDER - IG1									
CASCO BAY STEEL STRUCTURES, INC.									
75 SPRING HILL ROAD SACO, MAINE 04072									
PHONE (207) 282-7360 FAX (207) 282-1179									
STRUCTURE: BRIDGE NO. 31 ON TOWN HIGHWAY NO. 3 BRIDGE PROJECT READSBORO County of BENNINGTON						DRAWN:		DATE:	
						JTB		03/23	
						CHKD:		DATE:	
						ELC		4/14/10	
LOCATION: TOWN OF READSBORO, VERMONT						JOB NO.		DWG NO.	
PROJ NO. BRO 1441(25)						445		1	
CUSTOMER: COLD RIVER BRIDGE LLC								REV.	

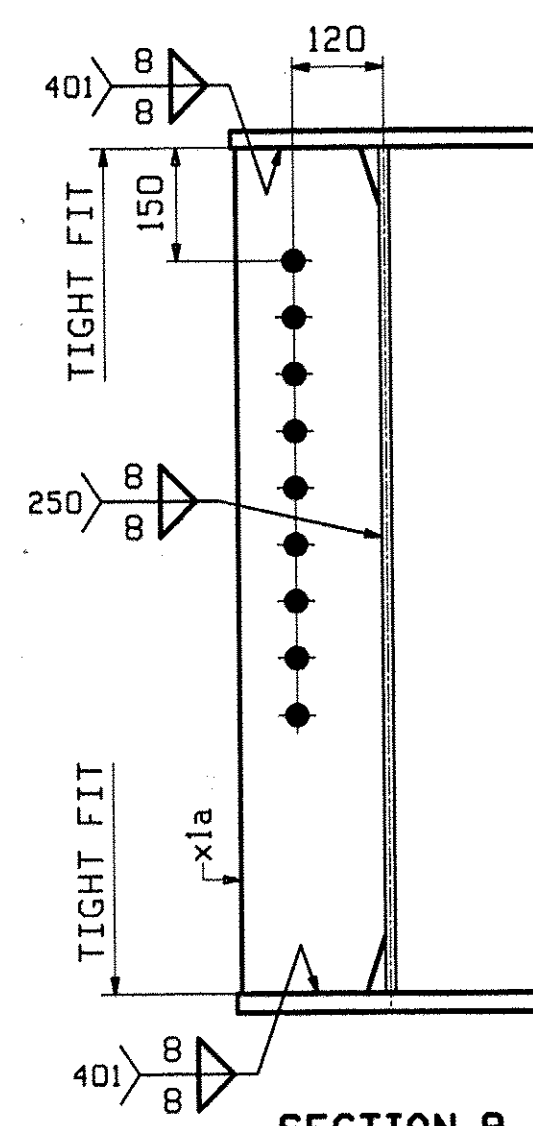
[illegible]

ONE - GIRDER - 2G2

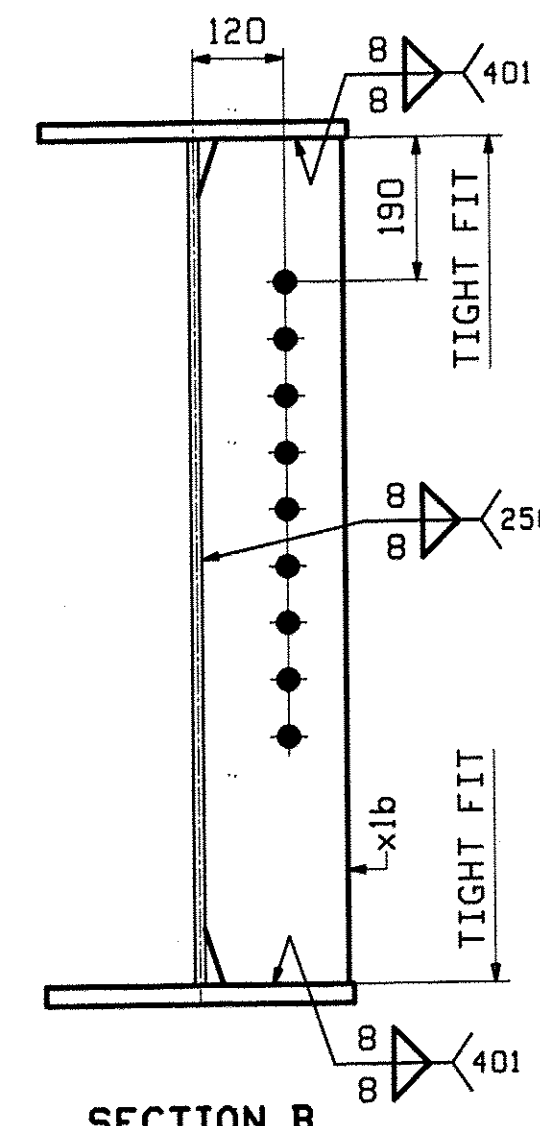
FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING GNI.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



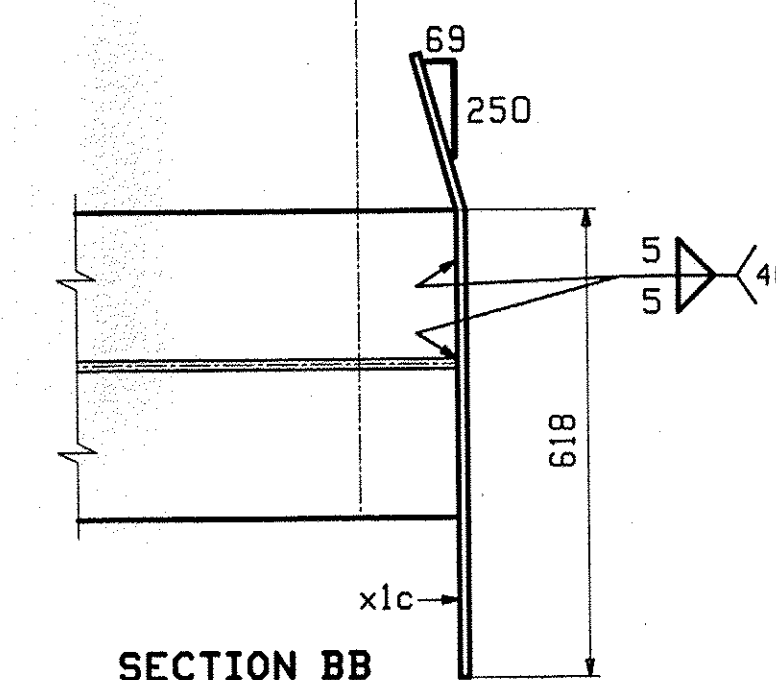
SECTION BA



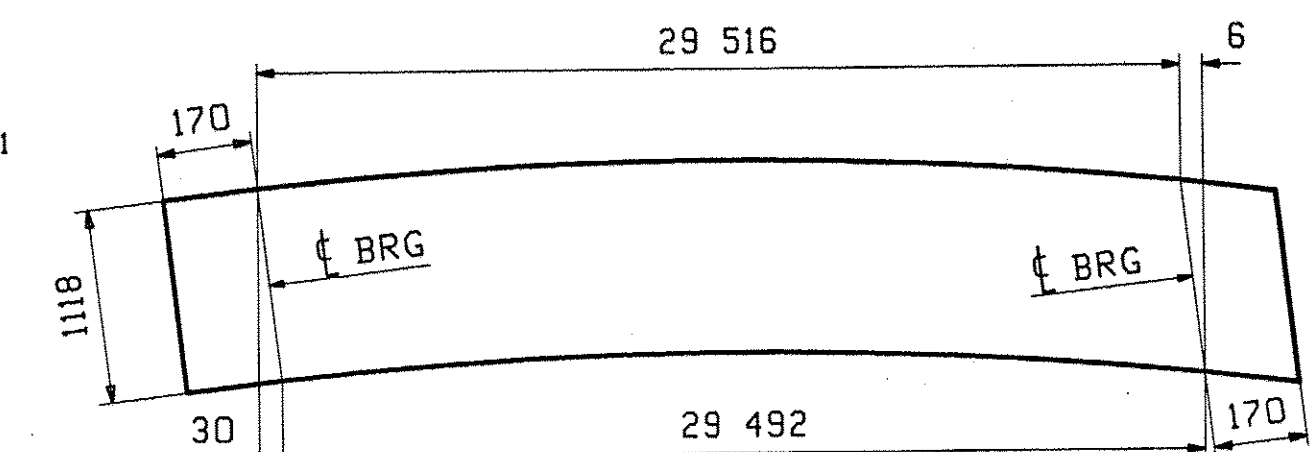
SECTION A



SECTION B



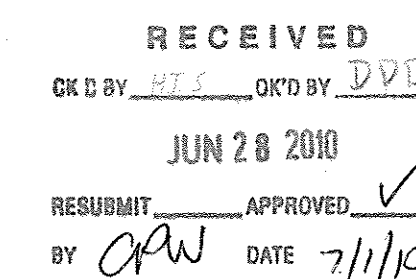
SECTION BE

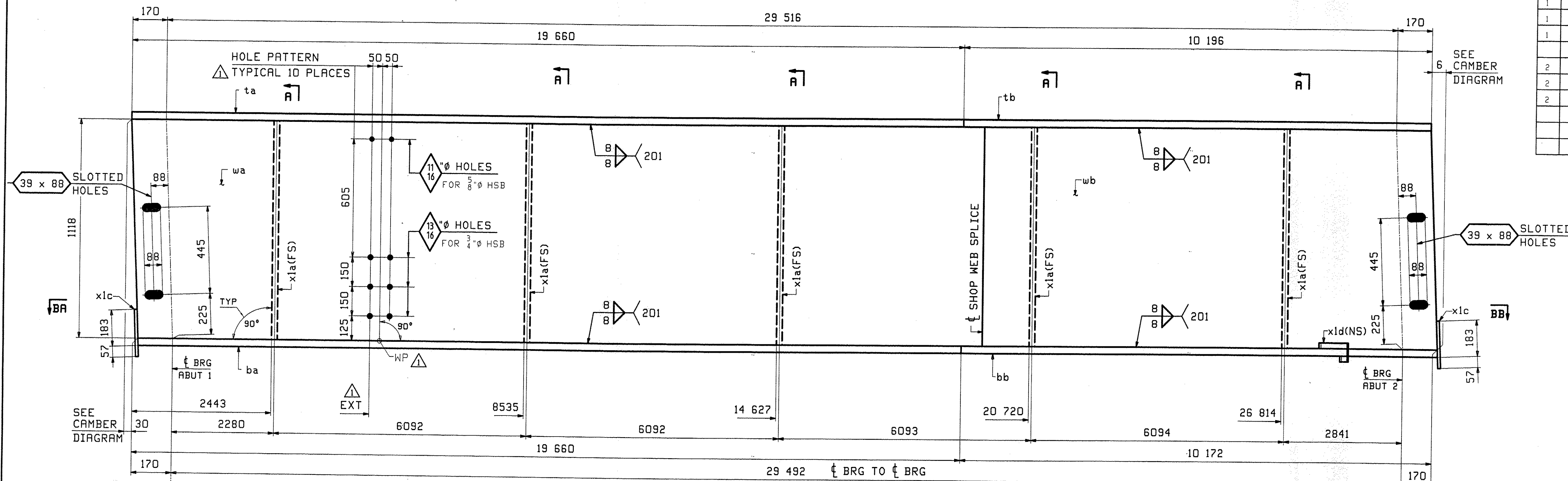


ORIENTATION DIAGRAM
FOR CAMBER SEE DWG C1

[illegible]

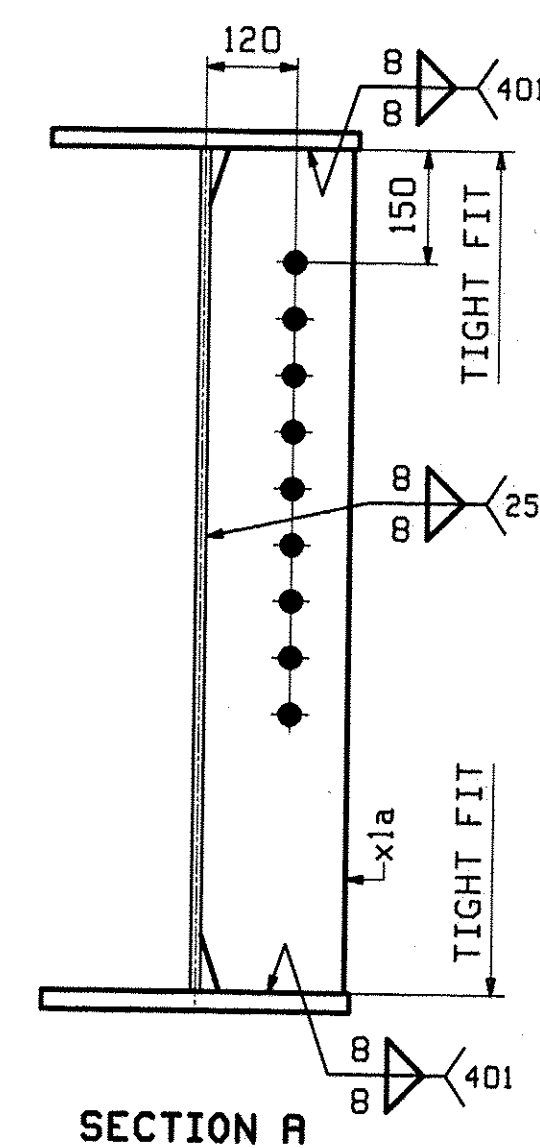
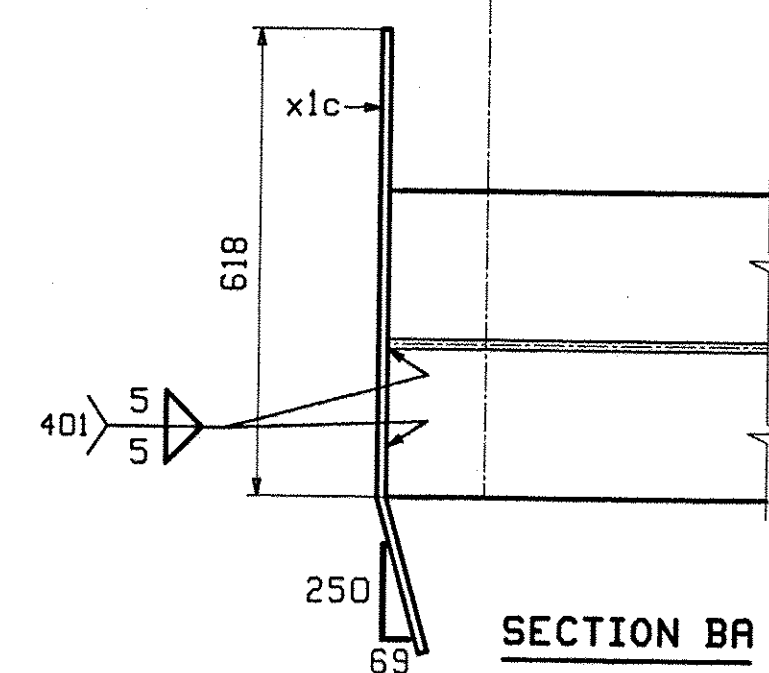
RECEIVED
CK'D BY HLG OK'D BY DDP
JUN 28 2010
RESUBMIT _____ APPROVED ✓
BY CPW DATE 7/1/10

[illegible]

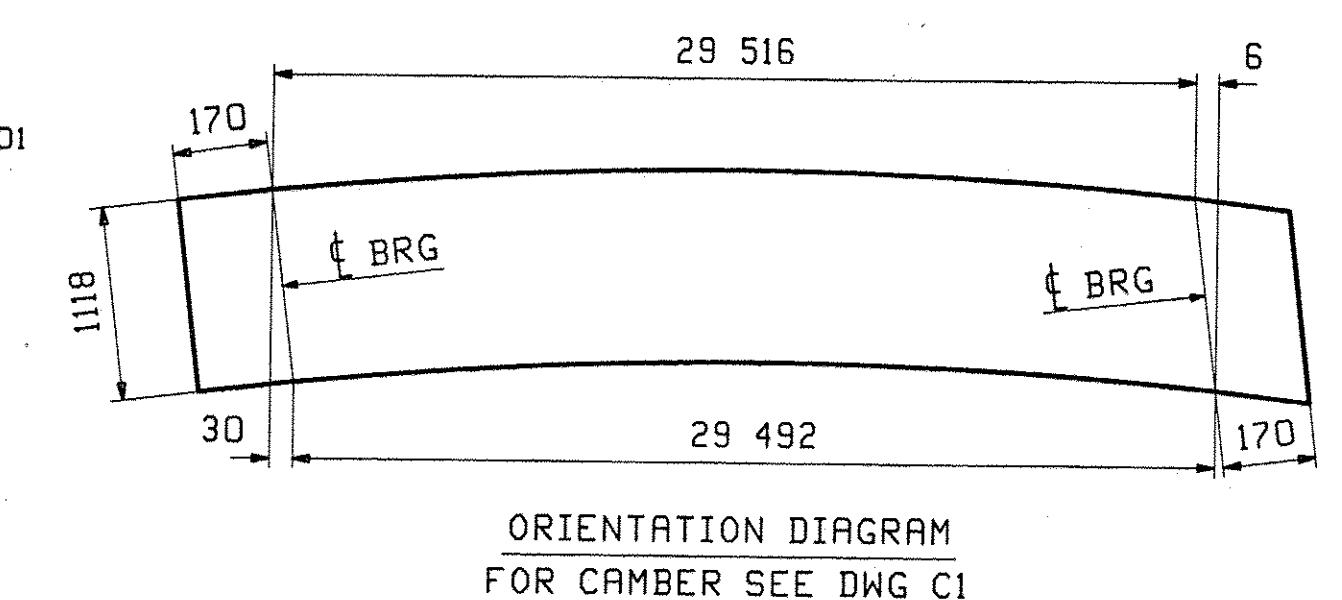
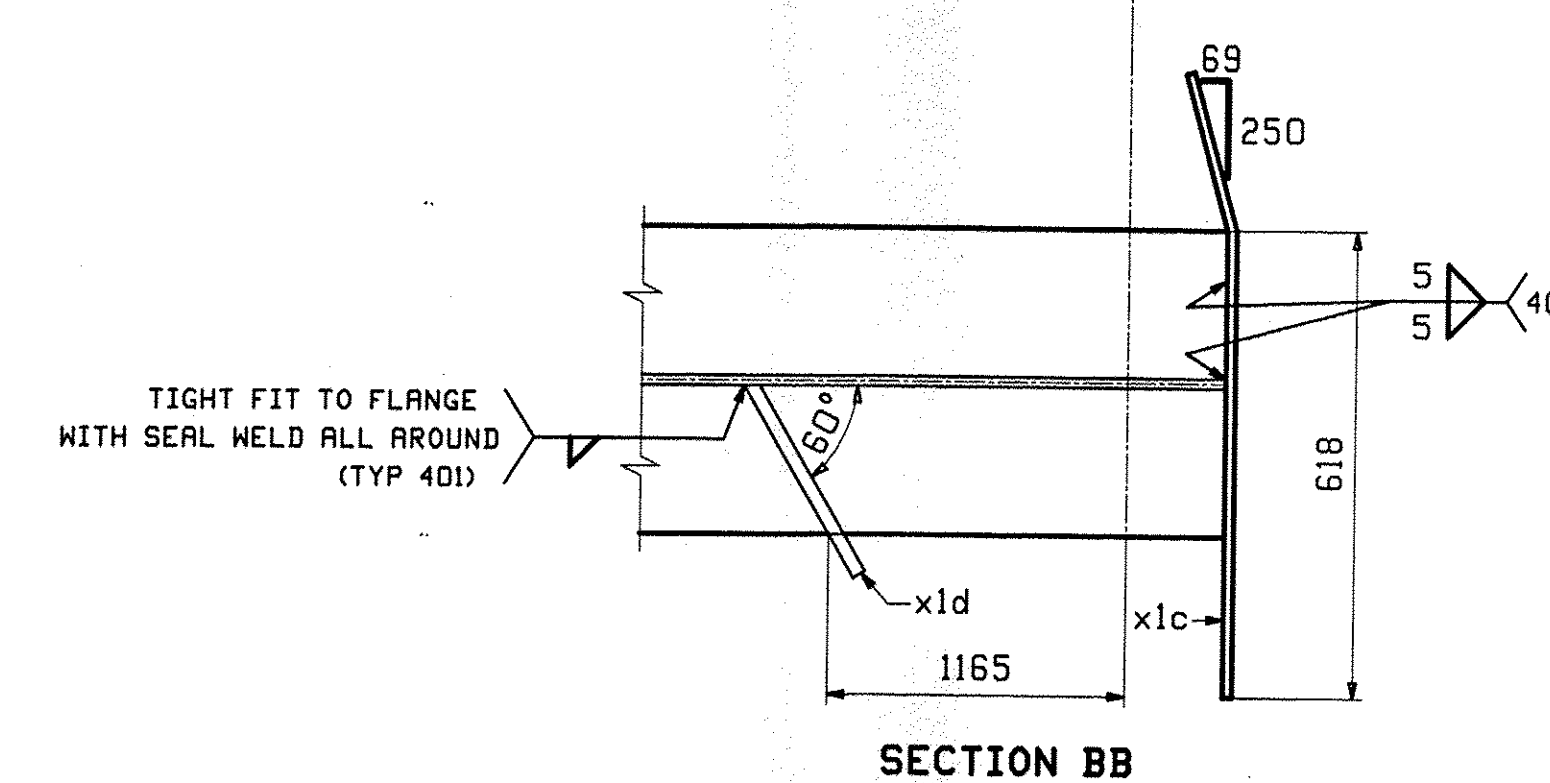
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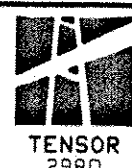
ONE - GIRDER - 4G4

FOR GIRDER STANDARDS SEE DRAWING X1.
FOR CAMBER & FLANGE DIAGRAMS SEE DRAWING C1.
FOR GENERAL NOTES SEE DRAWING G1.
H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.



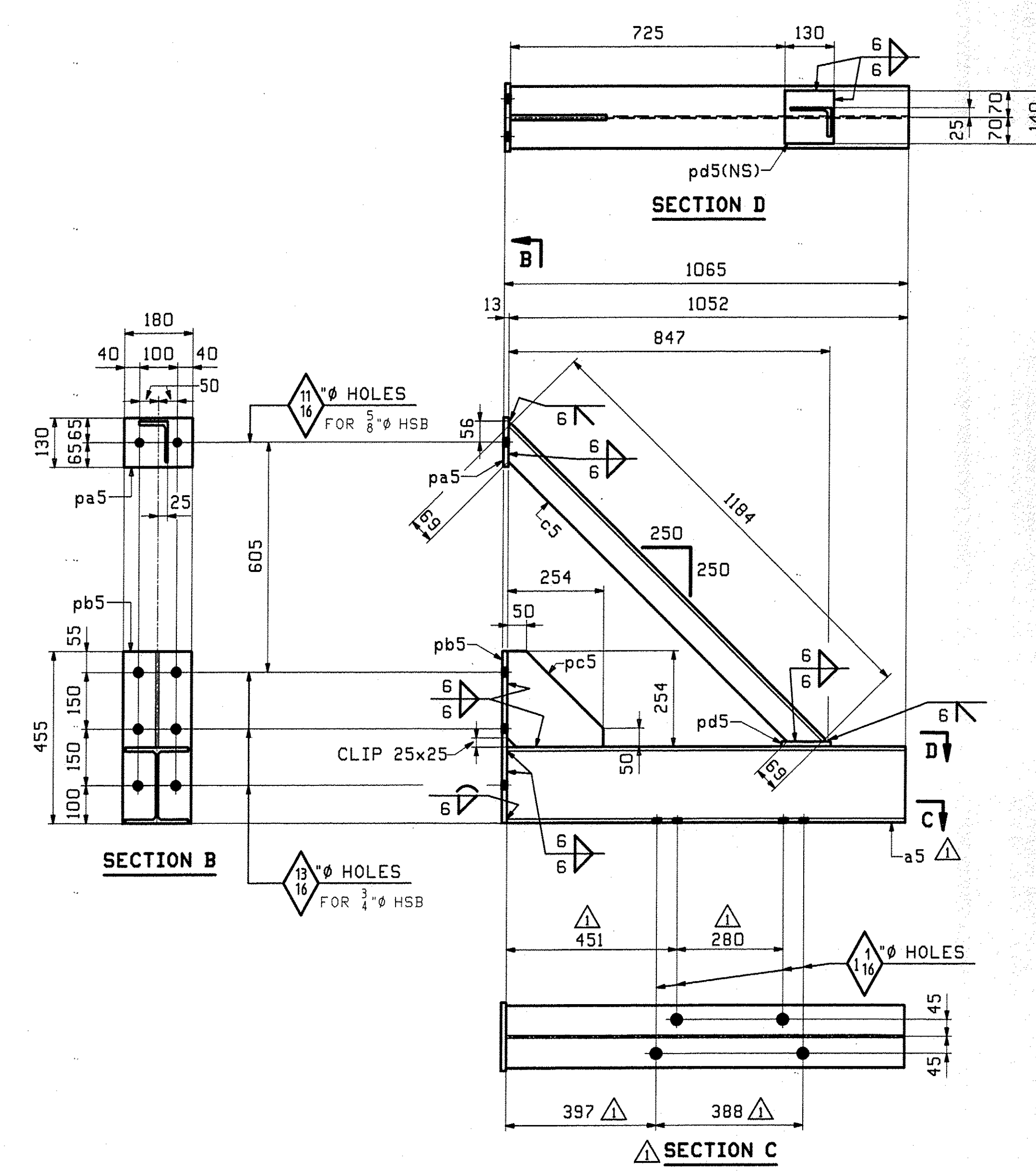
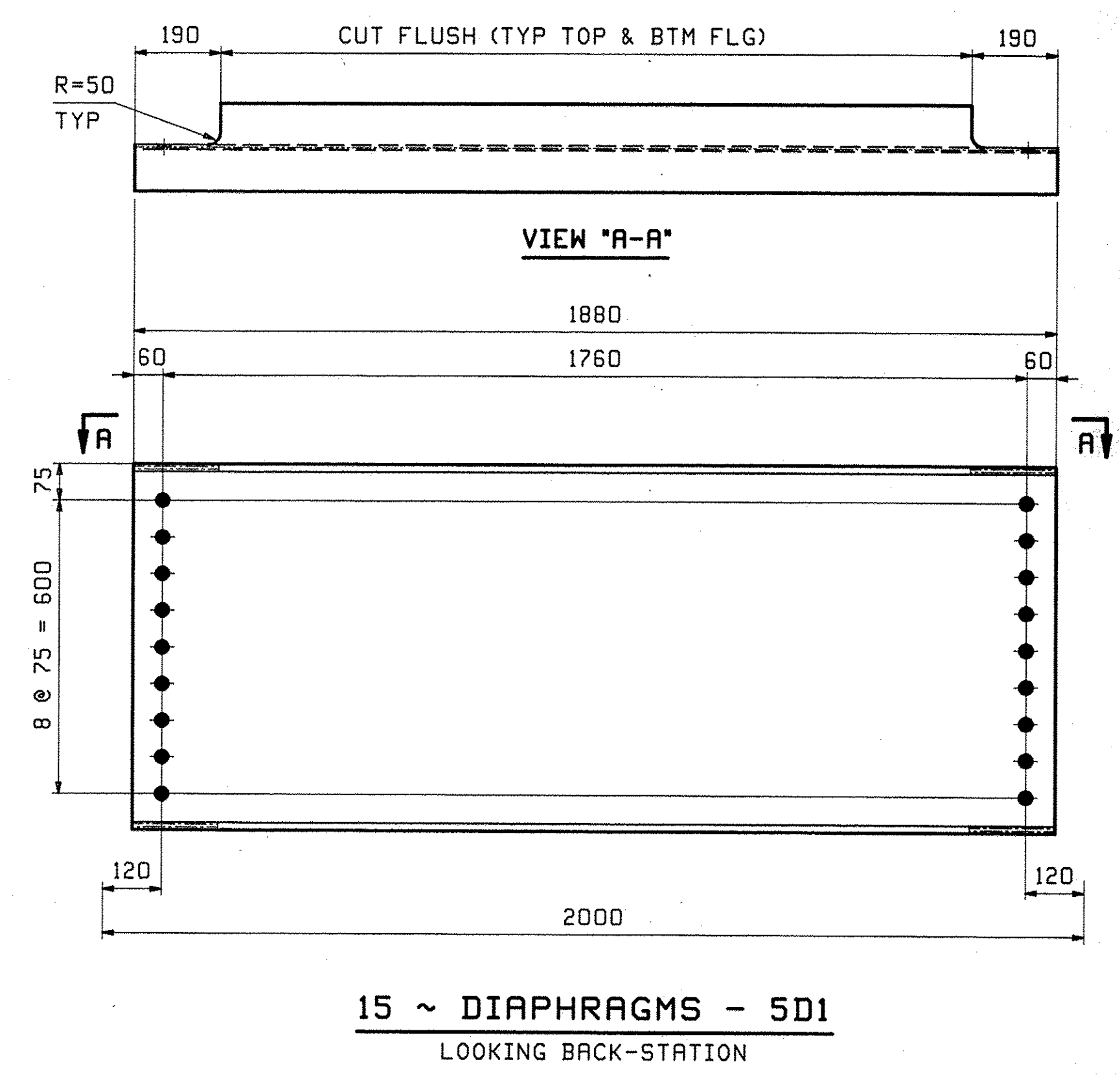
WP	EXT	
1	2524	2404 (CL BRG TO WP 1)
2	7096	4572 (WP 1 to 2)
3	8315	1219 (WP 2 to 3)
4	13 192	4877 (WP 3 to 4)
5	14 411	1219 (WP 4 to 5)
6	19 288	4877 (WP 5 to 6)
7	20 507	1219 (WP 6 to 7)
8	25 384	4877 (WP 7 to 8)
9	26 603	1219 (WP 8 to 9)
10	29 178	2575 (WP 9 to 10)



	6/23	REV. UTILITY HOLE SPACING	JTB	SF	6/24/10	
0					4/16/10	
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL: M270M-345W(UN)		SURFACE PREP. & PAINT: SEE DWG GN1	HOLES: 15 16 Ø (UN)		SHOP BOLTS: NONE	
DESCRIPTION: GIRDER - 4G4						
CASCO BAY STEEL STRUCTURES, INC. 75 SPRING HILL ROAD SACO, MAINE 04072 PHONE (207) 282-7360 FAX. (207) 282-1179						 TENSAR 2980
STRUCTURE: BRIDGE NO. 31 ON TOWN HIGHWAY NO. 3 BRIDGE PROJECT READSBORO County of BENNINGTON			DRAWN: JTB		DATE: 03/24	
			CHKD: ELC		DATE: 4/14/10	
LOCATION: TOWN OF READSBORO, VERMONT			JOB NO.		DWG NO.	
PROJ NO. BRO 1441(25)			445		4	
CUSTOMER: COLD RIVER BRIDGE LLC					REV. 	

RECEIVED
CK'D BY HY OK'D BY DD
JUN 28 2010
RESUBMIT _____ APPROVED ☒
BY Cpw DATE 7/1/10

ABM INFO		SHIP		BILL OF MATERIAL		JOB NO.	DRAWING NO.	REV.
						445	5	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH	REMARKS	WT
						ft		lb
					DIAPHRAGMS			
2	G	SD1	15		W 760x134	1 880		282 kg 585 lb
		SM1	20		UTILITY SUPPORTS		HOT-DIPPED GALV	68 kg 145 lb
2	K		20	a5	W 200x36	1 052		
2	L		20	c5	L 76x76x6.5	1 184		
2	M		20	pa5	PL 13x130	0 180		
2	N		20	pb5	PL 13x180	0 455		
2	P		20	pc5	PL 13x254	0 254		
2	Q		20	pd5	PL 13x130	0 140		



HOT DIPPED GALVANIZED AFTER FABRICATION

20 ~ UTILITY SUPPORTS - SM1
ALONG LINE 1 (WATER MAIN)
ALONG LINE 4 (SEWER MAIN)

NOTE:
FOR GENERAL NOTES SEE DRAWING GNI.

6/23	REV. UTILITY SUPPORT	JTB	SF	6/24/10
0				4/16/10
REV. DATE	REMARKS	DWN	CHK	APVL
MATERIAL:	SURFACE PREP. & PAINT:	HOLES:	SHOP BOLTS:	
M270M-345W	SEE DWG GNI	15/16" (UN)	NONE	
DESCRIPTION: DIAPHRAGMS & UTILITY SUPPORTS				
CASCO BAY STEEL STRUCTURES, INC.				
75 SPRING HILL ROAD SACO, MAINE 04072				
PHONE (207) 282-7360 FAX. (207) 282-1179				
STRUCTURE:	BRIDGE NO. 31 ON TOWN HIGHWAY NO. 3	DRAWN:	JTB	DATE: 03/24
	BRIDGE PROJECT	CHKD:	ELC	DATE: 4/14/10
	READSBORO			
	County of BENNINGTON			
LOCATION:	TOWN OF READSBORO, VERMONT	JOB NO.	445	DWG NO.
PROJ NO.	BRO 1441(25)			5
CUSTOMER:	COLD RIVER BRIDGE LLC			REV. 1

RECEIVED
JUN 28 2010
BY CPW DATE 7/1/10

HDS 7-23-2010
BRIDGE 83
RAILING

Highway Safety Corp.

P.O. Box 358
Glastonbury, CT 06033
Tel: 800-544-4929
Fax: 860-659-9561

LETTER OF TRANSMITTAL

DATE 7/22/2010
JOB NO BRO 1441 (25)
RE Bennington Co., VT

TO F.R. Lafayette, Inc.
52 Kellogg Road
Essex Junction, VT 05452
attn Doug Ford (802) 878-5341

WE ARE SENDING YOU ☒ Attached Under separate cover via the following items:

☒ Shop drawings ☐ Weld Procedures ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

No.	DATE	sheet	REV.	originals	copies	
1769	19-Jul-10	1 & 2	0		1	HDSB Fascia mounted steel tubing
		1			1	Weld procedure
		3			1	Coating procedure

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval

☐ For your use ☐ Approved as noted ☐ Submit copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return corrected prints

☐ For review and comment ☐

☐ FOR BIDS DUE ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO

SIGNED: Mokhtar Mohamed

HIS 7-23-2010

BRIDGE
RAILROAD 84

READSBORO VT BRO 1441 (25) 7/22/10
COATING PROCEDURE

V&Staunton Galvanizing

888 John Hancock Rd.
Taunton, MA 02780

Highway Safety Corp.
239 Commerce St.
Glastonbury, CT 06033

Dear Marie Sniezko:

The following is a description of the process and protocol we use at the Taunton paint shop. We would follow this procedure for the Vermont Readsboro BRO 1441(25) project. All of the Galvanizing processes are per ASTM A 123 requirements.

Taunton Coating Room Process.

- Product is brought directly over from the galvanizing plant and hung on racks. Storage and staging is all under enclosed roof. The prime coat will be applied within 12 hours of the galvanizing process.
- Final inspection is made to address any remaining irregularities in the galvanized surface. Air sanders and hand files are used to carefully remove irregularities if present. Any required repairs are completed according to ASTM A - 780 Standard practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings.
- The racks are loaded into the manual blast room.
 - Blasting pressure is low so as to not to damage the zinc.
 - Appropriate surface condition is 1.0 to 1.5 mil of profile and complete cleaning of the surface.
 - When blast is complete, the operator uses straight air to blow down the racks.

- After the blast room, racks are manually staged before the primer booth. Additional quality control is performed here to confirm smoothness of the surface and thoroughness of the blast.
- Racks are automatically introduced to the primer booth by a timed conveyor system.

INTERMEDIATE COAT

- The epoxy primer is spray applied, using an airless sprayer, to achieve a dry film thickness of 4.0 - 5.0 mils. Wet film gages are used to monitor the application.
- After the prime booth, racks are automatically stored in the next buffer area and inspected for completeness of coverage and appearance.
- Primed racks of material are now loaded by transfer cart into the primer cure oven and allowed to dwell until primer has completely cured per the coating manufacturer's schedule.
 - There is high airflow in the oven to promote thorough cure of the primer.
- After the cure oven, racks are manually staged in the buffer zone before the finish booth. Additional quality control is performed here to confirm smoothness, specified thickness and quality of the primed surface.
- Cured primer racks are next introduced to the finish coat booth via a timed conveyor similar to the primer booth system.

BRIDGE
RAILROAD.

85

COLOR CHIP
27038

• Page 2

- The aliphatic polyurethane finish is spray applied, using an airless sprayer, to achieve a dry film thickness of 1.5—2.0 mils. Wet film gages are used to monitor the application. 3.0 -5.0
- After the finish booth, racks are automatically stored in the next buffer area.
 - Additional inspection and repair is done at this stage while the finish is still semi-fluid.
- The racks are now loaded by transfer cart into the finish cure oven and allowed to dwell until finish has completely cured per the coating manufacturer's schedule.
 - The oven provides sufficient curing of finish to allow immediate packing of the product once the surface has cooled to ambient temperatures (< 80° F).
 - There is high airflow in the oven to promote thorough cure of the finish.
- The last stage is final inspection and packing using soft foam to protect the finish.

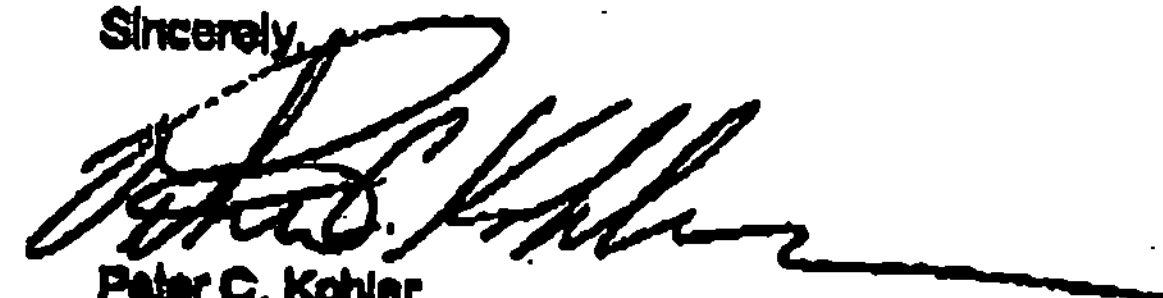
After painting, finished product is stored inside until shipment.

Additional Notes:

Environmental conditions are monitored and recorded throughout the day. All production parameters are recorded and become part of the permanent job record.

Please call me at (717) 821-3086 if you need any additional information.

Sincerely,



Peter C. Kohler
Special Coatings Project Manager
V&S Taunton Galvanizing, LLC

BRIDGE 06
RAILING 06

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification ASTM A500 gr B

Welding process Gas Metal Arc Welding (GMAW)

Manual, semi-automatic, or automatic Semi-Automatic

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

Filler metal specification AWS A5.18

Filler metal classification ER70S-3

Electrode and manufacturer Lincoln Electric Lincoln Weld L-50

Flux and manufacturer N/A

Shielding gas 85% Argon / 15% CO2 Flow rate 19-27 L / min

Single or multiple pass Single

Single or multiple arc Single

Welding current DCEP

Polarity Reverse - electrode positive

Welding progression Stringers

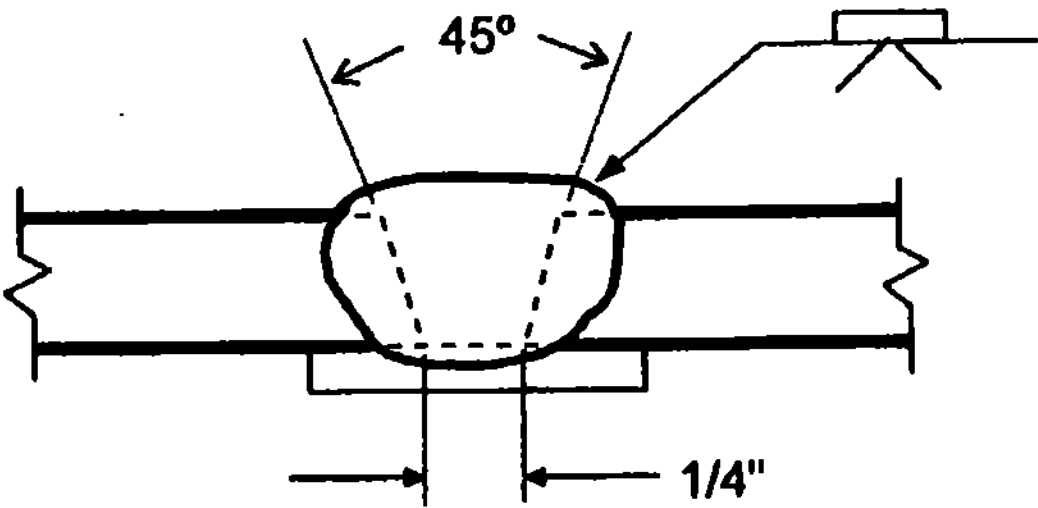
Root treatment clean base metal

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

Postheat treatment None

Electrode extension 3/4" ± 1/4"

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters		Travel speed	Joint detail
			Amperes	Volts		
	1	0.045"	300 A ± 30	29 V ± 2	14 lpm ± 2	B-U2a 
TRANS RECEIVED CK'D BY _____ OK'D BY JWC JUL 22 2010 RESUBMIT _____ APPROVED ✓ BY _____ DATE 7-29-10						

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

WPS no. W-1769A

Revision no. 0

Supporting PQR no. Pre-Qualified

Project Name Readsboro, VT

Fabricator Highway Safety Corporation Paul A Radice
Prepared By: Paul Radice CWI 98070221
Date 07-22-10 QC1 EXP 7/1/2013
Project Number BRO 1441(25)

BRIDGE 87
RAILING

READSBORO VT BRO 1441 (25) 7/22/10
COATING PROCEDURE

V&Staunton Galvanizing

688 John Hancock Rd.
Taunton, MA 02780

Highway Safety Corp.
239 Commerce St.
Glastonbury, CT 06033

Dear Marie Sniezko:

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 - The racks are loaded into the manual blast room.
 - Blasting pressure is low so as to not to damage the zinc.
 - Appropriate surface condition is 1.0 to 1.5 mil of profile and complete cleaning of the surface.
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 - After the blast room, racks are manually staged before the primer booth. Additional quality control is performed here to confirm smoothness of the surface and thoroughness of the blast.
 - Racks are automatically introduced to the primer booth by a timed conveyor system.
- INTERMEDIATE COAT**
- The epoxy primer is spray applied, using an airless sprayer, to achieve a dry film thickness of 4.0 - 5.0 mils. Wet film gages are used to monitor the application.
 - After the prime booth, racks are automatically stored in the next buffer area and inspected for completeness of coverage and appearance.
 - Primed racks of material are now loaded by transfer cart into the primer cure oven and allowed to dwell until primer has completely cured per the coating manufacturer's schedule.
 - There is high airflow in the oven to promote thorough cure of the primer.
 - After the cure oven, racks are manually staged in the buffer zone before the finish booth. Additional quality control is performed here to confirm smoothness, specified thickness and quality of the primed surface.
 - Cured primer racks are next introduced to the finish coat booth via a timed conveyor similar to the primer booth system.

BRIDGE 88
RAILINGS

COLOR CHIP
27038

• Page 2

- The aliphatic polyurethane finish is spray applied, using an airless sprayer, to achieve a dry film thickness of ~~1.5-2.0~~ mils. Wet film gages are used to monitor the application.
3.0-5.0
- After the finish booth, racks are automatically stored in the next buffer area.
 - Additional inspection and repair is done at this stage while the finish is still semi-fluid.
- The racks are now loaded by transfer cart into the finish cure oven and allowed to dwell until finish has completely cured per the coating manufacturer's schedule.
 - The oven provides sufficient curing of finish to allow immediate packing of the product once the surface has cooled to ambient temperatures (< 80° F).
 - There is high airflow in the oven to promote thorough cure of the finish.
- The last stage is final inspection and packing using soft foam to protect the finish.

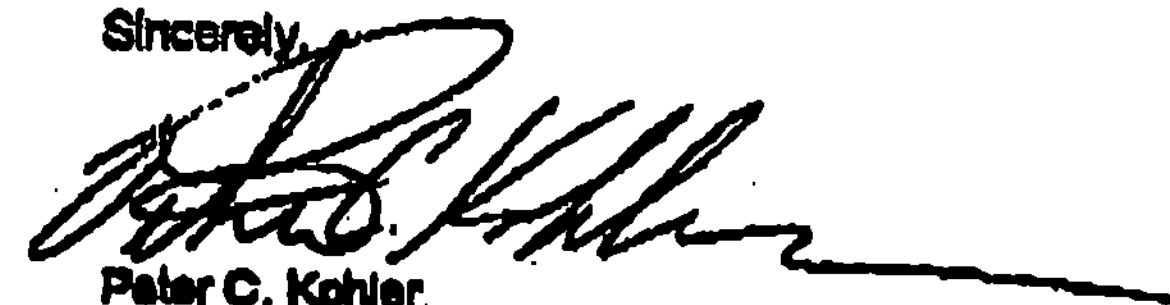
After painting, finished product is stored inside until shipment.

Additional Notes:

Environmental conditions are monitored and recorded throughout the day. All production parameters are recorded and become part of the permanent job record.

Please call me at (717) 821-3088 if you need any additional information.

Sincerely,



Peter C. Kohler
Special Coatings Project Manager
V&S Taunton Galvanizing, LLC

82DD6E-89
RAILIN

T-313 P.004/004 F-483

VERMONT AGENCY OF TRANSPORTATION
Protective Coatings for New and 100% Bare Existing Steel for Bridges
2004 Qualified Products List

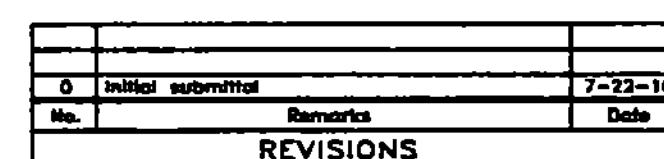
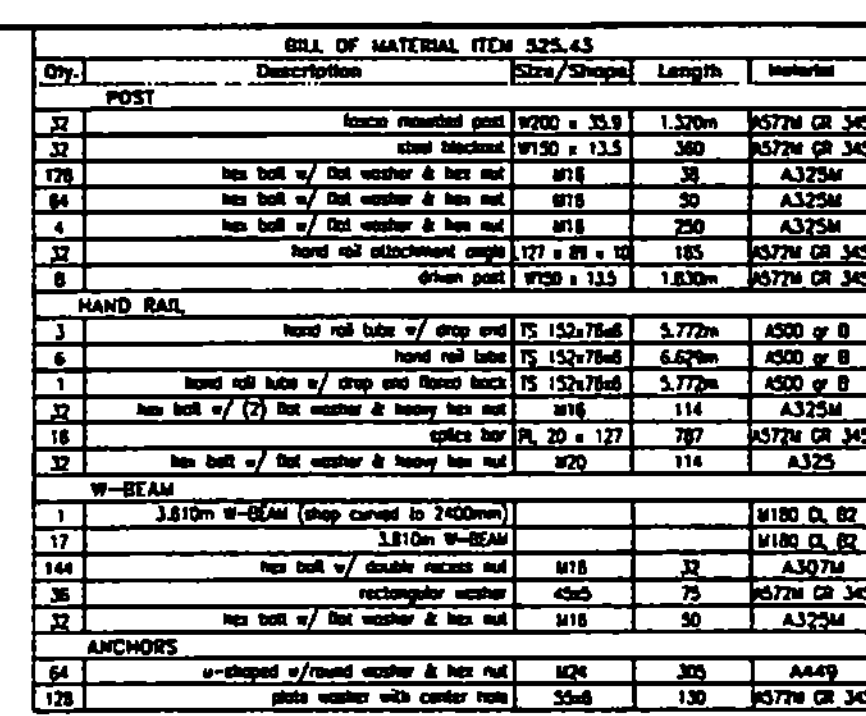
Construction Spec: Section 513
Material Spec: Section 708

Manufacturer	Coat P = Primer I = Intermediate T = Top	Product System	Dry Film Thickness (in MILS)		Minimum Time Between Coats (Hours) (@ 75°F)	Minimum Application Temperature °F (ambient)	NEPCOAT M/KEPCOAT Approved System, Date of Approval	Application (Refer to VDOT Supplemental Specification Section 513)			
			MIN.	MAX.				New Structure Steel, Shop Applied	Existing Structure Steel, Shop Applied	Existing Structure Steel, Field Applied	Existing Structure Steel, Field Applied (Cement Coating System)
1) ANDERSON PROTECTIVE COATINGS (002)	P I T	Diplocoat 89 HS Zinc Primer (isopropyl) Amersol 305 Multi-purpose Epoxy Amersol 400 HS Aliphatic Polyurethane	3.0 4.0 ~2.0	4.0 6.0 3.0	24 8 -	50 50 50	Sept. 4, 1996 March 28, 2001	X	X		
2) CARBOLINE COMPANY (002)	P I T	Carbo Zinc 11 HS Zinc (isopropyl) Carbolite 800 epoxy Carbolite 133 HS aliphatic polyurethane	~2.0 4.0 3.0	4.0 10.0 5.0	18 7 -	50 50 50	March 3, 1999 (7)	X	X		
3) CARBOLINE COMPANY (002)	P I T	Carbolite 800 epoxy primer (isopropyl) Carbolite 800 epoxy Carbolite 133 HS aliphatic polyurethane	~2.0 3.0 3.0	4.0 10.0 5.0	7 4 -	50 50 50	Feb. 18, 1999			X	
4) SHERWIN WILLIAMS COATINGS (002)	P I T	Zinc Chd HS HS Hemepoxy 446 Acrylon 210 Acrylic	3.0 3.0 3.0	4.0 10.0 6.0	2 8 8	39 50 39	March 28, 2001			X	
5) MAAS INDUSTRIAL COATINGS (002)	P I T	Epo 210 Epoxy Organic Zinc Primer Epo 210 Epoxy Epo 210 Epoxy	2.5 2.0 2.0	3.5 7.0 6.0	16 4 16	35 30-50 30-50	March 28, 2001			X	
6) KYMAX COATINGS (002)	P I T	(isopropyl cure system) MoosZinc ME ME MC Primer MoosZinc FUR MC Bridge Finish	3.0 3.0 2.0	4.0 4.0 3.0	4 4 2	35 35 35	March 28, 2001			X	
7) WASSER TECH COATINGS (002)	P I T	(isopropyl cure system) MC-Zinc zinc-rich urethane (isopropyl) MC-Purex B urethane MC-Purex A aliphatic urethane	3.0 3.0 3.0	6.0 6.0 10.0	4 6 -	35 35 35	Jan. 2, 1997 (5)	X	X	X	
8) ANDERSON PROTECTIVE COATINGS (002)	P I T	Amersol 400 Primer Amersol 400 Intermediate Amersol 404 Topcoat	3.0 3.0 2.0	4.0 4 3.0	4 4 4	35 35 35	8-Mar-01	X	X		

400820177

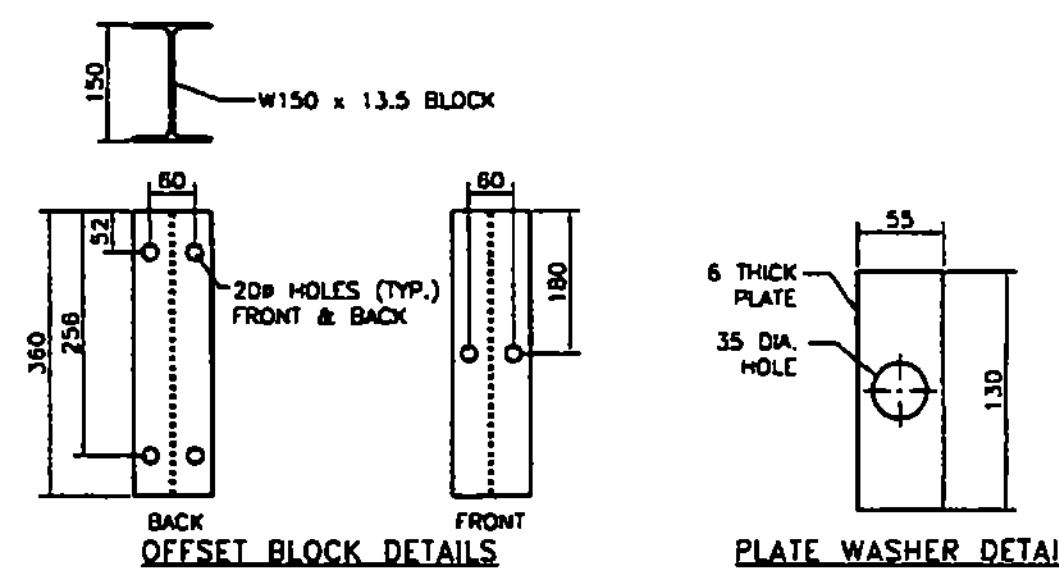
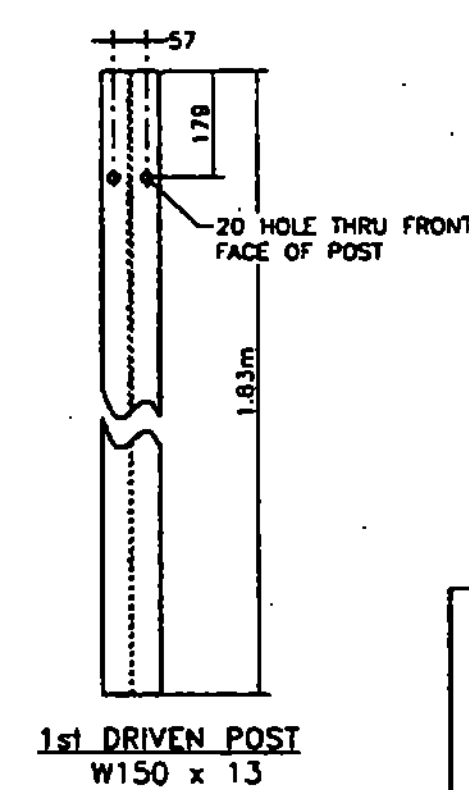
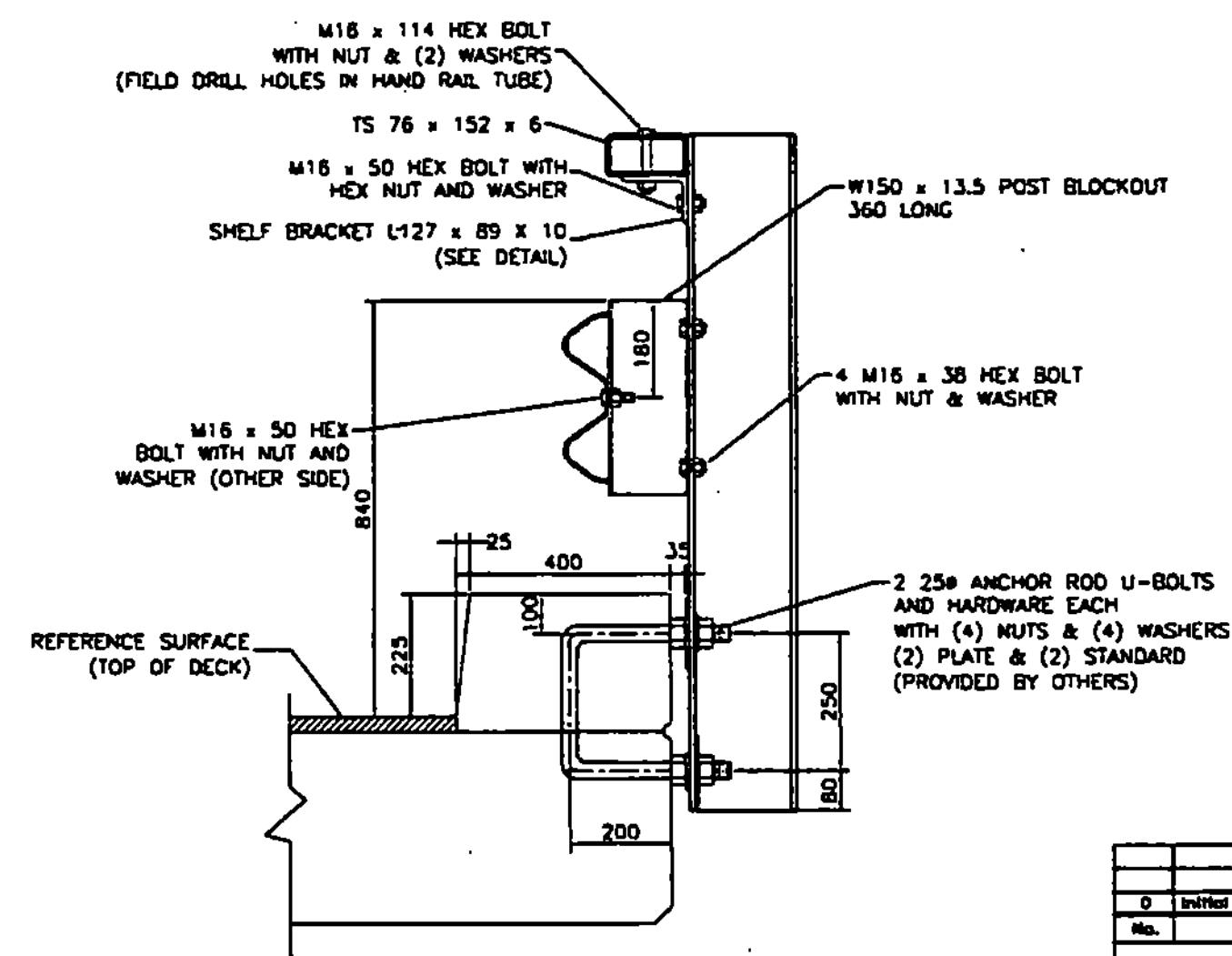
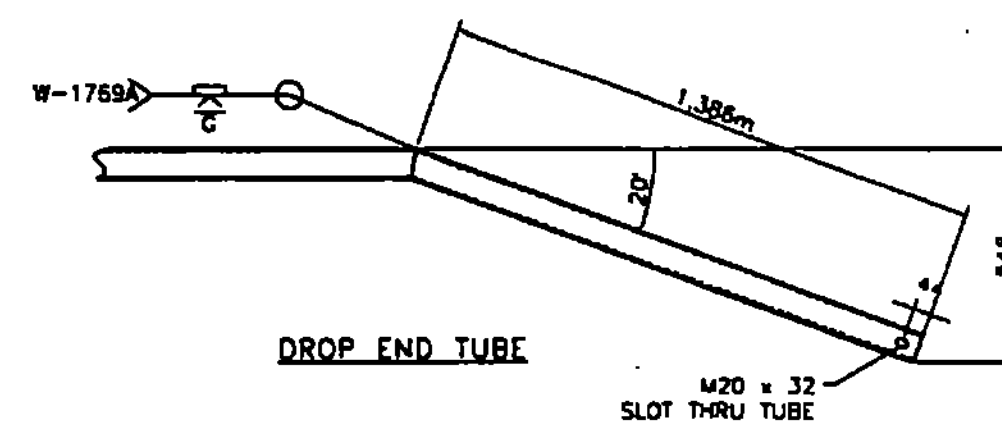
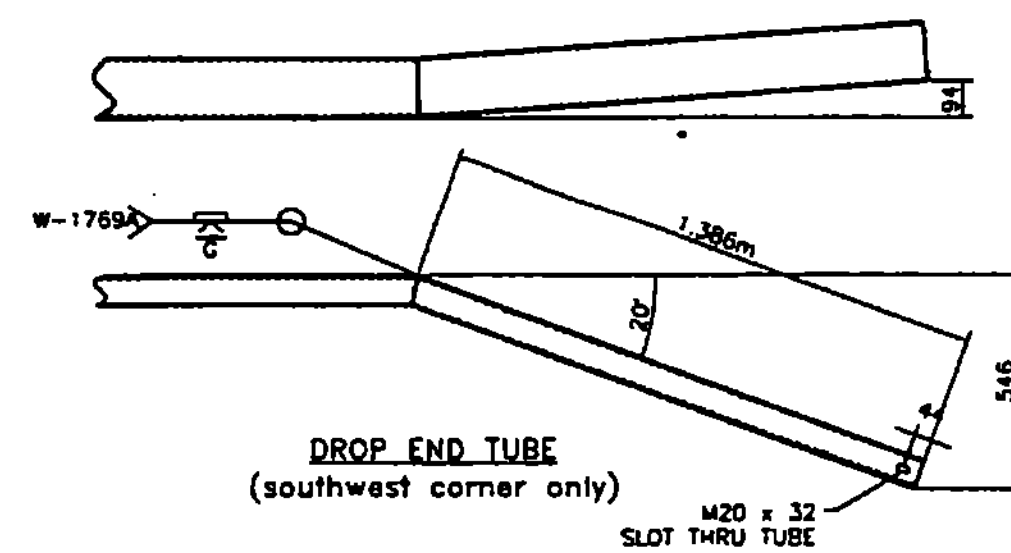
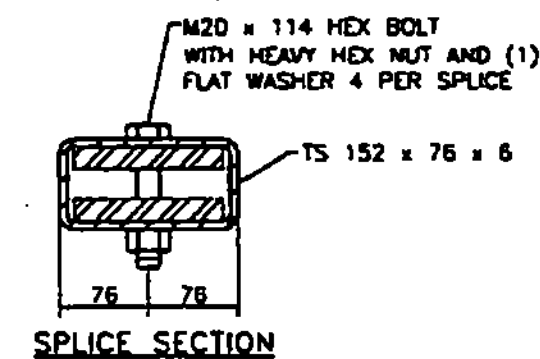
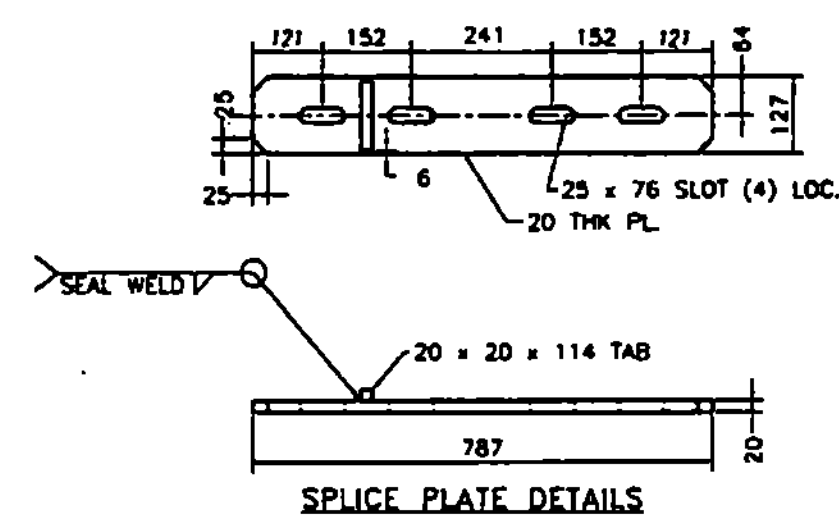
7/10/2004 10:00:00 AM

7/10/2004 10:00:00 AM



	HIGHWAY SAFETY CORP.				
	CLASTONBURY, CT 800-633-9445				
ITEM # 525.43 FACIA MOUNTED HDSS TOWN OF READSBORO, BENNINGTON COUNTY, VT PROJECT NO. BRD 1441 (25) TOWN HIGHWAY 3 OVER DEERFIELD RIVER BRIDGE NO. 31					 CERTIFIED FABRICATOR MADE IN USA 1769 UNIT NO. 1 of 2
MODEL NO. 1000 F.R. LAFAYETTE 1980 07-19-10 M/MH M/CH PAR R/S B/S					

BRIAN PATRICK 90



0	Initial submitted	
No.	Remarks	Date
REVISIONS		

NOTES

1. SEE STANDARD C-114 & C-116 FOR ADDITIONAL DETAILS OF STEEL BEAM GUARD RAIL AND SUBSECTION 732.03 OF THE STANDARD SPECIFICATIONS FOR FURNISHING AND INSTALLATION OF BOX BEAM GUARD RAIL.
7. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AND CONFORM TO SECTION 714.
8. BRIDGE RAIL HEAVY DUTY STEEL BEAM RAIL SHALL BE A515M0 M180, CLASS 8 TYPE-II, POST AND BRACKETS, AS WELL AS PLATE AND SPECIAL WASHERS, SHALL BE A515M0 M233/N A6233M STEEL. BOLTS SHALL BE ASTM F 590M, CLASS 4.6, ALL MATERIAL SHALL BE GALVANIZED PRIOR TO FABRICATION TO A515M 10 OR A6233 (HARDWARE)
9. ALL POSTS SHALL BE SET TO NORMAL GRADE
10. BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY HEIGHT IN 7.6M.
6. APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM FOR 15.2 m FROM THE END OF THE BRIDGE.
7. SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
8. SEE STANDARD SHEET C-114 FOR DELINEATOR DETAILS AND PLACEMENT.
9. ERECT DELINEATOR ON EVERY FIFTH POST OR APPROXIMATELY 9M FEET APART. PAYMENT SHALL BE SUBMITTAL TO OTHER ITEMS.
10. THE DROP HEIGHT TEST TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING.
11. THE BRIDGE RAIL AND APPROACH GUARDRAIL SHALL BE PAINTED BLACK ACCORDING TO SECTION 313. THE W-BEAM SECTIONS OF RAIL, STEEL OFFSET BLOCKS, BOX BEAM RAIL AND SUPPORT ANGLES AND POSTS SHALL BE PAINTED TO FEDERAL STANDARD NO. 595, COLOR CHIP #27103.
12. INTERNAL, SPICE PLATES AND ALL FASTENERS WILL BE NOT DIPPED GALVANIZED ONLY.

HIGHWAY SAFETY CORP

GLASTONBURY, CT
860-633-9445

ITEM # 525.43 FACIA MOUNTED HDSB

TOWN OF READSBORO, BENNINGTON COUNTY
PROJECT NO. BRD 1441 (25)

TOWN HIGHWAY 3 OVER DEERFIELD RIVER

BRIDGE NO. 31

F. D. LAFAYETTE

F.R. LAFAYETTE			
MMH	CRD	RAB	07-18-10

AISC CERTIFIED FABRICATOR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1769

2 of 2

2	07	2
NTS	ONE	

SEIDU KAITIA 9

Highway Safety Corp.

P.O. Box 358
Glastonbury, CT 06033
Tel: 800-544-4929
Fax: 860-659-9561

LETTER OF TRANSMITTAL

BRIDGE
RAILROAD 92
DATE 7/22/2010
JOB NO BRO 1441 (25)
RE Bennington Co., VT

TO F.R. Lafayette, Inc.
52 Kellogg Road
Essex Junction, VT 05452
attn Doug Ford (802) 878-5341

WE ARE SENDING YOU ☒ Attached Under separate cover via the following items:
☒ Shop drawings ☐ Weld Procedures ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐

No.	DATE	sheet	REV.	originals	copies	
1769	19-Jul-10	1 & 2	0	1	1	HDSB Fascia mounted steel tubing
		1		1	1	Weld procedure
		3		1	1	Coating procedure

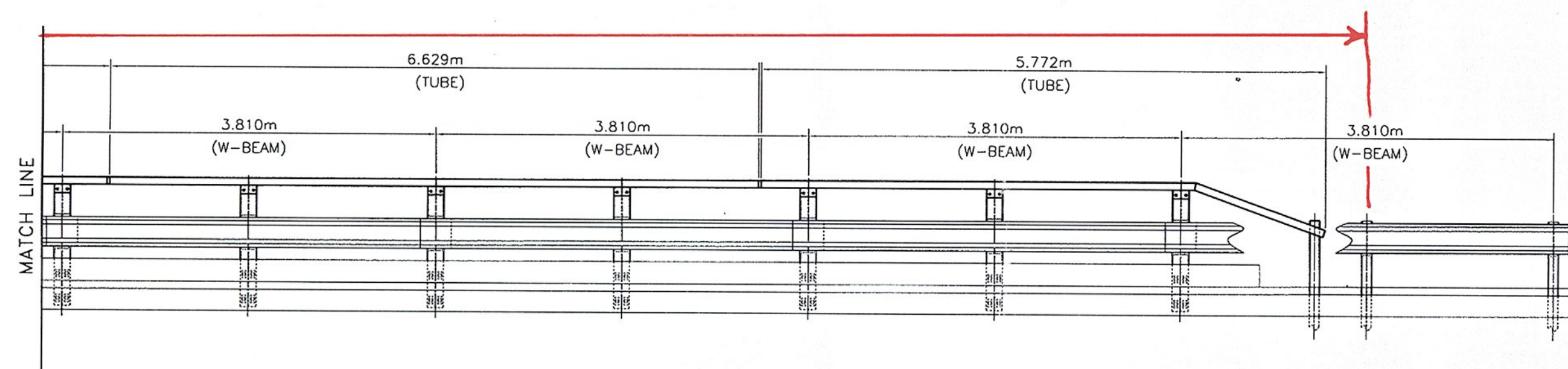
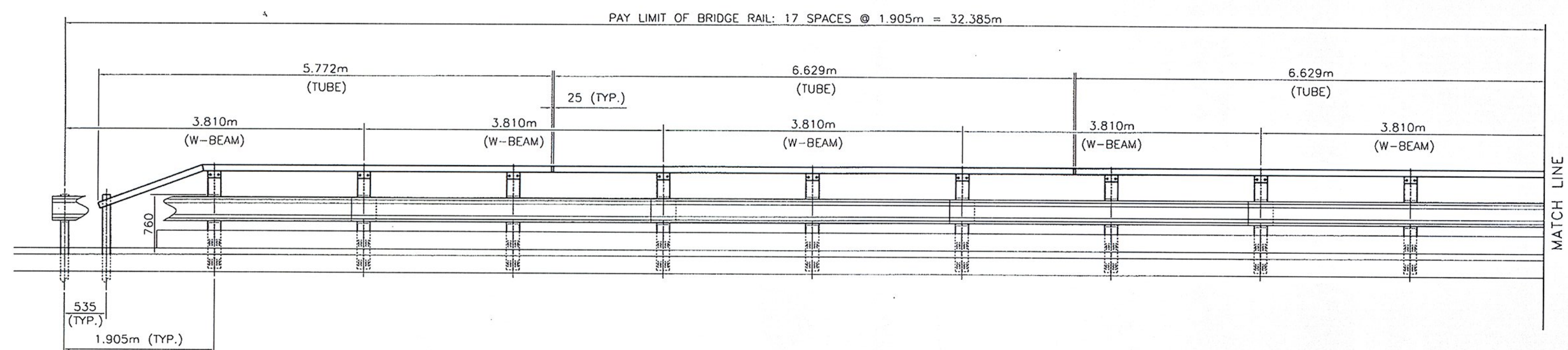
THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit copies for approval
☐ For your use ☐ Approved as noted ☐ Submit copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return corrected prints
☐ For review and comment ☐
☐ FOR BIDS DUE ☐ PRINTS RETURNED AFTER LOAN TO US

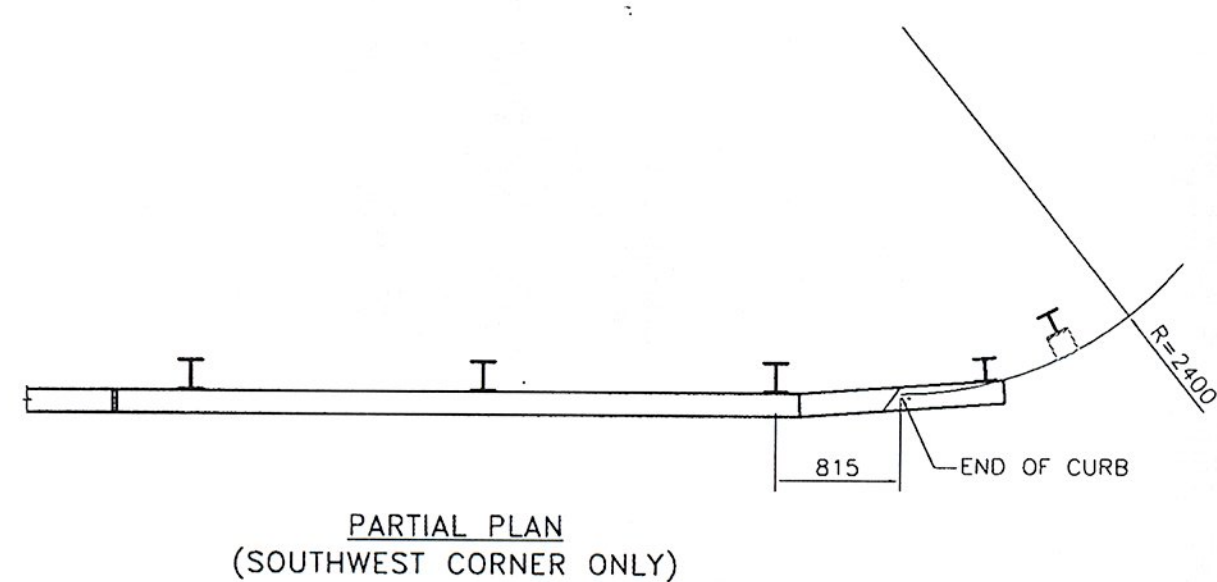
REMARKS

COPY TO

SIGNED: Mokhtar Mohamed



NORTH ELEVATION LOOKING AT RAIL FROM C. OF ROAD



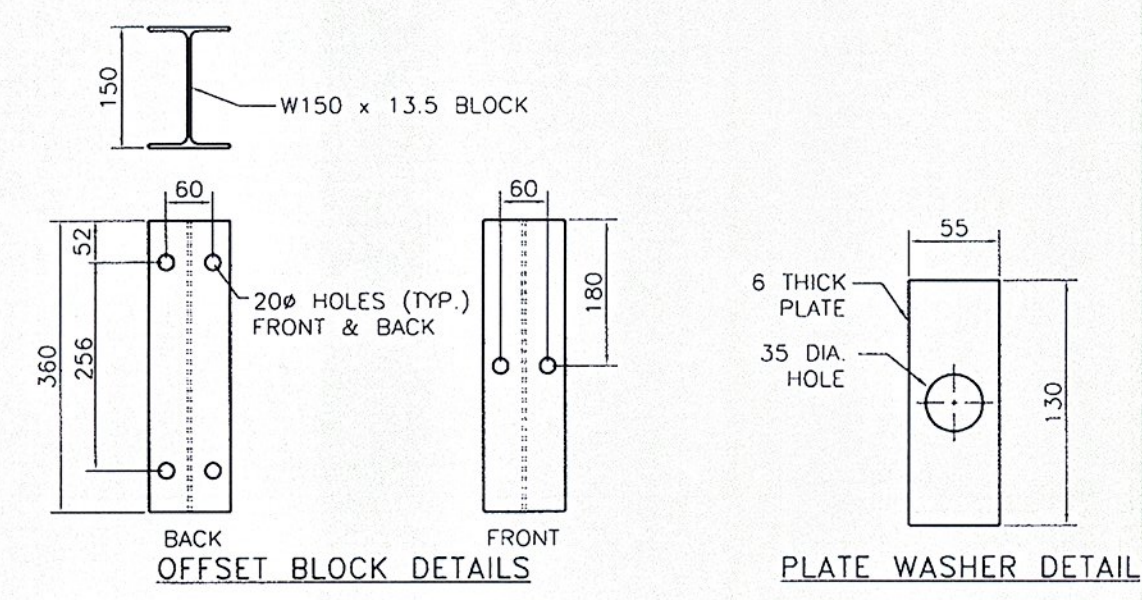
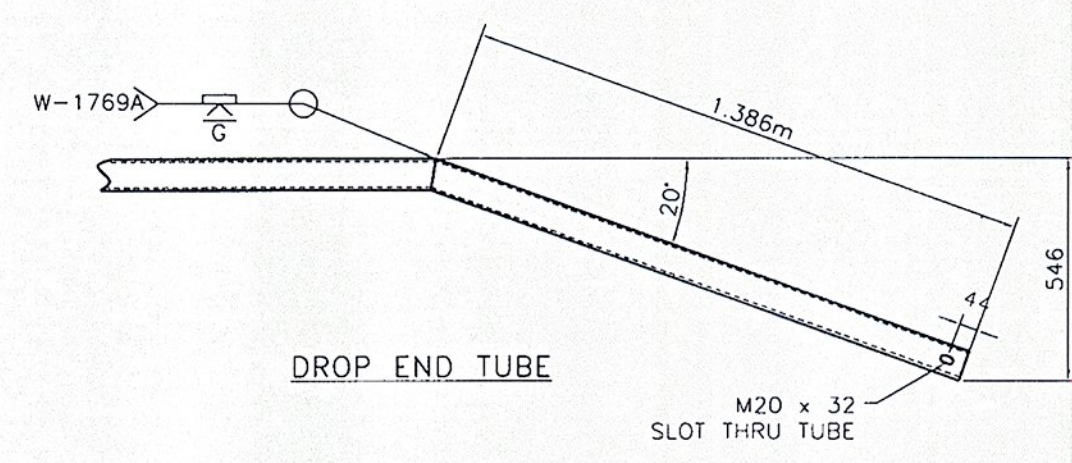
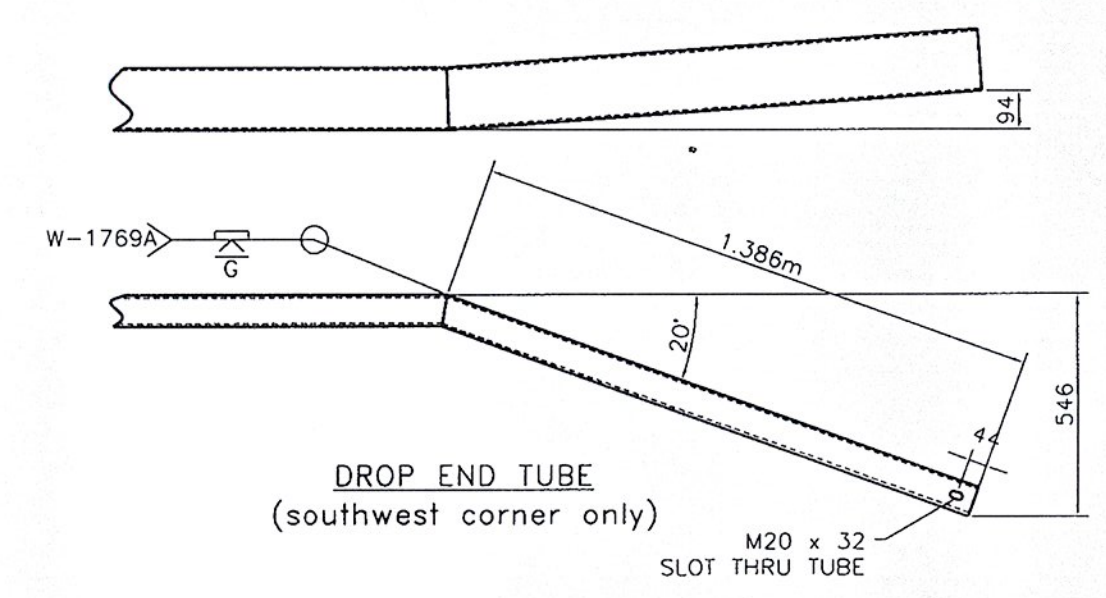
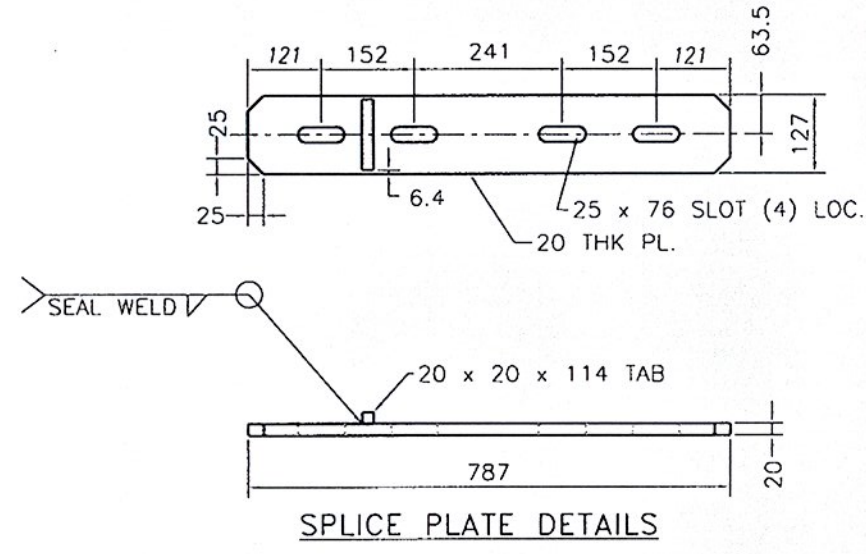
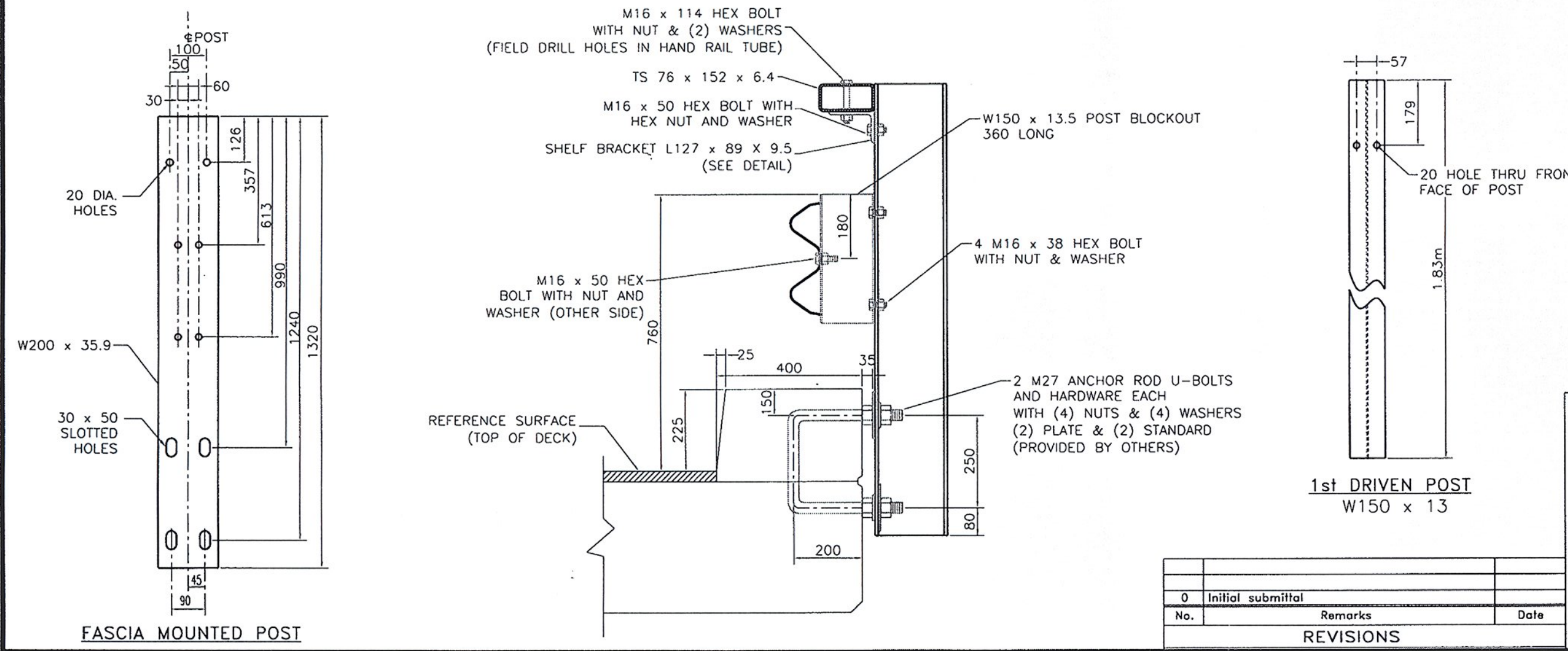
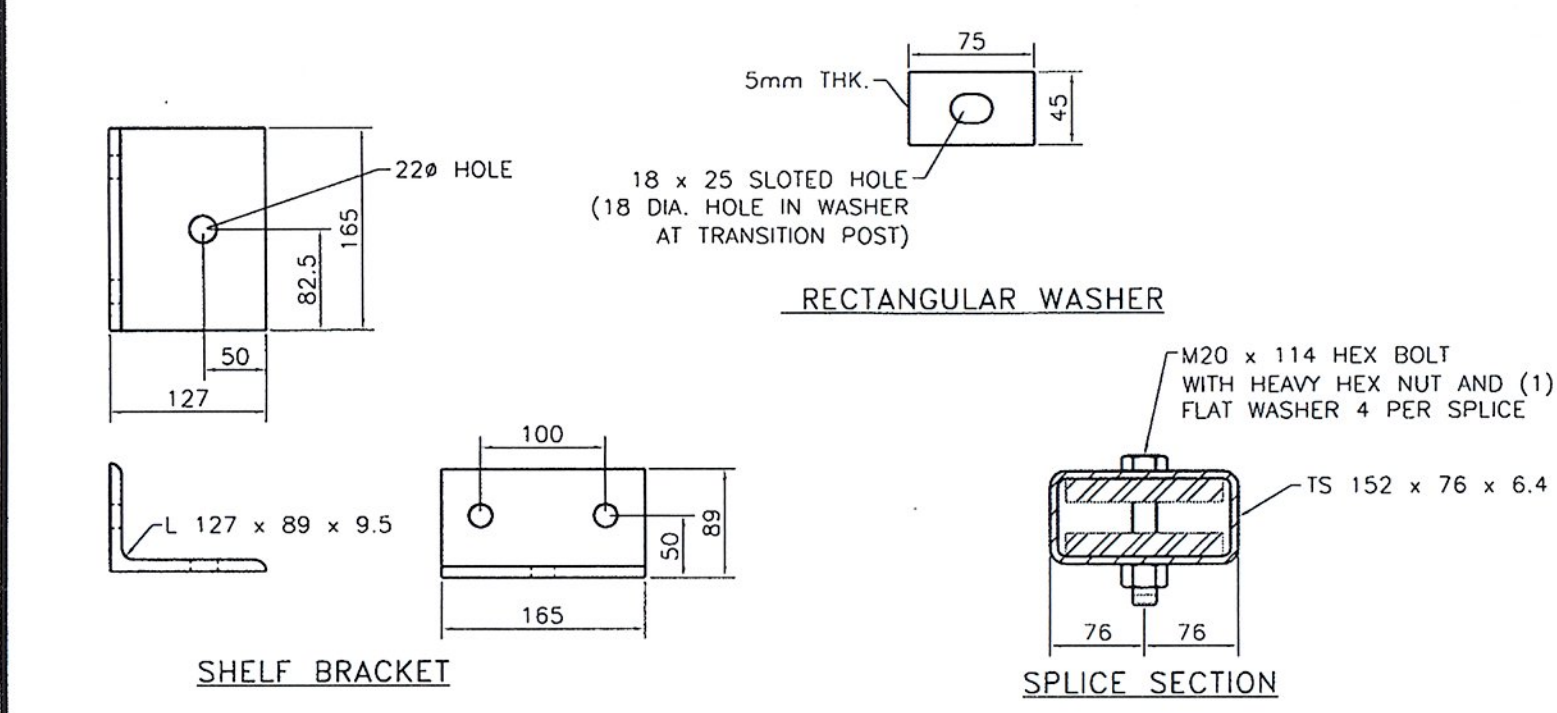
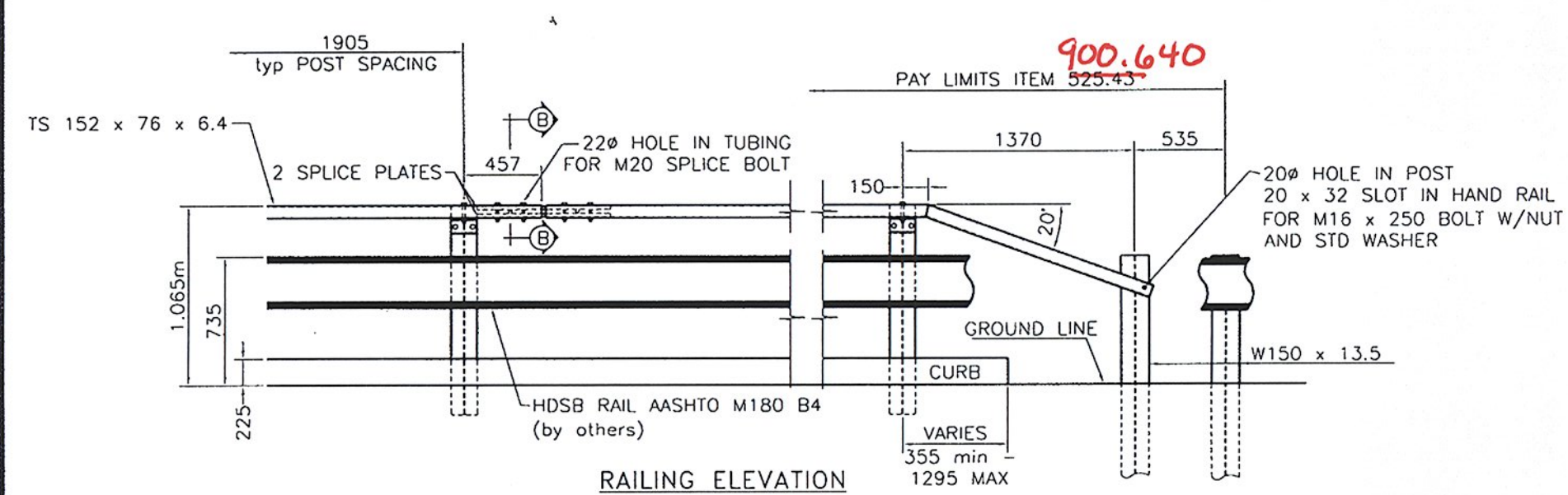
No.	REVISIONS	Remarks	Date
0	Second submittal		7-28-10
0	Initial submittal		7-22-10

RECEIVED
CK'D BY HI OK'D BY DD3
JUL 29 2010
RESUBMIT APPROVED As Noted
BY CPW DATE 8/3/10

HIGHWAY SAFETY CORP GLASTONBURY, CT 860-635-9445	
ITEM # <u>925-43</u> <u>FACIA MOUNTED</u> <u>HDSS</u> TOWN OF READSBORO, BENNINGTON COUNTY, VT PROJECT NO. BRO 1441 (25) TOWN HIGHWAY 3 OVER DEERFIELD RIVER BRIDGE NO. 31	
DESIGN CONTRACTOR F.R. LAFAYETTE	ISSUED FOR 1769
DRAWN MHM	CHECKED PAR
DATE 07-19-10	SCALE N.T.S.
SHEET NO. 1 of 2	
BOX 0	

BRIDGE RAILING 93

Qty.	POST	Description	Size/Shape	Length	Material
32		fascia mounted post	W200 x 35.9	1.320m	A572M GR 345
32		steel blockout	W150 x 13.5	360	A572M GR 345
128		hex bolt w/ flat washer & hex nut	M16	36	A325M
64		hex bolt w/ flat washer & hex nut	M16	50	A325M
4		hex bolt w/ flat washer & hex nut	M16	250	A325M
32		hand rail attachment angle	L127 x 89 x 9.5	165	A572M GR 345
8		driven post	W150 x 13.5	1.830m	A572M GR 345
HAND RAIL					
3		hand rail tube w/ drop end	PS 152x76x6.4	5.772m	A500 gr B
6		hand rail tube	PS 152x76x6.4	6.629m	A500 gr B
1		hand rail tube w/ drop end flared back	PS 152x76x6.4	5.772m	A500 gr B
32		hex bolt w/ (2) flat washer & heavy hex nut	M16	114	A325M
16		splice bar	PL 20 x 127	787	A572M GR 345
32		hex bolt w/ flat washer & heavy hex nut	W20	114	A325
W-BEAM					
1		3.810m W-BEAM (shop curved to 2400mm)			M180 CL B2
17		3.810m W-BEAM			M180 CL B2
144		hex bolt w/ double recess nut	M16	32	A307M
16		rectangular washer	45x5	75	A572M GR 345
32		hex bolt w/ flat washer & hex nut	M16	50	A325M
ANCHORS					
64		u-shaped w/round washer & hex nut	M27	305	A449
128		plate washer with center hole	55x6	130	A572M GR 345



- NOTES
1. SEE STANDARD G-1M & G-1dM FOR ADDITIONAL DETAILS OF STEEL BEAM GUARD RAIL AND SUBSECTION 732.03 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS OF BOX BEAM GUARD RAIL.
 2. ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AND CONFORM TO SECTION 714.07.
 3. BRIDGE RAIL HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M180, CLASS B TYPE-II. POST AND BRACKETS, AS WELL AS PLATE AND SPECIAL WASHERS, SHALL BE AASHTO M223/M 223M STEEL. BOLTS SHALL BE ASTM F 568M, CLASS 4.6. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION TO AASHTO M118 OR M232 (HARDWARE).
 4. ALL POSTS SHALL BE SET TO NORMAL GRADE.
 5. BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY HEIGHT IN 7.62M.
 6. APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM FOR 15.2 m FROM THE END OF THE BRIDGE.
 7. SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
 8. SEE STANDARD SHEET G-1M FOR DELINEATOR DETAILS AND PLACEMENT.
 9. ERECT DELINEATOR ON EVERY FIFTH POST OR APPROXIMATELY 9M FEET APART. PAYMENT SHALL BE SUBSIDIARY TO OTHER ITEMS.
 10. THE DROP WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING.
 11. THE BRIDGE RAIL AND APPROACH GUARDRAIL SHALL BE PAINTED BLACK ACCORDING TO SECTION 513. THE W-BEAM SECTIONS OF RAIL, STEEL OFFSET BLOCKS, BOX BEAM RAIL AND SUPPORT ANGLES, AND POSTS SHALL BE PAINTED TO FEDERAL STANDARD NO. 595, COLOR CHIP #27038.
 12. INTERNAL SPLICE PLATES AND ALL FASTENERS WILL BE HOT DIPPED GALVANIZED ONLY.

900.640 Bridge Railing

RECEIVED
CHK'D BY HLS OK'D BY DDB
JUL 29 2010
RESUBMIT As Noted APPROVED

BY CPW DATE 8/3/10 BRIDGE RAILING 94

No.	Initial submittal	Remarks	Date
0			

REVISIONS	REVISIONS	REVISIONS

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

ITEM # 525-43 FACIA-MOUNTED-HDSB
TOWN OF READSBORO, BENNINGTON COUNTY, VT
PROJECT NO. BRO 1441 (25)
TOWN HIGHWAY 3 OVER DEERFIELD RIVER
BRIDGE NO. 31

GENERAL CONTRACTOR
SUB CONTRACTOR
F.R. LAFAYETTE

DATE
07-19-10

SCALE
N.T.S.

SHEET NO.
2 of 2

CERTIFIED FABRICATOR
1769