

Record Plans

Contractor: Cold River Bridges
 Resident Engineer: Judy Gilmore
 Construction Began: May 3, 2017
 Construction Complete: September 12, 2017
 Record Plans By: Judy Gilmore

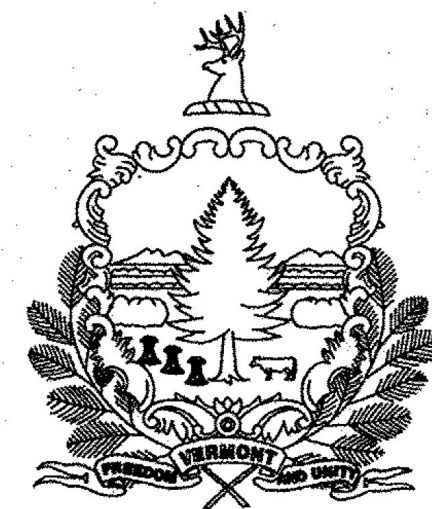
I hereby certify that all construction required by this set of drawings has been accomplished as indicated herein.

BY:  e-Signed by Judy Gilmore on 2018-04-04 14:52:06 GMT Resident Engineer

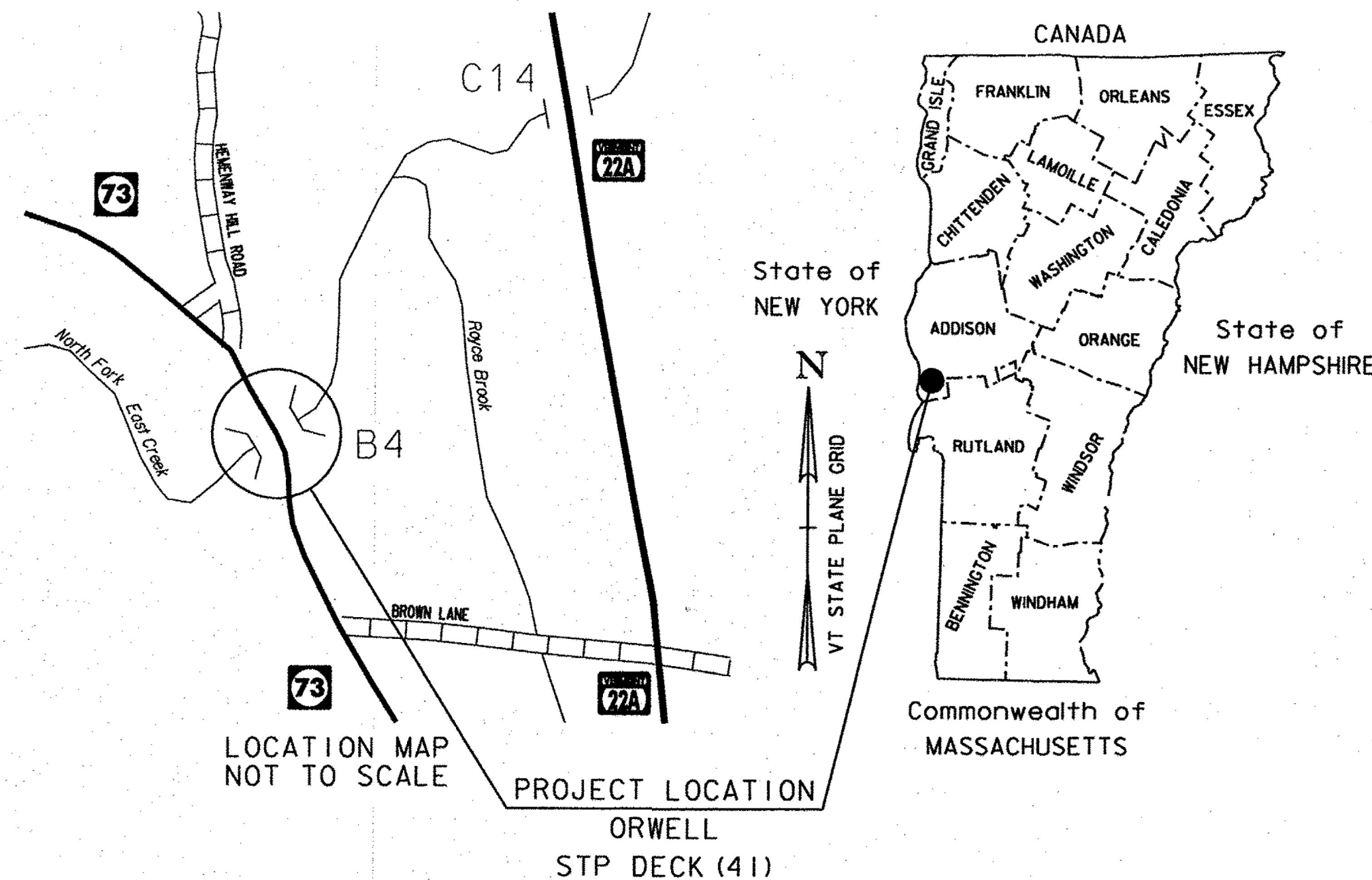
Date: April 04, 2018

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

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF ORWELL COUNTY OF ADDISON

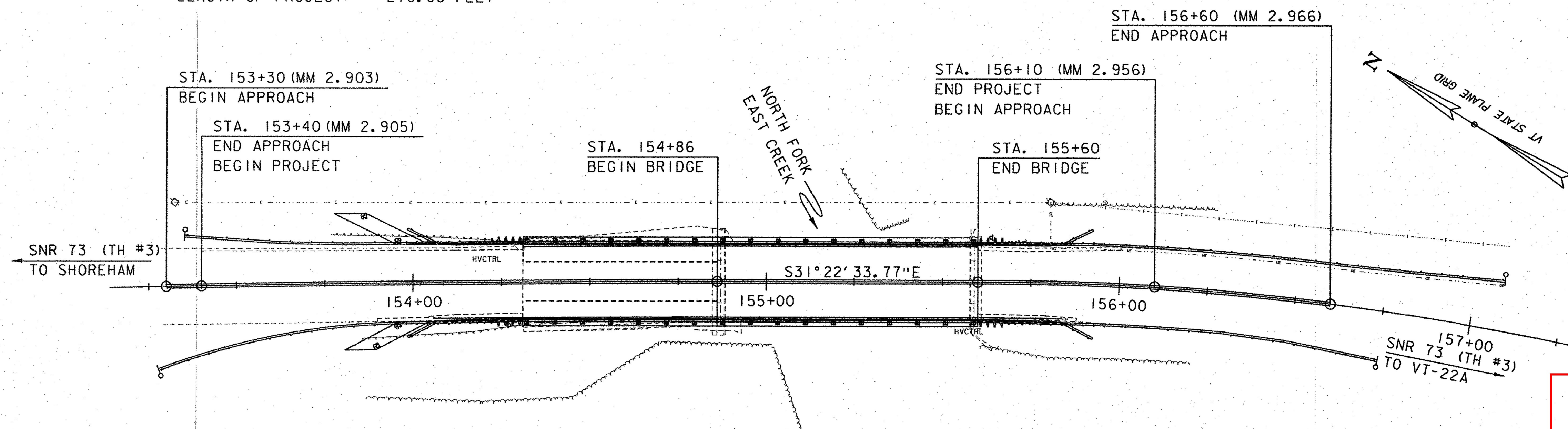


STATE NUMBERED ROUTE 73 (TH #3) (MAJOR COLLECTOR) BRIDGE NO. 4

PROJECT LOCATION: LOCATED IN THE TOWN OF ORWELL, ON SNR 73 (TH #3), APPROXIMATELY 2.940 MILES EASTERLY OF THE SHOREHAM/ORWELL TOWN LINE.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE REPLACEMENT OF THE EXISTING BRIDGE DECK INCLUDING RELATED APPROACH WORK.

LENGTH OF STRUCTURE: 74.00 FEET
LENGTH OF ROADWAY: 196.00 FEET
LENGTH OF PROJECT: 270.00 FEET

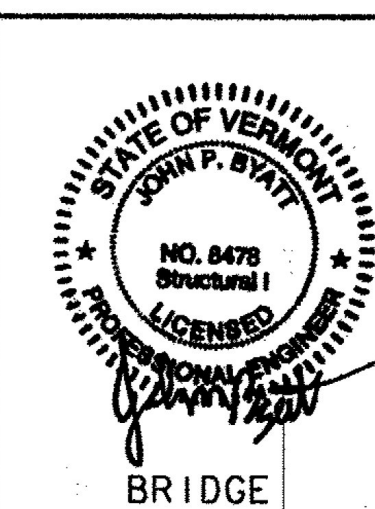
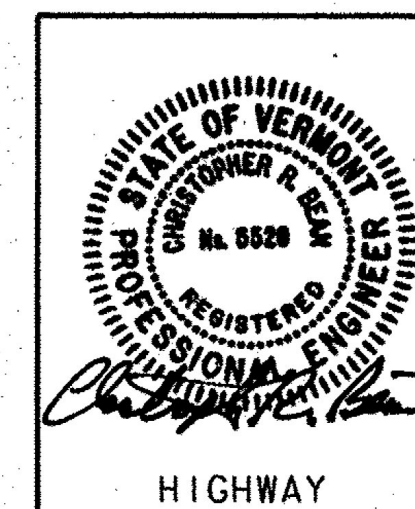


CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS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


Record Plans

QUALITY ASSURANCE PROGRAM : LEVEL 2
SURVEYED BY : CLD
SURVEYED DATE : 09/21/2015
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

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



CONSULTING ENGINEERS
 540 Commercial Street
 Manchester, NH 03101
 (603) 668-8223
 www.cldengineers.com

DIRECTOR OF PROJECT DELIVERY
APPROVED:  DATE 8/30/2018
PROJECT MANAGER : JENNIFER FITCH, P.E.
PROJECT NAME : ORWELL
PROJECT NUMBER : STP DECK (41)
SHEET 1 OF 27 SHEETS

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- 10. LAYOUT SHEET
- 11. PROFILE SHEET
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- 13. SHEAR CONNECTOR DETAILS SHEET
- 14. DECK DETAILS SHEET
- 15.-16. REMOVAL AND CURTAIN WALL DETAILS SHEETS 1-2
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- 20. RAIL LAYOUT SHEET
- 21. BRIDGE RAIL DETAILS SHEET
- 22. APPROACH RAIL DETAILS SHEET
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STRUCTURE DETAIL SHEETS

- SD-501.00 02/09/2012 CONCRETE DETAILS AND NOTES
- SD-502.00 10/10/2012 CONCRETE DETAILS AND NOTES
- SD-516.10 08/29/2011 BRIDGE JOINT ASPHALTIC PLUG
- SD-601.00 06/04/2010 STRUCTURAL STEEL DETAILS & NOTES

HIGHWAY SAFETY AND DESIGN DETAIL SHEETS

- HSD-400.01 03/29/2016 SAFETY EDGE DETAILS
- HSD-621.06 11/03/2015 GUARDRAIL TERMINAL LABEL DETAIL

VAOT STANDARD SHEETS

- G-1bM 06/13/1997 BOX BEAM GUARD RAIL
- S-364C 02/10/2014 GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM
- S-364D 04/23/2012 GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM
- T-1 04/25/2016 TRAFFIC CONTROL GENERAL NOTES
- T-10 08/06/2012 CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING
- T-11 08/06/2012 CONSTRUCTION APPROACH SIGNING DIVIDED HIGHWAY ONE LANE CLOSED
- T-31 08/06/2012 CONSTRUCTION SIGN DETAILS
- T-42 04/09/2014 BRIDGE NUMBER PLAQUE
- T-44 04/09/2014 MILEMARKER DETAILS STATE AND TOWN HIGHWAYS

PROJECT NOTES

GENERAL

- 1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2014, AND ITS LATEST REVISIONS.
- 2. THE DESIGN LIVE LOAD SHALL BE HL-93.
- 3. ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS.
- 4. THE CONTRACTOR IS MADE AWARE THAT EXISTING UTILITIES ARE WITHIN THE CONSTRUCTION LIMITS OF BRIDGE NO. 4. THE LOCATION OF ANY UTILITY INFORMATION ON THE PLANS IS APPROXIMATE. NO CLAIMS ARE MADE TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING AND PROTECTING FROM DAMAGE ALL UTILITIES ON SITE DURING ALL STAGES OF CONSTRUCTION. ANY DAMAGE TO UTILITIES DUE DIRECTLY TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 5. FOLLOWING THE COMPLETION OF ALL OTHER CONSTRUCTION ACTIVITIES, ALL BEAM SEATS SHALL BE CLEANED OFF. THE COST FOR CLEANING BEAM SEATS WILL BE CONSIDERED INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.
- 6. ALL PG BINDER USED IN BITUMINOUS CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH SUBSECTION 490.03B.
- 7. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL COLD PLANED SURFACES AT THE RATE OF 0.080 GAL/SY AND BETWEEN ALL COURSE OF PAVEMENT AT THE RATE OF 0.040 GAL/SY OR AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".
- 8. PRIOR TO PAVING, ANY EXISTING SHOULDER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER SHALL BE EXCAVATED TO A DEPTH OF THREE INCHES OR AS DIRECTED BY THE ENGINEER. MATERIAL REMOVED SHALL BE REPLACED WITH ITEM 301.28, "SUBBASE OF CRUSHED GRAVEL, FINE GRADED". EXCAVATED MATERIAL SHALL BE SPREAD ON THE ADJACENT SLOPES OR REMOVED FROM THE PROJECT AS DIRECTED BY THE ENGINEER.
- 9. ALL EDGES OF PAVEMENT SHALL BE BACKED UP TO FULL HEIGHT WITH AGGREGATE SHOULDER MATERIAL AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID UNDER ITEM 402.12, "AGGREGATE SHOULDERS".
- 10. ANY REQUIRED SAWCUT OF EXISTING PAVEMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".
- 11. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTY DUE DIRECTLY TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

ENVIRONMENTAL

- 12. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND ALL APPLICABLE ENVIRONMENTAL PERMITS AND ENSURE THAT ALL CONSTRUCTION CONDITIONS ARE MET.
- 13. EROSION CONTROL MEASURES SHALL BE UTILIZED AS REQUIRED AND SHALL CONFORM TO SECTION 105 OF THE STANDARD SPECIFICATIONS AND THE LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL FROM THE AGENCY OF NATURAL RESOURCES. PAYMENT FOR EROSION CONTROL MEASURES, IF APPLICABLE, WILL BE PAID FOR UNDER EXTRA WORK IN ACCORDANCE WITH 104.03.
- 14. THE CONTRACTOR SHALL PREVENT ANY MATERIAL FROM ENTERING THE WATERWAY DURING EXCAVATION, PARTIAL REMOVAL OF STRUCTURE, OR CONSTRUCTING THE NEW DECK.
- 15. ACCESS TO DRIVES SHALL BE MAINTAINED AT ALL TIMES.

TRAFFIC CONTROL

- 16. AS PART OF ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)", THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PLAN TO THE PROJECT MANAGER FOR ACCEPTANCE IN ACCORDANCE WITH SUBSECTION 105.03 AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN AN APPROPRIATE DISCIPLINE IN THE STATE OF VERMONT. THE PLAN SHALL INCLUDE A LAYOUT SHOWING ALL ON- AND OFF-PROJECT SIGNS AND BARRICADES AND ANY OTHER DETAILS ASSOCIATED WITH THE TRAFFIC CONTROL.
- 17. ALL ITEMS REQUIRED TO PREPARE, SUBMIT, AND IMPLEMENT THE CONTRACTOR'S PLAN, INCLUDING ANY NECESSARY REVISIONS TO THE PLAN, WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- TRAFFIC CONTROL PLAN
- TEMPORARY TRAFFIC BARRIERS (IF REQUIRED)
- BARRICADES
- DRUMS/CONES
- ON PROJECT CONSTRUCTION SIGNING
- TEMPORARY PAVEMENT MARKINGS (IF REQUIRED)

TRAFFIC CONTROL ITEMS NOT PAID FOR IN THE UNIT PRICE BID FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)", AND PAID FOR SEPARATELY INCLUDE THE FOLLOWING:

- ITEM 630.10, "UNIFORMED TRAFFIC OFFICERS"
- ITEM 630.15, "FLAGGERS"
- ITEM 641.15, "PORTABLE CHANGEABLE MESSAGE SIGN"

THE CONTRACTOR SHALL ALLOW TWO WEEKS FOR APPROVAL OF THE TRAFFIC CONTROL PLAN. NO WORK SHALL COMMENCE UNTIL THE CONTRACTOR HAS AN APPROVED TRAFFIC CONTROL PLAN.

- 18. DURING CLOSURE PERIOD, TRAFFIC SHALL BE MAINTAINED BY AN OFF-SITE DETOUR TO BE SIGNED BY THE TOWN OF ORWELL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CLOSURE SIGNAGE AS SHOWN ON SHEET ~~11~~ AND IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD AND VTRANS STANDARDS. PAYMENT FOR BRIDGE CLOSURE SIGNAGE WILL BE PAID UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING THE CLOSURE PERIOD.

LRFR LOAD RATING FACTORS							
LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	1.49	0.99					
POSTING							
OPERATING	1.93	1.29	2.53	1.69	2.18	1.96	2.14
COMMENTS:	H-20 RATING CONTROLLED BY DECK, OTHER TRUCKS BY EXTERIOR BEAMS SERVICE II						

PROJECT NAME:	ORWELL
PROJECT NUMBER:	STP DECK(4I)
FILE NAME: z15j108notes-4.dgn	PLOT DATE: 10/4/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: J. FRENCH
INDEX OF SHEETS & PROJECT NOTES SHEET 1	SHEET 2 OF 27



DECK REMOVAL AND RELATED ITEMS

19. PAVEMENT REMOVAL SHOULD BE LIMITED AS SHOWN ON THE PLANS. THIS WORK SHALL BE IN ACCORDANCE WITH SECTION 529 OF THE STANDARD SPECIFICATIONS.
20. ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" WILL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING STRUCTURE AS SHOWN ON THE PLANS, INCLUDING THE EXISTING BRIDGE DECK, CURTAIN WALLS, TOPS OF WINGWALLS, AND BRIDGE RAILING. THE EXISTING CONCRETE CURTAIN WALLS AND TOPS OF WINGWALLS SHALL BE REMOVED BY HAND MECHANICAL MEANS AND THE REMAINING CONCRETE SHALL HAVE NEAT LINES AND BE SMOOTH. LARGE EQUIPMENT WILL NOT BE ALLOWED FOR REMOVAL TO ENSURE NO DAMAGE OCCURS TO THE EXISTING ABUTMENTS AND WINGWALLS. PROTECT ALL ELEMENTS INTENDED TO REMAIN.
- ~~21. A MINIMUM OF 4 EXISTING BRIDGE RAIL POSTS SHALL BE SAWCUT AT THE BASE OF EACH POST AND SALVAGED TO THE TOWN WITH EXTREME CARE TO PRESERVE THE INTEGRITY OF THE POSTS. THESE POSTS SHALL BE PROVIDED TO THE TOWN. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". See Written Order #3~~
22. AFTER REMOVAL OF THE EXISTING BRIDGE DECK AND CURTAIN WALL, ANY AREAS ON THE CONCRETE BEAM SEAT THAT ARE FOUND TO BE UNSOUND SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE METHOD FOR DETERMINING AREAS OF UNSOUND CONCRETE SHALL BE APPROVED BY THE ENGINEER. THE ENGINEER SHALL MAKE A DETERMINATION AS TO HOW TO REPAIR THE DETERIORATED PORTION OF THE CONCRETE BEAM SEAT AND THE LIMITS OF THE REPAIR. THE REPAIRS WILL BE PAID FOR UNDER ITEM 580.13, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I" OR ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II, AS APPLICABLE. QUANTITIES FOR ITEMS 580.13 AND 580.14 AS SHOWN ON THE QUANTITY SUMMARY SHEETS ARE ESTIMATED.

STEEL

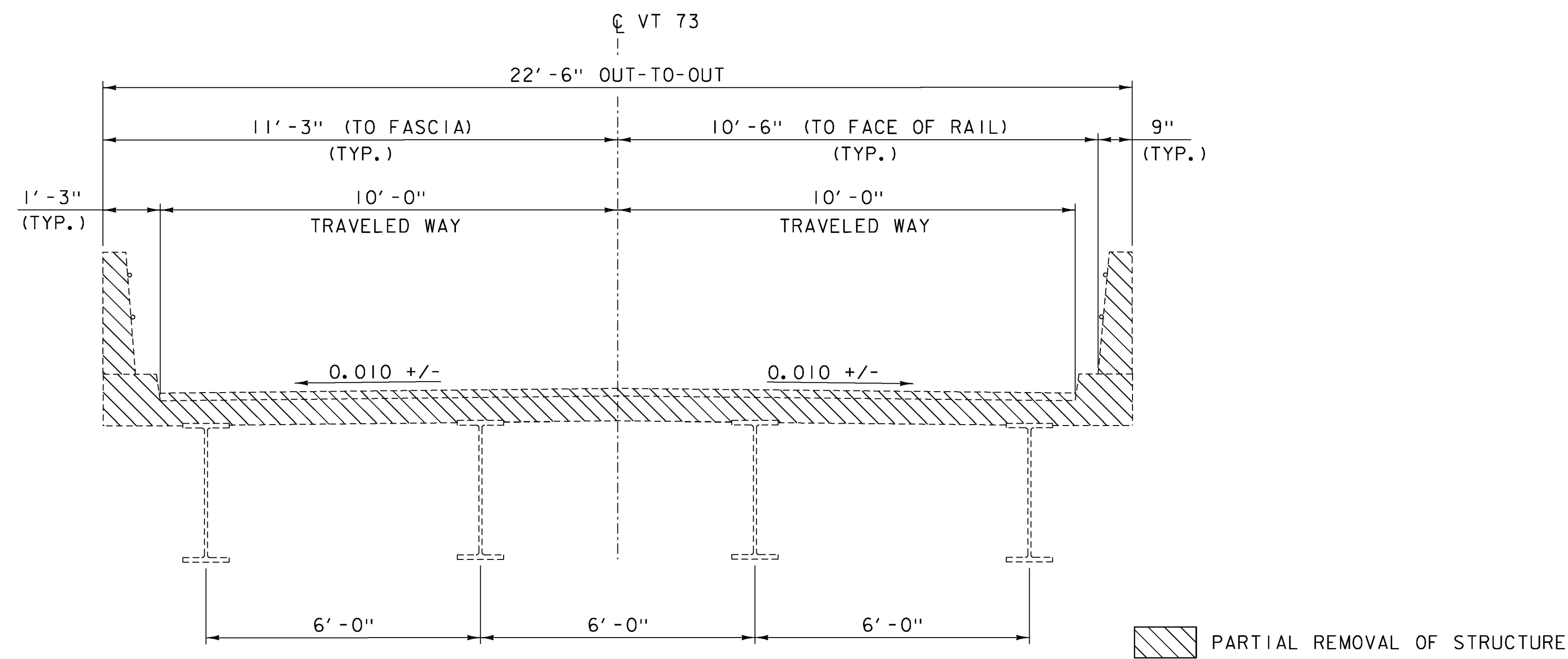
23. AFTER THE EXISTING CONCRETE DECK HAS BEEN REMOVED, THE CONTRACTOR SHALL TAKE ELEVATIONS ALONG THE TOP OF EACH BEAM FROM CENTERLINE TO CENTERLINE OF BEARING. THE TOP OF BEAM ELEVATIONS SHALL THEN BE SENT TO THE ENGINEER FOR USE IN DETERMINING THE FINAL PROFILE AND HAUNCH DEPTHS. THE CONTRACTOR SHALL EXPECT 3 WORKING DAYS FOR VTRANS TO PREPARE THE REVISED PROFILE AND HAUNCH DEPTH CALCULATIONS.
24. 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. ANY REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE AND ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.
25. UPON REMOVING THE DECK, THE TOPS OF THE BEAMS IN THE AREA OF THE SHEAR STUDS SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP11 REQUIREMENTS AND ALL APPLICABLE PROVISIONS PRIOR TO THE WELDING OF THE SHEAR STUDS. THE CONTRACTOR IS NOT REQUIRED TO APPLY NEW PAINT. THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE", EXCEPT AS NOTED IN PROJECT NOTE 26.
26. THE CONTRACTOR SHALL TEST ALL AREAS WHERE EXISTING PAINT IS TO BE REMOVED FOR LEAD. PAYMENT FOR LEAD PAINT TESTING WILL BE CONSIDERED INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". IF LEAD PAINT REMOVAL IS REQUIRED, PAINT REMOVAL, SURFACE PREPARATION, CONTAINMENT, AND DISPOSAL WILL BE PAID FOR AS EXTRA WORK IN ACCORDANCE WITH 104.03. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH ALL NECESSARY LEAD ABATEMENT PERMITS.
27. THE SHEAR CONNECTORS SHALL BE SPACED AS SHOWN ON THE PLANS AND WILL BE PAID FOR UNDER ITEM 508.15, "SHEAR CONNECTORS".
28. SUPPORT BRACKETS FOR DECK OVERHANG FORMS SHALL BE SPACED AS REQUIRED BY DESIGN WITH A MAXIMUM SPACING OF 4 FEET AND SHALL EXTEND TO THE BOTTOM QUARTER OF THE WEB. TEMPORARY DIAPHRAGMS TO BRACE THE EXTERIOR GIRDER AGAINST ROTATION SHALL BE SPACED AS REQUIRED BY DESIGN. THE DESIGN OF THE BRACKETS AND TEMPORARY DIAPHRAGMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DESIGN DRAWINGS AND WORKING DRAWINGS CONFORMING TO SECTION 105 SHALL BE SUBMITTED. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".

REINFORCED CONCRETE

29. ALL CONCRETE SHALL CONFORM TO THE SPECIFICATIONS FOR CONCRETE, HIGH PERFORMANCE CLASS A OR CONCRETE, HIGH PERFORMANCE CLASS B, AS APPLICABLE. THE CONTRACTOR SHALL PROVIDE TESTING EQUIPMENT FOR CONCRETE IN ACCORDANCE WITH SUBSECTION 631.05.
30. ALL REINFORCING STEEL SHALL BE LEVEL I - EPOXY COATED AND MEET THE REQUIREMENTS OF SECTION 507. A REINFORCING STEEL SCHEDULE AND SHOP DRAWINGS MEETING THE REQUIREMENTS OF SUBSECTION 105.03 SHALL BE SUBMITTED. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 507.11, "REINFORCING STEEL, LEVEL I".
31. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE.
32. WATER REPELLENT, SILANE, SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP NOTCHES. WATER REPELLENT, SILANE, SHALL ALSO BE APPLIED TO ALL EXPOSED SURFACES OF THE EXISTING CONCRETE SUBSTRUCTURES. THIS WORK, INCLUDING CLEANING OF BEAM SEATS PRIOR TO SILANE APPLICATION, WILL BE PAID FOR UNDER ITEM 514.10, "WATER REPELLENT, SILANE".
33. THE CORK JOINT BETWEEN THE EXISTING CHEEKWALLS AND CAST-IN-PLACE CONCRETE CURTAIN WALL WILL BE CONSIDERED INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".
34. THE PREFORMED JOINT SEALER, CLOSED CELL FOAM BETWEEN THE CAST-IN-PLACE CONCRETE CURTAIN WALL AND THE EXISTING BRIDGE SEAT SHALL MEET THE REQUIREMENTS OF SUBSECTION 707.09 AND WILL BE CONSIDERED INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".
35. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING INSTITUTE".
36. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
- | | |
|--|----------|
| ALONG BACKFACES OF WALL AGAINST EARTH: | 2.0 INCH |
| ALONG TOP SURFACE OF DECK SLAB: | 3.0 INCH |
| ALONG BOTTOM SURFACE OF DECK SLAB: | 1.5 INCH |
| ELSEWHERE UNLESS OTHERWISE INDICATED: | 3.0 INCH |

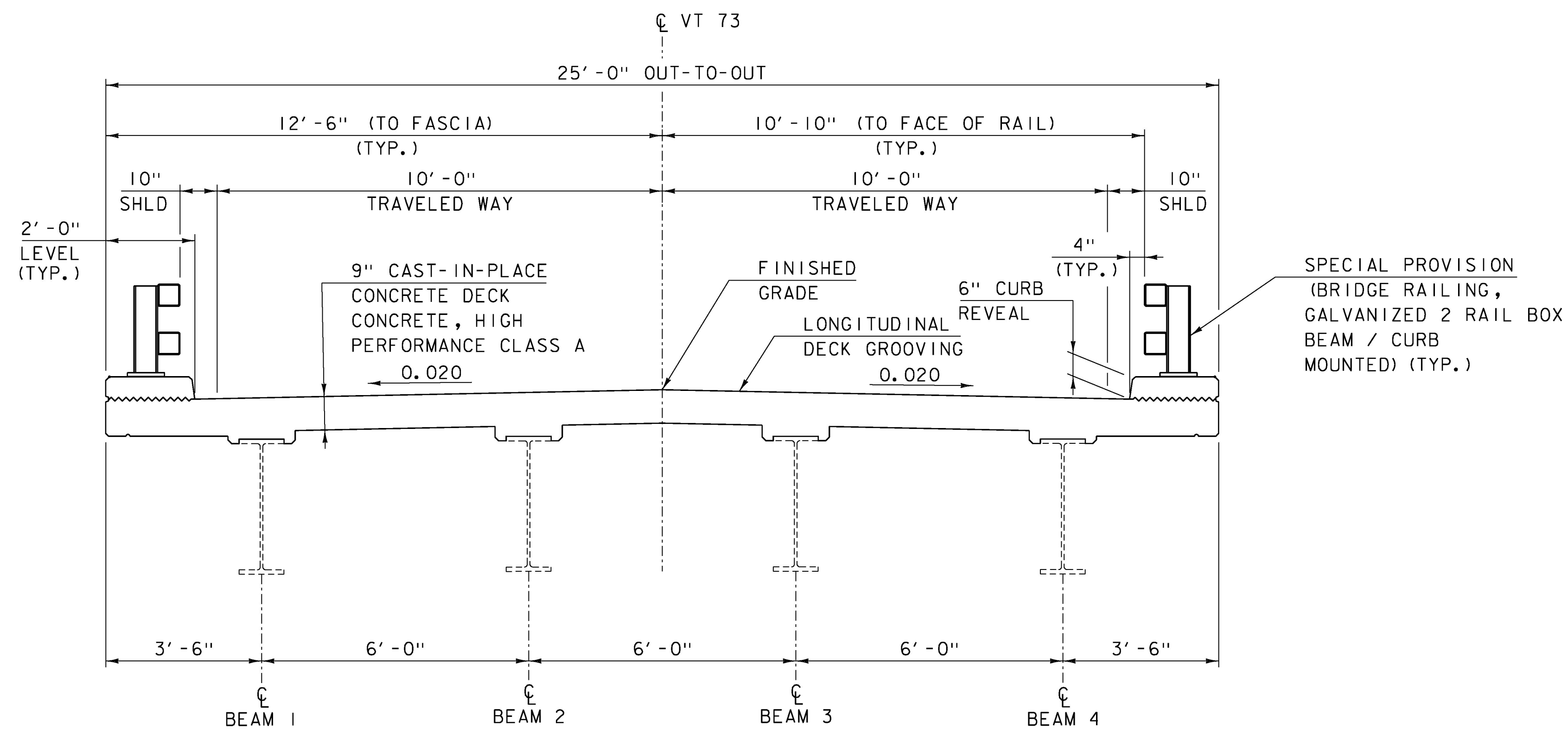
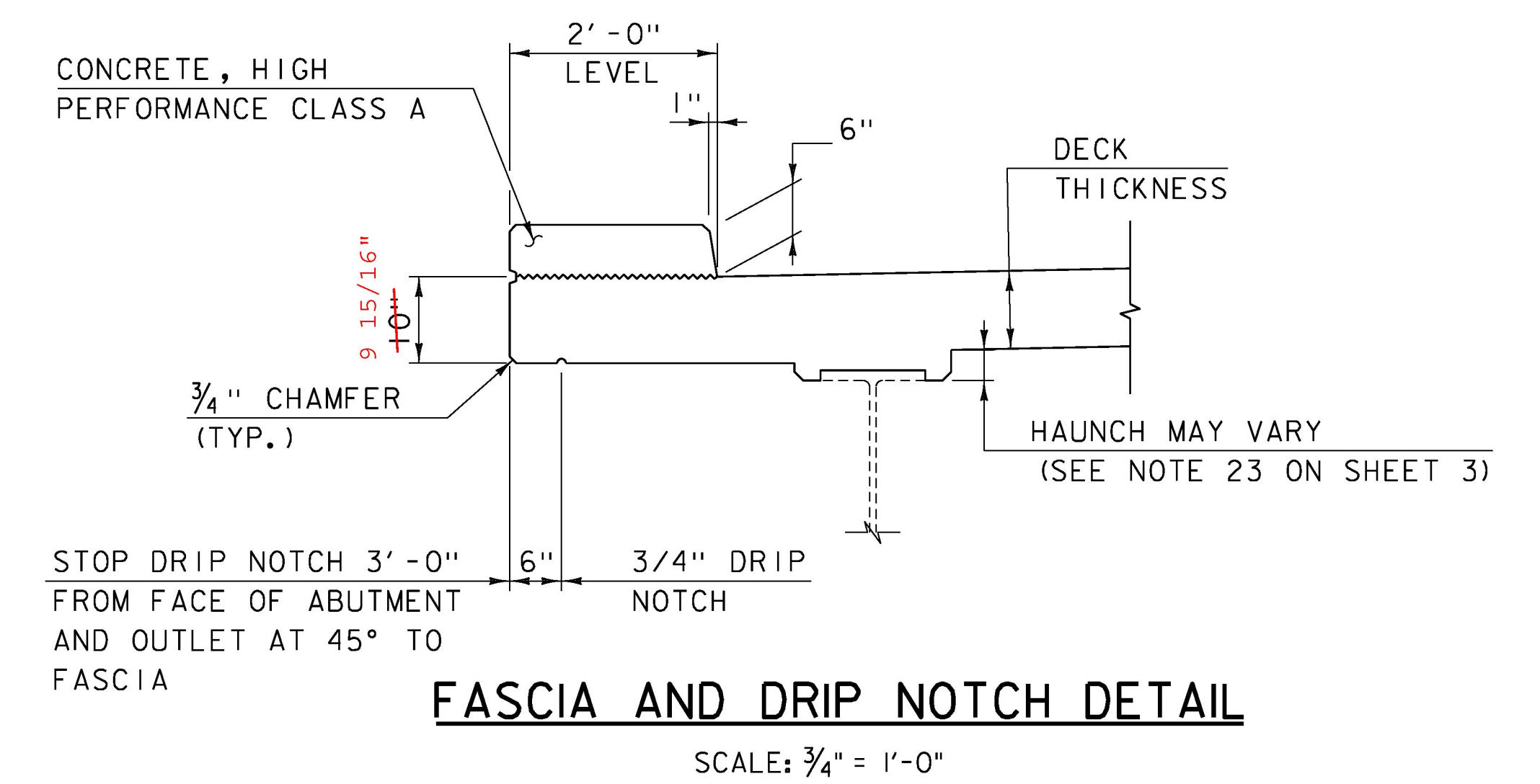


PROJECT NAME:	ORWELL
PROJECT NUMBER:	STP DECK(4I)
FILE NAME:	z15j108notes-4.dgn
PROJECT LEADER:	J. BYATT
DESIGNED BY:	S. BEAUMONT
INDEX OF SHEETS & PROJECT NOTES SHEET 2	SHEET 3 OF 27
PLOT DATE:	8/22/2016
DRAWN BY:	M. SMITH
CHECKED BY:	J. FRENCH



EXISTING TYPICAL BRIDGE SECTION

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



TYPICAL BRIDGE SECTION

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

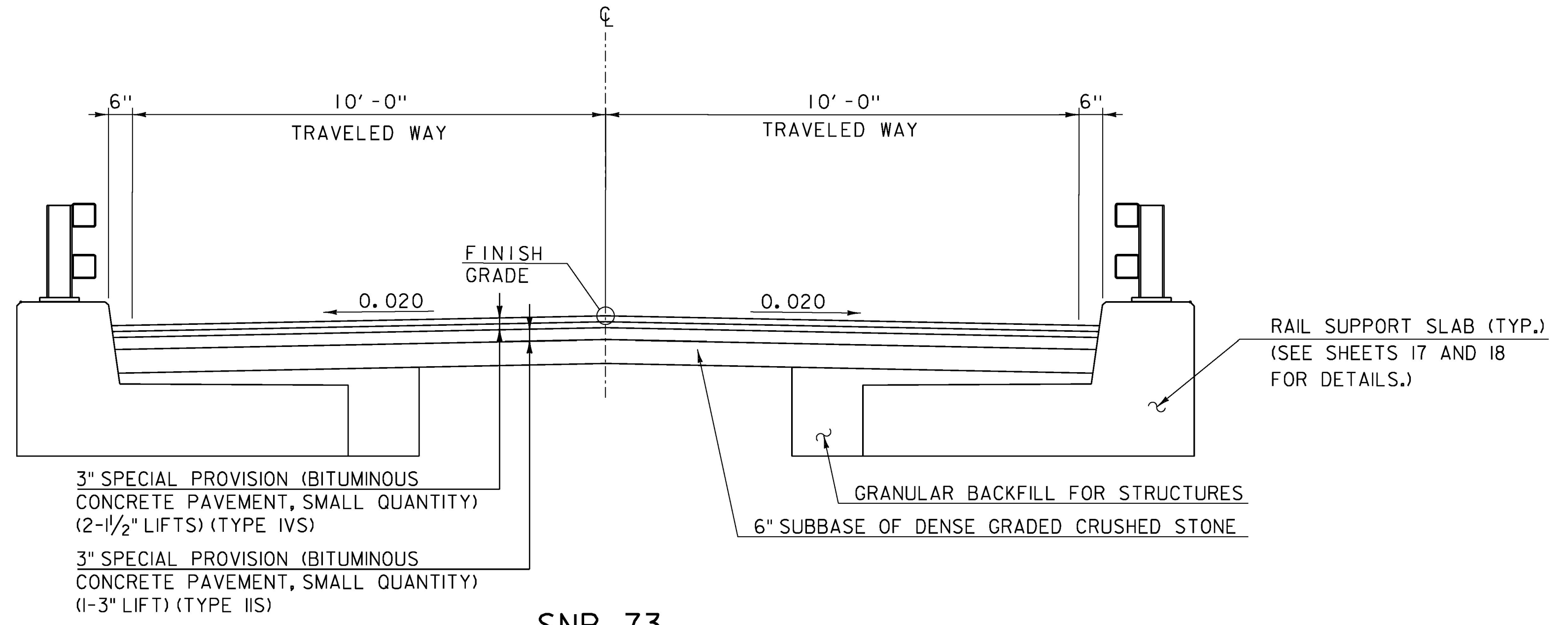
CLD 15-0223 MODEL: TYP01

PROJECT NAME: ORWELL
 PROJECT NUMBER: STP DECK(41)

FILE NAME: z15j108+yp-4.dgn
 PROJECT LEADER: J. BYATT
 DESIGNED BY: N. CARON
 TYPICAL BRIDGE SECTIONS SHEET
 PLOT DATE: 8/22/2016
 DRAWN BY: M. SMITH
 CHECKED BY: S. BEAUMONT
 SHEET 4 OF 27

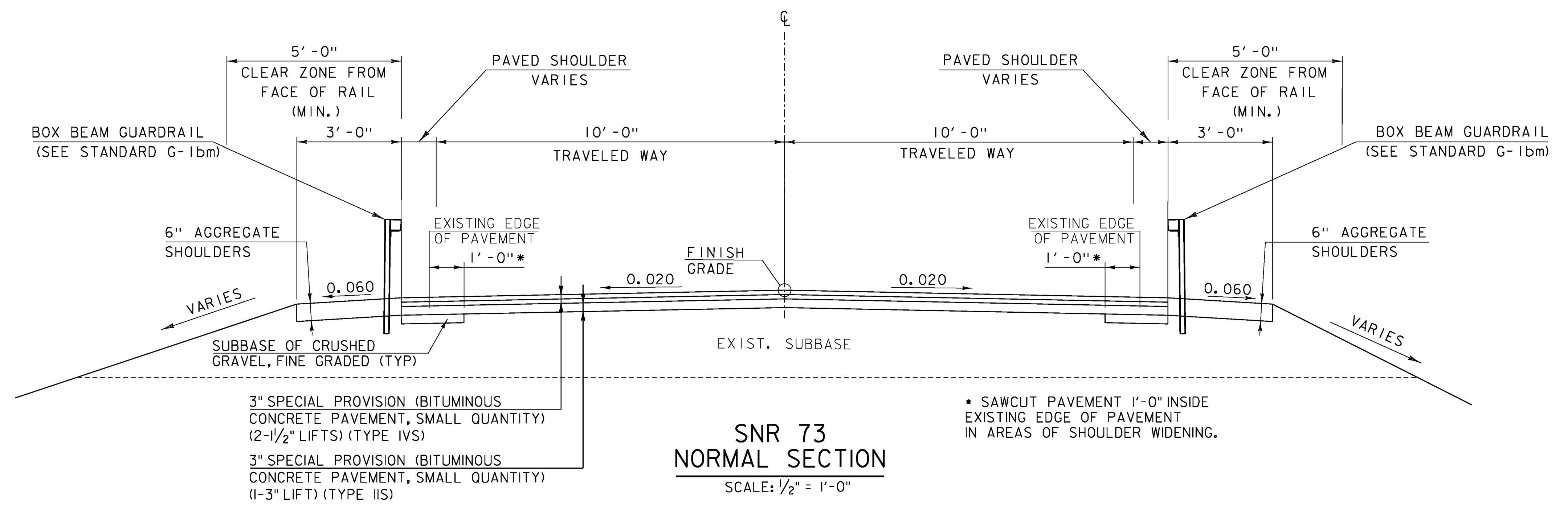


3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (2-1/2" LIFTS) (TYPE IVS)
 3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (1-3" LIFT) (TYPE IIS)



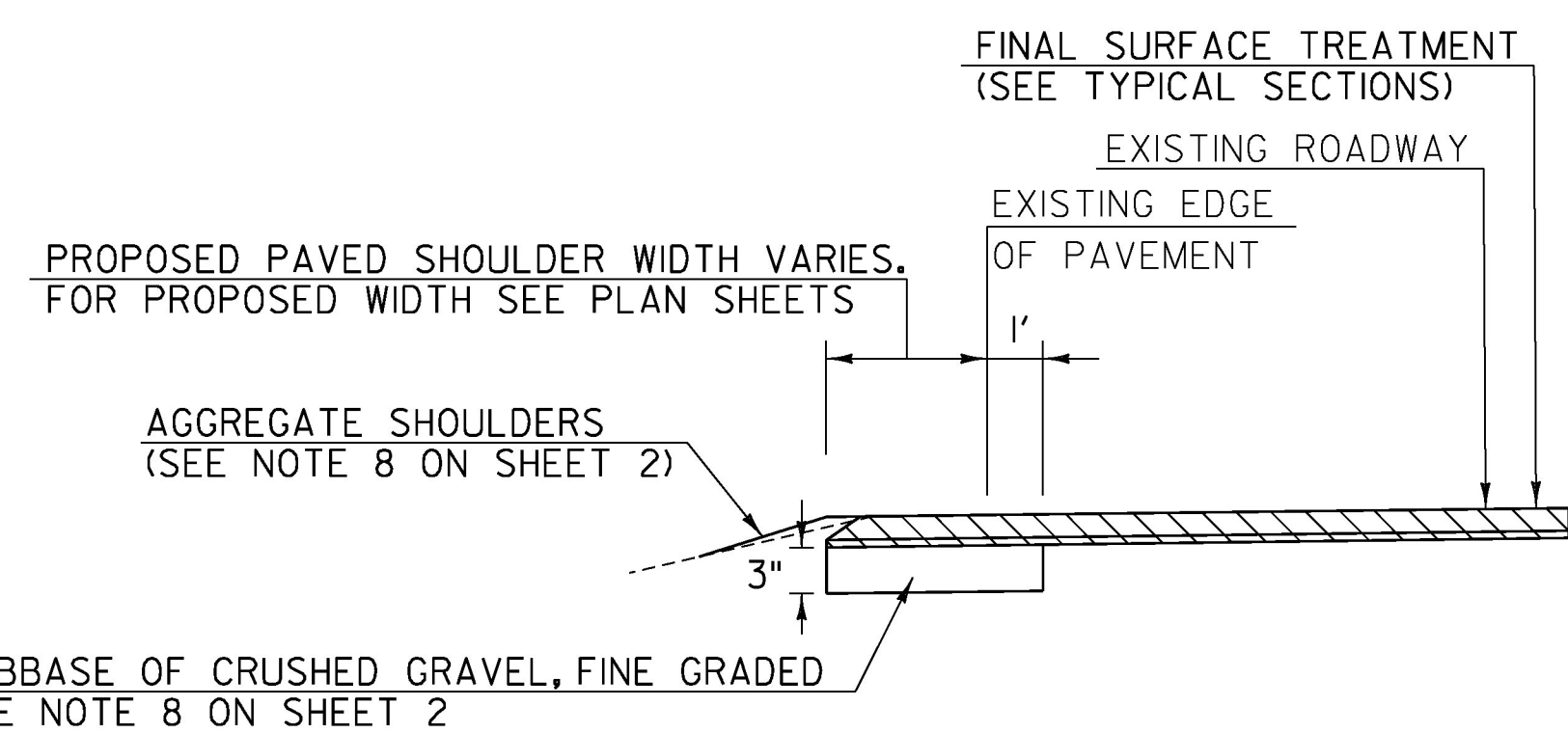
**SNR 73
 NORMAL SECTION W/SUPPORT SLAB**
 SCALE: 1/2" = 1'-0"

3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (2-1/2" LIFTS) (TYPE IVS)
 3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY) (1-3" LIFT) (TYPE IIS)
 3" SUBBASE OF CRUSHED GRAVEL, FINE GRADED



**SNR 73
 NORMAL SECTION**
 SCALE: 1/2" = 1'-0"

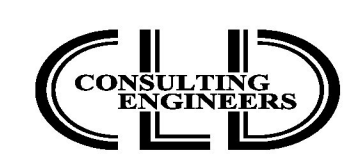
• SAWCUT PAVEMENT 1'-0" INSIDE EXISTING EDGE OF PAVEMENT IN AREAS OF SHOULDER WIDENING.



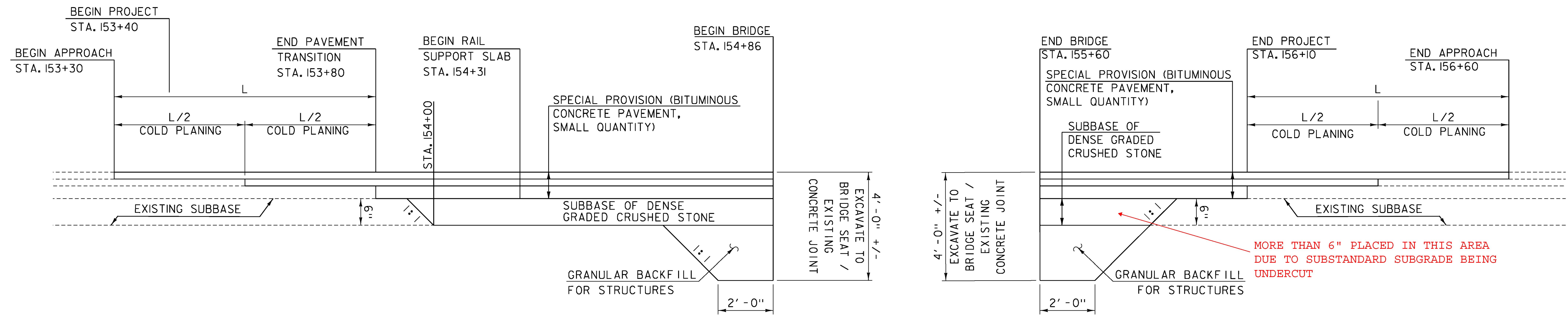
TYPICAL SHOULDER WIDENING
 NOT TO SCALE

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

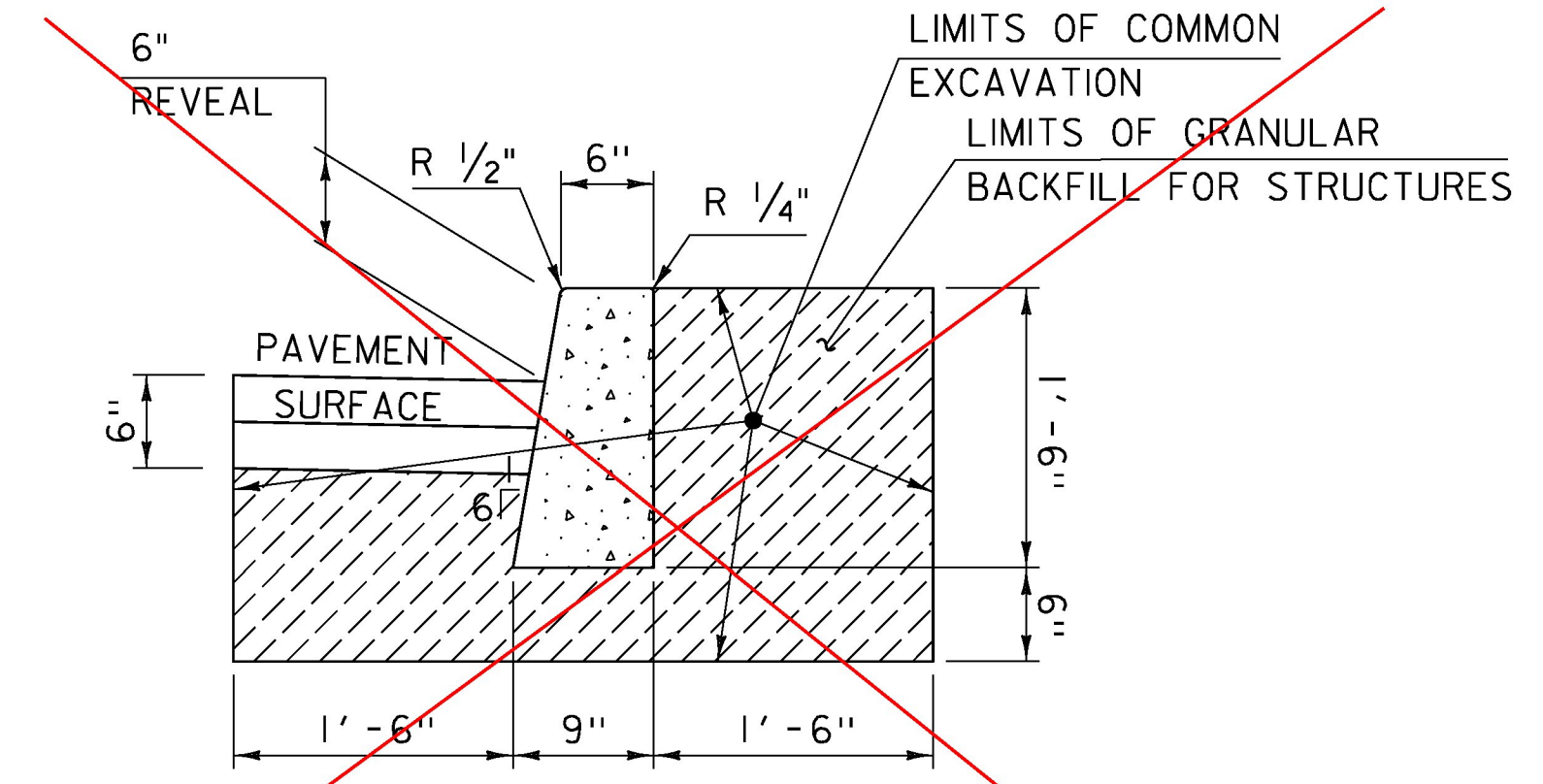
CLD 15-0223 MODEL: TYP02



PROJECT NAME: ORWELL	PLOT DATE: 10/4/2016
PROJECT NUMBER: STP DECK(4I)	DRAWN BY: J. FOWLER
FILE NAME: z15j108typ-4.dgn	CHECKED BY: J. FRYER
PROJECT LEADER: J. BYATT	SHEET 5 OF 27
DESIGNED BY: L. GREER	
TYPICAL ROADWAY SECTIONS SHEET	

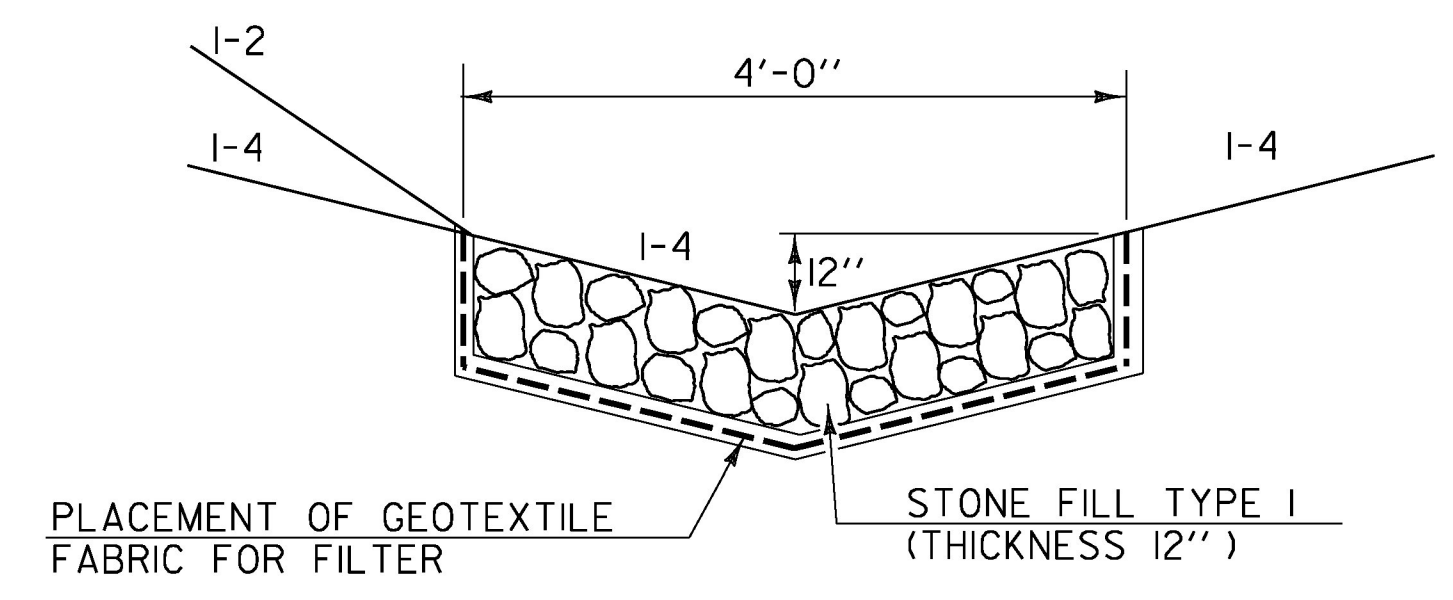


MATERIAL TRANSITION DIAGRAM
NOT TO SCALE



TYPICAL CAST-IN-PLACE CONCRETE CURB, TYPE B EARTHWORKS DETAIL

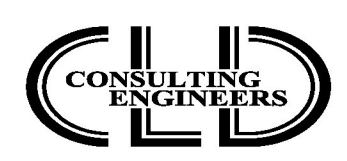
SEE CHANGE OF DESIGN #1: CAST-IN-PLACE CHANGED TO GRANITE; HOWEVER, CAST-IN-PLACE GEOMETRY SHALL BE RETAINED FOR GRANITE
SEE ALSO, STANDARD C-10



TYPICAL STONE FILL DITCH

Updated
26 July 2017

CLD 15-0223 MODEL: TYP03



PROJECT NAME: ORWELL	PLOT DATE: 7/26/2017
PROJECT NUMBER: STP DECK(4I)	DRAWN BY: J. FOWLER
FILE NAME: z15j108typ-4.dgn	DESIGNED BY: L. GREER
PROJECT LEADER: J. BYATT	CHECKED BY: J. FRYER
MATERIAL TRANSITION DIAGRAM	SHEET 6 OF 27

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	BRIDGE NO. 4	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								85			85		CY	COMMON EXCAVATION	203.15	1.7			
								1			1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-			
									51		51		CY	STRUCTURE EXCAVATION	204.25	0.58			
								20	30		50		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	1.01			
								475			475		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	4			
								2			2		CY	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	301.26	0.3			
								25			25		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	0.1			
								50			50		TON	AGGREGATE SHOULDERS	402.12	5			
								1			1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-			
									70		70		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	-			
									63		63		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	0.93			
									28159		28159		LB	REINFORCING STEEL, LEVEL I	507.11	0.99			
									1		1		LS	SHEAR CONNECTORS (488 - 8" X 7/8")	508.15	-			
									173		173		SY	LONGITUDINAL DECK GROOVING	509.10	0.33			
									40		40		GAL	WATER REPELLENT, SILANE	514.10	2.27			
									21		21		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	-			
									21		21		LF	JOINT SEALER, HOT POURED	524.11	-			
									1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	-			
									10		10		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13	EST.			
									10		10		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14	EST.			
								6			6		CY	STONE FILL, TYPE I	613.10	0.08			
								110			110		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	5			
								333			333		LF	BOX BEAM GUARDRAIL	621.30	-			
								130			130		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	-			
								40			40		HR	UNIFORMED TRAFFIC OFFICERS	630.10	-			
								120			120		HR	FLAGGERS	630.15	-			
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10	-			
										1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-			
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-			
										3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-			
								1			1		LS	MOBILIZATION/DEMobilIZATION	635.11	-			
								2			2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	-			
								380			380		LF	DURABLE 4 INCH WHITE LINE, THERMOPLASTIC	646.402	14			
								670			670		LF	DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC	646.412	10			
								35			35		SY	GEOTEXTILE UNDER STONE FILL	649.31	4			
								1			1		SF	TRAFFIC SIGNS, TYPE A	675.20	0.17			
								30			30		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	-			
								4			4		EACH	DELINEATOR WITH STEEL POST	676.10	-			
								6			6		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620	-			
									4		4		EACH	SPECIAL PROVISION (GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM)	900.620	-			

PROJECT NAME: ORWELL
PROJECT NUMBER: STP DECK(4I)
FILE NAME: z15j108qss-4.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: J. FRENCH
QUANTITY SHEET 1
PLOT DATE: 10/4/2016
DRAWN BY: M. SMITH
CHECKED BY: A. GIRALDI
SHEET 7 OF 27

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
								ROADWAY	BRIDGE NO. 4	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
									261.33		261.33		LF	SPECIAL PROVISION (BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM/CURB MOUNTED)	900.640	-	101 TON		SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)
								1			1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)	900.645	-	67 TON		TYPE IIS
								1			1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650	-	168 TON		SUBTOTAL
								1			1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT) (N.A.B.I.)	900.650	-	2 TON		ROUNDING
								170			170		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	2	170 TON		TOTAL

PROJECT NAME: ORWELL
 PROJECT NUMBER: STP DECK(4I)
 FILE NAME: z15j108qss-4.dgn
 PROJECT LEADER: J. BYATT
 DESIGNED BY: J. FRENCH
 QUANTITY SHEET 2

PLOT DATE: 10/4/2016
 DRAWN BY: M. SMITH
 CHECKED BY: A. GIRALDI
 SHEET 8 OF 27

GENERAL INFORMATION

SYMBOLOLOGY LEGEND NOTE

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

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

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

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLOLOGY

UNDERGROUND UTILITIES	
— UGU —	UTILITY (GENERIC-UNKNOWN)
— — — — —	TELEPHONE
— — — — —	ELECTRIC
— — — — —	CABLE (TV)
— UEC —	ELECTRIC+CABLE
— UET —	ELECTRIC+TELEPHONE
— UCT —	CABLE+TELEPHONE
— UECT —	ELECTRIC+CABLE+TELEP.
— — — — —	GAS LINE
— — — — —	WATER LINE
— — — — —	SANITARY SEWER (SEPTIC)
ABOVE GROUND UTILITIES (AERIAL)	
— AGU —	UTILITY (GENERIC-UNKNOWN)
— — — — —	TELEPHONE
— — — — —	ELECTRIC
— C —	CABLE (TV)
— EC —	ELECTRIC+CABLE
— ET —	ELECTRIC+TELEPHONE
— — — — —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEP.
— — — — —	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOLOGY	
— CZ —	CLEAR ZONE
— — — — —	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

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

**CONVENTIONAL BOUNDARY SYMBOLOLOGY**

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

**EPSC LAYOUT PLAN SYMBOLOLOGY**

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

**ENVIRONMENTAL RESOURCES**

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

**ARCHEOLOGICAL & HISTORIC**

— ARCH —	ARCHEOLOGICAL BOUNDARY
— HISTORIC DIST —	HISTORIC DISTRICT BOUNDARY
— HISTORIC —	HISTORIC AREA
⊞	HISTORIC STRUCTURE

**CONVENTIONAL TOPOGRAPHIC SYMBOLOLOGY**

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

PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(41)

FILE NAME: z15j108legend-4.dgn PLOT DATE: 8/22/2016  
PROJECT LEADER: J. BYATT DRAWN BY: P. McKECHNIE  
DESIGNED BY: L. GREER CHECKED BY: K. RUTTER  
CONVENTIONAL SYMBOLOLOGY LEGEND SHEET SHEET 9 OF 27



**EXISTING BRIDGE DATA:**

ROLLED BEAMS, CONCRETE DECK  
SPAN = 72'-0"  
WIDTH = 22'-6" OUT TO OUT  
BUILT IN 1947

**CURVE (1)**  
DELTA = 1°08'36" RT  
D = 0°49'07"  
R = 7000.00'  
T = 69.85'  
L = 139.69'  
E = 0.35'

**CURVE (2)**  
DELTA = 16°44'30" RT  
D = 7°09'43"  
R = 800.00'  
T = 117.72'  
L = 233.76'  
E = 8.61'  
PI = STA 156+80.45

EXISTING AERIAL  
SINGLE PHASE ELECTRIC  
WITH RELOCATED COMM.  
CABLE

**END PROJECT  
(MATCH EXISTING)  
STA 156+10**

UNDERGROUND  
COMM. CABLE  
TO BE REMOVED  
BY OTHERS.

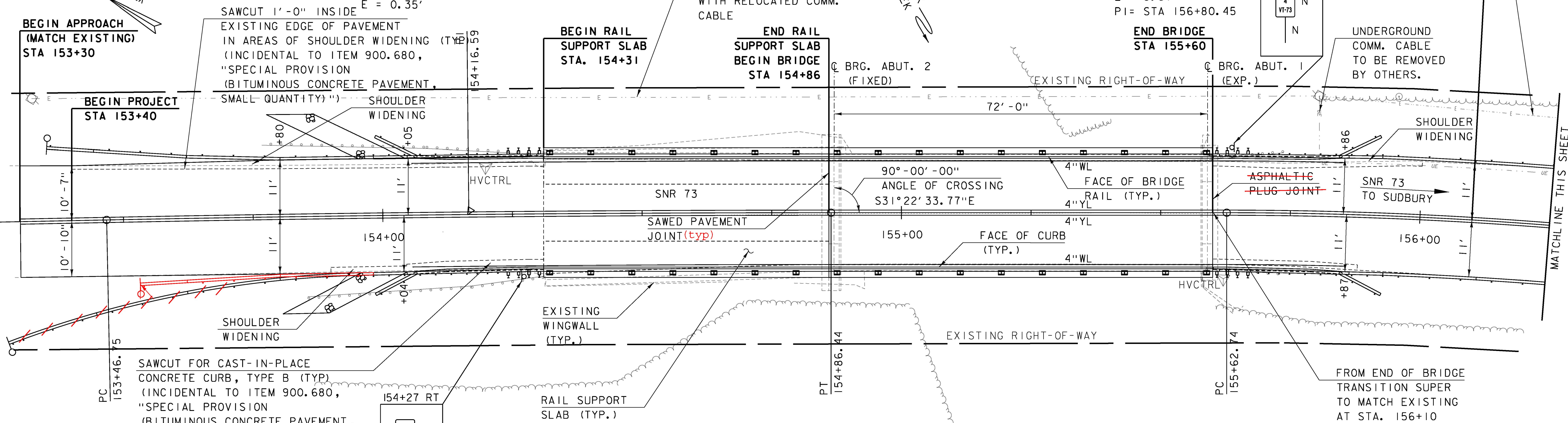
**BEGIN APPROACH  
(MATCH EXISTING)  
STA 153+30**

**BEGIN PROJECT  
STA 153+40**

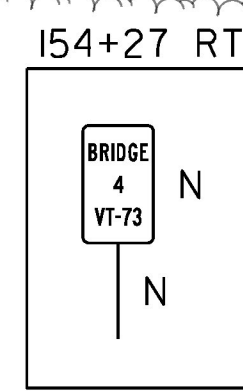
**BEGIN RAIL  
SUPPORT SLAB  
STA. 154+31**

**END RAIL  
SUPPORT SLAB  
BEGIN BRIDGE  
STA 154+86**

**END BRIDGE  
STA 155+60**



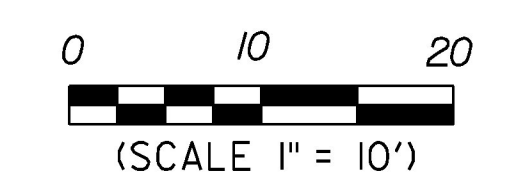
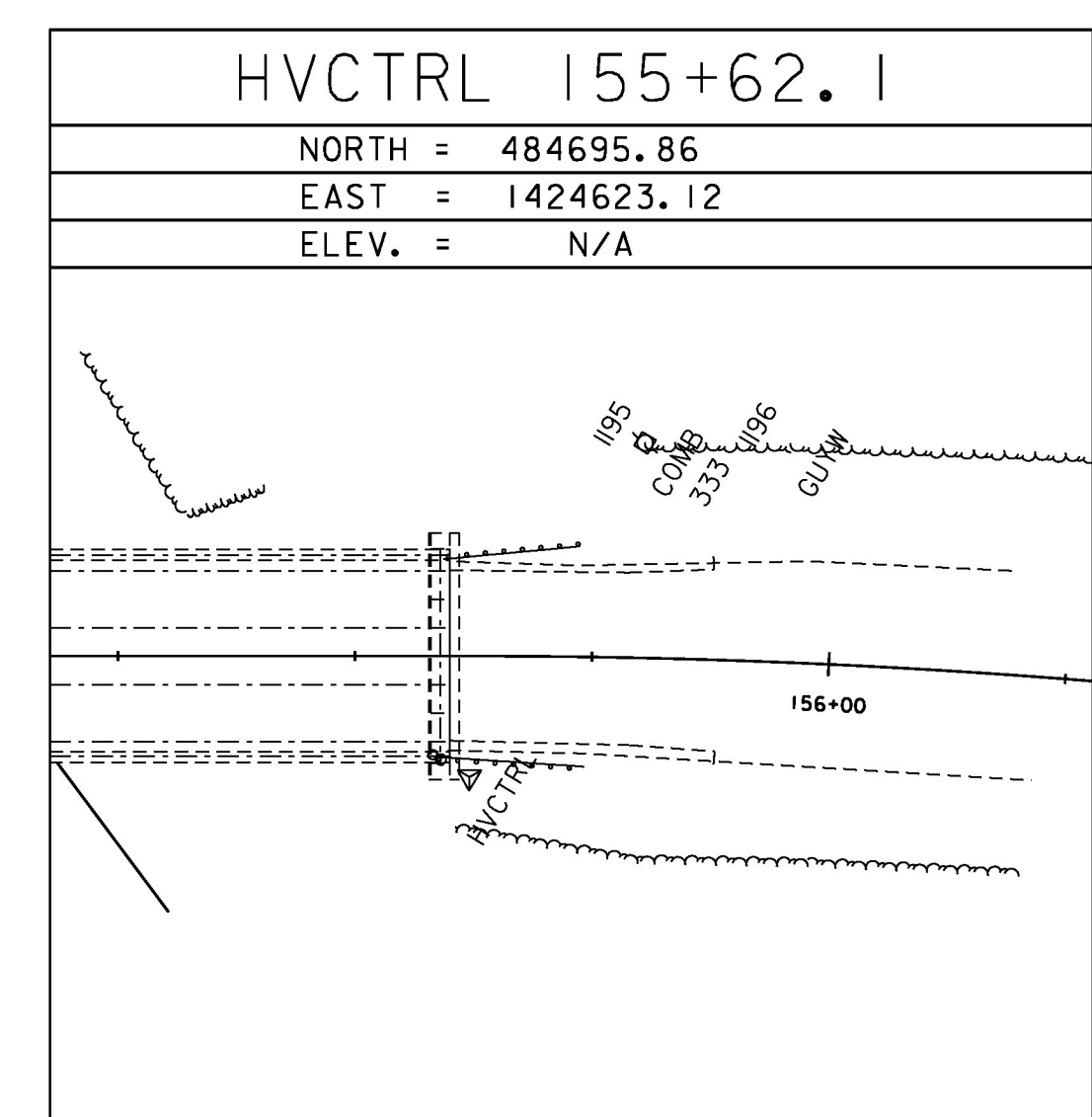
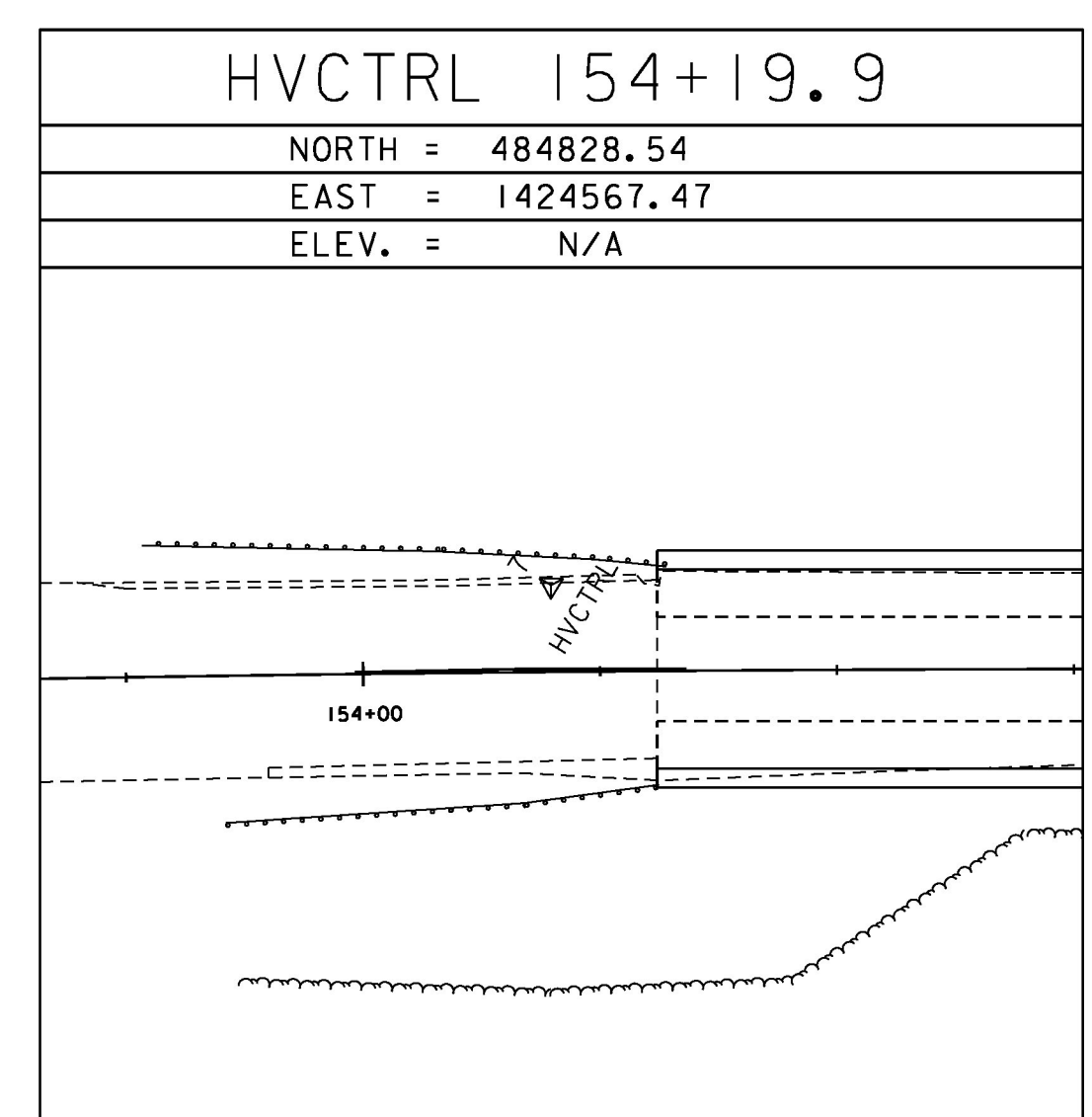
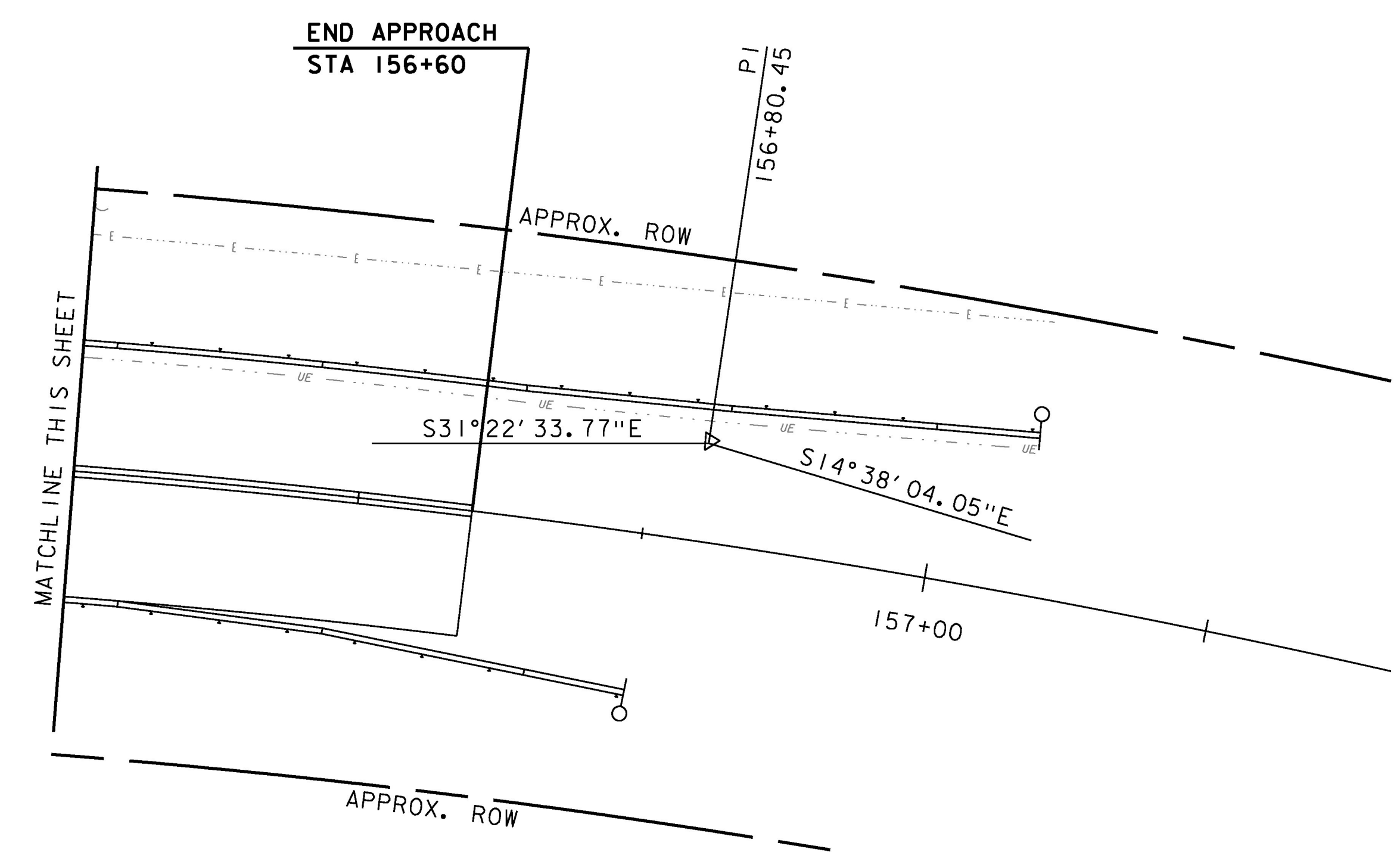
SAWCUT FOR CAST-IN-PLACE  
CONCRETE CURB, TYPE B (TYP.)  
(INCIDENTAL TO ITEM 900.680,  
"SPECIAL PROVISION  
(BITUMINOUS CONCRETE PAVEMENT,  
SMALL QUANTITY)")



- ~~DURABLE 4 INCH WHITE LINE, THERMOPLASTIC~~ BOX BEAM GUARDRAIL  
154+04 TO 155+87 LT & RT (SOLID) 153+53 TO 153+98 RT
- ~~DURABLE 4 INCH YELLOW LINE, THERMOPLASTIC~~ 153+35 TO 153+98 LT
- ~~CAST IN PLACE CONCRETE CURB, TYPE B~~ GRANITE CURBING 155+92 TO 157+08 LT
- 153+30 TO 156+60 LT & RT (SOLID) 155+93 TO 156+75 RT

STONE FILL, TYPE J  
GEOTEXTILE, UNDER STONE FILL  
154+00 LT  
154+00 RT

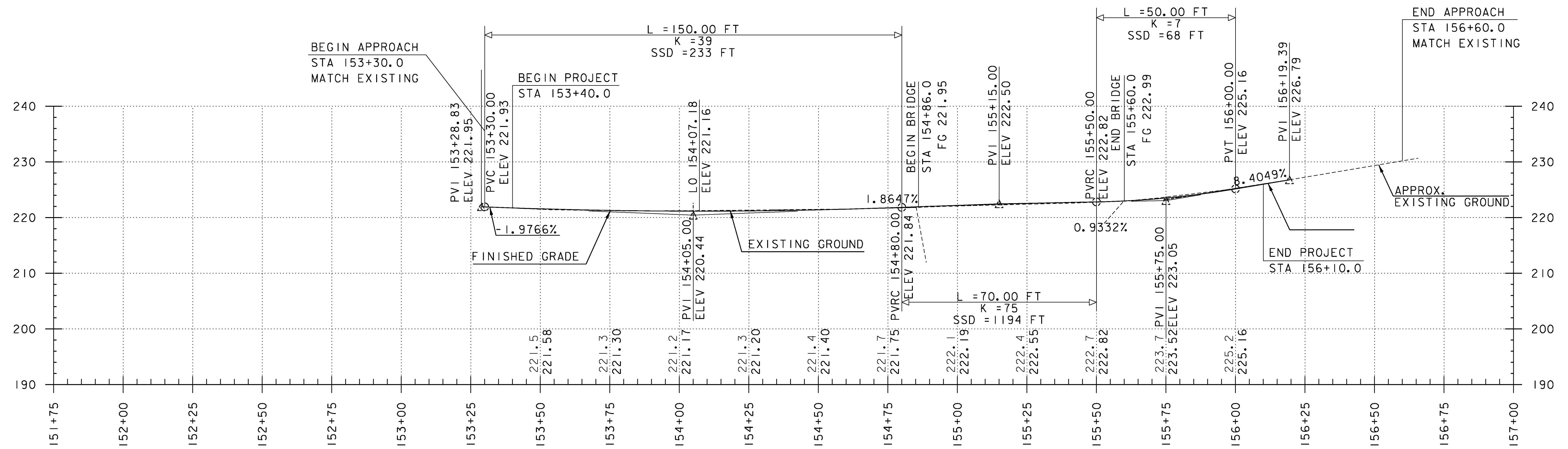
**REMOVAL AND DISPOSAL OF GUARDRAIL**  
153+77 TO 154+31 LT  
153+85 TO 154+31 RT  
155+60 TO 155+75 LT/RT



PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(4I)  
FILE NAME: z15j108bdr-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: L. GREER  
LAYOUT SHEET  
PLOT DATE: 8/22/2016  
DRAWN BY: P. McKECHNIE  
CHECKED BY: K. RUTTER  
SHEET 10 OF 27

CLD 15-0223 MODEL: Layout 1

CLD 15-0223 MODEL: PROFILE



**SNR ROUTE 73 REVISED PROFILE-2**

HOR. SCALE 1" = 20' -0"  
 VER. SCALE 1" = 10' -0"

**NOTES**

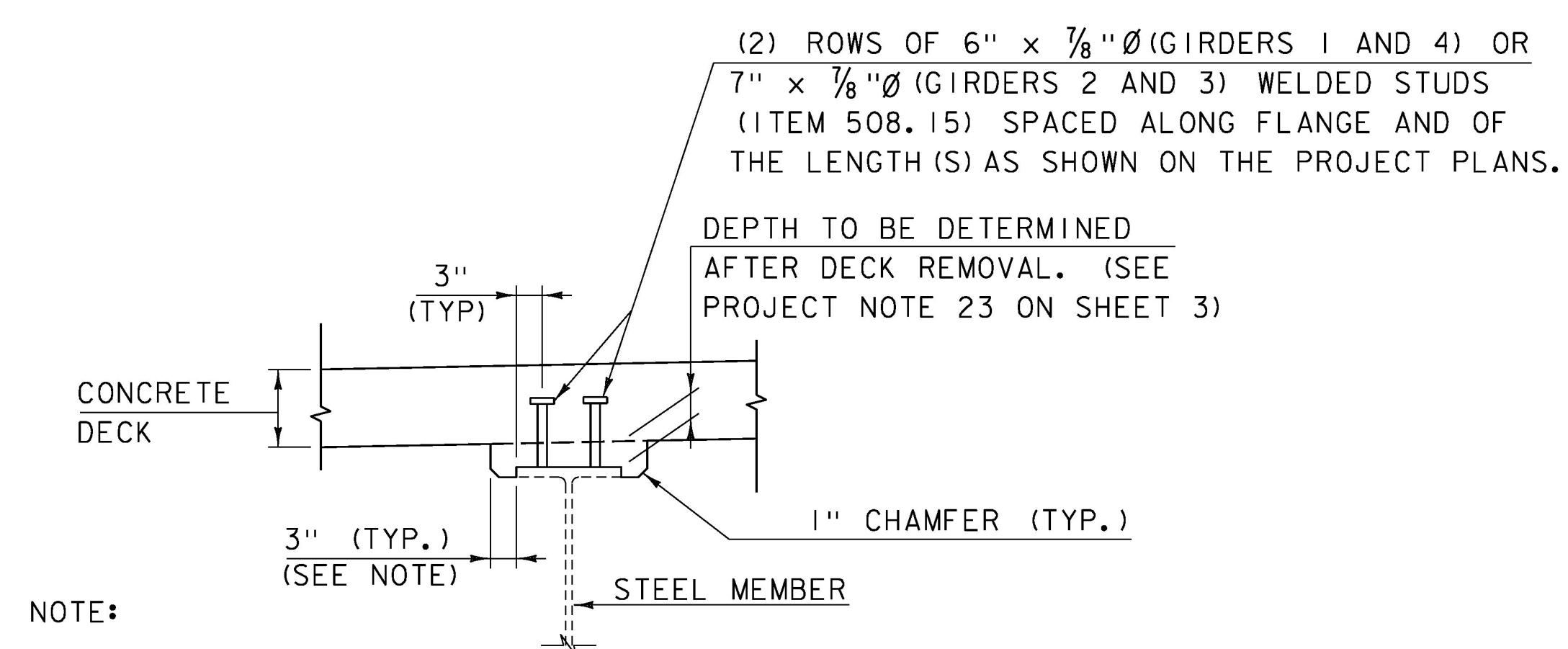
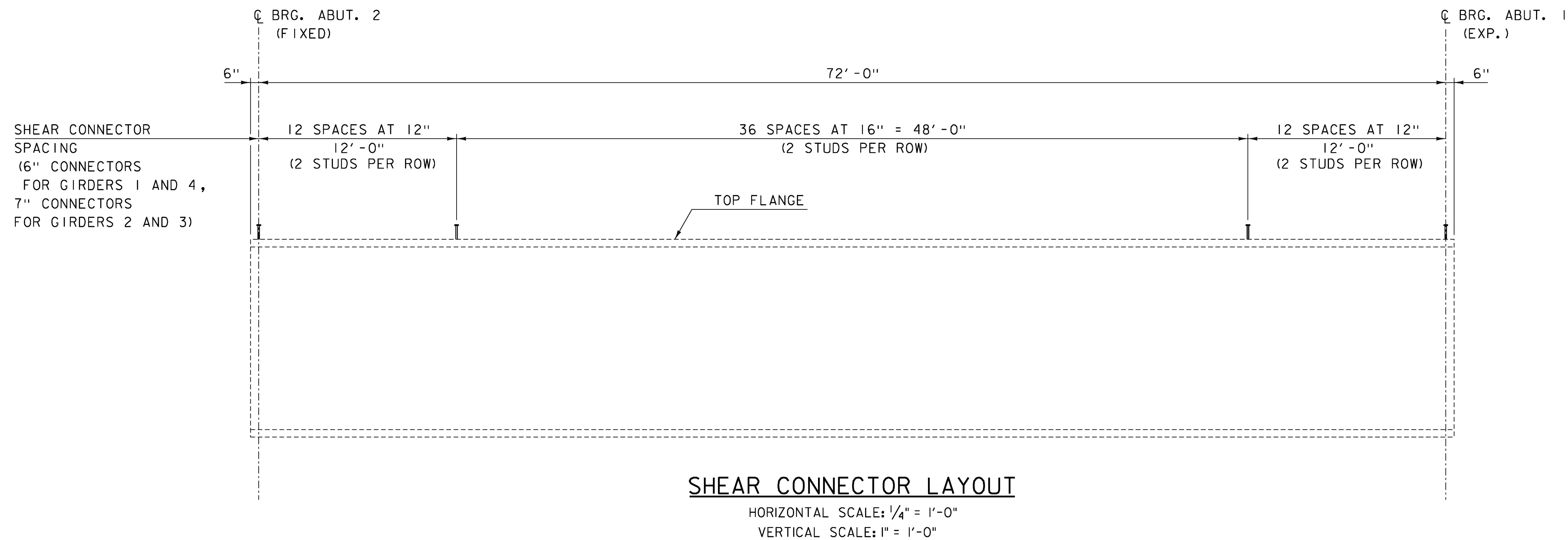
1. STATIONS AND ELEVATIONS ARE IN FEET.
2. THE ELEVATIONS SHOWN TO THE NEAREST TENTH ARE THE EXISTING GROUND ALONG THE CENTERLINE.
3. THE ELEVATIONS SHOWN TO THE NEAREST HUNDRETH ARE THE FINISHED GRADE ALONG THE CENTERLINE.
4. PROPOSED PROFILE SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. FINAL FINISHED GRADE SHALL BE DETERMINED BY THE PROJECT MANAGER AFTER TOP OF BEAM ELEVATIONS ARE SURVEYED. SEE PROJECT NOTE 23 ON SHEET 3.

Updated  
26 July 2017

PROJECT NAME:	ORWELL
PROJECT NUMBER:	STP DECK (4I)
FILE NAME:	z15j108pro-4.dgn
PROJECT LEADER:	J. BYATT
DESIGNED BY:	S. FORTIER
REVISED PROFILE SHEET	
PLOT DATE:	7/26/2017
DRAWN BY:	S. FORTIER
CHECKED BY:	L. GREER
SHEET	II OF 27







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

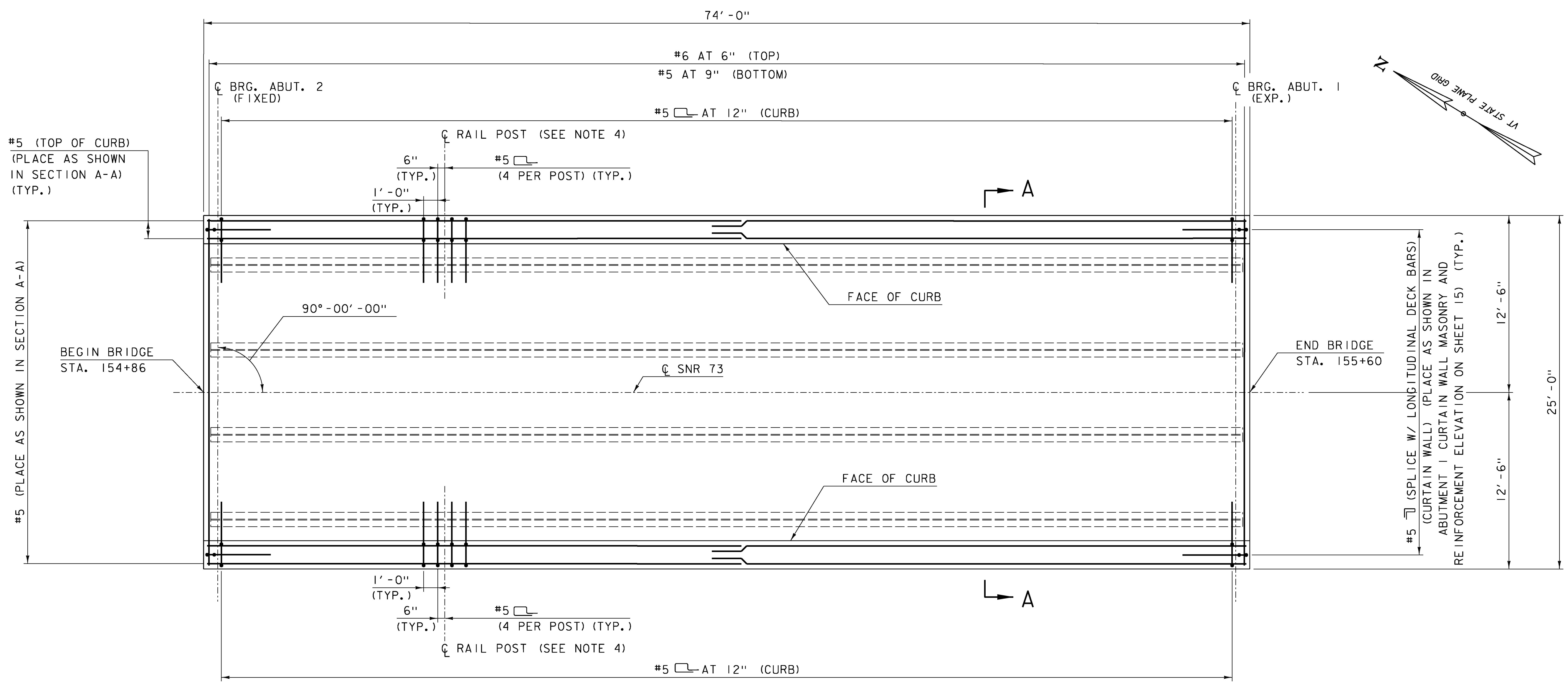
**HAUNCH AND SHEAR CONNECTOR DETAIL**  
 SCALE: 3/4" = 1'-0"

Updated  
 26 July 2017

PROJECT NAME: ORWELL	
PROJECT NUMBER: STP DECK(41)	
FILE NAME: z15j108+yp-4.dgn	PLOT DATE: 7/28/2017
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: N. CARON	CHECKED BY: S. BEAUMONT
SHEAR CONNECTOR DETAILS SHEET	SHEET 13 OF 27

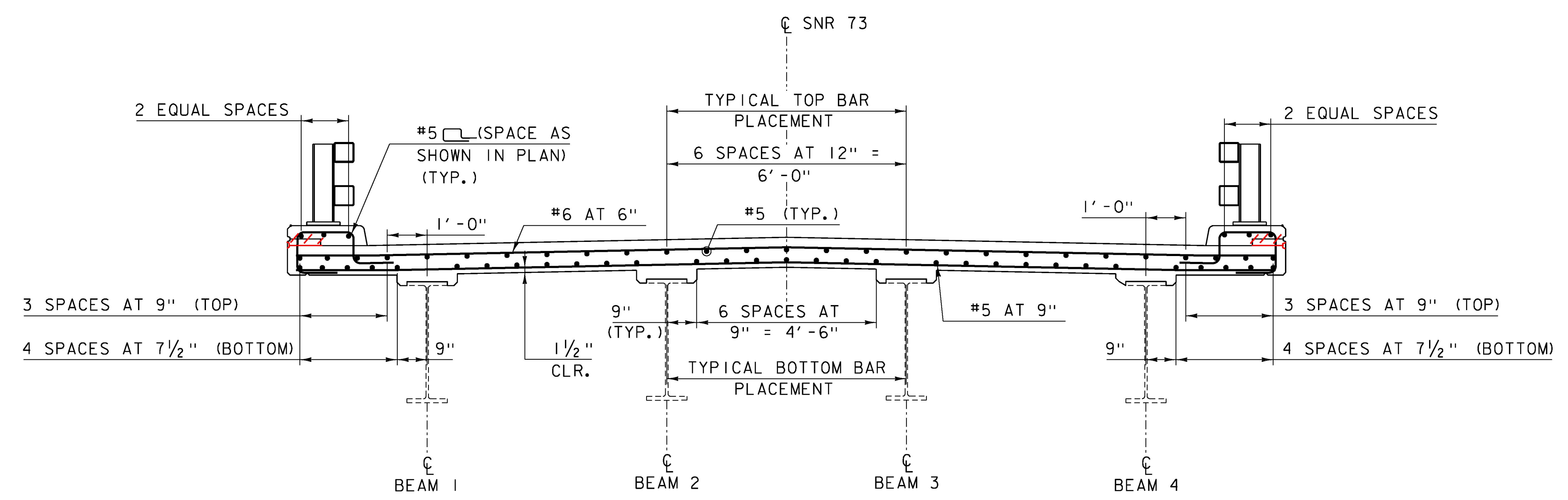


CLD 15-0223 MODEL: TYP04



**DECK REINFORCEMENT PLAN**

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



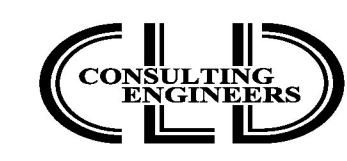
**SECTION A-A**

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

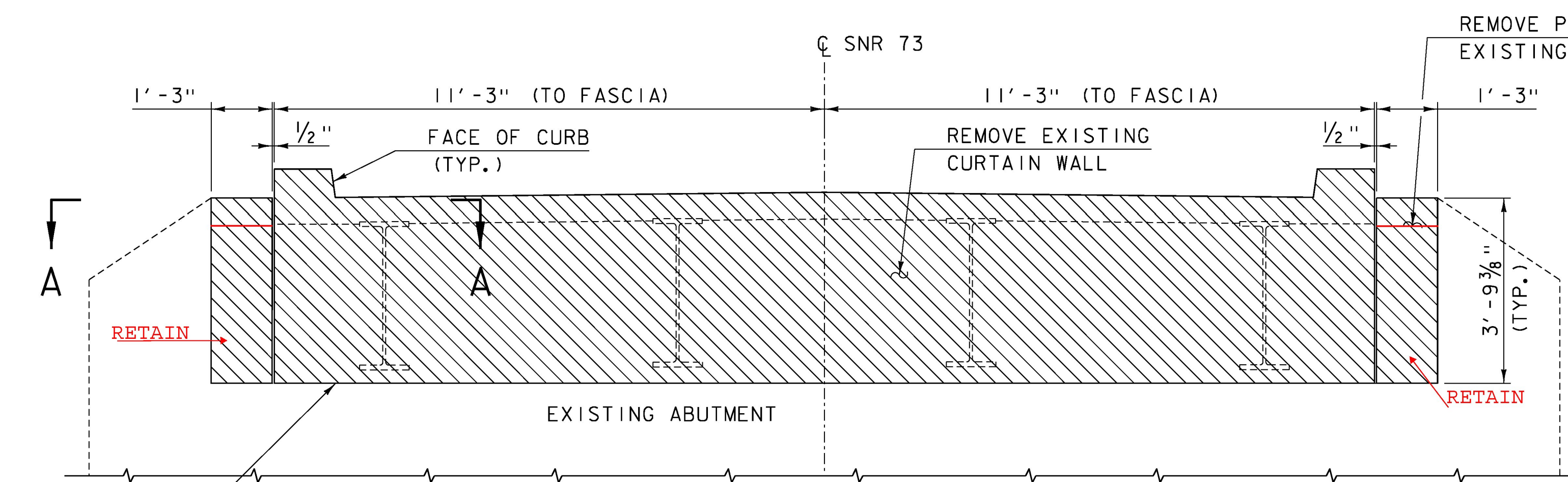
**NOTES:**

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 1'-0" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. SEE SHEET 20 FOR RAIL LAYOUT SHEET.

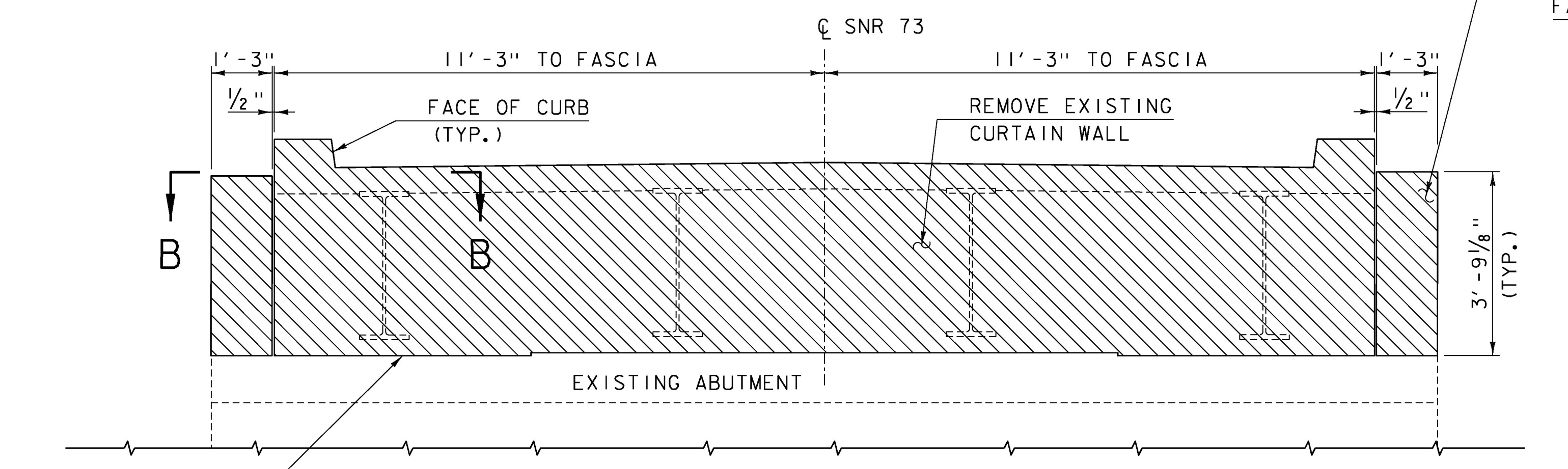
PROJECT NAME:	ORWELL	PLOT DATE:	8/22/2016
PROJECT NUMBER:	STP DECK(4I)	DRAWN BY:	M. SMITH
FILE NAME:	z15j108+yp-4.dgn	DESIGNED BY:	S. BEAUMONT
PROJECT LEADER:	J. BYATT	CHECKED BY:	J. FRENCH
DECK DETAILS SHEET		SHEET	14 OF 27



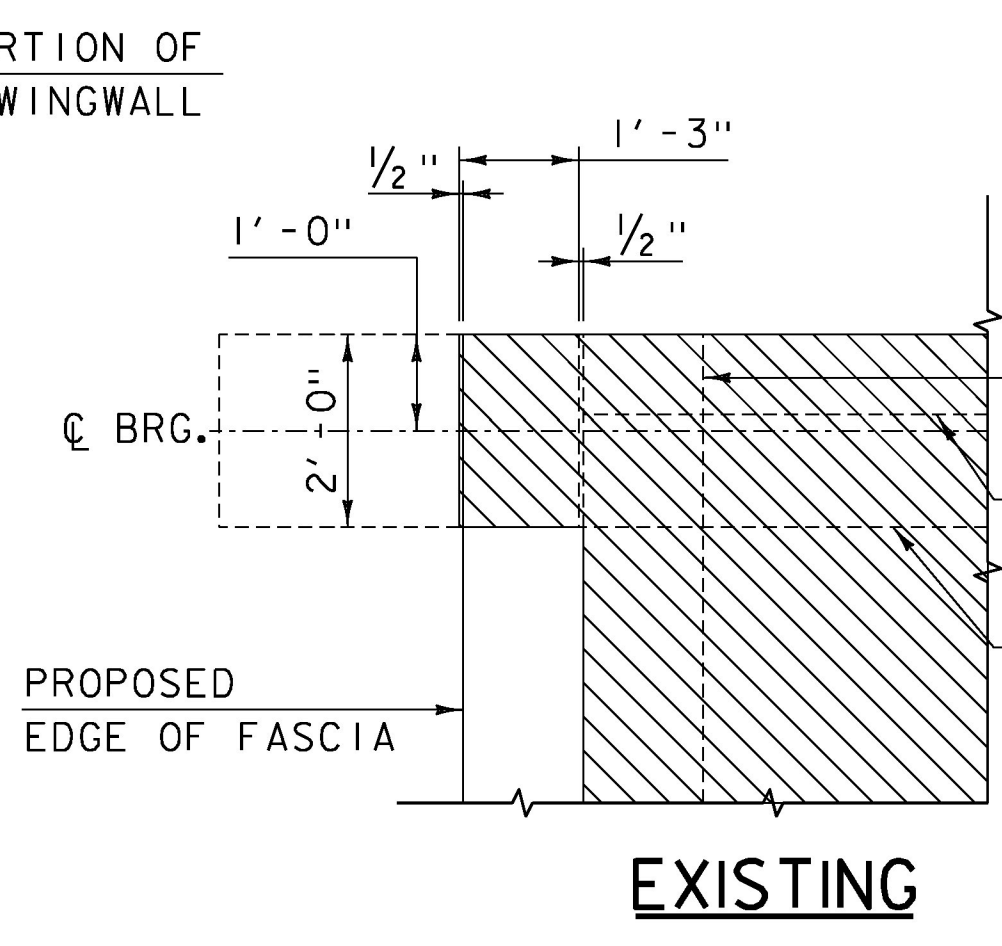
CLD 15-0223 MODEL: TYP05



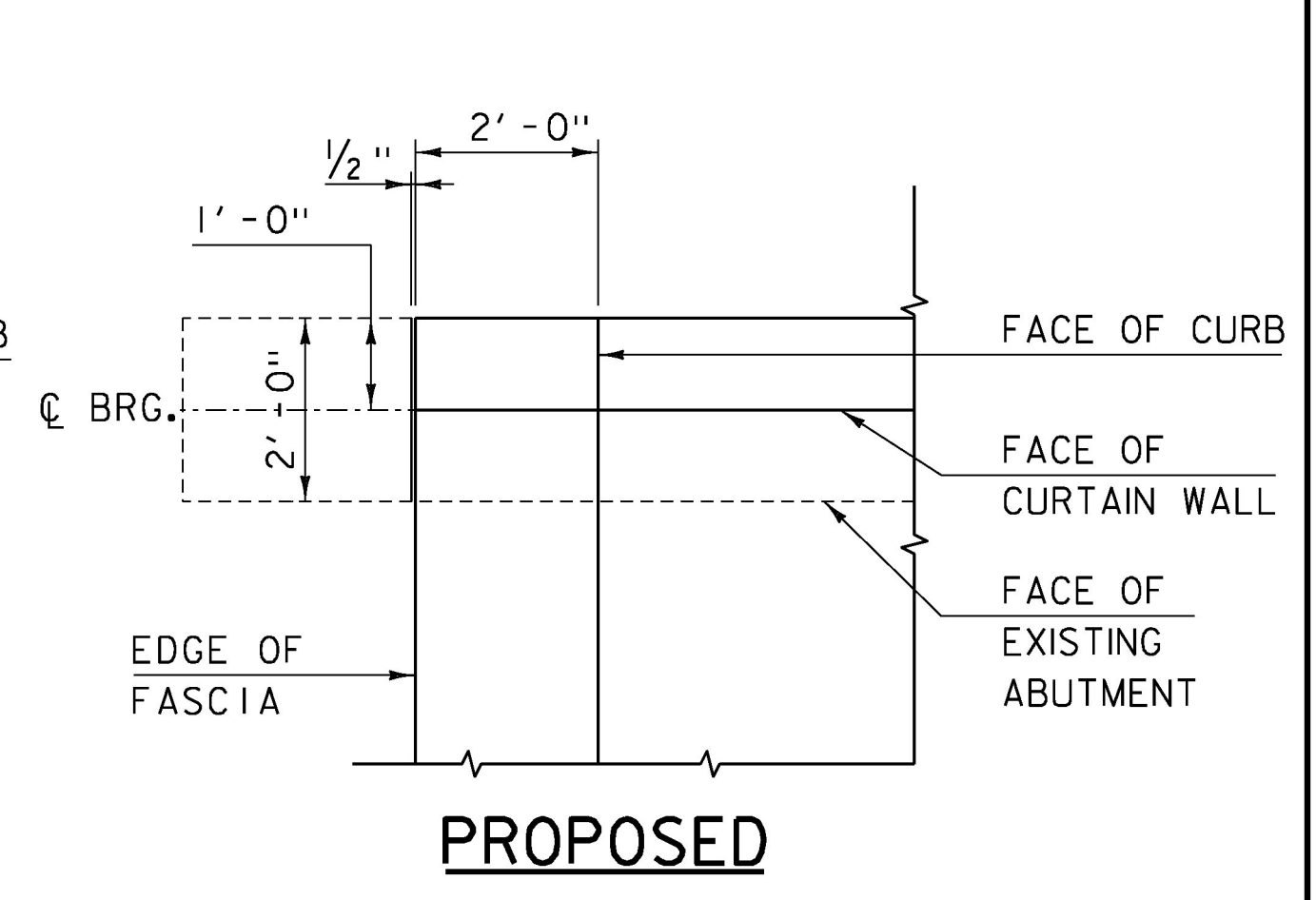
**REMOVAL LIMITS - ABUTMENT 1**  
SCALE: 1/2" = 1'-0"



**REMOVAL LIMITS - ABUTMENT 2**  
SCALE: 1/2" = 1'-0"

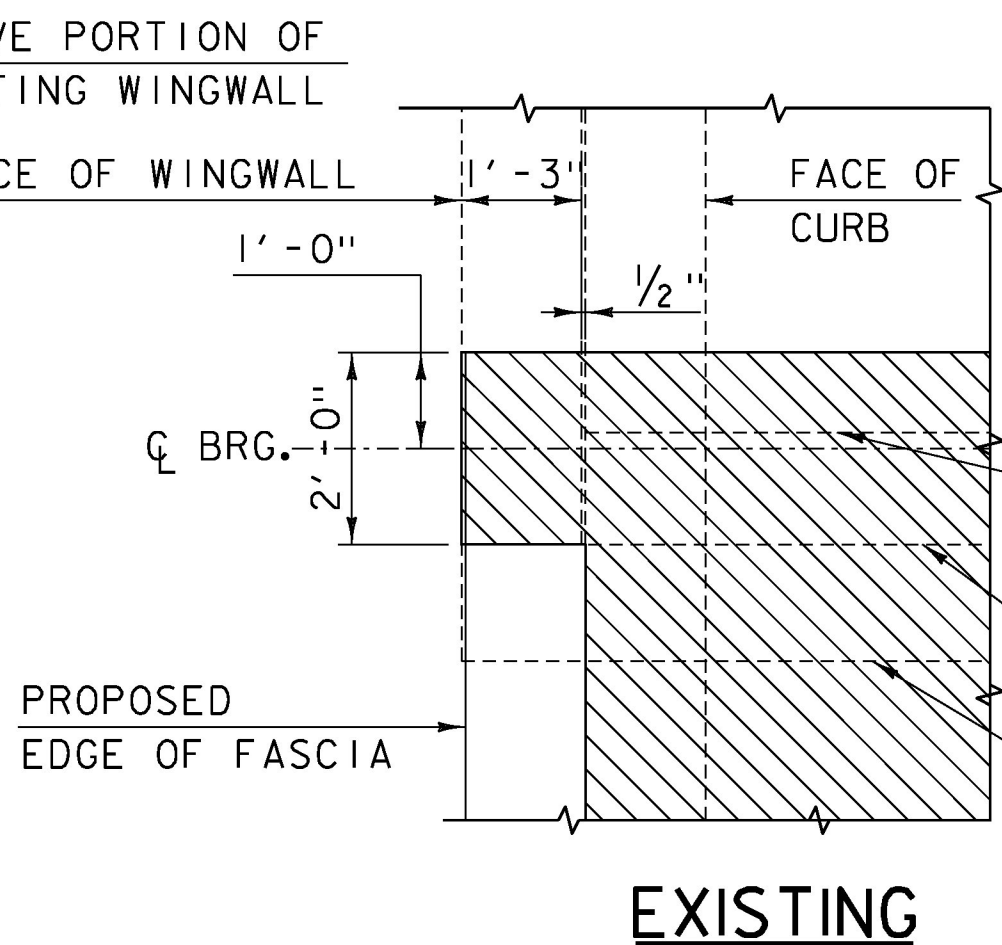


**EXISTING**

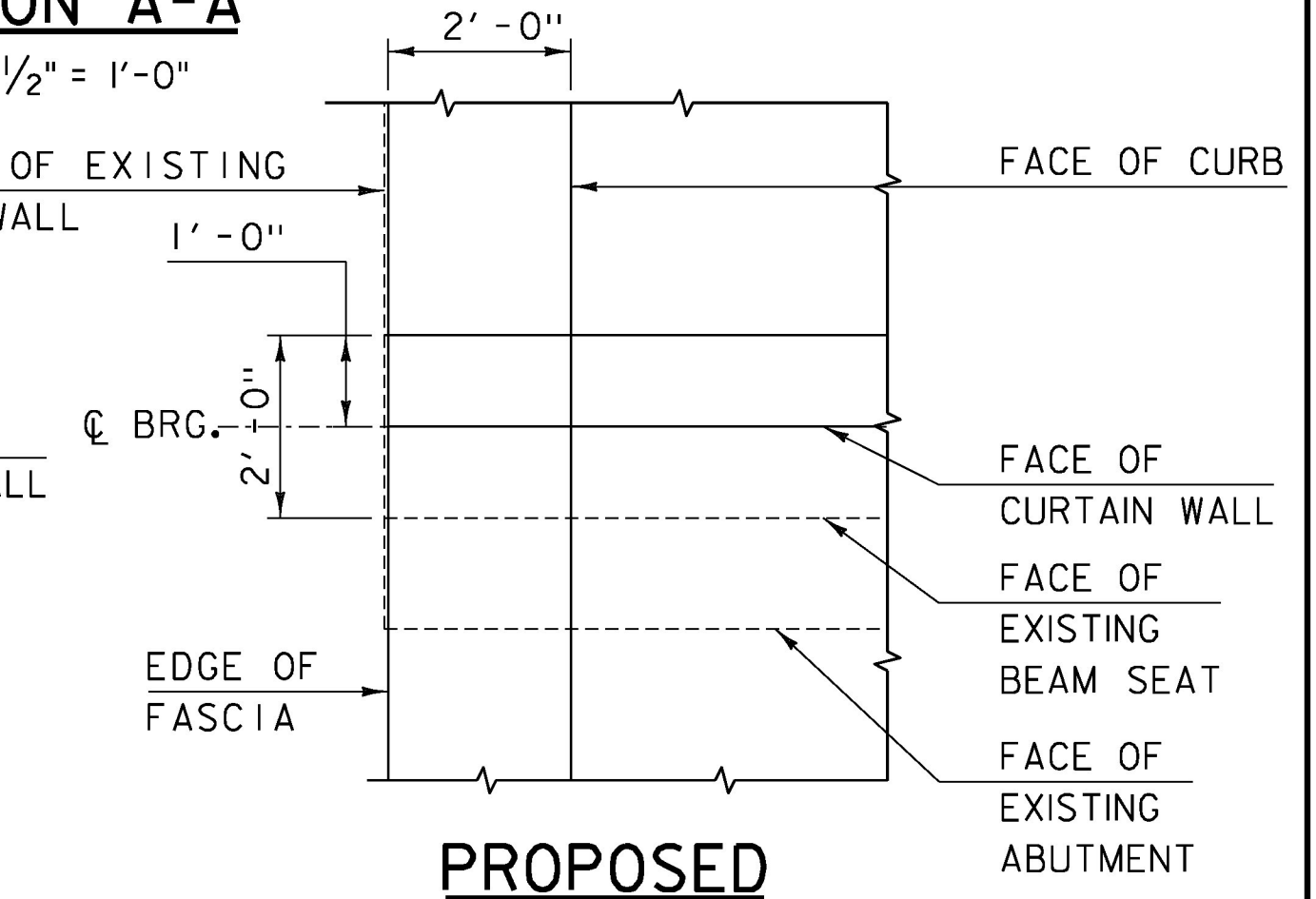


**PROPOSED**

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



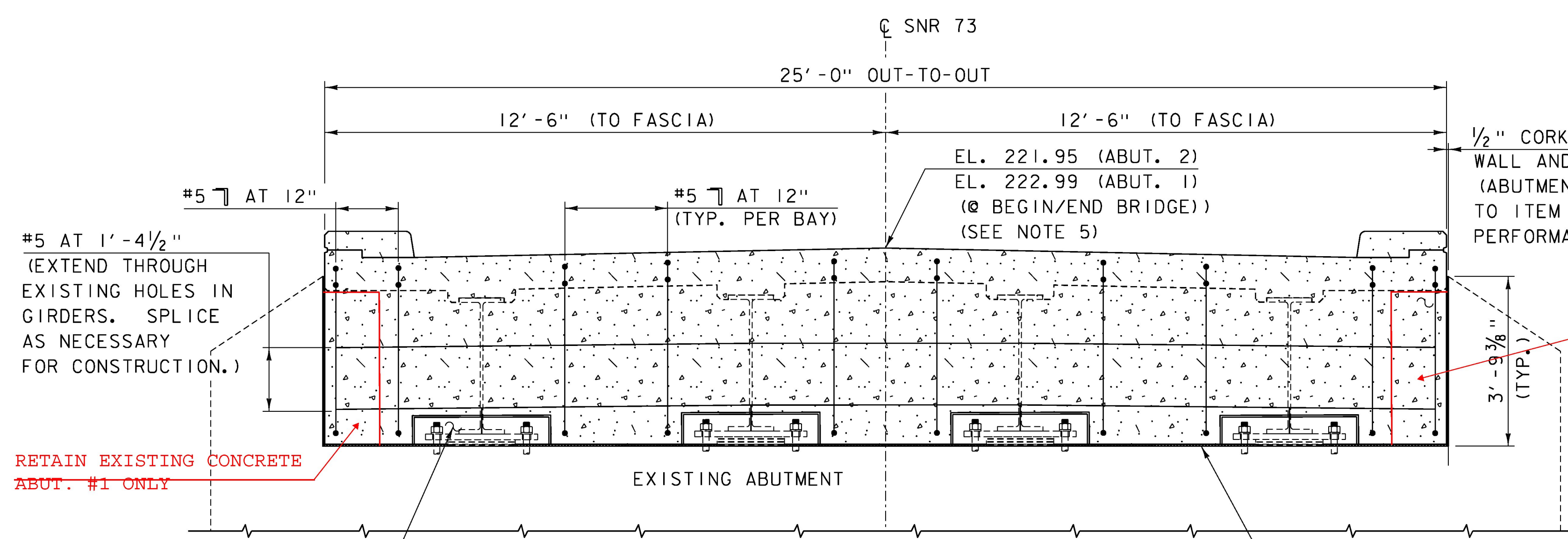
**EXISTING**



**PROPOSED**

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

Updated  
26 July 2017



**ABUTMENT 1 CURTAIN WALL MASONRY AND REINFORCEMENT ELEVATION**  
(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)  
SCALE: 1/2" = 1'-0"

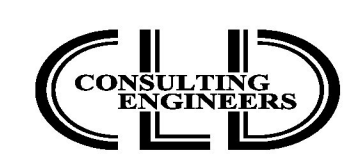
**NOTES:**

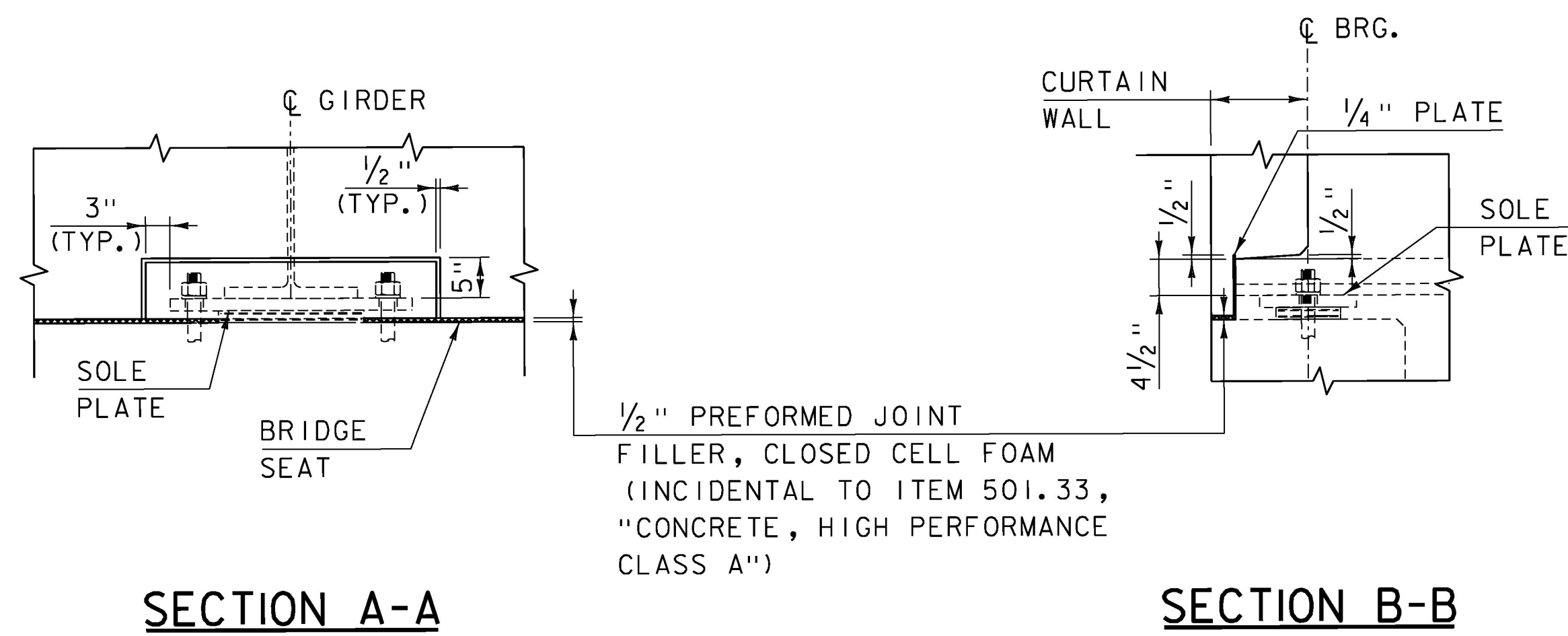
1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-1" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. EF = EACH FACE
4. SEE SHEET 16 FOR TYPICAL CURTAIN WALL SECTION AND CURTAIN WALL BLOCKOUT AROUND BEARINGS DETAILS.
5. ELEVATIONS ARE FOR INFORMATIONAL PURPOSES ONLY. FINAL FINISHED GRADES SHALL BE DETERMINED BY VTRANS AFTER EXISTING TOP OF BEAM ELEVATIONS ARE SURVEYED. SEE PROJECT NOTE 23 ON SHEET 3.

- PARTIAL REMOVAL OF EXISTING STRUCTURE (SEE PROJECT NOTE 20 ON SHEET 3)
- CONCRETE, HIGH PERFORMANCE CLASS A

PROJECT NAME: ORWELL	
PROJECT NUMBER: STP DECK(4I)	
FILE NAME: z15j108typ-4.dgn	PLOT DATE: 7/26/2017
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: J. FRENCH
REMOVAL & CURTAIN WALL DETAILS SHEET 1	SHEET 15 OF 27

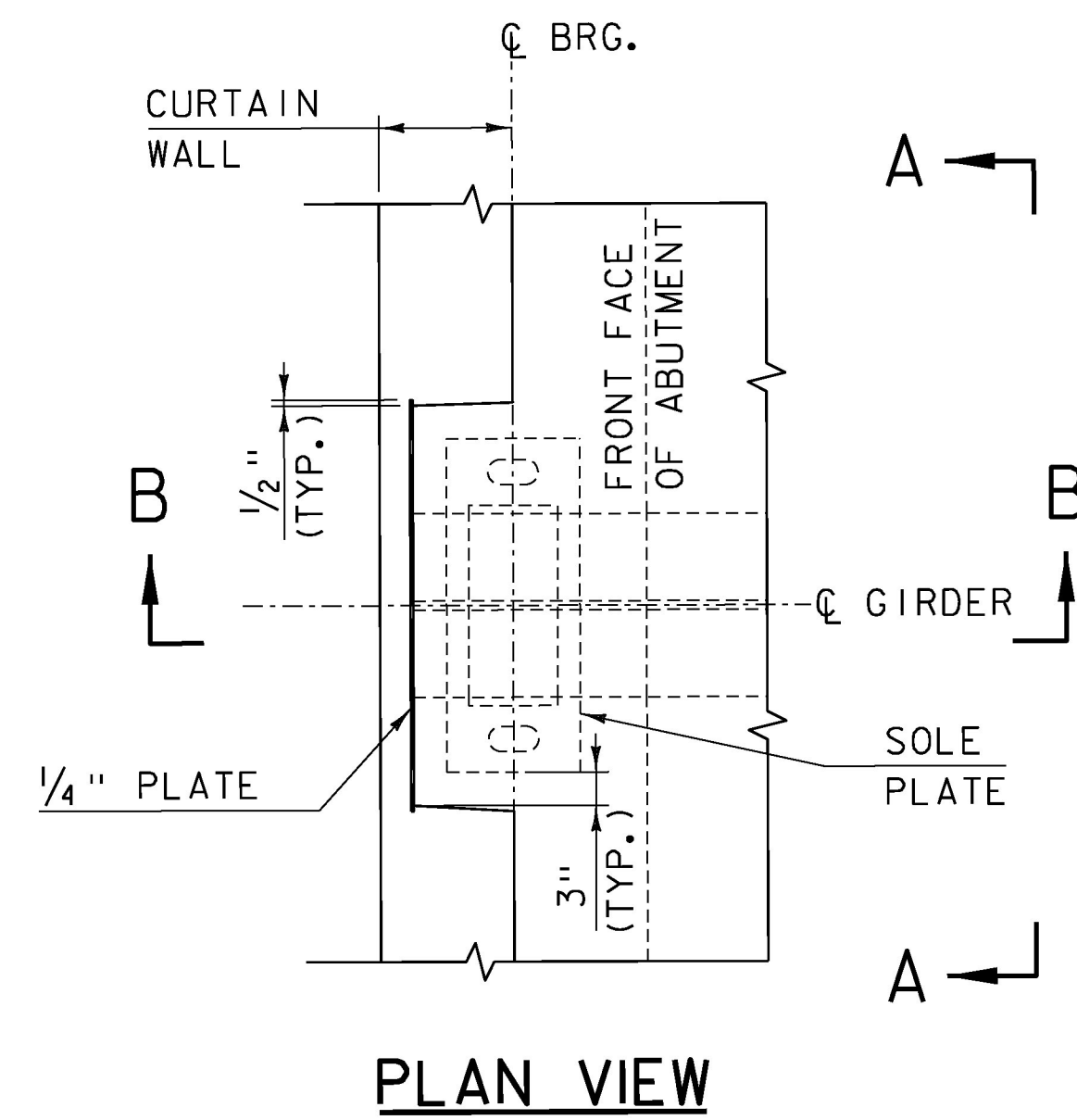
CLD 15-0223 MODEL: TYP06



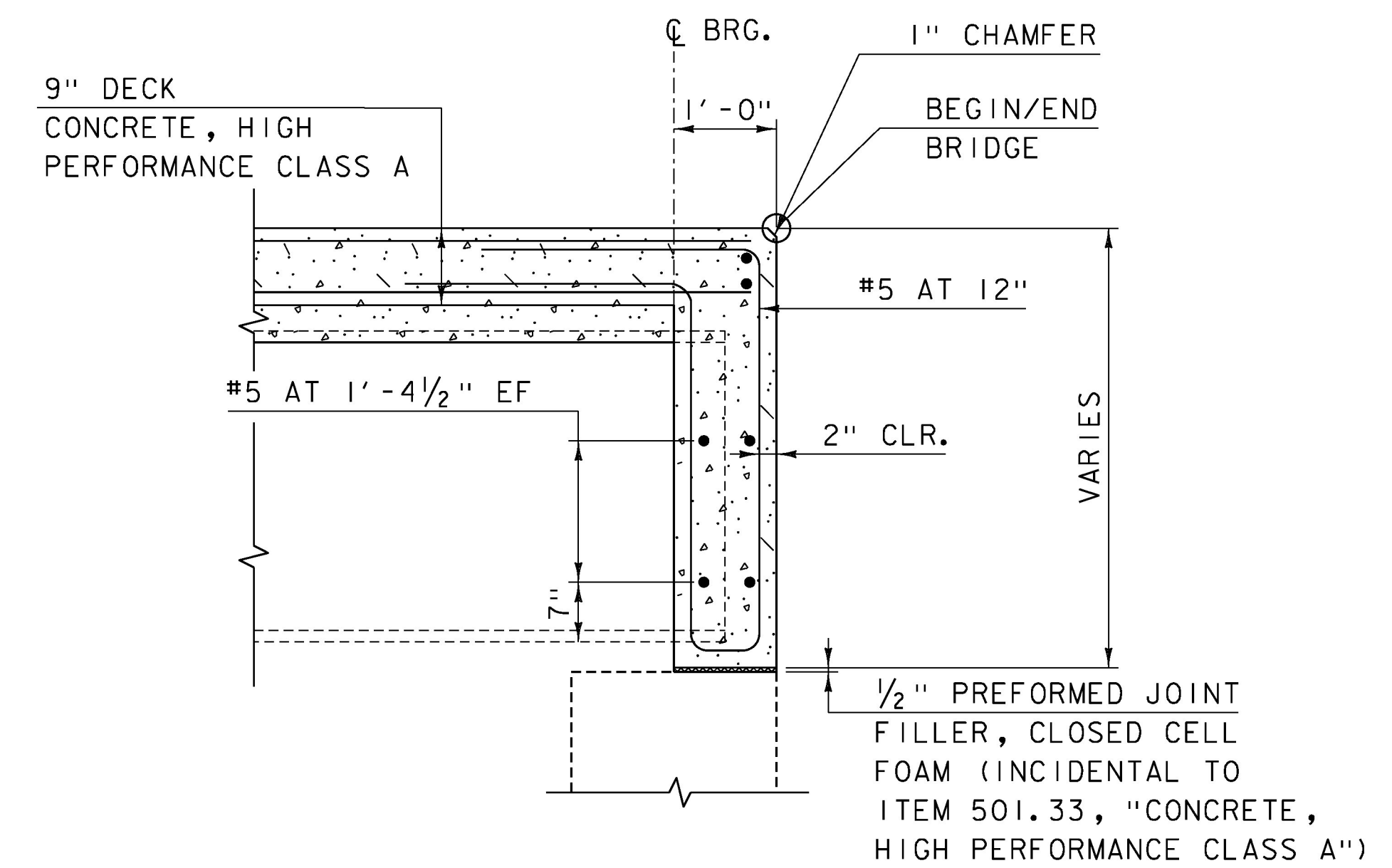


**NOTES:**

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. EF = EACH FACE
4. SEE SHEET 15 FOR CURTAIN WALL MASONRY AND REINFORCEMENT ELEVATION.

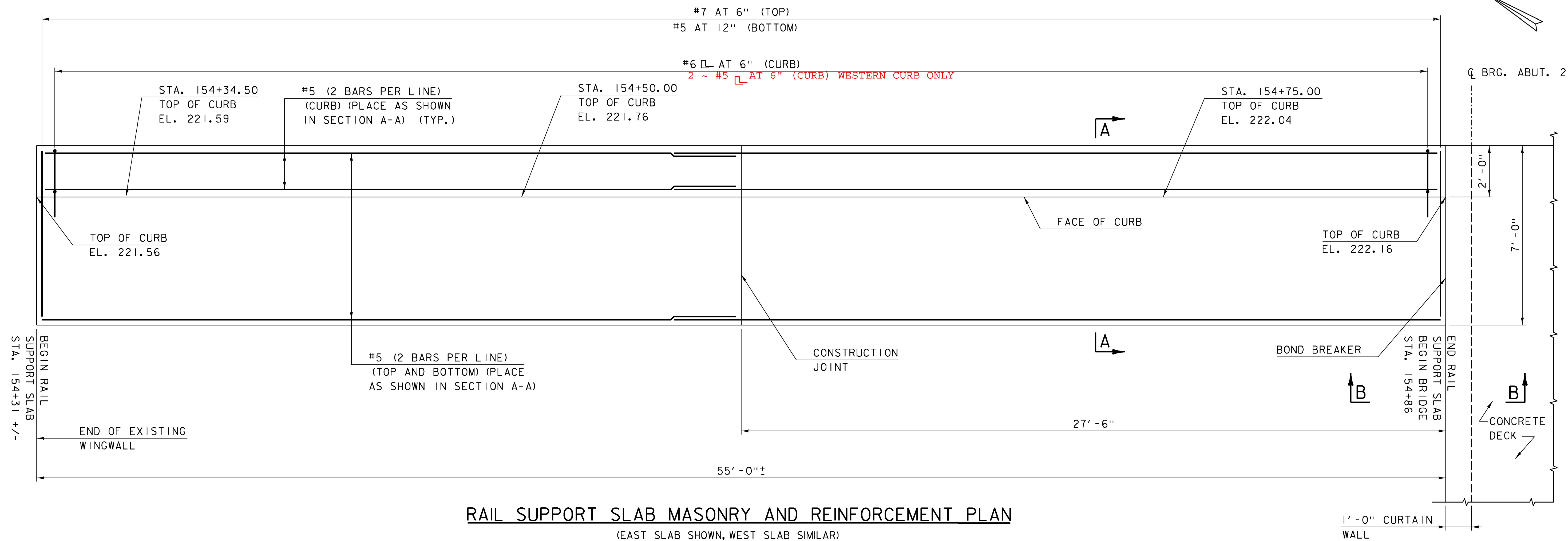
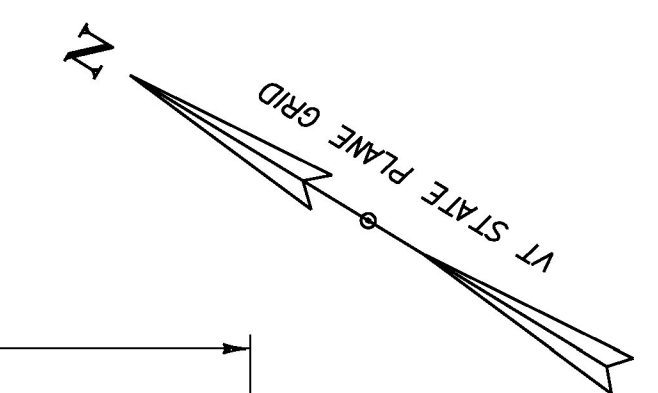


**CONCRETE CURTAIN WALL  
BLOCKOUTS AROUND BEARINGS**  
SCALE: 3/4" = 1'-0"



CLD 15-0223 MODEL: TYP07

PROJECT NAME: ORWELL	
PROJECT NUMBER: STP DECK(41)	
FILE NAME: z15j108typ-4.dgn	PLOT DATE: 8/22/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: N. CARON	CHECKED BY: S. BEAUMONT
REMOVAL & CURTAIN WALL DETAILS SHEET 2	SHEET 16 OF 27

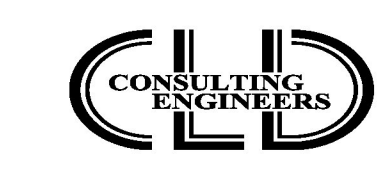


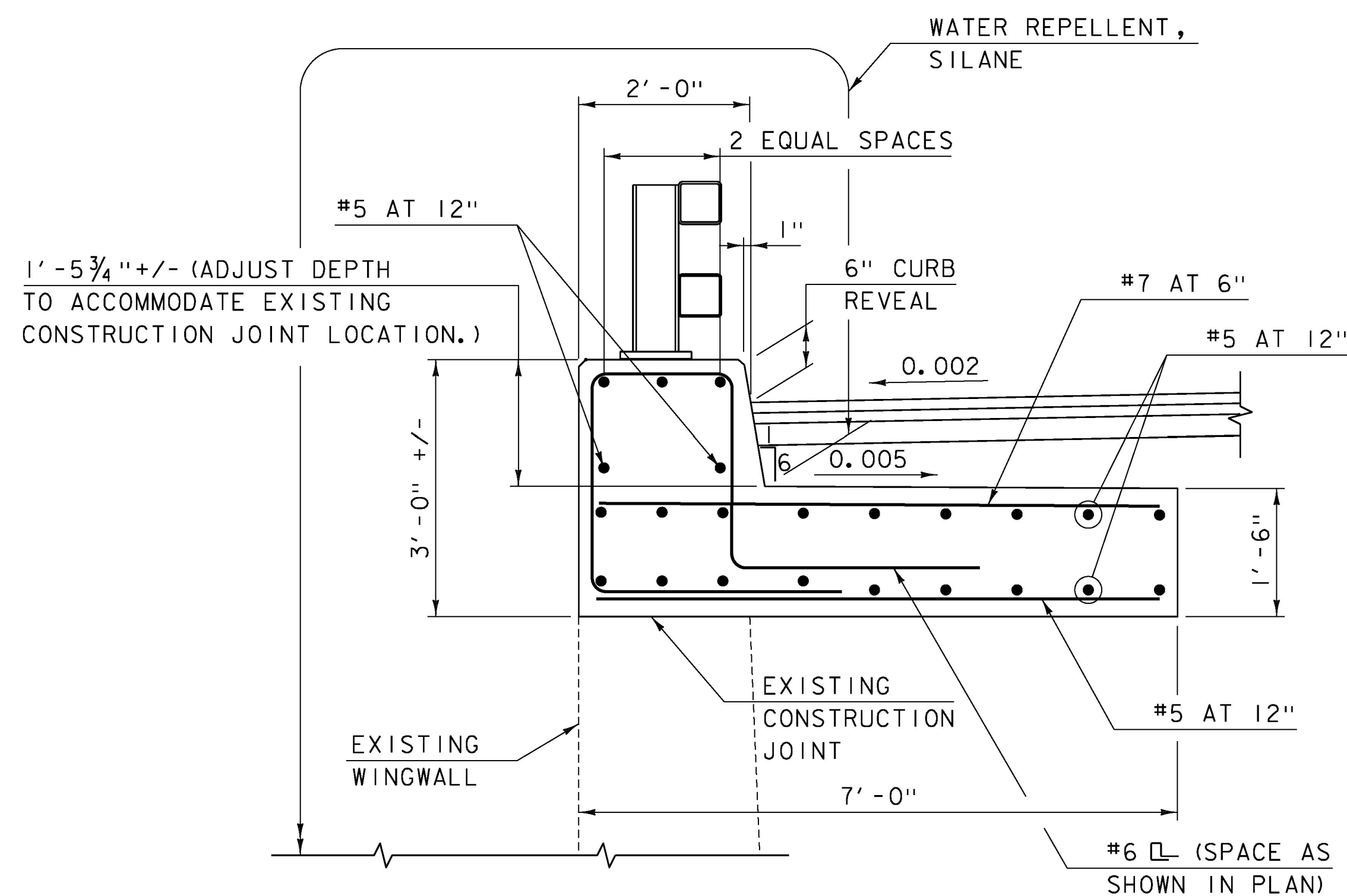
**RAIL SUPPORT SLAB MASONRY AND REINFORCEMENT PLAN**  
 (EAST SLAB SHOWN, WEST SLAB SIMILAR)  
 SCALE: 1/2" = 1'-0"

- NOTES:
1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
  2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
  3. 1'-0" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.
  4. SEE SHEET 18 FOR SECTIONS A-A AND B-B.
  5. ALL DIMENSIONS ARE BASED ON FIELD MEASUREMENTS AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS.
  6. ELEVATIONS SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. FINAL FINISHED GRADES SHALL BE DETERMINED BY VTRANS AFTER EXISTING TOP OF BEAM ELEVATIONS ARE SURVEYED. SEE PROJECT NOTE 23 ON SHEET 3.

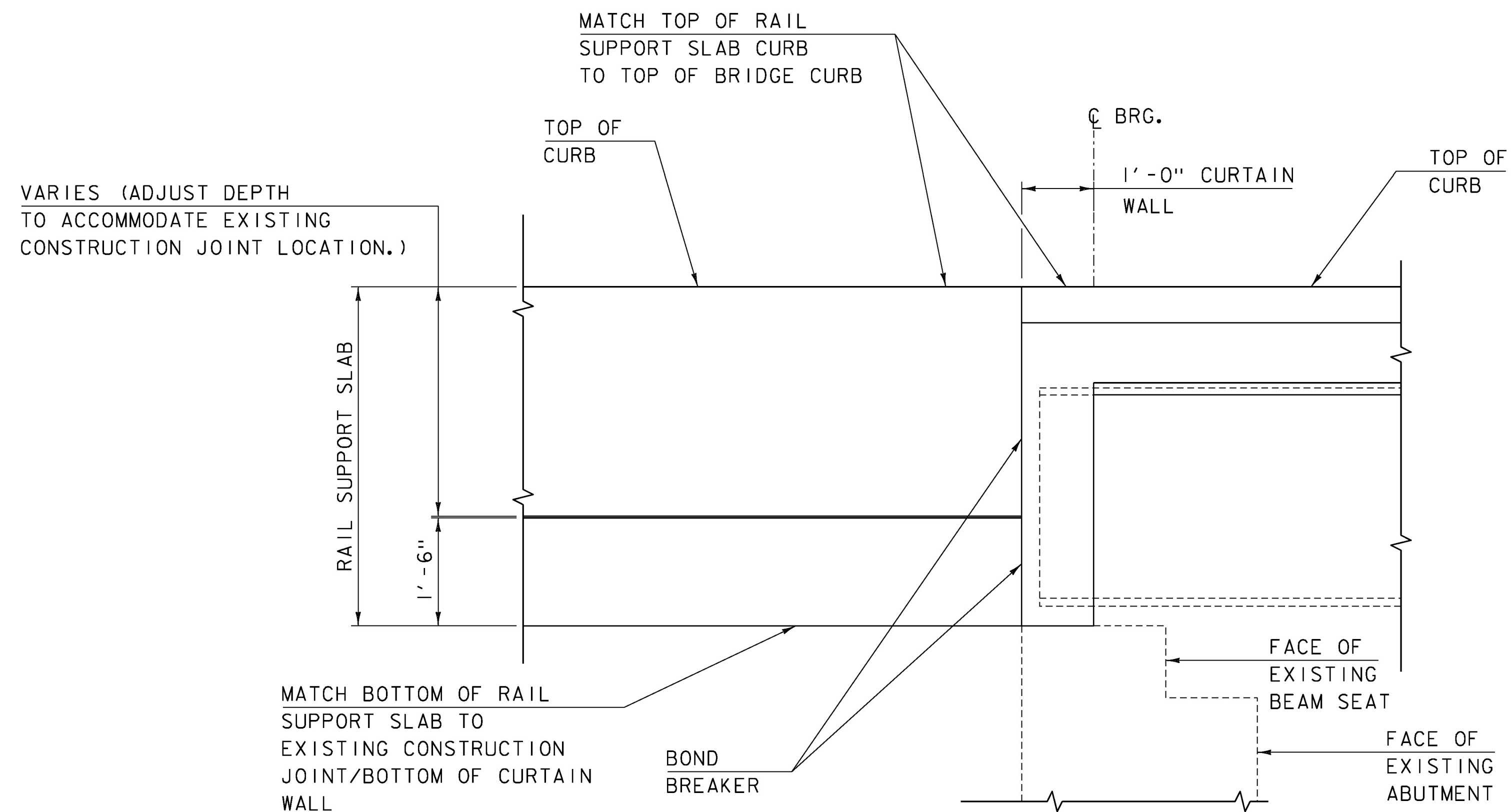
CLD 15-0223 MODEL: TYP08

PROJECT NAME: ORWELL	
PROJECT NUMBER: STP DECK(4I)	
FILE NAME: z15j108typ-4.dgn	PLOT DATE: 8/22/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: A. GIRALDI	CHECKED BY: S. BEAUMONT
RAIL SUPPORT SLAB DETAILS SHEET	SHEET 17 OF 27

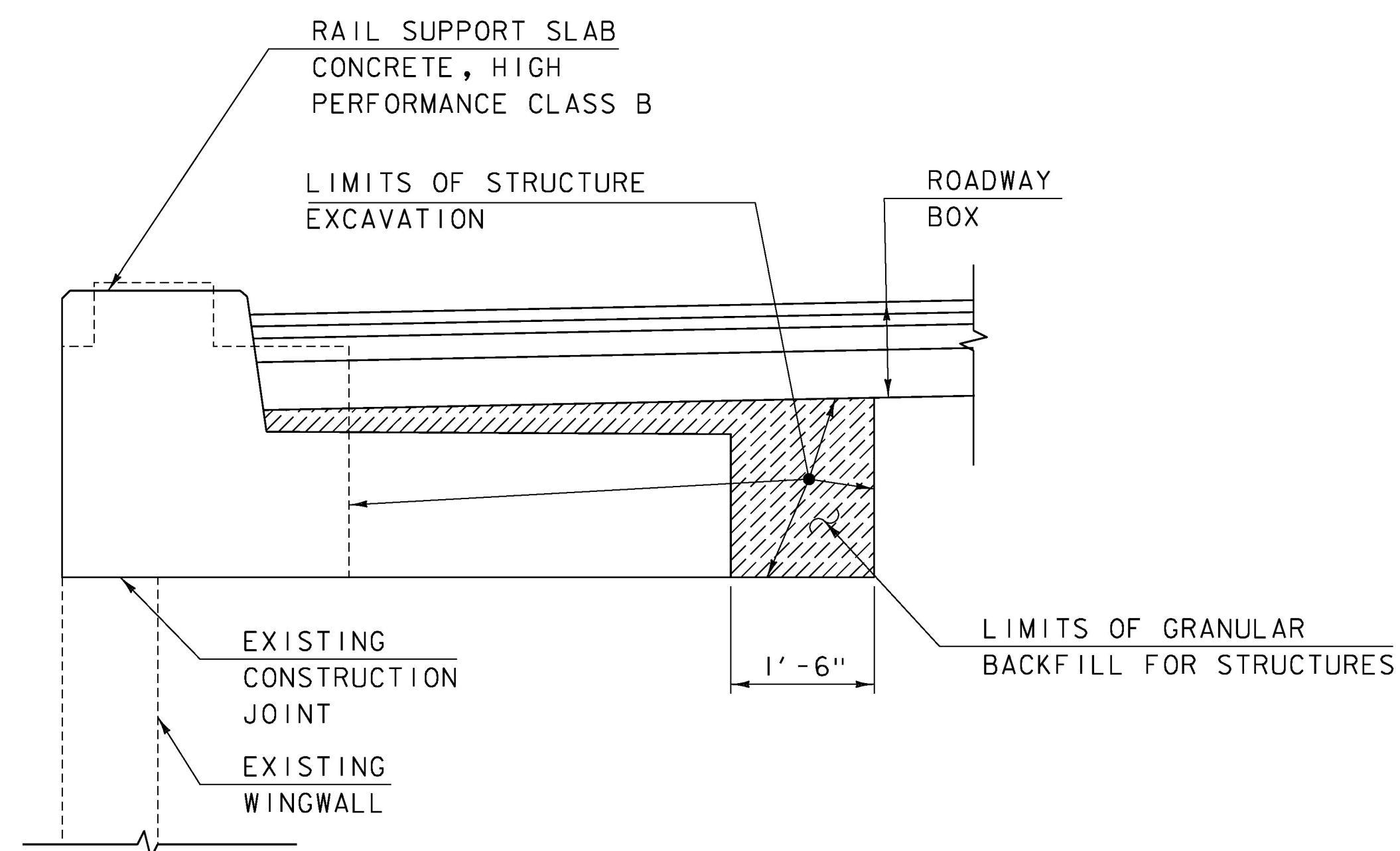




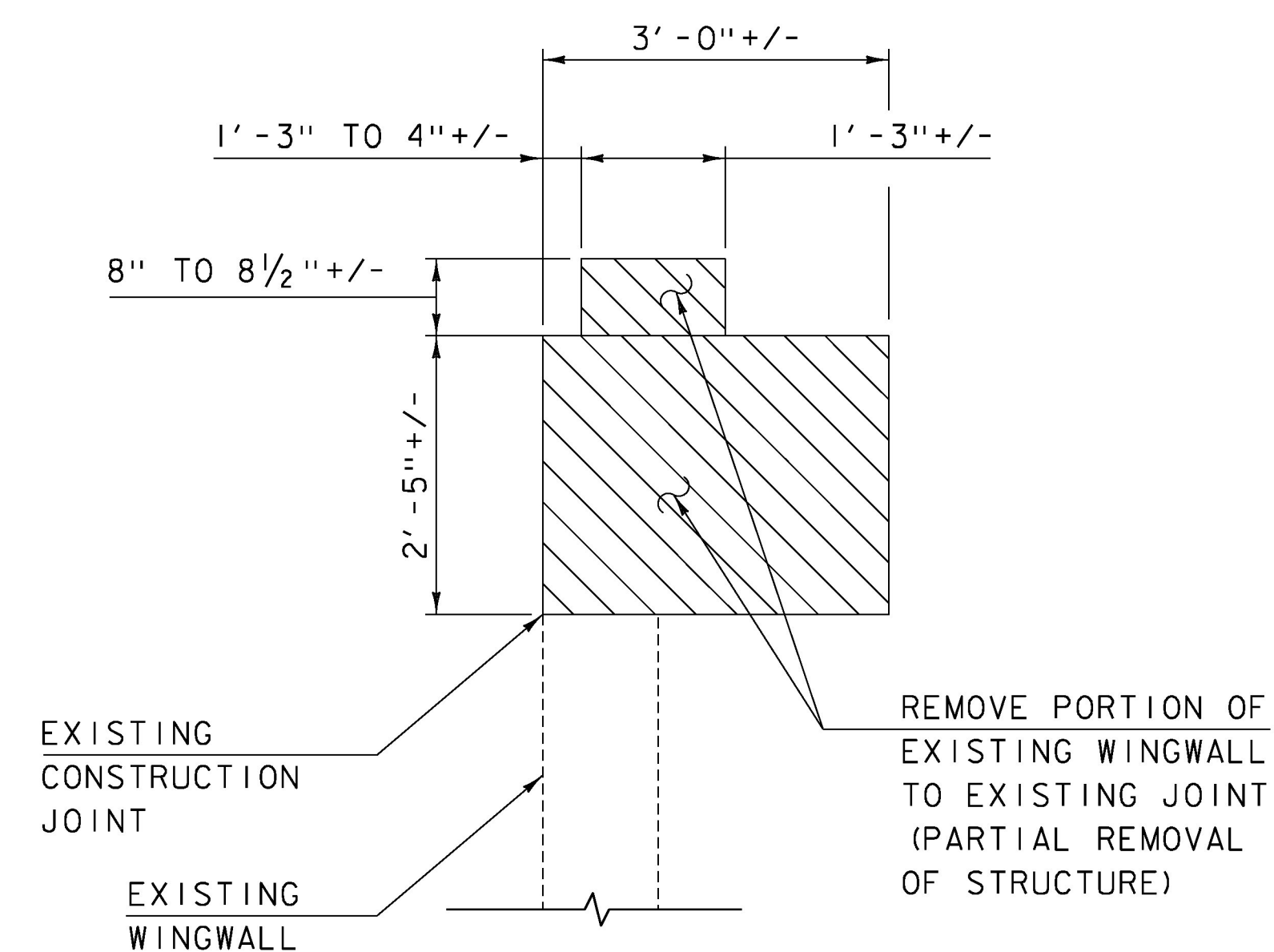
**SECTION A-A**  
SCALE: 3/4" = 1'-0"



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



**TYPICAL RAIL SUPPORT SLAB EARTHWORKS**  
SCALE: 3/4" = 1'-0"



**TYPICAL WINGWALL REMOVAL SECTION**  
SCALE: 3/4" = 1'-0"

**NOTES:**

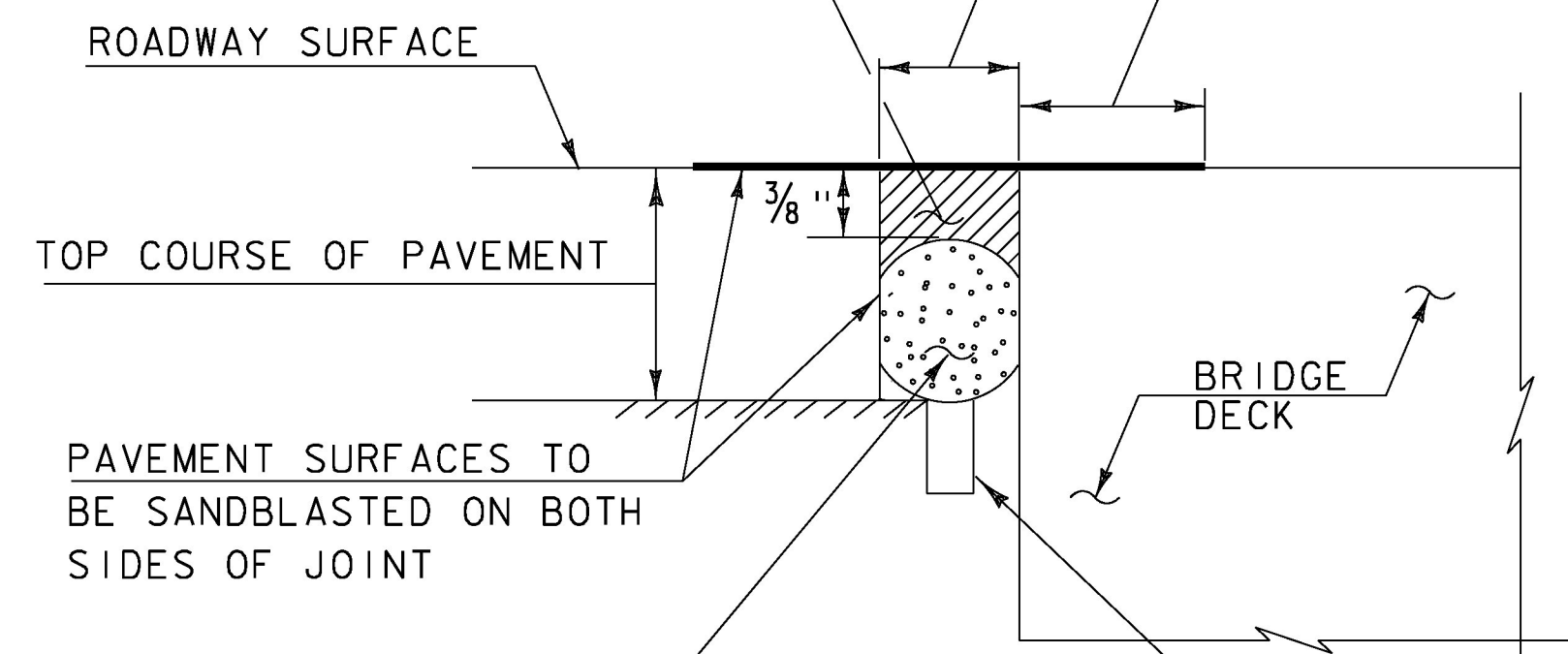
1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 3'-0" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 1'-0" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS
4. SEE SHEET 17 FOR RAIL SUPPORT SLAB MASONRY AND REINFORCEMENT PLAN.
5. ALL DIMENSIONS ARE BASED ON FIELD MEASUREMENTS AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS.
6. COMPACT EXISTING MATERIAL BELOW RAIL SUPPORT SLAB. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B".
7. THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO THE BACK FACE OF THE RAIL SUPPORT SLAB AT THE SOUTHEAST CORNER NEAREST THE ABUTMENT. SEE STANDARD SD-502.00 FOR ADDITIONAL INFORMATION.

PROJECT NAME: ORWELL	PLOT DATE: 8/22/2016
PROJECT NUMBER: STP DECK(4I)	DRAWN BY: M. SMITH
FILE NAME: z15j108typ-4.dgn	CHECKED BY: S. BEAUMONT
PROJECT LEADER: J. BYATT	SHEET 18 OF 27
DESIGNED BY: A. GIRALDI	
RAIL SUPPORT SLAB DETAILS SHEET 2	

JOINT SEALER, HOT POURED. SHALL BE SLIGHTLY OVER FILLED THEN WIPED FLUSH WITH A "V" OR "U" SHAPED SQUEEGEE TO PROVIDE A 1/4" WIPE ZONE EACH SIDE OF JOINT.

3/4" SAW CUT * COST TO BE INCLUDED WITH UNIT BID PRICE FOR JOINT SEALER.

1/4" MIN. WIPE ZONE (TYP.)



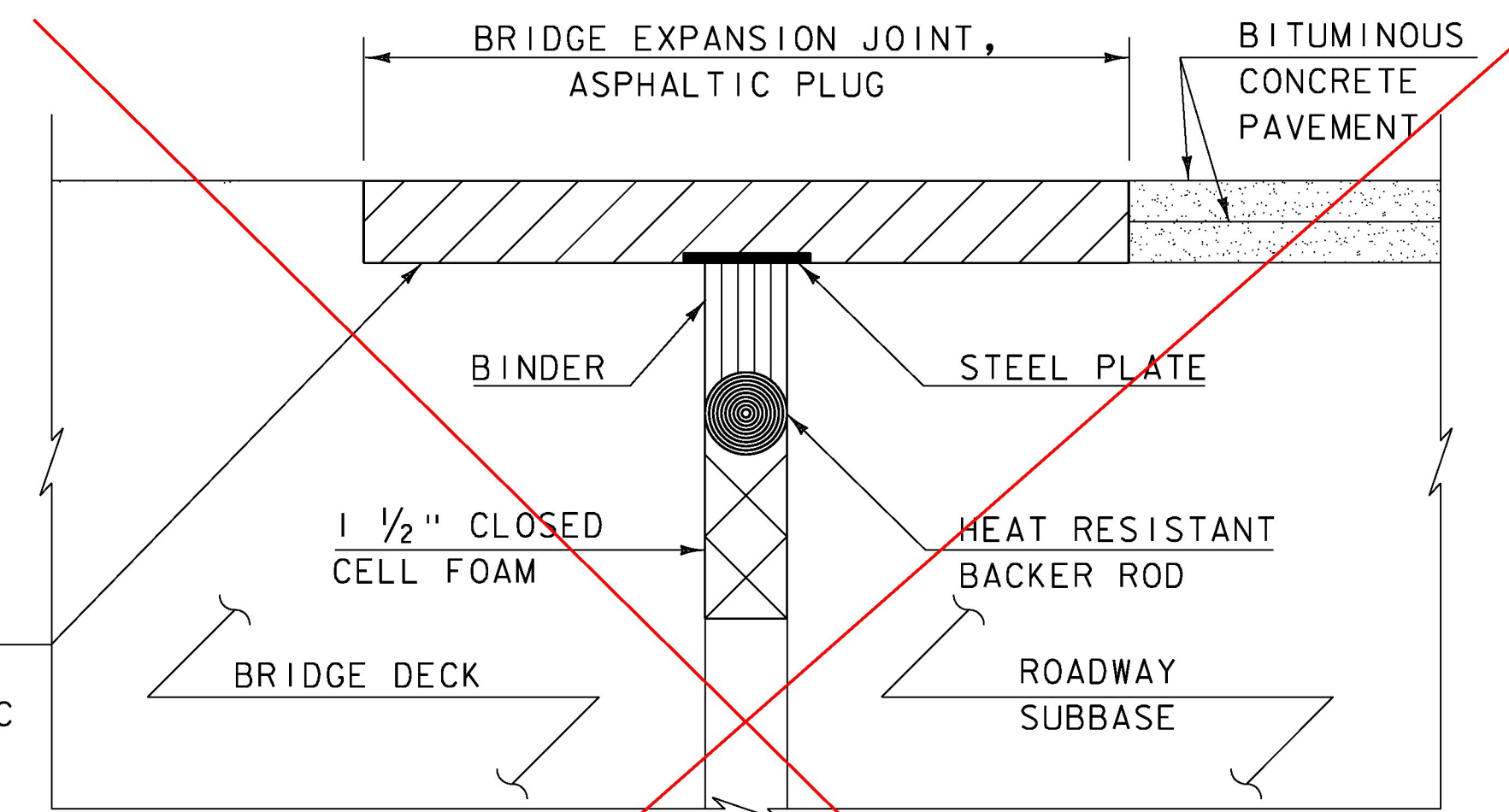
7/8" Ø HEAT RESISTANT FOAM BACKER ROD. COMPRESSION FIT REQUIRED TO ENSURE THAT THE ROD POSITION IS MAINTAINED DURING FILLING OPERATION. COST WILL BE INCLUDED WITH THE UNIT PRICE BID FOR ITEM 524.11, "JOINT SEALER, HOT POURED".

1/4" WIDE X 1/2" DEEP SAW CUT INTO BOTTOM COURSE OF PAVEMENT TO BE MADE DURING THE SAME WORKDAY AS PLACEMENT.

### SAWED PAVEMENT JOINT DETAIL

(NOT TO SCALE)

* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUT WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER. ALL WORK WILL BE PAID FOR UNDER ITEM 524.11, "JOINT SEALER, HOT POURED".



### ASPHALTIC PLUG-TYPE JOINT DETAIL

(NOT TO SCALE)

NOTE: SEE STANDARD SD-516.10 FOR ADDITIONAL INFORMATION.

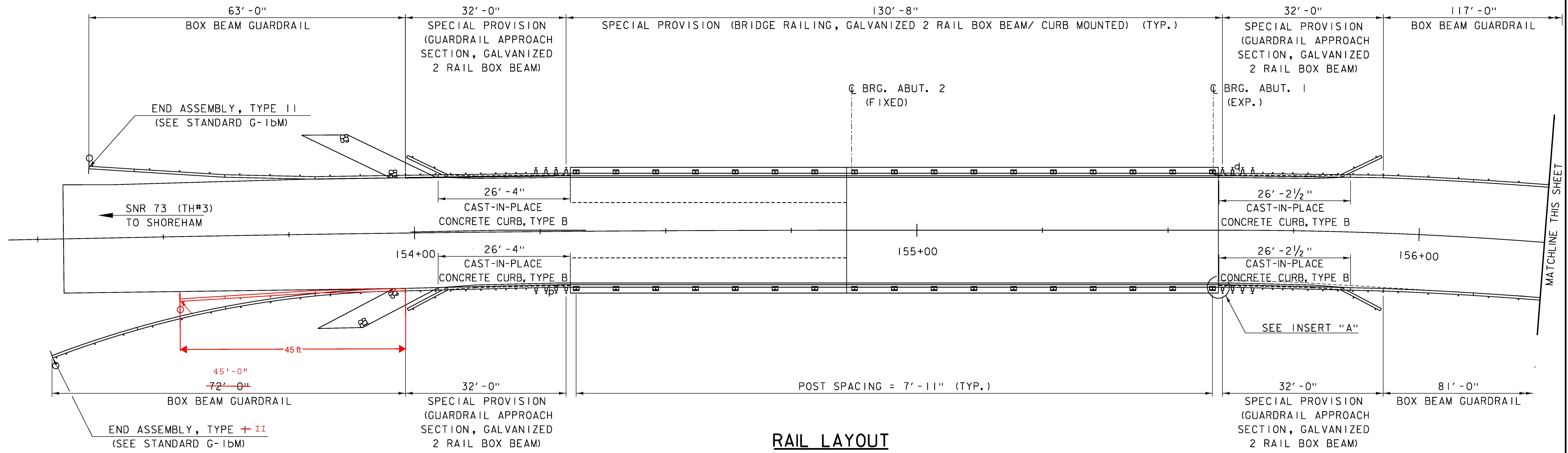
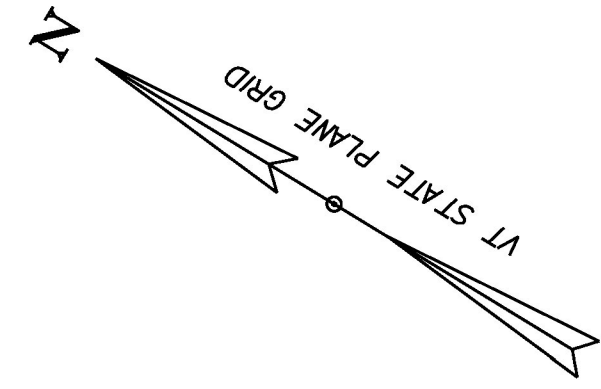
CLD 15-0223 MODEL: TYP10



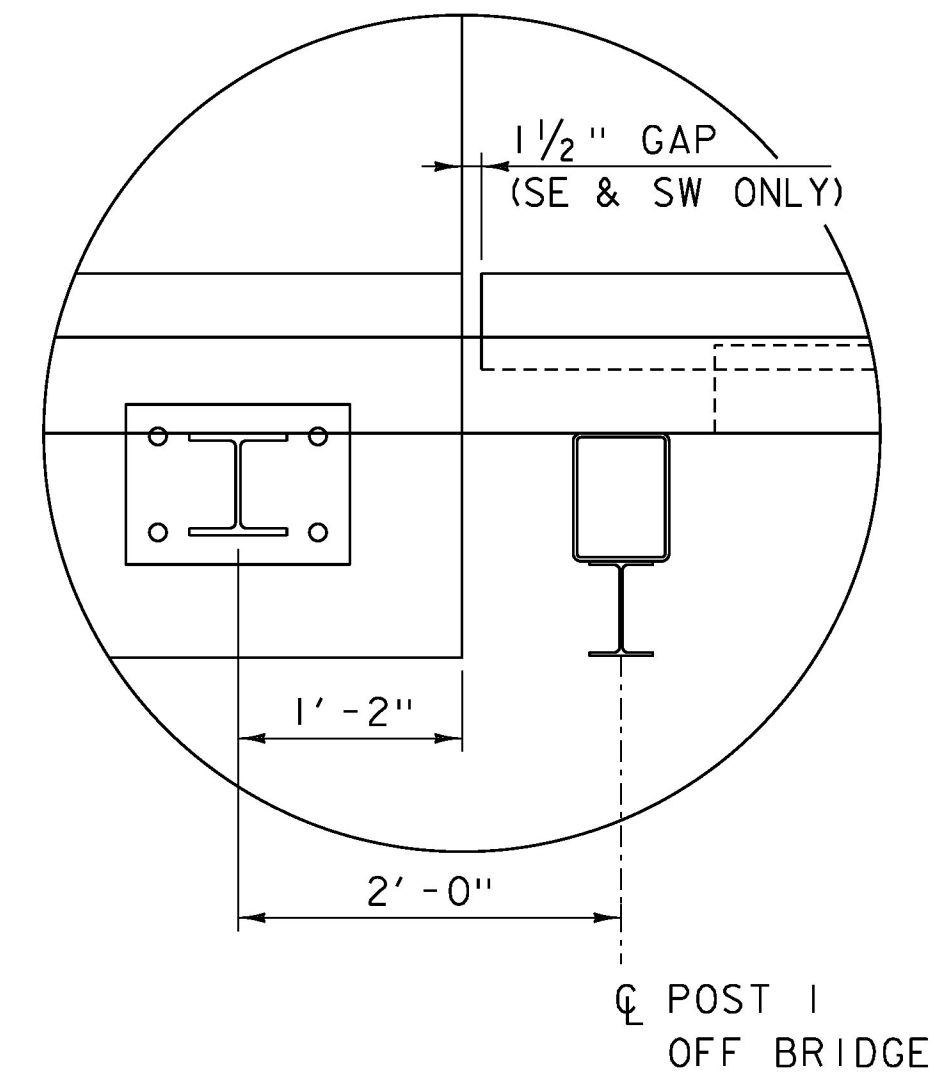
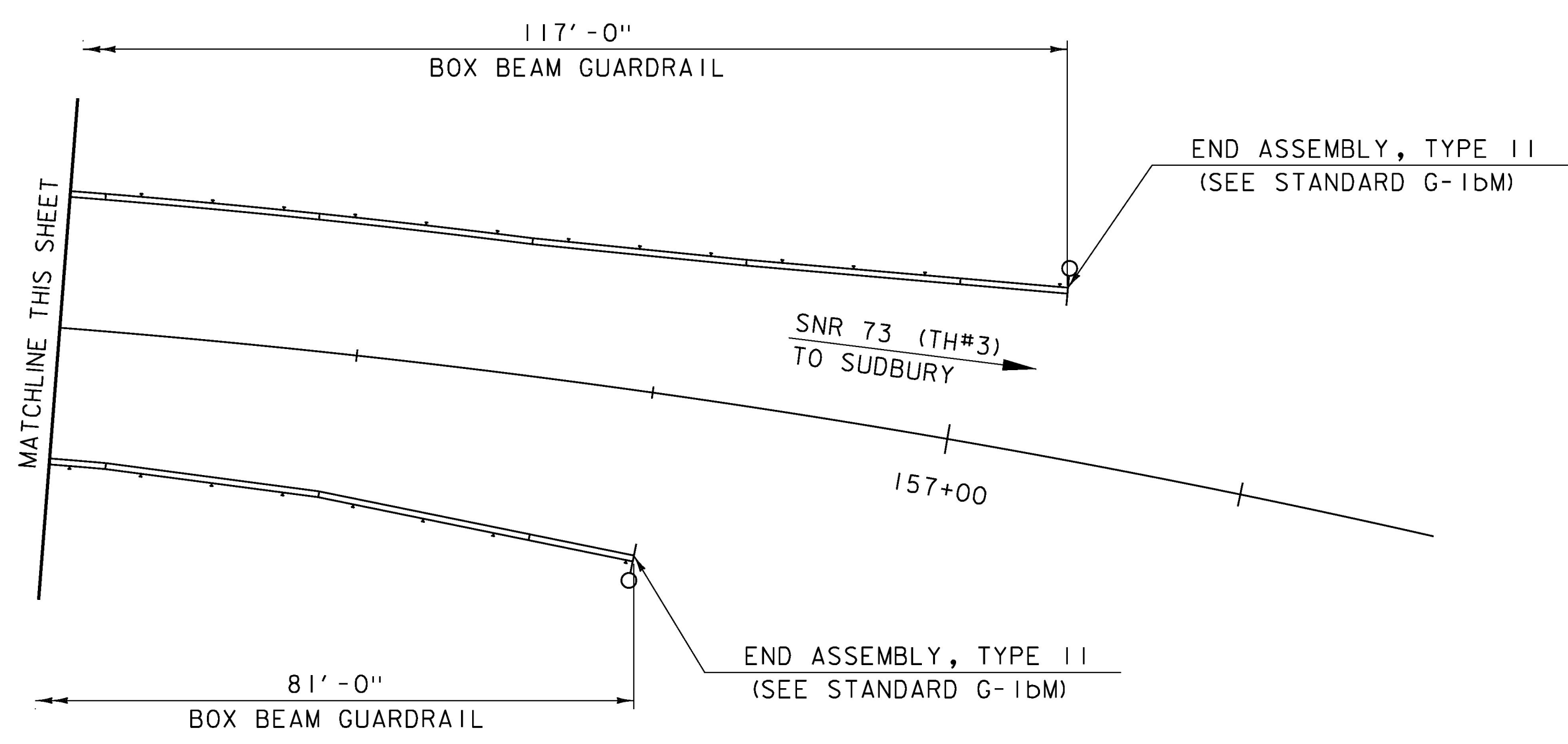
PROJECT NAME: ORWELL  
PROJECT NUMBER: STP DECK(41)

FILE NAME: z15j108typ-4.dgn  
PROJECT LEADER: J. BYATT  
DESIGNED BY: N. CARON  
JOINT DETAILS SHEET

PLOT DATE: 8/22/2016  
DRAWN BY: M. SMITH  
CHECKED BY: S. BEAUMONT  
SHEET 19 OF 27



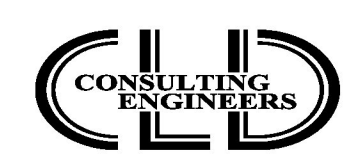
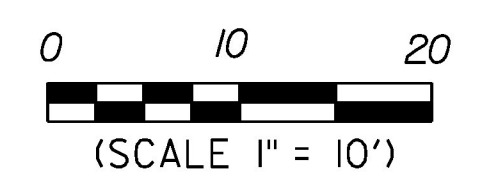
**RAIL LAYOUT**  
SCALE 1" = 10'-0"



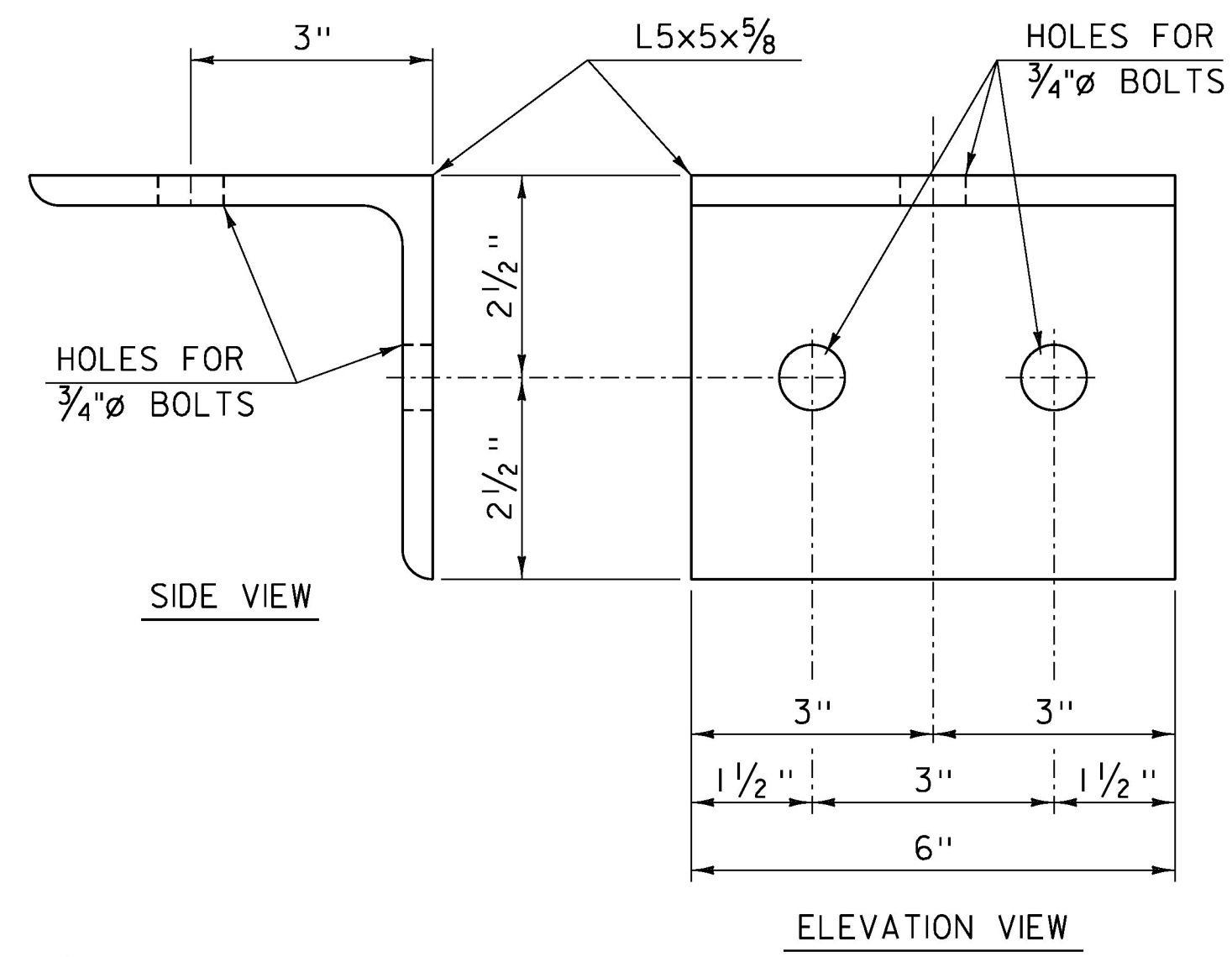
**INSERT "A"**  
(SOUTHWEST CORNER SHOWN,  
OTHER CORNERS SIMILAR)  
SCALE 1" = 1'-0"

- NOTES:**
1. SEE BRIDGE AND APPROACH RAIL DETAILS ON SHEETS 21 AND 22.
  2. SEE SHEET 6 FOR TYPICAL CAST-IN-PLACE CONCRETE CURB, TYPE B EARTHWORKS DETAIL.
  3. SEE STANDARD G-1bM.

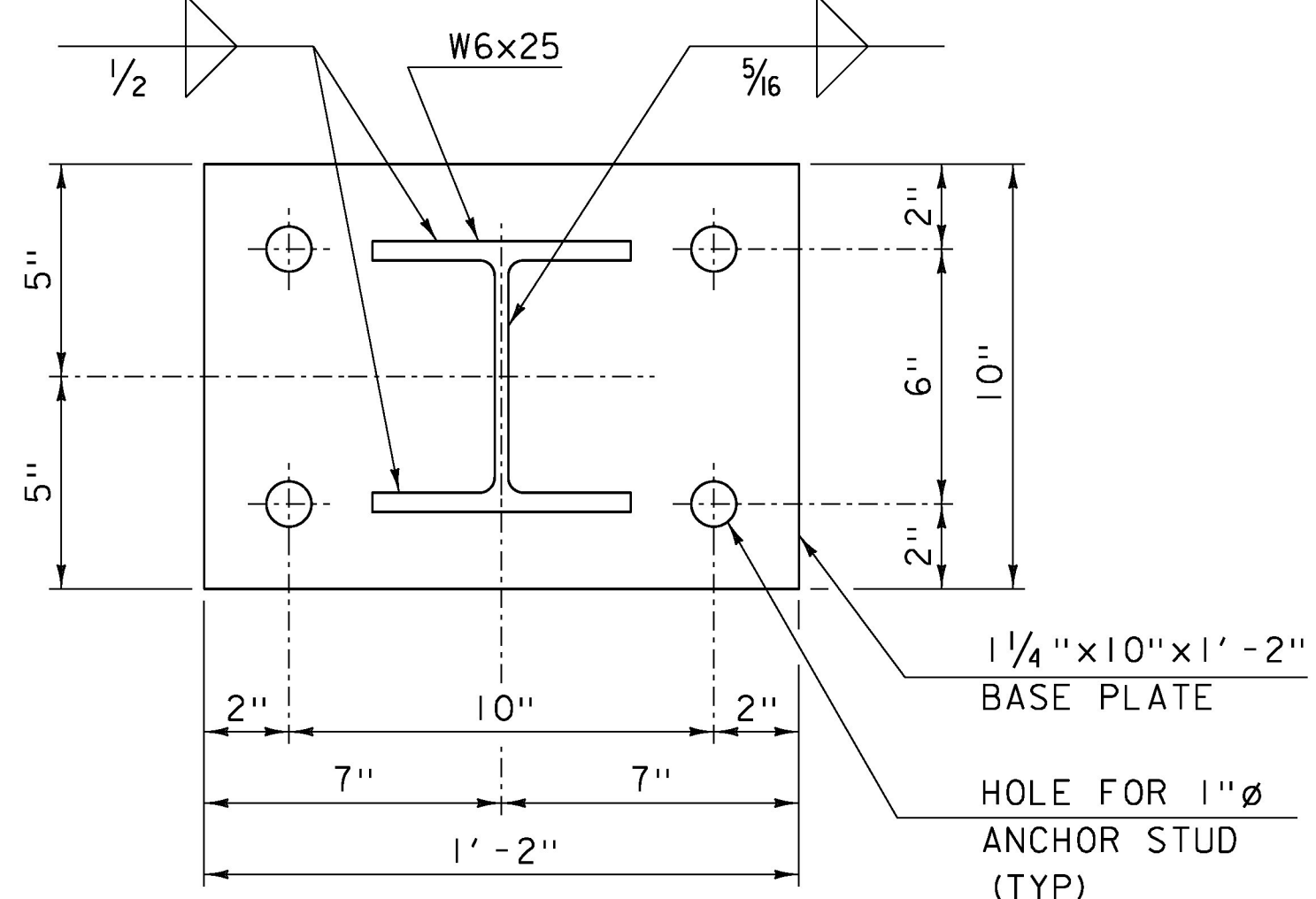
PROJECT NAME: ORWELL	PLOT DATE: 10/4/2016
PROJECT NUMBER: STP DECK(4I)	DRAWN BY: M. SMITH
FILE NAME: z15j108rail_bdr-4.dgn	CHECKED BY: A. GIRALDI
PROJECT LEADER: J. BYATT	SHEET 20 OF 27
DESIGNED BY: N. CARON	
RAIL LAYOUT SHEET	



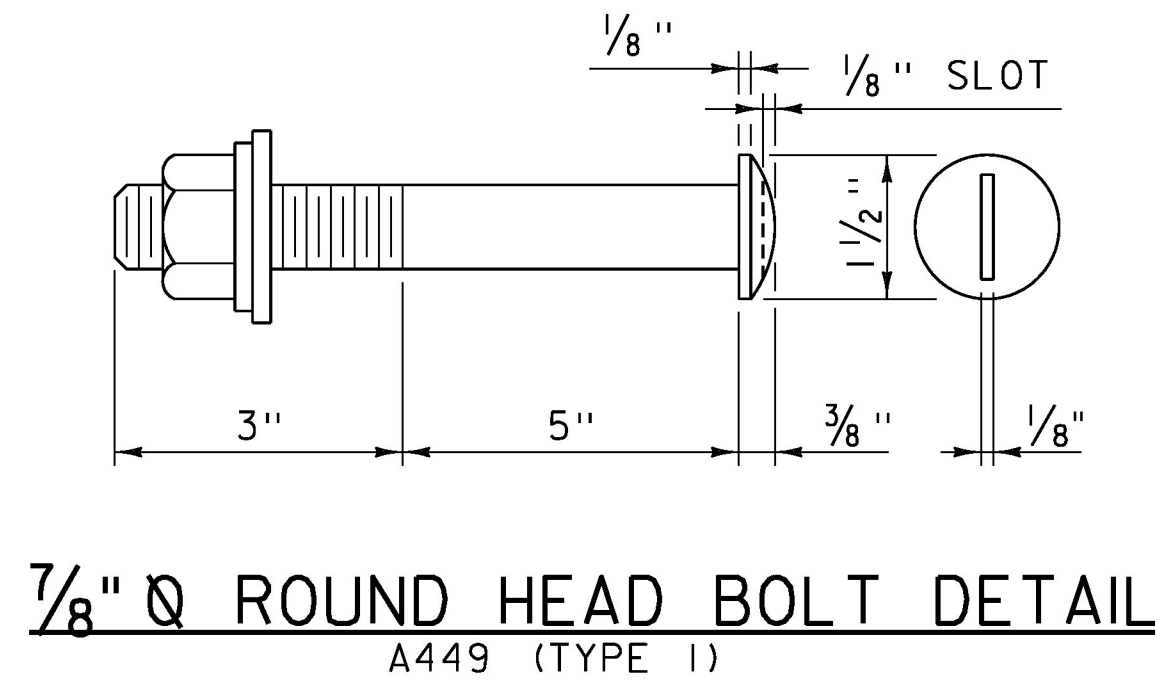
CLD 15-0223 MODEL: Rail01



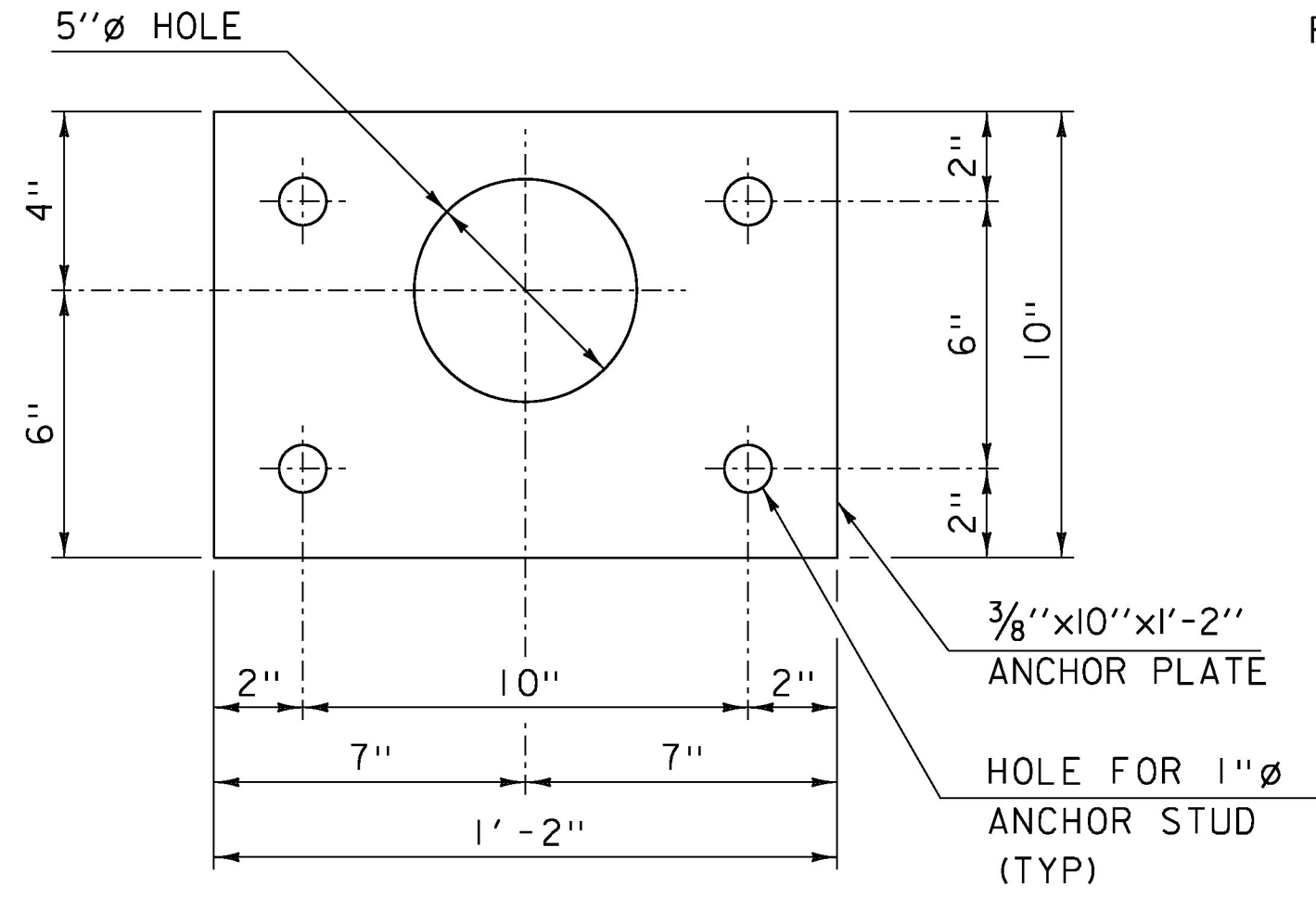
**RAILING ANGLE DETAILS**



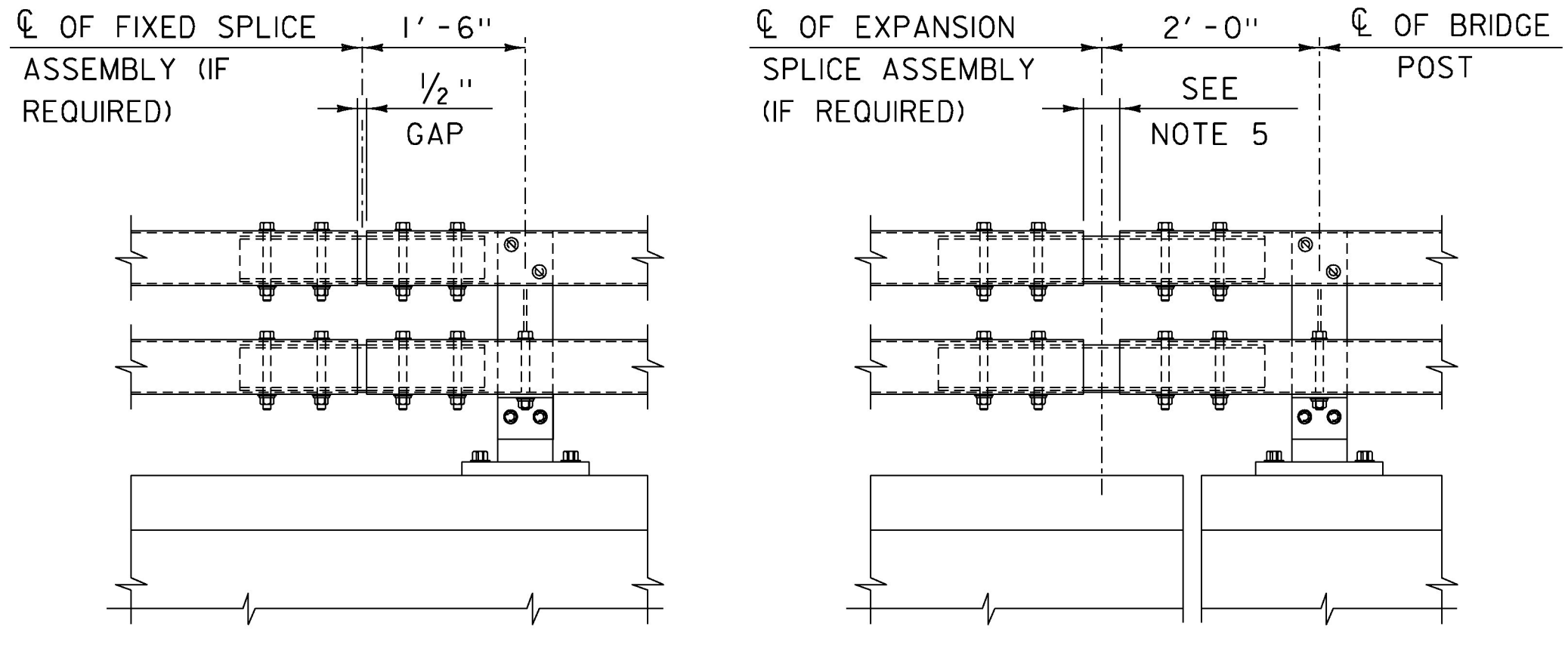
**BASE PLATE DETAIL**



**1/8" Q ROUND HEAD BOLT DETAIL**  
A449 (TYPE 1)



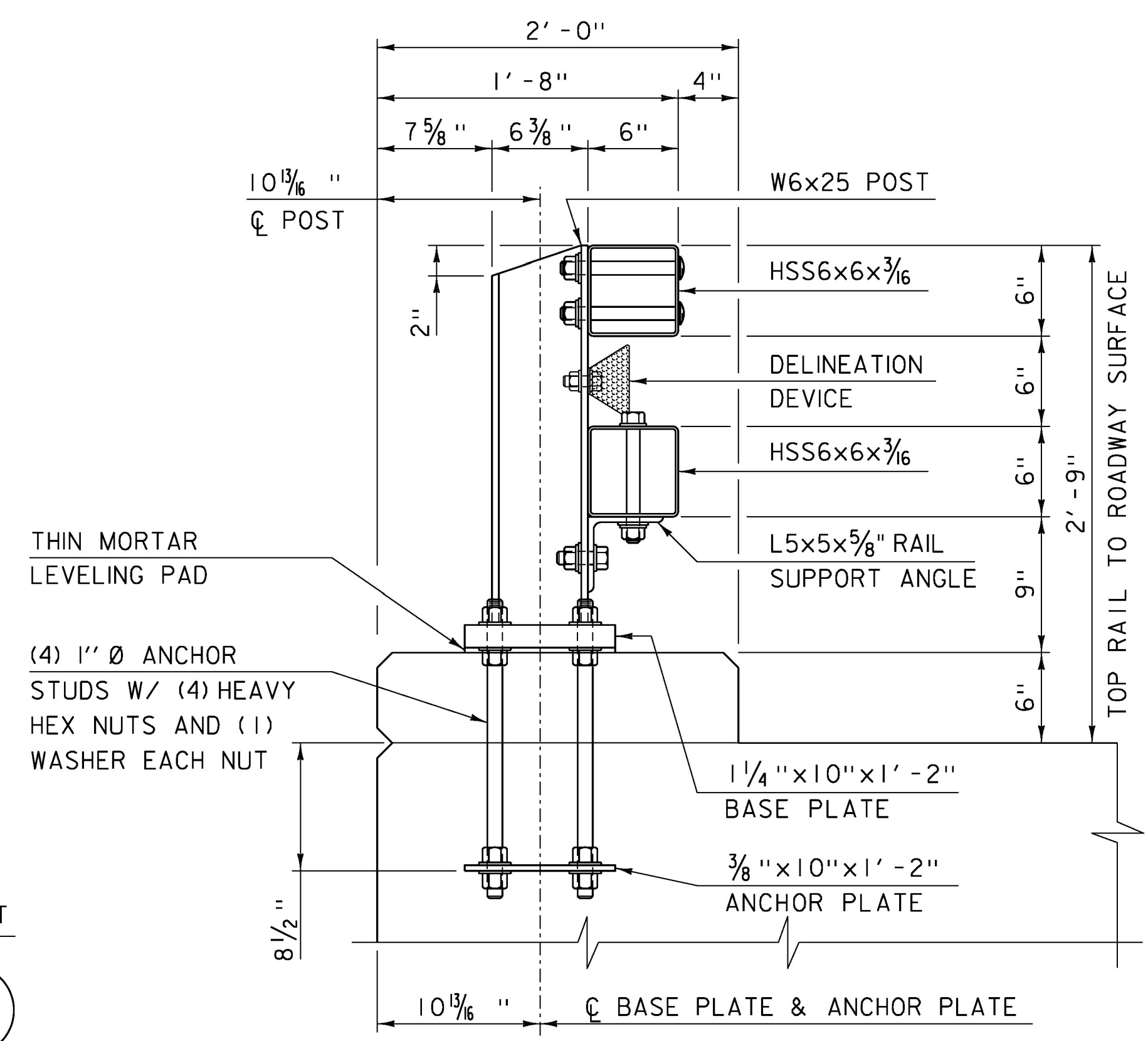
**ANCHOR PLATE DETAIL**



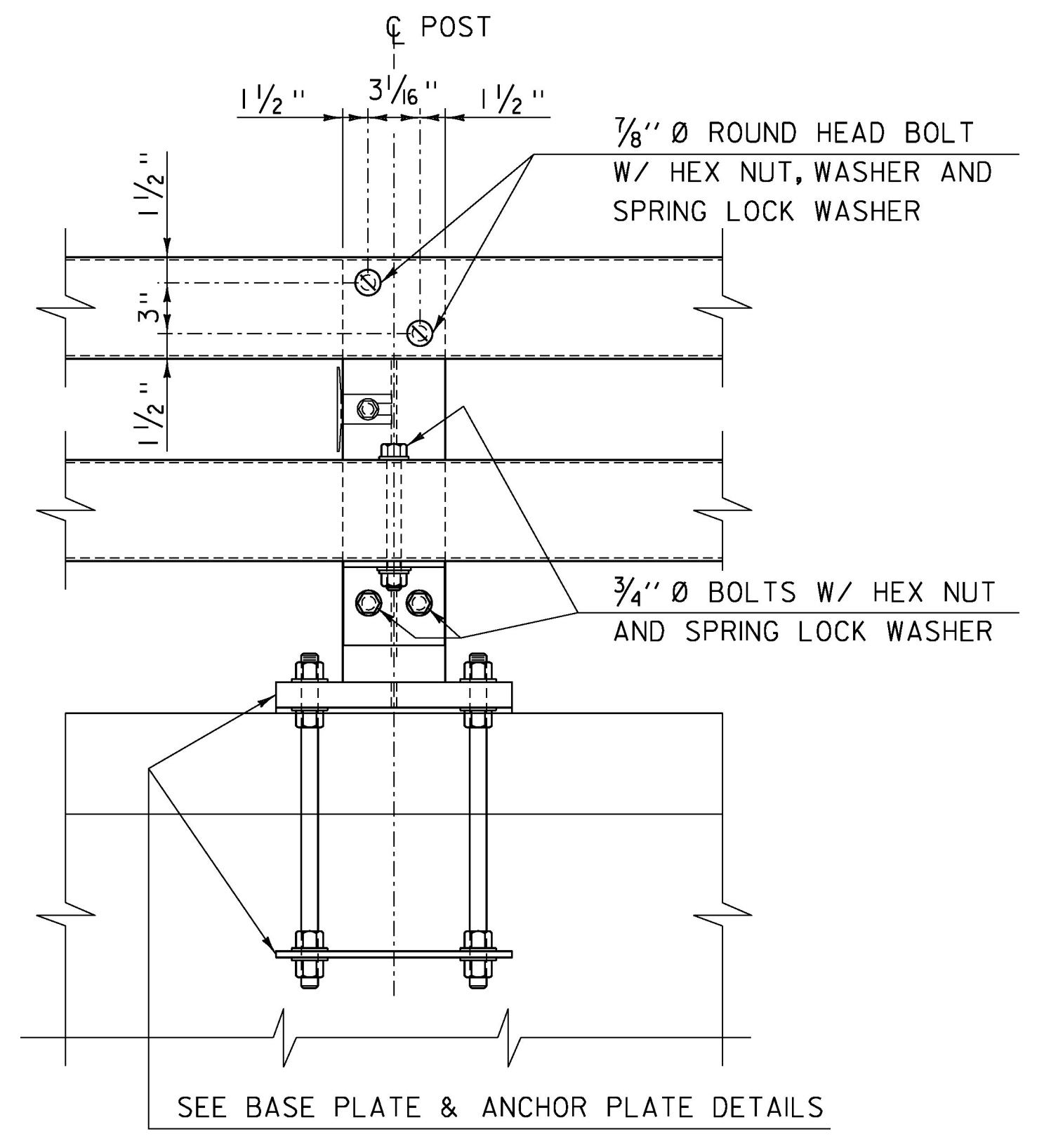
**FIXED SPLICE**      **EXPANSION SPLICE**

**RAILING SPLICE DETAIL ELEVATION**

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



**RAILING SECTION**

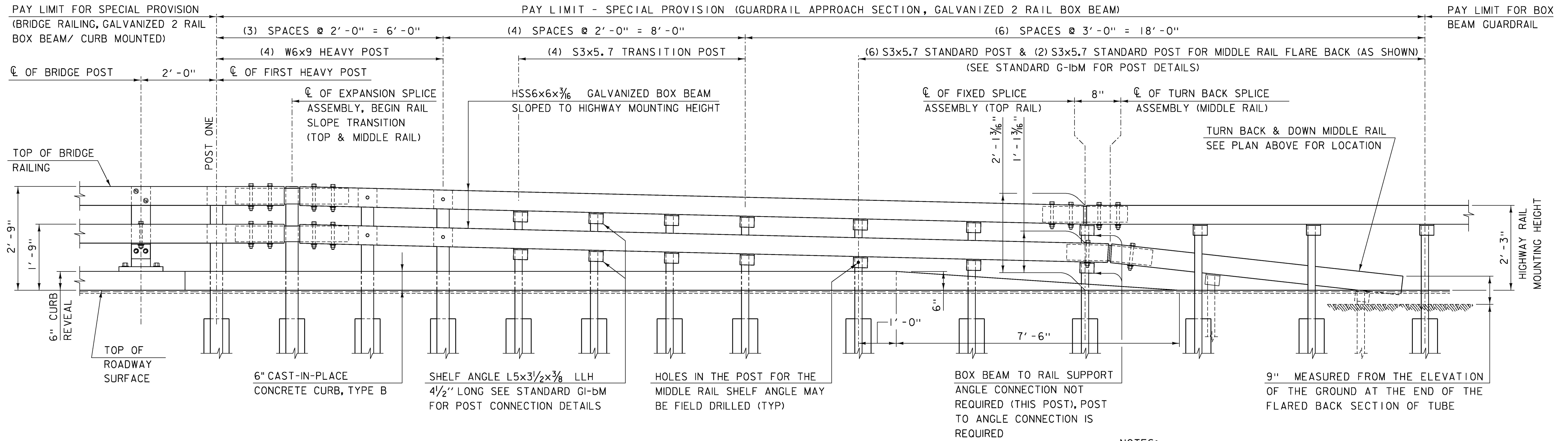
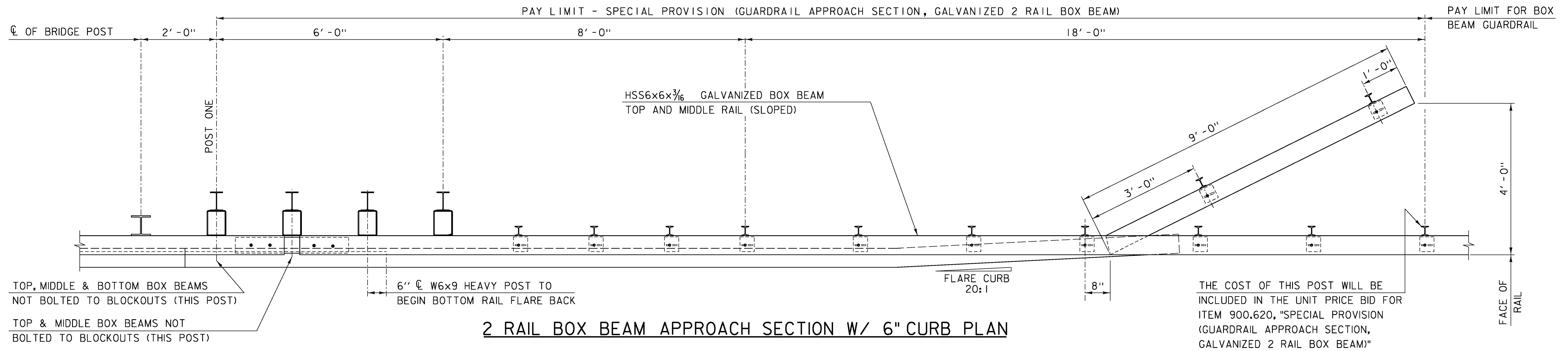


**RAILING ELEVATION**

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

SEE STD S-364C FOR SPLICE DETAILS  
SEE STD G-10M FOR DELINEATORS

PROJECT NAME: ORWELL	PLOT DATE: 8/22/2016
PROJECT NUMBER: STP DECK(4I)	DRAWN BY: M. SMITH
FILE NAME: z15j108rail_bdr-4.dgn	CHECKED BY: A. GIRALDI
PROJECT LEADER: J. BYATT	SHEET 21 OF 27
DESIGNED BY: N. CARON	
BRIDGE RAIL DETAILS SHEET	



NOTES:

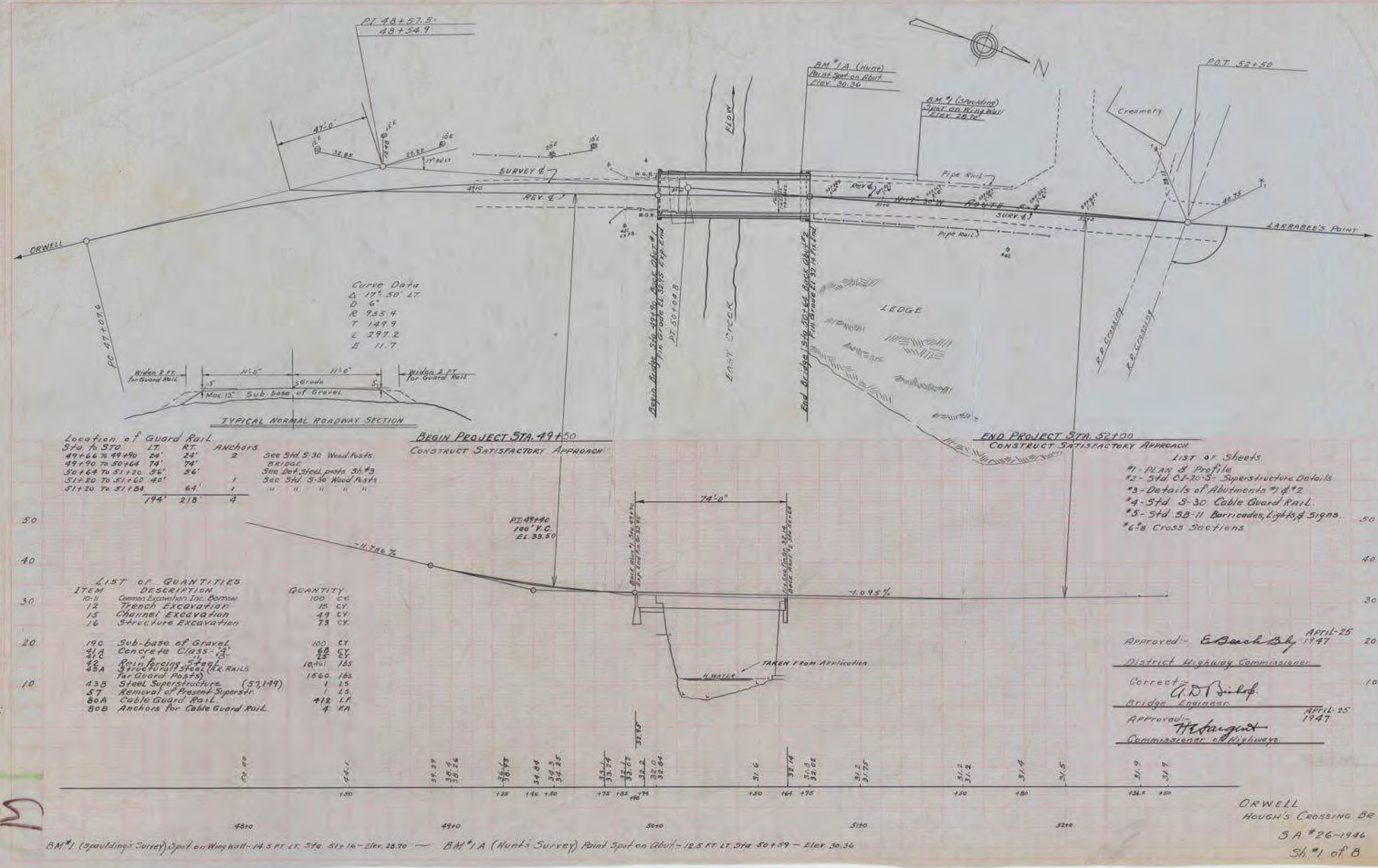
1. BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
2. SEE SHEET 6 FOR TYPICAL CAST-IN-PLACE CONCRETE CURB, TYPE B EARTHWORKS DETAIL.

SEE STD S-364C FOR SPLICE DETAILS  
 SEE STD S-364D FOR TRANSITION POST  
 SEE STD G-1bM FOR POST DETAILS

PROJECT NAME: ORWELL	PLOT DATE: 8/22/2016
PROJECT NUMBER: STP DECK(4I)	DRAWN BY: M. SMITH
FILE NAME: z15j108rail_bdr-4.dgn	CHECKED BY: S. BEAUMONT
PROJECT LEADER: J. BYATT	SHEET 22 OF 27
DESIGNED BY: N. CARON	
APPROACH RAIL DETAILS SHEET	

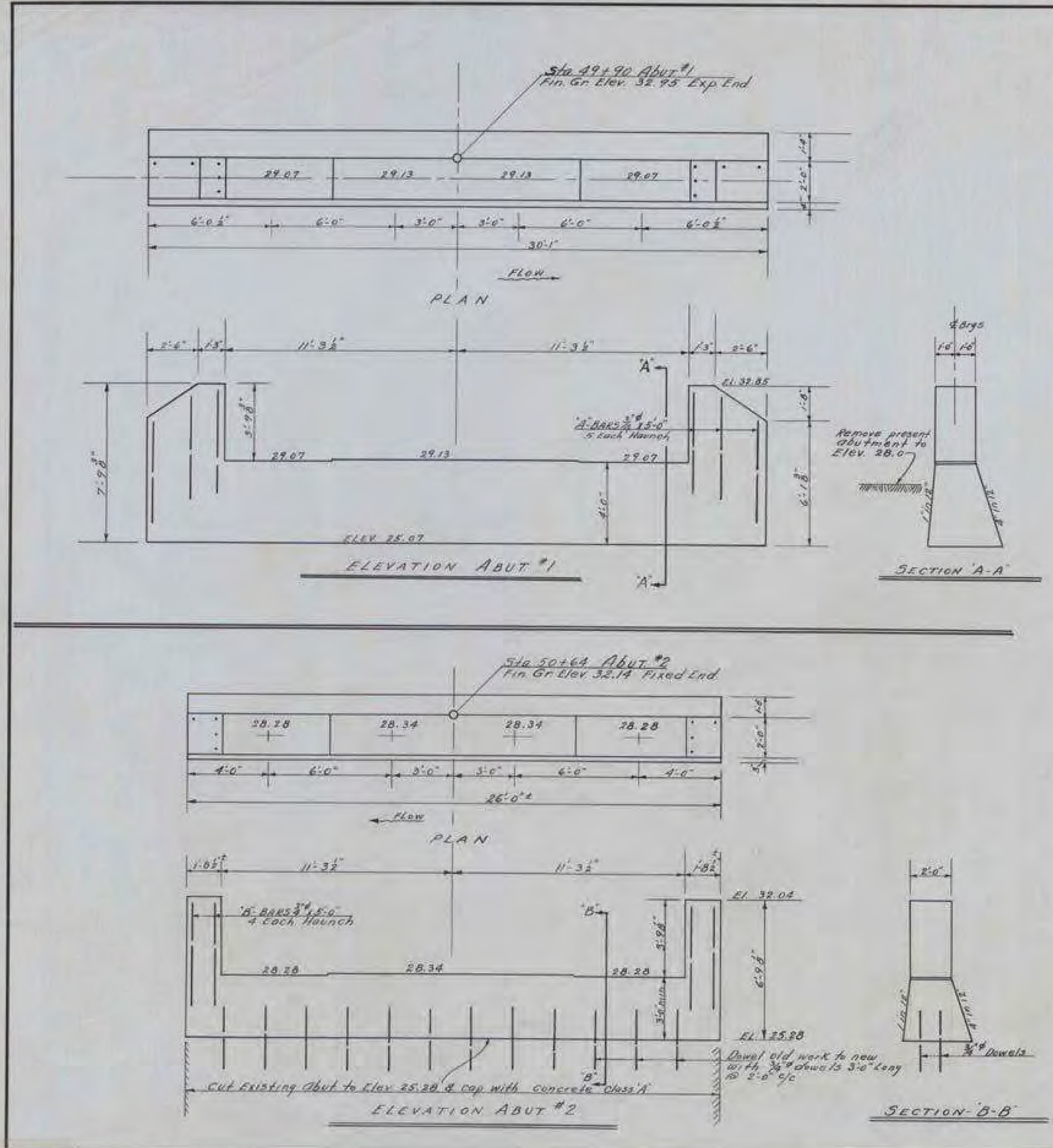
CLD 15-0223 MODEL: R01103

Orwell 46



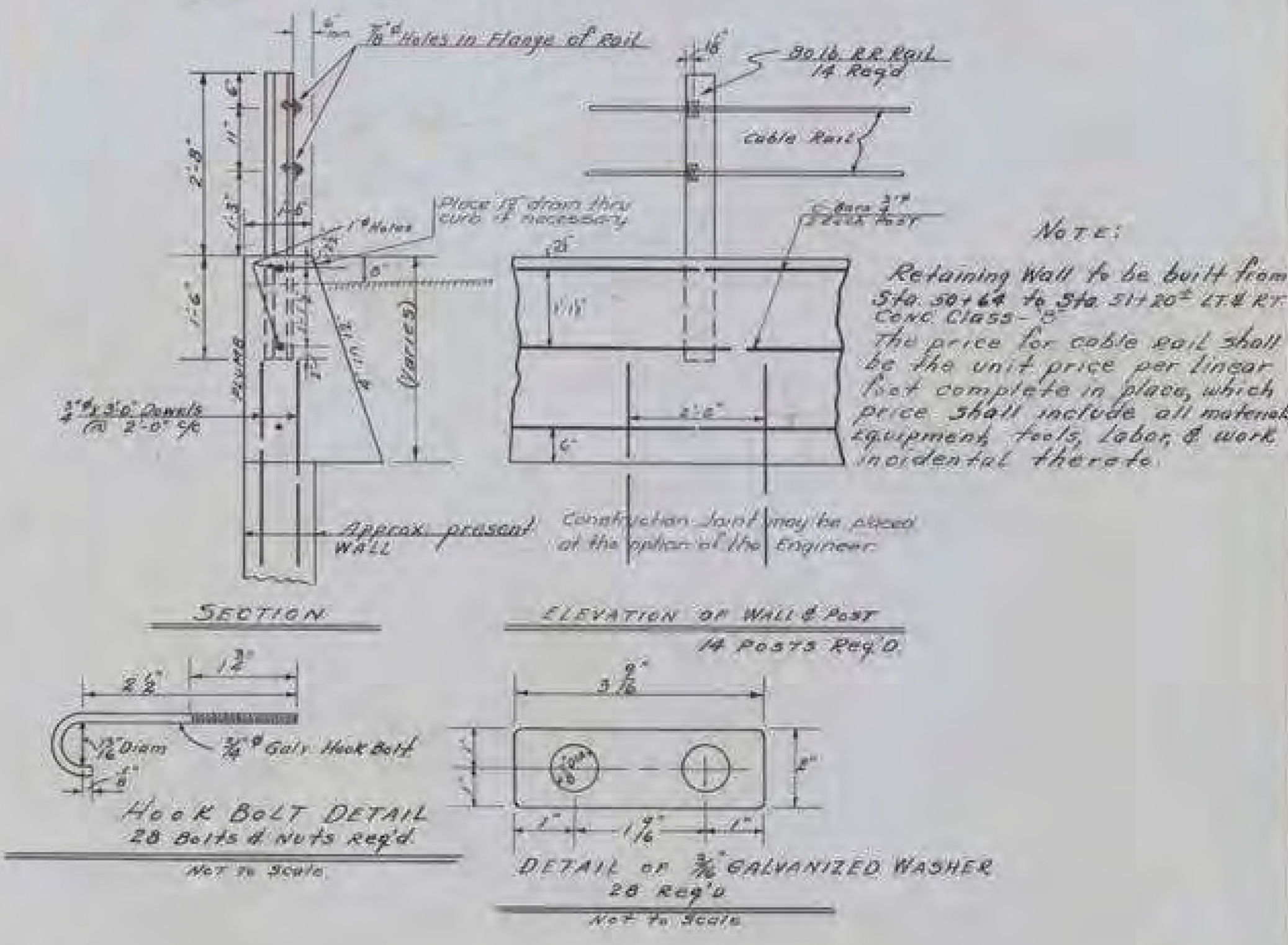
ORWELL  
 STP DECK(41)  
 BRIDGE NO. 4  
 SHEET 23 OF 27  
 FOR REFERENCE ONLY





REINFORCING STEEL

BAR #	SIZE	NO. REQ'D	LENGTH	DETAIL
A	3/8"	10	5'-0"	Straight
B	3/8"	8	5'-0"	Do
Abut #1 Dowels	3/8"	24	3'-0"	Do
WALL Dowels	3/8"	112	5'-0"	Do
C	3/8"	12	29'-0"	Do

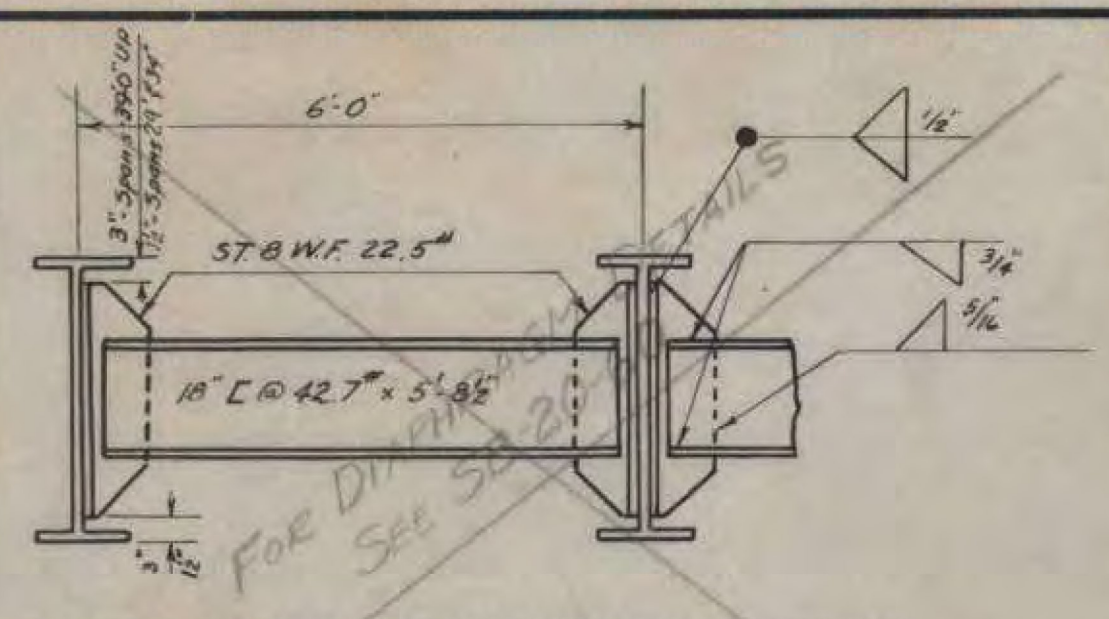
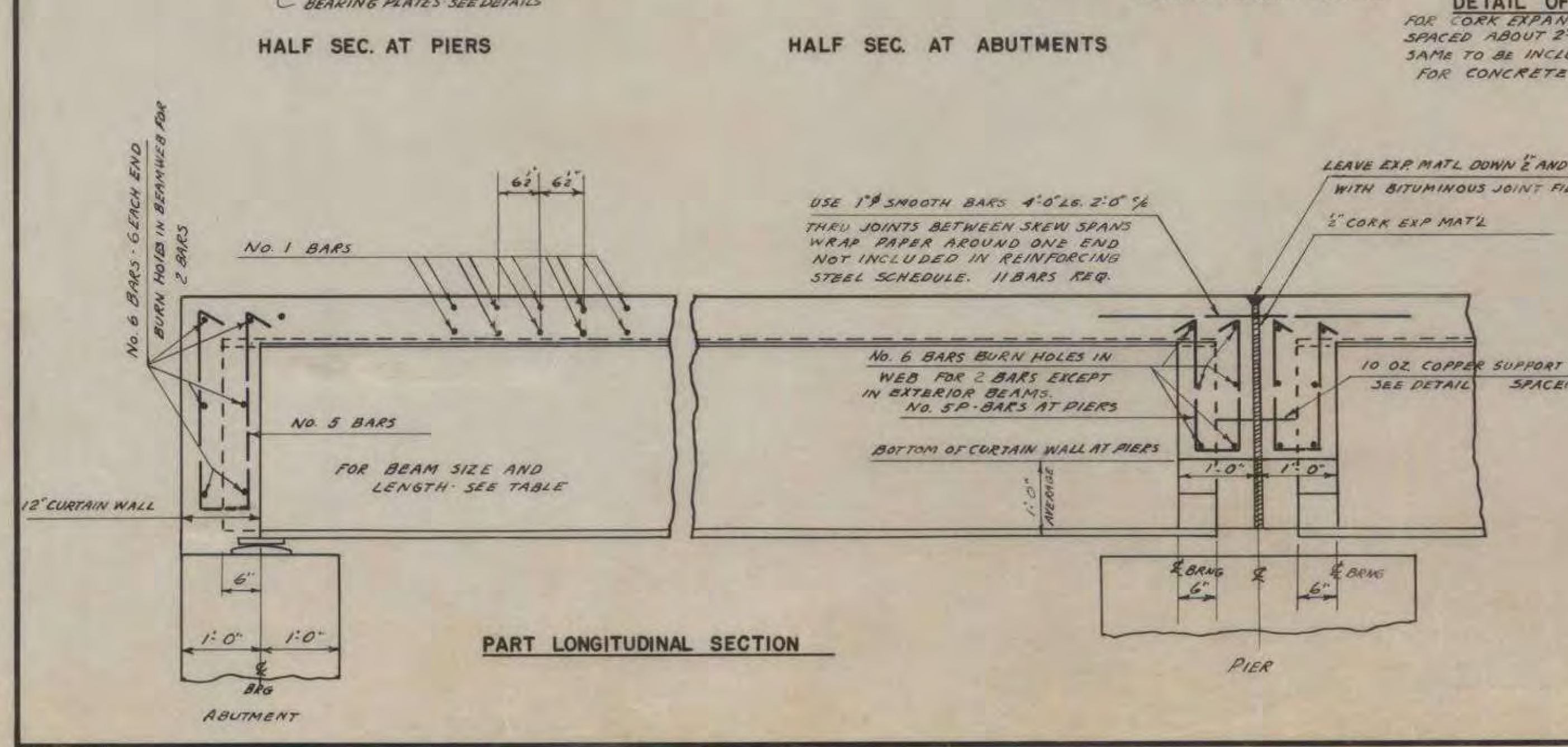
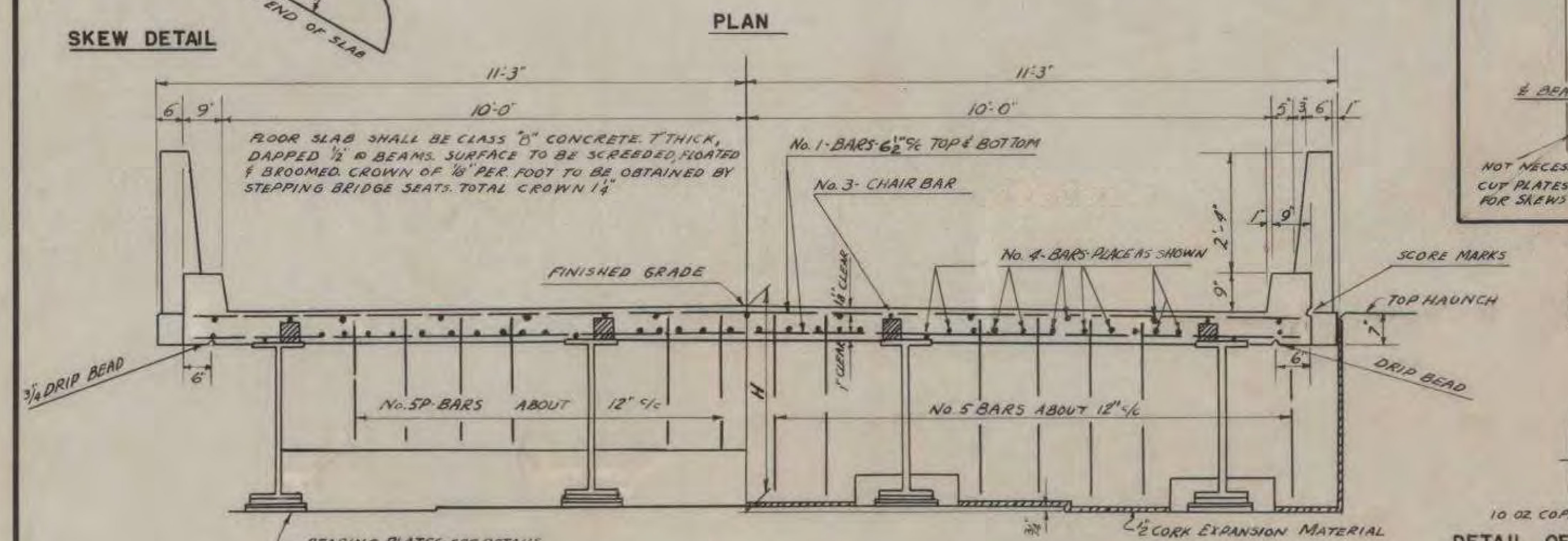
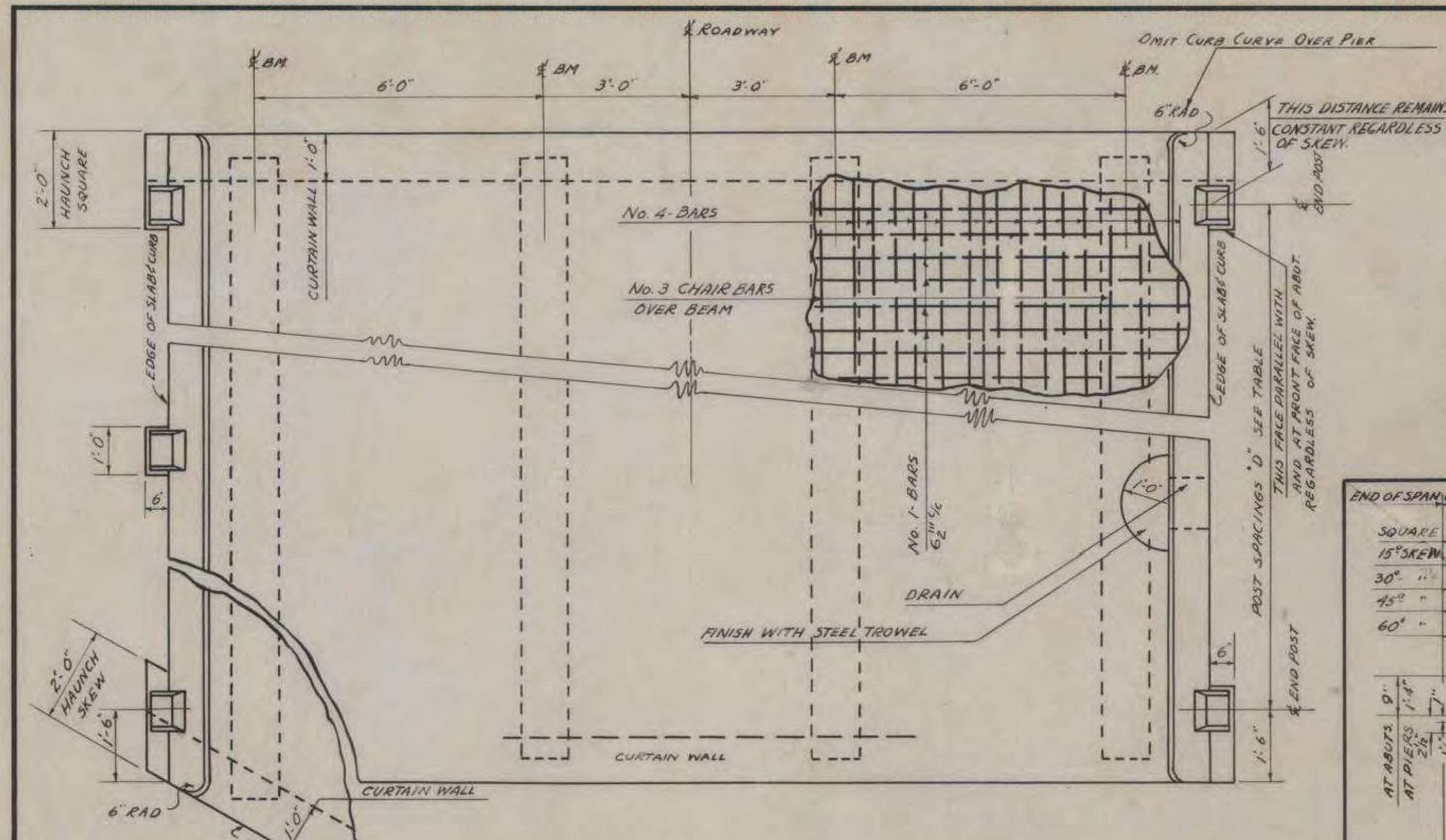


ESTIMATED QUANTITIES

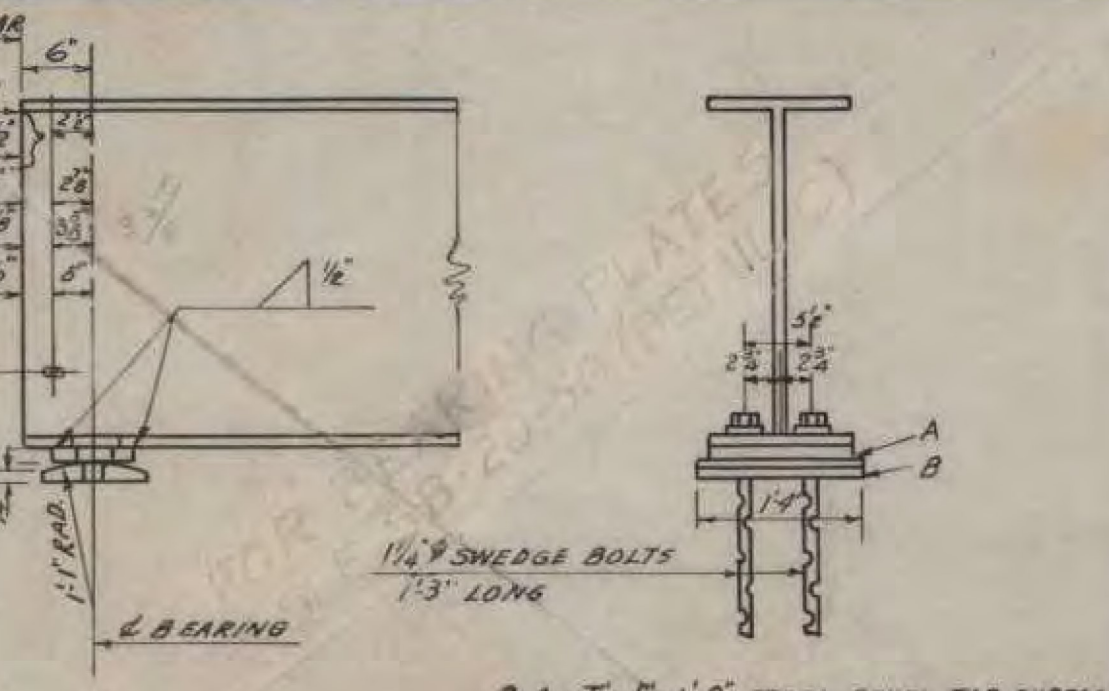
	Abut #1-Abut #2
Channel Excav.	49 cy
Trench Excav.	15 cy
Concrete Class "A"	14.5 cy
Reinf. Steel "A"	8.7 cy
" " WALL	1025 lbs
Structural Steel (RR Rails)	1500 lbs
Structure Excav.	41 cy - 16 cy
Concrete in WALLS CL-B	25 cy

Checked by: A. HUNT  
Designed by: J. S. P.  
Drawn by: H. R. C. 3-47  
Traced by: H. R. C.  
Checked by: J. L. H.  
Series S.A. No. 26-1946  
Sheet 3 of 8 Sheets

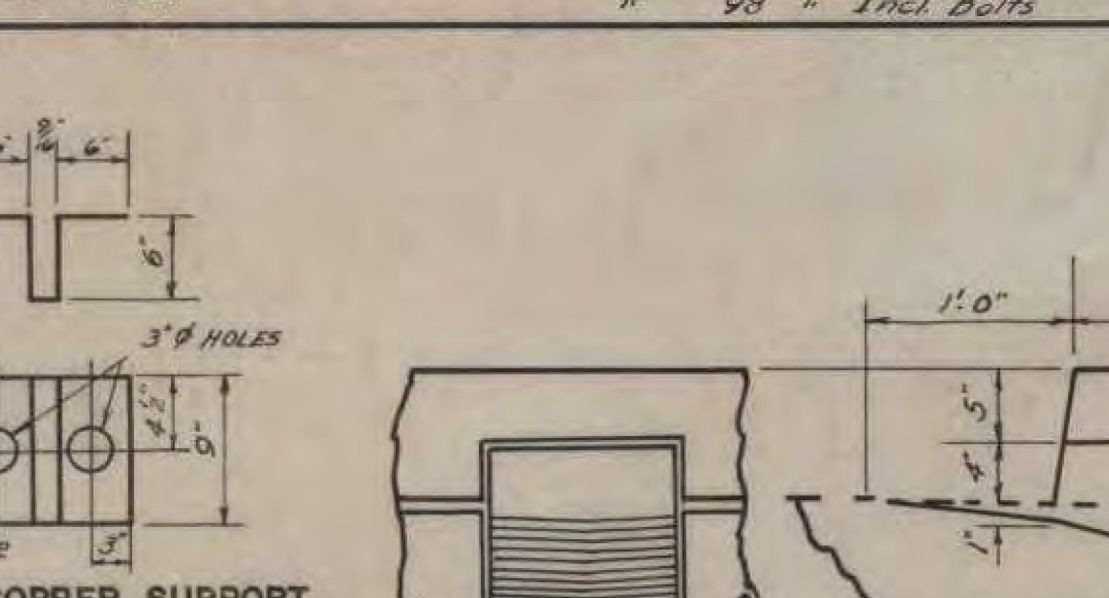




**TYPICAL DETAILS OF DIAPHRAGM ASSEMBLY**  
 SPANS 29'-0" THROUGH 44'-0" REQUIRE 1 SET OF DIAPHRAGMS.  
 SPANS 40'-0" THROUGH 64'-0" REQUIRE 2 SET OF DIAPHRAGMS.  
 69'-0" " 89'-0" " 3 " "  
 94'-0" " 99'-0" " 4 " "  
 DIAPHRAGM SHALL BE DETAILED TO PASS THRU POINTS MIDWAY BETWEEN REFERENCE POINTS (1/3, 2/3, 1/2 POINTS) OF ADJACENT BEAMS ON ALL SPANS.

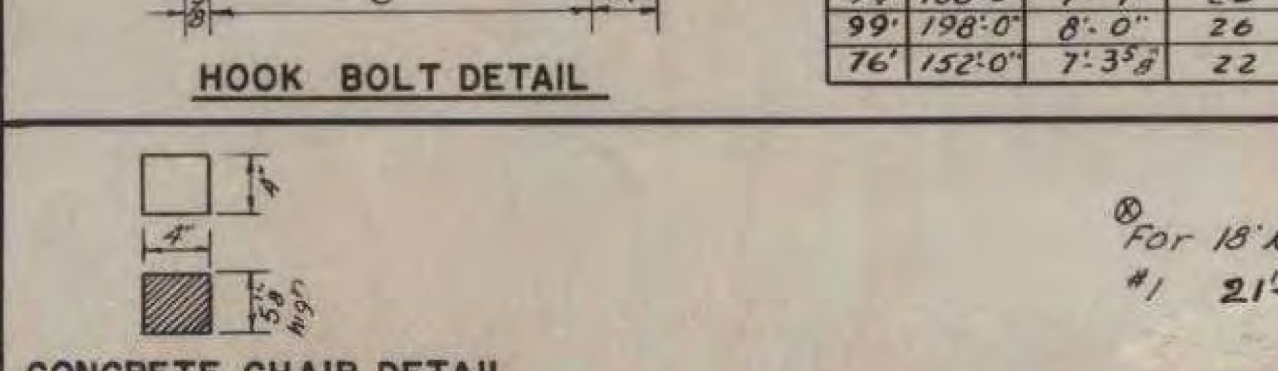
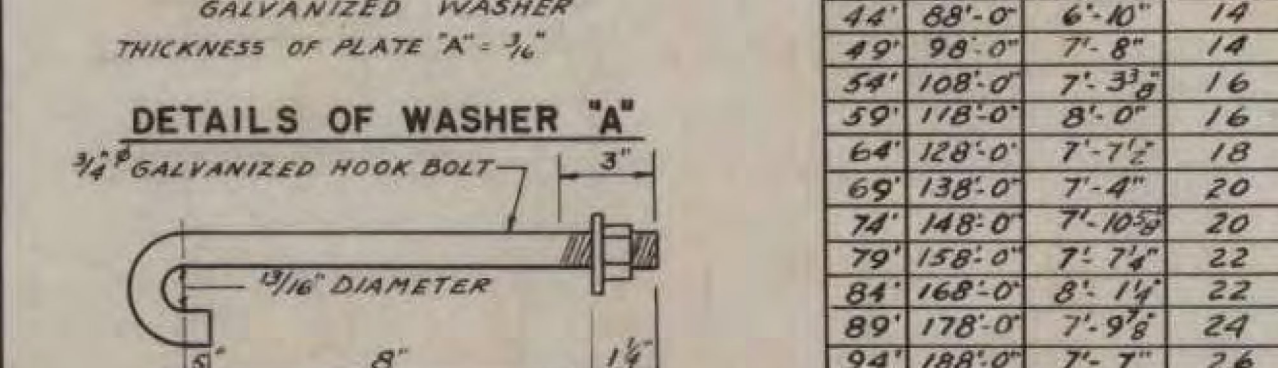
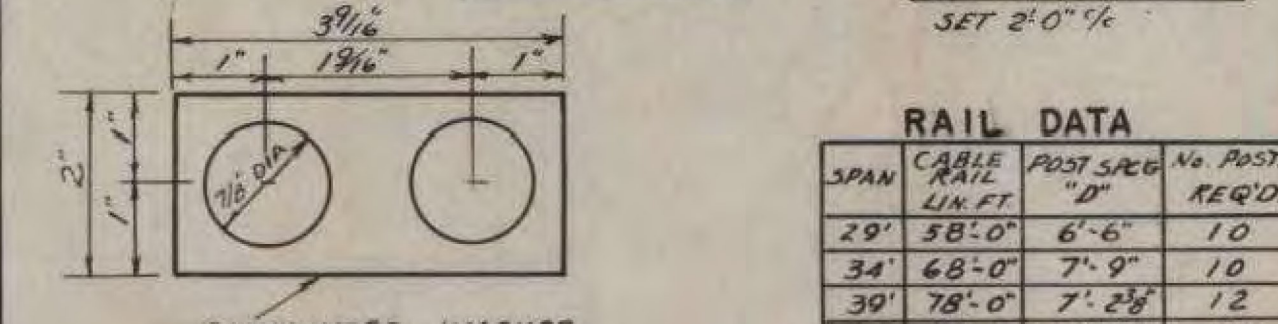
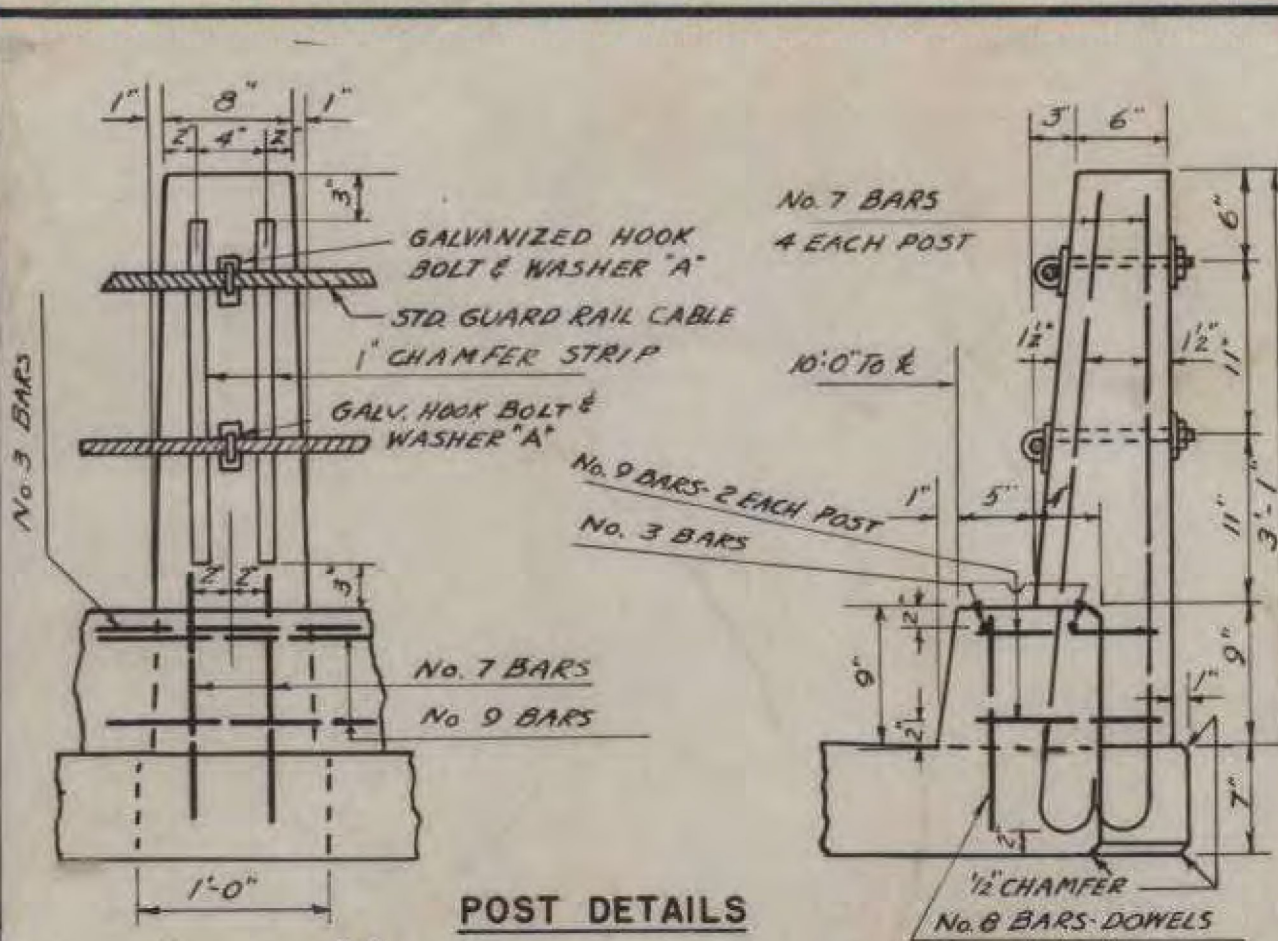


**BEARING PLATE ASSEMBLY**  
 WEIGHT 85 LBS.  
 " 98 " Incl. Bolts



**DRAIN DETAILS**  
 PLACE DRAINS THROUGH EACH CURB, ONE EACH SIDE FOR SPANS 40' OR LESS; ABOUT 20' APART FOR SPANS OVER 40'.

**GENERAL NOTES:**  
**STEEL SUPERSTRUCTURE:** TO INCLUDE INDICATED W.F. BEAMS, BEARING DEVICES AND DIAPHRAGMS.  
**CAMBER:** ALL STEEL BEAMS SHALL BE ROLLED TO A TRUE CIRCULAR CAMBER FOR THE FULL LENGTH OF THE BEAM, THE MIDDLE ORDINATE TO BE MINIMUM PERMANENT CAMBER UNLESS OTHERWISE NOTED ON PLAN & PROFILE SHEET.  
**PAINT:** ALL STRUCTURAL STEEL SHALL BE PAINTED AS SPECIFIED UNDER ITEM NO. 4018 OF STD. SPECS. FOR HIGHWAY & BRIDGE CONSTRUCTION, STATE OF VERMONT, JAN. 1956. THE FINAL COAT OF FIELD PAINT SHALL BE BLACK UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
**QUANTITIES:** THIS SHEET INCLUDES QUANTITIES FOR RAILING, CURBS, AND POSTS.  
**REINFORCING:** WHEN BRIDGE IS BUILT ON SKEW, TRANSVERSE BARS SHALL BE FURNISHED AS FOR SQUARE SPAN. BARS SHALL BE CUT IN FIELD TO FIT ONE SKEW END AND CUT OFF ENDS SHALL BE USED IN OPPOSITE SKEW END IN SKEW SPANS THE NO. 6 BARS SHALL BE LENGTHENED AND THE NUMBER OF NO. 5 SERIES BARS SHALL BE INCREASED.  
**DESIGN:** ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STANDARD SPECS. FOR HIGHWAY & BRIDGE CONSTRUCTION, STATE OF VERMONT 1956. DESIGNED FOR H-15 LIVE LOADING, 25% PAVING ALLOWANCE, DEAD LOAD INCLUDES WEIGHT OF BEAMS, SLAB AND RAIL. DEAD & LIVE LOAD DISTRIBUTED EQUALLY TO ALL BEAMS. FOR LOCATION OF FIXED AND EXPANSION BEARINGS, SEE PLAN & PROFILE SHEET.



**CONCRETE CHAIR DETAIL**  
 SPACE 5'-0" ALONG EACH BEAM

TABLE OF QUANTITIES FOR SINGLE SPAN (SQUARE)																		
SPAN	SIZE	W.F. BEAM	STRUCTURAL STEEL DATA				REINFORCING STEEL SCHEDULE				CONC. TOTAL WEIGHT	CL. (LBS)						
			BEAM LENGTH	COMPUTED DEF. INCH	SEC. MGD	DIM. IN	TOTAL WEIGHT	BAR #	3	4			5	6	7	8	9	
29'-0"	21'	62#	28'-0"	1/8"	116	2.39	8,664	128	8	47	28	12	40	30	20	24	4248	18.6
34'-0"	21 1/2'	73#	33'-0"	3/16"	151	2.62	11,358	128	8	47	28	12	40	34	20	28	4911	21.6
39'-0"	24 1/8'	84#	38'-0"	1/4"	189	2.85	14,458	144	8	47	28	12	48	40	24	32	5547	24.3
44'-0"	26 7/8'	94#	43'-0"	5/16"	229	3.08	17,920	164	8	47	28	12	56	44	28	36	6250	27.3
49'-0"	27 1/2'	102#	48'-0"	3/8"	274	3.10	22,308	184	16	94	28	12	60	50	28	40	7018	29.6
54'-0"	30'	116#	53'-0"	7/16"	322	3.34	27,381	200	16	94	28	12	64	54	32	44	7650	33.0
59'-0"	33 1/2'	130#	58'-0"	1/2"	376	3.59	33,016	220	16	94	28	12	64	60	32	48	8322	35.5
64'-0"	36 1/2'	141#	63'-0"	5/8"	443	3.61	38,394	236	16	94	28	12	72	64	36	52	8949	38.1
69'-0"	36'	160#	68'-0"	3/4"	517	3.84	47,512	256	16	94	28	12	80	70	40	56	9472	41.1
74'-0"	36 1/2'	182#	73'-0"	7/8"	597	3.87	57,149	276	16	94	28	12	88	80	44	64	10335	44.3
79'-0"	33 1/2'	220#	78'-0"	2"	688	3.61	72,539	292	16	94	28	12	88	84	44	68	11,624	49.2
84'-0"	35 1/2'	230#	83'-0"	2"	781	3.83	80,948	312	16	94	28	12	96	90	48	72	12,431	52.1
89'-0"	36 1/2'	260#	88'-0"	2 1/2"	888	3.86	95,521	332	24	141	28	12	96	94	52	76	13,063	54.1
94'-0"	36 1/2'	280#	93'-0"	2 3/4"	1002	3.88	109,243	348	24	141	28	12	104	94	52	76	13,726	57.1
99'-0"	34 1/2'	300#	98'-0"	3"	1120	3.91	122,698	368	24	141	28	12	104	100	52	80	14,400	57.1
104'-0"	33 1/2'	220#	75'-0"	2"	688	3.61	69,900	284	16	94	28	12	88	80	44	64	10,657	44.3

* ON SKEW SPANS BEAMS ARE SHORTER, SEE AND CLEARANCES ON BEARING PLATE ASSEMBLY DETAIL.  
 @ ON MULTI SPAN SKEW BRIDGES, ADD FOR EACH PIER: 11 SMOOTH BAR 1", 4'-0" LONG, ONE END WRAPPED IN PAPER. PLACE AS SPECIFIED ON "PART LONGITUDINAL SECTION", THIS SHEET. (WT. OF 11 BARS = 103#)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
9	VT.				

**20' Roadway (S)**  
**REINFORCING STEEL**  
 BAR No. 1 - 3/8" TOTAL LENGTH 21'-0" STRAIGHT

SPAN	BAR LENGTH	SPAN	A	TOTAL LENGTH
29'	28'-6"	29'	1'-0"	4'-8"
34'	33'-6"	34'	2'-0"	5'-2"
39'	38'-6"	39'	2'-0"	5'-2"
44'	43'-6"	44'	2'-0"	5'-2"
49'	48'-6"	49'	2'-0"	5'-2"
54'	53'-6"	54'	2'-0"	5'-2"
59'	58'-6"	59'	2'-0"	5'-2"
64'	63'-6"	64'	2'-0"	5'-2"
69'	68'-6"	69'	2'-0"	5'-2"
74'	73'-6"	74'	2'-0"	5'-2"
79'	78'-6"	79'	2'-0"	5'-2"
84'	83'-6"	84'	2'-0"	5'-2"
89'	88'-6"	89'	2'-0"	5'-2"
94'	93'-6"	94'	2'-0"	5'-2"
99'	98'-6"	99'	2'-0"	5'-2"
104'	103'-6"	104'	2'-0"	5'-2"

BAR No. 3 - 3/4" STRAIGHT - LENGTH 22'-0" FOR SQUARE DECK  
 BAR No. 4 - 1/2" STRAIGHT - LENGTH 22'-0" FOR SQUARE DECK  
 BAR No. 5 - 3/4" (AT ABUTMENT ENDS)  
 BAR No. 5P - 3/8" (AT PIER ENDS)  
 BAR No. 6 - 3/8" STRAIGHT - LENGTH 22'-0" FOR SQUARE DECK  
 INCREASE LENGTH FOR SKEW BRIDGE  
 BAR No. 7 - 3/4" STRAIGHT - LENGTH 22'-0" FOR SQUARE DECK  
 TOTAL LENGTH 4'-2"  
 BAR No. 8 - 3/8" DOWELS - STRAIGHT - LENGTH 1'-0"  
 BAR No. 9 - 1/2" STRAIGHT - LENGTH 3'-0"  
 TOTAL LENGTH 3'-0"

For 18' Roadway change 10" L 42.7" x 5.85" to 5'-4 1/2"  
 #1 21'-0" to 19'-0"

**REVISIONS**

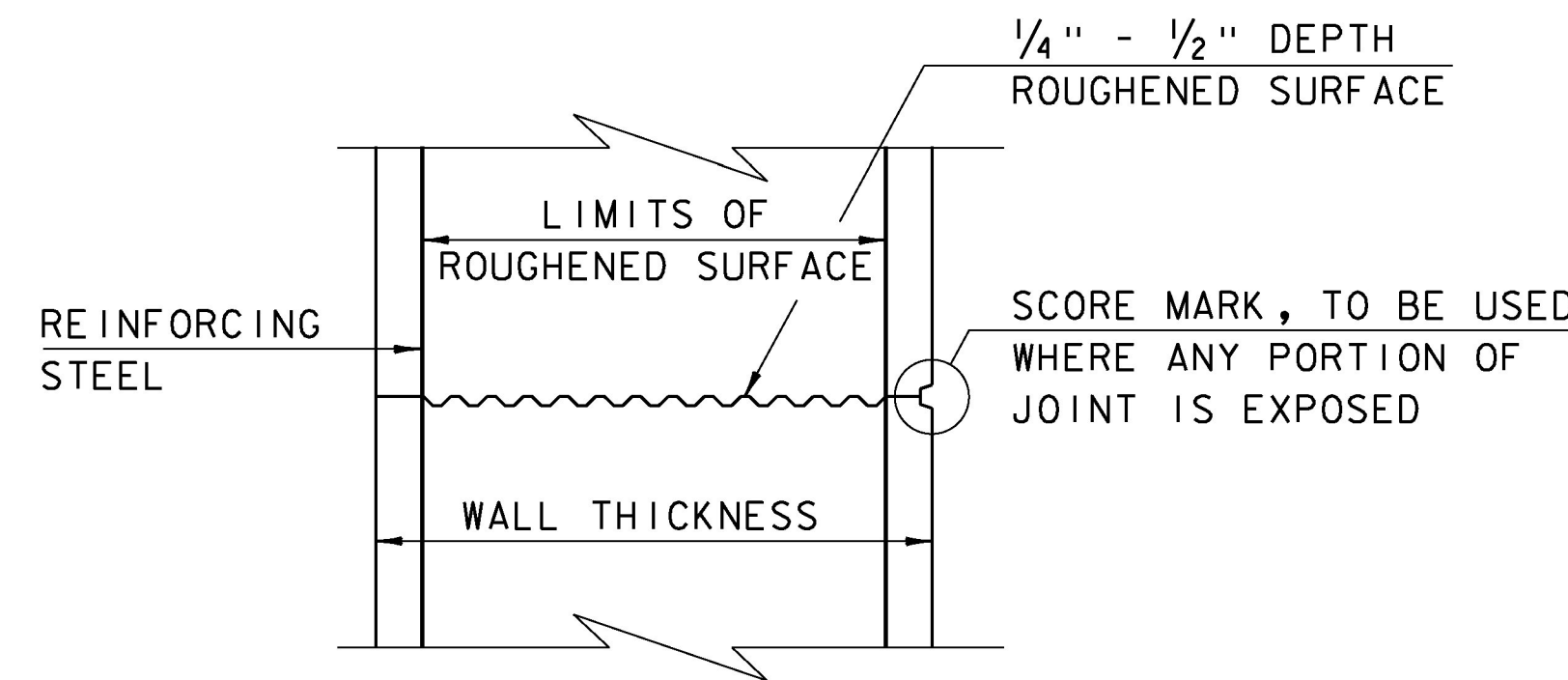
NO.	DATE	DESCRIPTION
1	Oct. 3, 1940	Added Diaphragms, Inc. St. Paul, Vt.
2	12-2-41	Beam sizes & weights for spans 70' 0" & 89' 0" wild.
3	Revised for Non-Beam Spans	LSA 4/17
4	Revised for 76' spans	LMB 4/17
5	General Revision	May 22, 1958 N. R. HARRIS

**STANDARD W.F. BEAM BRIDGE**  
**REINFORCED CONCRETE DECK**  
 FOR  
**STATE AID & TOWN HIGHWAYS**  
**20 FT. ROADWAY**  
**2-H15**

Surveyed by  
 Designed by W. H. DAY  
 Drawn by W. H. DAY  
 Traced by ORWELL P.  
 Checked by STP DECK (41)  
 Series BRIDGE NO. 4  
 SHEET 27 OF 27  
 FOR REFERENCE ONLY

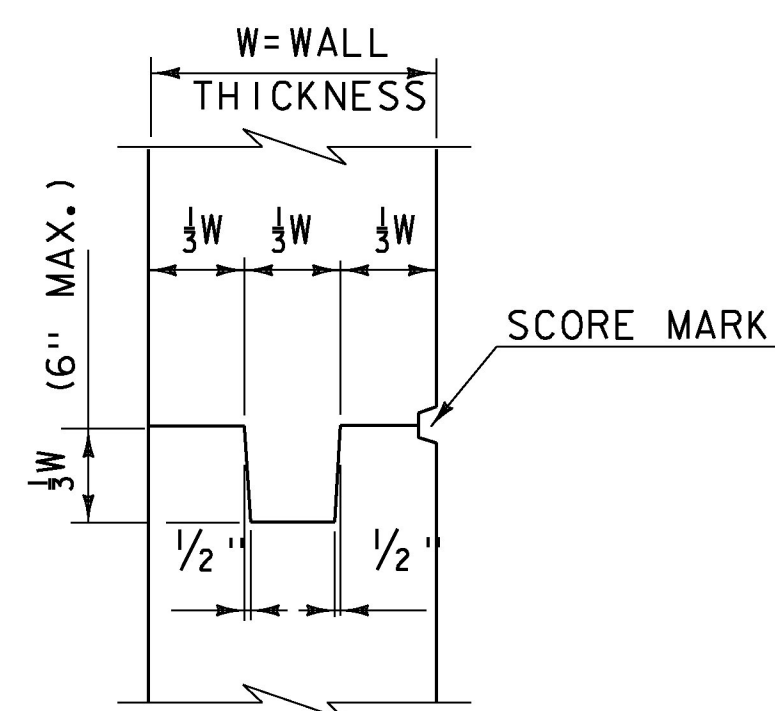
**CONCRETE GENERAL NOTES**

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

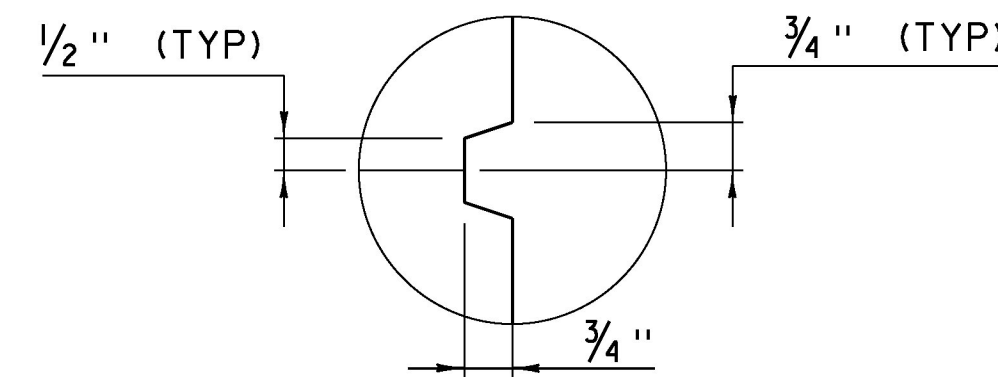


**TYPICAL HORIZONTAL CONSTRUCTION JOINT**  
(NOT TO SCALE)

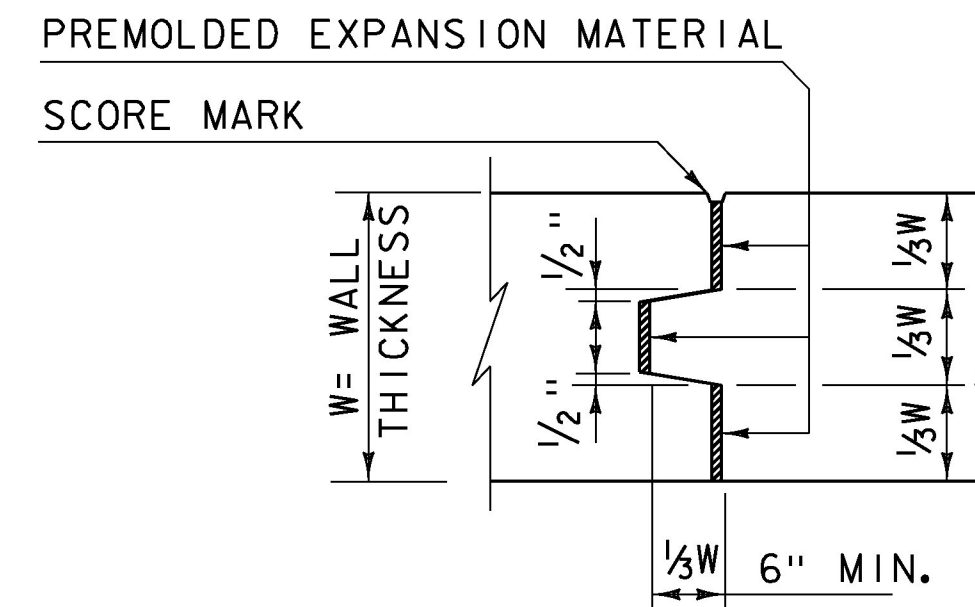
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



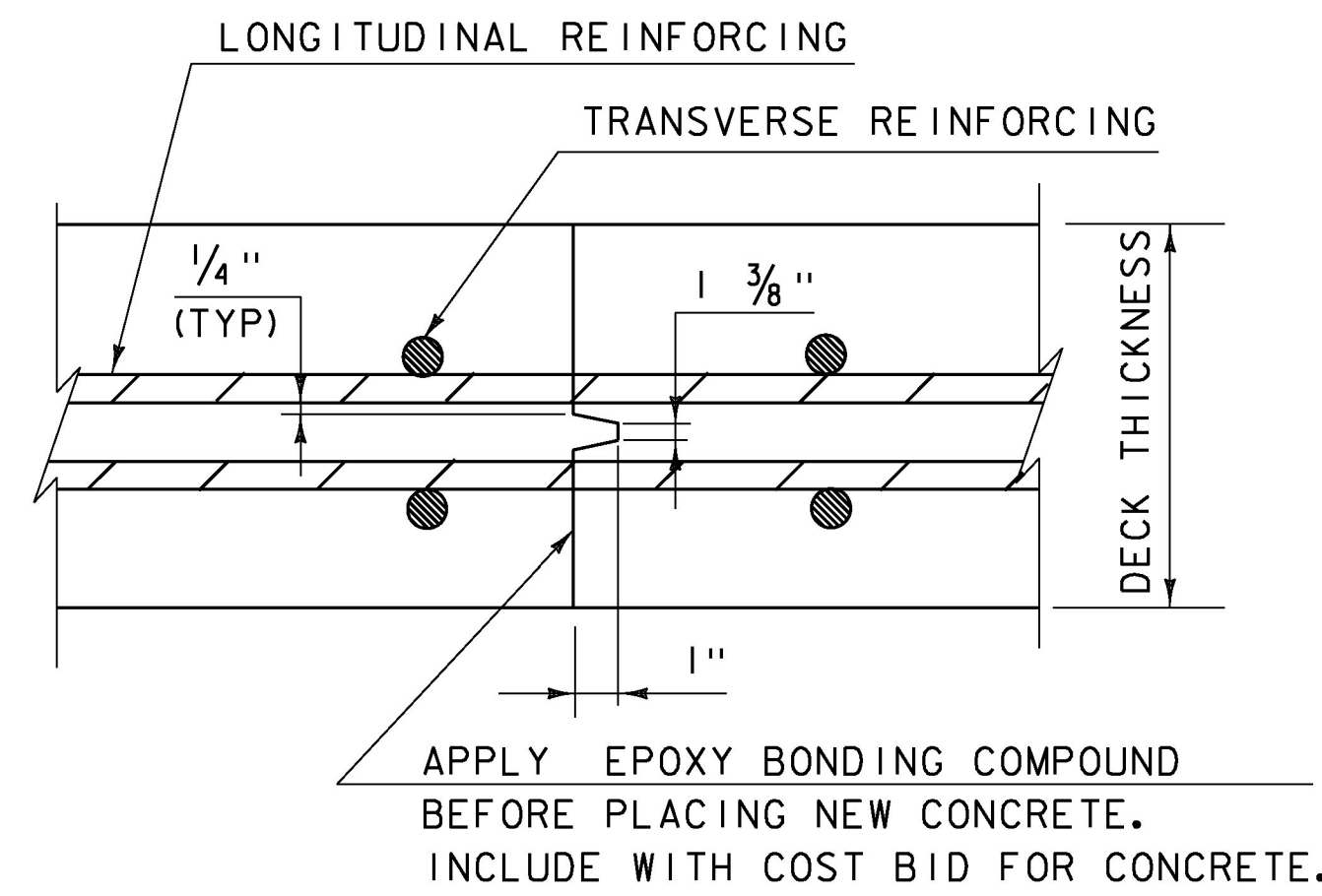
**TYPICAL CONCRETE CONSTRUCTION JOINT**  
(NOT TO SCALE)



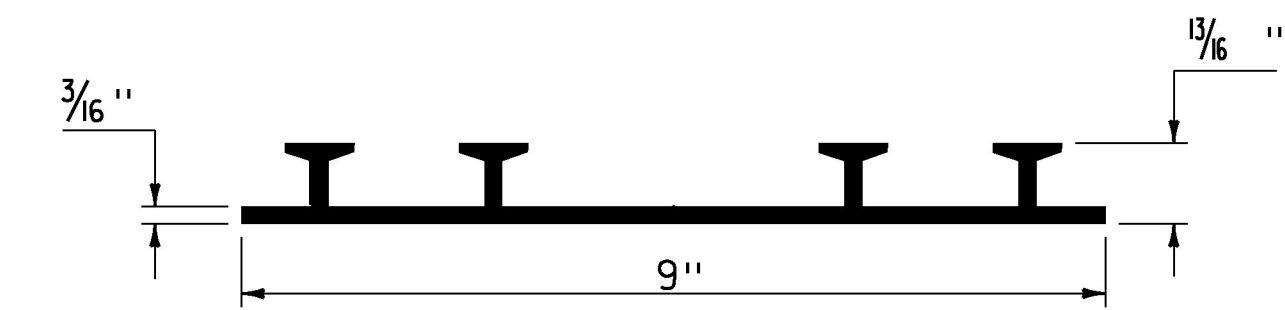
**SCORE MARK DETAIL**  
(NOT TO SCALE)



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



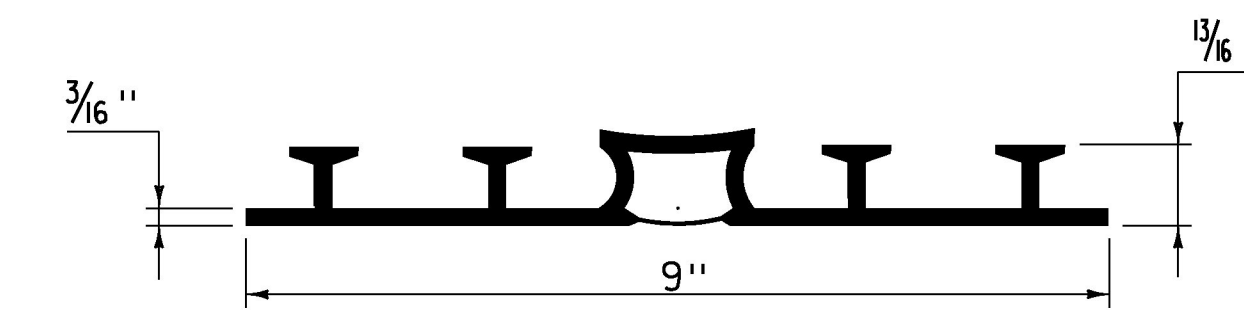
**TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS**  
(NOT TO SCALE)



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

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

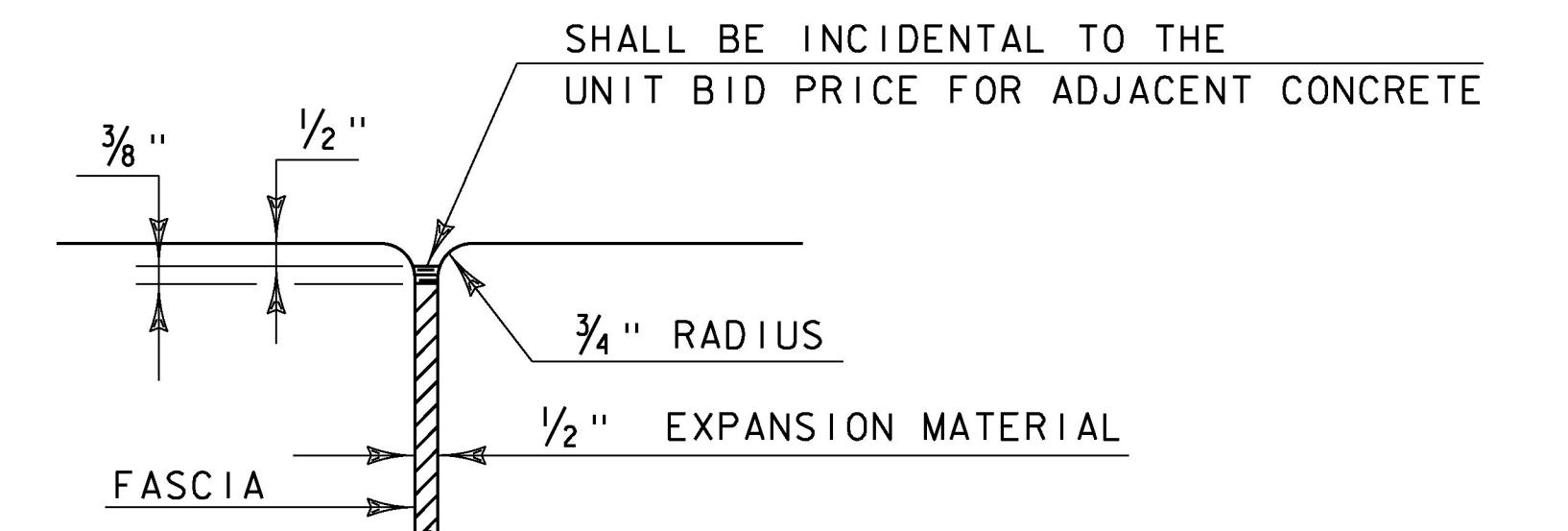
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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

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

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

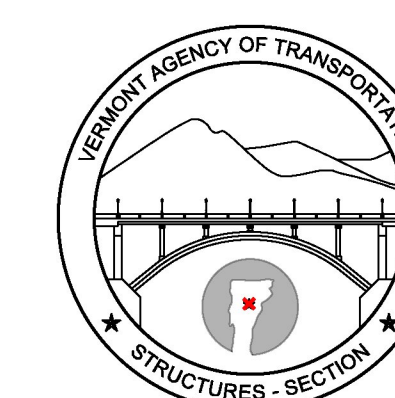


**JOINT BETWEEN FASCIA AND WINGWALL**  
(NOT TO SCALE)

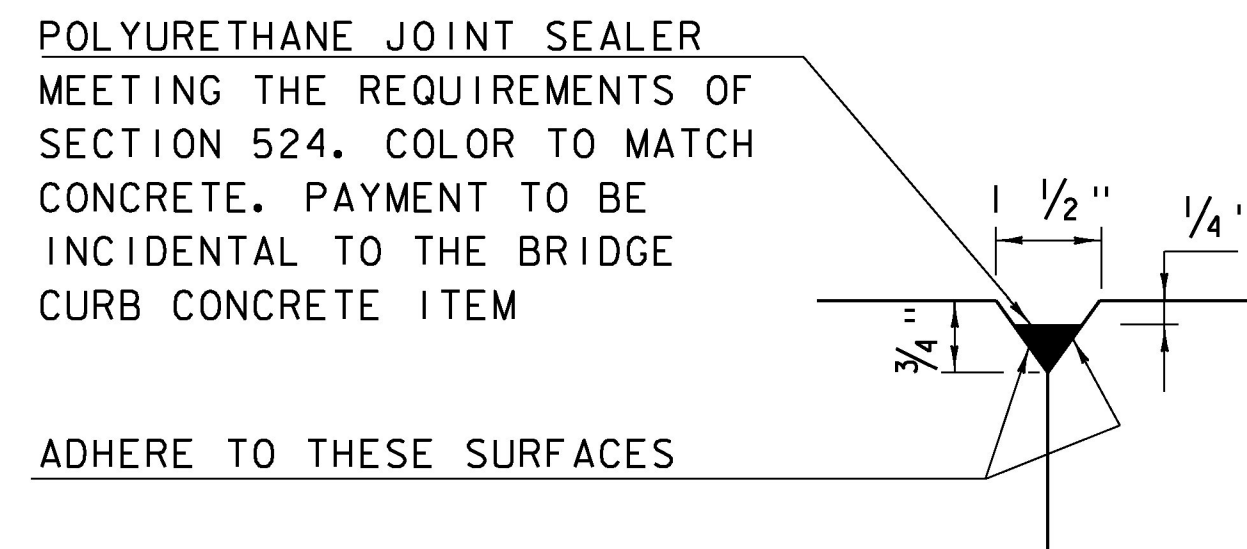
**REVISIONS**

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

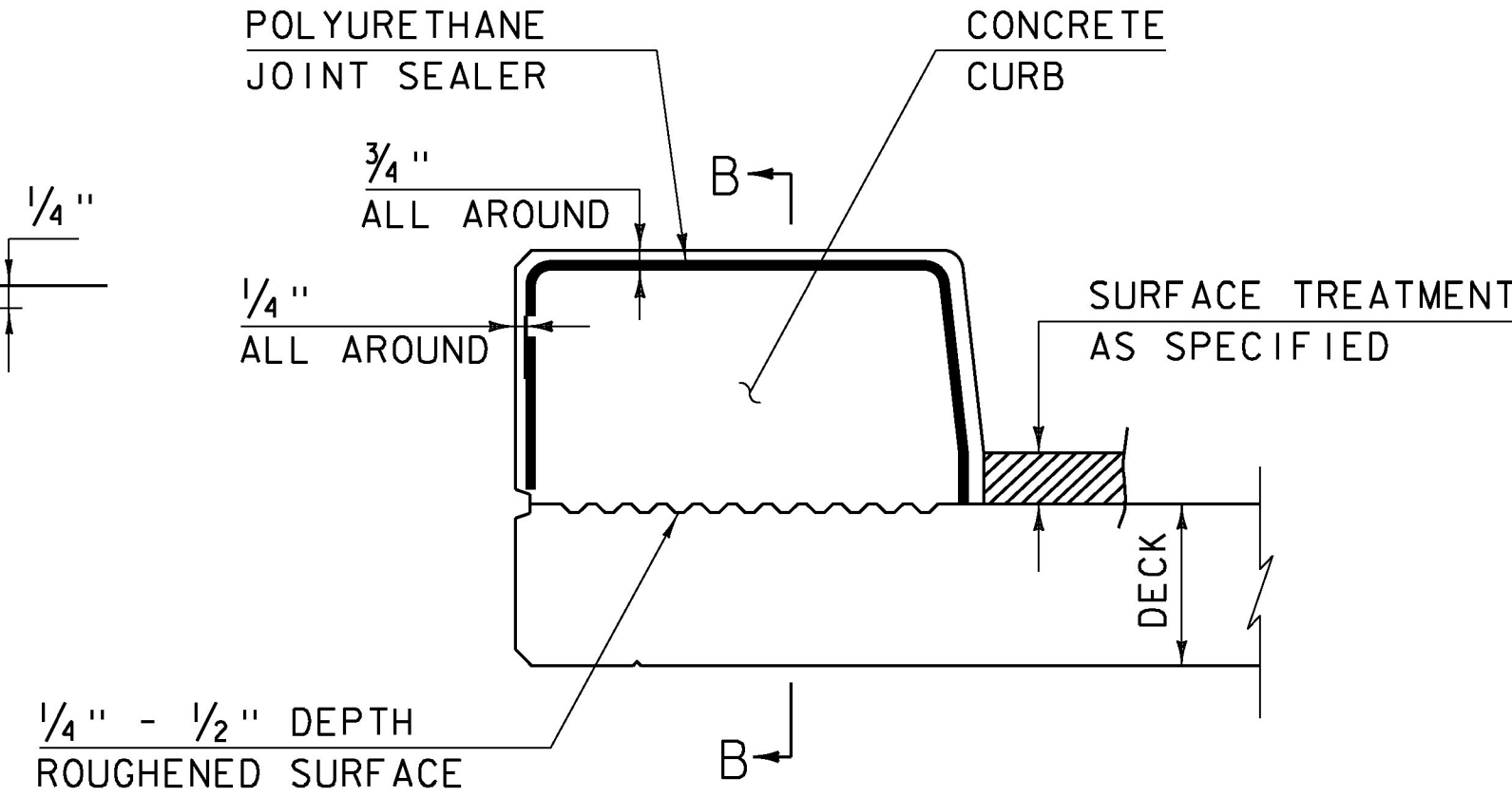
**CONCRETE  
DETAILS AND NOTES**



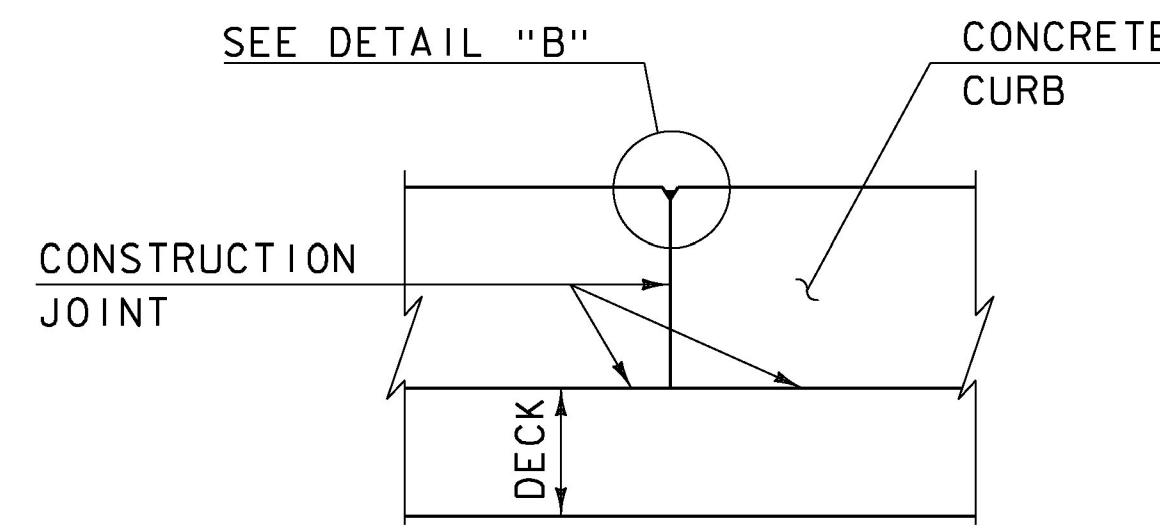
**STRUCTURES  
DETAIL  
SD-501.00**



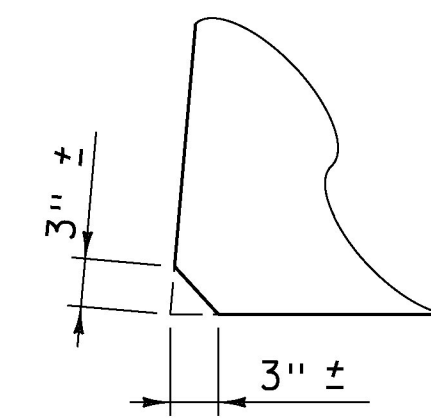
DETAIL "B"  
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION  
(NOT TO SCALE)

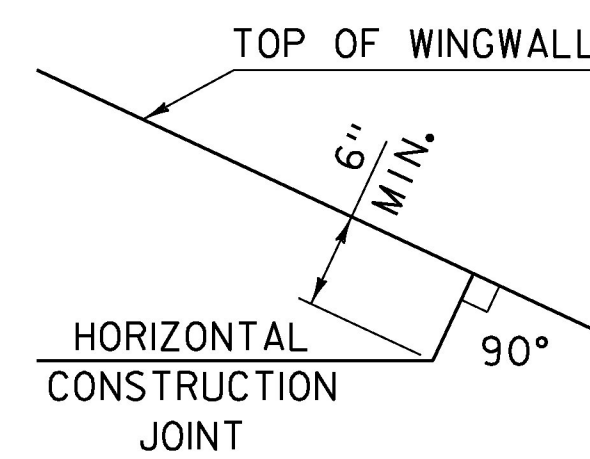


SECTION B - B  
(NOT TO SCALE)

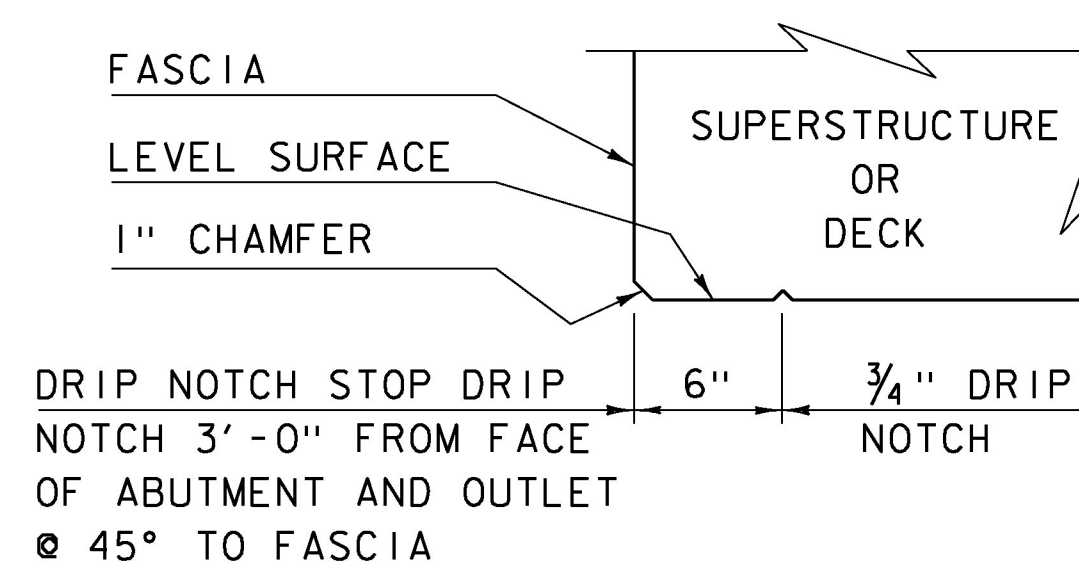


ACUTE ANGLE  
CLIP DETAIL  
(NOT TO SCALE)

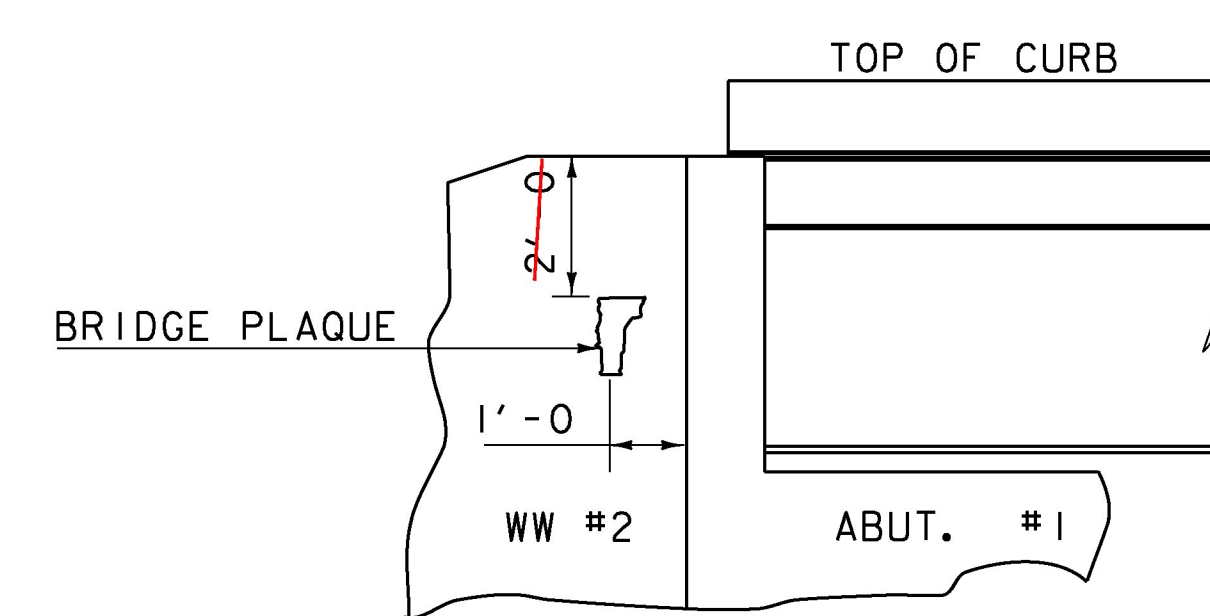
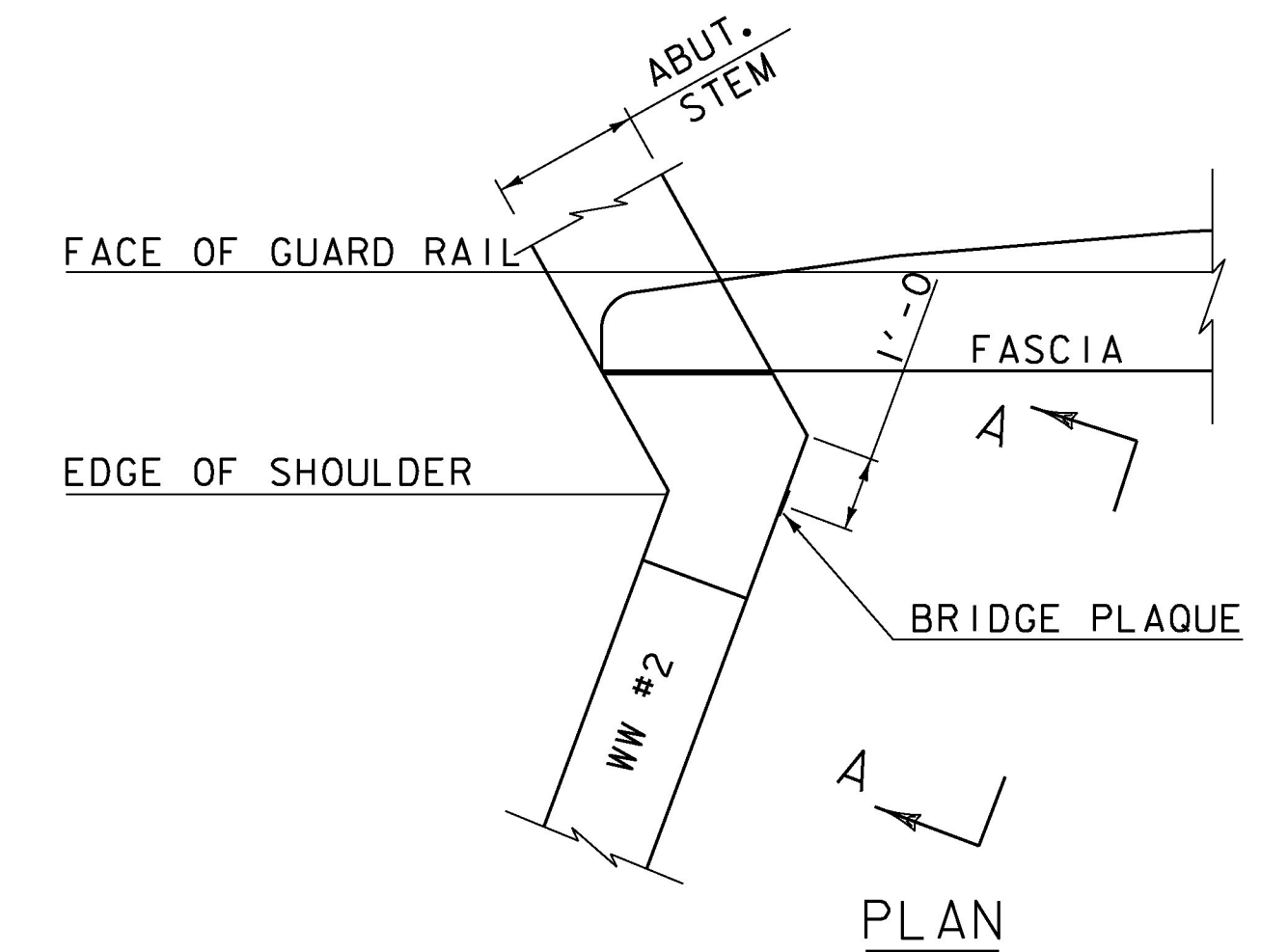
- SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



HORIZONTAL WINGWALL  
CONSTRUCTION JOINT  
(NOT TO SCALE)



DRIP NOTCH DETAIL  
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE  
(NOT TO SCALE)

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

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

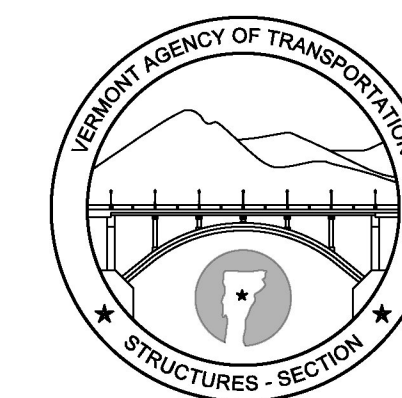
CONCRETE CURB JOINT NOTES

- 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.
- IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.
- ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.
- WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.
- 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.
- THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.

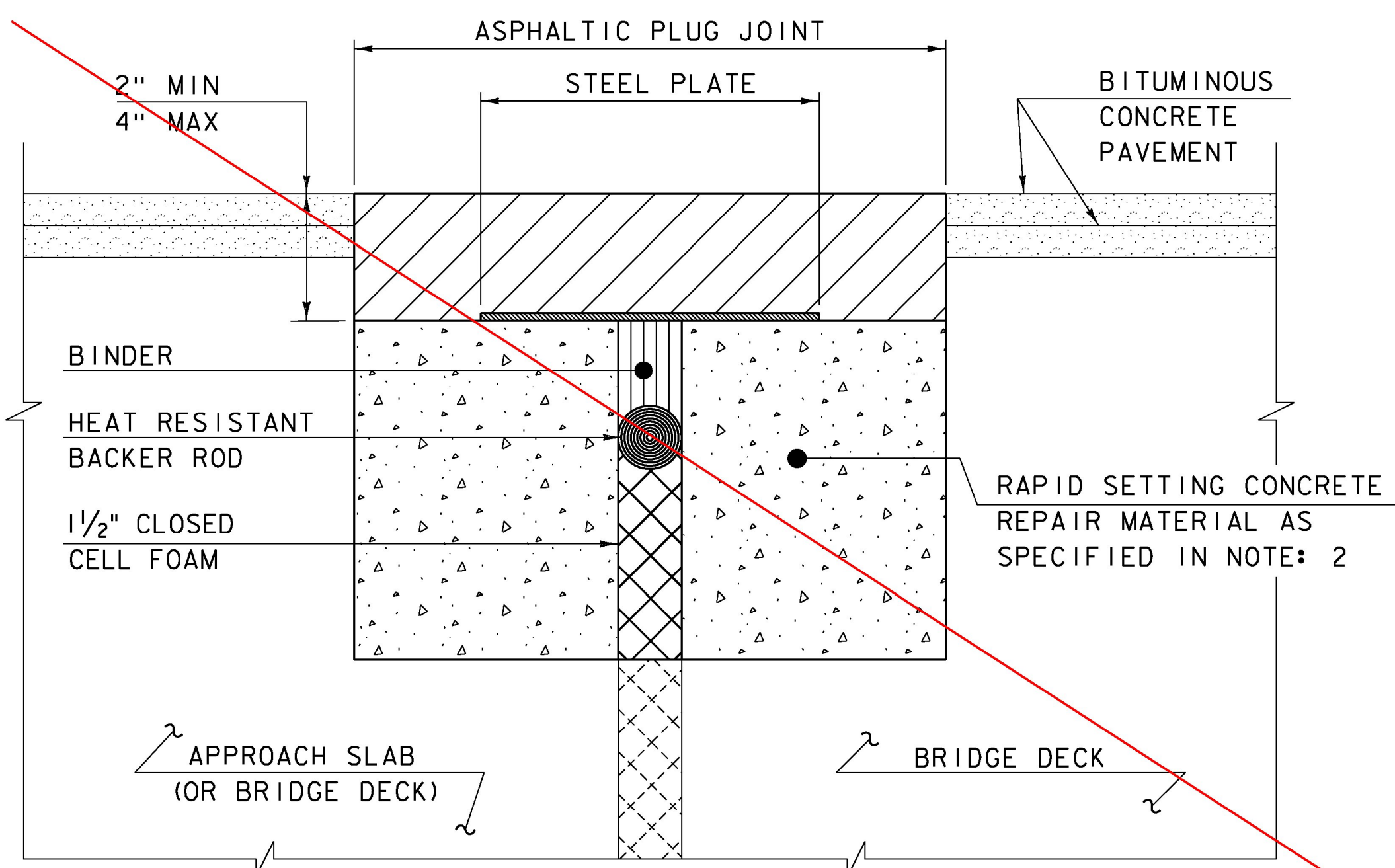
REVISIONS

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

CONCRETE  
DETAILS AND NOTES



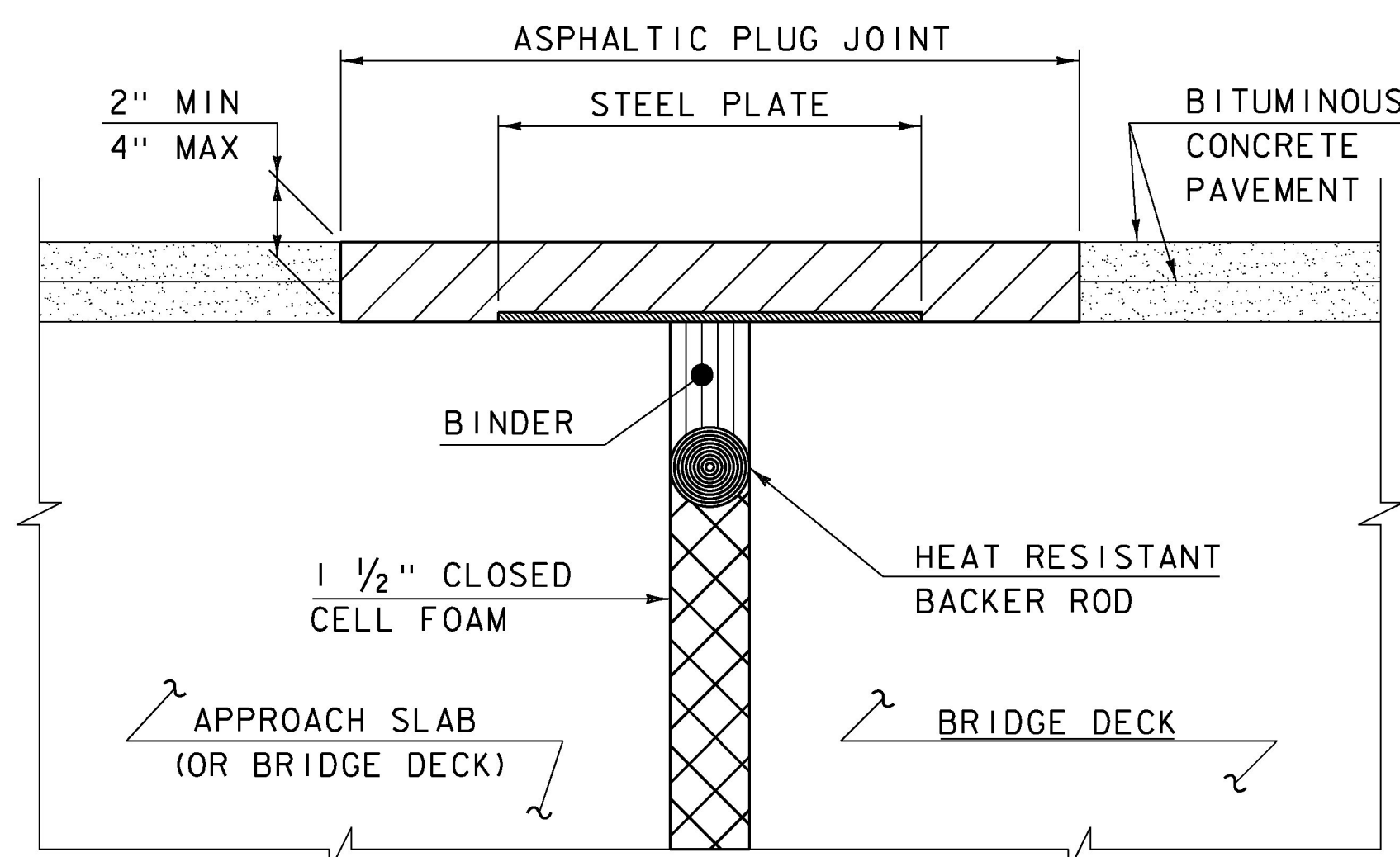
STRUCTURES  
DETAIL  
SD-502.00



ASPHALTIC PLUG JOINT DETAIL - REHAB

**NOTES:**

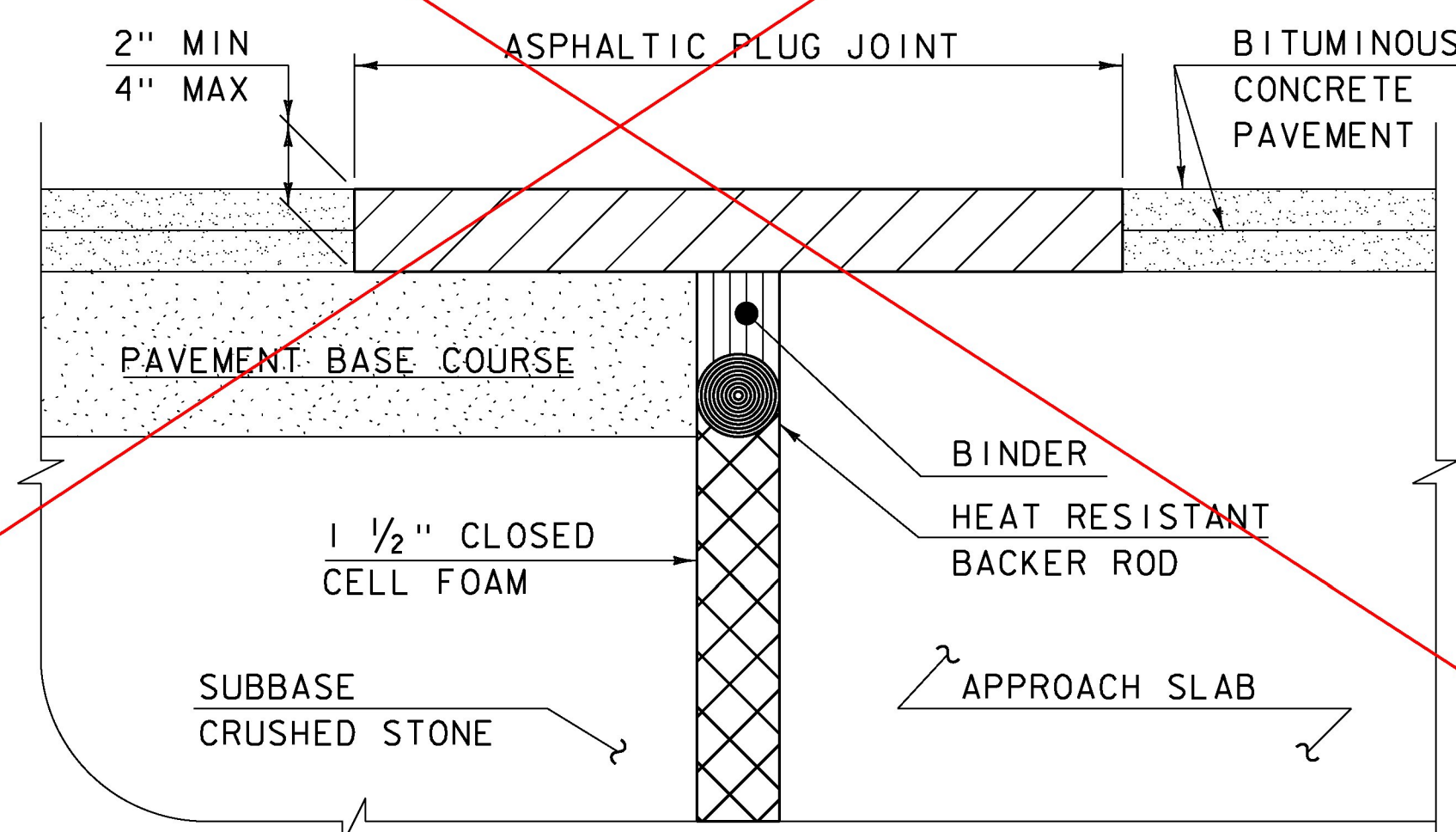
1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL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



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

**NOTE:**

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



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

**ASPHALTIC PLUG JOINT NOTES**

**INSTALLATION:**

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

**WEATHER LIMITATIONS**

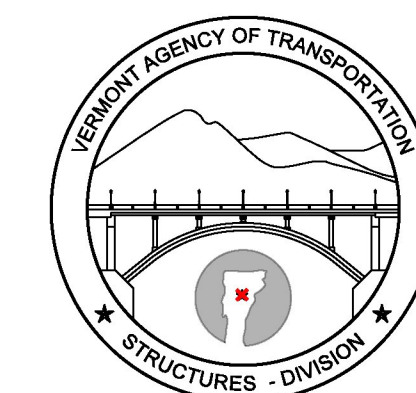
APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

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

DETAILS ON THIS SHEET ARE NOT TO SCALE.

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

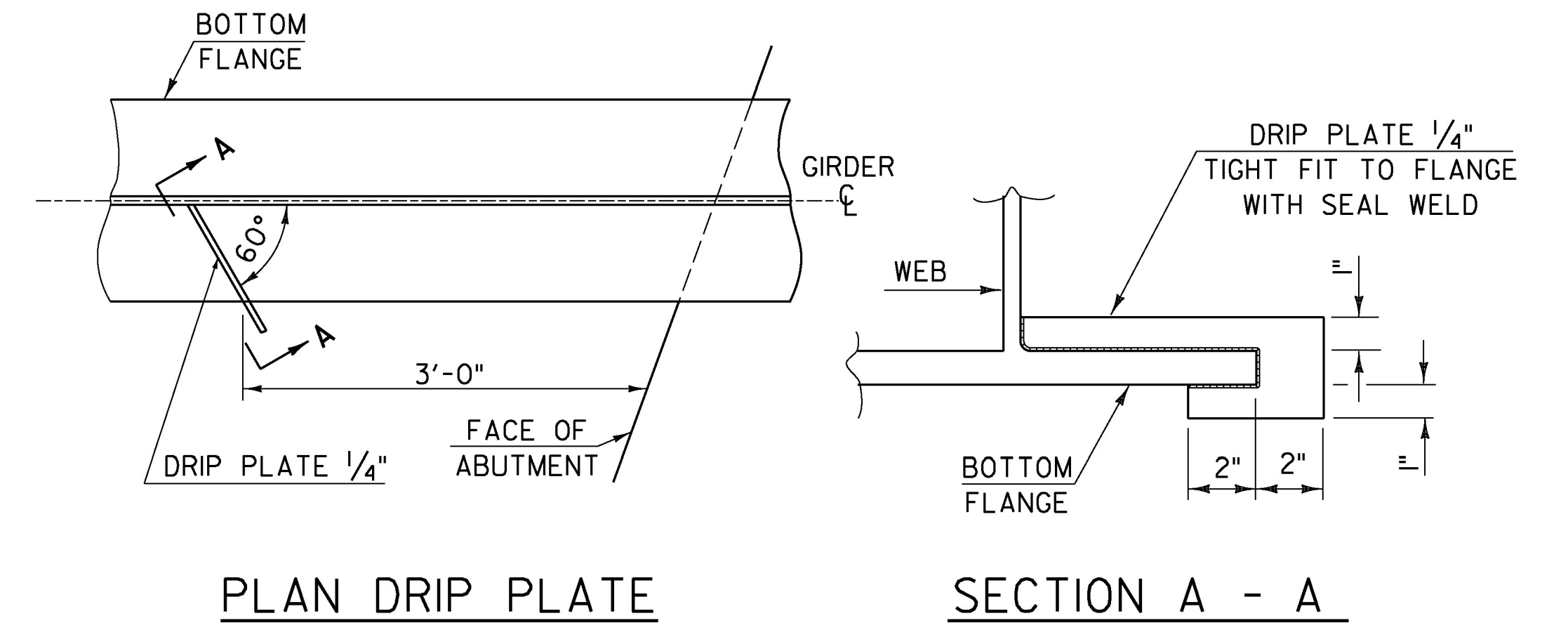
BRIDGE JOINT  
ASPHALTIC PLUG



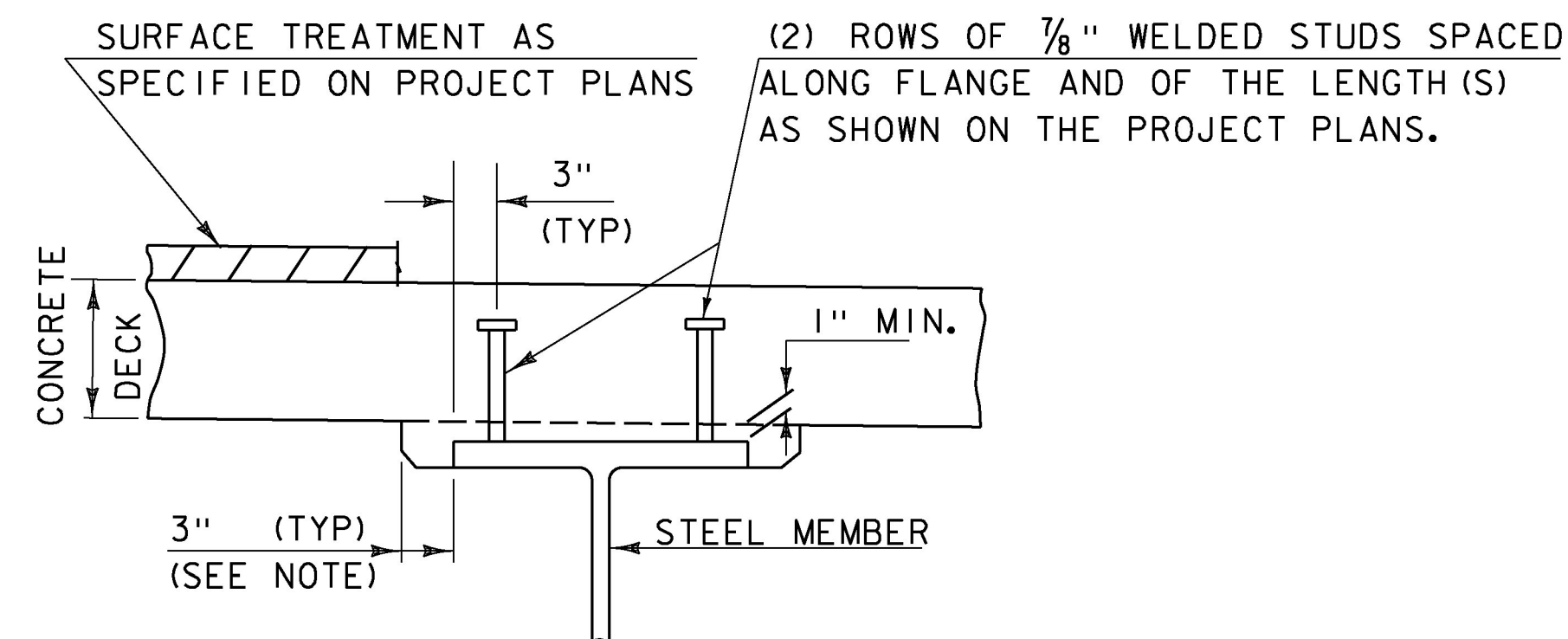
STRUCTURES  
DETAIL  
SD-516.10

STRUCTURAL STEEL GENERAL NOTES:

1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.19, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.

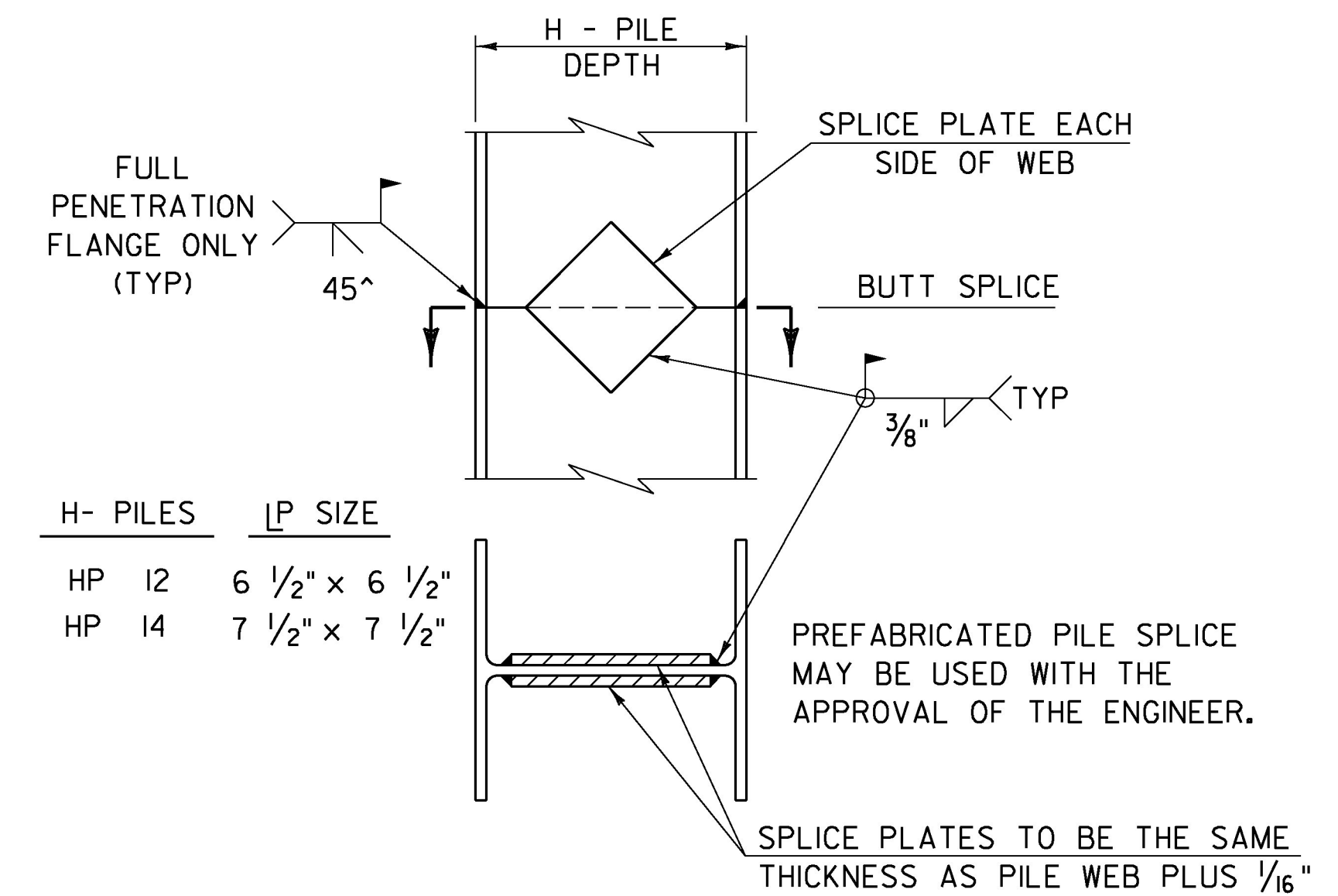


NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



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

HAUNCH AND SHEAR CONNECTOR DETAIL

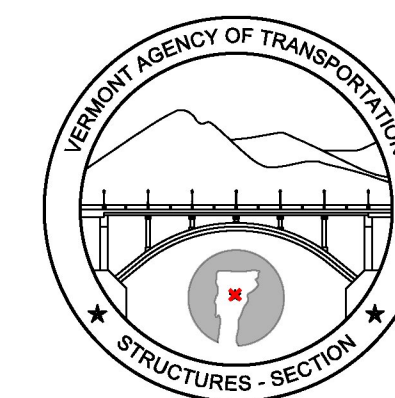


DETAIL OF PILE SPLICE

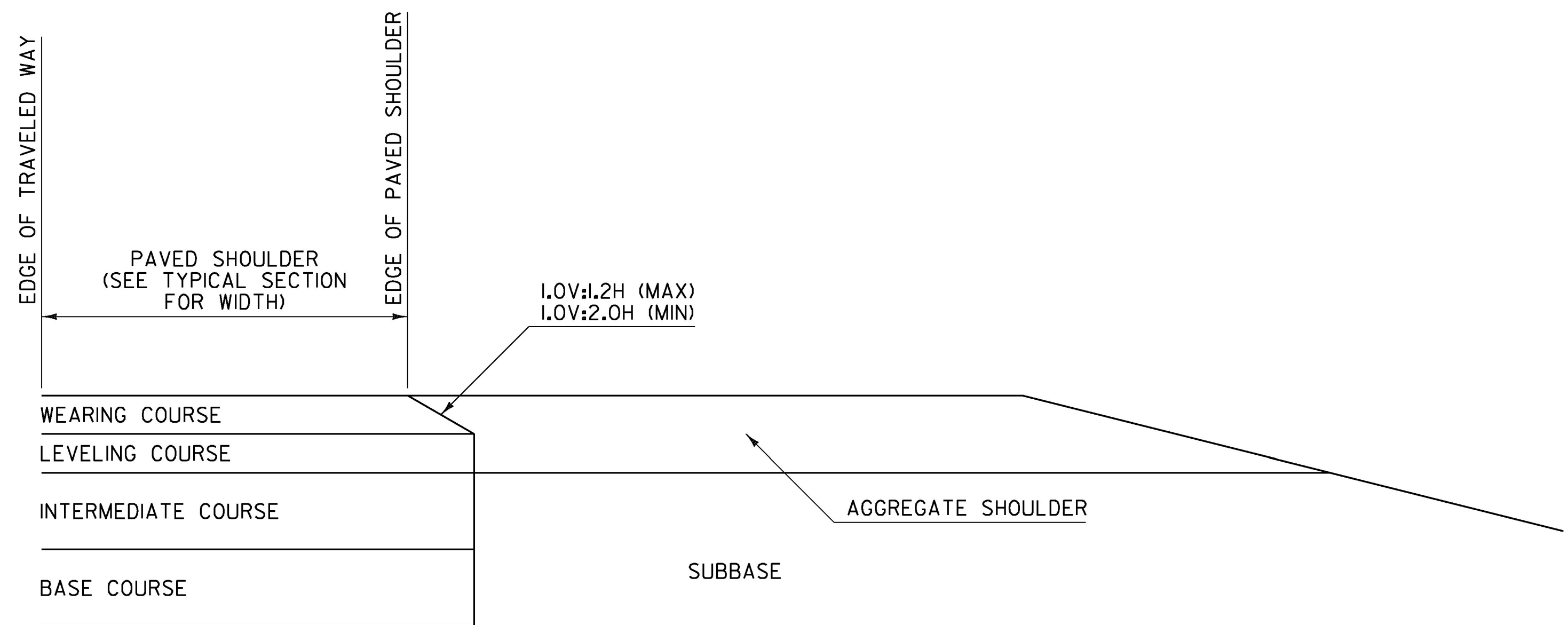
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

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

# STRUCTURAL STEEL DETAILS & NOTES



## STRUCTURES DETAIL SD-601.00

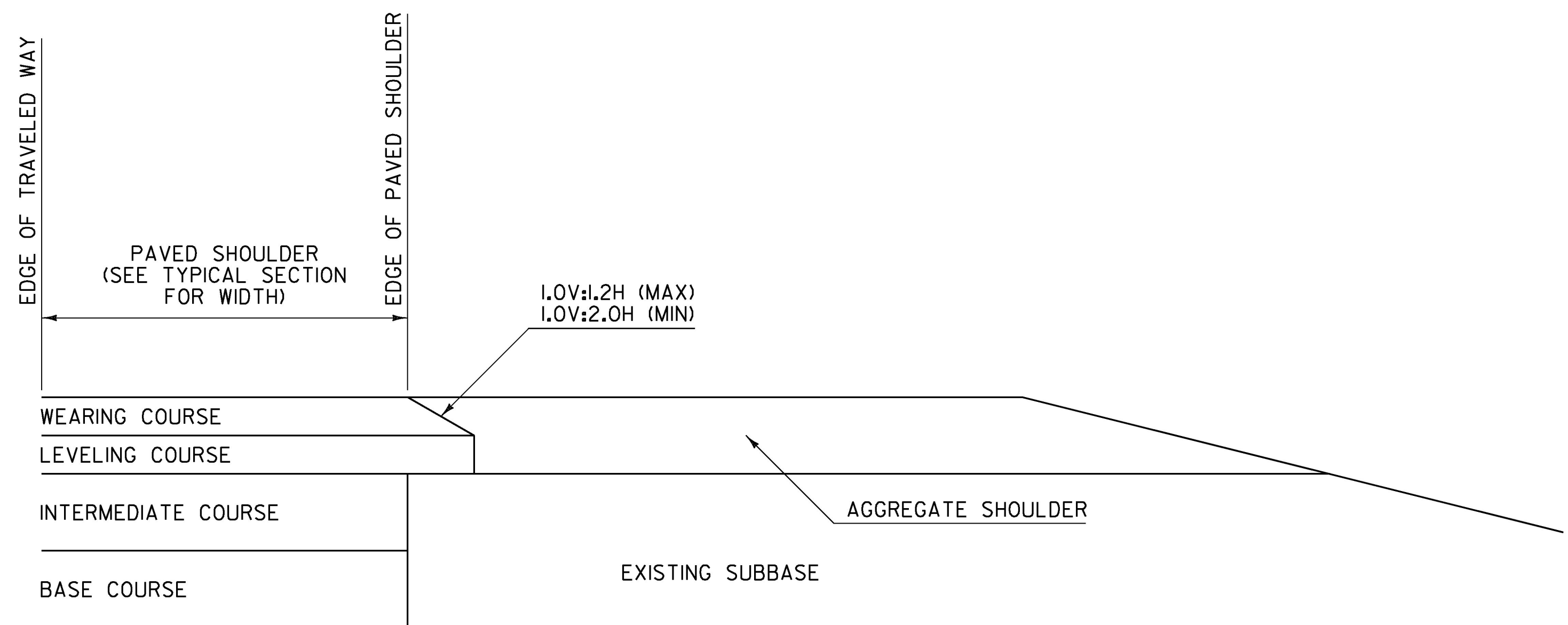


**NOTES:**

1. THIS DETAIL IS INTENDED FOR WHEN PAVING EXTENDS BELOW THE WEARING COURSE.
2. PRIOR TO PLACEMENT OF THE LEVELING AND/OR WEARING COURSE, THE SUBBASE LOCATED BENEATH THE AGGREGATE SHOULDER SHALL BE PREPARED FLUSH WITH THE BOTTOM OF THE LEVELING COURSE.
3. BASE COURSE LIMITS MAY VARY, SEE TYPICAL SECTIONS FOR WIDTH.

**SAFETY EDGE DETAIL  
FOR PAVING BELOW WEARING COURSE**

SAFETY EDGE WIDTH BASED ON WEARING COURSE THICKNESS AND A 1V:1.6H SLOPE	
WEARING COURSE THICKNESS (INCHES)	NOMINAL SAFETY EDGE WIDTH (INCHES)
1.25	2.000
1.50	2.375
1.75	2.750
2.00	3.125
2.25	3.500
2.50	4.000



**NOTES:**

1. THIS DETAIL IS INTENDED FOR WHEN ONLY THE LEVELING AND/OR WEARING COURSE IS TO BE PLACED.
2. PAVEMENT COURSES MAY VARY, SEE TYPICAL SECTIONS FOR ACTUAL PAVEMENT COURSES REQUIRED.

**SAFETY EDGE DETAIL  
FOR PAVING WEARING COURSE ONLY**

**GENERAL NOTES:**

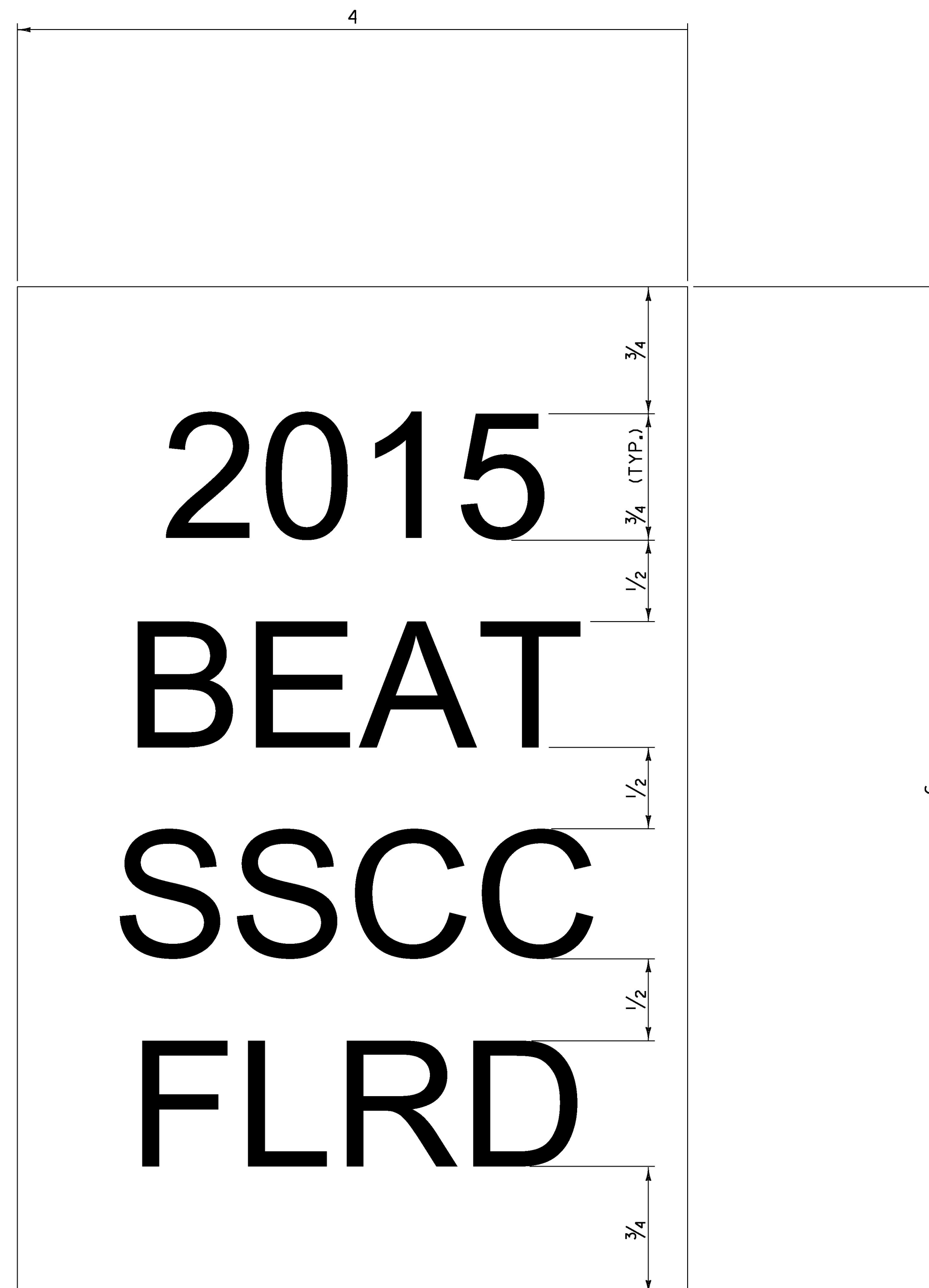
1. PLACEMENT OF THE WEARING COURSE SHALL INCLUDE THE SAFETY EDGE, UNLESS THE FOLLOWING APPLIES:
  - A. THE ADJACENT SLOPE IS STEEPER THAN THE SAFETY EDGE.
  - B. THE EDGE OF PAVEMENT BEING PLACED ABUTS BOUND MATERIAL.
  - C. VEHICLES ARE RESTRICTED FROM LEAVING THE PAVED SURFACE (EXAMPLE: GUARDRAIL).
2. THE SAFETY EDGE SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE SLOPE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
3. THE SAFETY EDGE SHALL NOT BE CONSIDERED PART OF THE PAVED SHOULDER.
4. THIS WORK SHALL BE INCIDENTAL TO THE RESPECTIVE BITUMINOUS CONCRETE PAVEMENT ITEM.

REV.	DATE	DESCRIPTION
0	MAR. 29, 2016	ORIGINAL APPROVAL
OTHER DETAILS REQUIRED: NONE		
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN		

SAFETY EDGE DETAILS



HIGHWAY SAFETY  
& DESIGN DETAIL  
HSD-400.01



**GENERAL NOTES:**

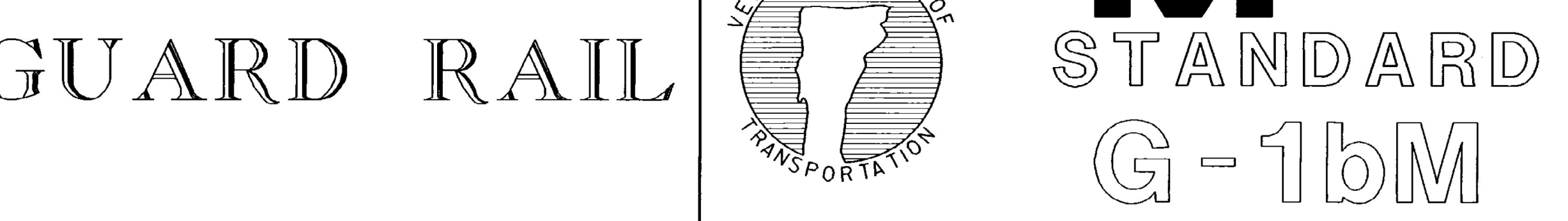
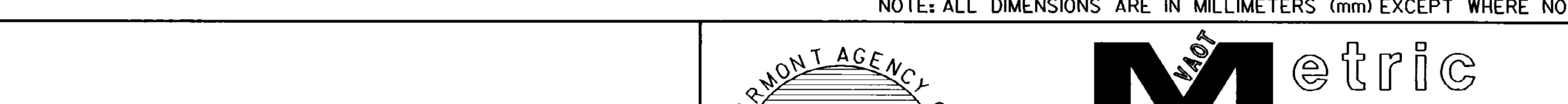
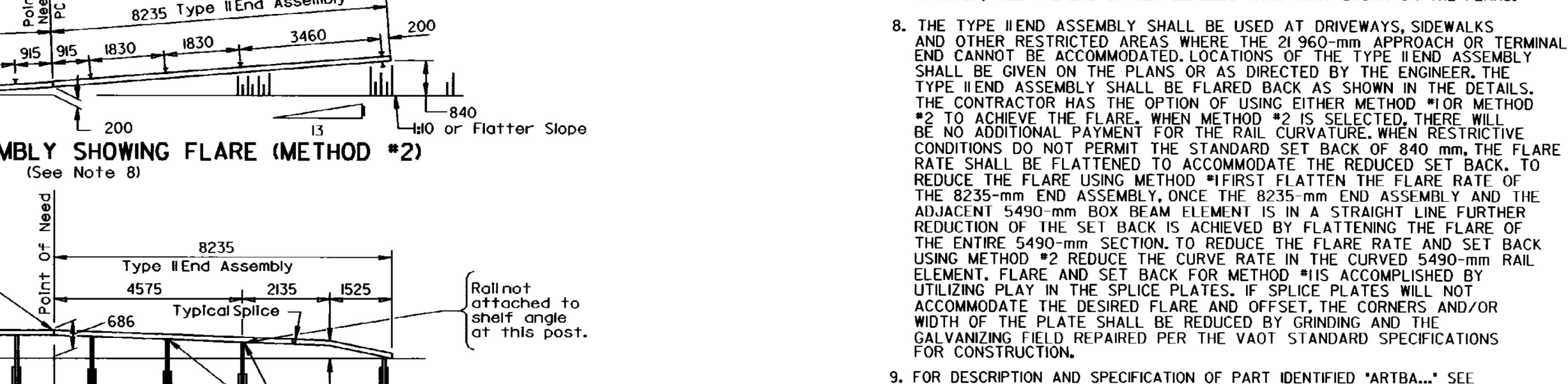
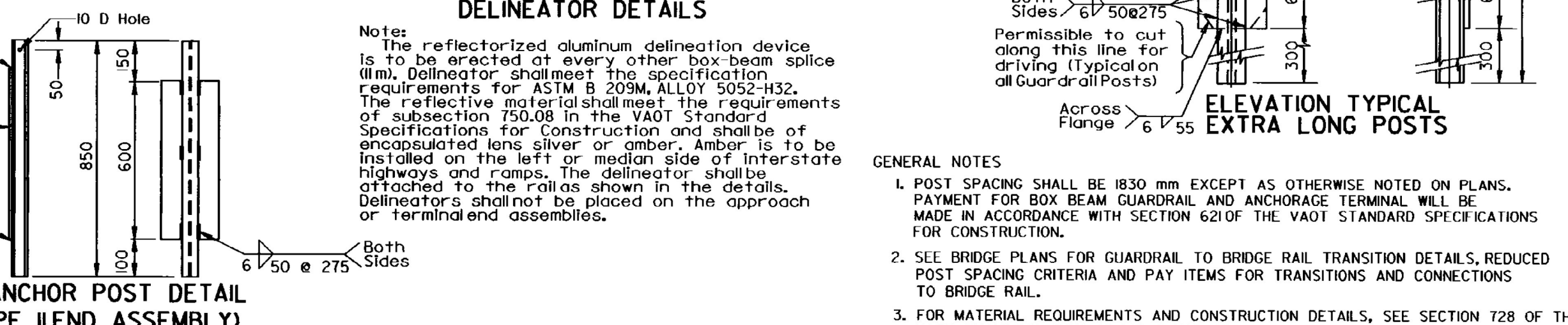
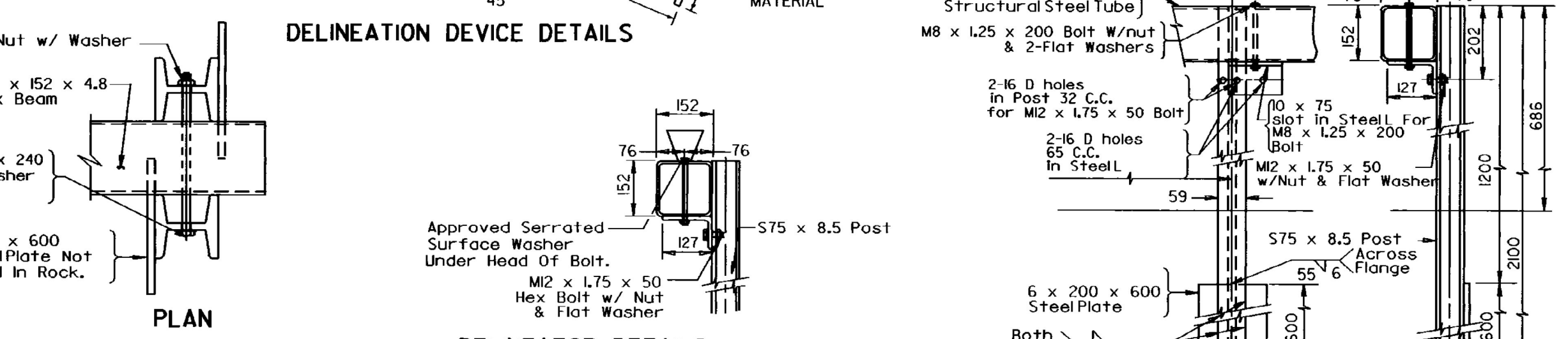
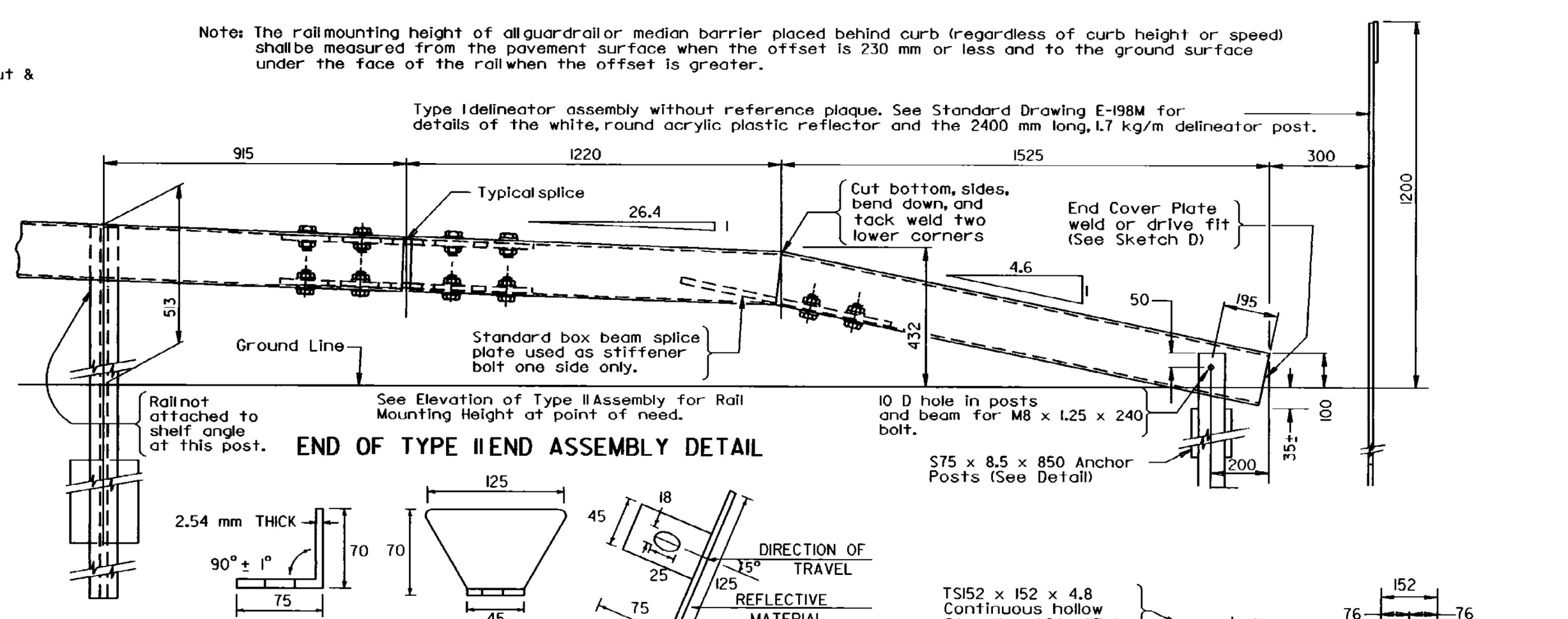
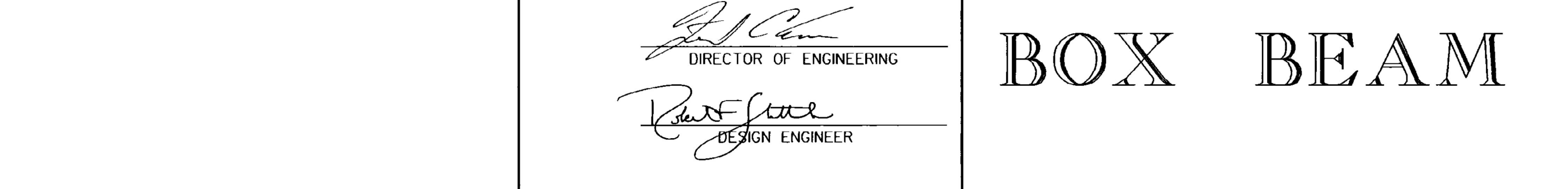
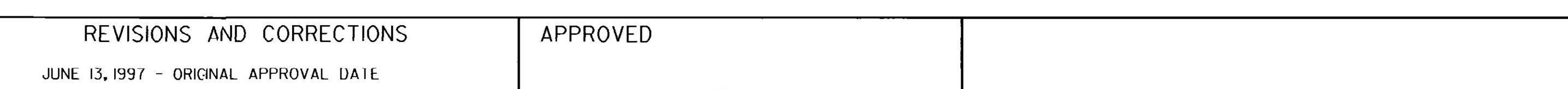
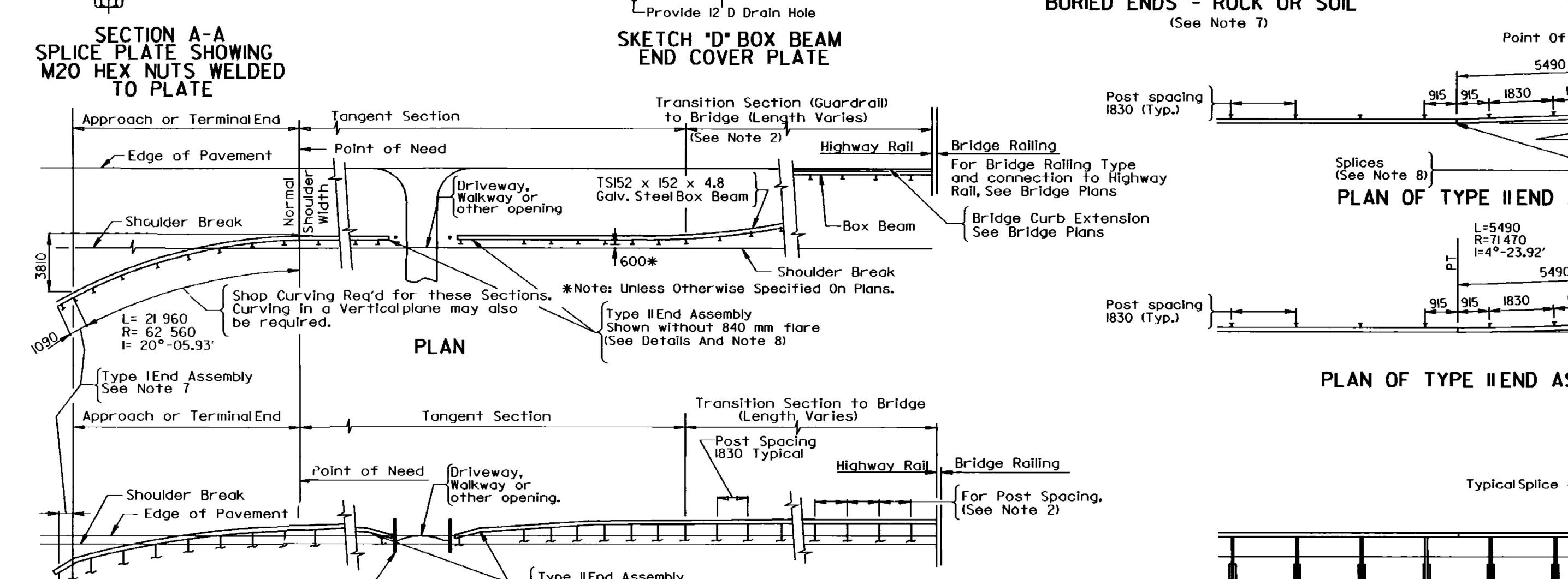
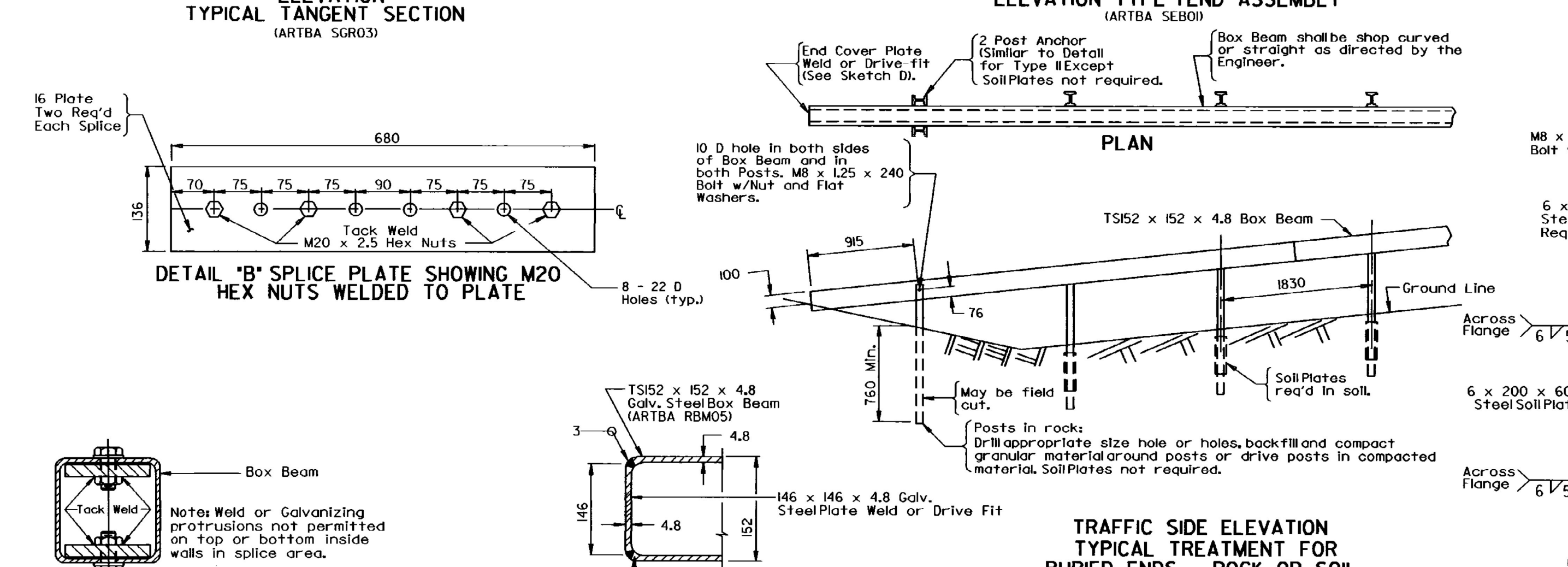
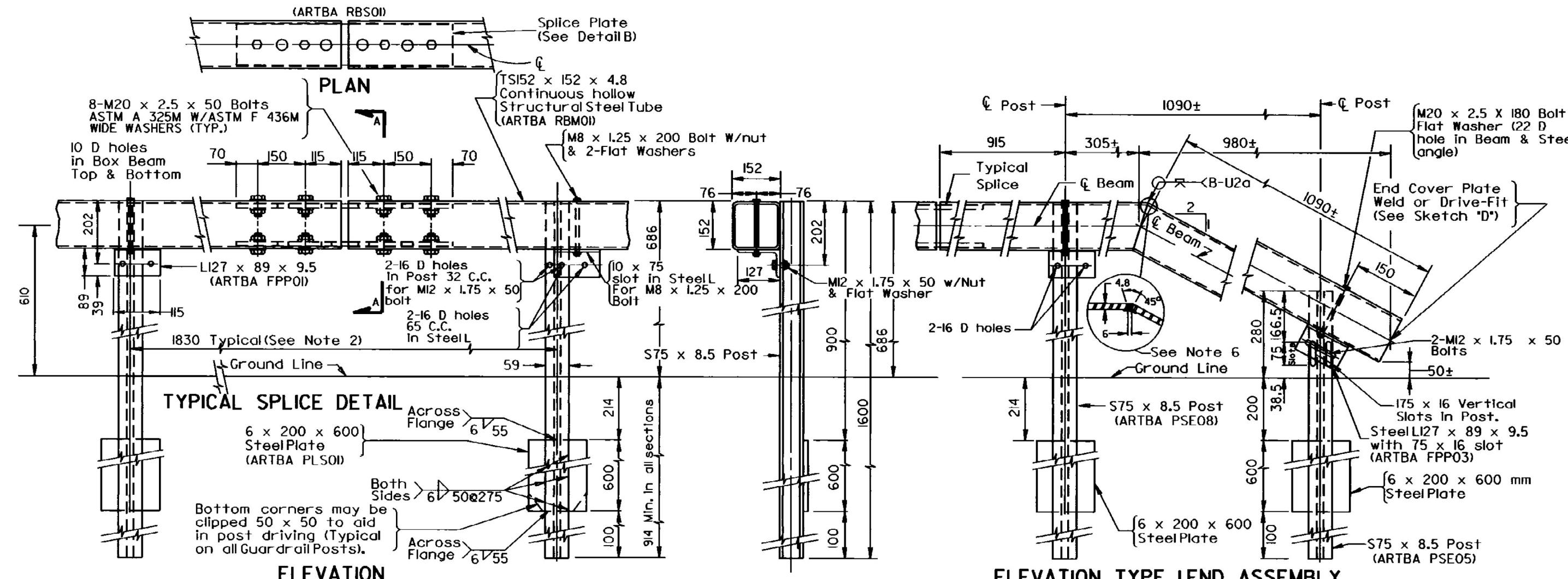
1. LINE ONE SHALL INDICATE THE INSTALLATION YEAR (YYYY).
2. LINE TWO SHALL INDICATE THE MODEL AS IDENTIFIED ON THE APPROVED PRODUCTS LIST. FOR GENERIC INSTALLATIONS THE STANDARD DRAWING DESIGNATION OR NAME AS IDENTIFIED IN THE FHWA ELIGIBILITY LETTER SHALL BE USED.
3. LINE THREE SHALL INDICATE ADDITIONAL MODEL INFORMATION IF NECESSARY.
4. LINE FOUR SHALL INDICATE FLARED (FLRD) OR TANGENT (TANG).
5. LEGEND SHALL BE ONE ARIEL FONT.
6. LEGEND SHALL BE BLACK ON A WHITE BACKGROUND, LEGEND AND BACKGROUND SHALL NOT BE REFLECTIVE.
7. SUITABLE MATERIAL SHALL BE USED SO AS TO NOT DETERIORATE DURING EXPOSURE TO WEATHER.
8. LABELS SHALL BE APPLIED IN SUCH A WAY THAT THEY REMAIN INTACT DURING THE LIFE OF THE TERMINAL.
9. FOR W-BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE TOP OF POST ONE FACING AWAY FROM TRAFFIC.
10. FOR BOX BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE BOX BEAM ADJACENT TO POST ONE FACING AWAY FROM TRAFFIC.
11. PAYMENT SHALL BE INCIDENTAL TO OTHER TRAFFIC BARRIER ITEMS.
12. ALL DIMENSIONS IN INCHES.

REV.	DATE	DESCRIPTION
0	NOV. 3, 2015	ORIGINAL APPROVAL
OTHER DETAILS REQUIRED: NONE		
DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN		

GUARDRAIL TERMINAL LABEL DETAIL



HIGHWAY SAFETY  
& DESIGN DETAIL  
HSD - 621.06



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

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

See Elevation of Type II Assembly for Rail Mounting Height at point of need.

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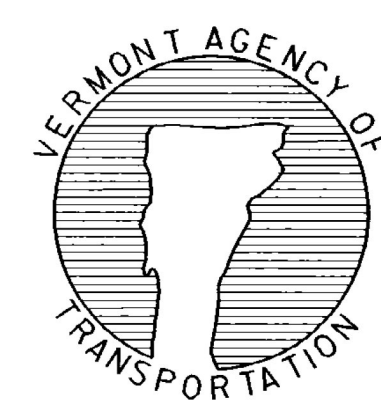
See Elevation of Type II Assembly for Rail Mounting Height at point of need.

See Elevation of Type II Assembly for Rail Mounting Height at point of need.

REVISIONS AND CORRECTIONS  
JUNE 13, 1997 - ORIGINAL APPROVAL DATE

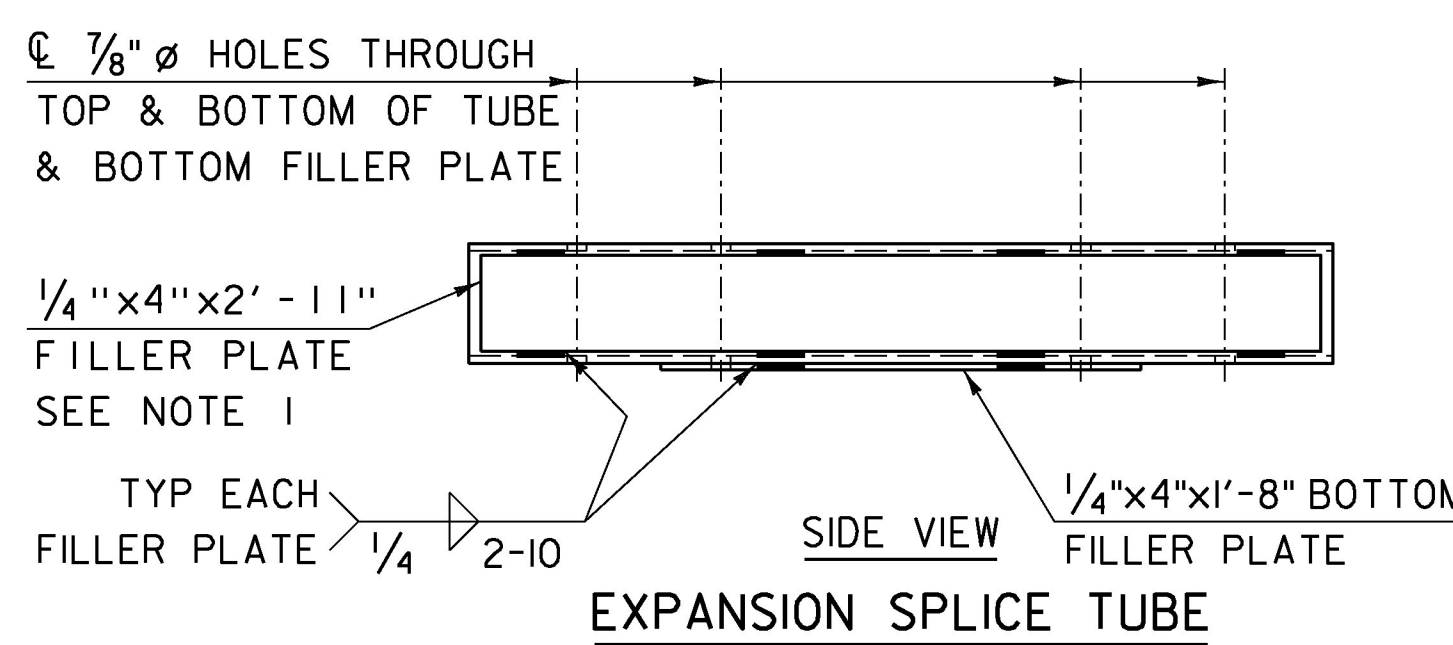
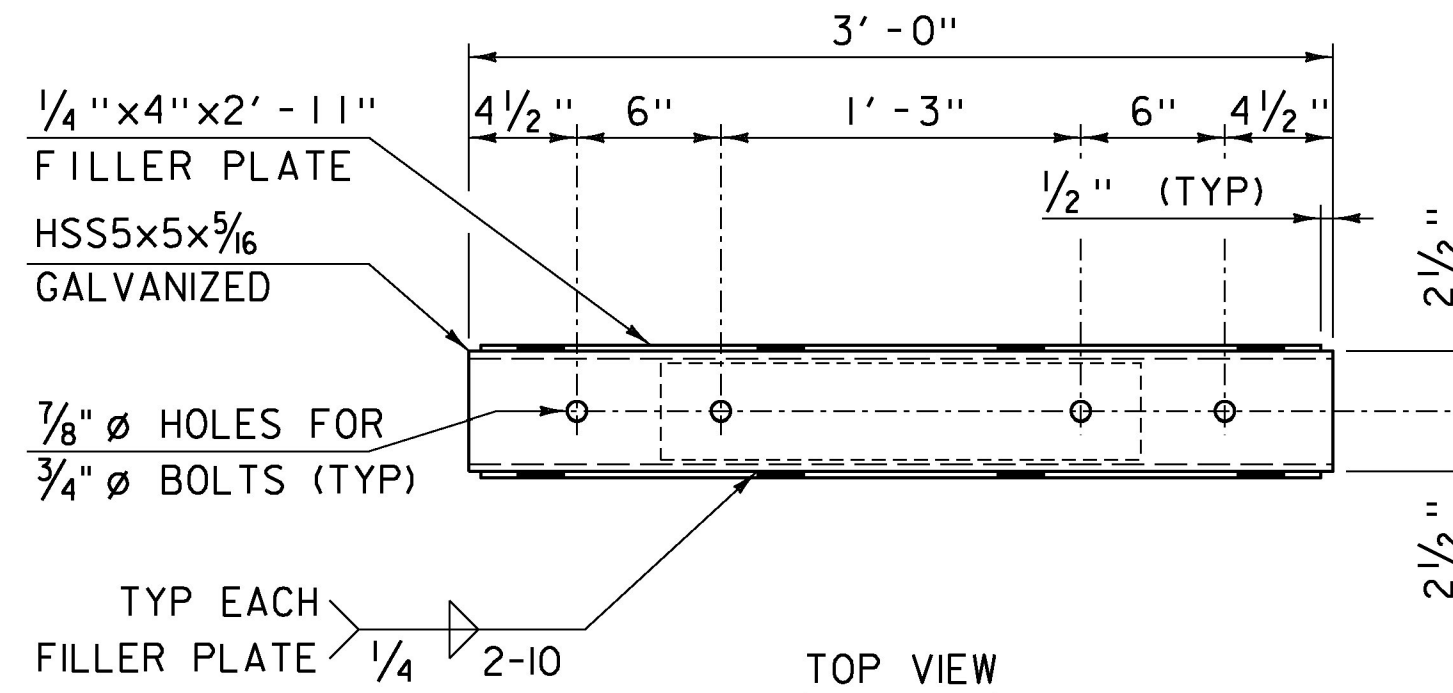
APPROVED  
*[Signature]*  
DIRECTOR OF ENGINEERING  
*[Signature]*  
DESIGN ENGINEER

# BOX BEAM GUARD RAIL

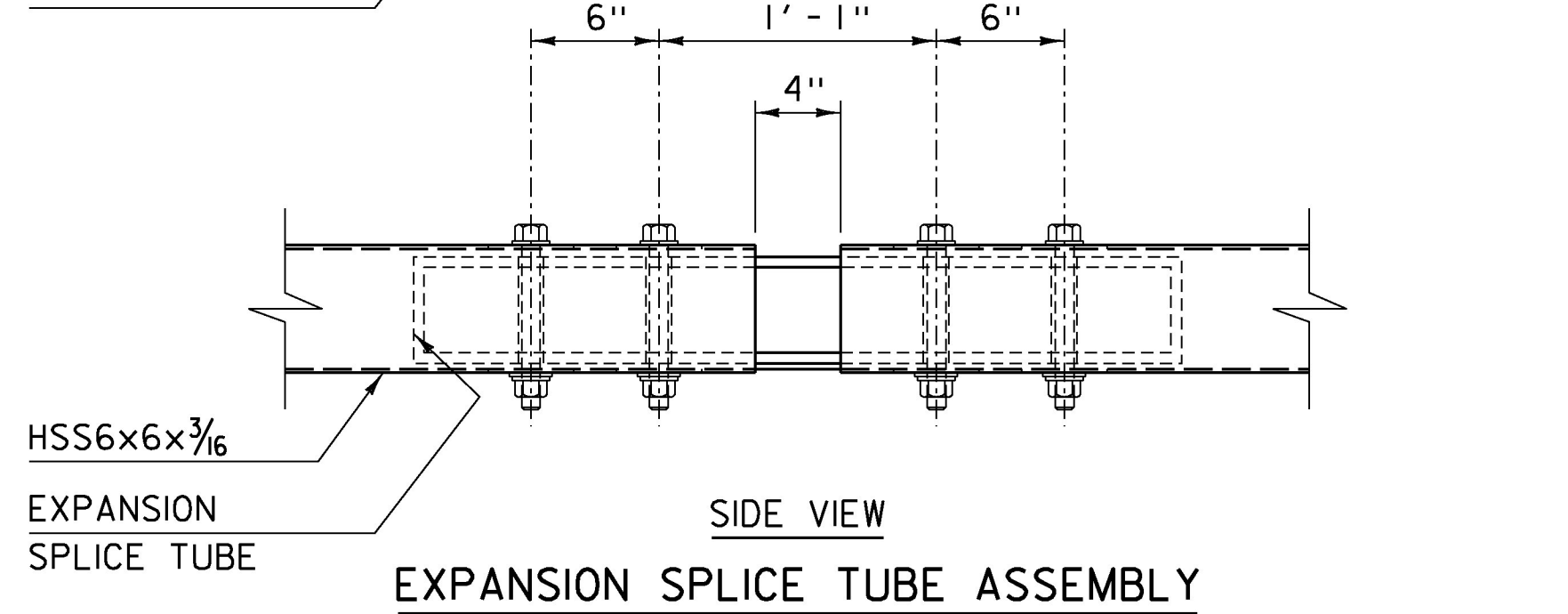
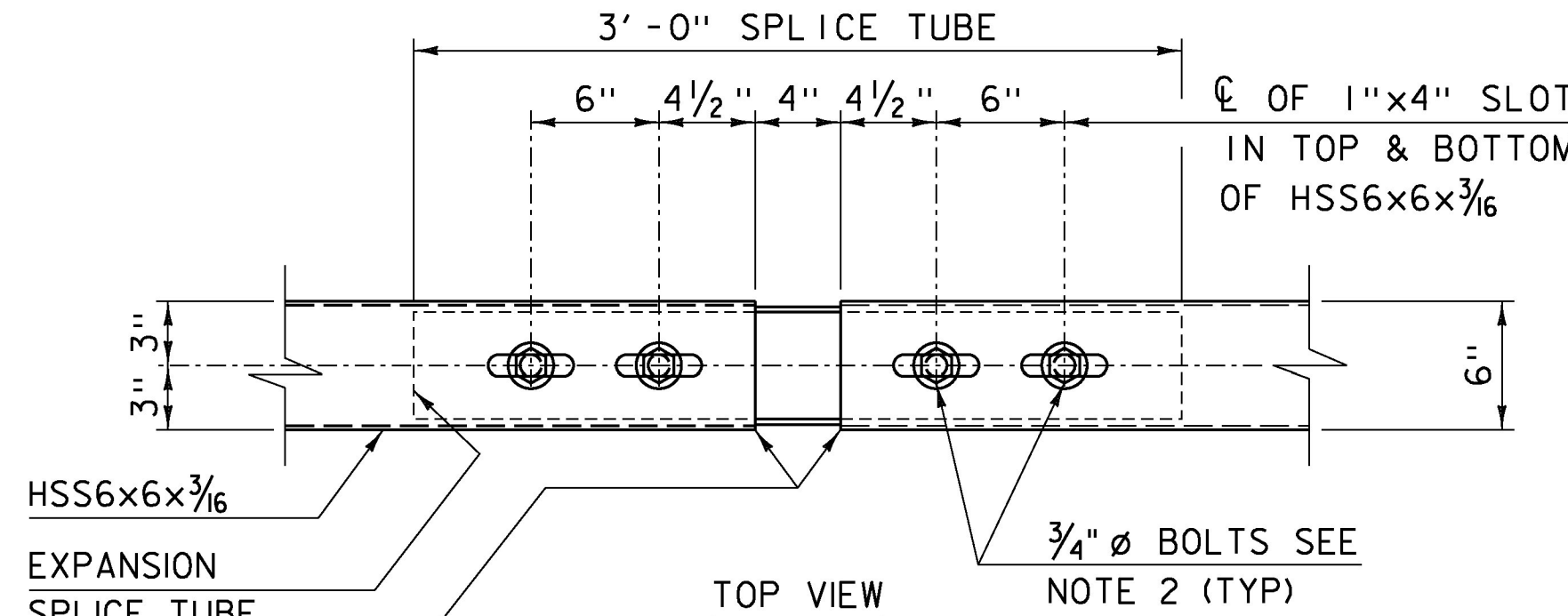


**Metric**  
STANDARD  
G-1bM

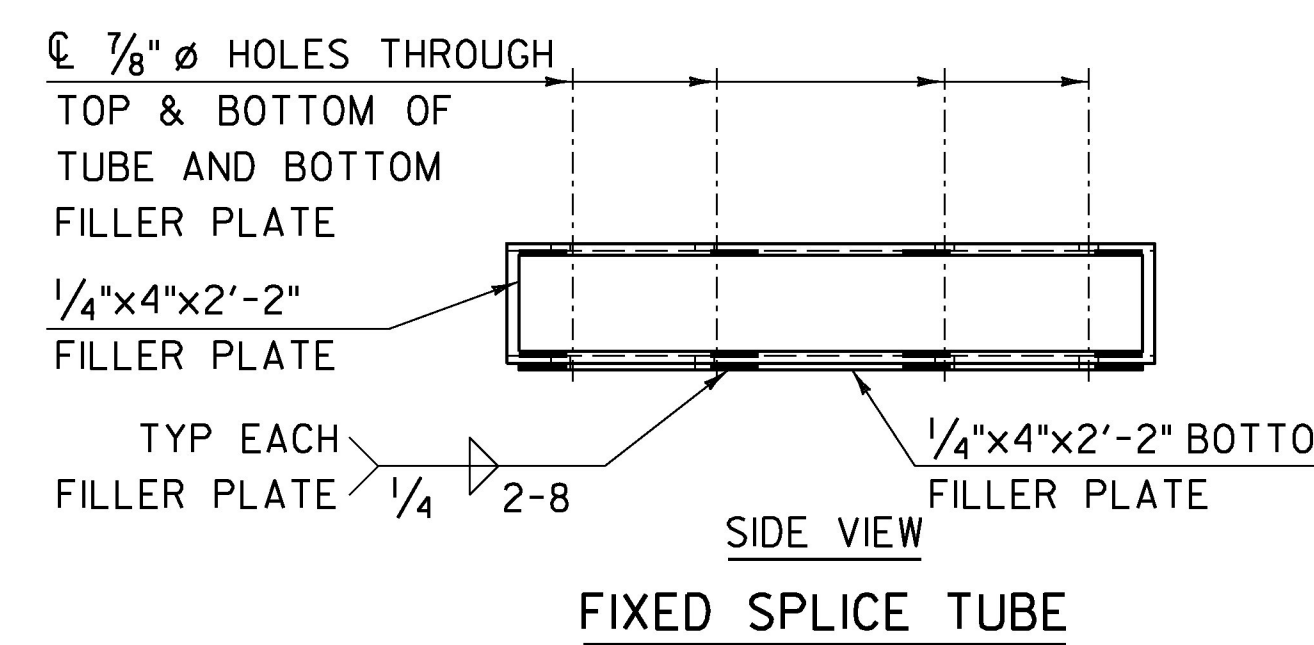
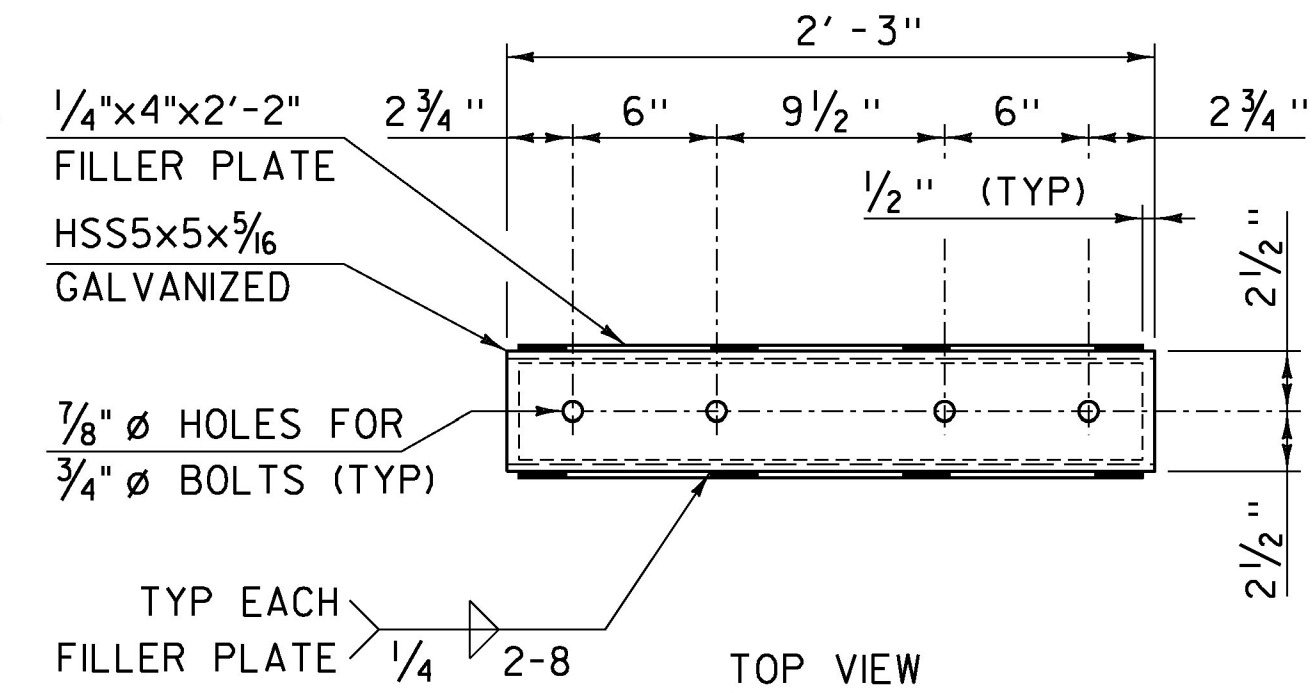
- GENERAL NOTES
- POST SPACING SHALL BE 1830 mm EXCEPT AS OTHERWISE NOTED ON PLANS. PAYMENT FOR BOX BEAM GUARDRAIL AND ANCHORAGE TERMINAL WILL BE MADE IN ACCORDANCE WITH SECTION 621 OF THE VDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
  - SEE BRIDGE PLANS FOR GUARDRAIL TO BRIDGE RAIL TRANSITION DETAILS, REDUCED POST SPACING CRITERIA AND PAY ITEMS FOR TRANSITIONS AND CONNECTIONS TO BRIDGE RAIL.
  - FOR MATERIAL REQUIREMENTS AND CONSTRUCTION DETAILS, SEE SECTION T28 OF THE VDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
  - THE LINE OF BOX BEAM GUARDRAIL, WHEN COMPLETED, SHALL PRESENT A SMOOTH AND PLEASING GRADE LINE IN BOTH HORIZONTAL AND VERTICAL PLANES.
  - RAIL ALIGNMENT SHALL BE STRAIGHT AT SPLICES. NO LATERAL BENDS PERMITTED WITHIN THE SPLICE. THIS DOES NOT PRECLUDE THE SHOP FABRICATION OF BENT SPLICES. CURVED BOX BEAM GUARDRAIL WITH A RADIUS OF 220 m OR LESS SHALL BE SHOP WORKED TO THE REQUIRED CURVATURE.
  - STEEL BACKUP BAR THAT IS USED TO CONTROL WELD PENETRATION AT JOINT MAY REMAIN IN PLACE.
  - THE 21960-mm TERMINAL ENDS SHOULD BE TERMINATED WITH A TYPE II END ASSEMBLY EXCEPT WHERE TERMINATED IN A BACK SLOPE. THE TYPICAL TREATMENT FOR BURIED ENDS SHOULD BE USED TO TERMINATE IN A BACK SLOPE AND MAY BE INCLUDED AS PART OF THE 21960-mm APPROACH AND TERMINAL ENDS. THE TYPE I APPROACH END OFFSET SHOULD BE AT LEAST EQUAL TO THE CLEAR ZONE (AS MEASURED FROM THE EDGE OF TRAVELED WAY). IN NO CASE, HOWEVER, WILL THE END OFFSET BE LESS THAN THAT SHOWN ON THE PLANS.
  - THE TYPE II END ASSEMBLY SHALL BE USED AT DRIVEWAYS, SIDEWALKS AND OTHER RESTRICTED AREAS WHERE THE 21960-mm APPROACH OR TERMINAL END CANNOT BE ACCOMMODATED. LOCATIONS OF THE TYPE II END ASSEMBLY SHALL BE GIVEN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE TYPE II END ASSEMBLY SHALL BE FLARED BACK AS SHOWN IN THE DETAILS. THE CONTRACTOR HAS THE OPTION OF USING EITHER METHOD #1 OR METHOD #2 TO ACHIEVE THE FLARE. WHEN METHOD #2 IS SELECTED, THERE WILL BE NO ADDITIONAL PAYMENT FOR THE RAIL CURVATURE. WHEN RESTRICTIVE CONDITIONS DO NOT PERMIT THE STANDARD SET BACK OF 840 mm, THE FLARE RATE SHALL BE FLATTENED TO ACCOMMODATE THE REDUCED SET BACK. TO REDUCE THE FLARE USING METHOD #1 FIRST FLATTEN THE FLARE RATE OF THE ENTIRE 5490-mm BOX BEAM ELEMENT, ONCE THE 8235-mm END ASSEMBLY AND THE ADJACENT 5490-mm BOX BEAM ELEMENT IS IN A STRAIGHT LINE FURTHER REDUCTION OF THE SET BACK IS ACHIEVED BY FLATTENING THE FLARE OF THE ENTIRE 5490-mm SECTION. TO REDUCE THE FLARE RATE AND SET BACK USING METHOD #2 REDUCE THE CURVE RATE IN THE CURVED 5490-mm RAIL ELEMENT. FLARE AND SET BACK FOR METHOD #1 IS ACCOMPLISHED BY UTILIZING PLAY IN THE SPLICE PLATES. IF SPLICE PLATES WILL NOT ACCOMMODATE THE DESIRED FLARE AND OFFSET, THE CORNERS AND/OR WIDTH OF THE PLATE SHALL BE REDUCED BY GRINDING AND THE GALVANIZING FIELD REPAIRED PER THE VDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
  - FOR DESCRIPTION AND SPECIFICATION OF PART IDENTIFIED "ARTBA..." SEE LATEST REPORT PREPARED AND APPROVED BY THE AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
  - ALL POSTS IN A GIVEN RUN TO BE OF THE SAME TYPE.
- NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.



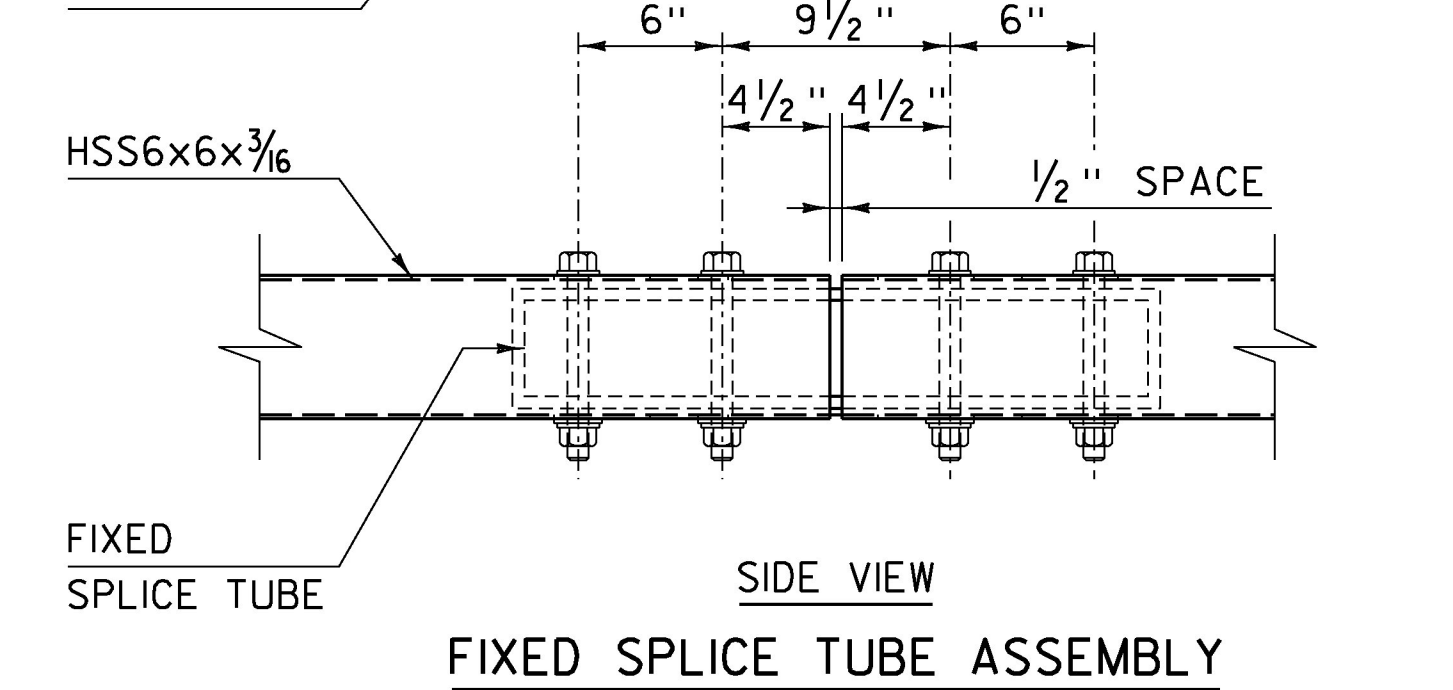
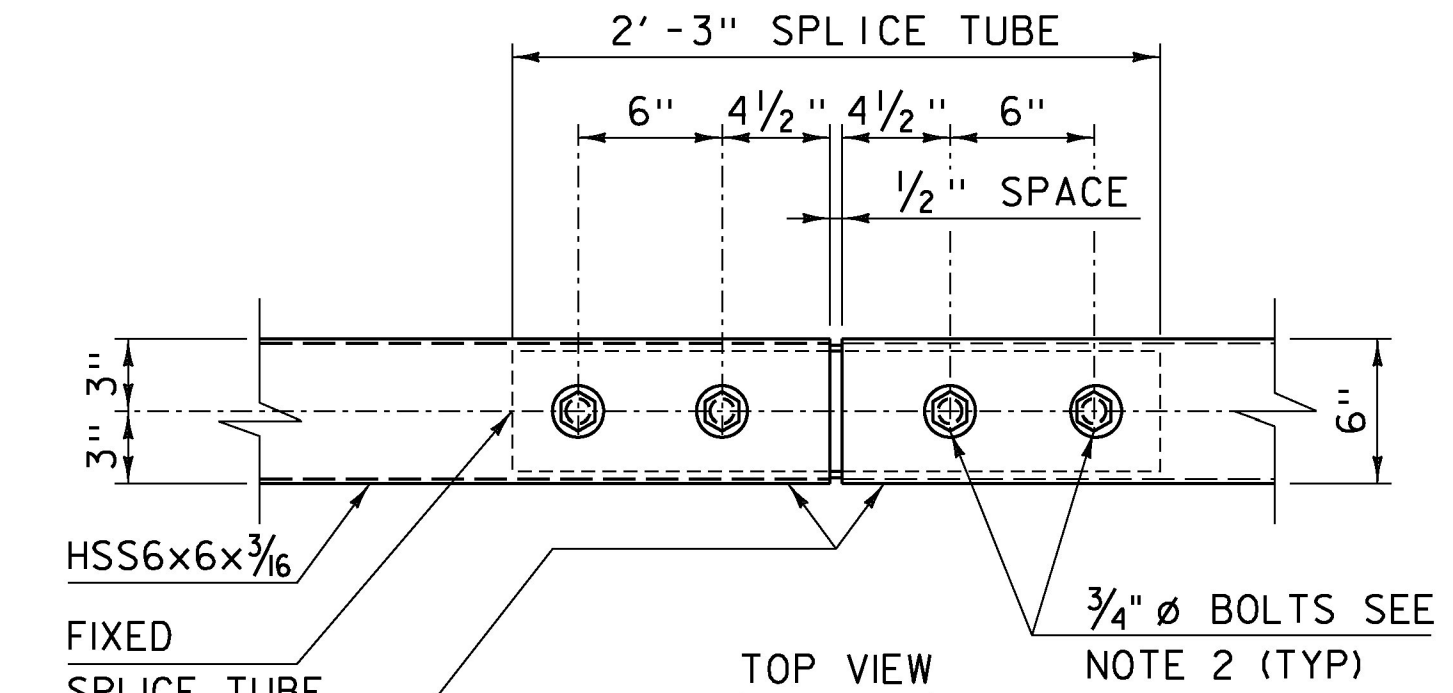
EXPANSION SPLICE TUBE



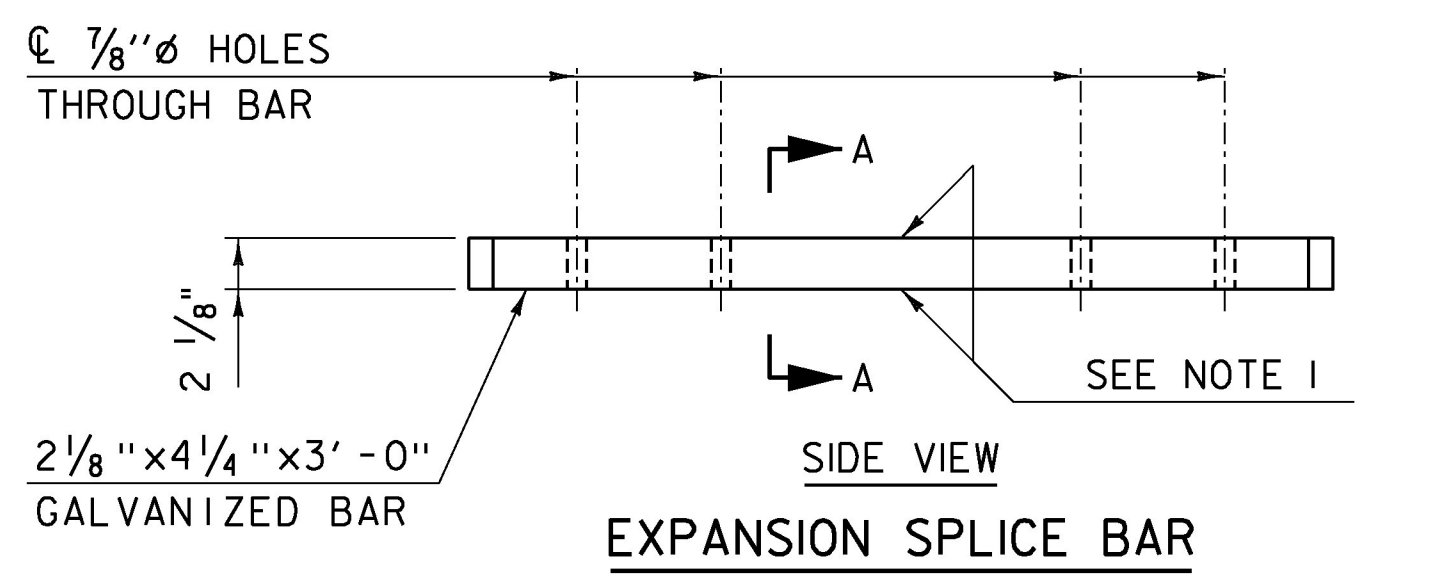
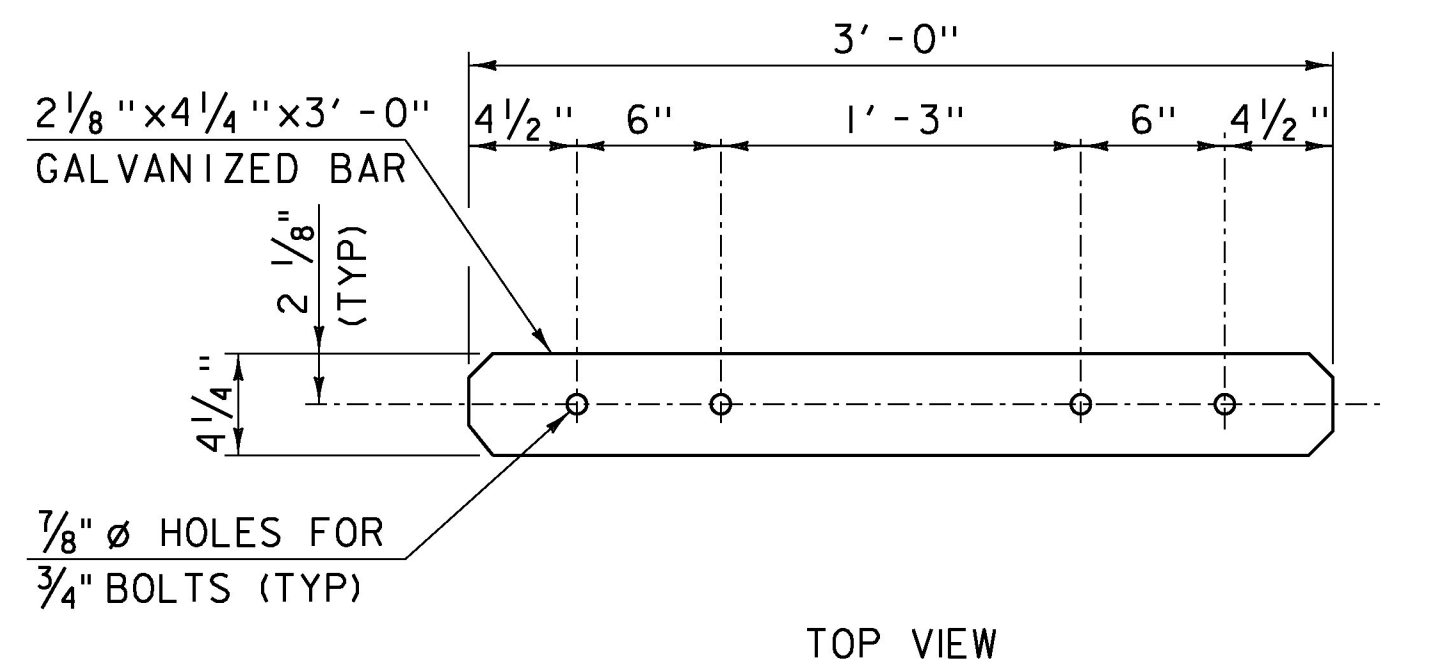
EXPANSION SPLICE TUBE ASSEMBLY



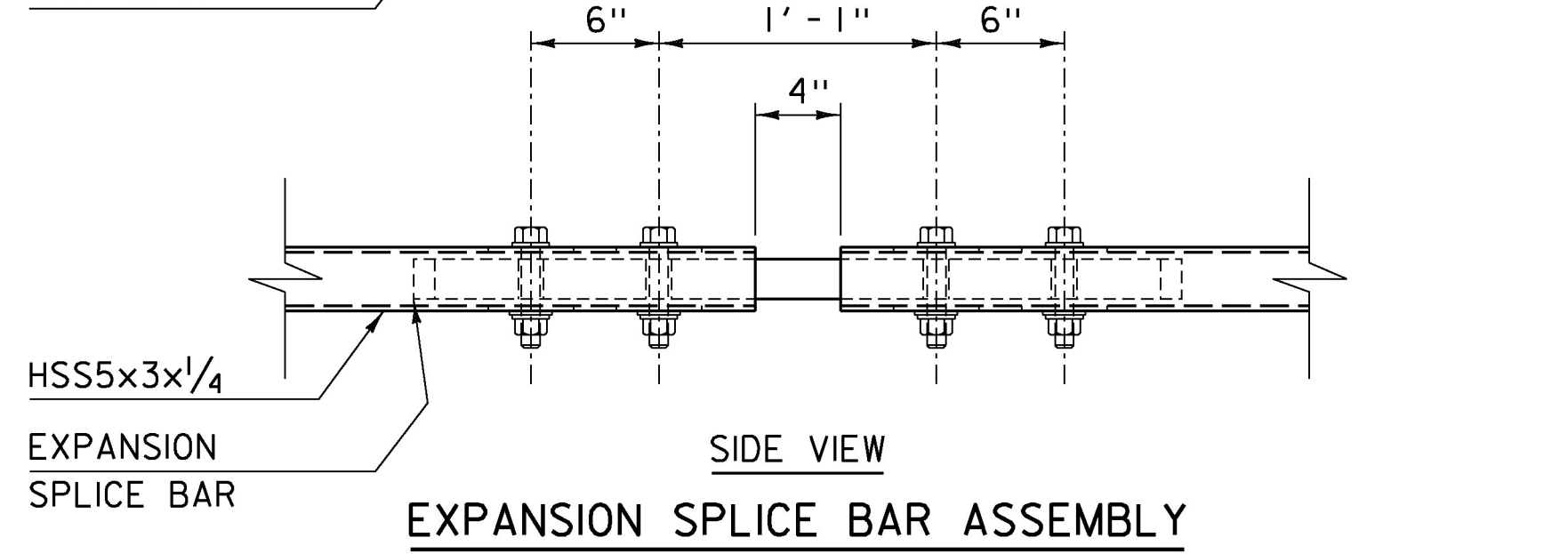
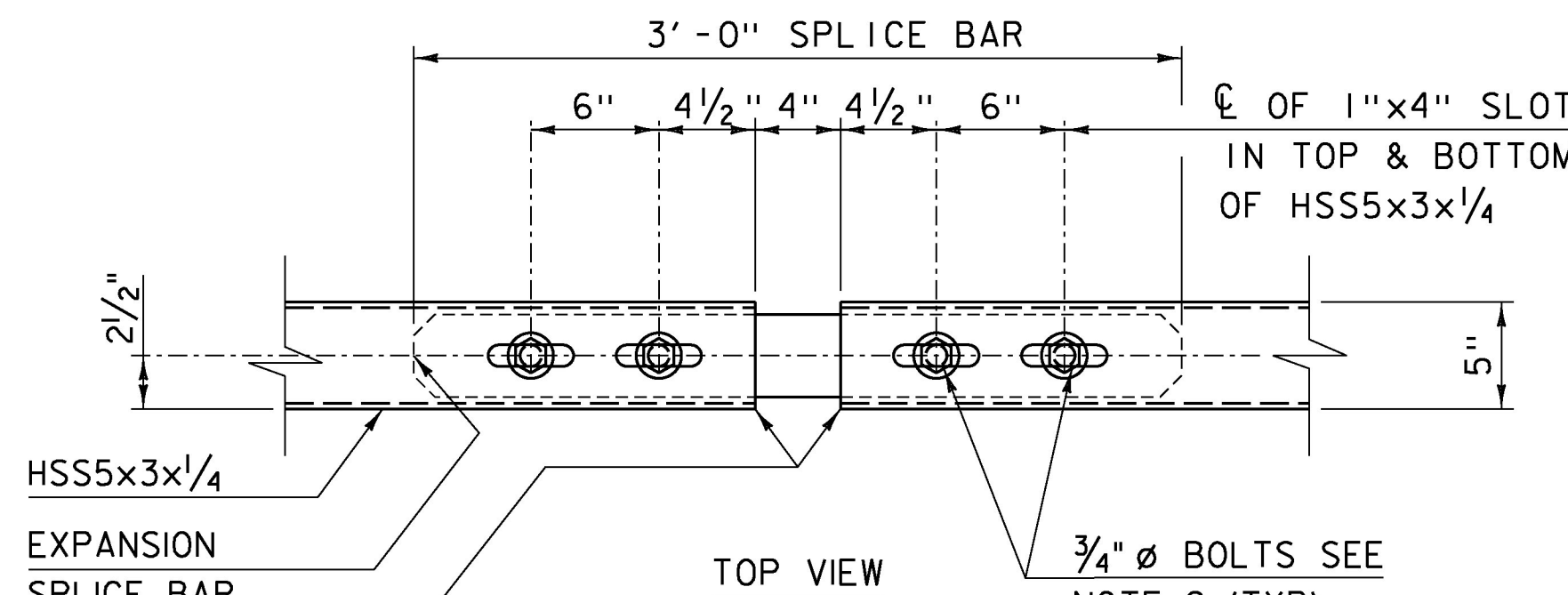
FIXED SPLICE TUBE



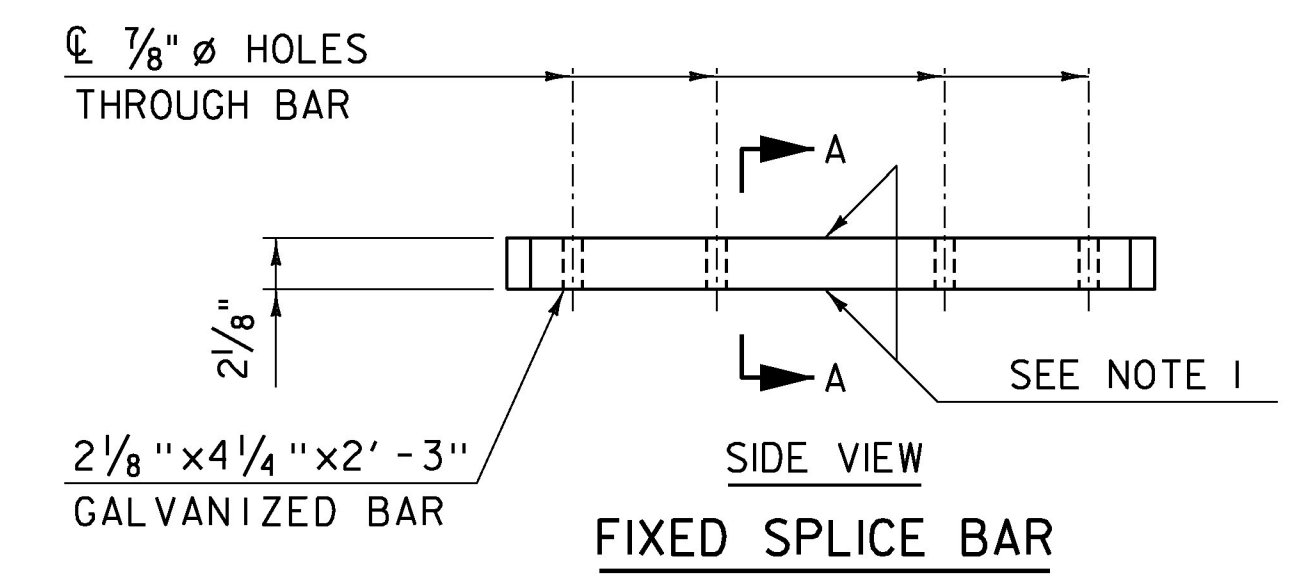
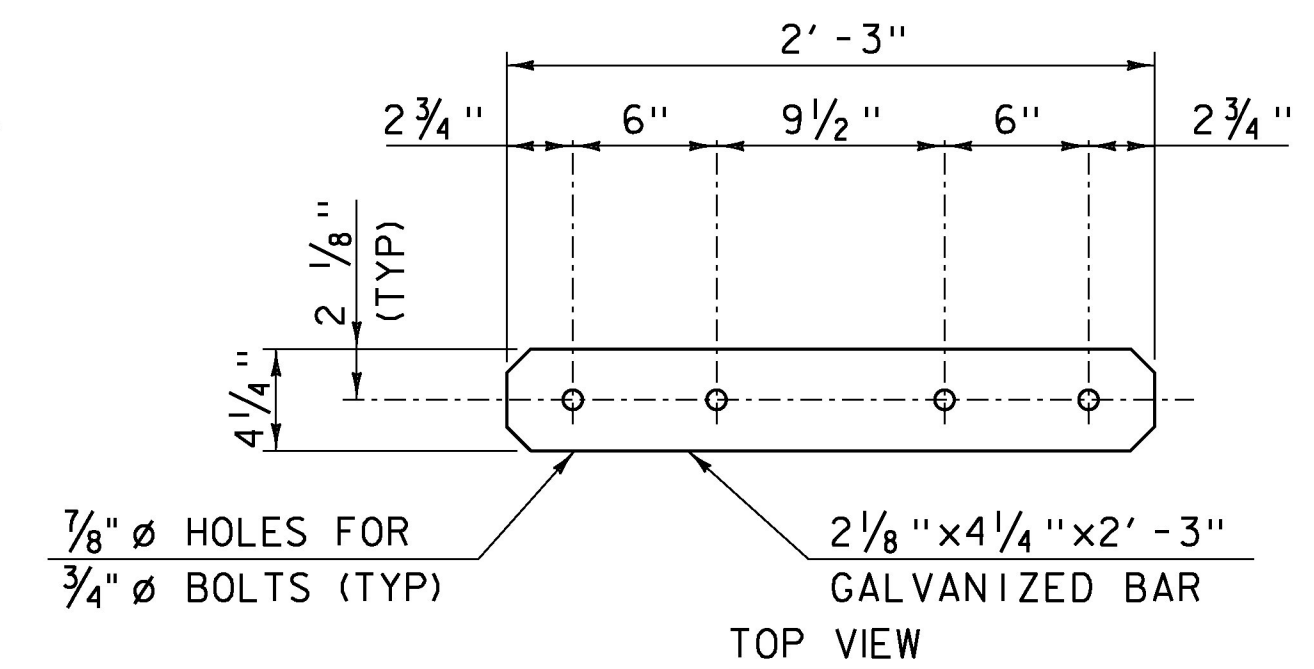
FIXED SPLICE TUBE ASSEMBLY



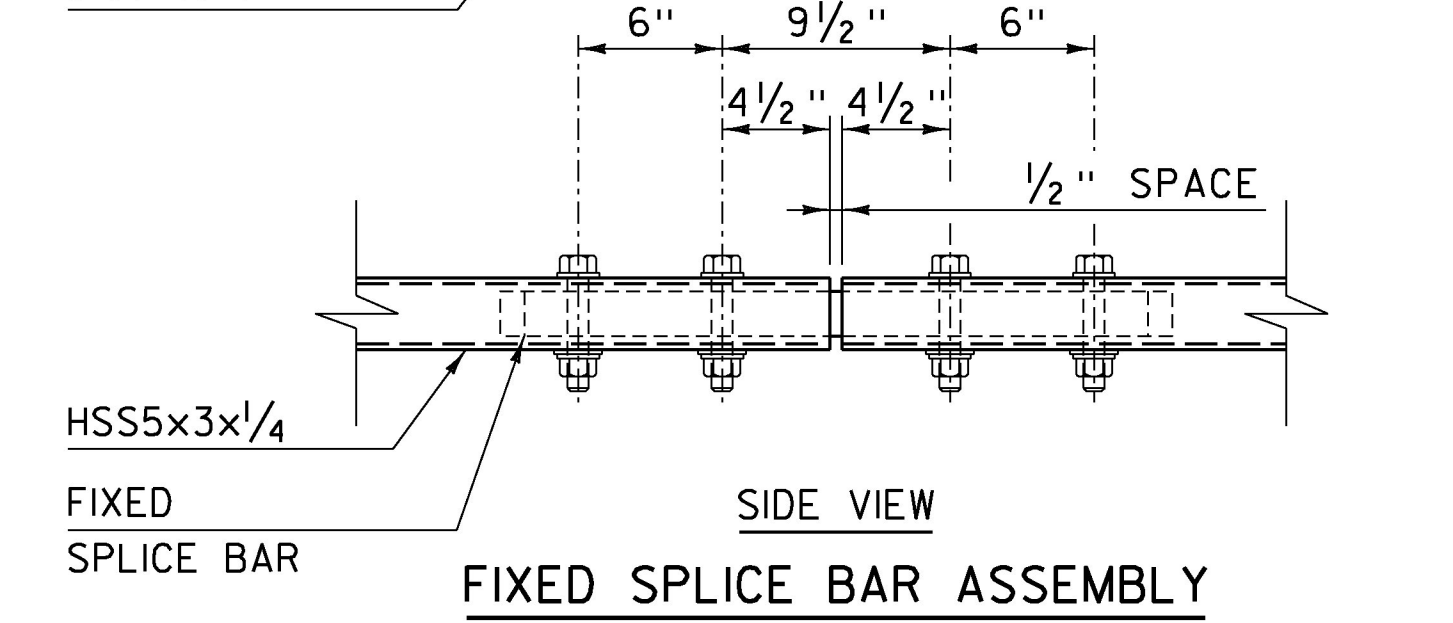
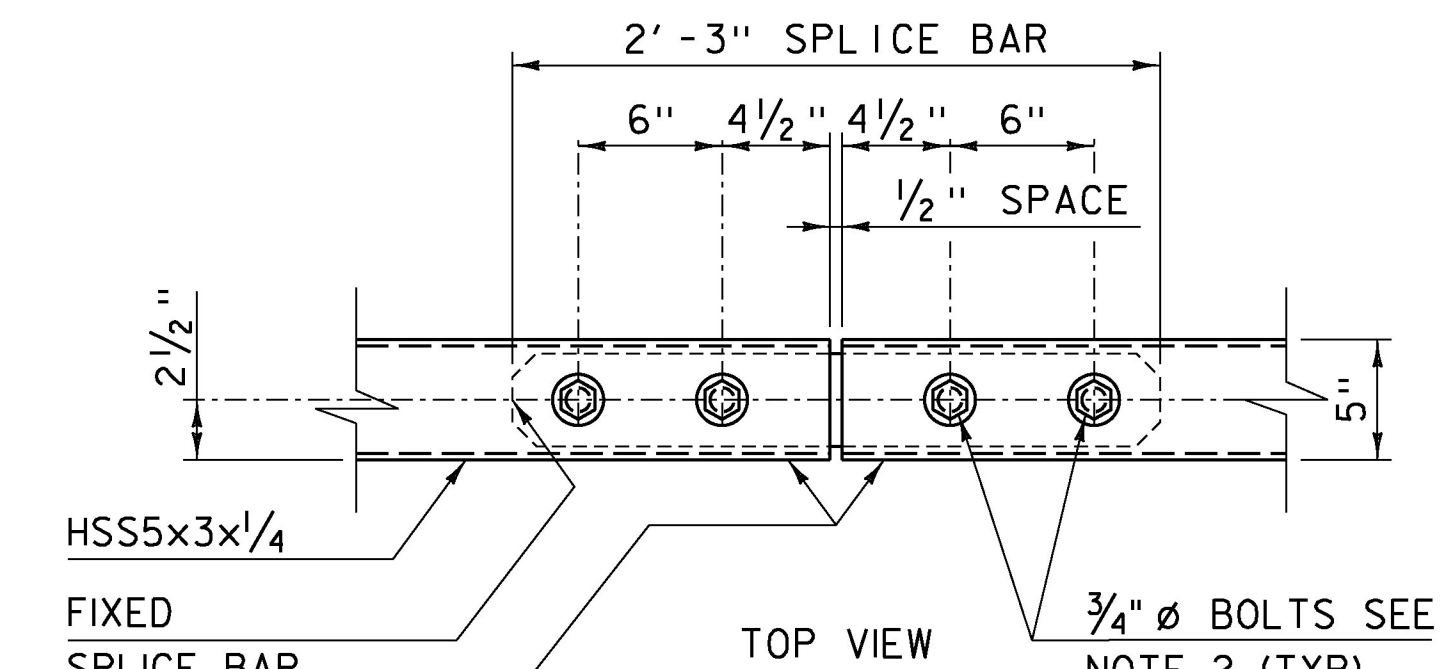
EXPANSION SPLICE BAR



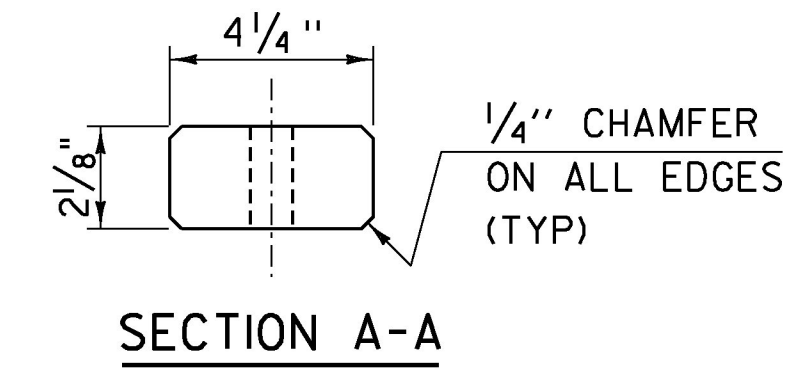
EXPANSION SPLICE BAR ASSEMBLY



FIXED SPLICE BAR



FIXED SPLICE BAR ASSEMBLY



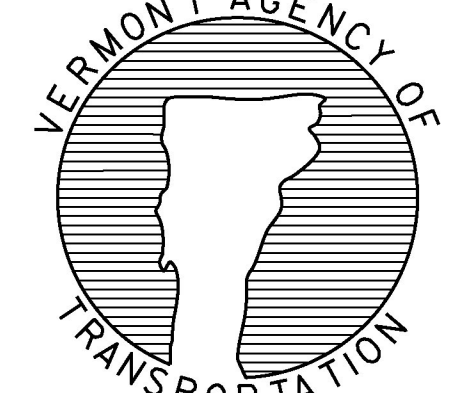
- NOTES:
- PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
  - FOUR (4) 3/4" DIAMETER FULLY THREADED BOLTS, 7 1/2" LONG WITH TWO (2) WASHERS AND A HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST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

OTHER STDS. REQUIRED:

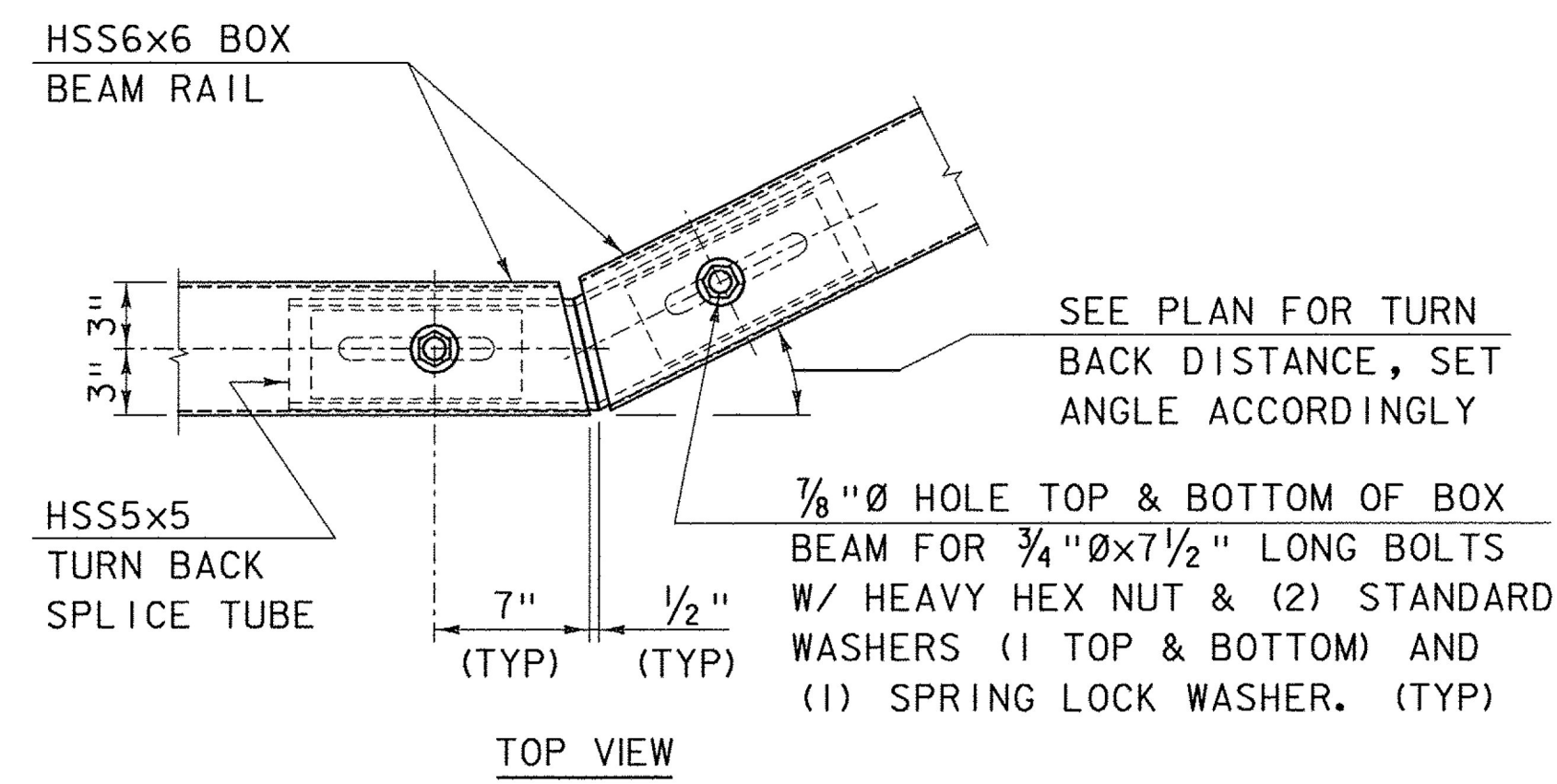
REVISIONS AND CORRECTIONS  
 AUGUST 9, 2010 - ORIGINAL APPROVAL  
 APRIL 23, 2012 - GENERAL UPDATE 2012  
 FEBRUARY 10, 2014 - CORRECTED SPLICE BAR DETAILS

APPROVED  
*W.P.S.*  
 STRUCTURES PROGRAM MANAGER  
*Richard F. Hunt*  
 DIRECTOR OF PROGRAM DEVELOPMENT  
*Mark B. Richter*  
 FEDERAL HIGHWAY ADMINISTRATION

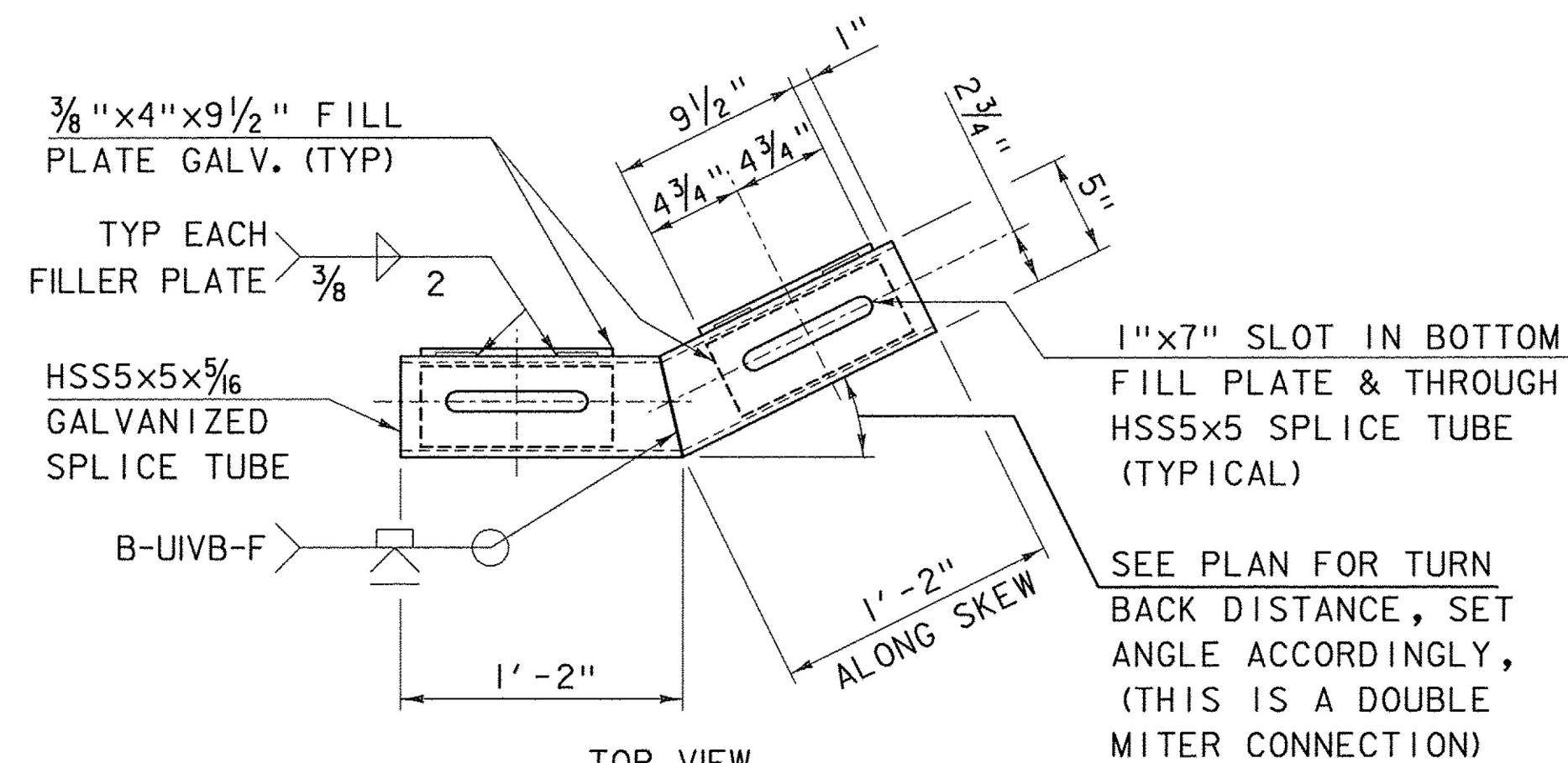
# GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM



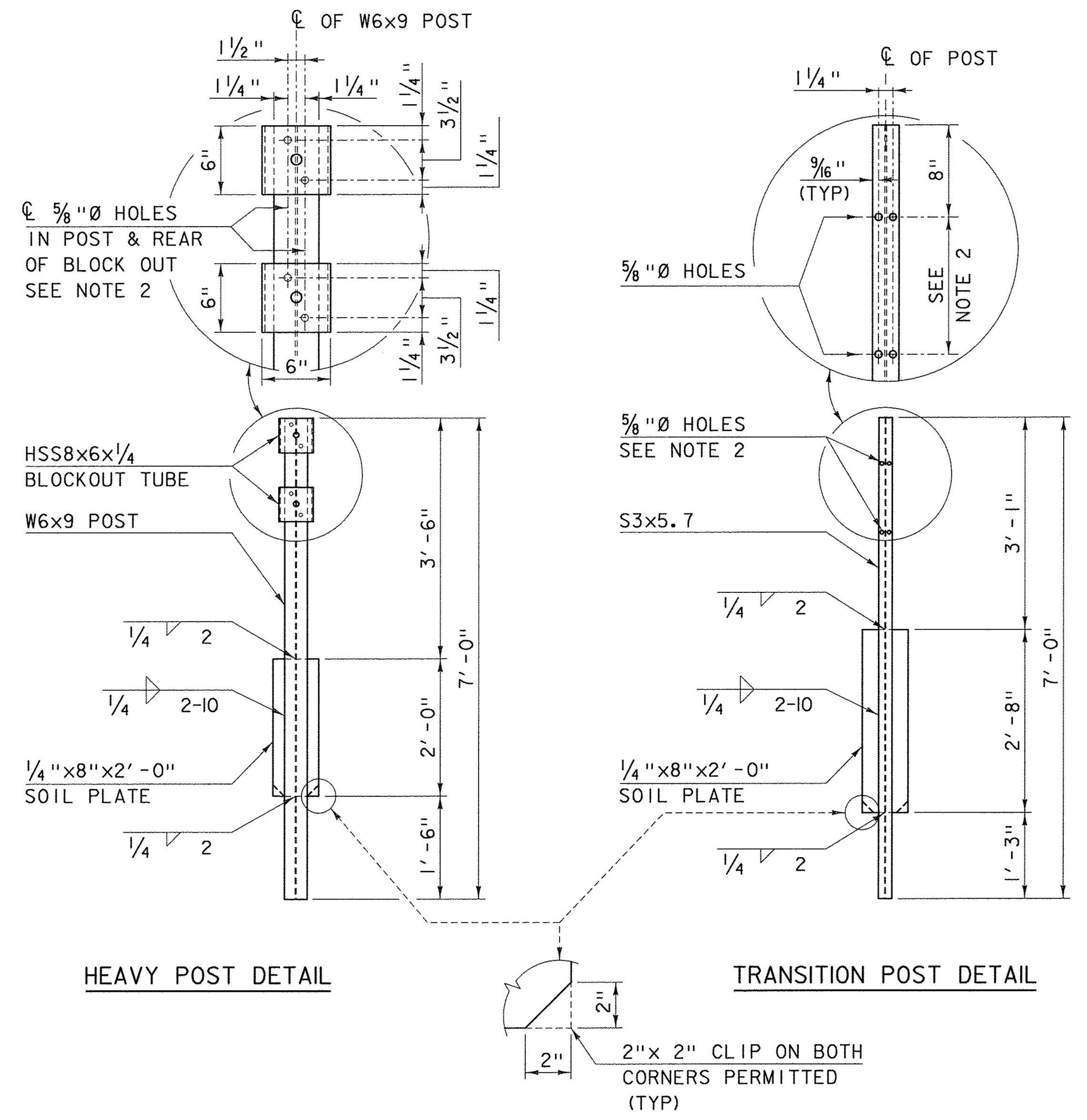
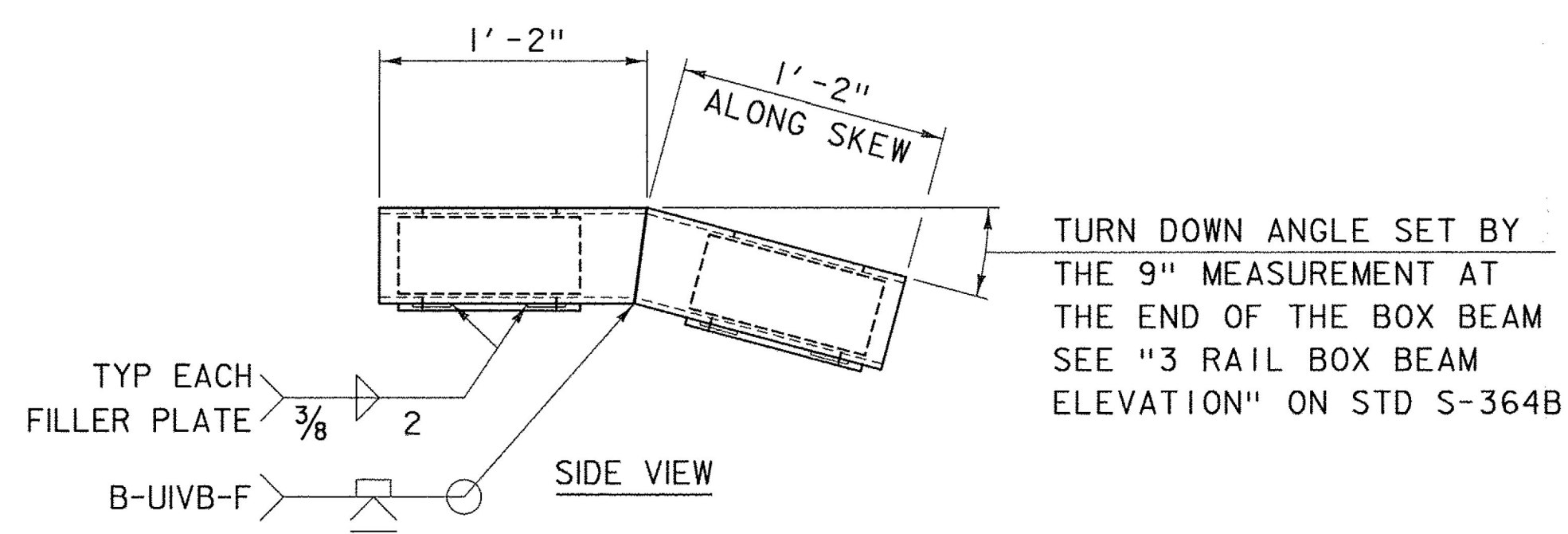
# STANDARD S-364C



TURN BACK SPLICE TUBE ASSEMBLY



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



HEAVY POST DETAIL

TRANSITION POST DETAIL

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

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

APPROVED

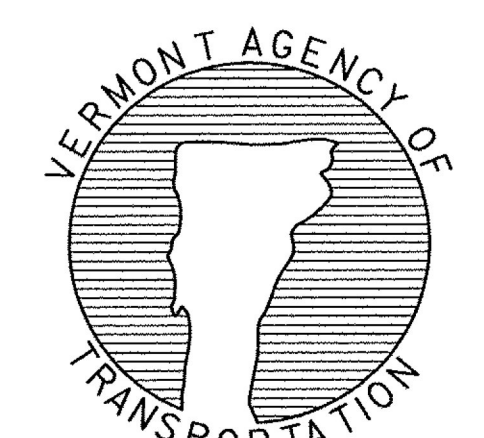
*Wm. Michael Hedger*  
STRUCTURES PROGRAM MANAGER

*Richard Fetsch*  
DIRECTOR OF PROGRAM DEVELOPMENT

*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

GUARDRAIL APPROACH  
SECTION, GALVANIZED  
3 RAIL BOX BEAM

OTHER STDS.  
REQUIRED:



STANDARD  
S - 364D

1. TRAFFIC CONTROL DEVICES NOT DETAILED IN THE VERMONT AGENCY OF TRANSPORTATION (VAOT) "STANDARD DRAWINGS" OR THE PROJECT PLANS SHALL BE IN ACCORDANCE WITH THE CURRENT "MANUAL ON TRAFFIC CONTROL DEVICES" (MUTCD) AND THE "STANDARD HIGHWAY SIGNS AND MARKINGS" BOOK, AND THEIR LATEST REVISIONS, (SHSM) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
2. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER.
3. DIAMOND SHAPED CONSTRUCTION SIGNS SHALL BE 48 INCH BY 48 INCH.
4. CONSTRUCTION SIGN COVERS SHALL CONSIST OF A PANEL, PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.
5. SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.
6. NO CROSS-BRACING OR BACK-BRACING TO KEEP POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED.
7. CONSTRUCTION SIGNS INSTALLED ON POSTS SHALL BE SET SECURELY IN THE GROUND ON TWO POSTS. THE BOTTOM OF A SIGN SHALL BE AT LEAST FIVE FEET ABOVE THE EDGE OF PAVEMENT AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT, FOUR FEET OUTSIDE GUARDRAIL, OR TWO FEET OUTSIDE CURBING OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE SIDEWALK OR EDGE OF PAVEMENT, WHICHEVER IS HIGHER.
8. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AND A MINIMUM OF ONE FOOT ABOVE THE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
9. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
10. ROLL UP CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VI AND TYPE VII UNLESS OTHERWISE NOTED.
11. SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING THE "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE VIII OR IX REQUIREMENTS UNLESS OTHERWISE NOTED.
12. WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL MEET "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 OR THE AASHTO "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH). THE APPROPRIATE RESOURCE SHALL BE DETERMINED AS DESCRIBED IN THE MASH PUBLICATION. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POSTS. WHEN ANCHORS ARE INSTALLED, STUBS SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
13. ROADWAY AND SHOULDER WIDTHS DEPICTED ON THE STANDARD DRAWINGS MAY VARY.
14. THESE STANDARD DRAWINGS ARE INTENDED TO SERVE AS VTRANS STANDARD OPERATING PROCEDURE. IT IS NOTED THAT COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL WORK ZONE MAY BE MODIFIED DUE TO FIELD CONDITIONS AT THE DISCRETION OF THE ENGINEER.






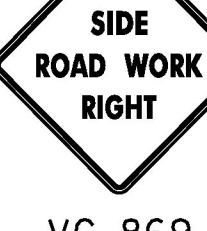
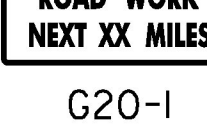
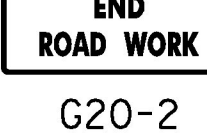
REV.	DATE	DESCRIPTION
0	AUG. 6, 2012	ORIGINAL APPROVAL
1	APR. 25, 2016	INSERTED NOTE 3, UPDATED STANDARD NAME
OTHER STANDARDS REQUIRED: NONE		
VTRANS AND FHWA APPROVAL ON FILE WITH CONTRACT ADMINISTRATION		

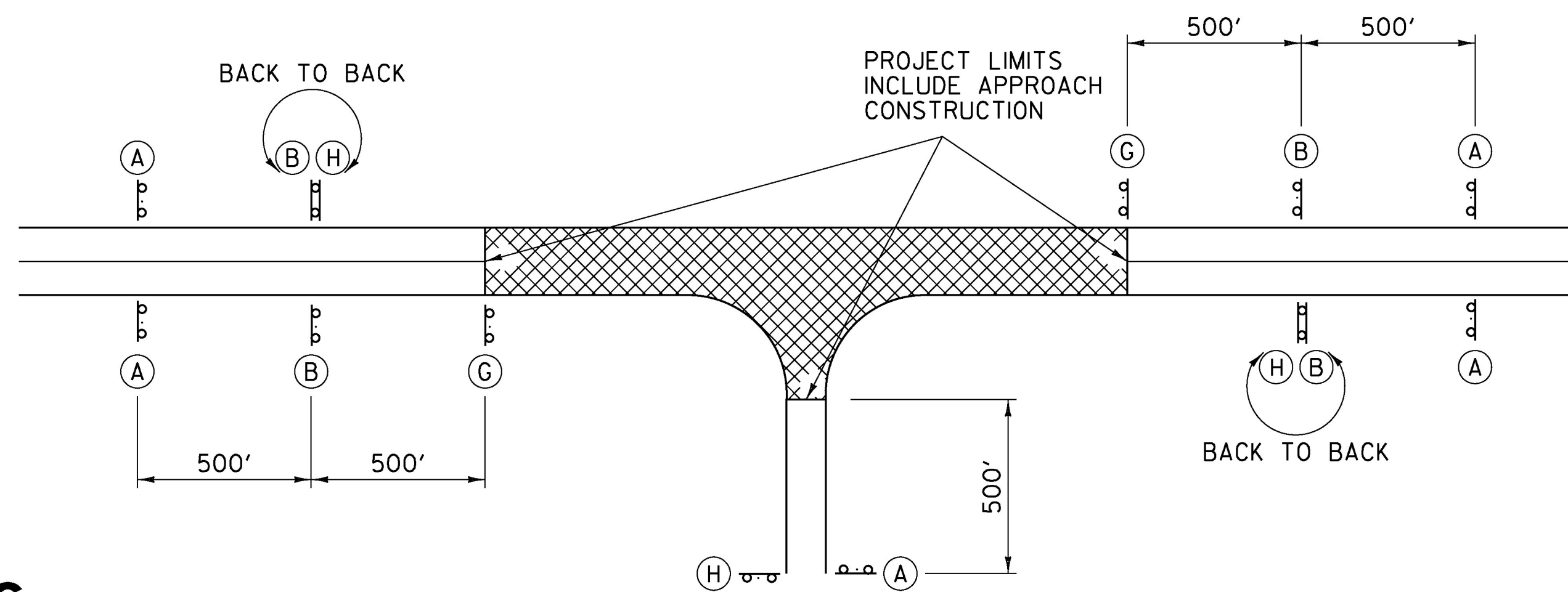
## TEMPORARY TRAFFIC CONTROL GENERAL NOTES



STANDARD  
T-1

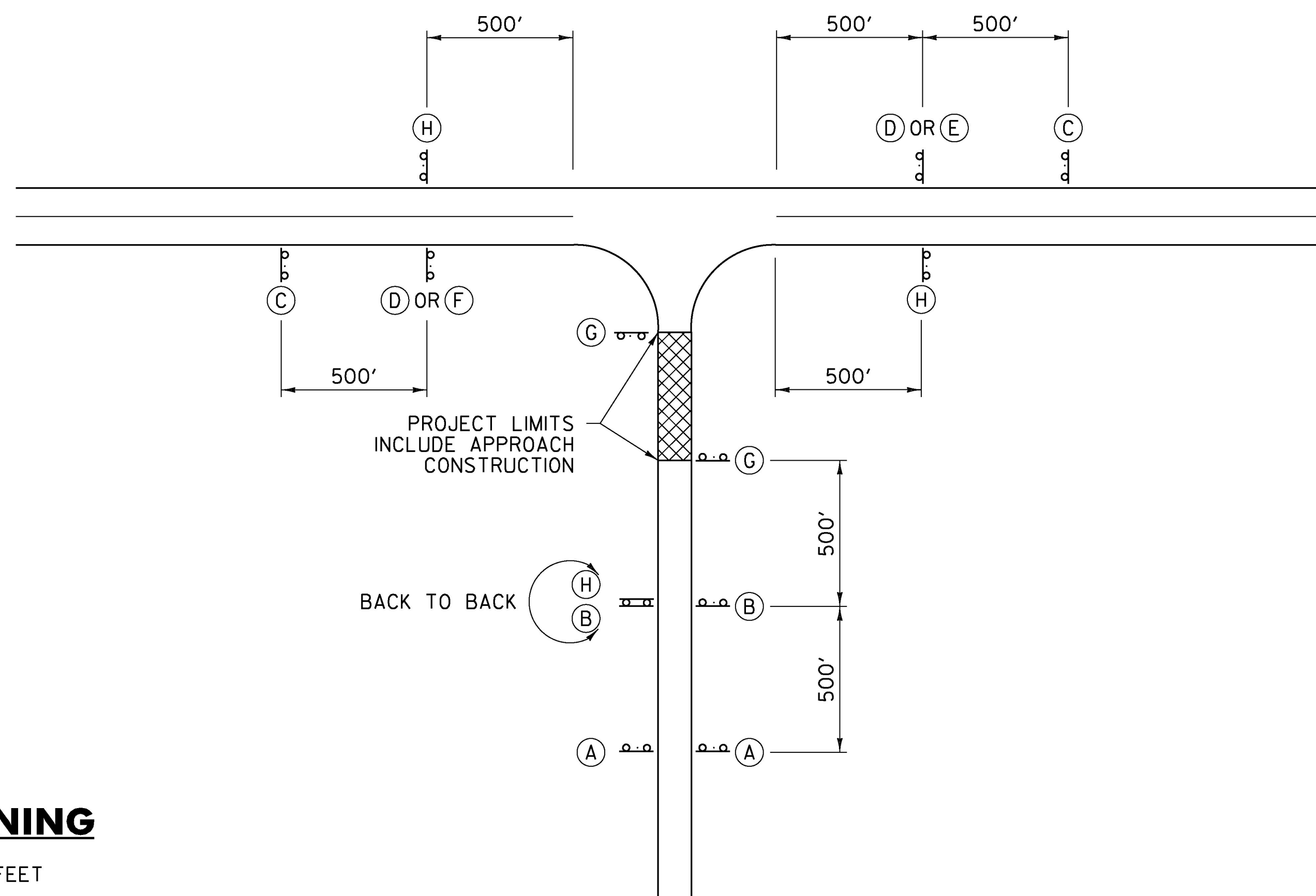
**LEGEND**

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



**TYPICAL APPROACH SIGNING**

FIELD CONDITIONS MAY DICTATE THE ACTUAL PLACEMENT.



**SIDE ROAD APPROACH SIGNING**

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

**GENERAL NOTES:**

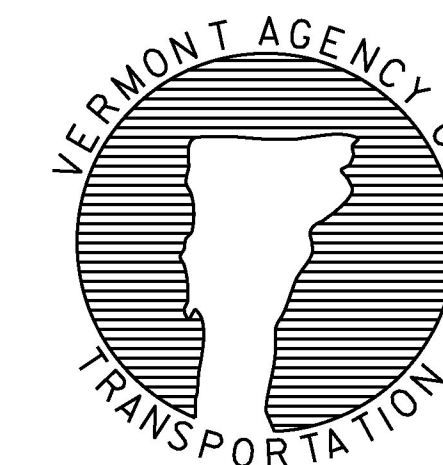
1. SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT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

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

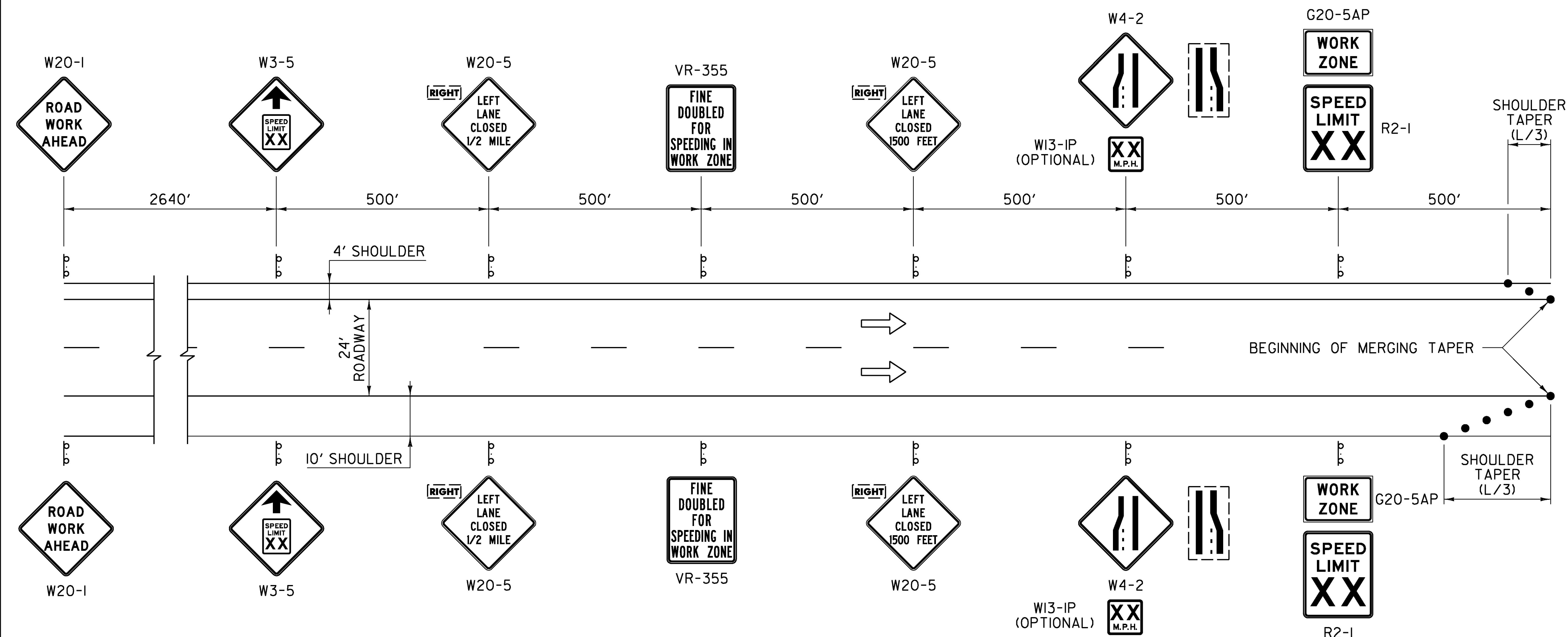
REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED  
*[Signature]*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*[Signature]*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*[Signature]*  
Mark D. Richter  
FEDERAL HIGHWAY ADMINISTRATION

**CONVENTIONAL ROADS  
CONSTRUCTION APPROACH  
SIGNING**



**STANDARD  
T-10**



**GENERAL NOTES:**

1. IF APPLICABLE, THE CONTRACTOR SHALL HAVE SIGNS FOR CLOSURE OF RIGHT AND LEFT LANES ON PROJECT BEFORE WORK COMMENCES.
2. THE "SPEED LIMIT XX" (R2-1) AND "SPEED REDUCTION WARNING" (W3-5) SIGNS SHALL ONLY BE USED IF A TEMPORARY SPEED LIMIT CERTIFICATE HAS BEEN APPROVED. THE "SPEED LIMIT XX" (R2-1) AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
3. "FINE DOUBLED FOR SPEEDING IN WORK ZONE" (VR-355) SHALL ONLY BE USED IF TEMPORARY SPEED LIMIT CERTIFICATE HAS BEEN APPROVED.
4. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN TEMPORARY SPEED LIMIT SIGNS ARE POSTED.
5. FOR SHORT TERM PROJECTS (THREE CONSECUTIVE DAYS OR LESS) WITH NO OFFICIAL TEMPORARY SPEED LIMIT, THE "SPEED LIMIT XX" (R2-1) AND "SPEED REDUCTION WARNING" (W3-5) SIGNS MAY BE SUBSTITUTED WITH ADVISORY SPEED PLAQUES (W13-IP) MOUNTED AS SUPPLEMENTAL SIGNS BELOW THE "LANE ENDS" (W4-2) SIGNS.
6. FOR AN ANTICIPATED LONG TERM CLOSURE (GREATER THAN THREE CONSECUTIVE DAYS) WITH A NON-MOVING OPERATION, ALL SIGNS SHALL BE POST MOUNTED.
7. FOR A LONG TERM CLOSURE WITH A MOVING OPERATION, THE "ROAD WORK AHEAD" (W20-1) SIGN SHALL BE POST MOUNTED. THE REMAINING SIGNS MAY BE PORTABLE AND SHALL MOVE AS THE WORK AREA CHANGES.
8. FOR A SHORT TERM PROJECT (THREE CONSECUTIVE DAYS OR LESS), SIGNS MAY BE POST MOUNTED OR PORTABLE.
9. THE "SPEED LIMIT XX" (R2-1) SOLID SUBSTRATE SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING AASHTO M 268 [ASTM D 4956] TYPE III.

**OTHER STDS. REQUIRED: T-1, T-12, T-31**

**LEGEND**

- FLOW OF TRAFFIC
- RETROREFLECTIVE PLASTIC DRUM

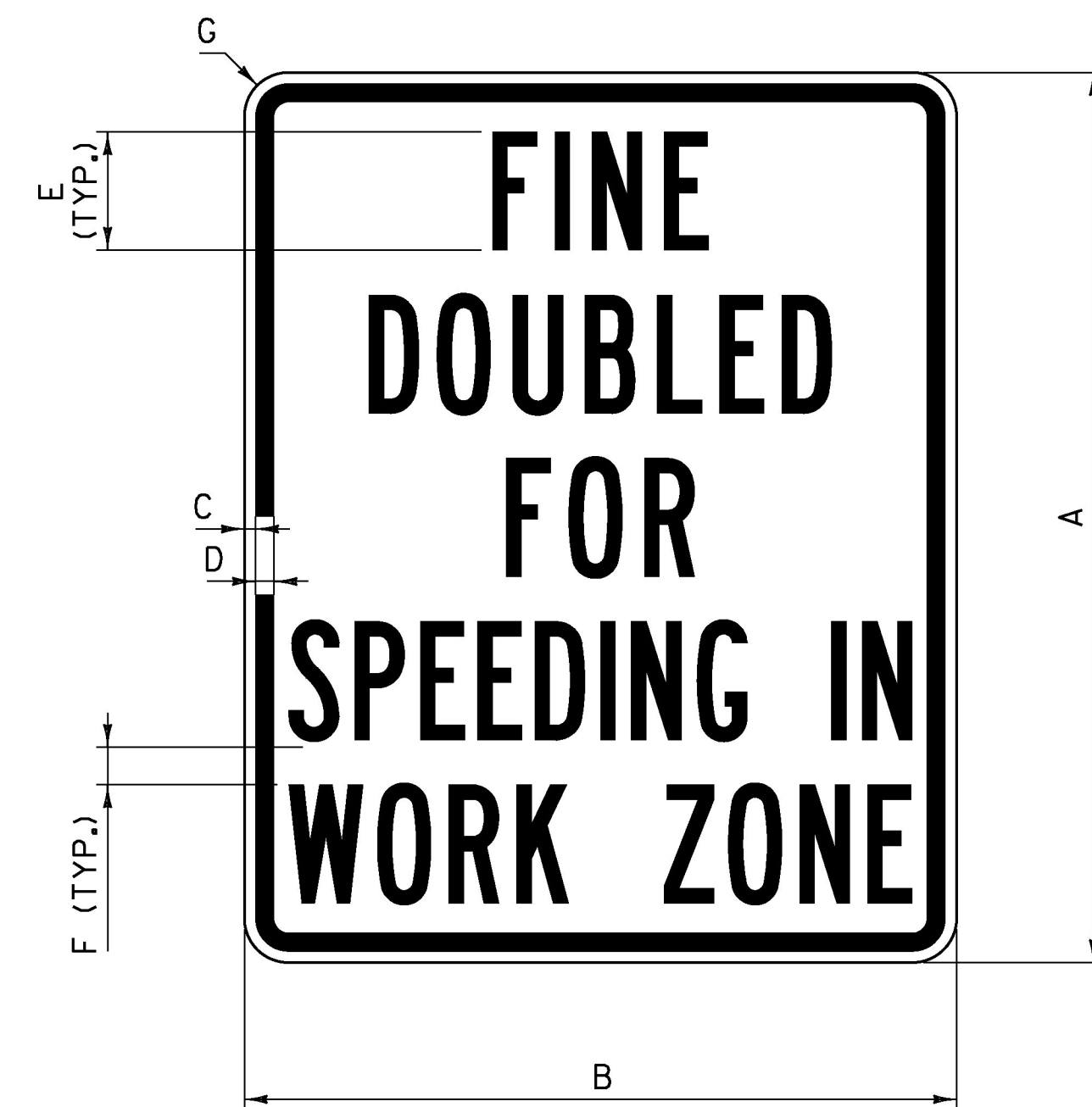
REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED  
*W.A.C.M.*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*Richard F. Hunt*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

**CONSTRUCTION APPROACH  
SIGNING DIVIDED HIGHWAY  
ONE LANE CLOSED**



**STANDARD  
T-11**

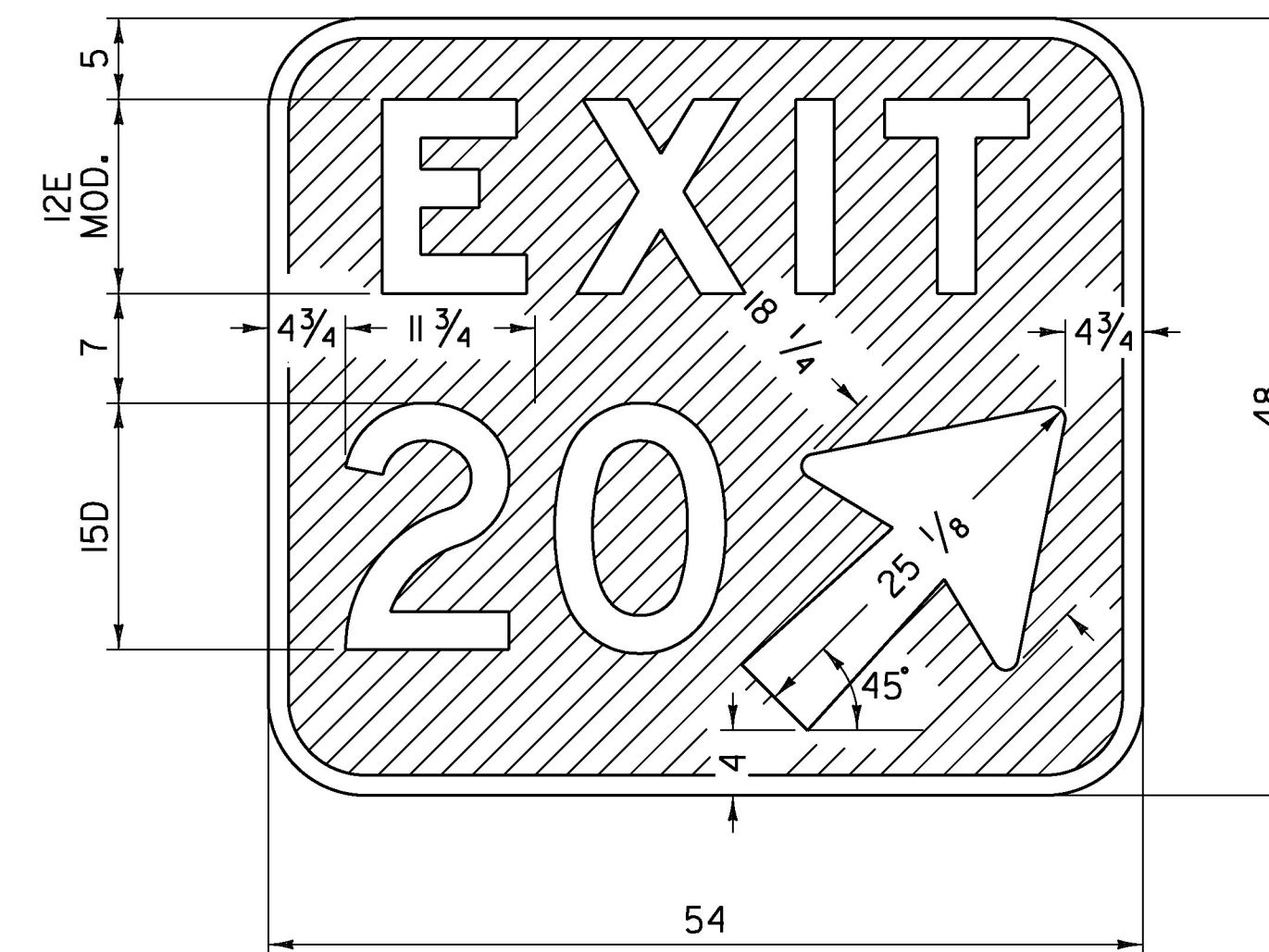


**VR-355**

SIGN	DIMENSIONS						
	A	B	C	D	E	F	G
STANDARD	36	30	1/2	3/4	4C	2 1/4	1 7/8
EXPRESSWAY/ FREEWAY	60	48	3/4	1 1/4	8B	3	3

**NOTES:**

- "SPEEDING IN" AND "WORK ZONE" SHALL EACH HAVE A SPECIFIED WIDTH OF 26 INCHES FOR STANDARD AND 42 INCHES FOR EXPRESSWAY/FREEWAY.
- THE SIGN SHALL HAVE BLACK LEGEND AND BORDER ON A WHITE BACKGROUND WITH RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE III.
- LEGEND SHALL BE CENTERED HORIZONTALLY AND VERTICALLY.



**VC5-1A**

**NOTES:**

- THE SIGN SHALL BE WHITE RETROREFLECTIVE LEGEND ON A GREEN RETROREFLECTIVE BACKGROUND, BOTH SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ["AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956] TYPE III.
- CORNERS SHALL BE ROUNDED TO A SIX INCH RADIUS.
- THE SIGN SHALL HAVE A 1 1/4 INCH WIDE BORDER ALONG THE EDGE OF THE SIGN.
- EXIT NUMBER SHALL BE AS PER PLANS, OPTICALLY SPACED.
- "EXIT" SHALL BE CENTERED HORIZONTALLY.

**GENERAL NOTES:**

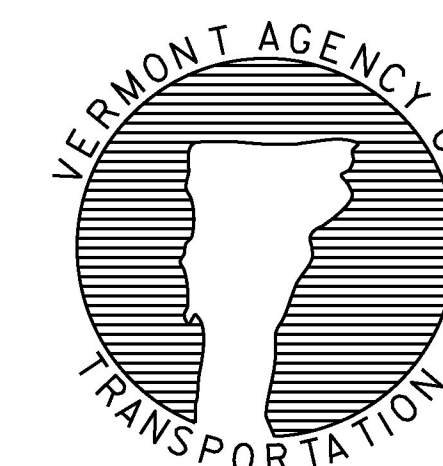
1. ALL DIMENSIONS IN INCHES.

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

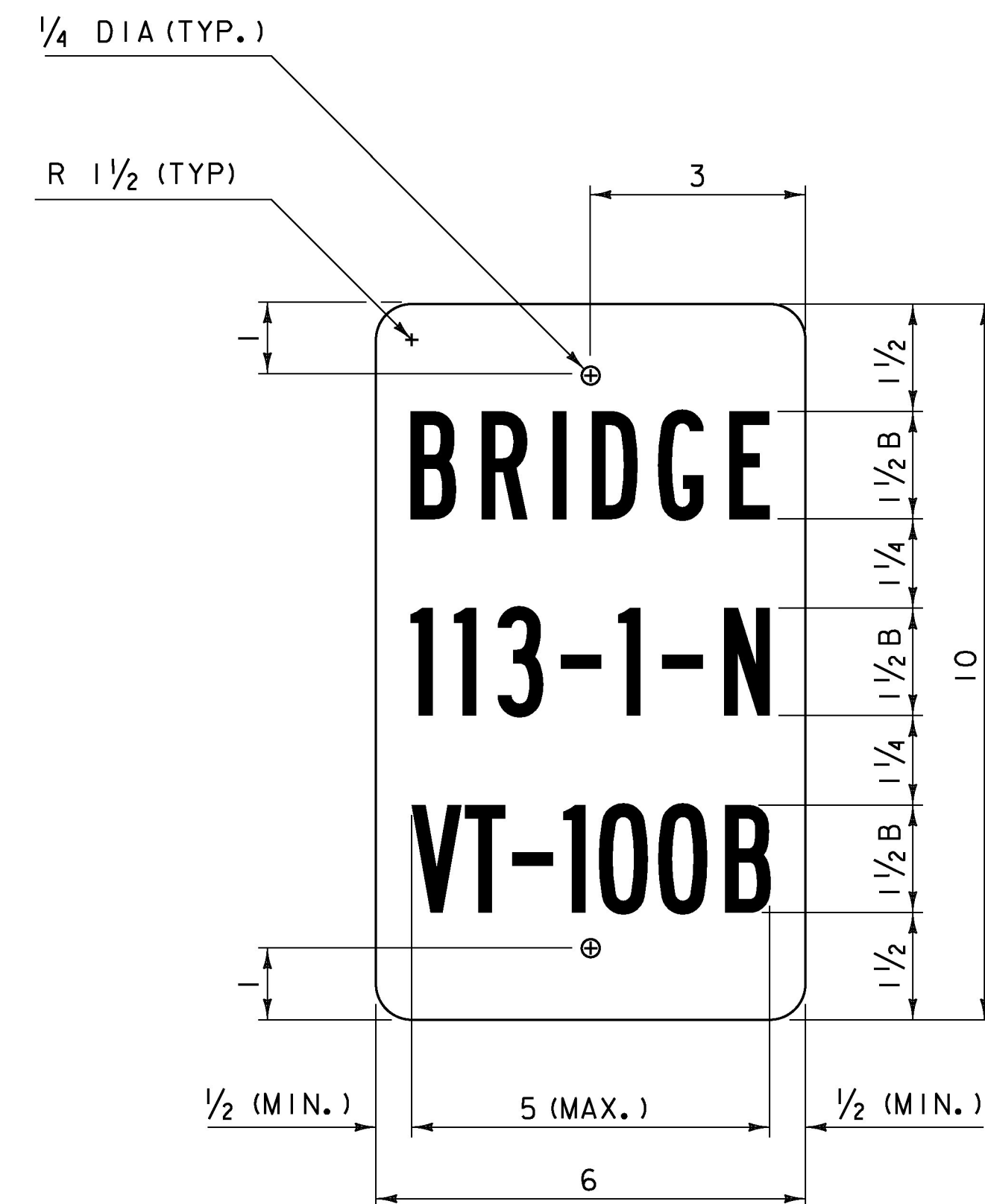
REVISIONS AND CORRECTIONS  
AUG. 6, 2012 - ORIGINAL APPROVAL DATE

APPROVED  
*W.A.C. [Signature]*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*Richard [Signature]*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*Mark D. Richter*  
FEDERAL HIGHWAY ADMINISTRATION

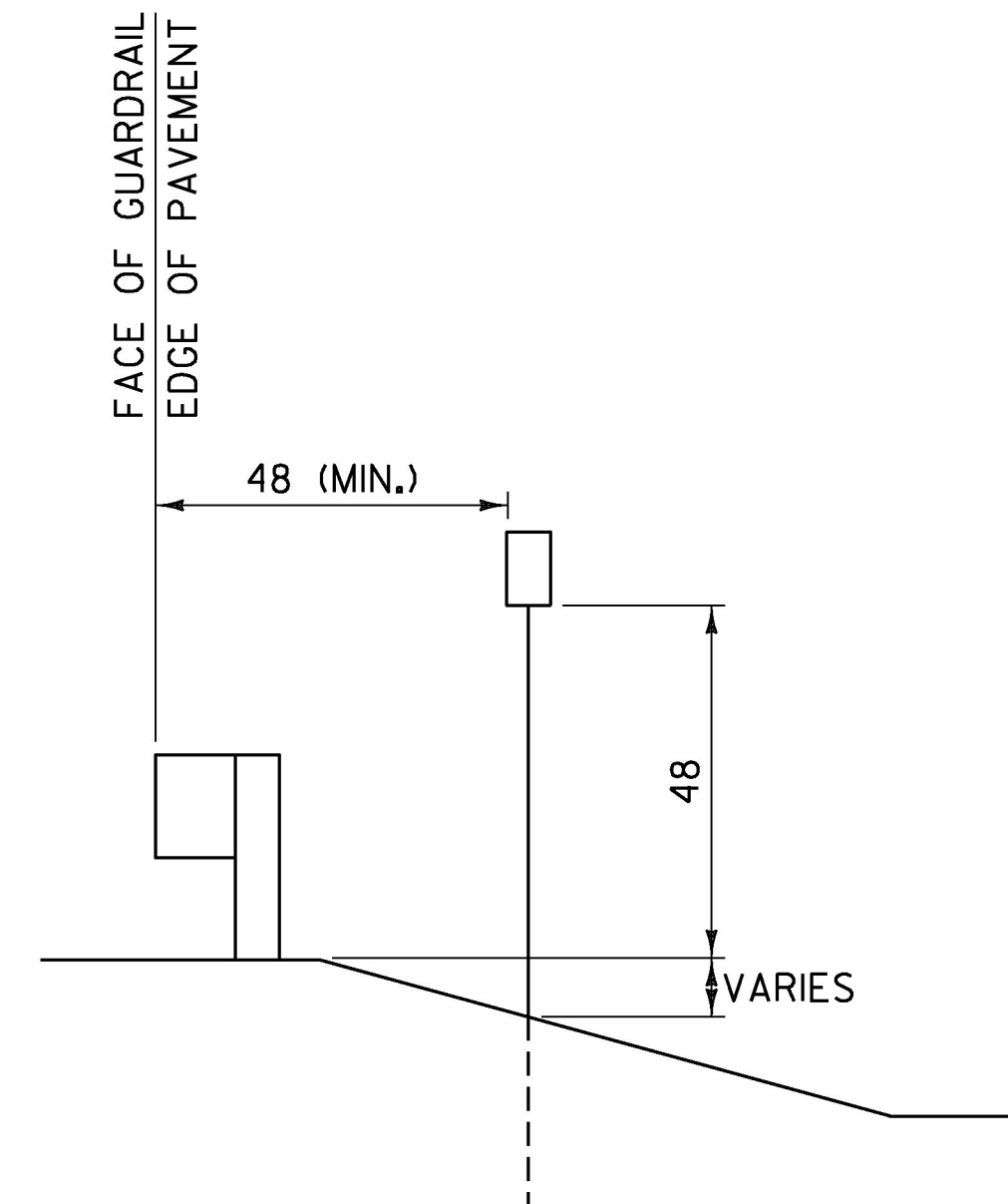
CONSTRUCTION SIGN  
DETAILS



STANDARD  
T-31



**VD-701**



**VD-701 INSTALLATION DETAIL**

**GENERAL NOTES:**

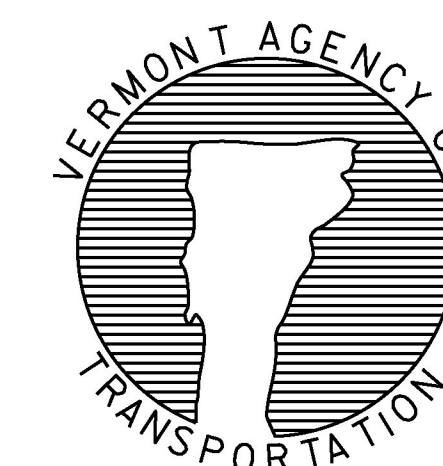
1. BRIDGE NUMBER PLAQUES ARE TO BE INSTALLED ALONG THE FEDERAL AID HIGHWAY SYSTEM INCLUDING ALL STATE HIGHWAYS AND TOWN HIGHWAYS ON THE FEDERAL AID HIGHWAY SYSTEM.
2. BRIDGE NUMBER PLAQUES SHALL BE LOCATED ON BOTH BRIDGE APPROACHES AT THE NEAREST VISIBLE LOCATION.
3. THE SIGN BASE MATERIAL SHALL BE 0.063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

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

REVISIONS AND CORRECTIONS  
APRIL 9, 2014 - ORIGINAL APPROVAL DATE

APPROVED  
*[Signature]*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*[Signature]*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*[Signature]*  
MARK D. RIBBTER  
FEDERAL HIGHWAY ADMINISTRATION

**BRIDGE NUMBER PLAQUE**



**STANDARD  
T-42**

1 - ADDISON	2 - BENNINGTON	3 - CALEDONIA	4 - CHITTENDEN	5 - ESSEX	6 - FRANKLIN	7 - GRAND ISLE	8 - LAMOILLE
0101 ADDISON 0102 BRIDPORT 0103 BRISTOL 0104 CORNWALL 0105 FERRISBURGH 0106 GOSHEN 0107 GRANVILLE 0108 HANCOCK 0109 LEICESTER 0110 LINCOLN 0111 MIDDLEBURY 0112 MONKTON 0113 NEW HAVEN 0114 ORWELL 0115 PANTON 0116 RIPTON 0117 SALISBURY 0118 SHOREHAM 0119 STARKSBORO 0120 VERGENNES 0121 WALTHAM 0122 WEYBRIDGE 0123 WHITING	0201 ARLINGTON 0202 BENNINGTON 0203 DORSET 0204 GLASTENBURY 0205 LANDGROVE 0206 MANCHESTER 0207 PERU 0208 POWNAL 0209 READSBORO 0210 RUPERT 0211 SANDGATE 0212 SEARSBURG 0213 SHAFTSBURY 0214 STAMFORD 0215 SUNDERLAND 0216 WINHALL 0217 WOODFORD	0301 BARNET 0302 BURKE 0303 DANVILLE 0304 GROTON 0305 HARDWICK 0306 KIRBY 0307 LYNDON 0308 NEWARK 0309 PEACHAM 0310 RYEGATE 0311 ST JOHNSBURY 0312 SHEFFIELD 0313 STANNARD 0314 SUTTON 0315 WALDEN 0316 WATERFORD 0317 WHEELOCK	0401 BOLTON 0402 BUELS GORE 0403 BURLINGTON 0404 CHARLOTTE 0405 COLCHESTER 0406 ESSEX 0407 HINESBURG 0408 HUNTINGTON 0409 JERICHO 0410 MILTON 0411 RICHMOND 0412 ST GEORGE 0413 SHELburne 0414 SO BURLINGTON 0415 UNDERHILL 0416 WESTFORD 0417 WILLISTON 0418 WINOOSKI	0501 AVERILL 0502 AVERYS GORE 0503 BLOOMFIELD 0504 BRIGHTON 0505 BRUNSWICK 0506 CANAAN 0507 CONCORD 0508 EAST HAVEN 0509 FERDINAND 0510 GRANBY 0511 GUILDHALL 0512 LEMINGTON 0513 LEWIS 0514 LUNENBURG 0515 MAIDSTONE 0516 NORTON 0517 VICTORY 0518 WARNERS GRANT 0519 WARREN GORE	0601 BAKERSFIELD 0602 BERKSHIRE 0603 ENOSBURG 0604 FAIRFAX 0605 FAIRFIELD 0606 FLETCHER 0607 FRANKLIN 0608 GEORGIA 0609 HIGHGATE 0610 MONTGOMERY 0611 RICHFORD 0612 ST ALBANS CITY 0613 ST ALBANS TOWN 0614 SHELTON 0615 SWANTON	0701 ALBURGH 0702 GRAND ISLE 0703 ISLE LA MOTTE 0704 NORTH HERO 0705 SOUTH HERO	0801 BELVIDERE 0802 CAMBRIDGE 0803 EDEN 0804 ELMORE 0805 HYDE PARK 0806 JOHNSON 0807 MORRISTOWN 0808 STOWE 0809 WATERVILLE 0810 WOLCOTT

9 - ORANGE	10 - ORLEANS	11 - RUTLAND	12 - WASHINGTON	13 - WINDHAM	14 - WINDSOR
0901 BRADFORD 0902 BRAINTREE 0903 BROOKFIELD 0904 CHELSEA 0905 CORINTH 0906 FAIRLEE 0907 NEWBURY 0908 ORANGE 0909 RANDOLPH 0910 STRAFFORD 0911 THETFORD 0912 TOPSHAM 0913 TUNBRIDGE 0914 VERSHIRE 0915 WASHINGTON 0916 WEST FAIRLEE 0917 WILLIAMSTOWN	1001 ALBANY 1002 BARTON 1003 BROWNINGTON 1004 CHARLESTON 1005 COVENTRY 1006 CRAFTSBURY 1007 DERBY 1008 GLOVER 1009 GREENSBORO 1010 HOLLAND 1011 IRASBURG 1012 JAY 1013 LOWELL 1014 MORGAN 1015 NEWPORT CITY 1016 NEWPORT TOWN 1017 TROY 1018 WESTFIELD 1019 WESTMORE	1101 BENSON 1102 BRANDON 1103 CASTLETON 1104 CHITTENDEN 1105 CLARENDON 1106 DANBY 1107 FAIR HAVEN 1108 HUBBARDTON 1109 IRA 1110 MENDON 1111 MIDDLETOWN SPRINGS 1112 MT HOLLY 1113 MT TABOR 1114 PAWLET 1115 PITTSFIELD 1116 PITTSFORD 1117 POULTNEY 1118 PROCTOR 1119 RUTLAND CITY 1120 RUTLAND TOWN 1121 KILLINGTON 1122 SHREWSBURY 1123 SUDBURY 1124 TINMOUTH 1125 WALLINGFORD 1126 WELLS 1127 WEST HAVEN 1128 WEST RUTLAND	1201 BARRE CITY 1202 BARRE TOWN 1203 BERLIN 1204 CABOT 1205 CALAIS 1206 DUXBURY 1207 E MONTPELIER 1208 FAYSTON 1209 MARSHFIELD 1210 MIDDLESEX 1211 MONTPELIER 1212 MORETOWN 1213 NORTHFIELD 1214 PLAINFIELD 1215 ROXBURY 1216 WAITSFIELD 1217 WARREN 1218 WATERBURY 1219 WOODBURY 1220 WORCESTER	1301 ATHENS 1302 BRATTLEBORO 1303 BROOKLINE 1304 DOVER 1305 DUMMERSTON 1306 GRAFTON 1307 GUILFORD 1308 HALIFAX 1309 JAMAICA 1310 LONDONDERRY 1311 MARLBORO 1312 NEWFANE 1313 PUTNEY 1314 ROCKINGHAM 1315 SOMERSET 1316 STRATTON 1317 TOWNSHEND 1318 VERNON 1319 WARDSBORO 1320 WESTMINSTER 1321 WHITINGHAM 1322 WILMINGTON 1323 WINDHAM	1401 ANDOVER 1402 BALTIMORE 1403 BARNARD 1404 BETHEL 1405 BRIDGEWATER 1406 CAVENDISH 1407 CHESTER 1408 HARTFORD 1409 HARTLAND 1410 LUDLOW 1411 NORWICH 1412 PLYMOUTH 1413 POMFRET 1414 READING 1415 ROCHESTER 1416 ROYALTON 1417 SHARON 1418 SPRINGFIELD 1419 STOCKBRIDGE 1420 WEATHERSFIELD 1421 WESTON 1422 WEST WINDSOR 1423 WINDSOR 1424 WOODSTOCK

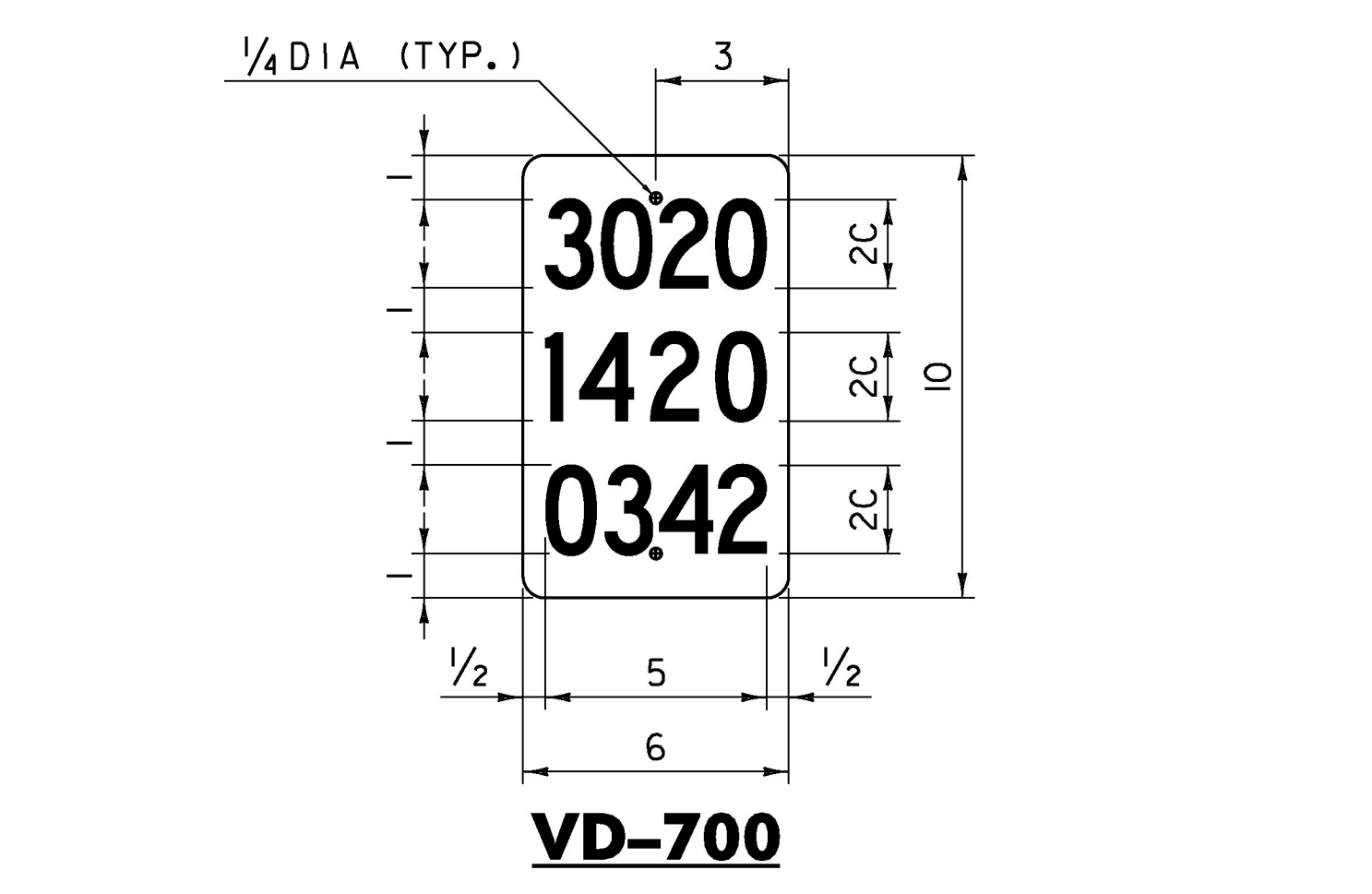
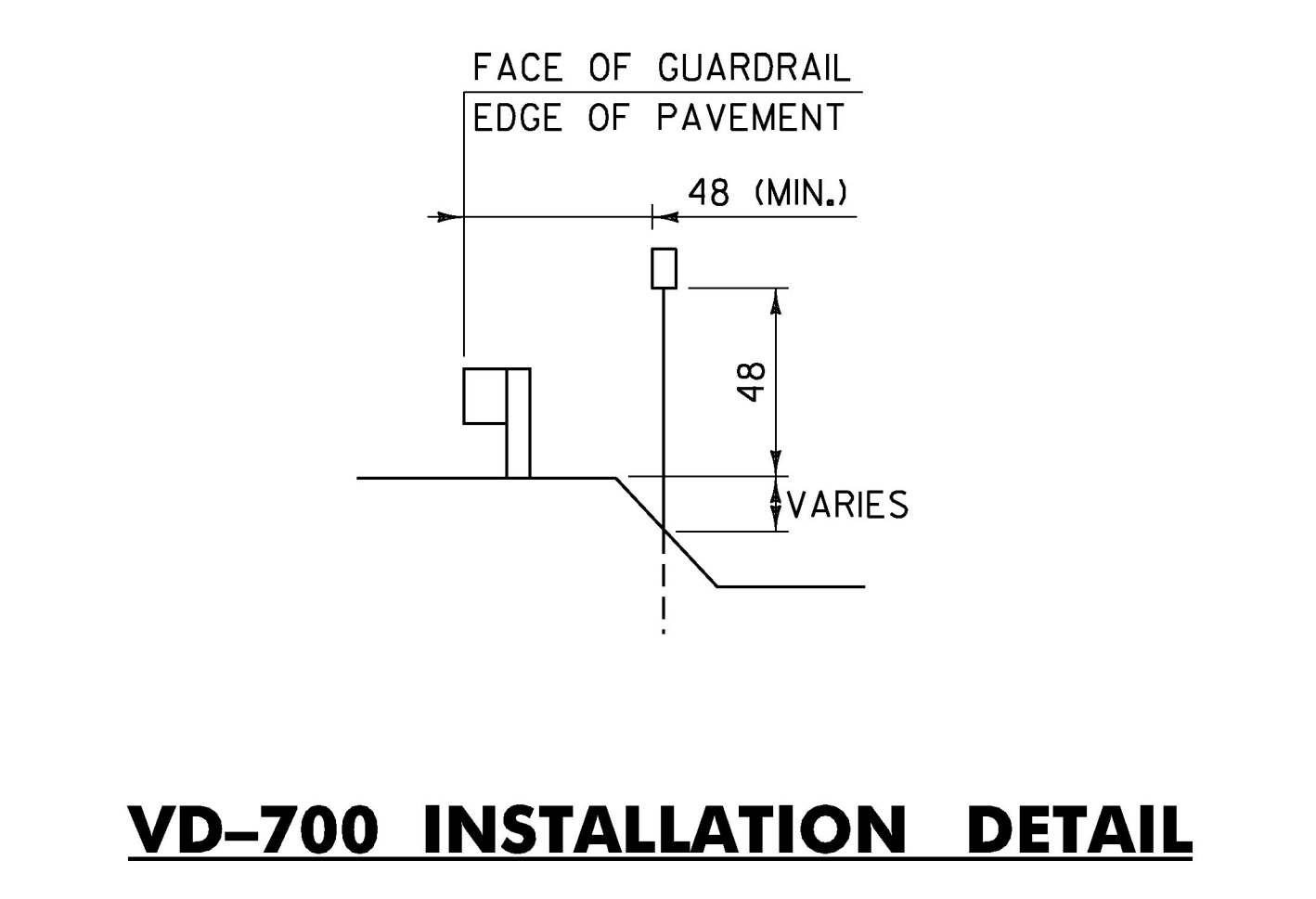
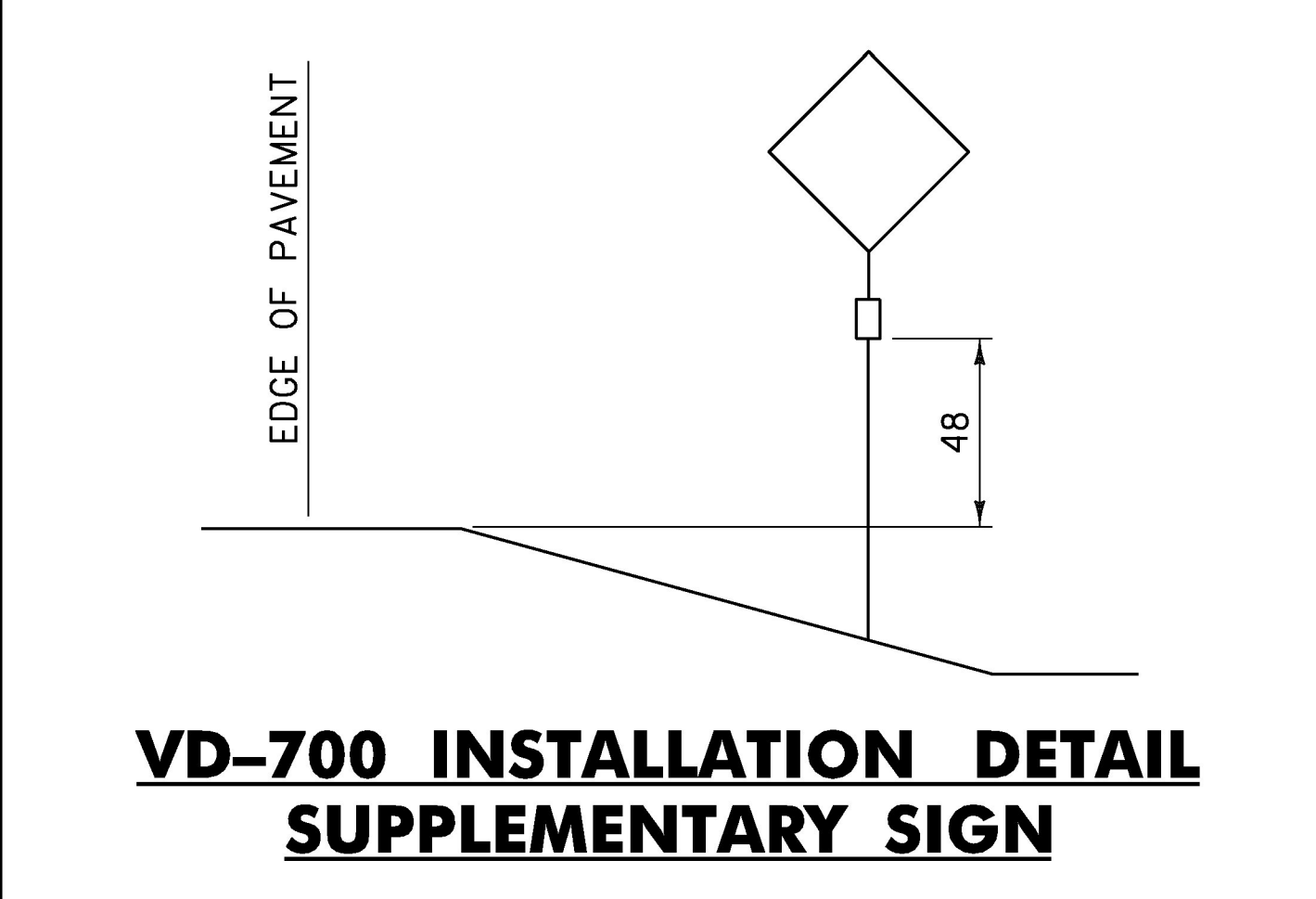
- 9020 BARNET STATE HIGHWAY  
9025 BENNINGTON NORTH STATE HIGHWAY  
9030 BERLIN STATE HIGHWAY  
9090 BRATTLEBORO STATE HIGHWAY  
9150 CASTLETON STATE HIGHWAY  
9180 COVENTRY STATE HIGHWAY  
9210 FAIR HAVEN STATE HIGHWAY  
9240 FAIRLEE STATE HIGHWAY  
9270 FERRISBURGH STATE HIGHWAY  
9330 MAIDSTONE STATE HIGHWAY  
9360 MIDDLESEX STATE HIGHWAY  
9390 MONTPELIER STATE HIGHWAY  
9420 MONTPELIER JUNCTION STATE HIGHWAY  
9430 NEWBURY STATE HIGHWAY  
9480 NORTON STATE HIGHWAY  
9540 NORWICH STATE HIGHWAY  
9600 PUTNEY STATE HIGHWAY  
9630 QUECHEE STATE HIGHWAY  
9720 ST ALBANS STATE HIGHWAY SOUTH  
9730 ST JOHNSBURY STATE HIGHWAY  
9750 SOUTH ALBURGH STATE HIGHWAY  
9840 WESTMINSTER STATE HIGHWAY  
9870 WILDER STATE HIGHWAY  
9900 WINHALL STATE HIGHWAY  
9990 WEST RUTLAND - RUTLAND (BUSINESS US-4)  
9991 BELLOWS FALLS S0117 (ROCK - WEST ST)  
9992 BELLOWS FALLS S0117 (BRIDGE ST)  
9993 BURLINGTON (ALTERNATE US-7)  
9994 DERBY (ALTERNATE US-5)  
9995 MONTPELIER (BUSINESS US-2)  
9996 NEWPORT (ALTERNATE US-5)  
9997 ST JOHNSBURY (ALTERNATE US-5)  
9998 SO BURLINGTON - KENNEDY DRIVE

**GENERAL NOTES:**

- MILEMARKERS ARE TO BE INSTALLED ALONG THE FEDERAL AID HIGHWAY SYSTEM INCLUDING ALL STATE HIGHWAYS AND TOWN HIGHWAYS ON THE FEDERAL AID HIGHWAY SYSTEM.
- MILEMARKERS WILL NORMALLY BE INSTALLED AT EACH 0.20 MILE INTERVAL, ALTERNATING SIDES OF THE ROAD, RESULTING IN A SIGN FACING TRAFFIC EACH 0.40 MILES. A MILEMARKER WILL ALSO BE INSTALLED AT EACH INTERSECTION, ON THE SAME POST AS THE STOP SIGN (MILEMARKER TO BE PLACED PARALLEL TO MAINLINE TRAVELED WAY, VISIBLE TO TRAFFIC). ANY MILEMARKER LOCATION FALLING WITHIN 0.05 MILE OF AN INTERSECTION WILL BE OMITTED. WHEN THE NORMAL LOCATION OF A MILEMARKER IS UNDESIRABLE, SUCH AS ON A LAWN, DRIVEWAY, OR LEDGE, AN ATTEMPT WILL BE MADE TO LOCATE IT ON THE OPPOSITE SIDE OF THE ROAD. IF NO SUITABLE LOCATION CAN BE FOUND WITHIN 20 FEET OF THE NORMAL LOCATION, IT MAY BE OMITTED.
- ON CLASS I TOWN HIGHWAYS OR OTHER CONGESTED LOCATIONS MILEMARKERS WILL ONLY BE INSTALLED ON EXISTING SIGN POSTS AND WILL CARRY THE ACTUAL MILEAGE TO THAT LOCATION. A MILEMARKER LOCATED EVERY 0.10 MILES IS DESIRABLE THROUGH THESE LOCATIONS.
- THE FIRST LINE OF TEXT ON MILEMARKERS INDICATE THE STATE ROUTE NUMBER. THE FOURTH NUMERAL BEING THE CORRESPONDING ROUTE NUMBER LETTER DESIGNATION. FOR EXAMPLE US-2 (WHICH HAS NO LETTER DESIGNATION) WOULD BE IDENTIFIED USING 0020 AND VT-100B WOULD BE IDENTIFIED USING 1002. FOR ANY NAMED FEDERAL AID HIGHWAY SYSTEM HIGHWAYS, THE FOUR DIGIT ROUTE NUMBER (9000 SERIES) LISTED UNDER "NAMED STATE AND TOWN HIGHWAYS ROUTE NUMBERS" SHALL BE UTILIZED.
- THE SECOND LINE OF TEXT ON MILEMARKERS INDICATE THE COUNTY AND TOWN. THE COUNTY IS INDICATED IN THE FIRST AND SECOND NUMERALS AND THE TOWN IN THE THIRD AND FOURTH NUMERALS. THE APPROPRIATE FOUR DIGIT DESIGNATIONS ARE LISTED PER TOWN, UNDER "COUNTY AND TOWN DESIGNATIONS."
- THE THIRD LINE OF TEXT ON MILEMARKERS INDICATE THE MILEAGE, IN HUNDREDTHS, FROM THE TOWN LINE OR BEGINNING OF A ROUTE. MILEAGE IS ALWAYS MEASURED TRAVELING FROM THE SOUTH TO NORTH OR FROM THE WEST TO EAST. THE ROUTE DIRECTION IS ESTABLISHED USING THE VERMONT AGENCY OF TRANSPORTATION (VAOT) ROUTE LOGS.
- THE SIGN BASE MATERIAL SHALL BE 0.063 INCH FLAT SHEET ALUMINUM.
- THE SIGN SHALL BE WHITE RETROREFLECTIVE LEGEND ON A GREEN RETROREFLECTIVE BACKGROUND, BOTH SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS" (AASHTO) M 268 ("AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956) TYPE III.
- CORNERS SHALL BE ROUNDED TO A 1/2 INCH RADIUS.
- ALL LINES OF TEXT SHALL BE CENTERED HORIZONTALLY AND SHALL BE AS IDENTIFIED IN THE PLANS. THE THREE LINES OF TEXT WILL EACH CONTAIN FOUR NUMERALS.
- WHEN INSTALLED ON ITS OWN POST, A SINGLE 14 GAGE, 1.75 INCH SQUARE STEEL POST AND 12 GAGE, 2 INCH SQUARE ANCHOR SHALL BE USED FOR INSTALLATION. THE ANCHOR SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
- ALL DIMENSIONS SHOWN IN INCHES.

**COUNTY AND TOWN DESIGNATIONS**

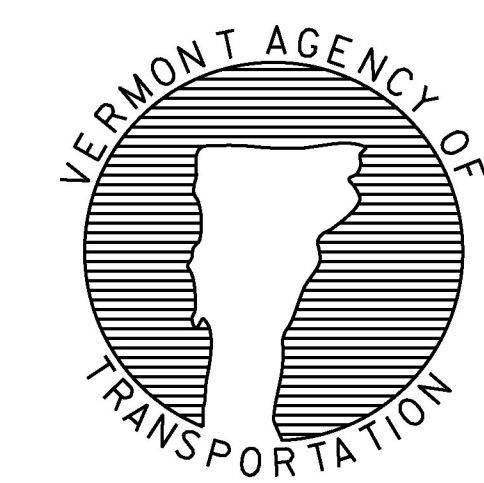
**NAMED STATE AND TOWN HIGHWAYS ROUTE NUMBERS**



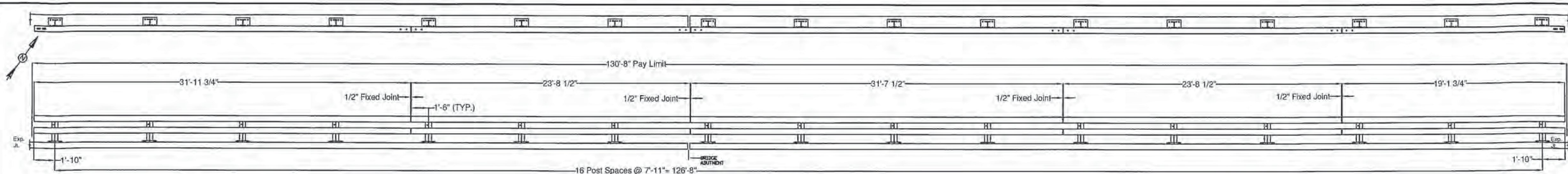
REVISIONS AND CORRECTIONS  
APRIL 9, 2014 - ORIGINAL APPROVAL DATE

APPROVED  
*[Signature]*  
HIGHWAY SAFETY & DESIGN ENGINEER  
*[Signature]*  
DIRECTOR OF PROGRAM DEVELOPMENT  
*[Signature]*  
FEDERAL HIGHWAY ADMINISTRATION

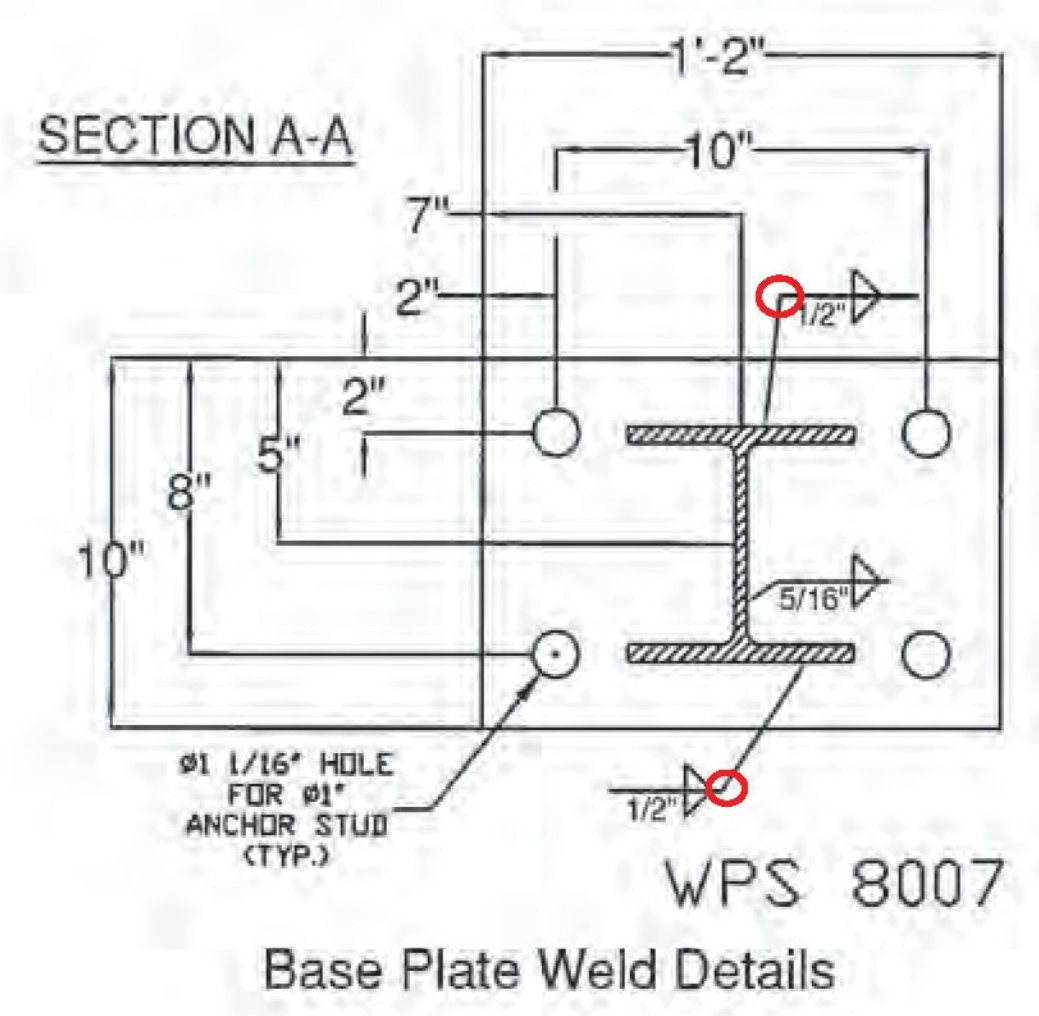
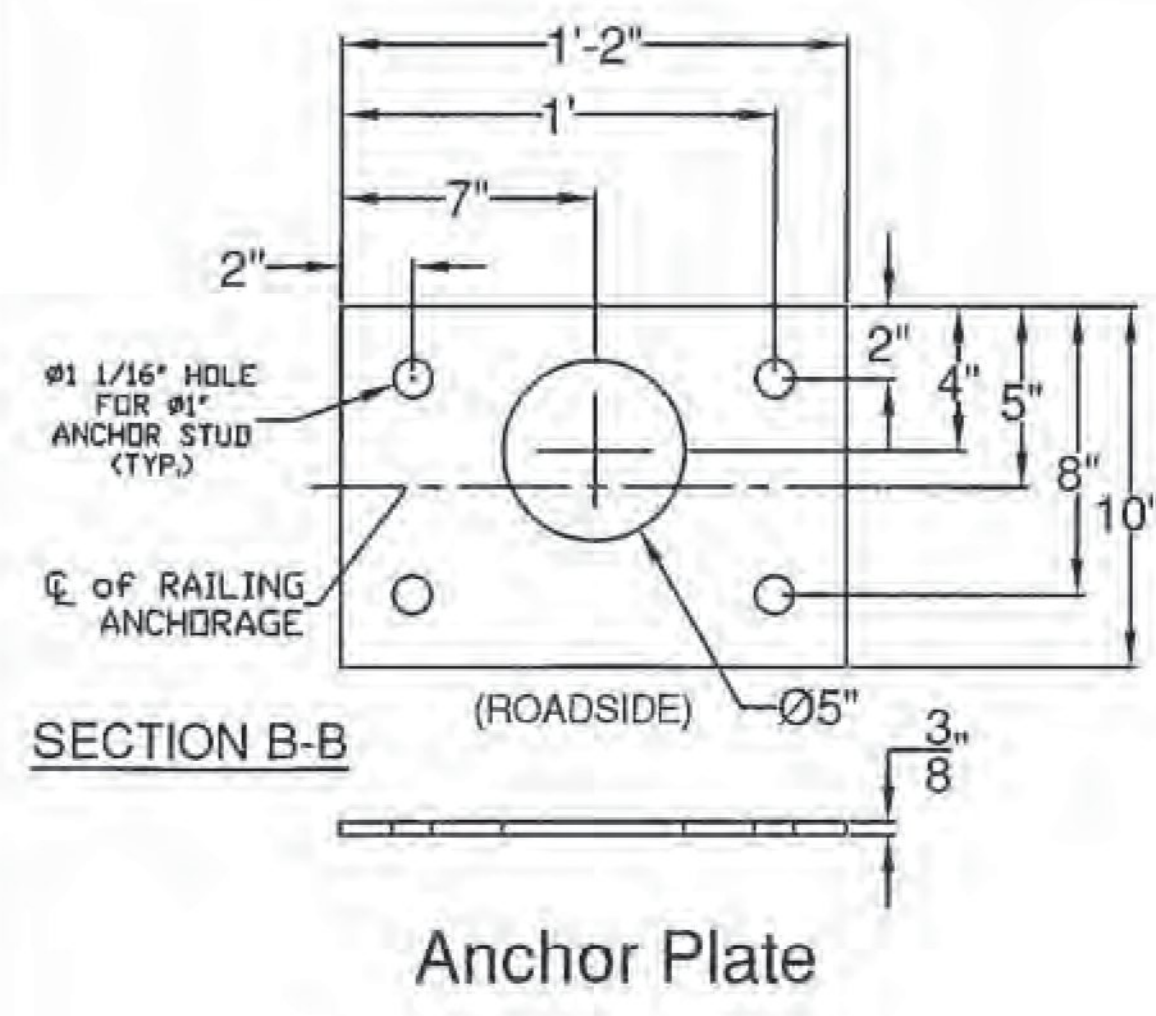
**MILEMARKER DETAILS  
STATE AND TOWN  
HIGHWAYS**



**STANDARD  
T-44**



North Railing Facing North  
(South Railing Facing South is Similar)



HARDWARE NOTES	
ITEM #	FUNCTION
8	ANCHOR STUDS, (4) PER POST ON BASE (ITEM #1)
9	(4) PER ANCHOR STUD
10	(4) PER ANCHOR STUD
11	BOLT TOP RAIL TO PAST (ITEM #1), (2) PER POST
12	BOLT BOTTOM RAIL TO SHELF ANGLES (ITEM #15)
13	BOLT RAILING ANGLE (ITEM #15) TO POST (ITEM #1)
14	BOLT THRU RAILING & TUBE SPLICES (ITEM #6)

NOTES:

- ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
- PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
- ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
- SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
- RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 88°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
- HOLES IN RAILS FOR TUBE ATTACHMENT WILL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
- BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
- SEE STANDARD DRAWING G-10M FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT WILL BE CONSIDERED INCIDENTAL TO OTHER CONTRACT ITEMS.
- ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
- THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
- THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.
- STD. SPLICE HOLES ONLY IN BRIDGE RAIL TUBES. REST TO BE DRILLED BY CUSTOMER.

**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

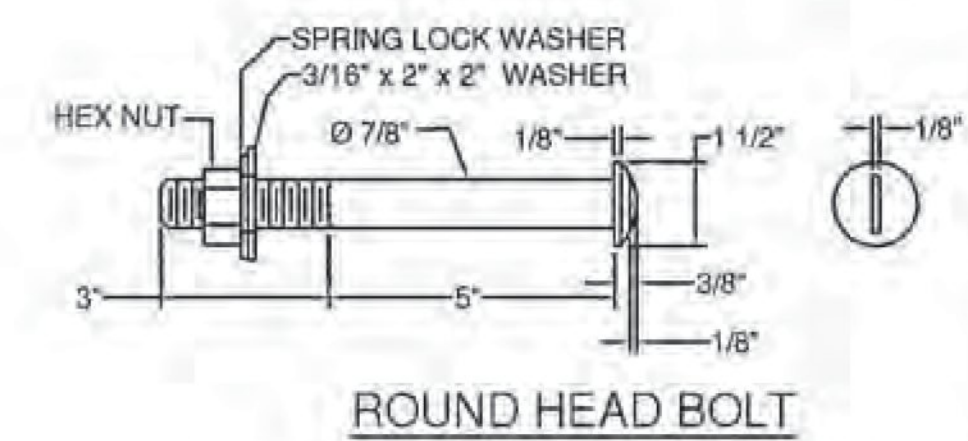
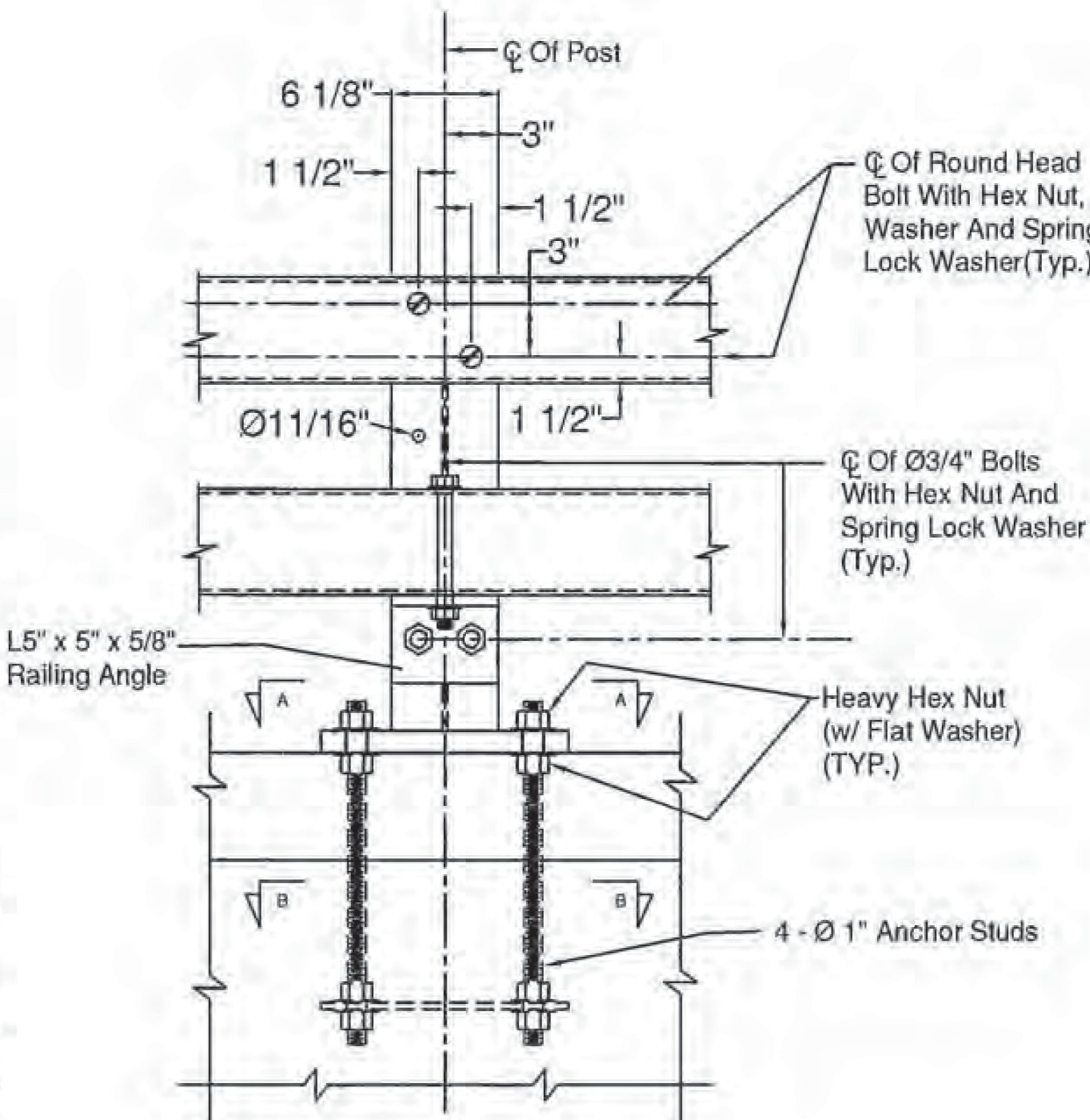
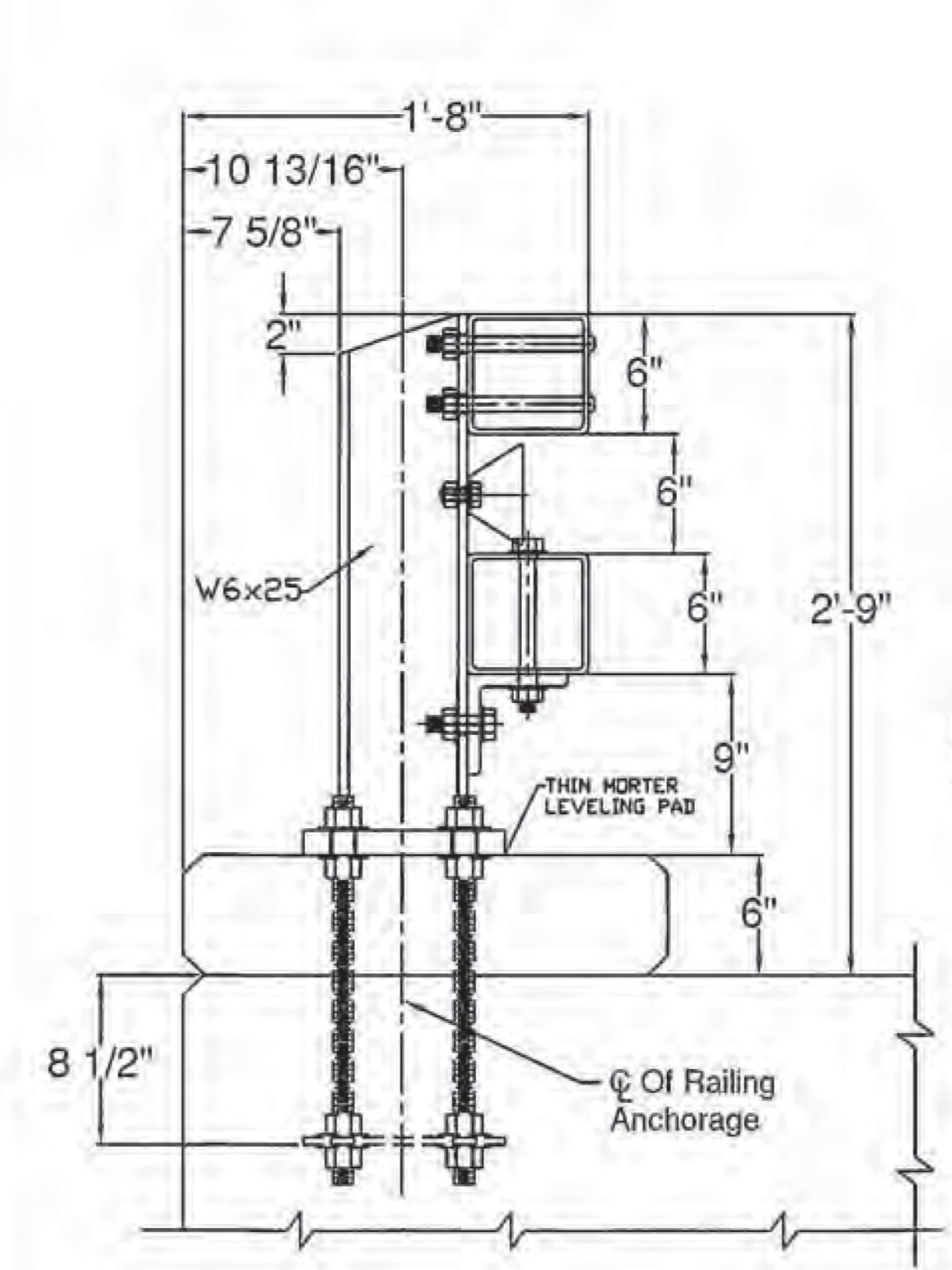
REJECTED     REVISE AND RESUBMIT     APPROVED AS NOTED

CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DID NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR REVIEW OF GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CORRECTING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATING THEIR WORK WITH THAT OF ALL OTHER TRADES, AND PERFORMING THEIR WORK IN A SAFE AND SATISFACTORY MANNER.

CLD Consulting Engineers  
240 Commercial Street  
Manchester, NH 03101  
603-689-6223    Job Number: 150223  
Reviewed by: S.BEAUMONT  
Date: 02/28/2017

BILL OF MATERIAL				
ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	34	0033.026201	TWO RAIL POST @ 2'-3" O.A. (W6x25)	A572 Gr. 50
2	4	T.B.D.	6" X 6" X 3/16" RAIL @ 31'-11 3/4"	A500 Gr. B
3	8	T.B.D.	6" X 6" X 3/16" RAIL @ 23'-8 1/2"	A500 Gr. B
4	4	T.B.D.	6" X 6" X 3/16" RAIL @ 31'-7 1/2"	A500 Gr. B
5	4	T.B.D.	6" X 6" X 3/16" RAIL @ 19'-1 3/4"	A500 Gr. B
6	16	0033.00640	5" X 5" X 5/16" FIX. SPL. TUBE @ 2' 3"	A500 Gr. B, A36
7	34	0033.00220	3/8" X 10" X 14" ANCHOR PLATES	A36
8	*138	0042.01020	Ø 1" X 20" FULLY THREADED ANCHOR STUDS	A449 Gr. 1
9	*546	0080.18901	Ø 1" HEAVY HEX NUTS	A563
10	544	0080.18911	Ø 1" FLAT WASHERS	F436
11	68	0080.07500	Ø 7/8" X 8" ROUND HEAD BOLT, NUT, SQ. WASHER, L.W.	A449, A563, ASME B18.21.1
12	34	0080.06400	Ø 3/4" X 8" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
13	68	0080.06140	Ø 3/4" X 2-3/4" HEX BOLT, NUT, (2) F.W., & L.W.	A325, A563, F436, & ASME B18.21.1
14	64	0080.06340	Ø 3/4" X 7-1/2" HEX BOLT, NUT, & (2) F.W.	A325, A563, & F436
15	34	0033.00500	L5" X 5" X 5/8" RAILING ANGLE	A572 Gr. 50
16	10	N/A	DELINEATORS (SUPPLIED BY F.R. LAFAYETTE)	ALUMINUM

*-2 EXTRA FOR VAOT TESTING



ITEM #: 900.640

APPROVED BY:

Vermont Agency of Transportation  
**RECEIVED**  
February 14, 2017

RESUBMIT No    Approved AsNoted  
BY Kristin Higgins    DATE 2/28/2017

SHEET 1 OF 2

**SPECIAL PROVISION, BR, GALV. 2 RAIL BB/ CURB MOUNTED**  
ORWELL STP DECK (41), STATE NUMBERED ROUTE 73 (TH #3) (MAJOR COLLECTOR) - BR NO. 4  
TOWN OF ORWELL, ADDISON COUNTY, VT

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

DRAWN E.P. 12/29/16  
CHECKED D.L. 12/29/16  
APPROVED M.V.  
SCALE SCHEMATIC  
DRAWING NO. FR Lafayette - ORWELL

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

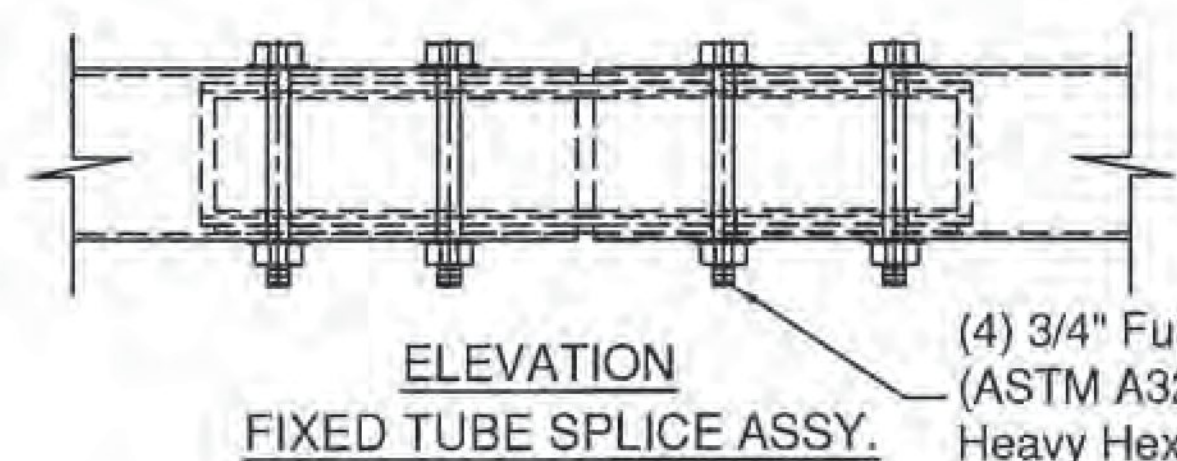
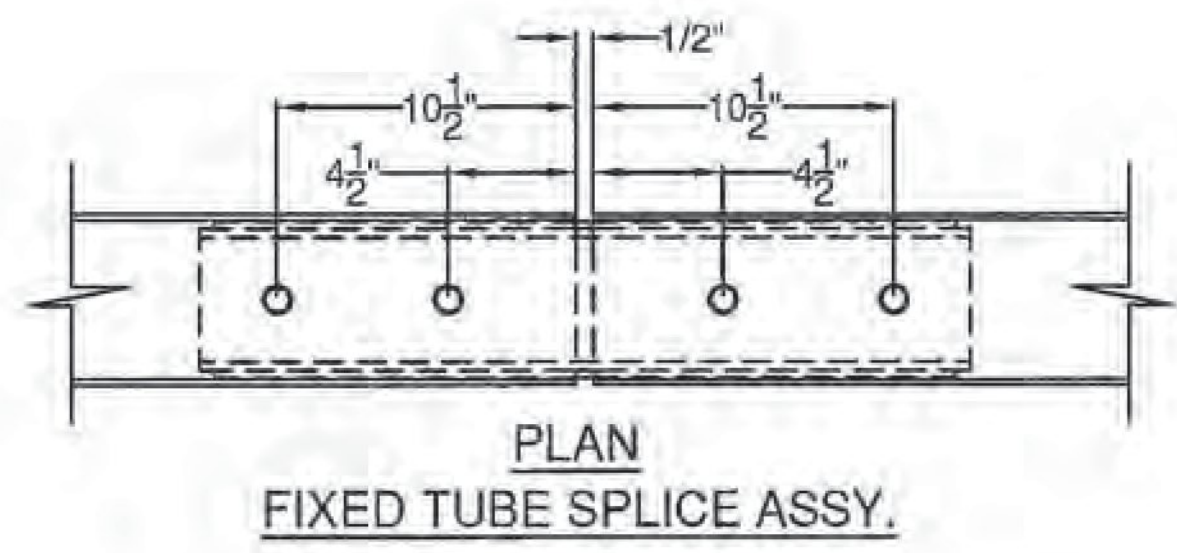
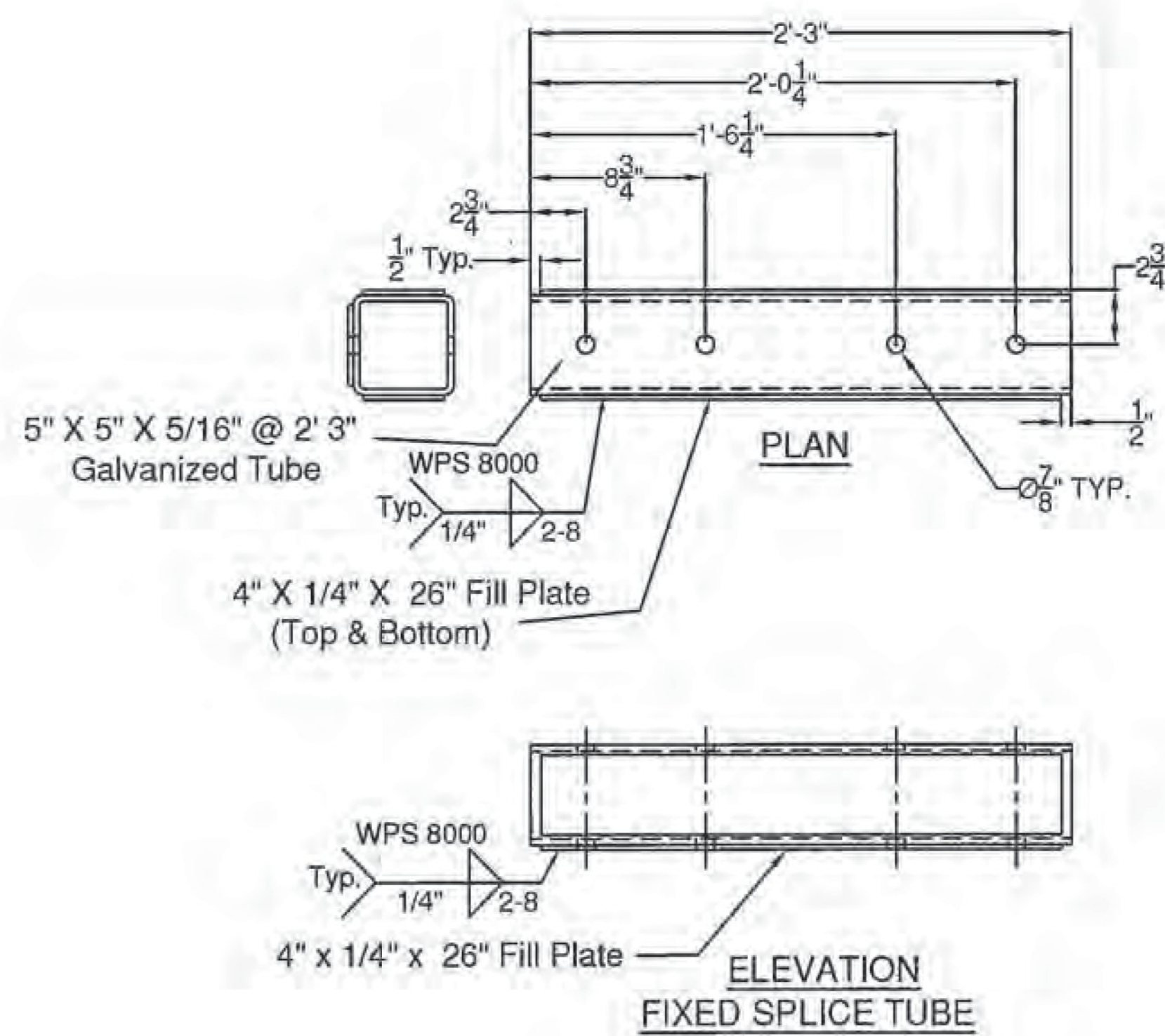
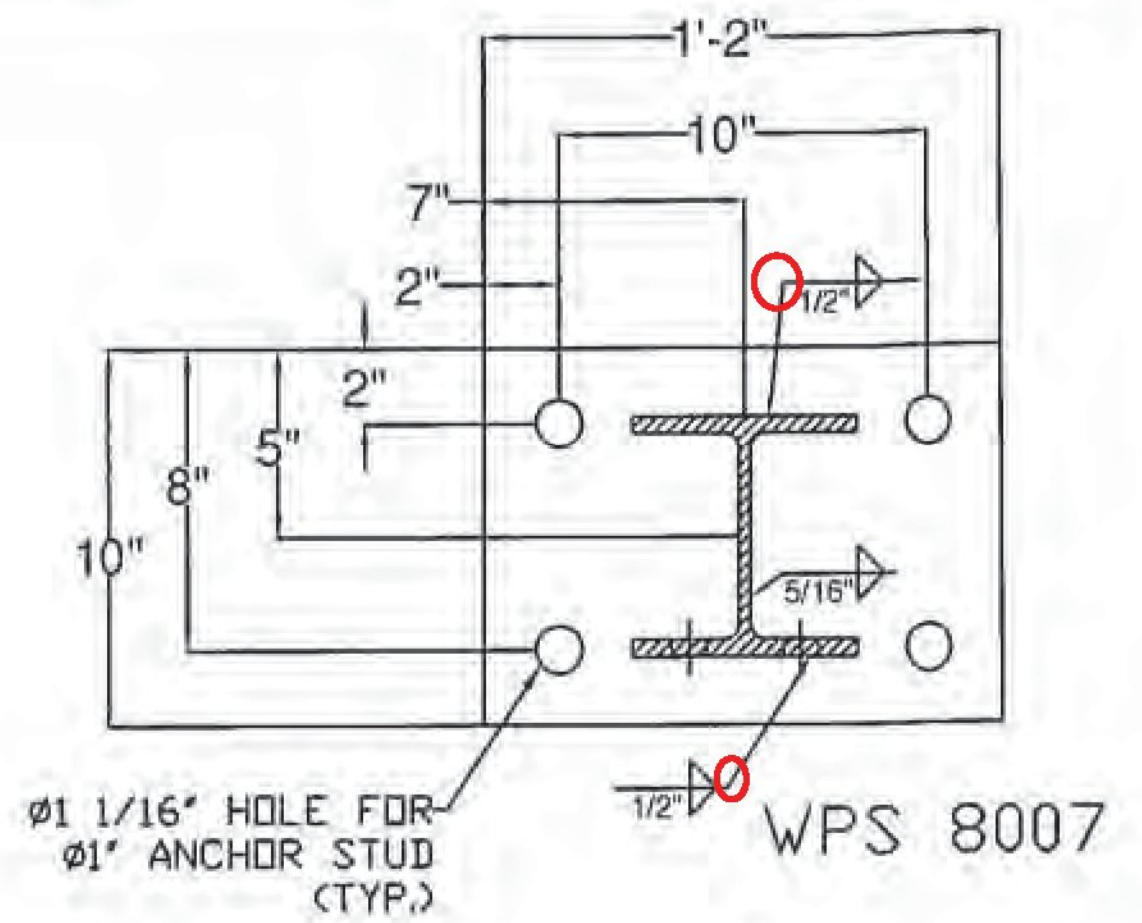
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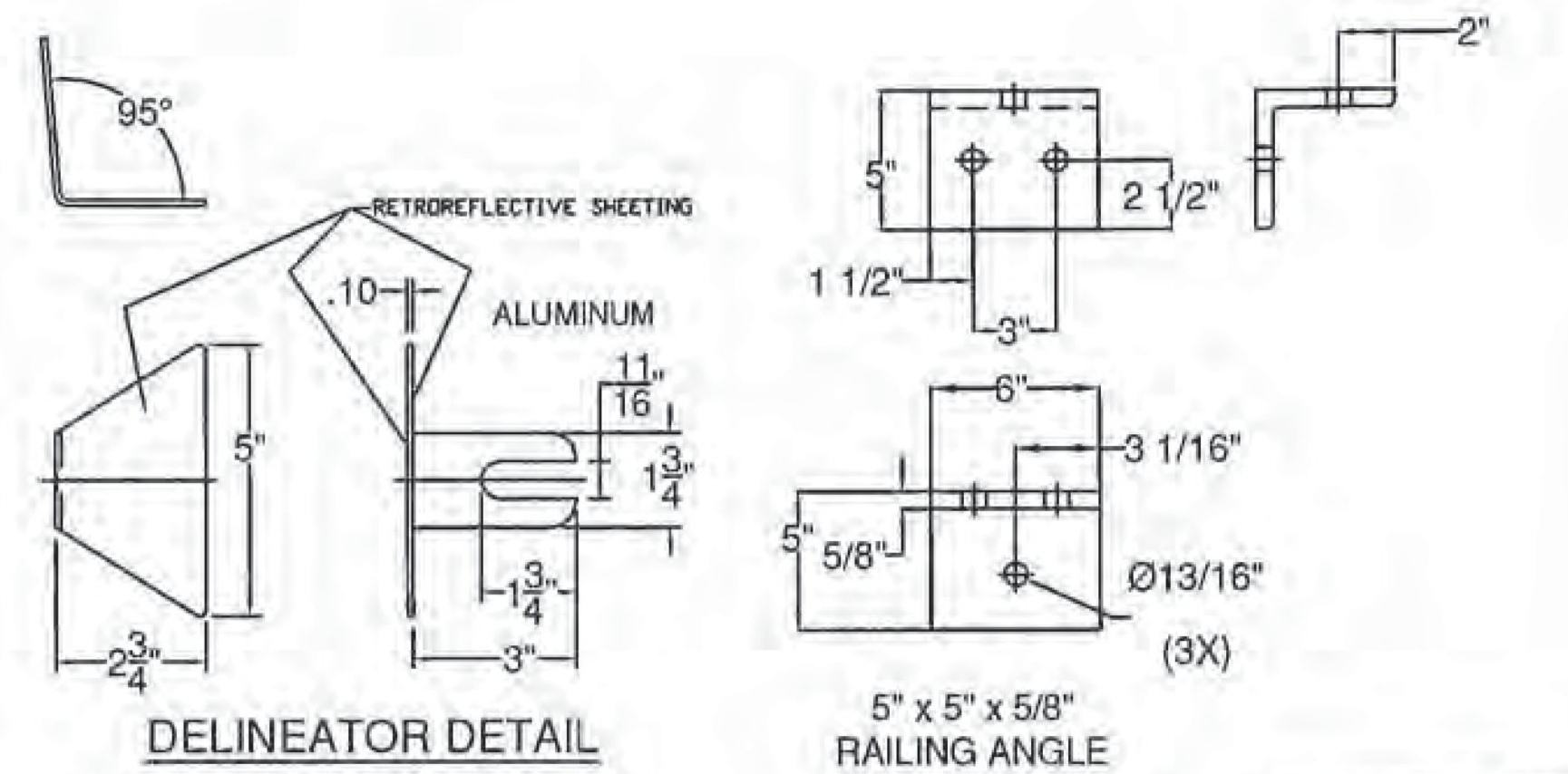
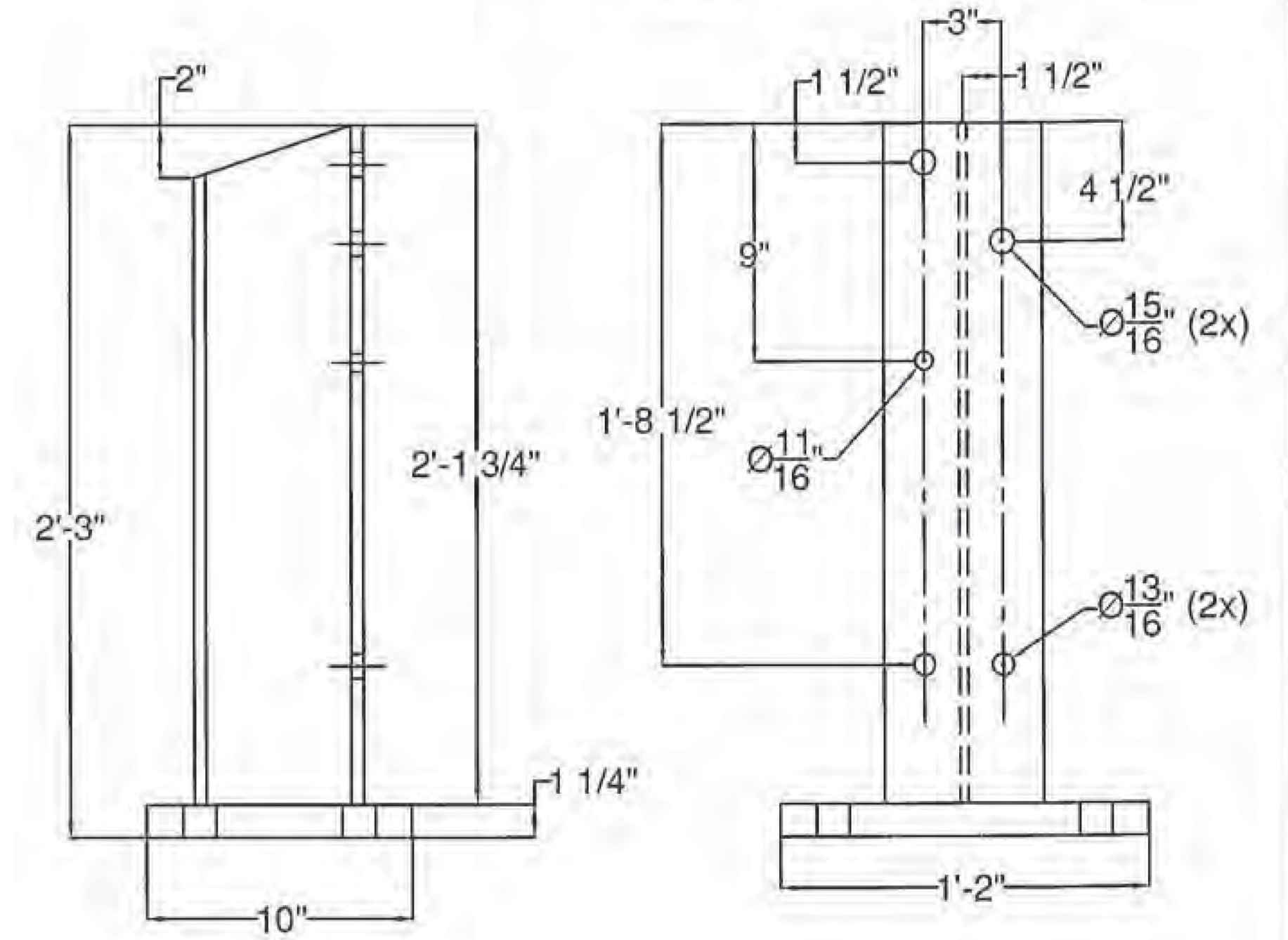
 CLD Consulting Engineers  
 540 Commercial Street  
 Manchester, NH 03101  
 603-668-8223

Job Number: 150223  
 Reviewed by: S. BEAUMONT  
 Date: 02/28/2017



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

**SPLICE TUBE - FIXED**



ITEM #: 900.640

APPROVED BY:  
 Vermont Agency of Transportation  
**RECEIVED**  
 CK'D BY CLD OK'D BY CLD  
 February 14, 2017  
 RESUBMIT No Approved AsNoted  
 BY Kristin Higgins DATE 2/28/2017

**SPECIAL PROVISION, BR, GALV. 2 RAIL BB/ CURB MOUNTED**  
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 TOWN OF ORWELL, ADDISON COUNTY, VT

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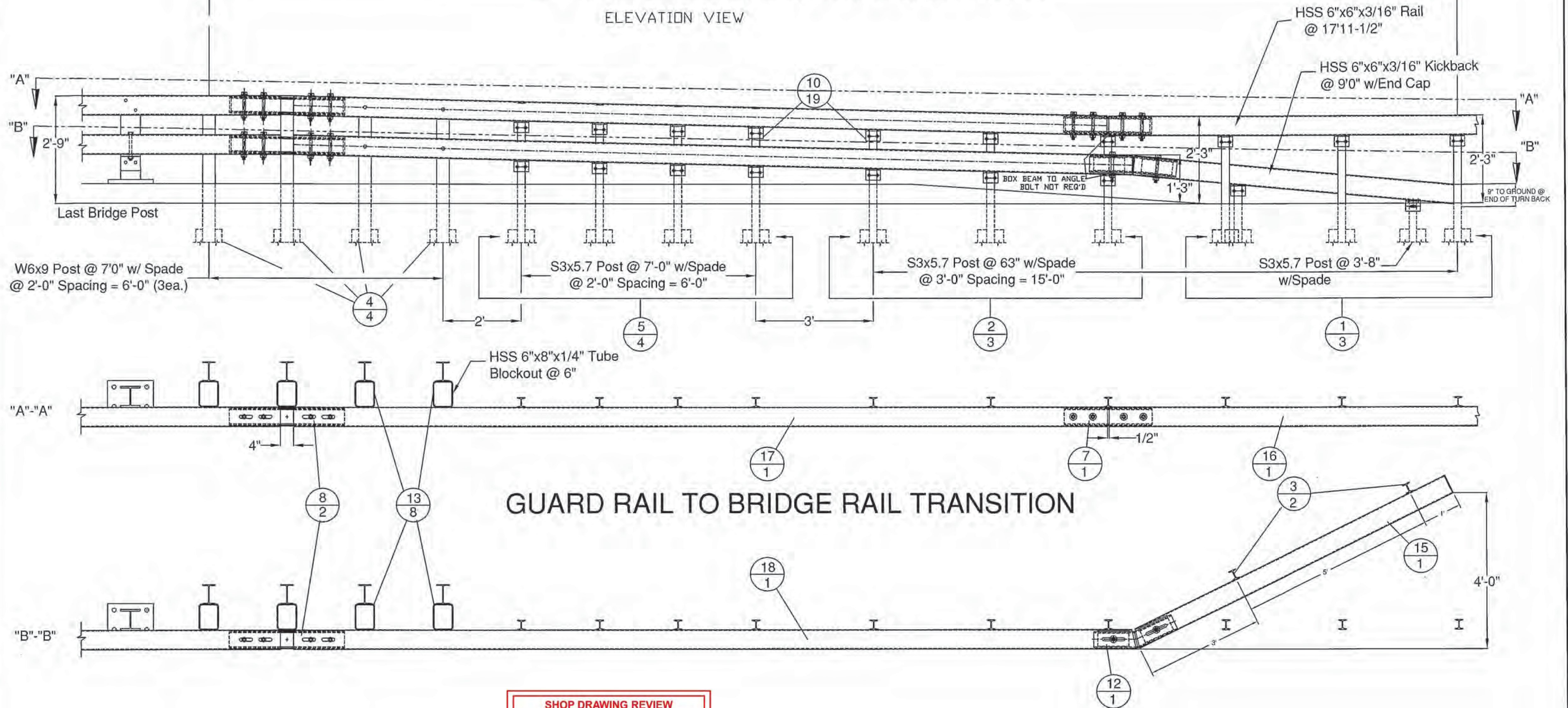
DRAWN	E.P.	12/28/16
CHECKED	D.L.	12/28/16
APPROVED	M.V.	
SCALE	SCHEMATIC	
DRAWING NO. FR Lalayette - ORWELL		

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



32' - PAY LIMIT FOR TRANSITION - BRIDGE RAILING TO BOX BEAM GUIDE RAIL

ELEVATION VIEW



GUARD RAIL TO BRIDGE RAIL TRANSITION

**SHOP DRAWING REVIEW**

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**CLD Consulting Engineers**  
540 Commercial Street  
Manchester, NH 03101  
603-689-8220

Job Number: 150223  
Reviewed by: S.BEAUMONT  
Date: 02/28/2017

Vermont Agency of Transportation  
**RECEIVED**  
CK'D BY: CLD    OK'D BY: CLD  
February 14, 2017  
RESUBMIT No    Approved As Noted  
BY: Kristin Higgins    DATE: 2/28/2017

ITEM #: 900.620  
STRUCTURAL STEEL TO COMPLY W/ ASTM A6  
TOLERANCE UNLESS OTHERWISE NOTED:  
FRACTIONS = ± 1/16"  
ANGLES = ± 1/2"  
DIAMETERS = ± 1/32"

SHEET 1 OF 4

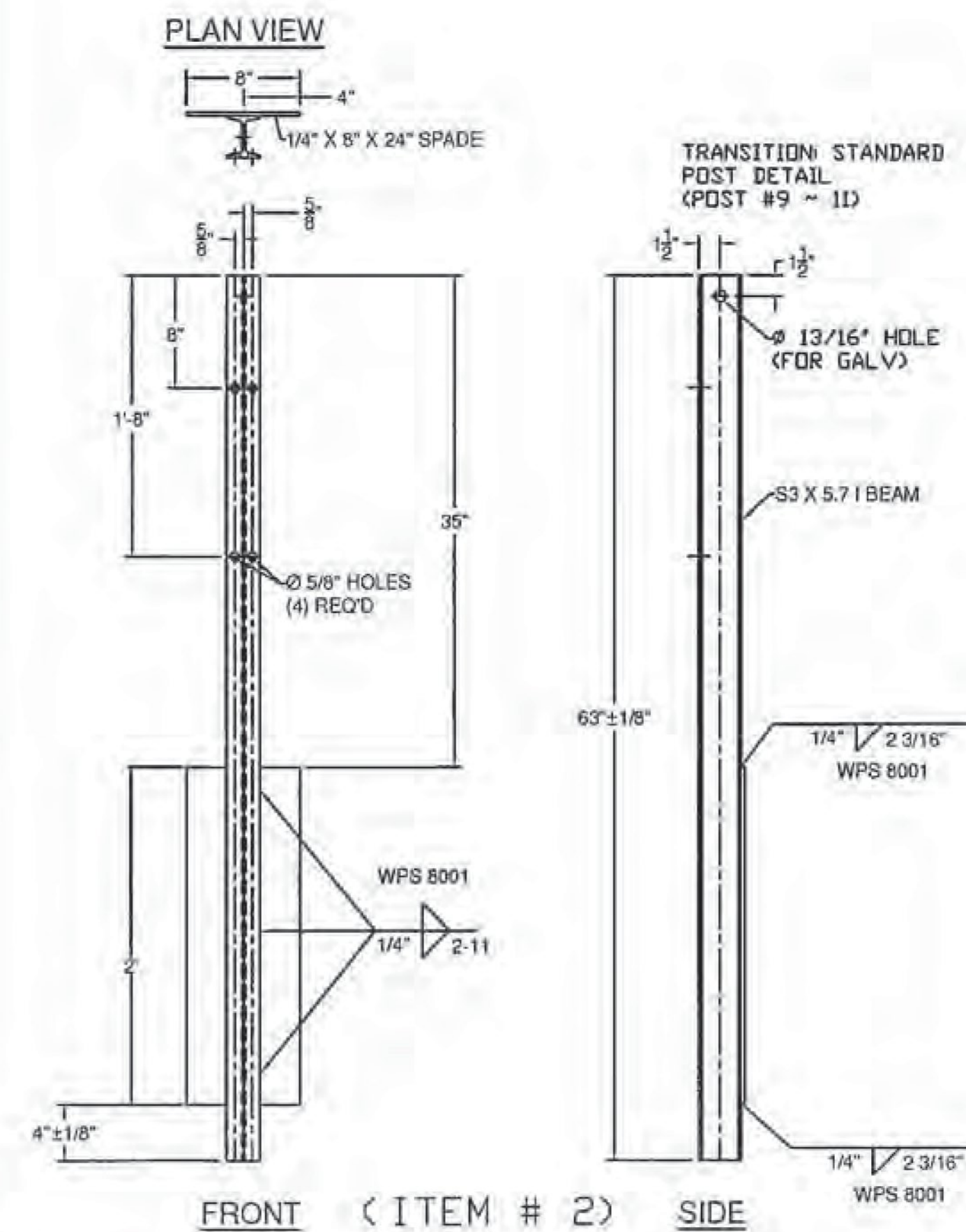
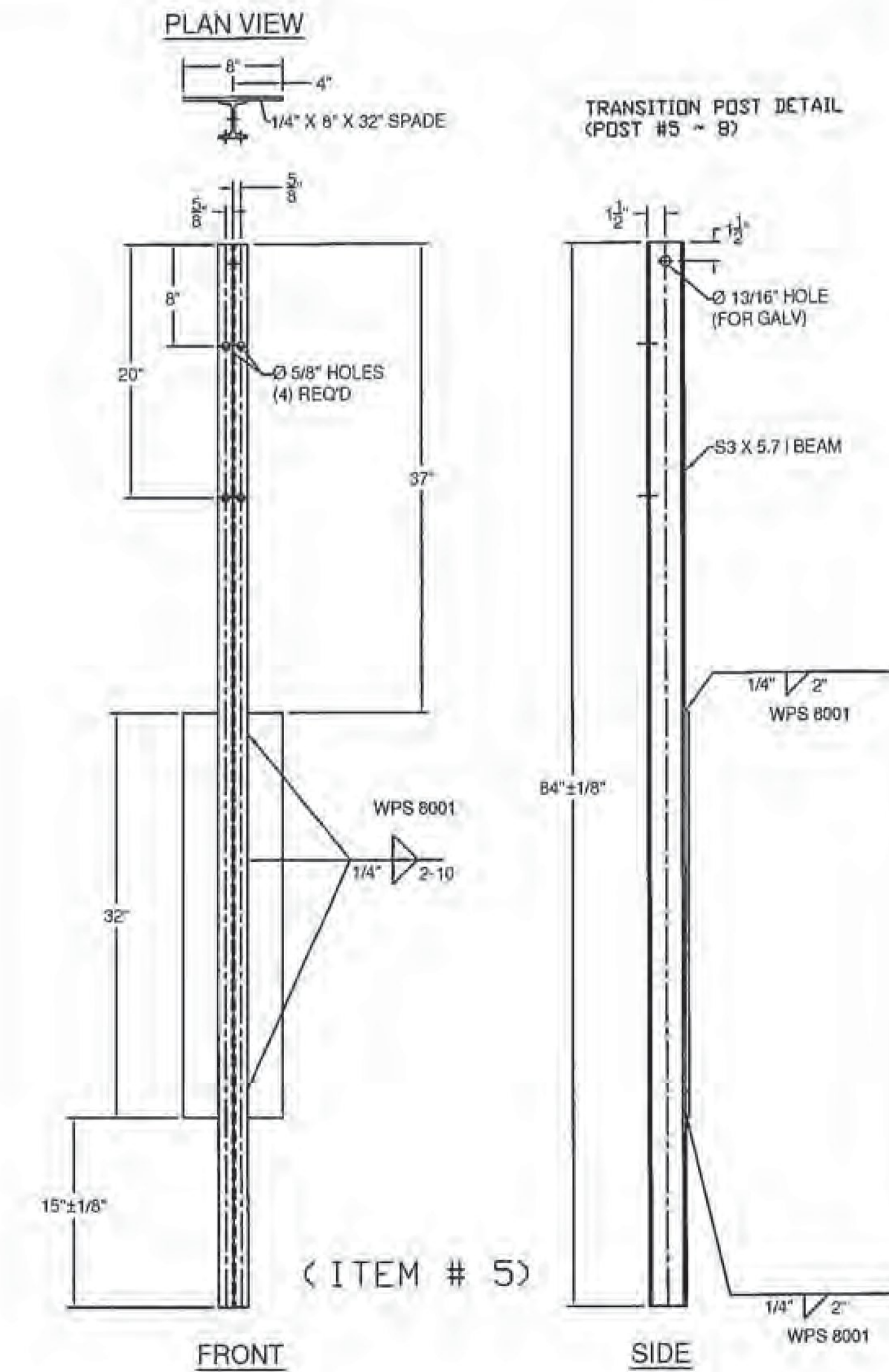
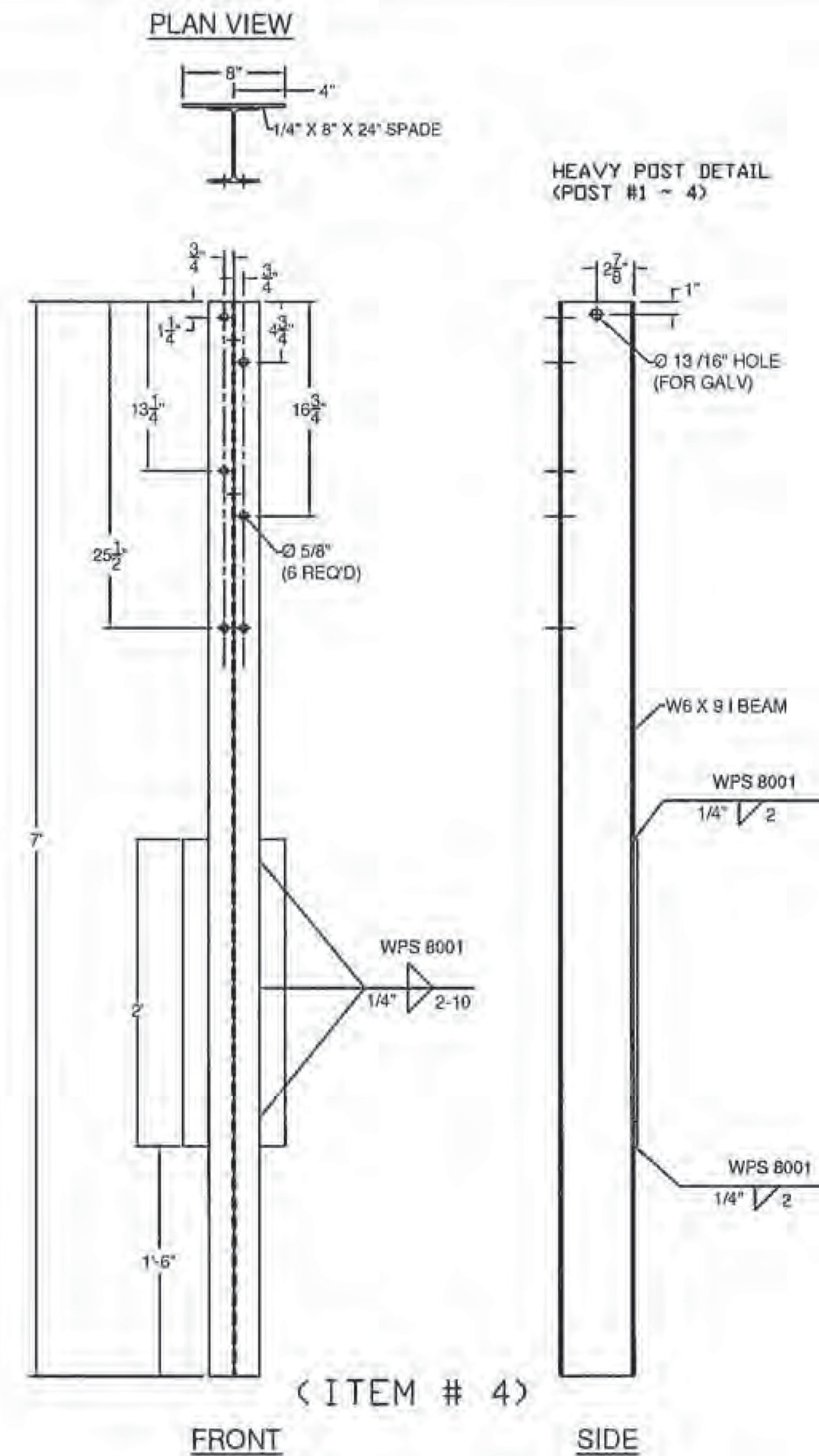
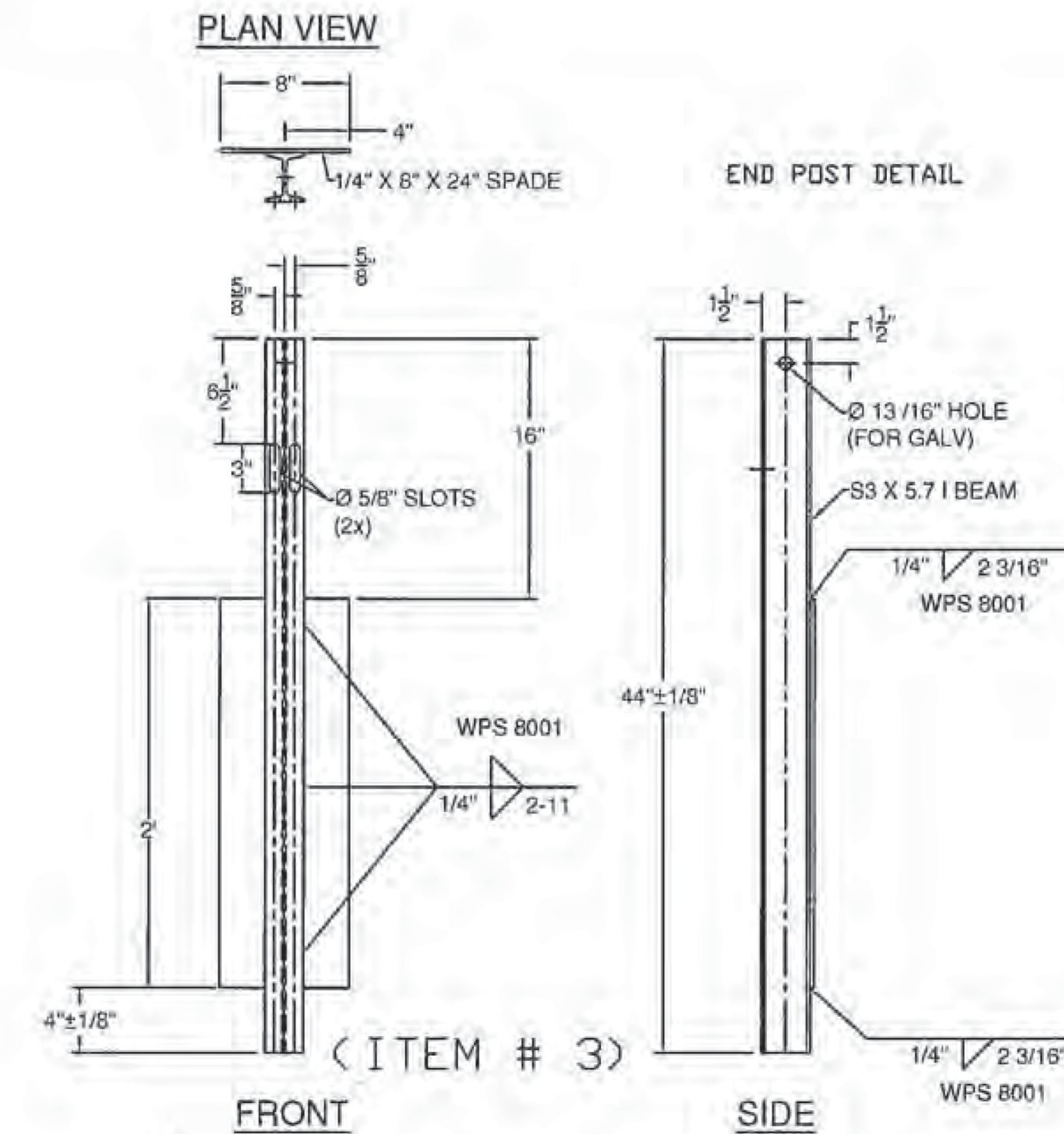
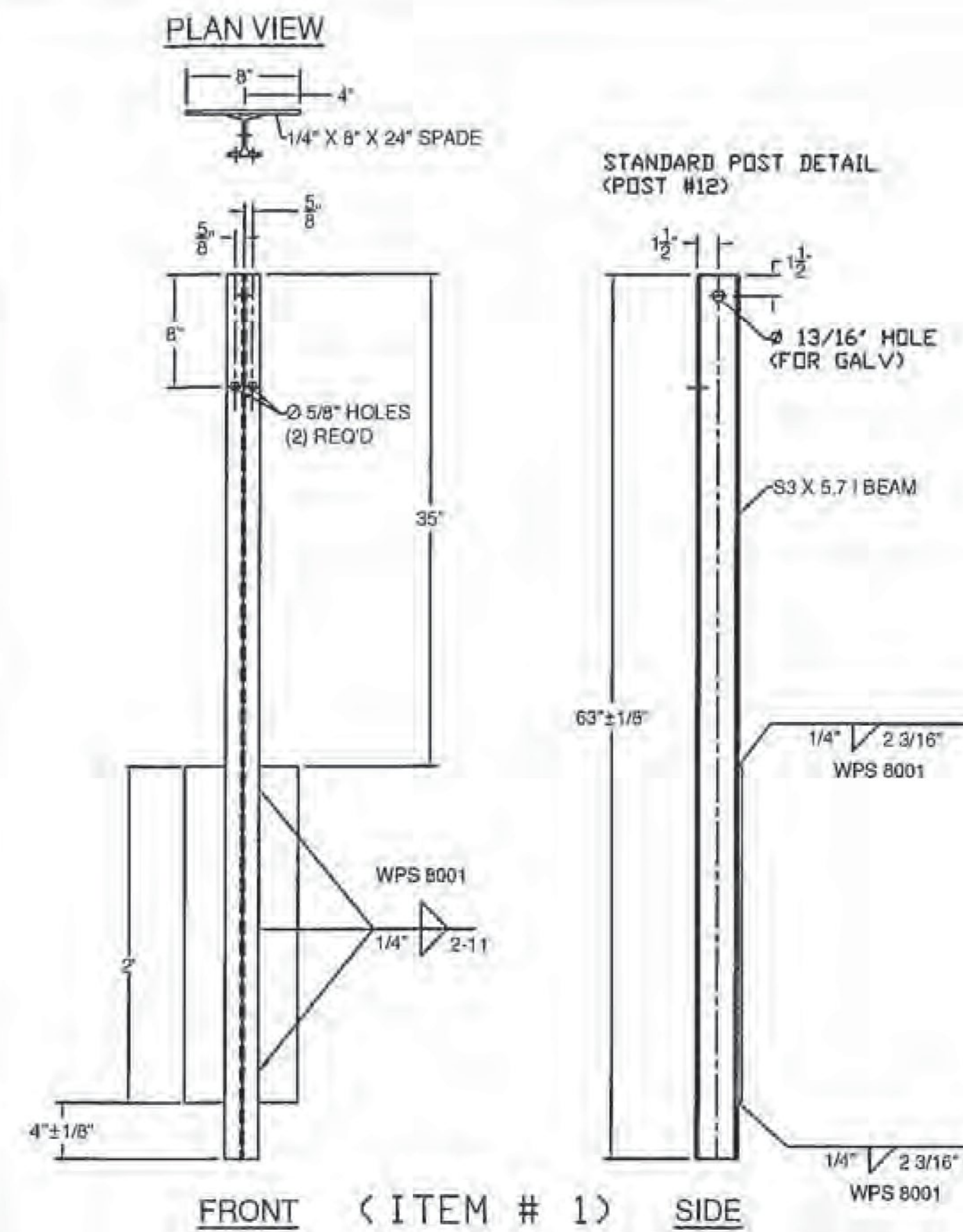
**GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET**  
STATE NUMBERED ROUTE 73 (TH #3) (MAJOR COLLECTOR) - BR NO. 4  
TOWN OF ORWELL, ADDISON COUNTY, VT

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

**ELDERLEE, INC.**  
OAKS CORNERS, NEW YORK 14518  
email: dloug@elderlee.com / epeek@elderlee.com  
Tel: 315-789-6670 Fax: 315-789-6615

**CERTIFIED FABRICATOR**

DRAWN	D.K.	12/14/16
CHECKED	E.P.	12/14/16
APPROVED	D.L.	12/14/16
SCALE	SCHEMATIC	
DRAWING NO. FR Lafayette - ORWELL-T		



**GENERAL NOTES:**

- 1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 621 OF THE STANDARD SPECIFICATIONS.
- 2) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
- 3) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
- 4) BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
- 5) ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT, RADIi GREATER THAN 16' TO BE CURVED ON A TUBE BENDING MACHINE, RADIi EQUAL OR LESS THAN 16' TO BE "PIE CUT" AND WELDED. CURVED RAILING WILL HAVE AN 18" LENGTH ON EACH END STRAIGHT TO ACCOMADATE SPLICES. "PIE CUTS ARE LOCATED SO AS TO NOT CONFLICT WITH POST FASTENING HOLES. PIE CUTS WILL BE WELDED ACCORDING TO PROCEDURE WPS-3026.

BILL OF MATERIALS (EACH CORNER)				
ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)
1	3	0013.57021	S3 X 5.7 POST, PUNCH 8" W/SPD @ 63' LG	ASTM A572 Gr. 50
2	3	0013.57025	S3 X 5.7 POST, PUNCH 8", & 20" W/SPD @ 63' LG	ASTM A572 Gr. 50
3	2	0013.57060	S3 X 5.7 END POST W/SPD @ 3'-8" LG	ASTM A572 Gr. 50
4	4	0013.09001	W6 X 9 POST @ 7' W/SPD @ 5/8" HOLES	ASTM A572 Gr. 50
5	4	0013.57010	S3 X 5.7 POST, PUNCH 8" & 20", W/8X32" SPADE @ 7'	ASTM A572 Gr. 50
7	1	0033.00640	HSS 5X5 TUBE SPLICE @ 27' LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
8	2	0033.00730	HSS 5x5 EXP TUBE SPLICE @ 36' LG W/ 1/4" SHIMS	A500 Gr. B / A572 Gr 50
10	19	0054.00050	REG BB SHELF ANGLES @ 4-1/2"	ASTM A36
12	1	0054.00074	HSS 5 X 5 X 5/16" DBL BEND TUBE SPL @ 27' LG,	A500 Gr. B / A572 Gr 50
13	8	0054.00563	6 X 8 X 1/4" TRANS. TUBE B/D @ 6' LG	A500 Gr. B
15	1	0054.09000	6 X 6 X 3/16" BB @ 9'-0" KICKBACK, W/ CAP, & 13" MITER	A500 Gr. B / A36
16	1/2	0054.18000	6 X 6 X 3/16" BB @ 9'-0" THIS PAY ITEM, DRILL 3" CC	A500 Gr. B
17	1	0054.90092	6 X 6 X 3/16" BB TOP TRANS @ 20'-9 5/8" LG W/EXP END	A500 Gr. B
18	1	0054.90093	6 X 6 X 3/16" BB BTM TRANS @ 21'-4 5/8" LG W/EXP END	A500 Gr. B
19	17	0080.03355	3/8" X 7 1/2" BOLT, NUT, & 2 FW	A307, A563 DH, F436
20	19	0080.04100	1/2" x 1-1/2" BOLT, NUT, & FW	A307, A563 DH, F436
21	16	0080.04120	1/2" x 1-1/2" BOLT, NUT, 2 FW & LW	A307, A563 DH, F436
23	14	0080.06340	3/4" X 7-1/2" BOLT, NUT, 2 FW	A325, A563 DH, F436
24	4	0080.06370	3/4" X 8" CARR BOLT, NUT, FW & LW	A307, A563 DH, F436

HARDWARE NOTES	
ITEM #	FUNCTION
19	BOLT RAIL TO SHELF ANGLE (ITEM #10)
20	BOLT SHELF ANGLE (ITEM #'S 10 & 11) TO POST
21	BOLT BLOCK-OUTS (ITEM #'S 13 & 14) TO HEAVY POST
23	(4) PER SPLICE TUBING (ITEM #'S 7 & 8) & (2) (ITEM # 2)
24	BOLT RAIL (ITEMS #'S 6,17, & 18 TO BLOCK-OUTS (ITEM #'S 13 & 14) WHERE FASTENED)

**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED FOR THE CONTRACTOR'S PERFORMANCE TO THE DESIGN CONCEPT OF THE WORK AND SUBJECT TO FURTHER LIMITATIONS AND CONDITIONS OF THE CONTRACT DOCUMENTS.

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 APPROVED AS NOTED

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CLD Consulting Engineers  
 240 Commercial Street  
 Montpelier, VT 05601  
 802-488-9223

Job Number: 150223  
 Reviewed by: S.BEAUMONT  
 Date: 02/28/2017

APPLICABLE NOTES IN THE BRIDGE RAIL DRAWING SHALL ALSO BE APPLICABLE ON THESE DRAWINGS

ITEM #: 900.620

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

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

**GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET**  
 STATE NUMBERED ROUTE 73 (TH #3) (MAJOR COLLECTOR) - BR NO. 4  
 TOWN OF ORWELL, ADDISON COUNTY, VT

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

DRAWN	D.K.	12/14/16
CHECKED	E.P.	12/14/16
APPROVED	D.L.	12/14/16
SCALE	SCHEMATIC	
DRAWING NO. FR LAlayette - ORWELL-T		



**ELDERLEE, INC.**  
 OAKS CORNERS, NEW YORK 14518  
 email: dlong@elderlee.com / speek@elderlee.com  
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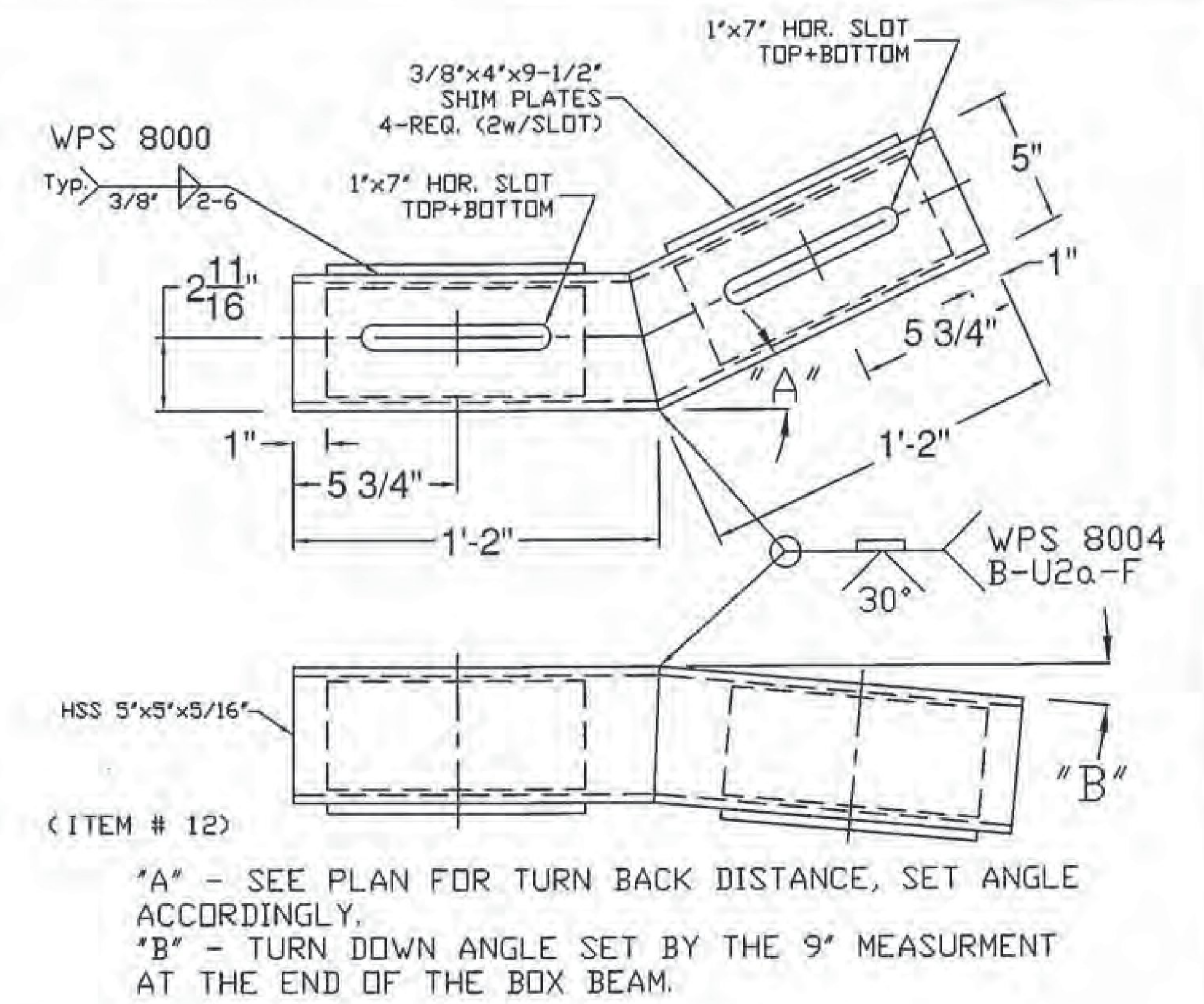
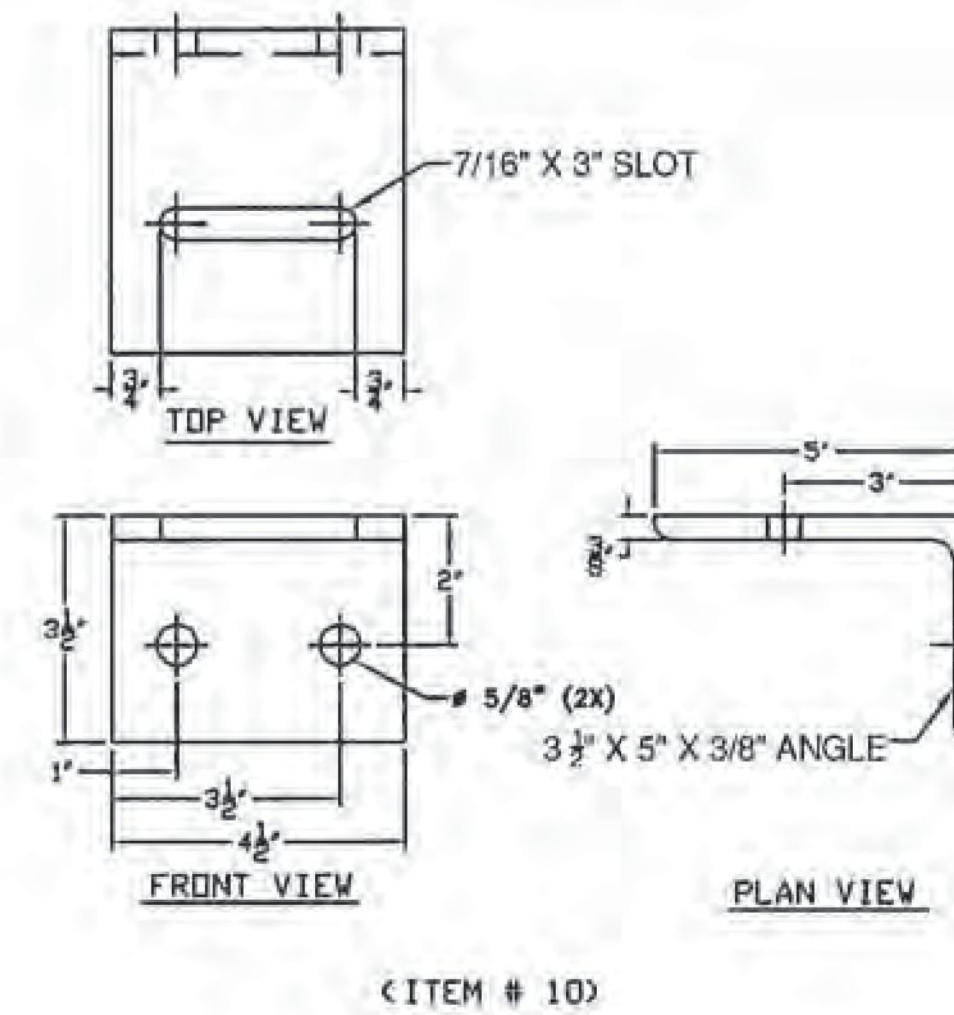
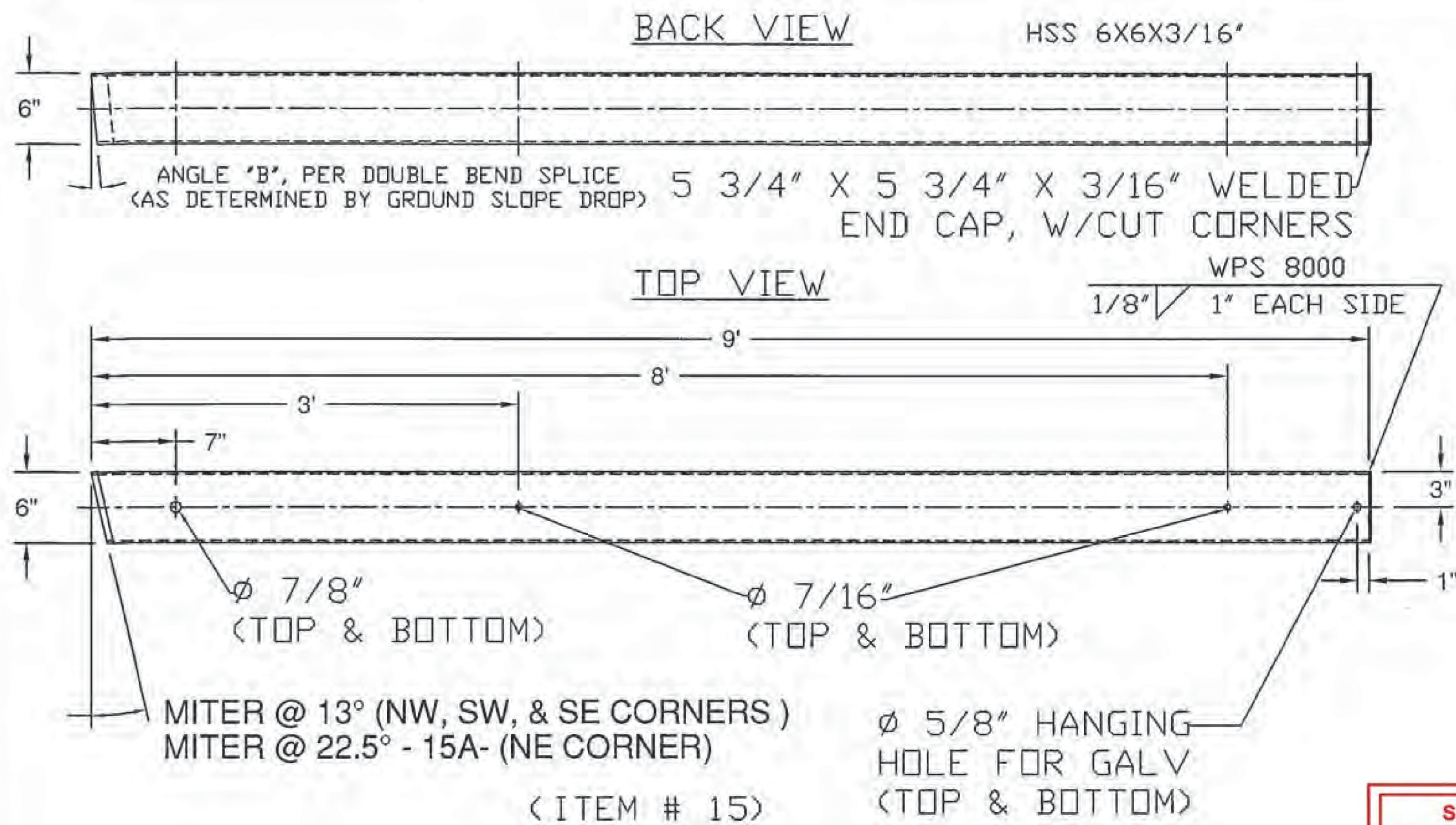


CERTIFIED FABRICATOR  
 ORTHOGRAPHIC PROJECTION

**RECEIVED**

February 14, 2017

CK'D BY CLD OK'D BY CLD  
 RESUBMIT No Approved AsNoted  
 BY Kristin Higgins DATE 2/28/2017



**SHOP DRAWING REVIEW**

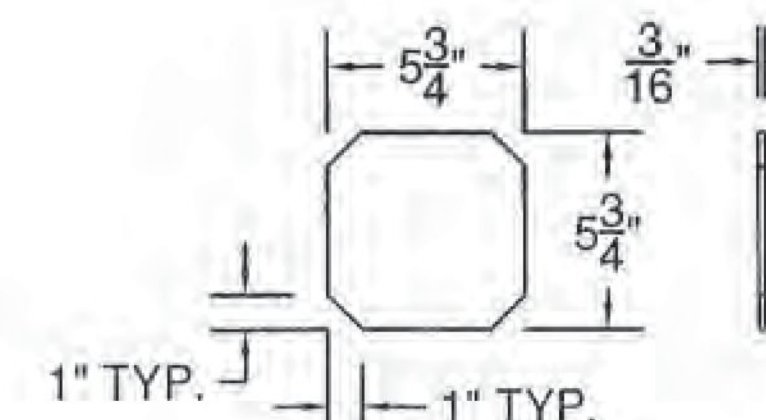
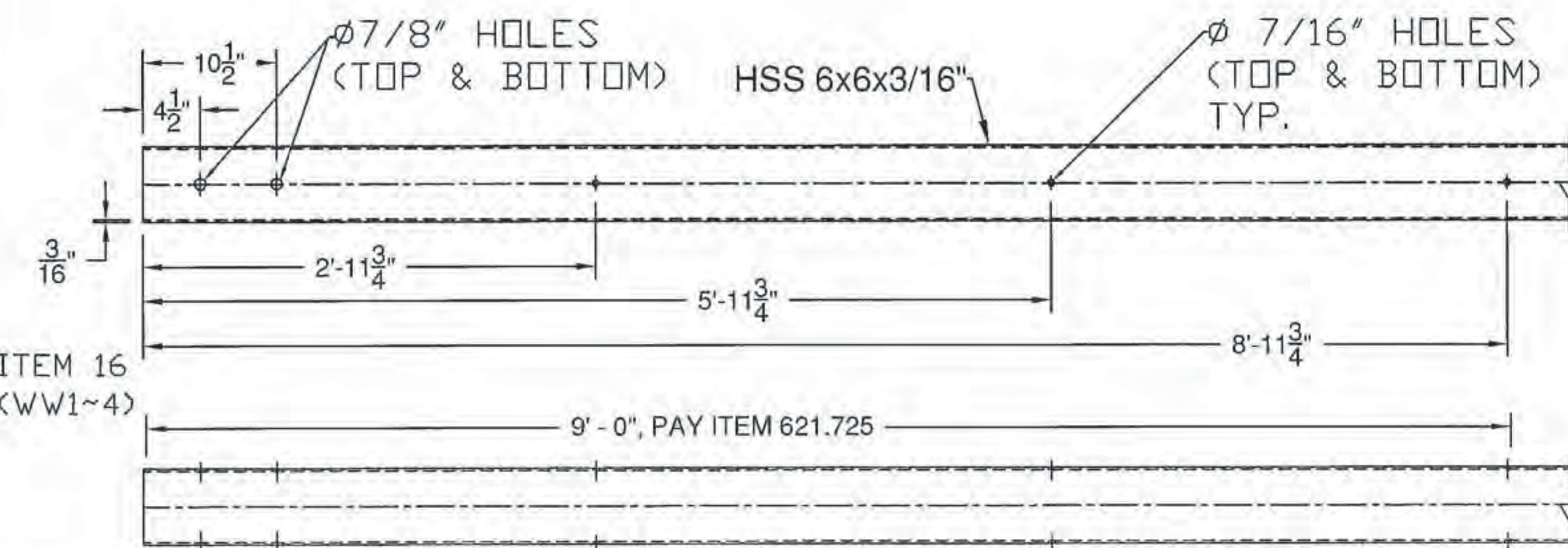
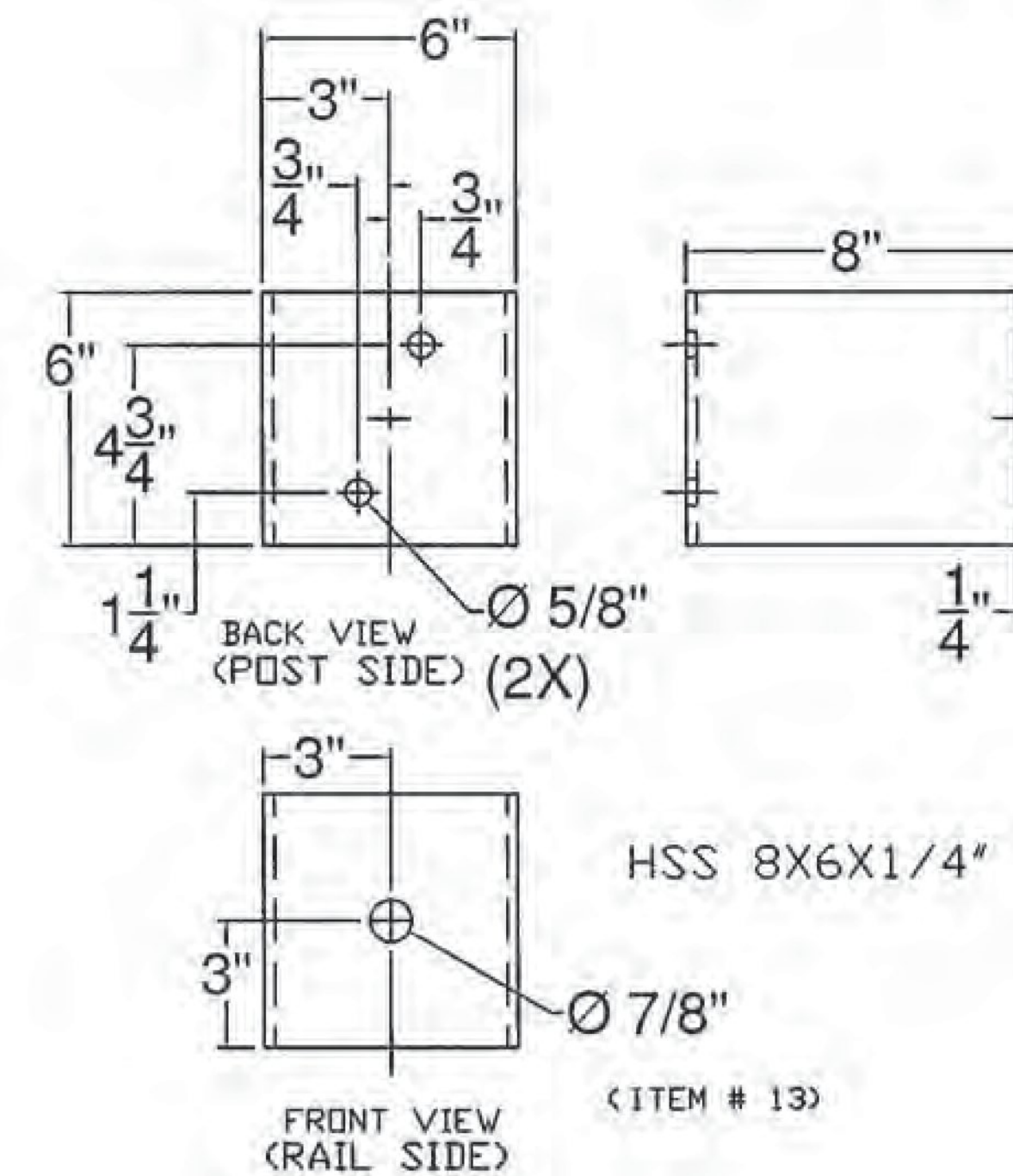
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Job Number: 150223  
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ANGLES = ± 1/2"  
DIAMETERS = ± 1/32"

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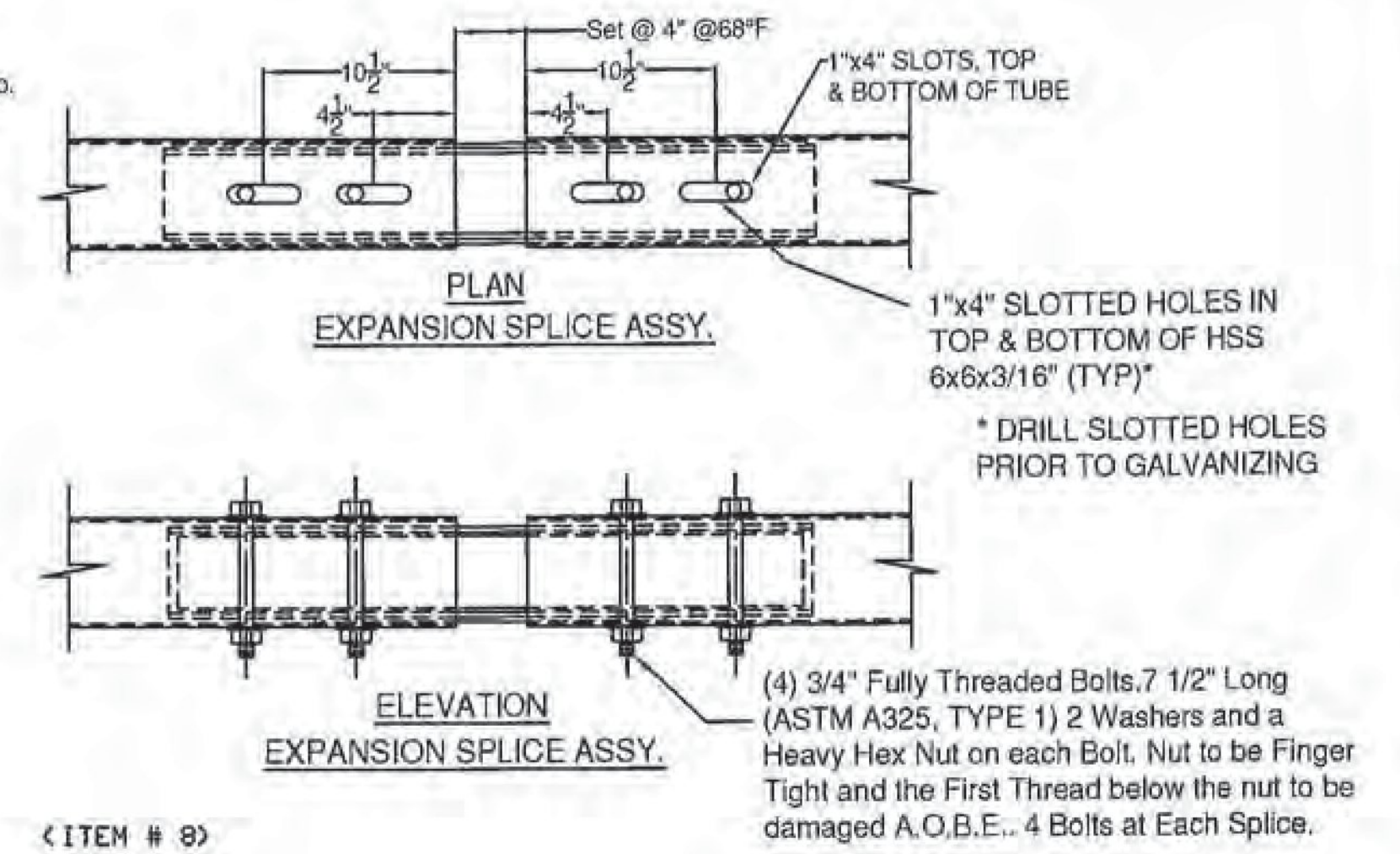
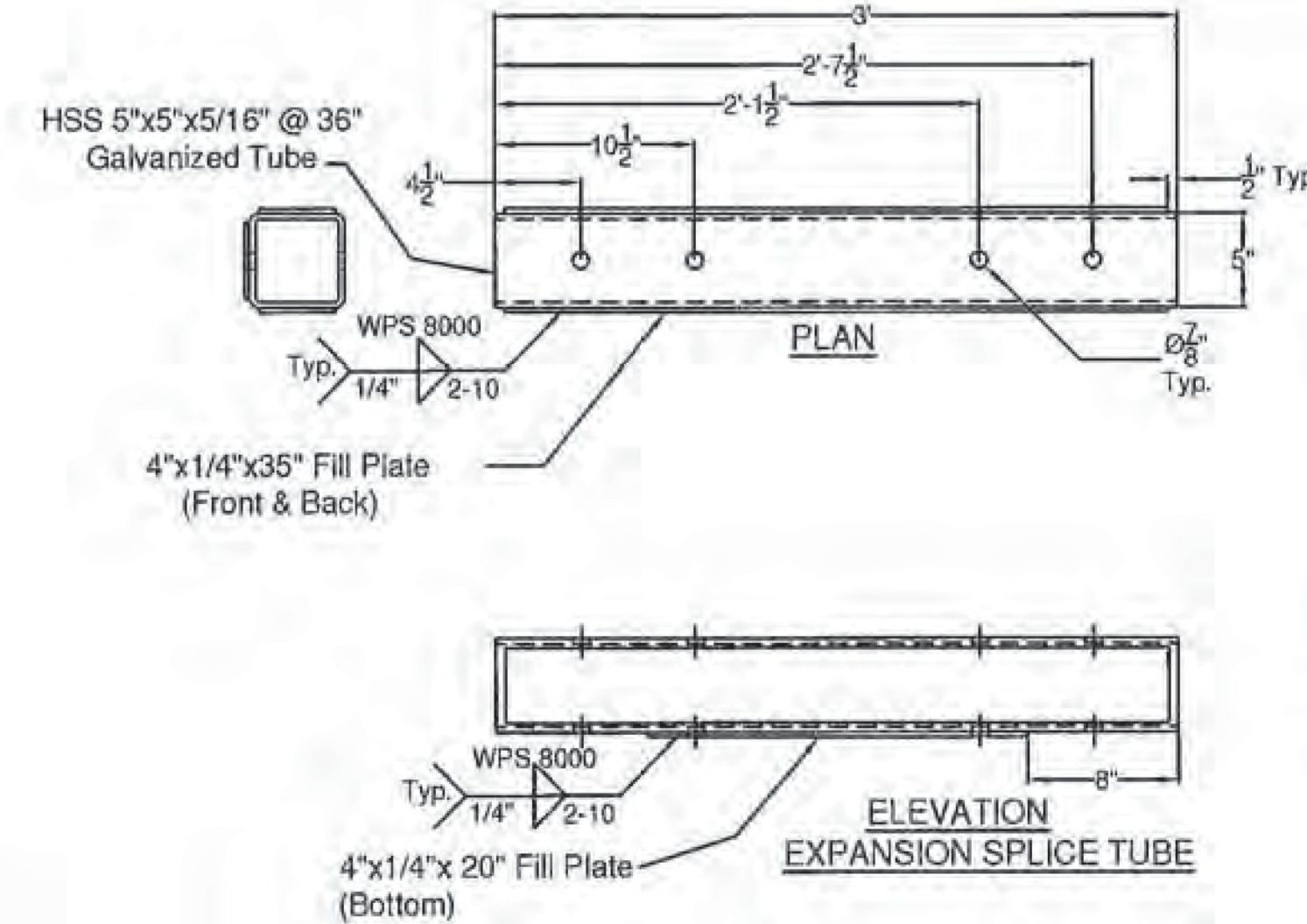
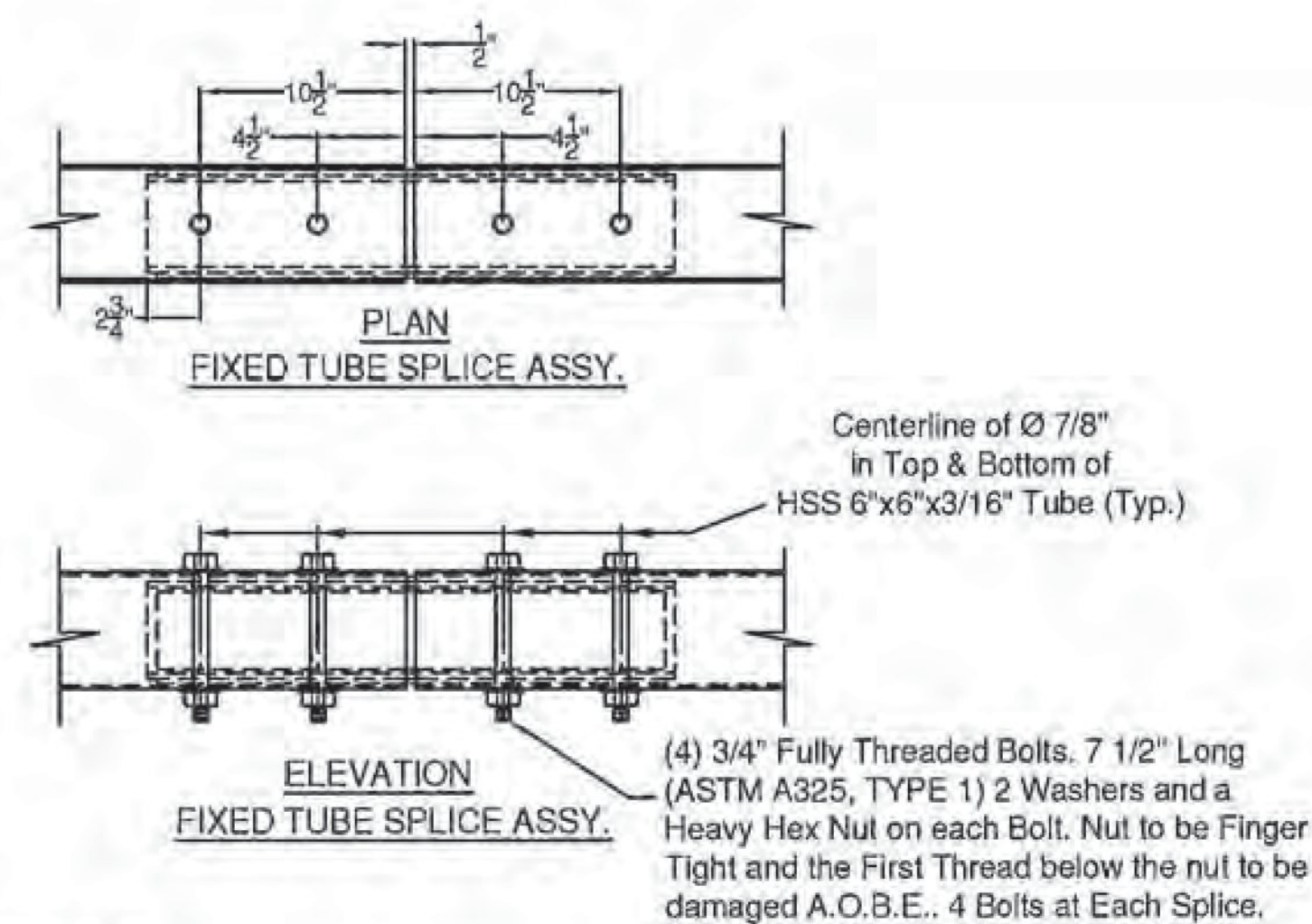
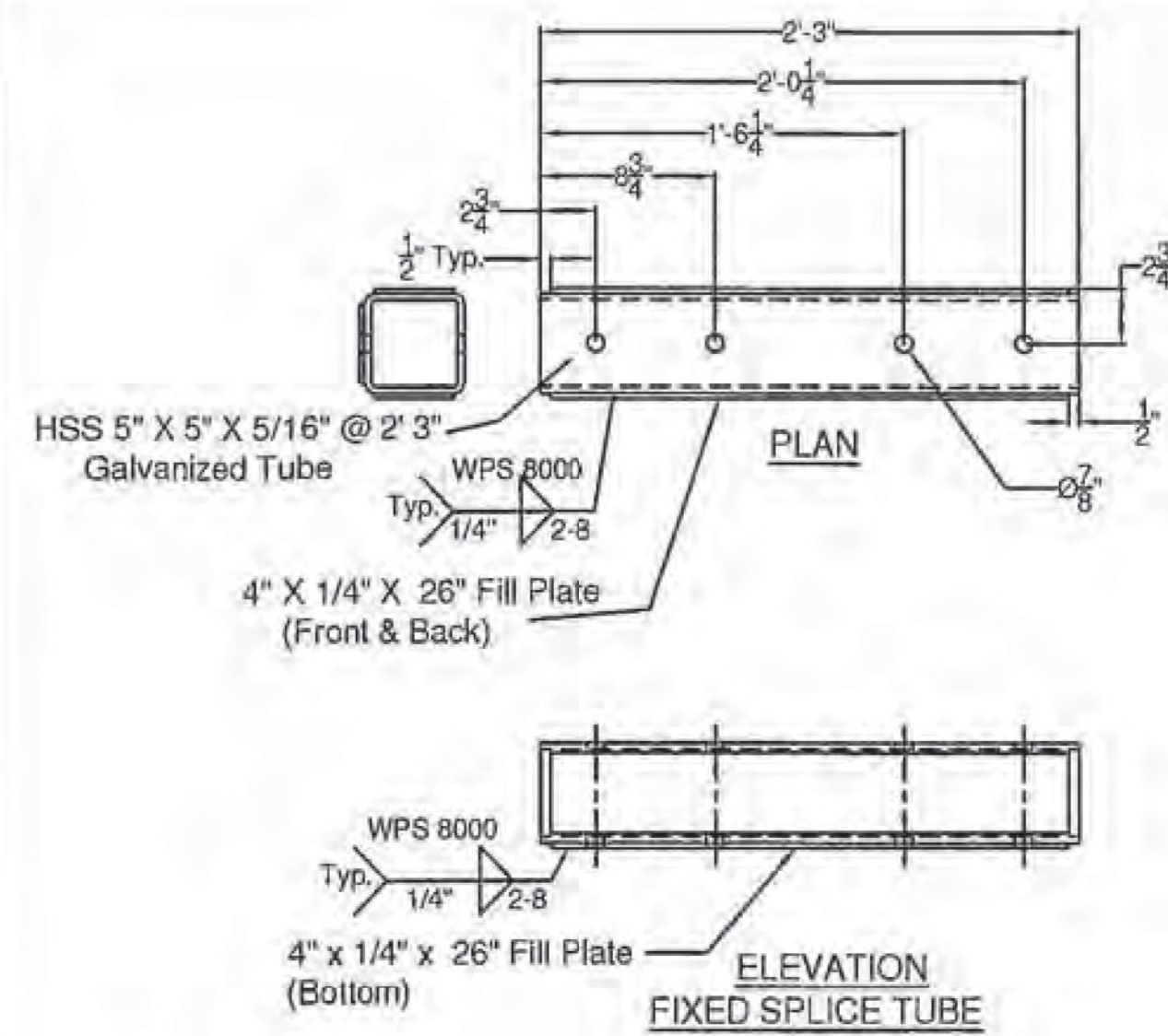
R	NO.	DATE	DESCRIPTION	BY	R	NO.	DATE	DESCRIPTION	BY
E					E				
V					V				

DRAWN	D.K.	12/14/16
CHECKED	E.P.	12/14/16
APPROVED	D.L.	12/14/16
SCALE	SCHEMATIC	
DRAWING NO.	FR Lafayette - ORWELL-T	

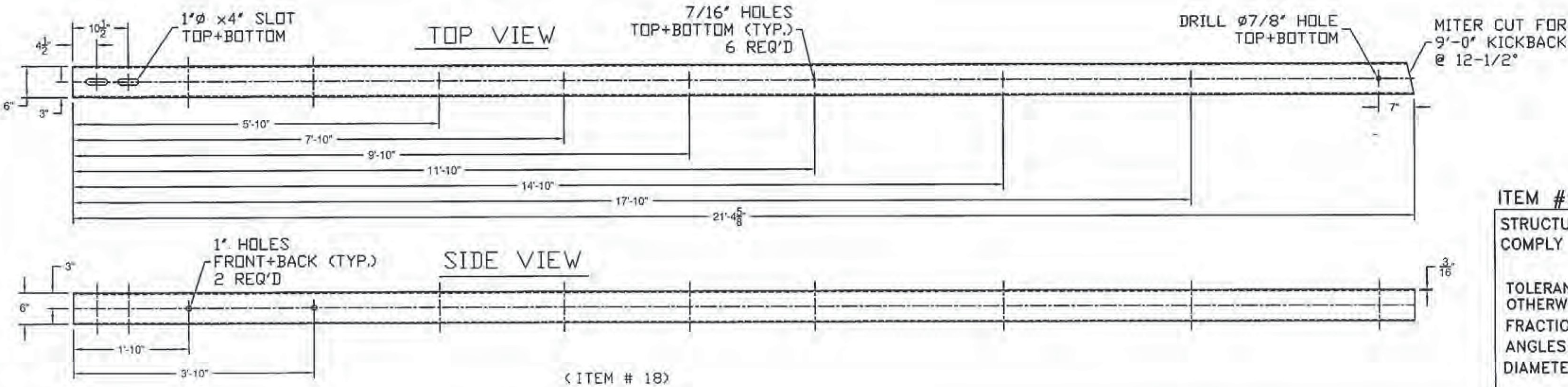
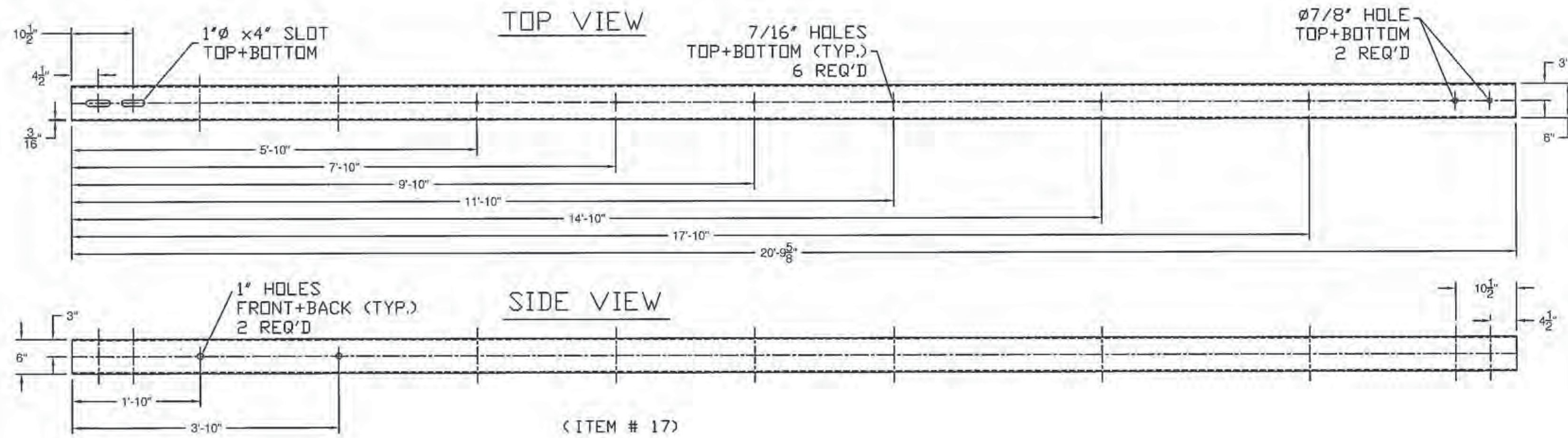
**ELDERLEE, INC.**  
OAKS CORNERS, NEW YORK 14518  
email: dlong@elderlee.com / epeek@elderlee.com  
Tel: 315-789-6670 Fax: 315-789-6615

Vermont Agency of Transportation  
**RECEIVED**  
CK'D BY CLD OK'D BY CLD  
February 14, 2017  
RESUBMIT No Approved AsNoted  
By Kristin Higgins DATE 2/28/2017

SHEET 3 OF 4



SPLICE TUBE - FIXED SPLICE TUBE - EXPANSION



**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED  REVISE AND RESUBMIT  APPROVED AS NOTED

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CLD Consulting Engineers  
340 Commercial Street  
Manchester, NH 03101  
603-868-2522

Job Number: 150223  
Reviewed by: S. BEAUMONT  
Date: 02/28/2017

Vermont Agency of Transportation  
**RECEIVED**  
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February 14, 2017  
RESUBMIT No Approved As Noted  
BY Kristin Higgins DATE 2/28/2017

ITEM #: 900.620

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

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

**GUARD RAIL TO BRIDGE RAIL TRANSITION DETAILS SHEET**  
STATE NUMBERED ROUTE 73 (TH #3) (MAJOR COLLECTOR) - BR NO. 4  
TOWN OF ORWELL, ADDISON COUNTY, VT

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

DRAWN D.K. 12/14/16  
 CHECKED E.P. 12/14/16  
 APPROVED D.L. 12/14/16  
 SCALE SCHEMATIC  
 DRAWING NO. FR Lafayette - ORWELL-T

**ELDERLEE, INC.**  
OAKS CORNERS, NEW YORK 14518  
email: dlong@elderlee.com / epeek@elderlee.com  
Tel: 315-789-6670 Fax: 315-789-6615

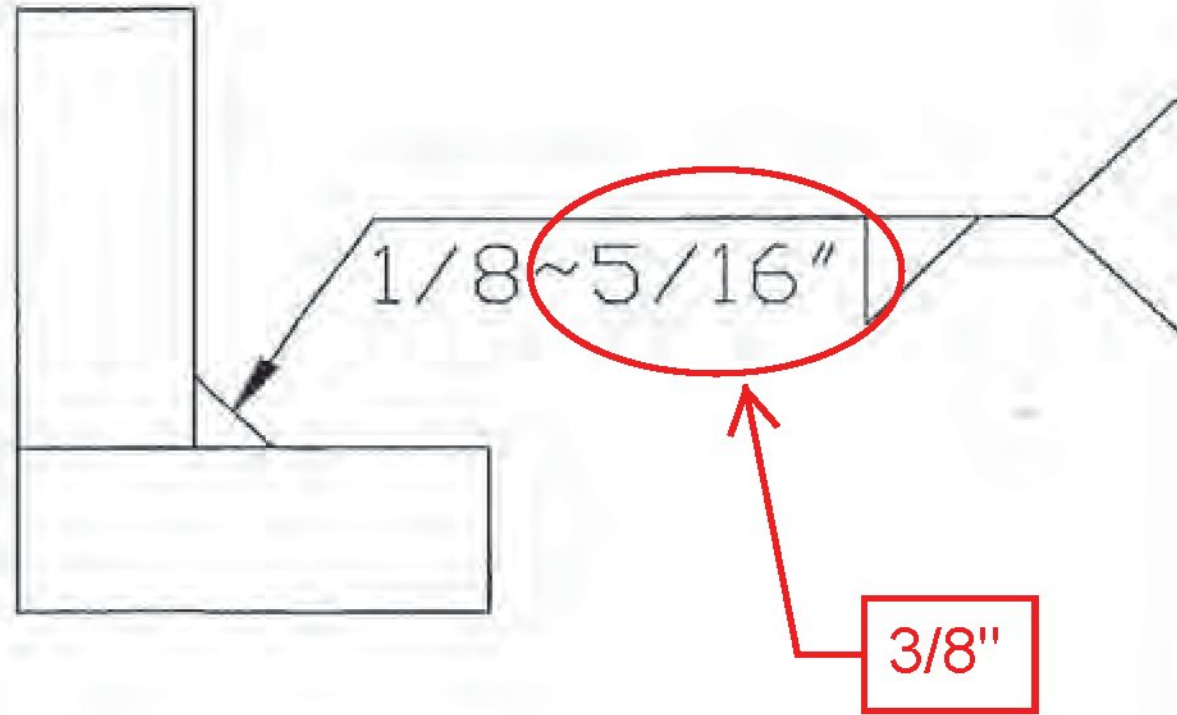
CERTIFIED FABRICATOR  
ORTHOGONOGRAPHIC PROJECTION

**WELDING PROCEDURE SPECIFICATION**

Material Specification PQR ELDERLEE # 3  
A36/A500GR.B/A53/A572GR.36/50/A709GR.36/50/A108 / A307/A325/A563/A449  
Welding Process FCAW  
Manual or Machine SEMAUTOMATIC  
Position of Welding FLAT/HORIZONTAL  
Filler Metal Specification A5.29  
Filler Metal Classification E81T1-Ni1C-JH4 LINCOLN ULTERCORE 81i1C-H  
Flux N/A  
Shielding Gas CO 2 Dew Point -40DEG F Flow Rate 50CFH  
Single or Multiple Pass SINGLE (45 TO 63 CFH)  
Single or Multiple Arc SINGLE  
Welding Current DC  
Polarity REVERSE ELECTRODE POSITIVE CTWD 3/4"  
Welding Progression STRINGER  
Root Treatment ROOT SHALL BE CLEAN AND FREE OF FOREIGN MATTER  
Preheat and Interpass Temperature MIN PREHEAT 50 DEG ≤ 0.75" 70 DEG > 0.75" MAX INTERPASS 400 DEG  
Postheat Temperature NONE  
Heat Input Min 33.92 Max 50.42

SHOP DRAWING REVIEW	
<input type="checkbox"/> REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.	
<input type="checkbox"/> REJECTED	<input type="checkbox"/> REVISE AND RESUBMIT
<input checked="" type="checkbox"/> APPROVED AS NOTED	
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 JLD Consulting Engineers 540 Commercial Street Manchester, NH 03101 603-888-8223	Job Number <u>150223</u> Reviewed by <u>S.BEAUMONT</u> Date <u>02/28/2017</u>

**WELDING PROCEDURE**

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
		320	26	12.1	
		TO	TO	TO	
		285	24	9.9	

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

Procedure No. 8000 Contractor Elderlee, Inc.  
Revision No. 1 Authorized By RANDY SCOTT  
Date 2/7/2017

Form III-2

Vermont Agency of Transportation  
**RECEIVED**  
 CK'D BY Ryan Foster OK'D BY Ryan Foster  
 February 14, 2017  
 RESUBMIT No Approved AsNoted  
 BY Kristin Higgins DATE 2/28/2017

**WELDING PROCEDURE SPECIFICATION**

Material Specification	PQR ELDERLEE #4		
Welding Process	A36/A572 GR. 36 / 50 / A709 GR. 36 / 50		
Manual or Machine	GMAW		
Position of Welding	SEMAUTOMATIC    ROBOTIC		
Filler Metal Specification	FLAT		
Filler Metal Classification	A5.18		
Flux	L-56 ER70S-6 LINCOLN		
Shielding Gas	N/A		
Single or Multiple Pass	90% ARGON / 10% CO2    Dew Point -40DEG F    Flow Rate 45CFH		
Single or Multiple Arc	SINGLE		
Welding Current	SINGLE		
Polarity	DC		
Welding Progression	REVERSE ELECTRODE POSITIVE    CTWD 3/4"		
Root Treatment	STRINGER		
Preheat and Interpass Temperature	ROOT SHALL BE CLEAN AND FREE OF FOREIGN MATTER		
Postheat Temperature	MIN PREHEAT 50 DEG ≤ 0.75" 70 DEG > 0.75" MAX INTERPASS 400 DEG		
Heat Input	Min	10.56	Max 15.84

**WELDING PROCEDURE**

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	.045	190	22	19	
		171	20	18	
		TO	TO	TO	
		200	23	21	

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

Procedure No. 8001 Contractor Elderlee, Inc.  
 Revision No. 1 Authorized By RANDY SCOTT  
 Date 2/7/2017

Form III-2

Vermont Agency of Transportation  
**RECEIVED**  
 CK'D BY Ryan Foster OK'D BY Ryan Foster  
 February 14, 2017  
 RESUBMIT No Approved  
 BY Kristin Higgins DATE 2/28/2017

**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.  
 REJECTED     REVISE AND RESUBMIT     APPROVED AS NOTED

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C.D. Consulting Engineers 540 Commercial Street Manchester, NH 03101 603-669-6225	Job Number: <u>150223</u> Reviewed by: <u>S.BEAUMONT</u> Date: <u>02/28/2017</u>
--------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------

**WELDING PROCEDURE SPECIFICATION**

Material Specification	PQR ELDERLEE #3		
Welding Process	A36/A500GR.B/A53/A572GR.36/50/A709GR.36/50/A108		
Manual or Machine	FCAW		
Position of Welding	SEMAUTOMATIC		
Filler Metal Specification	FLAT		
Filler Metal Classification	A5.29		
Flux	E81T1-NI1C-JH4 LINCOLN ULTERCORE 81i1C-H		
Shielding Gas	CO 2	Dew Point	-40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE (45 TO 63 CFH)		
Welding Current	SINGLE		
Polarity	DC		
Welding Progression	REVERSE ELECTRODE POSITIVE CTWD 3/4"		
Root Treatment	STRINGER		
Preheat and Interpass Temperature	ROOT SHALL BE CLEAN AND FREE OF FOREIGN MATTER		
Postheat Temperature	MIN PREHEAT 50 DEG ≤ 0.75" 70 DEG > 0.75" MAX INTERPASS 400 DEG		
Heat Input	Min	33.92	Max 50.42

**WELDING PROCEDURE**

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
		320	26	12.1	
		TO	TO	TO	
		285	24	9.9	

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

Procedure No. 8004 Contractor Elderlee, Inc.  
 Revision No. 1 Authorized By RANDY SCOTT  
 Date 2/7/2017

Form III-2

Vermont Agency of Transportation  
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 CK'D BY Ryan Foster OK'D BY Ryan Foster  
 February 14, 2017  
 RESUBMIT No Approved  
 BY Kristin Higgins DATE 2/28/2017

**SHOP DRAWING REVIEW**

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REJECTED  REVISE AND RESUBMIT  APPROVED AS NOTED

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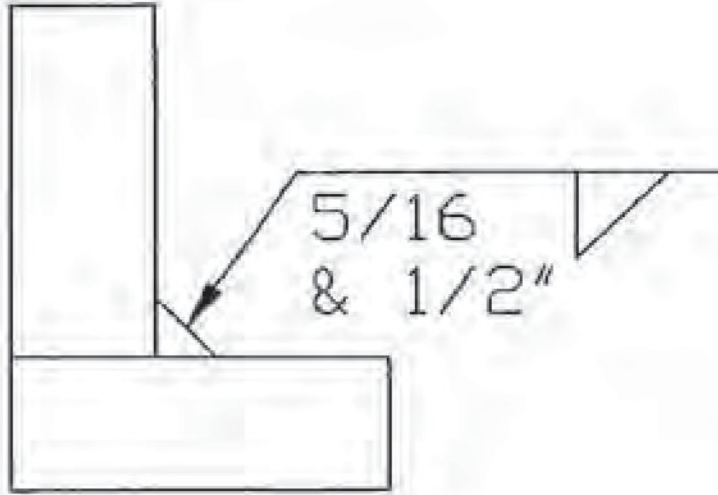
CLD Consulting Engineers, Inc.  
 240 Commercial Street  
 Manchester, NH 03101  
 603-466-6223

Job Number: 150223  
 Reviewed by: S. BEAUMONT  
 Date: 02/28/2017

**WELDING PROCEDURE SPECIFICATION**

Material Specification ASTM A36 / A572 / A709 GR. 36 / 50  
 Welding Process FCAW  
 Manual or Machine SEMI AUTOMATIC  
 Position of Welding FLAT  
 Filler-Metal-Specification A5.20  
 Filler Metal Classification E70 LINCOLN OUTERSHEILD E70T-1  
 Flux N/A  
 Shielding Gas CO 2 Dew Point -40DEG F Flow Rate 50 CFM  
 Single or Multiple Pass SINGLE (45 TO 63 CFH)  
 Single or Multiple Arc N/A  
 Welding Current DC  
 Polarity DCEP CTWD 3/4"  
 Welding Progression STRINGER  
 Root Treatment ROOT SHALL BE CLEAN AND FREE OF FOREIGN MATTER  
 Preheat and Interpass Temperature MIN PREHEAT 50 DEG ≤ 0.75" 70 DEG > 0.75" MAX INTERPASS 400 DEG  
 Postheat Temperature NONE  
 Heat Input Min 42 Max 63.84

**WELDING PROCEDURE**

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	3/32	390	27	12	
		350	26	11	
		TO 418	TO 28	TO 13	

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

Procedure No. 8007  
 Revision No. 1

Contractor Elderlee, Inc.  
 Authorized By RANDY SCOTT  
 Date 2/8/2017

Vermont Agency of Transportation  
**RECEIVED**  
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 February 14, 2017  
 RESUBMIT No Approved  
 BY Kristin Higgins DATE 2/28/2017

**SHOP DRAWING REVIEW**

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CLD Consulting Engineers  
 540 Commercial Street  
 Manchester, NH 03101  
 603-688-8222 Job Number 150223  
 Reviewed by S. BEAUMONT  
 Date 02/28/2017

**SHOP DRAWING REVIEW**

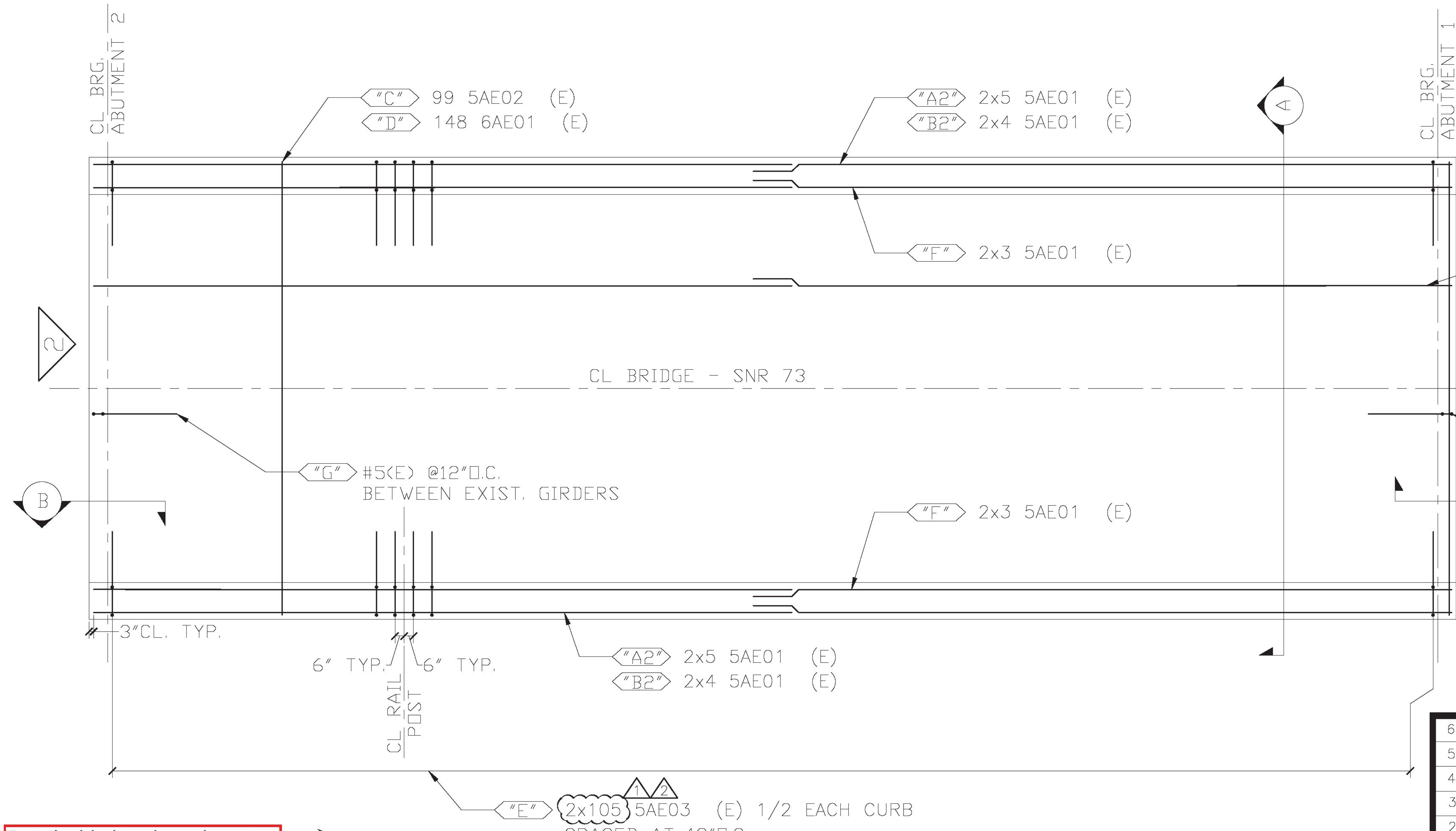
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REJECTED    REVISE AND RESUBMIT    APPROVED AS NOTED

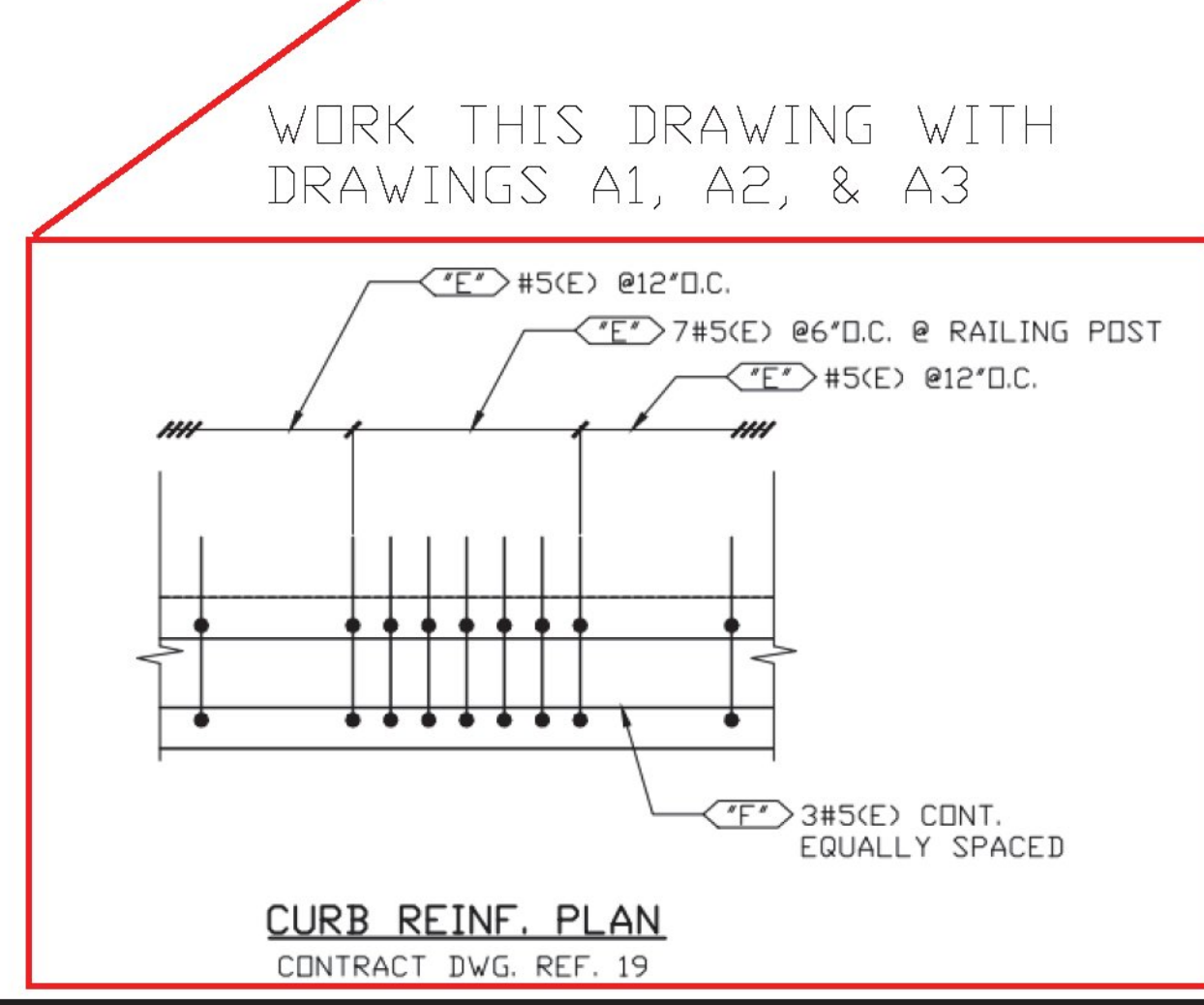
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**CLD** Consulting Engineers  
540 Commercial Street  
Manchester, NH 03101  
603-888-9223

Job Number: 150223  
Reviewed by: S. BEAUMONT  
Date: 04/05/2017



Detail added to shop plans so the Contractor know the intent when laying out the bars.



**DECK REINFORCEMENT PLAN**

CONTRACT DWG. REF. 14 OF 27

ALL LAP SPLICES TO BE 3'-0" U.O.S.

**LEGEND:**

CONT.-CONTINUOUS	E.E.-EACH END
TRANS.-TRANSVERSE	E.F.-EACH FACE
DWLS.-DOWELS	N.F.-NEAR FACE
VERTS.-VERTICAL	F.F.-FAR FACE
HORIZ.-HORIZONTAL	E.W.-EACH WAY
T&B -TOP & BOTTOM	O.C.-ON CENTER
I.F.-INNER FACE	L.W.-LONG WAY
O.F.-OUTER FACE	S.W.-SHORT WAY

ELEVATIONS & DIMENSIONS SHOWN ON THIS DWG. ARE FOR REINF. DETAILING PURPOSES ONLY AND ARE NOT INTENDED FOR DIMENSIONAL CONSTRUCTION.

EPOXY REINF. BARS ASTM A615 GRADE 60, MARKED (E)

VERIFICATION OF UNCLEAR INFORMATION MAY BE REQUESTED ON THIS DRAWING. SHOULD VERIFICATION BE LEFT UN-ADDRESSED IT WILL REMAIN AS SHOWN AND ASSUME TO BE CORRECT.

Vermont Agency of Transportation  
**RECEIVED**

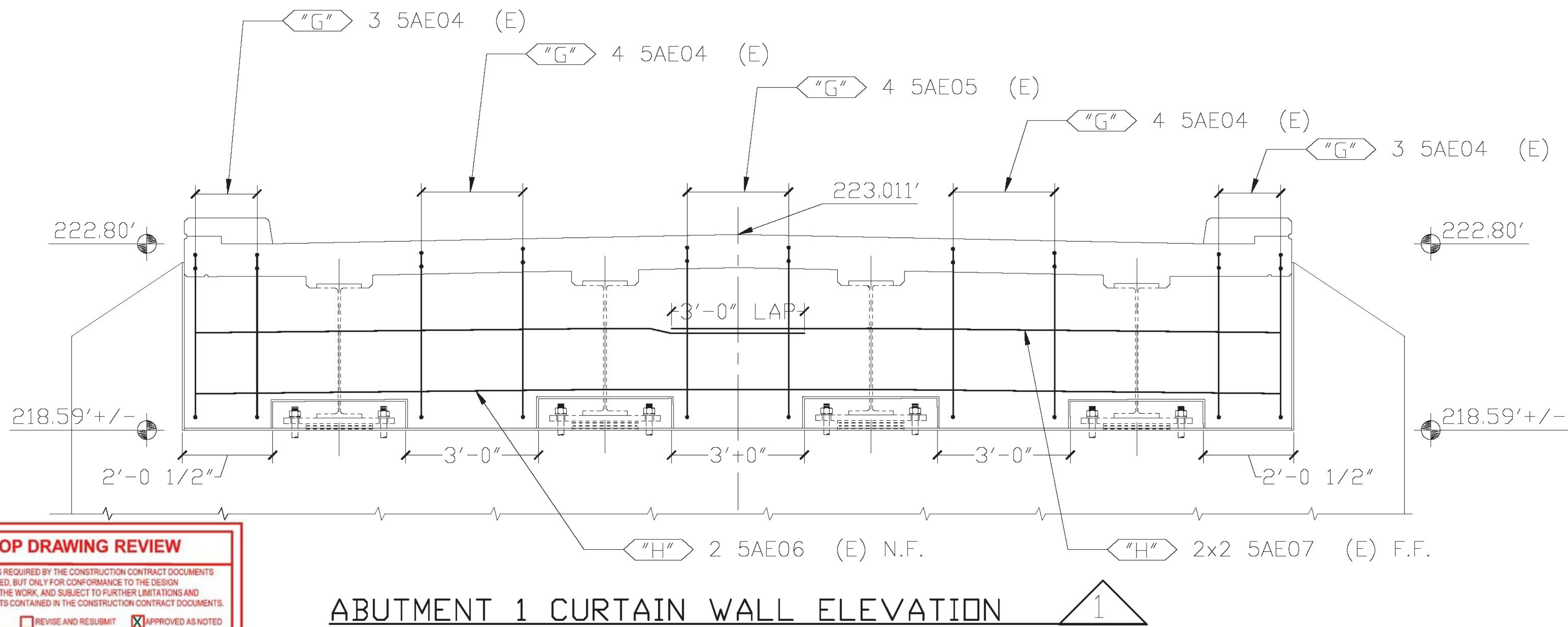
CK'D BY CLD Consulting Engineers   OK'D BY CLD Consulting Engineers

April 5, 2017

RESUBMIT No   Approved AsNoted  
BY Kristin Higgins   DATE 4/5/2017

**FOR APPROVAL**

6			
5			
4			
3	4/3/17	2	REVISED PER APPROVAL / FOR APPROVAL
2	3/20/17	1	REVISED PER APPROVAL / FOR APPROVAL
1	2/13/17	-	FOR APPROVAL
	DATE	REV.#	SENT FOR
	<p>2000 7TH STREET SCOTIA, N.Y. 12302 PH: (518) 374-1936 FAX (518) 374-4830 www.dimensionfabricators.com</p>		
STRUCTURE	VTAOT ORWELL STP DECK (41) STATE ROUTE 73, BRIDGE #4		
LOCATION	TOWN OF ORWELL, COUNTY OF ADDISON		
ARCHITECT			
ENGINEER	CLD CONSULTING ENGINEERS		
CUSTOMER	COLD RIVER BRIDGES, LLC		
DRAWN BY	DATE	DFI #	
CMB	2/11/17	10116	
DRAWING COVERS			DRAWING #
DECK SLAB & CURTAIN WALL			A



**LEGEND:**

CONT.-CONTINUOUS	E.E.-EACH END
TRANS.-TRANSVERSE	E.F.-EACH FACE
DWLS.-DOWELS	N.F.-NEAR FACE
VERTS.-VERTICAL	F.F.-FAR FACE
HORIZ.-HORIZONTAL	E.W.-EACH WAY
T&B -TOP & BOTTOM	O.C.-ON CENTER
I.F.-INNER FACE	L.W.-LONG WAY
O.F.-OUTER FACE	S.W.-SHORT WAY

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EPOXY REINF. BARS ASTM A615 GRADE 60, MARKED (E)

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**SHOP DRAWING REVIEW**

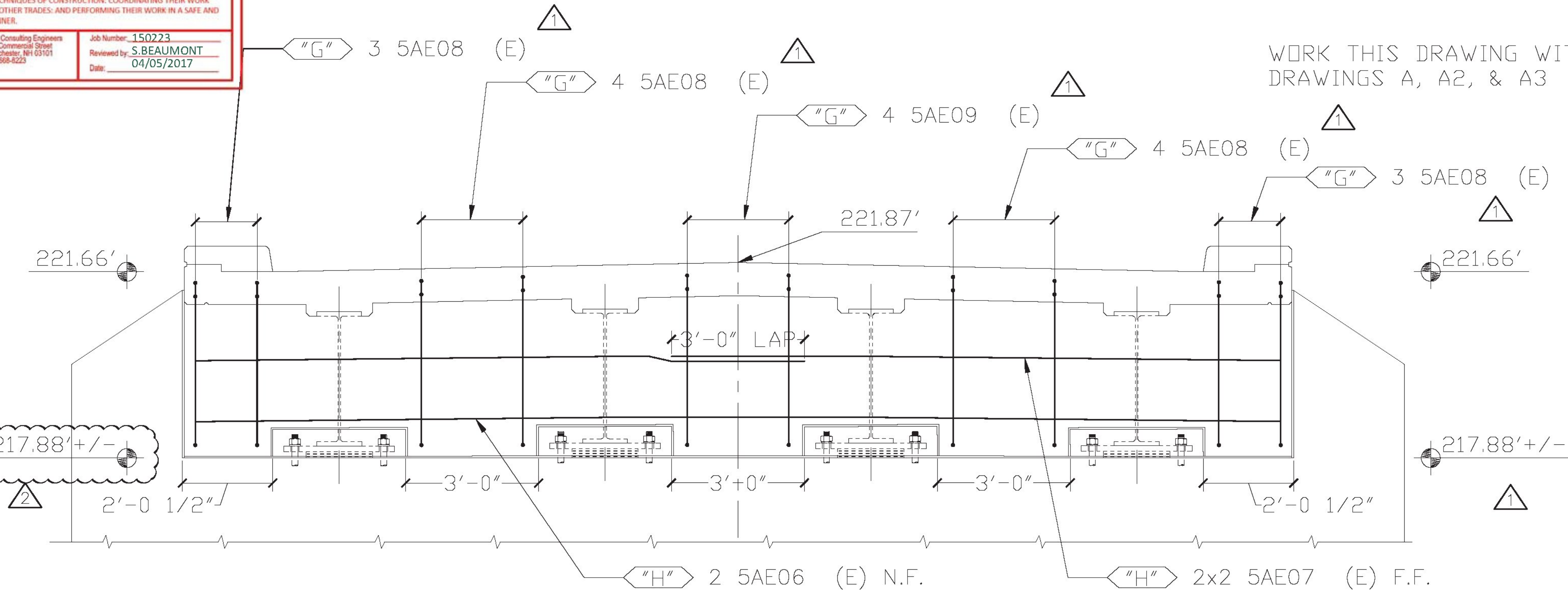
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CLD Consulting Engineers  
540 Commercial Street  
Manchester, NH 03101  
603-688-4223

Job Number: 150223  
Reviewed by: S. BEAUMONT  
Date: 04/05/2017



6			
5			
4			
3	4/3/17	2	REVISED PER APPROVAL / FOR APPROVAL
2	3/20/17	1	REVISED PER APPROVAL / FOR APPROVAL
1	2/13/17	-	FOR APPROVAL
DATE	REV.#	SENT FOR	

STRUCTURE	VTAOT ORWELL STP DECK (41)		
	STATE ROUTE 73, BRIDGE #4		
LOCATION	TOWN OF ORWELL, COUNTY OF ADDISON		
ARCHITECT			
ENGINEER	CLD CONSULTING ENGINEERS		
CUSTOMER	COLD RIVER BRIDGES, LLC		
DRAWN BY	DATE	DFI #	
CMB	2/11/17	10116	
DRAWING COVERS		DRAWING #	
DECK SLAB & CURTAIN WALL		A1	

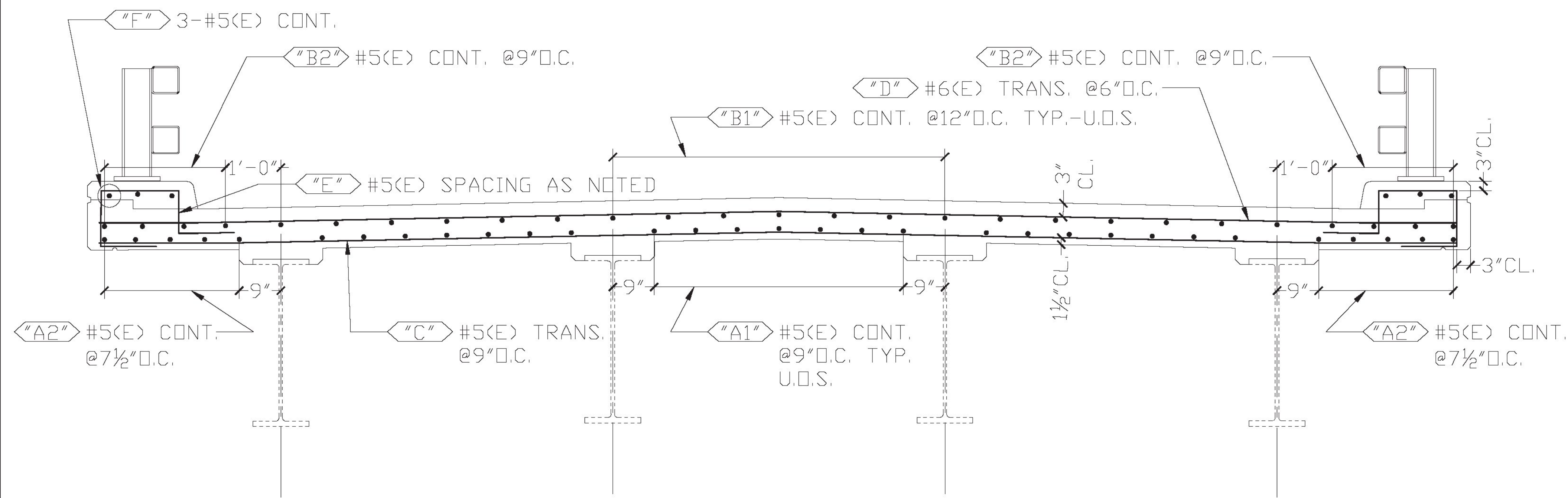
Vermont Agency of Transportation  
**RECEIVED**

CK'D BY CLD Consulting Engineers   OK'D BY CLD Consulting Engineers

April 5, 2017

RESUBMIT No   Approved AsNoted  
BY Kristin Higgins   DATE 4/5/2017

**FOR APPROVAL**



**SECTION A**

CONTRACT DWG. REF. A-A / 14 OF 27

**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

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**CLD** CLD Consulting Engineers  
140 Commercial Street  
Manchester, NH 03101  
603-669-6223

Job Number: 150223  
Reviewed by: S. BEAUMONT  
Date: 04/05/2017

Vermont Agency of Transportation  
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April 5, 2017

RESUBMIT No Approved AsNoted  
BY Kristin Higgins DATE 4/5/2017

**LEGEND:**

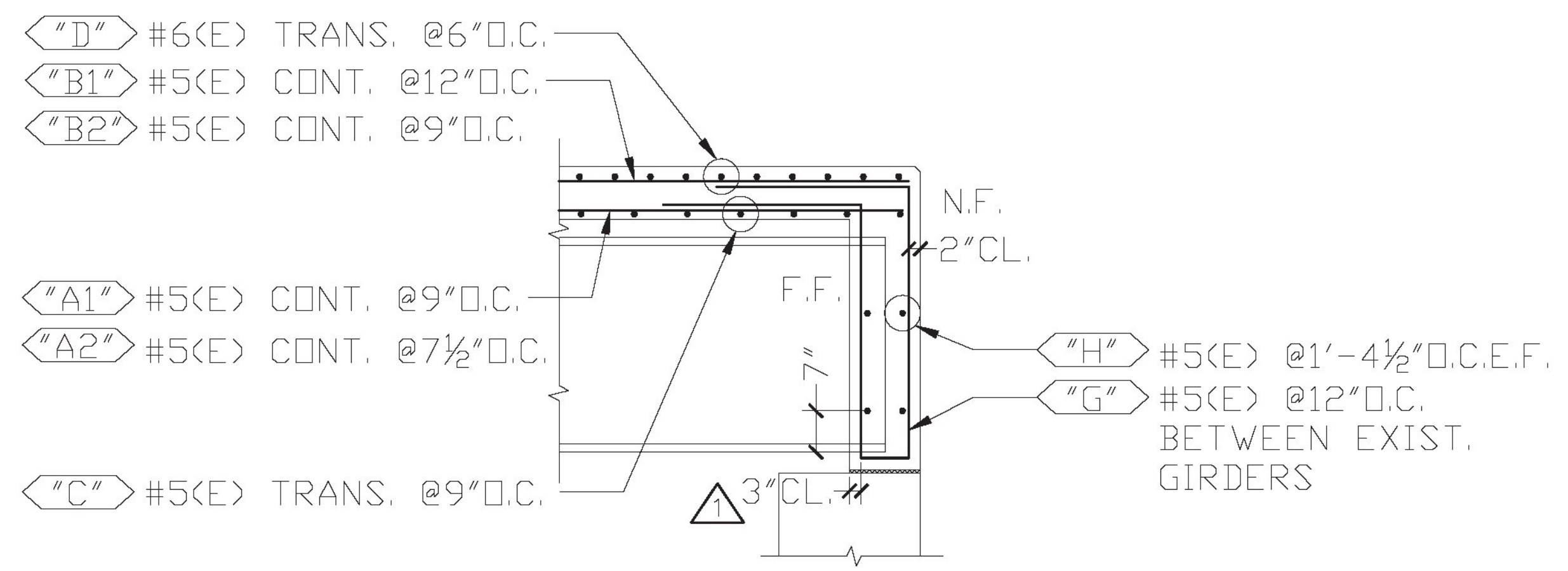
CONT.-CONTINUOUS	E.E.-EACH END
TRANS.-TRANSVERSE	E.F.-EACH FACE
DWLS.-DOWELS	N.F.-NEAR FACE
VERTS.-VERTICAL	F.F.-FAR FACE
HORIZ.-HORIZONTAL	E.W.-EACH WAY
T&B -TOP & BOTTOM	O.C.-ON CENTER
I.F.-INNER FACE	L.W.-LONG WAY
O.F.-OUTER FACE	S.W.-SHORT WAY

ELEVATIONS & DIMENSIONS SHOWN ON THIS DWG. ARE FOR REINF. DETAILING PURPOSES ONLY AND ARE NOT INTENDED FOR DIMENSIONAL CONSTRUCTION.

EPOXY REINF. BARS ASTM A615 GRADE 60, MARKED (E)

VERIFICATION OF UNCLEAR INFORMATION MAY BE REQUESTED ON THIS DRAWING. SHOULD VERIFICATION BE LEFT UN-ADDRESSED IT WILL REMAIN AS SHOWN AND ASSUME TO BE CORRECT.

WORK THIS DRAWING WITH DRAWINGS A, A1, & A3



**SECTION B**

CONTRACT DWG. REF. 16 OF 27

**FOR APPROVAL**

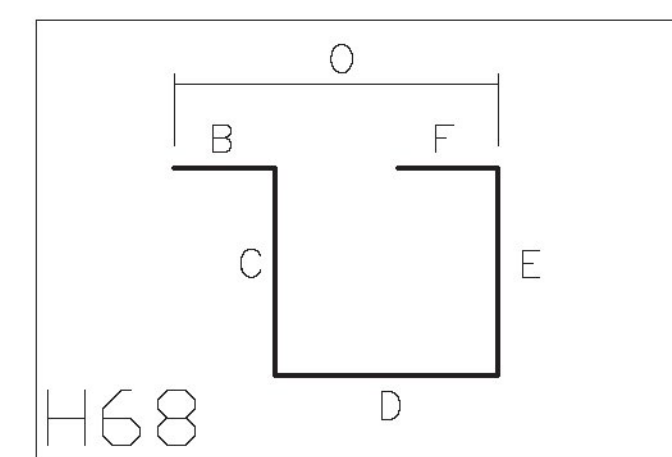
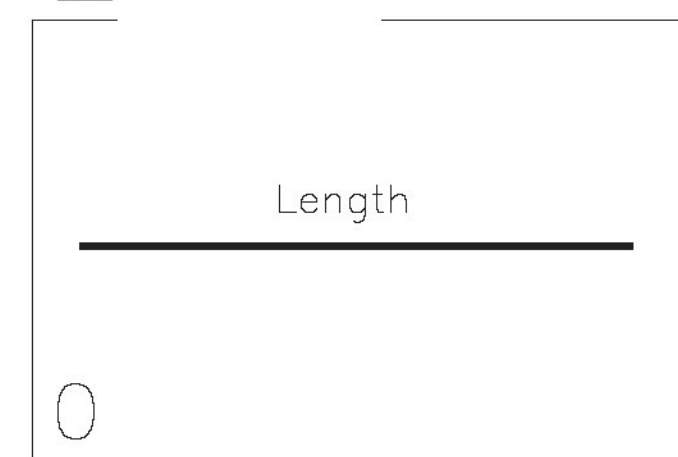
6			
5			
4			
3	4/3/17	-	NO CHANGES / FOR APPROVAL
2	3/20/17	1	REVISED PER APPROVAL / FOR APPROVAL
1	2/13/17	-	FOR APPROVAL
	DATE	REV.#	SENT FOR
STRUCTURE	VTAOT ORWELL STP DECK (41) STATE ROUTE 73, BRIDGE #4		
LOCATION	TOWN OF ORWELL, COUNTY OF ADDISON		
ARCHITECT			
ENGINEER	CLD CONSULTING ENGINEERS		
CUSTOMER	COLD RIVER BRIDGES, LLC		
DRAWN BY	DATE	DFI #	
CMB	2/11/17	10116	
DRAWING COVERS		DRAWING #	
DECK SLAB & CURTAIN WALL		A2	

Release Number: 001

BAR LIST 

Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
5AE01	128	#5	38'-3"			38'-3"										
5AE02	99	#5	24'-6"			24'-6"										
5AE03	210	#5	4'-11"	H68		1'-0"	0'-7 1/2"	1'-5"	0'-10 1/2"	1'-0"					2'-5"	
5AE04	14	#5	13'-6 1/2"	H68		3'-0"	3'-4 1/2"	0'-7"	3'-7"	3'-0"					3'-7"	
5AE05	4	#5	13'-10 1/2"	H68		3'-0"	3'-6 1/2"	0'-7"	3'-9"	3'-0"					3'-7"	
5AE06	4	#5	24'-5"			24'-5"										
5AE07	9	#5	13'-9"			13'-9"										
5AE08	14	#5	12'-8 1/2"	H68		3'-0"	2'-11 1/2"	0'-7"	3'-2"	3'-0"					3'-7"	
5AE09	4	#5	13'-1 1/2"	H68		3'-0"	3'-2"	0'-7"	3'-4 1/2"	3'-0"					3'-7"	
		#														
6AE01	149	#6	24'-6"			24'-6"										

.1 TEST BAR ADDED



SHOP DRAWING REVIEW

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED     REVISE AND RESUBMIT     APPROVED AS NOTED

CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DID NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR REVIEW OF GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR: CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATING THEIR WORK WITH THAT OF ALL OTHER TRADES; AND PERFORMING THEIR WORK IN A SAFE AND SATISFACTORY MANNER.

**CLD** CLD Consulting Engineers  
540 Commercial Street  
Manchester, NH 03101  
603-888-8225

Job Number: 150223  
Reviewed by: S.BEAUMONT  
Date: 04/05/2017

Vermont Agency of Transportation  
**RECEIVED**

CK'D BY CLD Consulting Engineers    OK'D BY CLD Consulting Engineers

April 5, 2017

RESUBMIT No    Approved AsNoted  
BY Kristin Higgins    DATE 4/5/2017

LEGEND:

CONT.-CONTINUOUS	E.E.-EACH END
TRANS.-TRANSVERSE	E.F.-EACH FACE
DWLS.-DOWELS	N.F.-NEAR FACE
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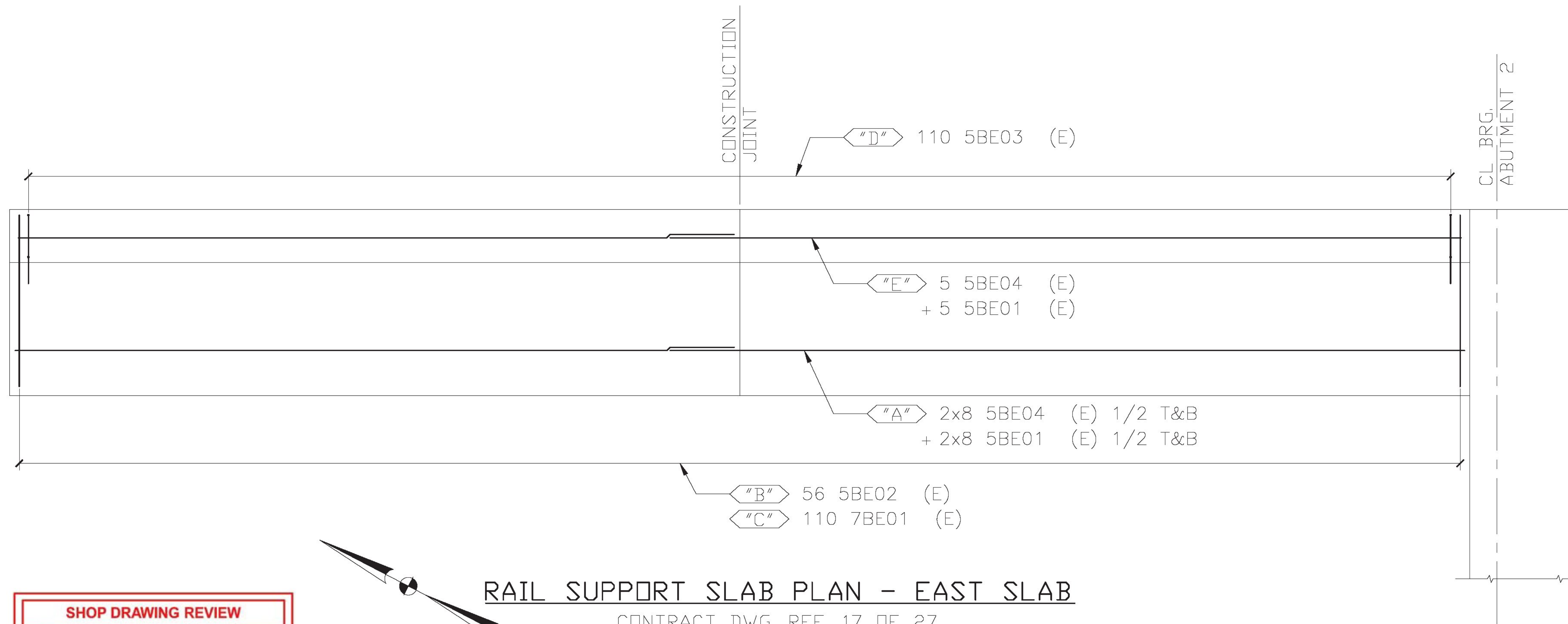
EPOXY REINF. BARS ASTM A615 GRADE 60, MARKED (E)

VERIFICATION OF UNCLEAR INFORMATION MAY BE REQUESTED ON THIS DRAWING. SHOULD VERIFICATION BE LEFT UN-ADDRESSED IT WILL REMAIN AS SHOWN AND ASSUME TO BE CORRECT.

WORK THIS DRAWING WITH DRAWINGS A, A1, & A2

FOR APPROVAL

6			
5			
4			
3	4/3/17		REVISED PER APPROVAL / FOR APPROVAL
2	3/20/17		REVISED PER APPROVAL / FOR APPROVAL
1	2/13/17	-	FOR APPROVAL
	DATE	REV.#	SENT FOR
 <b style="font-size: 1.2em;">DIMENSION</b> DIMENSION FABRICATORS INC.			
2000 7TH STREET SCOTIA, N.Y. 12302 PH: (518) 374-1936 FAX (518) 374-4830 <a href="http://www.dimensionfabricators.com">www.dimensionfabricators.com</a>			
STRUCTURE	VTAOT ORWELL STP DECK (41) STATE ROUTE 73, BRIDGE #4		
LOCATION	TOWN OF ORWELL, COUNTY OF ADDISON		
ARCHITECT			
ENGINEER	CLD CONSULTING ENGINEERS		
CUSTOMER	COLD RIVER BRIDGES, LLC		
DRAWN BY	DATE	DFI #	
CMB	2/11/17	10116	
DRAWING COVERS			DRAWING #
DECK SLAB & CURTAIN WALL			A3



**RAIL SUPPORT SLAB PLAN - EAST SLAB**

CONTRACT DWG. REF. 17 OF 27

**FOR APPROVAL**

SHOP DRAWING REVIEW	
<input type="checkbox"/>	REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.
<input type="checkbox"/>	REJECTED
<input type="checkbox"/>	REVISE AND RESUBMIT
<input checked="" type="checkbox"/>	APPROVED AS NOTED
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CLD Consulting Engineers 240 Commercial Street Manchester, NH 03101 603-466-6262	Job Number: 150223 Reviewed by: S. BEAUMONT Date: 04/05/2017

WORK THIS DRAWING WITH DRAWINGS B1 & B2

ALL LAP SPLICES TO BE 3'-0" U.O.S.

ELEVATIONS & DIMENSIONS SHOWN ON THIS DWG. ARE FOR REINF. DETAILING PURPOSES ONLY AND ARE NOT INTENDED FOR DIMENSIONAL CONSTRUCTION.

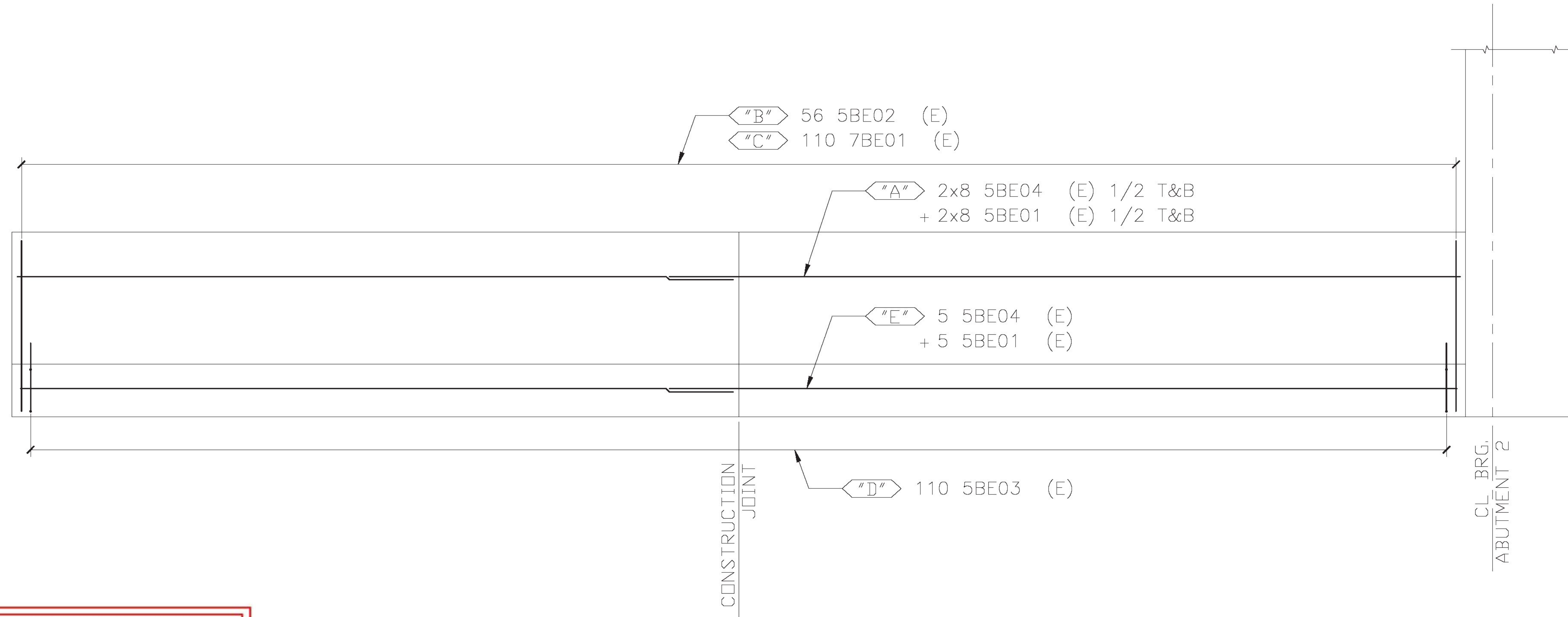
EPOXY REINF. BARS ASTM A615 GRADE 60, MARKED (E)

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**LEGEND:**  
 CONT.-CONTINUOUS      E.E.-EACH END  
 TRANS.-TRANSVERSE      E.F.-EACH FACE  
 DWLS.-DOWELS      N.F.-NEAR FACE  
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 O.F.-OUTER FACE      S.W.-SHORT WAY

Vermont Agency of Transportation  
**RECEIVED**  
 CK'D BY CLD Consulting Engineers      OK'D BY CLD Consulting Engineers  
 April 5, 2017  
 RESUBMIT No      Approved AsNoted  
 BY Kristin Higgins      DATE 4/5/2017

6			
5			
4			
3	4/3/17	-	NO CHANGES / FOR APPROVAL
2	3/20/17	-	NO CHANGES / FOR APPROVAL
1	2/13/17	-	FOR APPROVAL
	DATE	REV.#	SENT FOR
	<b>DIMENSION</b> DIMENSION FABRICATORS INC.		
	2000 7TH STREET SCOTIA, N.Y. 12302 PH: (518) 374-1936 FAX (518) 374-4830 <a href="http://www.dimensionfabricators.com">www.dimensionfabricators.com</a>		
STRUCTURE	VTAOT ORWELL STP DECK (41) STATE ROUTE 73, BRIDGE #4		
LOCATION	TOWN OF ORWELL, COUNTY OF ADDISON		
ARCHITECT			
ENGINEER	CLD CONSULTING ENGINEERS		
CUSTOMER	COLD RIVER BRIDGES, LLC		
DRAWN BY	DATE	DFI #	
CMB	2/13/17	10116	
DRAWING COVERS		DRAWING #	
RAIL SUPPORT SLABS		B	



**SHOP DRAWING REVIEW**

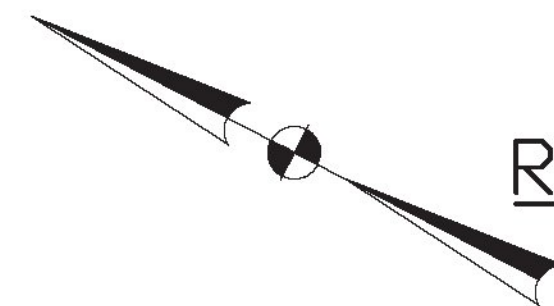
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**CLD** CLD Consulting Engineers  
340 Concordia Street  
Manchester, NH 03101  
603-688-8223

Job Number: 150223  
Reviewed by: S. BEAUMONT  
Date: 04/05/2017



**RAIL SUPPORT SLAB PLAN - WEST SLAB**

CONTRACT DWG. REF. 17 OF 27

**FOR APPROVAL**

WORK THIS DRAWING WITH DRAWINGS B & B2

Vermont Agency of Transportation  
**RECEIVED**

CK'D BY CLD Consulting Engineers OK'D BY CLD Consulting Engineers

April 5, 2017

RESUBMIT No Approved AsNoted  
BY Kristin Higgins DATE 4/5/2017

ALL LAP SPLICES TO BE 3'-0" U.O.S.

**LEGEND:**


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EPOXY REINF. BARS ASTM A615 GRADE 60, MARKED (E)

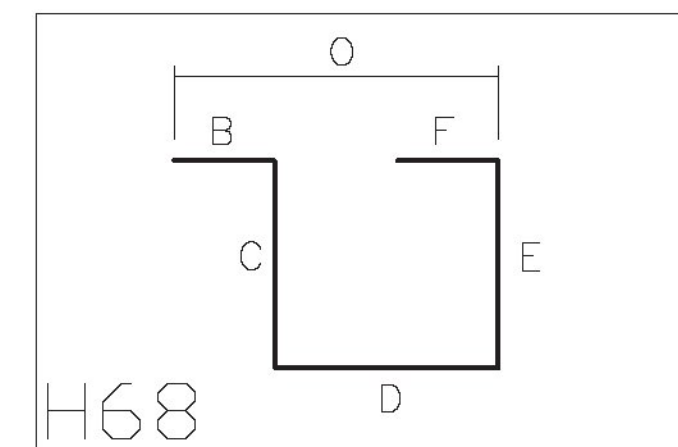
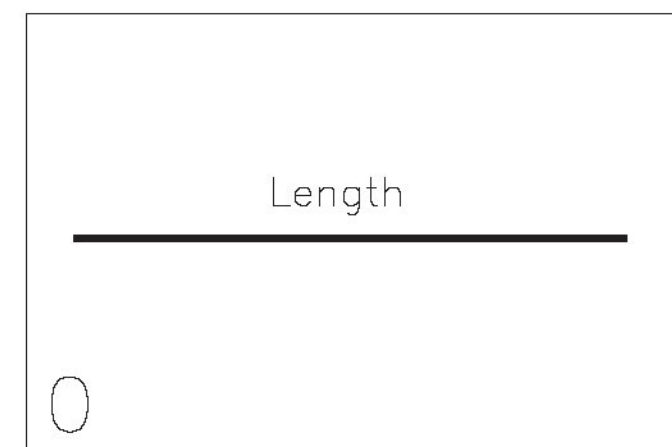
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6			
5			
4			
3	4/3/17	-	NO CHANGES / FOR APPROVAL
2	3/20/17	-	NO CHANGES / FOR APPROVAL
1	2/13/17	-	FOR APPROVAL
	DATE	REV.#	SENT FOR
	<b>DIMENSION</b> DIMENSION FABRICATORS INC.		
	2000 7TH STREET SCOTIA, N.Y. 12302 PH: (518) 374-1936 FAX (518) 374-4830 <a href="http://www.dimensionfabricators.com">www.dimensionfabricators.com</a>		
STRUCTURE	VTAOT ORWELL STP DECK (41) STATE ROUTE 73, BRIDGE #4		
LOCATION	TOWN OF ORWELL, COUNTY OF ADDISON		
ARCHITECT			
ENGINEER	CLD CONSULTING ENGINEERS		
CUSTOMER	COLD RIVER BRIDGES, LLC		
DRAWN BY	DATE	DFI #	
CMB	2/13/17	10116	
DRAWING COVERS		DRAWING #	
RAIL SUPPORT SLABS		B1	

Release Number: _____ BAR LIST 

Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
5BE01	42	#5	27'-0"			27'-0"										
5BE02	113	#5	6'-6"			6'-6"										
5BE03	220	#5	7'-0" <del>7'-6"</del>	H68		1'-0"	2'-1"	1'-5"	2'-6"	0'-0" <del>3'-0"</del>					2'-5"	
5BE04	42	#5	30'-6"			30'-6"										
7BE01	221	#7	6'-6"			6'-6"										

■ .1 TEST BAR ADDED



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	CLD Consulting Engineers 540 Commercial Street Manchester, NH 03101 603-568-5523	Job Number: 150223 Reviewed by: S.BEAUMONT Date: 04/05/2017
-------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------	-------------------------------------------------------------------

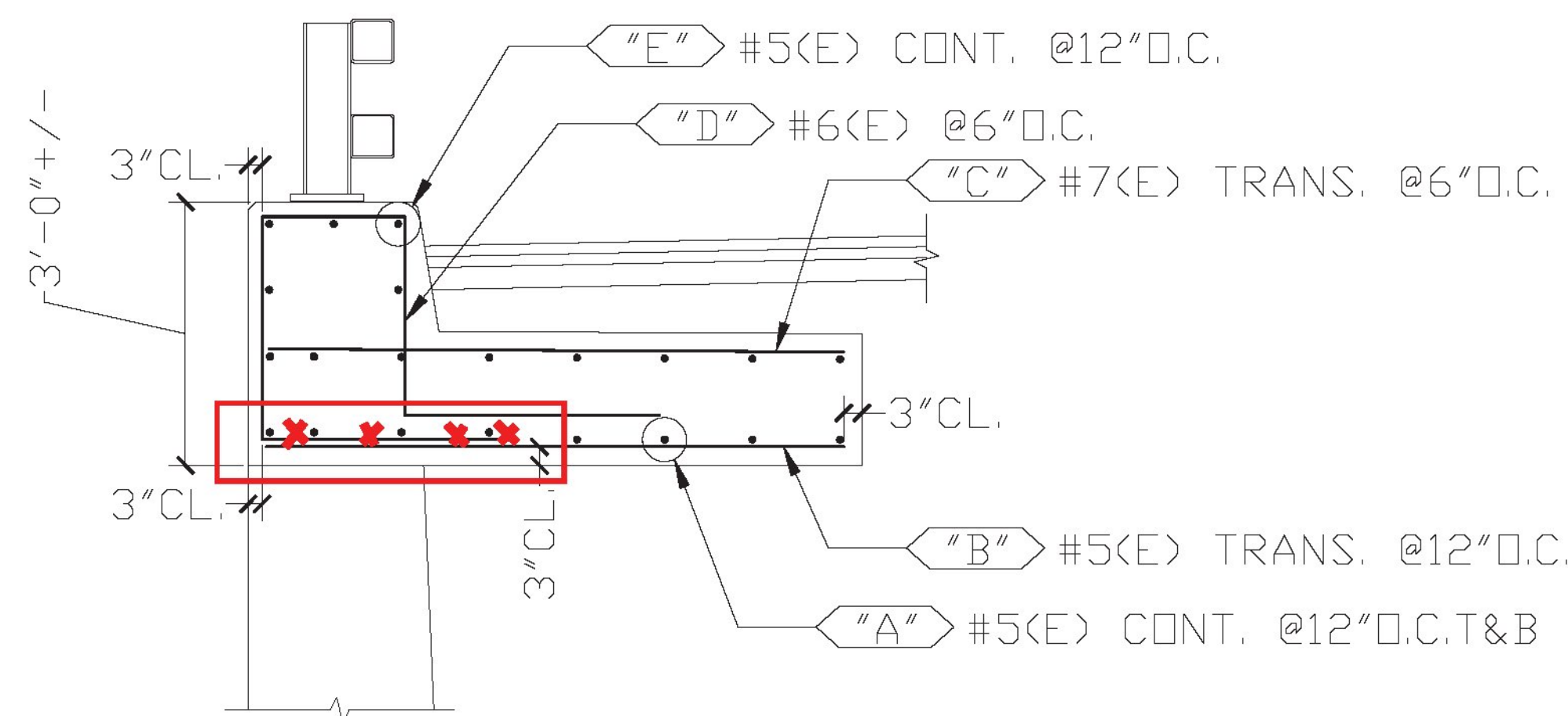
**Vermont Agency of Transportation**

**RECEIVED**

CK'D BY CLD Consulting Engineers    OK'D BY CLD Consulting Engineers

April 5, 2017

RESUBMIT No    Approved AsNoted  
BY Kristin Higgins    DATE 4/5/2017



**SECTION A**  
CONTRACT DWG. REF. A-A / 18 OF 27

**FOR APPROVAL**

**LEGEND:**



CONT.-CONTINUOUS	E.E.-EACH END
TRANS.-TRANSVERSE	E.F.-EACH FACE
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WORK THIS DRAWING WITH DRAWINGS B1 & B2

6			
5			
4			
3	4/3/17		REVISED PER APPROVAL / FOR APPROVAL
2	3/20/17	-	NO CHANGES / FOR APPROVAL
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ENGINEER	CLD CONSULTING ENGINEERS		
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DRAWN BY	DATE	DFI #	
CMB	2/13/17	10116	
DRAWING COVERS		DRAWING #	
RAIL SUPPORT SLABS		B2	