SEE SHEET 2 FOR LIST OF SHEETS
AND LIST OF STANDARDS

RECORD PLANS

CONTRACTOR: BECK & BELLUCCI, INC. - FRANKLIN, NH

RESIDENT ENGINEER: JEFF COTA

CONSTRUCTION BEGAN: APRIL 2, 2007

CONSTRUCTION COMPLETE: OCTOBER 1, 2008

RECORD PLANS BY: JEFF COTA & BEN LOGAN

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

BY _____ RESIDENT ENGINEER

DATE 6/24/07

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
TOWN OF CAMBRIDGE
COUNTY OF LAMOILLE
VT15 (MINOR ARTERIAL), BRIDGE 20

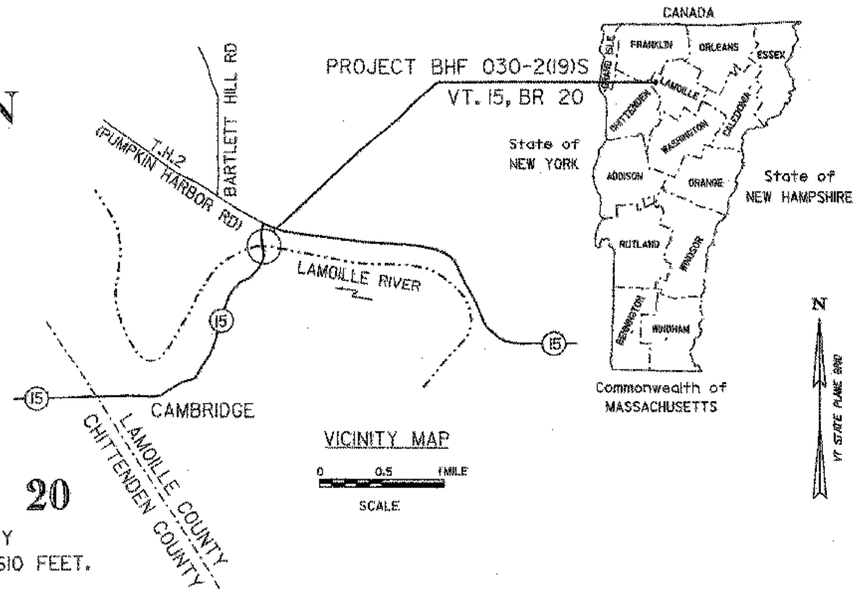
BEGINNING AT A POINT 2.70 MILES EAST OF THE CHITTENDEN-LAMOILLE COUNTY LINE AND PROCEEDING IN AN EASTERLY DIRECTION ALONG VT 15 FOR A DISTANCE OF 610 FEET.

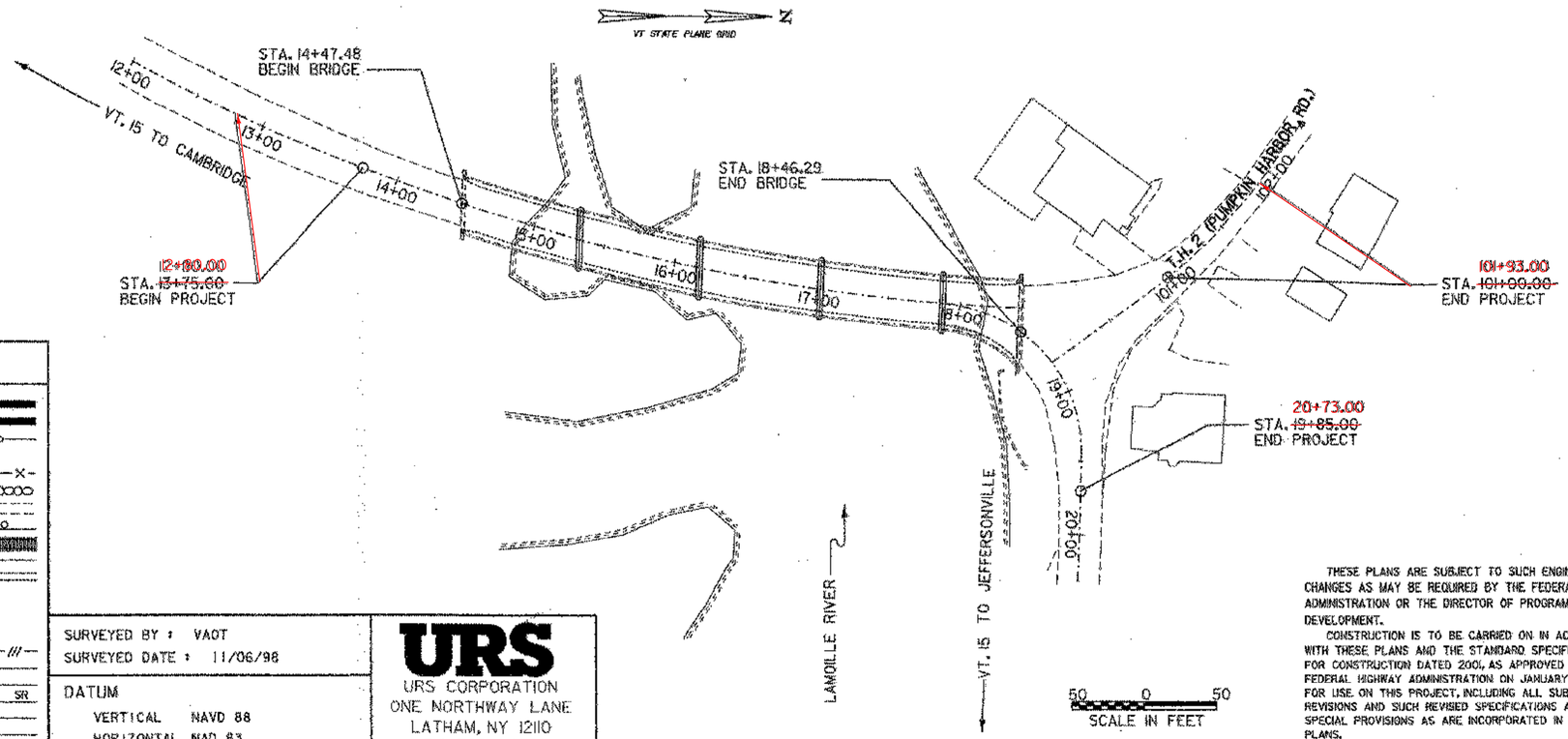
LENGTH OF ROADWAY = ~~211.19~~ FT. 394.19

LENGTH OF BRIDGE = 398.81 FT.

LENGTH OF PROJECT = ~~610.00~~ FT. 793.00

WORK TO BE PERFORMED UNDER THIS PROJECT CONSISTS OF THE REPLACEMENT OF THE BRIDGE DECK, SUBSTRUCTURE REPAIRS AND RESURFACING A PORTION OF EXISTING VT 15 & T.H. 2





TRAFFIC DATA

2001 ADT = 8200
2021 ADT = 12,100
2021 ADTT = 590
2001 DHV = 1200
2021 %T = 4
2021 %D = 56
20 yr 18 KIP ESAL'S = 4,786,000
40 yr 18 KIP ESAL'S = 12,597,000
DESIGN SPEED = 45 mph
POSTED SPEED LIMIT = 45 mph
POSTED ADVISORY SPEED = 15 mph

CONVENTIONAL SYMBOLS

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

SURVEYED BY : VAOT
SURVEYED DATE : 11/06/98

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

URS
URS CORPORATION
ONE NORTHWAY LANE
LATHAM, NY 12110
518-786-0676

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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 3, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 11-2-06

PROJECT MANAGER : ROGER WHITCOMB

PROJECT NAME : CAMBRIDGE
PROJECT NUMBER : BHF 030-2 (19) S

SHEET 1 OF 68 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

INDEX OF SHEETS

1. TITLE SHEET
2. INDEX OF SHEETS
3. PRELIMINARY INFORMATION SHEET
4. QUANTITY SHEET #1
5. QUANITITY SHEET #2
6. QUANITITY SHEET #3
7. TIE SHEET #1
8. TIE SHEET #2
9. TYPICAL SECTIONS
10. PLAN SHEET
11. TRAFFIC SIGN SUMMARY SHEET #1
12. TRAFFIC SIGN SUMMARY SHEET #2
13. INTERSECTION GRADING PLAN/ROADWAY DETAILS
14. PROFILE SHEET (VT 15)
15. PUMPKIN HARBOR RD. PROFILE & VT. 15 SUPERELEVATION SHEET
16. TRAFFIC CONTROL (SHEET 1)
17. TRAFFIC CONTROL (SHEET2)
18. TRAFFIC CONTROL (SHEET 3)
19. PLAN AND ELEVATION
20. EROSION CONTROL & FINAL CONDITIONS PLAN
21. EROSION CONTROL DETAILS (SILT FENCE)
22. EROSION CONTROL DETAILS (CONSTRUCTION ENTRANCE)
23. EROSION CONTROL DETAILS (INLET PROTECTION)
24. GENERAL NOTES
25. PHASE CONSTRUCTION TYPICALS
26. TEMPORARY TRAFFIC BARRIER DETAILS
27. DECK REINFORCING (TYPICAL SECTIONS)
28. DECK REINFORCING (SPANS 4 & 5)
29. DECK REINFORCING (SPAN 3)
30. DECK REINFORCING (SPANS 1 & 2)
31. CONCRETE DETAILS
32. FRAMING PLAN
33. BEAM ELEVATIONS
34. FRAMING DETAILS
35. EXPANSION BEARING DETAILS
36. FIXED BEARING DETAILS
37. EXPANSION JOINT - PIER NO.3
38. EXPANSION JOINT - PIER NO.4
39. EXPANSION JOINT DETAILS (SHEET 1)
40. EXPANSION JOINT DETAILS (SHEET 2)
41. DOWNSPOUT DETAILS
42. SCUPPER DETAILS
43. APPROACH SLAB DETAILS
44. MISCELLANEOUS PROJECT DETAILS
45. ABUTMENT 1 PLAN & ELEVATION
46. ABUTMENT 2 PLAN & ELEVATION
47. PIER 1 PLAN & ELEVATION
48. PIER 2 PLAN & ELEVATION
49. PIER 3 PLAN & ELEVATION
50. PIER 4 PLAN & ELEVATION
51. SUBSTRUCTURE CONCRETE REPAIR DETAILS
52. CURB & RAIL DETAILS
53. GUARDRAIL LAYOUT DETAILS
54. ALUMINUM BRIDGE RAILING DETAILS (SHEET 1)
55. ALUMINUM BRIDGE RAILING DETAILS (SHEET 2)
56. ALUMINUM APPROACH RAILING DETAILS
57. NOT USED
58. REINFORCING STEEL SCHEDULE
59. ROADWAY CROSS SECTIONS (SHEET 1)
60. ROADWAY CROSS SECTIONS (SHEET 2)
61. ROADWAY CROSS SECTIONS (SHEET 3)
62. ROADWAY CROSS SECTIONS (SHEET 4)
63. ROADWAY CROSS SECTIONS (SHEET 5)

REFERENCE PLANS

NOTE: SHEET NUMBERS USED IN THE ORIGINAL DESIGN PLANS ARE LISTED IN PARENTHESES AFTER THE NEW SHEET NUMBERS.

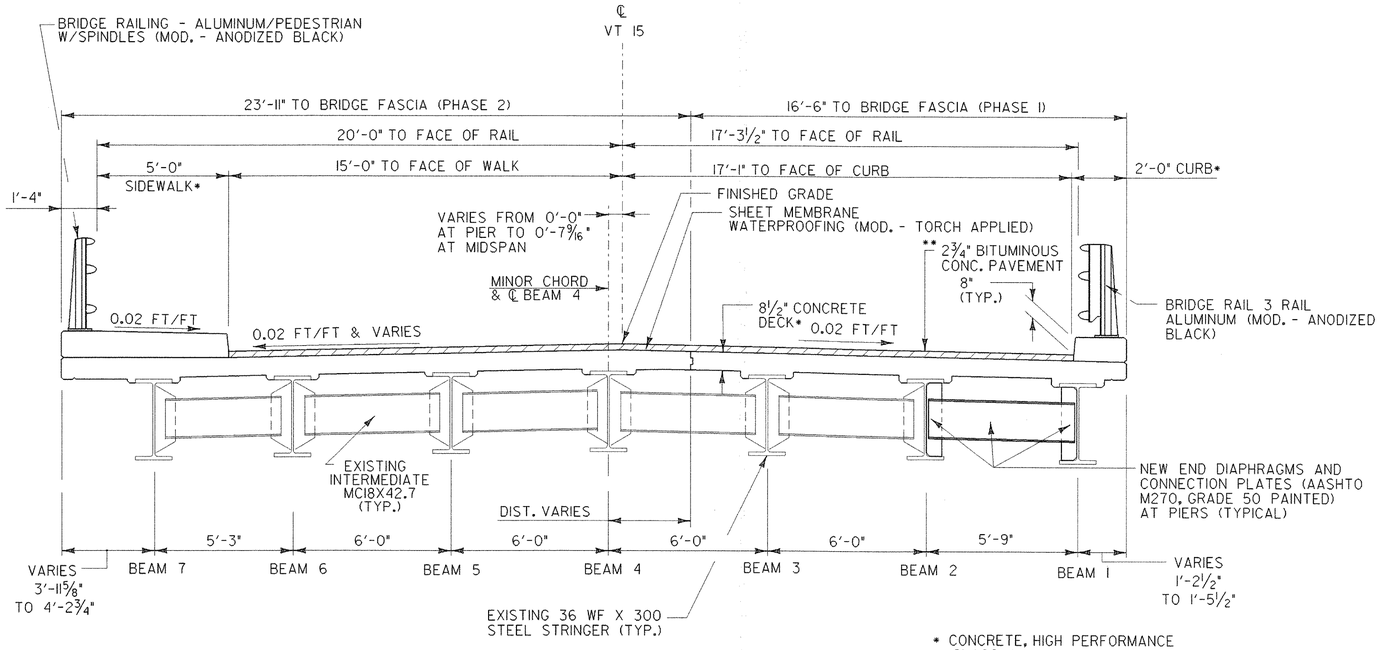
ORIGINAL 1949 DESIGN PLANS:

64. SUPERSTRUCTURE - SPAN 1 (9)
65. SUPERSTRUCTURE - SPANS 2, 3, 4 & 5 (10)
66. ABUTMENT NO. 1 PLAN & ELEVATION (11)
67. ABUTMENT NO. 2 PLAN & ELEVATION (12)
68. PIERS 1, 2, 3 & 4 - PLAN & ELEVATION (13)

STANDARD PLANS

B-71	RESIDENTIAL AND COMMERCIAL DRIVES	7/8/2005
C-1	CURBS, BITUMINOUS CONCRETE SIDEWALKS GRANITE SLOPE EDGING, VERTICAL GRANITE CURB PRECAST REINFORCED CONCRETE CURB CAST IN PLACE CONCRETE CURB BITUMINOUS CONCRETE CURB, TREATED TIMBER CURB	1/3/2000
C-2A	CEMENT CONCRETE SIDEWALK, CONCRETE CURB	10/14/2005
E-100	CONSTRUCTION APPROACH SIGNS	1/2/2004
E-101	CONSTRUCTION SIGN DETAILS	5/30/2003
E-102	CONSTRUCTION SIGN DETAILS	6/30/2003
E-102A	CONSTRUCTION SIGN DETAILS	5/1/2004
E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	3/1/2004
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	6/30/2003
E-107A	BREAKAWAY BARRICADE DETAILS	8/8/1995
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	8/18/1995
E-110	MAJOR MAINTENANCE OPERATION LANE CLOSURE	8/8/1995
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	8/8/1995
E-134	BRIDGE NUMBER PLAQUE	8/8/1995
E-136B	STATE ROUTE MARKER SIGN DETAILS	8/8/1995
E-140	REGULATORY SIGN DETAILS	8/30/1996
E-141	REGULATORY SIGN DETAILS	9/20/1995
E-142	REGULATORY SIGN DETAILS	9/20/1995
E-143	REGULATORY SIGN DETAILS	6/15/2004
E-151	WARNING SIGN DETAILS	5/1/2004
E-152	WARNING SIGN DETAILS	5/1/2004
E-155	WARNING SIGN DETAILS	5/1/2004
E-170	TRAFFIC CONTROL SIGNALS PEDESTAL POST MOUNTED	11/4/1999
E-171A	TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAIL	8/9/1995
E-171B	TRAFFIC CONTROL SIGNALS MISC. DETAILS	8/9/1995
E-171C	TRAFFIC CONTROL SIGNALS CANTILEVER MOUNTING DE	8/9/1995
E-172	VEHICLE DETECTOR LOOP DETAILS	8/9/1995
E-175	POWER DROP STANCHIONS	11/17/1993
E-192	PAVEMENT MARKING DETAILS	10/12/2000
E-193	PAVEMENT MARKING DETAILS	8/18/1995
G-1	STEEL BEAM GUARDRAIL (50MPH & OVER) HEAVY DUTY STEEL BEAM GUARDRAIL TWISTED END TERMINAL ANCHOR FOR STEEL BEAM RAIL	1/3/2000
G-1D	STEEL BEAM GUARDRAIL (40MPH & LESS) HEAVY DUTY STEEL BEAM GUARDRAIL STEEL BEAM MEDIAN BARRIER ANCHOR FOR STEEL BEAM RAIL	1/3/2000
G-18	PRECAST CONCRETE TEMPORARY TRAFFIC BARRIER	6/1/1994
G-19	GENERIC GRADING PLANS FOR GUARDRAIL END TERMINAL	11/15/2002
J-3	MAILBOX SUPPORT DETAILS	8/7/1995

PROJECT NAME:	CAMBRIDGE
PROJECT NUMBER:	BHF 030-2 (19) S
FILE NAME:	form99.dgn
PROJECT LEADER:	M. K. CHEVALIER
DESIGNED BY:	B. W. ERNST
PLOT DATE:	09/28/06
DRAWN BY:	M. MCINTOSH
CHECKED BY:	M. K. CHEVALIER
SHEET	2 OF 68



* CONCRETE, HIGH PERFORMANCE CLASS A

** (LIFT 2: 1½" BITUMINOUS CONCRETE PAVEMENT, TYPE III)

(LIFT 1: 1¼" BITUMINOUS CONCRETE PAVEMENT, TYPE III)

PROPOSED BRIDGE SECTION

(SPANS 2-5)

SCALE: ⅜" = 1'-0"

SEE SHEET 27 FOR SPAN 1 PROPOSED SECTION

MATERIAL ITEM	TOLERANCE
PAVEMENT	± ¼" TOTAL THICKNESS

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA **

DRAINAGE AREA= _____
CHARACTER OF TERRAIN: _____
CHARACTER & TYPE OF STREAM: _____
NATURE OF STREAMBED: _____

Q2.33= _____ Q50= _____
Q10= _____ Q100= _____
Q25= _____ Q500= _____

DATE OF FLOOD OF RECORD: _____
WATER SURFACE ELEV.: _____ ESTIMATED DISCHARGE: _____
NATURAL STREAM VELOCITY @ Q _____
ICE CONDITIONS: _____ DEBRIS: _____
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? _____
IS ORDINARY RISE RAPID? _____
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? _____
IF YES, DESCRIBE. _____

WATERSHED STORAGE ____ HEADWATERS ____ UNIFORM THROUGHOUT WATERSHED ____ IMMEDIATELY ABOVE SITE ____

EXISTING STRUCTURE

STRUCTURE TYPE: FIVE SPAN SIMPLY SUPPORTED STEEL BEAM W/CONC. DECK
CLEAR SPAN (NORMAL TO STREAM): SPAN 1 = 51', SPANS 2, 3, 4&5 = 81'
VERTICAL CLEARANCE ABOVE STREAMBED: _____
WATERWAY OF FULL OPENING: _____
DISPOSITION OF STRUCTURE: REPLACE CONCRETE DECK
TYPE OF MATERIAL UNDER SUBSTRUCTURE: TIMBER PILES

WATER SURFACE ELEV. @ Q2.33= _____ VELOCITY= _____
Q10= _____ " _____
Q25= _____ " _____
Q50= _____ " _____
Q100= _____ " _____

LONG TERM STREAM BED CHANGES: _____
IS THE ROADWAY OVERTOPPED BELOW THE Q100? _____ FREQUENCY: _____
RELIEF ELEVATION: _____ DISCHARGE OVER ROAD @ Q100: _____

UPSTREAM STRUCTURE: TOWN: _____ DISTANCE: _____
HIGHWAY NO.: _____ STRUCTURE NO.: _____
STRUCTURE TYPE: _____
CLEAR SPAN: _____ CLEAR HEIGHT: _____
YEAR BUILT: _____ FULL WATERWAY: _____

DOWNSTREAM STRUCTURE: TOWN: _____ DISTANCE: _____
HIGHWAY NO.: _____ STRUCTURE NO.: _____
STRUCTURE TYPE: _____
CLEAR SPAN: _____ CLEAR HEIGHT: _____
YEAR BUILT: _____ FULL WATERWAY: _____

PROPOSED STRUCTURE

STRUCTURE TYPE: FIVE SPAN SIMPLY SUPPORTED BEAM W/ CONC. DECK (COMPOSITE)
CLEAR SPAN (NORMAL TO STREAM): SPAN 1 = 51'. SPANS 2, 3, 4&5 = 81'
VERTICAL CLEARANCE ABOVE STREAMBED: _____
WATERWAY OF FULL OPENING: _____

WATER SURFACE ELEV. @ Q2.33= _____ VELOCITY= _____
Q10= _____ " = _____
Q25= _____ " = _____
Q50= _____ " = _____
Q100= _____ " = _____

IS THE ROADWAY OVERTOPPED BELOW THE Q100? _____ FREQUENCY: _____
RELIEF ELEVATION: _____ DISCHARGE OVER ROAD @ Q100: _____

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: _____
VERTICAL CLEARANCE @ Q _____

SCOUR: _____
REQUIRED CHANNEL PROTECTION: _____

PERMIT INFORMATION

AVERAGE DAILY FLOW: _____
ORDINARY LOW WATER: _____ DEPTH: _____
ORDINARY HIGH WATER: _____ DEPTH: _____

** PLEASE NOTE THAT A HYDRAULIC REPORT WAS NOT COMPLETED FOR THIS PROJECT.

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
CLEAR SPAN (NORMAL TO STREAM): _____
VERTICAL CLEARANCE ABOVE STREAMBED: _____
WATERWAY OF FULL OPENING: _____

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO HS-25 FOR DECK SLAB
2. DESIGN SPAN SPAN 1 = 53', SPAN 2, 3, 4, 5 = 83'
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING N/A TYPE N/A ESTIMATED LENGTH N/A
5. STRUCTURAL STEEL AASHTO GRADE fy = 36 ksi OR 50 ksi NEW STEEL
6. REINFORCING STEEL GRADE 60
7. CONCRETE HIGH PERFORMANCE, CLASS A f'_c 4000 PSI
   CONCRETE HIGH PERFORMANCE, CLASS B f'_c 3500 PSI

TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE YES OR ON TEMPORARY BRIDGE NO
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A TRAFFIC CONTROL SIGNALS REQUIRED YES
   MINIMUM CLEAR SPAN (NORMAL TO STREAM): _____ VERTICAL CLEARANCE ABOVE STREAMBED: _____
   WATERWAY OF FULL OPENING: _____
   ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE? _____

LOAD FACTOR LOAD RATING (TONS)

LOADING LEVELS (LOAD FACTOR)	TRUCK						
	H	HS	3S2	6 AXLE	3A.STR.	4A.STR.	5A.SEMI
INVENTORY A=2.17; B=1.00	39*	54*					
POSTED A=1.55; B=1.40	55*	75*	90*		84*	72*	86*
OPERATING A=1.30; B=1.67		90*	107*	126*	100*	86*	

STRENGTH RF = $\frac{\phi M_N - 1.3\, M_{DL}}{A \times M_{LL+I}}$ * SERVICEABILITY RF = $B\left[\frac{.95\, F_y S_{LL+I} - M_{DL}\frac{S_{LL+I}}{S_{DL}} - M_{SDL}\frac{S_{LL+I}}{S_{SDL}}}{1.67\, M_{LL+I}}\right]$

* - LOAD RATING IS CONTROLLED BY SERVICEABILITY

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
PRELIMINARY INFORMATION SHEET	
Designed By B. ERNST	Drawn By A. N. BEY
Checked By K. HINSCH Date	Bridge Design Supervisor D. STAHNKE Date
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info. zb308pli.dgn	
Bridge Sheet No.	Sheet 3 of 68

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET #1

SUMMARY OF ESTIMATED QUANTITIES

PIERS		ABUTMENT #1		ABUTMENT #2		SUPERSTRUCTURE		APPROACH SLAB #1		APPROACH SLAB #2		FULL C.E. ITEMS	TRAINING	EROSION CONTROL	ROADWAY QUANTITY	BRIDGE QUANTITY
															290	
															270	
														10		
															490	
															290	
															10	
						3		0.50		0.50					7	4
						222		20		12					425	254
						618										618
		2		2				49		30						83
56		10		7												73
						16170										16170
		130		100												230
		20		20												40
						131730		6750		3720						142200
						144		17								161
						1										1
						1										1
						1										1
						1										1
						1										1
						1										1
20		5		5		31										61
						83										83
		57		34												91
						1433										1433
						403										403
						395										395
															1	
															1	
						1370										1370
						1										1
56		10		7												73
1																1
8				2												10
5				1												6
															10	
														10	10	
														10		
														10		
															20	

TOTALS

ROUND	GRAND TOTAL	FINAL
	290	
	270	
	10	
	490	
	290	
	10	
	11	
	679	
	618	
	83	
	73	
	16170	
	230	
	40	
	142200	
	161	
	1	
	1	
	1	
	1	
	61	
	83	
	91	
	1433	
	403	
	395	
	1	
	1	
	1370	
	1	
	73	
	1	
	10	
	6	
	10	
	20	
	10	
	10	
	20	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
CY	COMMON EXCAVATION	203.15
CY	EXCAVATION OF SURFACES & PAVEMENTS	203.28
CY	TRENCH EXCAVATION OF EARTH	204.20
SY	COLD PLANING - BIT. PAVEMENT	210.10
CY	SUBBASE OF CRUSHED GRAVEL (FINE GRADED)	301.26
CY	AGGREGATE SHOULDERS, IN PLACE	402.10
CWT	EMULSIFIED ASPHALT	404.65
TON	BITUMINOUS CONCRETE PAVEMENT (PG 58-34)	406.25
CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33
CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34
EA	SHORING SUPERSTRUCTURE BEARINGS	502.11
LB	STRUCTURAL STEEL	506.60
LB	REINFORCING STEEL	507.15
LF	DRILLING AND GROUTING DOWELS	507.16
LB	EPOXY COATED REINFORCING STEEL	507.17
EA	MECHANICAL BAR CONNECTORS	507.19
LS	SHEAR CONNECTORS (5412 - 7/8" X 7")	508.15
LS	STRUCTURAL PAINTING, SHOP APPLIED (6 TONS)	513.25
LS	STRUCTURAL PAINTING, FIELD APPLIED (409 TONS)	513.30
LS	CONTAINMENT AND ENVIRONMENTAL PROTECTION, FIELD (409 TONS)	513.36
LS	SURFACE PREPARATION, SHOP (6 TONS)	513.40
LS	SURFACE PREPARATION, FIELD (409 TONS)	513.41
GAL	WATER REPELLENT (MOD. - SILANE)	514.10
LF	BRIDGE EXPANSION JOINT (VERMONT)	516.10
LF	BRIDGE EXPANSION JOINT (ASPHALTIC PLUG)	516.10
SY	SHEET MEMBRANE WATERPROOFING (MOD. - TORCH APPLIED)	519.20
LF	BRIDGE RAILING - 3 RAIL ALUM. (MOD. - ANODIZED BLACK)	525.22
LF	BRIDGE RAILING - ALUMINUM/PEDESTRIAN (MOD. - ANODIZED BLACK)	525.23
LS	MAINTENANCE OF TRAFFIC FOR BRIDGE PROJECTS (MOD.)	527.10
LS	TRAFFIC PROTECTION FOR BRIDGE PROJECTS	527.11
SY	REMOVAL OF BRIDGE PAVEMENT	529.10
EA	PARTIAL REMOVAL OF STRUCTURE	529.20
EA	BEARING DEVICE ASSEMBLY (FABRIC)	531.10
SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS I	580.13
SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II	580.14
CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS III	580.15
HR	ALL PURPOSE EXCAVATER RENTAL, TYPE I	608.25
CY	STONE FILL, TYPE I	613.10
CY	STONE FILL, TYPE I (MOD. - CONSTRUCTION ENTRANCE)	613.10
CY	STONE FILL, TYPE I (MOD. - INLET PROTECTION)	613.10
CY	STONE FILL, TYPE II	613.11

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		TEMPORARY EROSION CONTROL ITEMS
10	CY	ITEM 204.20 TRENCH EXCAVATION
10	CY	ITEM 301.26 SUBBASE OF CRUSHED GRAVEL (FINE GRADED)
10	CY	ITEM 613.10 STONE FILL, TYPE I
10	CY	ITEM 613.10 STONE FILL, TYPE I (MOD. CONSTRUCTION ENTRANCE)
10	CY	ITEM 613.10 STONE FILL, TYPE I (MOD. INLET PROTECTION)
160	SY	ITEM 649.51 GEOTEXTILE FOR SILT FENCE
10	LB	ITEM 651.17 SEED - WINTER RYE
1	TON	ITEM 651.25 HAYMULCH
10	EA	ITEM 651.26 HAY BALES FOR EROSION CONTROL
40	CY	ITEM 651.35 TOPSOIL
10	SY	ITEM 654.10 EROSION MATTING
		NOTE: THERE IS APPROXIMATELY 310 CY OF WASTE MATERIAL.

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: form99.dgn
PROJECT LEADER: R. R. WHITCOMB
DESIGNED BY: B. W. ENST
QUANTITY SHEET #1

PLOT DATE: 11/7/2006
DRAWN BY: C. CARLSON
CHECKED BY: G. ROY
SHEET 4 OF 68

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET #2

SUMMARY OF ESTIMATED QUANTITIES

PIERS		ABUTMENT #1		ABUTMENT #2		SUPERSTR UCTURE		APPROACH SLAB#1		APPROACH SLAB#2		FULL C.E. ITEMS	TRAINING	EROSION CONTROL	ROADWAY QUANTITY	BRIDGE QUANTITY
															84	
															3	
															18	
															254	
															2	
															1	
															120	
															373	
															1100	
															50	
															500	
												1				
												1				
												1				
												1				
												1				
													520			
															1	
															1	
															1600	
															1410	
															330	
															18	
															4	
															3000	
															100	
															40	
															100	
														10		
														160		
														10		
														10		
														30		
														1		
														1		
														10		
														40		
														10		

TOTALS

ROUND	GRAND TOTAL	FINAL
	84	
	3	
	18	
	254	
	2	
	1	
	120	
	373	
	1100	
	50	
	500	
	1	
	1	
	1	
	1	
	1	
	520	
	1	
	1	
	1600	
	1410	
	330	
	18	
	4	
	3000	
	100	
	40	
	100	
	10	
	160	
	10	
	10	
	30	
	1	
	1	
	10	
	40	
	10	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
LF	CAST-IN-PLACE CONCRETE CURB, TYPE B (MOD.)	616.28
EA	RELOCATE MAILBOX, MULTIPLE SUPPORT	617.12
SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH (MOD.)	618.10
LF	STEEL BEAM GUARD RAIL (GALVANIZED)	621.20
EA	ENERGY ABSORPTION ATTENUATOR (SAND - FILLED PLASTIC BARREL)	621.56
EA	ANCHOR FOR STEEL BEAM RAIL	621.60
LF	ALUMINUM APPROACH RAILING (MOD. - ANODIZED BLACK)	621.74
LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80
LF	TEMPORARY TRAFFIC BARRIER	621.90
HR	UNIFORMED TRAFFIC OFFICERS	630.10
HR	FLAGGERS	630.15
LS	FIELD OFFICE - ENGINEERS	631.10
LS	TESTING EQUIPMENT - CONCRETE	631.16
LS	TESTING EQUIPMENT - BITUMINOUS	631.17
LS	TESTING EQUIPMENT - PROTECTIVE COATINGS	631.18
LU	FIELD OFFICE - TELEPHONE (N.A.B.I.)	631.25
HR	EMPLOYEE TRAINEESHIP	634.10
LS	MOBILIZATION/DEMOBILIZATION	635.11
LS	TRAFFIC CONTROL	641.10
LF	DURABLE 4" WHITE LINE (THERMOPLASTIC)	646.40
LF	DURABLE 4" YELLOW LINE (THERMOPLASTIC)	646.41
LF	DURABLE 8" WHITE LINE (THERMOPLASTIC)	646.42
LF	DURABLE 24" STOP BAR (THERMOPLASTIC)	646.46
EA	DURABLE LETTER OR SYMBOL (THERMOPLASTIC)	646.50
LF	TEMPORARY 4" WHITE LINE (TAPE, TYPE I)	646.60
LF	TEMPORARY 4" YELLOW LINE (TAPE, TYPE I)	646.61
LF	TEMPORARY 24" STOP BAR (PAINT)	646.66
SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85
SY	GEOTEXTILE UNDER STONE FILL	649.31
SY	GEOTEXTILE FOR SILT FENCE	649.51
LB	SEED	651.15
LB	SEED - WINTER RYE	651.17
LB	FERTILIZER	651.18
TON	AGRICULTURAL LIMESTONE	651.20
TON	HAY MULCH	651.25
EA	HAY BALES FOR EROSION CONTROL	651.26
CY	TOPSOIL	651.35
SY	EROSION MATTING	654.10

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		(N.A.B.I.) = NOT A BID ITEM

PROJECT NAME: **CAMBRIDGE**
PROJECT NUMBER: **BHF 030-2 (19) 5**

FILE NAME: **form99.dgn**
PROJECT LEADER: **R. R. WHITCOMB**
DESIGNED BY: **B. W. ENST**
QUANTITY SHEET #2

PLOT DATE: **11/7/2006**
DRAWN BY: **C. CARLSON**
CHECKED BY: **G. ROY**
SHEET **5** OF **68**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET #3

SUMMARY OF ESTIMATED QUANTITIES

PIERS		ABUTMENT #1		ABUTMENT #2		SUPERSTRUCTURE		APPROACH SLAB #1		APPROACH SLAB #2		FULL C.E. ITEMS	TRAINING	EROSION CONTROL	ROADWAY QUANTITY	BRIDGE QUANTITY
															68	
															180	
															180	
															16	
															15	
															1	
															1 (1)	
															3	

TOTALS

ROUND	GRAND TOTAL	FINAL
	68	
	180	
	180	
	16	
	15	
	1	
	1 (1)	
	3	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
SF	TRAFFIC SIGNS, TYPE A	675.20
	***** BEGIN SIGN POST OPTIONS *****	
LF	FLANGED CHANNEL SIGN POSTS	675.301
LF	SQUARE TUBE SIGN POSTS AND ANCHOR	675.341
	*****END SIGN POST OPTIONS *****	
LB	TUBULAR ALUMINUM SIGN POSTS	675.32
EA	REMOVING SIGNS	675.50
EA	ERECTING SALVAGED SIGNS	675.60
EA	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40
EA	TEMPORARY DETECTOR	678.42

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

REV.	BY	DATE	DESCRIPTION
1	GFR	12/15/2006	CHANGED QUANTITY AMOUNT FROM 2 TO 1.

PROJECT NAME: **CAMBRIDGE**
PROJECT NUMBER: **BHF 030-2 (19) 5**

FILE NAME: form99.dgn
PROJECT LEADER: R. R. WHITCOMB
DESIGNED BY: B. W. ENST
QUANTITY SHEET #3

PLOT DATE: 11/7/2006
DRAWN BY: C. CARLSON
CHECKED BY: G. ROY
SHEET 6 OF 68

GPS CONTROL POINTS

TRAVERSE 1

VTAT SURVEY DISK IN CONCRETE MONUMENT STAMPED "GRAND ARMY AZMK 1996"

N = 82890.203
E = 39663.951
Z = 467.355

GENERAL LOCATION, 1 MI (1.6 KM) WEST OF CAMBRIDGE, 15 MI (24.1 KM) NORTHEAST OF ESSEX JUNCTION. TO REACH FROM THE JUNCTION OF VERMONT ROUTES 15 AND 104 PROCEED EAST ALONG ROUTE 15 FOR .35 MI (0.56 KM) TO STATION ON THE LEFT (NORTH). STATION IS 35 FT (10.7 M) WEST OF A CONCRETE BOUND, 24 FT (7.3 M) NORTHEAST OF AND 1 FT (0.3 M) LOWER THAN THE CENTERLINE OF ROUTE 15, 4.5 FT (1.4 M) NORTH OF THE MOST EASTERLY GUARDRAIL POST, 1 FT (0.3 M) SOUTH OF A FIBERGLASS WITNESS.

TRAVERSE 2

VTAT SURVEY DISK STAMPED IN CONCRETE MONUMENT STAMPED "GRAND ARMY 1996"

N = 82296.136
E = 40852.899
Z = 452.460

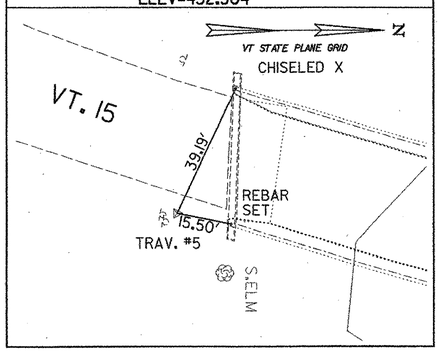
GENERAL LOCATION, 1 MI (1.6 KM) WEST OF CAMBRIDGE, 15 MI (24.1 KM) NORTHEAST OF ESSEX JUNCTION. TO REACH FROM THE JUNCTION OF VERMONT ROUTES 15 AND 104 PROCEED EAST ALONG ROUTE 15 FOR 300 FT (91.4 M) TO STATION ON THE LEFT (NORTH) IN A GRAVEL PULLOUT. STATION IS 82 FT (25.0 M) NORTHWEST OF THE MOST WESTERLY GUARDRAIL POST, 30 FT (9.1 M) NORTHEAST OF THE CENTERLINE OF ROUTE 15, 2 FT (0.6 M) SOUTHWEST OF A FIBERGLASS WITNESS.

* DESCRIPTION PROVIDED BY AGENCY OF TRANSPORTATION ON GEODETIC SURVEY UNIT

TRAVERSE TIES

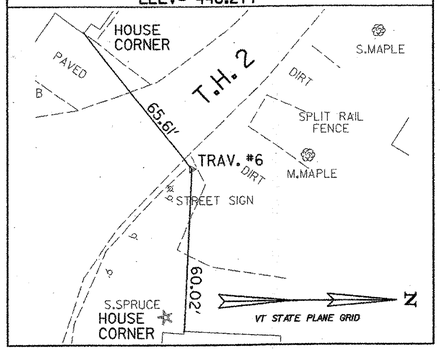
TRAV. 5

N. = 82790.286
E. = 43415.790
ELEV=452.304



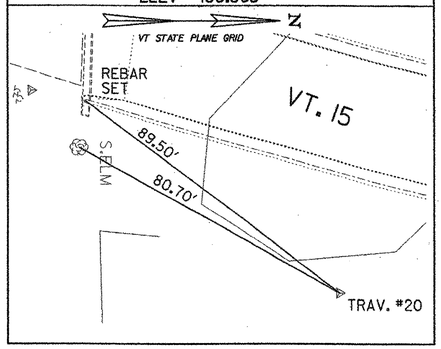
TRAV. 6

N. = 83300.740
E. = 43469.054
ELEV= 448.277



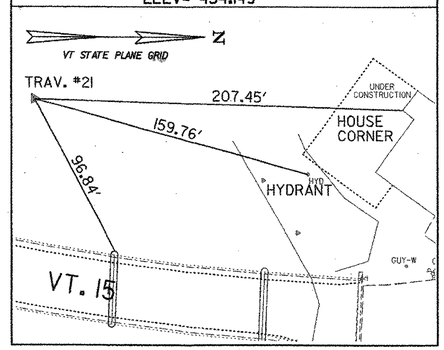
TRAV. 20

N. = 82877.006
E. = 43472.551
ELEV= 436.565



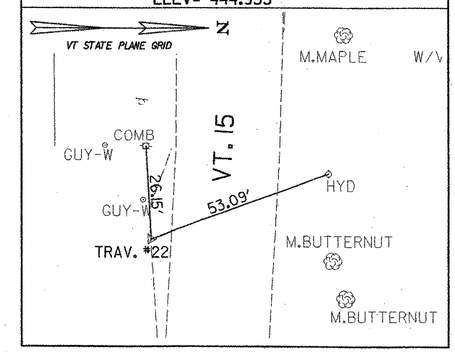
TRAV. 21

N. = 83009.373
E. = 43349.182
ELEV= 434.149



TRAV. 22

N. = 83211.500
E. = 43660.710
ELEV= 444.955



NOTE:

1. TIE DRAWINGS ARE NOT TO SCALE.

TIE SHEET #1

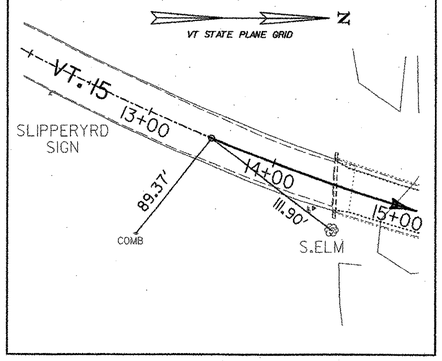
PROJECT NAME:	CAMBRIDGE
PROJECT NUMBER:	BHF 030-2 (19) S

FILE NAME: ZB308TIE.DGN		PLOT DATE:	04/10/02
PROJECT LEADER:	M. K. CHEVALIER	DRAWN BY:	A. N. BEY
DESIGNED BY:	B. ERNST	CHECKED BY:	M. K. CHEVALIER
		SHEET	7 OF 68

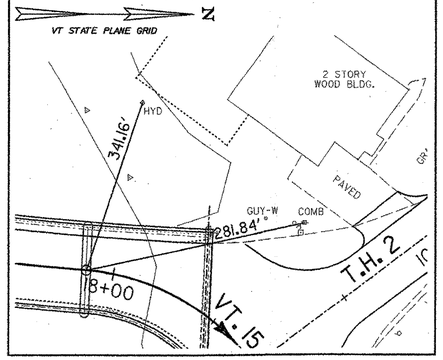
DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

ALIGNMENT TIES ALONG VT. 15

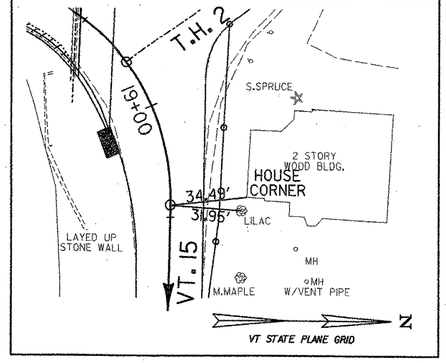
P.O.B. STA. 13+50.00
N. = 82405.109
E. = 43196.534



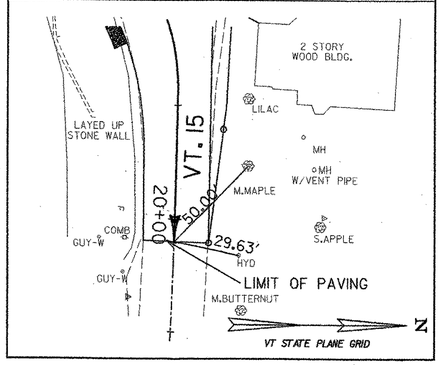
P.R.C. 17+87.69
N. = 82622.542
E. = 43324.710



P.C.C. 19+44.71
N. = 83234.018
E. = 43570.996

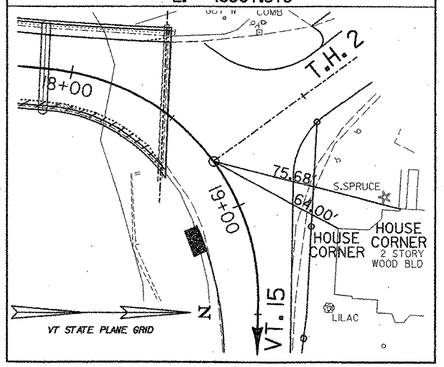


P.O.E. STA 20+10.00
N. = 83232.315
E. = 43636.267

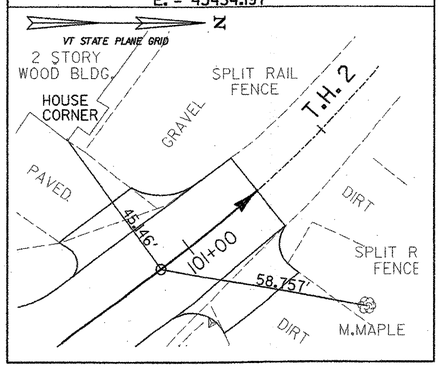


ALIGNMENT TIES ALONG T.H. 2

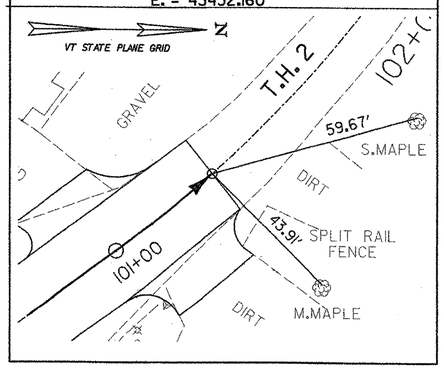
P.O.I.
100+00.00 = 18+77.00 ALONG V.T. 15
N. = 83213.835
E. = 43507.573



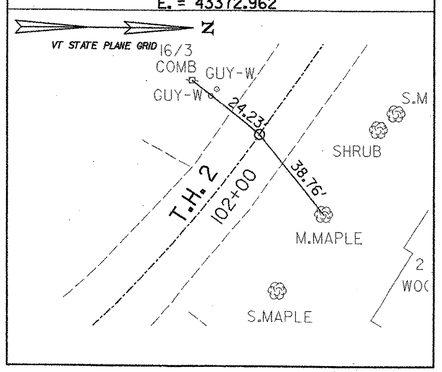
PC 100+90.13
N. = 83286.458
E. = 43454.197



P.O.E. 101+25.00
N. = 83313.505
E. = 43432.160



P.T. 102+04.23
N. = 83365.859
E. = 43372.962



NOTE:
1. TIE DRAWINGS ARE NOT TO SCALE.

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

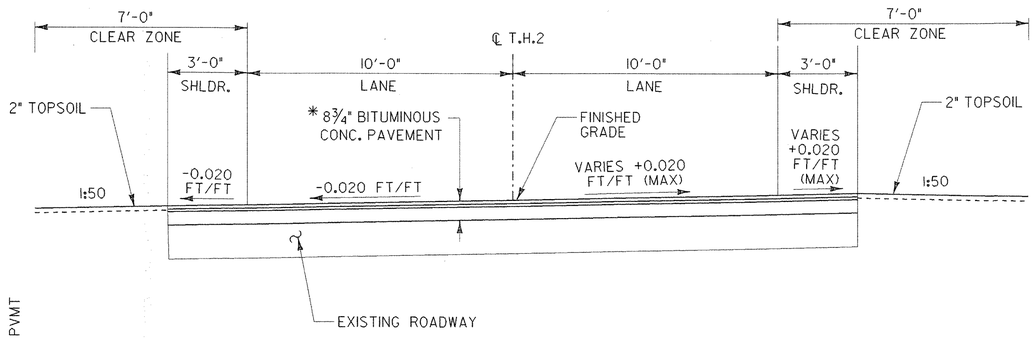
TIE SHEET #2

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

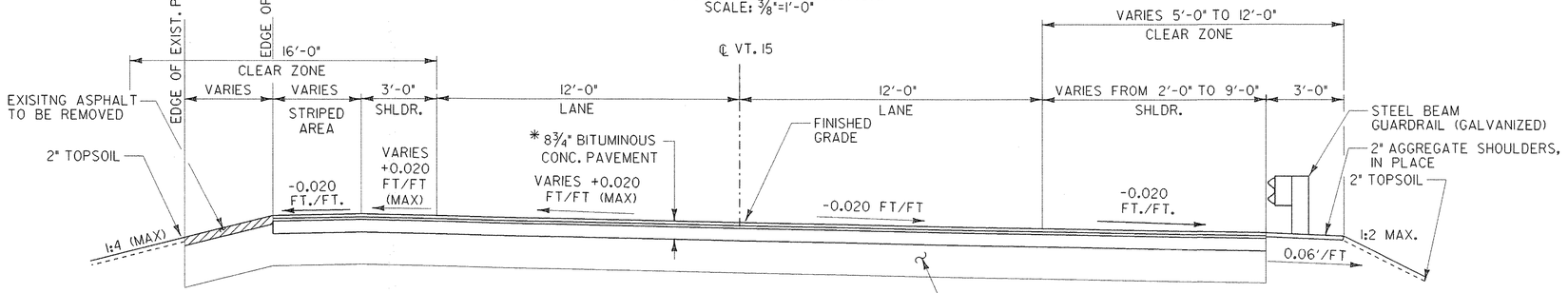
FILE NAME: ZB308ALI.DGN
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. ERNST
PLOT DATE: 7-07-00
DRAWN BY: A. N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 8 OF 68

CAMBRIDGE, BR20
TYPICAL SECTIONS

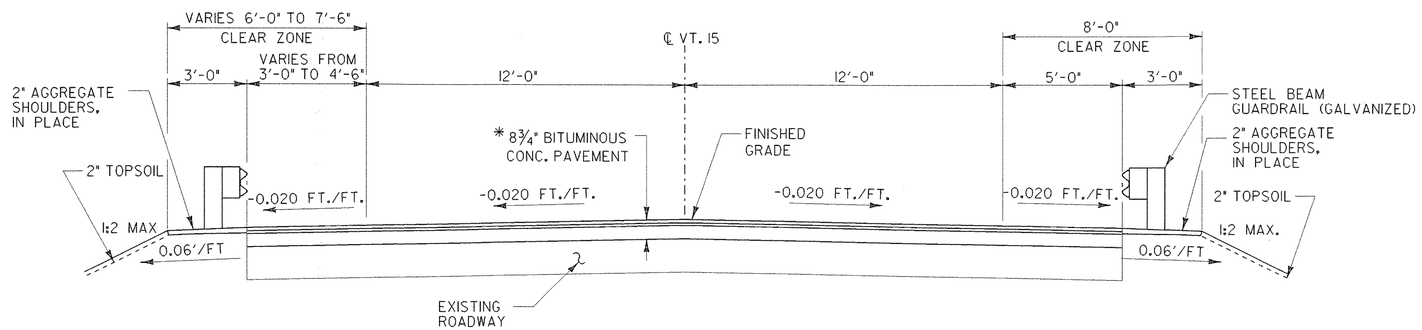
* 1½" TYPE III OVER
1¼" TYPE III OVER
6" TYPE I OR TYPE II (2 LIFTS OF 3")



SUPERELEVATED
(T.H.2 SOUTHERN APPROACH)
SCALE: ⅜"=1'-0"



SUPERELEVATED
(VT. 15 NORTHERN APPROACH)
SCALE: ⅜"=1'-0"



NORMAL CROWN
(VT. 15, SOUTHERN APPROACH)
SCALE: ⅜"=1'-0"

NOTES:

1. THICKNESS OF ALL COURSES SHOWN ON THE DRAWING ARE COMPACTED THICKNESS.
2. ALL MATERIALS SHALL CONFORM TO VAOT STANDARD SPECIFICATIONS.
3. COLD PLANING TO BE COMPLETED ACCORDING TO TYPICAL OR AS NOTED OTHERWISE ON THE PLANS. ALL COLD PLANED AREAS SHALL BE TACKED WITH EMULSIFIED ASPHALT AS DIRECTED BY THE ENGINEER.
4. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL EXISTING SURFACES, ON ALL COLD PLANED SURFACES AND BETWEEN ALL COURSES OF PAVEMENT AT THE RATE OF 0.02 GAL/SY OR AS DIRECTED BY THE ENGINEER.

ALLOWABLE TOTAL THICKNESS TOLERANCES:

SUBGRADE	+/- 1"
CONTROLLED MATERIAL	+/- 1"
PAVEMENT	+/-1/4"
BASE COURSE	+/-1/2"

DATUM
VERTICAL _____
HORIZONTAL _____

TYPICAL SECTIONS

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: ZB308TSI.DGN
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST
PLOT DATE: 22-NOV-2006
DRAWN BY: A. N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 9 OF 68

STA. 13+75
BEGIN PROJECT

12+80
STA. ~~13+50~~
BEGIN APPROACH

STA. 14+47.48
BEGIN BRIDGE
F.G. = 452.56

BM2=CHISEL SQUARE
NW CORN. ABUT. TOP
ELEV. 449.19

NEW CONCRETE WALK

EXISTING RIGHT OF WAY

STA. 18+46.29
END BRIDGE
F.G. = 448.57

BM1=CHISEL X
SW CORN. ABUT. TOP
ELEV. 453.08

RELOCATE MAILBOX-MULTIPLE SUPPORT (3 EA)

STA. 100+90 RT

REMOVAL AND DISPOSAL OF GUARDRAIL

STA. 13+50 LT TO STA. 14+40 LT
STA. 13+50 RT TO STA. 14+52 RT
STA. 18+68 RT TO STA. 20+22 RT
STA. 18+30 LT TO STA. 18+54 LT

STEEL BEAM GUARDRAIL (GALVANIZED)

STA. 13+50.0 LT TO STA. 14+16.6 LT
STA. 13+50.0 RT TO STA. 14+27.9 RT
STA. 18+95.1RT TO STA. 20+17.5 RT

ANCHOR FOR STEEL BEAM RAIL

STA. 20+11.4 RT

BRIDGE RAILING - 3 RAIL ALUMINUM (MOD. - ANODIZED BLACK)

STA. 14+52.6 RT TO STA. 18+63.5 RT

BRIDGE RAILING - ALUMINUM/ PEDESTRIAN (MOD. - ANODIZED BLACK)

STA. 14+42.0 LT TO STA. 18+30.0 LT

ALUMINUM APPROACH RAIL (MOD. - ANODIZED BLACK)

STA. 14+16.6 LT TO STA. 14+42.0 LT
STA. 14+27.9 RT TO STA. 14+52.6 RT
STA. 18+30.0 LT TO STA. 100+54.9 LT (T.H. 2)
STA. 18+63.5 RT TO STA. 18+95.1RT

PERMANENT PAVEMENT MARKINGS

DURABLE 4" WHITE LINES
STA. 13+50 (VT 15) LT TO STA. 101+25 (T.H. 2) LT
STA. 13+50 TO STA. 20+10 RT
STA. 18+24 LT TO STA. 19+08 LT (DASHED)
STA. 101+25 (T.H. 2) RT TO STA. 20+10 (VT 15) LT

DURABLE 4" YELLOW LINES (DOUBLE)
STA. 13+50 TO STA. 18+57
STA. 18+97 TO STA. 20+10
STA. 100+42 TO STA. 101+25

DURABLE 8" WHITE LINES
STA. 18+00 (VT 15) LT TO STA. 100+60 (T.H.2) LT
STA. 100+50 (T.H.2) RT TO STA. 19+40 (VT 15) LT

DURABLE 24" STOP BAR
STA. 100+40 (T.H.2) LT

DURABLE LETTER OR SYMBOL
STA. 100+48 (T.H.2) LT

CONSTRUCT PAVED APRON

STA. 100+93 LT
STA. 101+06 RT

CURVE #1 DATA	CURVE #2 DATA	CURVE #3 DATA	CURVE #4 DATA
△ = 31°-31'-52.18"	△ = 86°-30'-5.48"	△ = 4°-17'-56.92"	△ = 18°-40'-41.34"
R = 1431.33'	R = 104.00'	R = 3852.00'	R = 350.00'
T = 404.10'	T = 97.84'	T = 144.58'	T = 57.56'
L = 787.69'	L = 157.01'	L = 289.03'	L = 114.10'
E = 55.95'	E = 38.79'	E = 2.71'	E = 4.70'
BANK = NC	BANK = 0.020 FT/FT	BANK NC	BANK = NC

CAST-IN-PLACE CONCRETE CURB, TYPE B (MOD.)

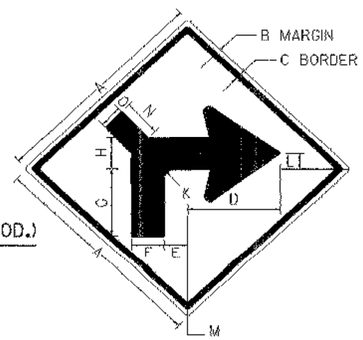
STA. 14+23.0 LT TO STA. 14+43.1LT
STA. 14+32.5 RT TO STA. 14+52.4 RT
STA. 18+31.7 LT TO STA. 18+42.1LT
STA. 18+63.5 RT TO STA. 18+98.0 RT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH (MOD.)

STA. 14+23.0 LT TO STA. 14+43.1LT
STA. 18+31.7 LT TO STA. 18+42.1LT

LEGEND
- CZ - CLEAR ZONE
- DURABLE 8" WHITE LINES
- PAVEMENT TO BE REMOVED

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83



DETAIL FOR WI-IR (MODIFIED)

STD.	A	B	C	D	E	F	G	H		K	L	M	N	O
	30	1/2	3/4	12	3 3/4	4 3/8	5 11/16	6 1/4		1	4 1/16	1 7/8	5	3

LAMOILLE RIVER

VT 15 STA. 18+77.00 = T.H. 2 STA. 100+00.00

71' RADIUS

121' RADIUS

STONE FILL TYPE I (SEE DETAIL ON SHEET 13)

VT STATE PLANE GRID

93.00
STA. 101+~~25.00~~
END APPROACH

N 54° 59' 35.11" W
102+00

STA. 101+00.00
END PROJECT

PAVEMENT TO BE REMOVED (TYP.)

DURABLE 8" WHITE LINES (TYP.)

STA. 19+85.00
END PROJECT

73.00
STA. 20+~~10.00~~
END APPROACH

S 88° 59' 26.89" E
100+00

S 84° 41' 29.97" E
21+00

CURVE 1
CURVE 2 VT. 15
CURVE 3
CURVE 4
T.H. 2

UNDER CONSTRUCTION
STOP BAR
45' R
CONCRETE 90' R BLOCK WALL
2 STORY WOOD BLDG.
2 STORY WOOD BLDG.
GARAGE
SPLIT RAIL FENCE
LAYED UP STONE WALL
STREET SIGN
S.SPRUCE 35' R
LILAC
SHRUB
M.MAPLE
S.MAPLE
S.APPLE
M.APPLE
M.BUTTERNUT
GRAVEL
DIRT
PAVED
MB
W/VENT PIPE
HYD
COMB
GUY W
HVCTRL
SIGN

14+25 LT
18+30 LT
100+50 LT
100+55 LT
14+50 RT
14+25 RT
20+00 RT
23+00 LT
23+00 RT
100+35 RT
100+75 RT
100+25 RT

SIGN LEGEND

R= Remove
S= Salvage
N= New
RET= Retain
T&T= Thinning & Trimming
B-B= Back to Back

ROADWAY PLAN

30 0 30
SCALE IN FEET

NOTE:
FOR TEMPORARY PAVEMENT MARKINGS, SEE SHEETS 16 & 17.

PLAN SHEET

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: ZB308PIB.DGN
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST
PLOT DATE: 22-NOV-2006
DRAWN BY: A.N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 10 OF 68

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.16	2.5 lb/ft 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) 3.0 lb/ft 1.3	4.0 lb/ft 1.7	4.0 MOD lb/ft 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 lb/ft 7.6	3.5 lb/ft 9.0	4.0 lb/ft 10.8	5.0 lb/ft 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAMED REQUIRED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
											OPTION ITEMS																									
VT 15																																			
14+25 LT			30"	30"	6.25						1			18			18	X																WI-IR (MODIFIED)	10	
	15 MPH		18"	18"	2.25																													WI3-1		E-155
14+25 RT			30"	30"	6.25						1			18			18	X																WI-IR (MODIFIED)	10	
	15 MPH		18"	18"	2.25																													WI3-1		E-155
14+50 RT	BRIDGE 20 VT 15		6"	8"	0.34						1		9			9		X																VD-701		E-134
18+30 LT	BRIDGE 20 VT 15		6"	8"	0.34						1		9			9		X																VD-701		E-134
20+00 RT			24"	12"	2.0						1			17			17	X																M3-2		E-136B
			24"	24"	4.0																													MI-5		E-136B
23+00 LT			30"	30"	6.25						1			18			18	X																WI-IL (MODIFIED)	10	
	15 MPH		18"	18"	2.25																													WI3-1		E-155
23+00 RT			30"	30"	6.25						1			18			18	X																WI-IL (MODIFIED)	10	
	15 MPH		18"	18"	2.25																													WI3-1		E-155
					SUBTOTAL (1)							FT 18	FT 89	FT	FT 18	FT 89	FT		EA	LB	LB	LB		LB	LB	LB	LB								
					SF 40.68	SF	EA.	SF				FT 107			FT 107					LB			EA.	LB				EA.	EA.	LB					

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE."

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2(19)S

FILE NAME: zb308tss.DGN
PROJECT LEADER: M.K.CHEVALIER
DESIGNED BY: M.K.CHEVALIER
TRAFFIC SIGN SUMMARY SHEET NO.1

PLOT DATE: 22-NOV-2006
DRAWN BY: C.L.SZCZEPANSKI
CHECKED BY: M.K.CHEVALIER
SHEET 11 OF 68

STATE OF VERMONT
AGENCY OF TRANSPORTATION

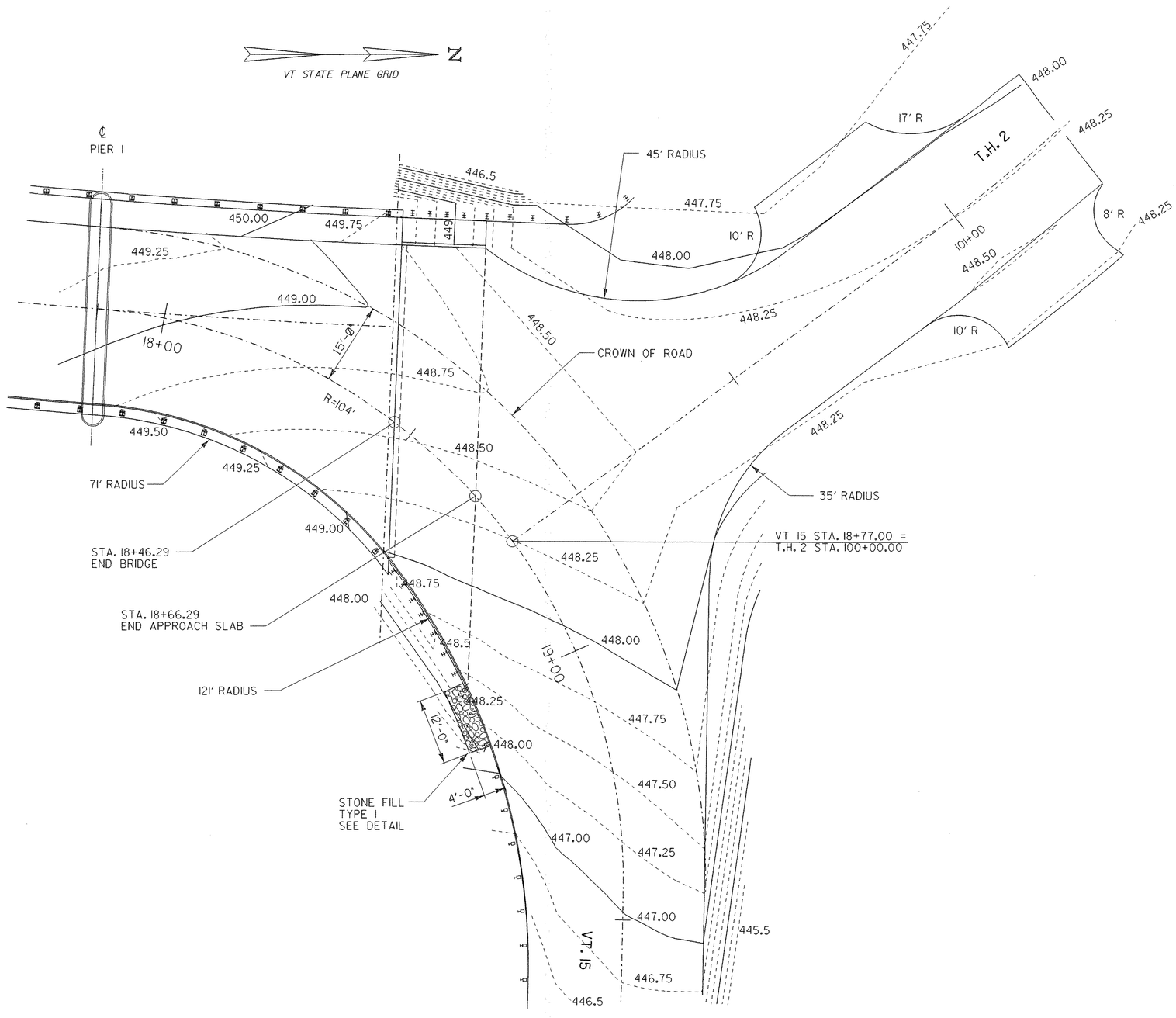
TRAFFIC SIGN SUMMARY SHEET

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EA	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	FLANGED CHANNEL lb/ft 1.12	2.0	3.0	SQUARE STEEL (in) lb/ft 1.75 1.88	2.0 2.16	2.5 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (in) lb/ft 3.0 1.3	4.0 1.7	4.0 MOD 1.7	TUBULAR STEEL Ø (in) FOUNDATION	3.0 7.6	3.5 9.0	4.0 10.8	5.0 14.6	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN REMAINED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
											OPTION ITEMS																									
T.H.2																																			
100+25 RT	→		48"	24"	8.0						2			12			12	X																WI-6		E-152
100+35 RT	PUMPKIN HARBOR ROAD / VT RTE 15						1				1									12														POST TOP MOUNTED		
100+50 LT	←		48"	24"	8.0						2			12			12	X																WI-6		E-152
100+55 LT	STOP		30"	30"	6.25						1			12			12	X																RI-1		E-143
100+75 RT	LEGAL LOAD LIMIT 24,000 POUNDS		24"	30"	5.0						1			12			12	X																VR-017		E-141

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE."

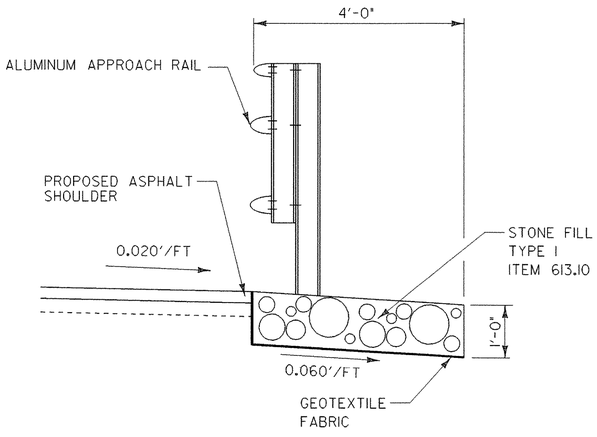
	SF	SF	EA.	SF	FT	FT	FT	FT	FT	FT	EA	LB	LB	LB	EA.	LB	LB	LB	LB	EA.	EA.	LB
							72			72		15.6										
SUBTOTAL (2)	27.25		1		72			72				15.6										
SUBTOTAL (1)	40.68		0		107			107				0										
ROUNDING	0.07		0		1			1				0.4										
TOTAL	68.00		1		180			180				16.0										

PROJECT NAME:	CAMBRIDGE
PROJECT NUMBER:	BHF 030-2(19)S
FILE NAME:	zb308tss.DGN
PROJECT LEADER:	M.K.CHEVALIER
DESIGNED BY:	M.K.CHEVALIER
TRAFFIC SIGN SUMMARY SHEET NO.2	
PLOT DATE:	22-NOV-2006
DRAWN BY:	C.L.SZCZEPANSKI
CHECKED BY:	M.K.CHEVALIER
SHEET	12 OF 68



INTERSECTION GRADING PLAN

10 0 10
SCALE IN FEET



STONE FILL, TYPE I DETAIL

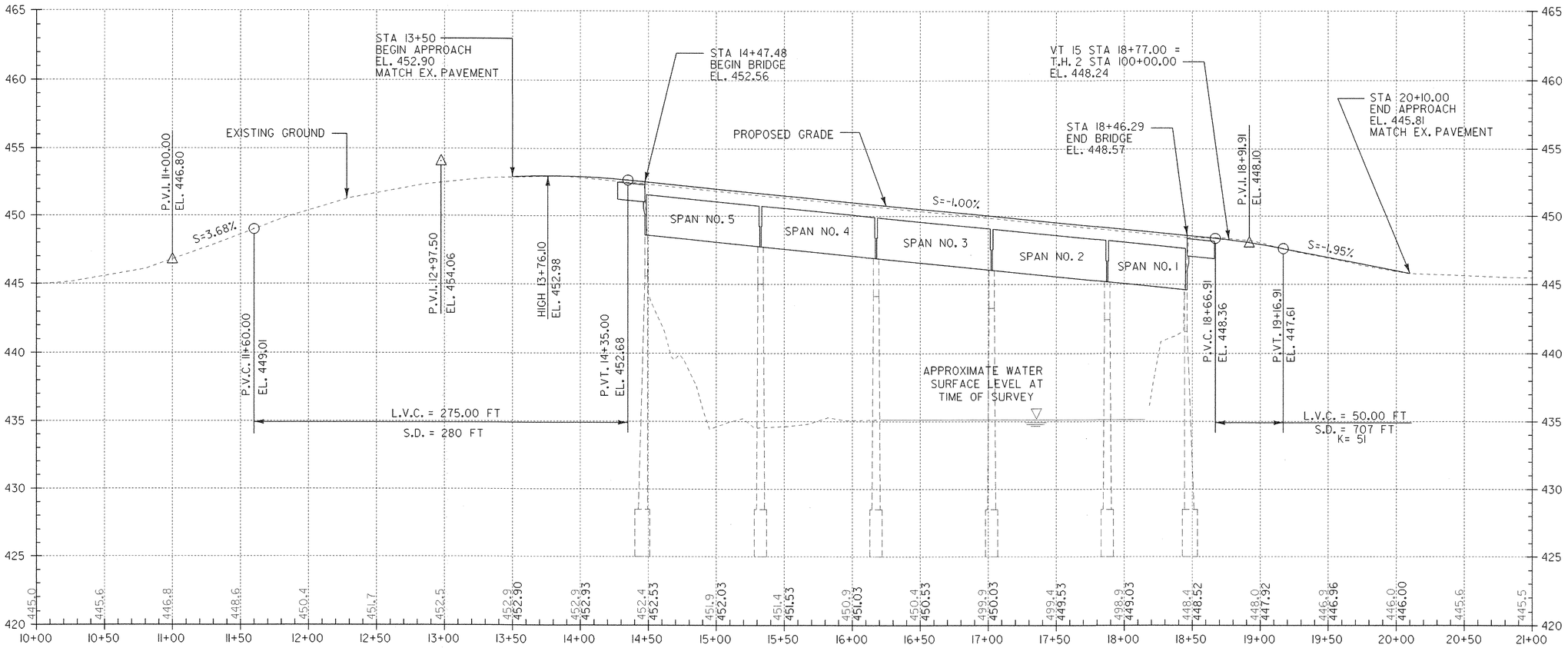
(NTS)
STA 19+01RT. TO STA 19+19 RT.

DATUM
VERTICAL _____
HORIZONTAL _____

INTERSECTION GRADING PLAN/ROADWAY DETAILS

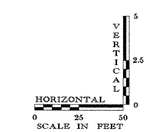
PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: ZB308GPI.DGN
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST
PLOT DATE: 22-NOV-2006
DRAWN BY: C. L. SZCZEPANSKI
CHECKED BY: M. K. CHEVALIER
SHEET 13 OF 68



PROFILE

SCALE 1"= 40' HORIZONTAL
1"= 4' VERTICAL



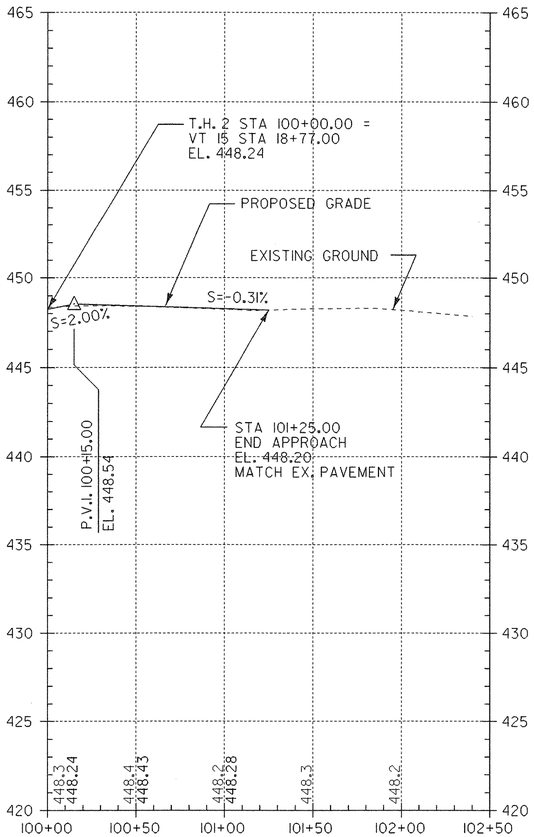
PROFILE SHEET (VT 15)

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

NOTE:
SPAN & SUBSTRUCTURE NUMBERING IS THE SAME AS ORIGINAL PLANS AND IS CONTRARY TO STATIONING USED FOR THIS PROJECT.

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

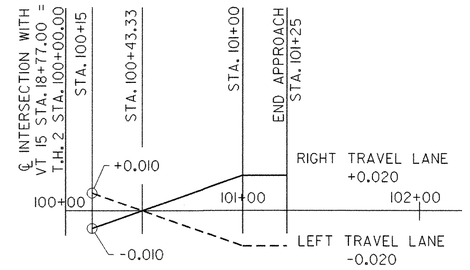
FILE NAME: ZB308PRI.DGN
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST
PLOT DATE: 22-NOV-2006
DRAWN BY: A.N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 14 OF 68



PROFILE

PUMPKIN HARBOR ROAD (T.H.2)

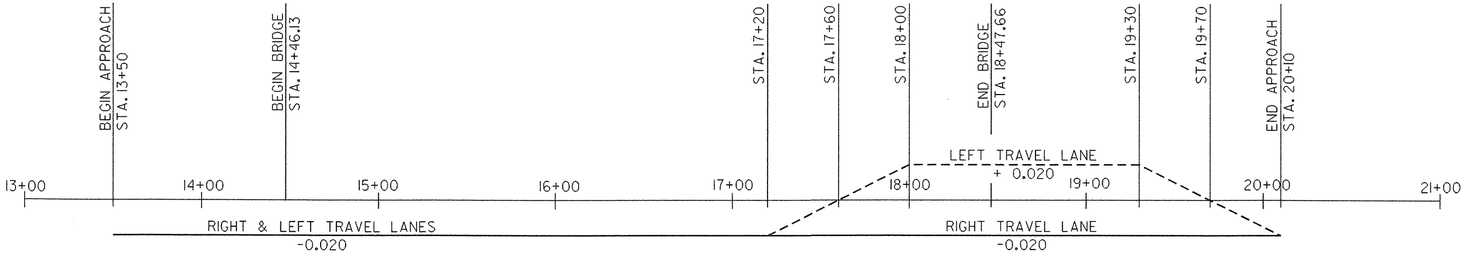
SCALE 1"= 40' HORIZONTAL
1"= 4' VERTICAL



SUPERELEVATION DIAGRAM

PUMPKIN HARBOR ROAD (T.H.2)

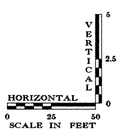
SCALE 1"= 40' HORIZONTAL
1"= 0.40' VERTICAL

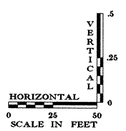


SUPERELEVATION DIAGRAM

VT. 15

SCALE 1"= 40' HORIZONTAL
1"= 0.40' VERTICAL





DATUM

VERTICAL NAVD 88

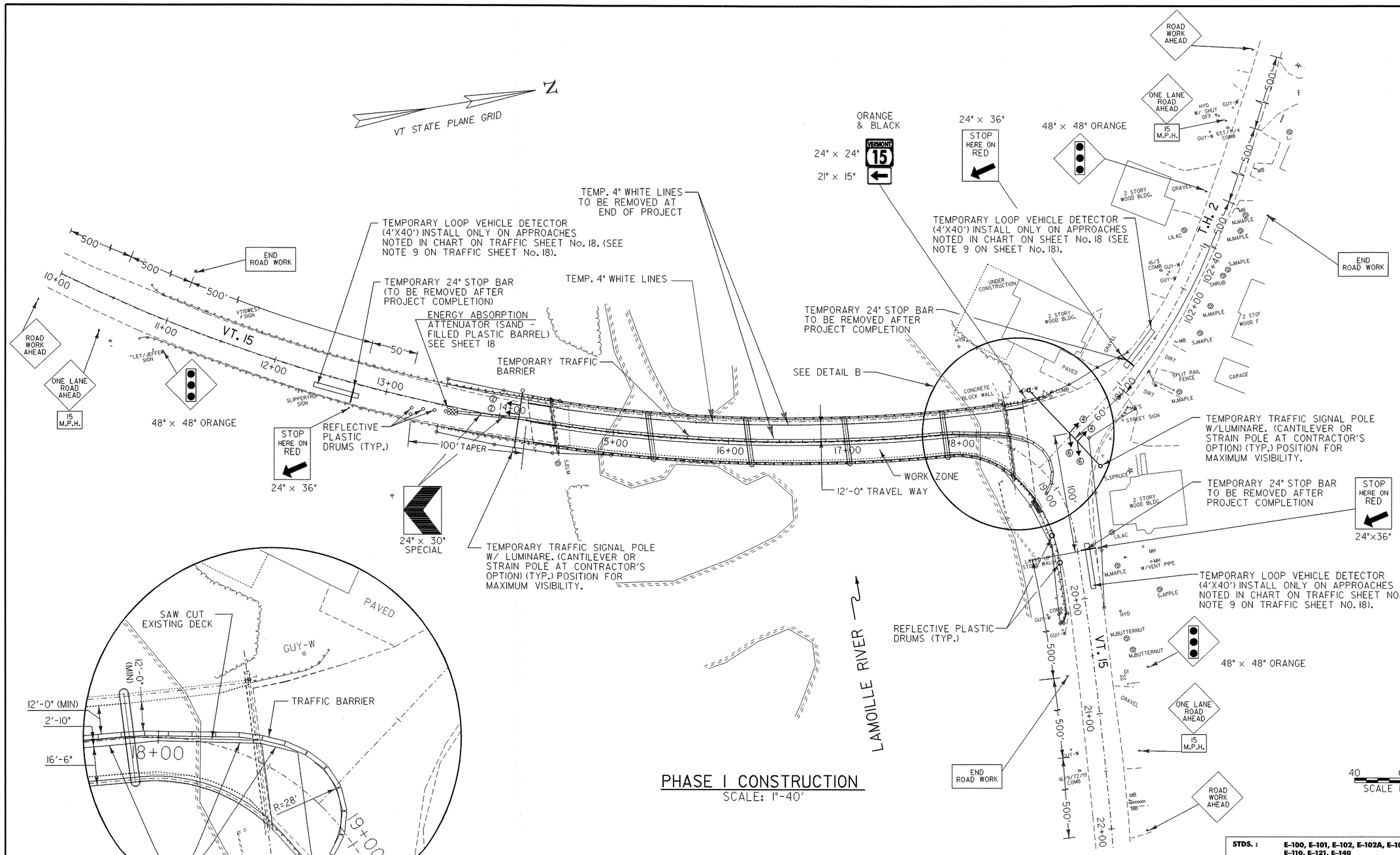
HORIZONTAL NAD 88

PUMPKIN HARBOR RD. PROFILE
AND VT. 15 SUPERELEVATION SHEET

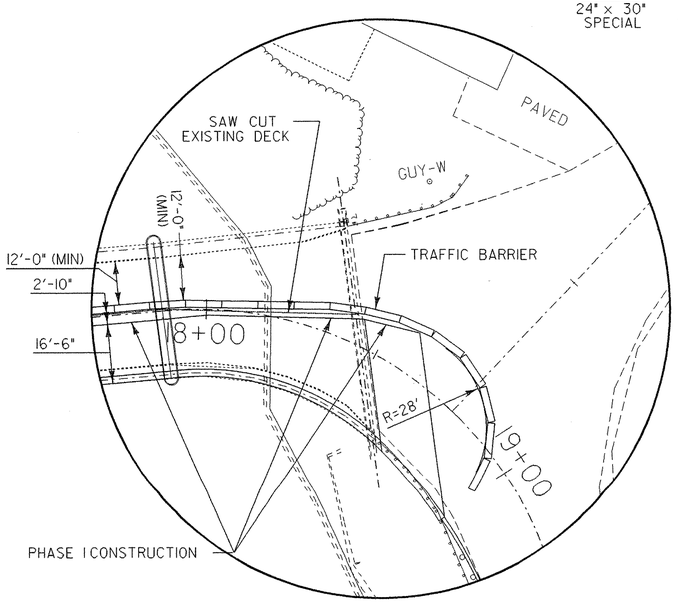
PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: zb308pr2.dgn
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST

PLOT DATE: 22-NOV-2006
DRAWN BY: A.N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 15 OF 68



PHASE I CONSTRUCTION
SCALE: 1"-40'



DETAIL "B"
SCALE: 1"-20'

NOTES:
1. ALL SIGNAL RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN SIGNAL IS NOT OPERATING.
2. ITEM LOCATIONS ARE APPROXIMATE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING ANY MEASUREMENTS IN THE FIELD.
4. TEMPORARY GUARDRAIL TO BE INCLUDED IN THE COST OF ITEM 621.90 - TEMPORARY TRAFFIC BARRIER.

zb308mpt2.dgn

ORIGINAL PREPARED ____		
	REVISIONS	BY

STDS. : E-100, E-101, E-102, E-102A, E-106, E-107, E-107A, E-110, E-121, E-140

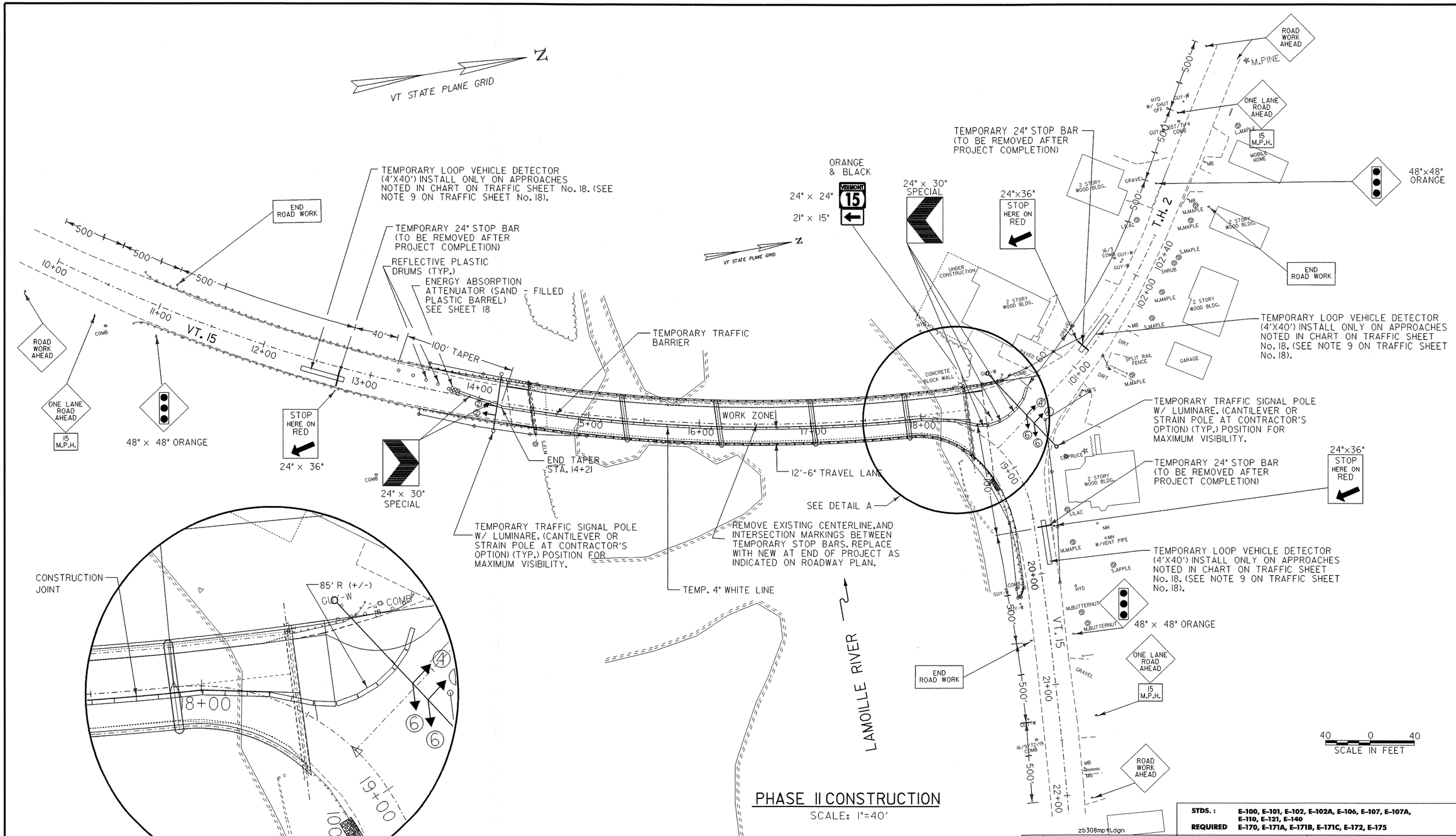
REQUIRED E-170, E-171A, E-171B, E-171C, E-172, E-175

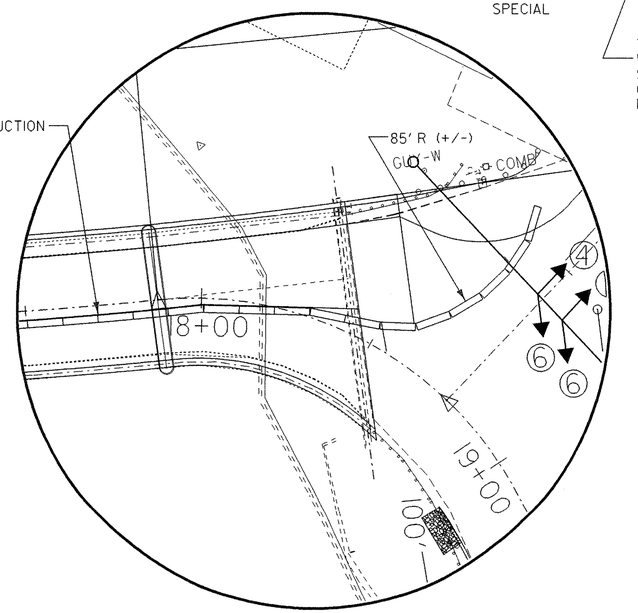
TRAFFIC CONTROL (SHEET 1)

BRIDGE NO. 20

DESIGNED BY B. ERNST DATE ____
DRAWN BY A. N. BEY DATE ____
CHECKED BY K. HINSCH DATE ____
DESIGN SUPERVISOR M. CHEVALIER DATE ____
PROJ. CAMBRIDGE BHF 030-2(19)S

TRAFFIC SHEET NO. 1 OF 3
SHEET 16 OF 68 SHEETS





DETAIL "A"
SCALE: 1"-20'

PHASE II CONSTRUCTION
SCALE: 1"=40'

NOTES:

1. ALL SIGNAL RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN SIGNAL IS NOT OPERATING.
2. ITEM LOCATIONS ARE APPROXIMATE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING ANY MEASUREMENTS IN THE FIELD.
4. TEMPORARY GUARDRAIL TO BE INCLUDED IN THE COST OF ITEM 621.90 - TEMPORARY TRAFFIC BARRIER.

zb308mp1Ldgn

	ORIGINAL PREPARED ----
	REVISIONS BY

STDS.: E-100, E-101, E-102, E-102A, E-106, E-107, E-107A, E-110, E-121, E-140

REQUIRED E-170, E-171A, E-171B, E-171C, E-172, E-175

TRAFFIC CONTROL (SHEET 2)

BRIDGE NO. 20

DESIGNED BY B. ERNST DATE
DRAWN BY A. N. BEY DATE
CHECKED BY K. HINSCH DATE
DESIGN SUPERVISOR M. CHEVALIER DATE
PROJ. CAMBRIDGE BHF 030-2(19)S

TRAFFIC SHEET NO. 2 OF 3

SHEET 17 OF 68 SHEETS

GENERAL
TEMPORARY TRAFFIC SIGNAL NOTES

1. DESIGN OF THE SIGNAL SUPPORT(S) AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR.
2. SIGNAL TIMING/TIMING ADJUSTMENTS REQUESTED BY THE RESIDENT ENGINEER SHALL BE ACCOMPLISHED WITHIN A 48 HOUR PERIOD AND PAYMENT SHALL BE INCIDENTAL TO THE ITEM "678.40, 'TEMPORARY TRAFFIC SIGNAL SYSTEM". THE ALL-RED CLEARANCE INTERVAL IS BASED ON AN ASSUMED SPEED OF 10-20 MPH. THE RESIDENT ENGINEER SHALL MAKE SEVERAL TRIAL RUNS TO DETERMINE THE PROPER ALL-RED CLEARANCE INTERVAL.
3. SIGNAL FACES SHALL CONSIST OF 12'' LENSES. (RED, YELLOW, AND GREEN)
4. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16 1/2 FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY, SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHALL BE USED TO INSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
5. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER OF FACES.
6. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE NO GREATER THAN 14 1/2 FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE M.U.T.C.D. FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
7. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
8. (NOT USED)
9. THE CONTRACTOR SHALL PROVIDE AN ACTUATED CONTROLLER. THE APPROACHES NOTED SHALL HAVE A TEMPORARY VEHICLE DETECTOR. THE TYPE OF DETECTION SHALL BE AT THE OPTION OF THE CONTRACTOR. LOOPS ARE SHOWN FOR PLACEMENT PURPOSES ONLY. THE CONTROLLER, DETECTOR AND ALL OTHER SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL NEMA STANDARDS.
10. WHEN USED, VEHICLE DETECTOR LOOPS SHALL BE 4' X 40' FOR PRESENCE DETECTION AT THE STOP BAR WITH THE NEAR PORTION LOCATED 5 FEET BEYOND THE STOP BAR.
11. INTERVAL TIMING SHOWN IN SECONDS.
12. INTERCONNECT BETWEEN SIGNAL POLES BY WHATEVER MEANS POSSIBLE OR CONVENIENT TO PROVIDE FOR A SAFE INSTALLATION.
13. PLACE TEMPORARY POLES BEHIND GUARDRAIL WHERE POSSIBLE.
14. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELING PUBLIC.
15. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL, INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
16. A 250 WATT MER/150 WATT HPS LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 30' ABOVE ROADWAY CENTERLINE. THE INTENT IS TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE RESIDENT ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT.
17. STOP BARS SHALL BE LOCATED A MINIMUM OF 40' AND A MAXIMUM OF 120' FROM THE NEAREST SIGNAL HEAD.
18. PAYMENT FOR THE TEMPORARY VEHICLE DETECTORS SHALL BE UNDER CONTRACT ITEM "678.42, 'TEMPORARY DETECTOR' FOR EACH UNIT INSTALLED.
19. SIGNS AND POSTS AS SHOWN ON THIS SHEET AND NOTED BELOW ARE INCIDENTAL TO THE TRAFFIC CONTROL SIGNAL ITEMS (''STOP HERE ON RED'', ''SIGNAL AHEAD'', ''NO PASSING ZONE'', ETC.) THE TEMPORARY STOP BARS SHALL BE PAID UNDER ITEM "646.66, 'TEMPORARY 24' STOP BAR".
20. SEE STD. E-101 FOR ''SIGNAL AHEAD'' SYMBOL SIGN. SEE STANDARD E-121 FOR SIGN PLACEMENT. SEE STANDARD E-171A AND E-172 FOR ADDITIONAL INFORMATION ON SIGNALS AND DETECTORS.
21. A ''SIGNAL AHEAD'' SIGN SHALL BE PLACED AT LEAST 500' FROM THE SIGNAL OR AT A POSITION TO BE DETERMINED BY THE ENGINEER.
22. (NOT USED)
23. ALL ELECTRICAL WORK SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND STATE INSPECTOR.
24. (NOT USED)
25. APPROACH WIDTHS SHALL BE AS DETAILED IN SUBSECTION 528.04(b)2 TO MINIMIZE VEHICLE DELAY.
26. TRAFFIC CONTROL WARNING SIGNS SHALL BE PROVIDED ON EACH APPROACH PER STANDARD E-107. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE RESIDENT ENGINEER PER STANDARD E-100, E-101, E-102 & E-102A OR AS SHOWN IN THE LATEST EDITION OF THE MUTCD. PAYMENT FOR THESE SIGNS, THE REFLECTORIZED PLASTIC DRUMS, ETC, SHALL BE PAID UNDER ITEM "641.10, 'TRAFFIC CONTROL".
27. (NOT USED)
28. TEMPORARY TRAFFIC BARRIER SHOULD BE SUBSTITUTED FOR THE CHANNELIZING DEVICES SHOWN WHEN ANY OF THE FOLLOWING ARE MET:
    A.) THE BRIDGE DECK IS REMOVED
    B.) THE BRIDGE RAIL IS REMOVED, OR
    C.) IN THE JUDGEMENT OF THE RESIDENT ENGINEER TEMPORARY BARRIER IS NEEDED.
29. WHEN TEMPORARY BARRIER IS USED, BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE, OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROADWAY.
30. PAYMENT FOR TEMPORARY BARRIER USED SHALL BE PAID FOR UNDER THE ITEM "621.90, 'TEMPORARY TRAFFIC BARRIER".
31. WHEN THE TEMPORARY TRAFFIC CONTROL SIGNAL IS CHANGED TO THE FLASHING MODE, EITHER MANUALLY OR AUTOMATICALLY, RED SIGNAL INDICATIONS SHALL BE FLASHED TO BOTH APPROACHES.

PHASE I CONSTRUCTION

PHASING DIAGRAM AND SPECIAL NOTES FOR EACH LOCATION

PHASE	2			6			4		
MINIMUM	12	4	30	12	4	30	12	8	30
EXTENSION	2			2			2		
MAXIMUM	40			40			14		
HEAD 2	G	Y	R	R	R	R	R	R	R
HEAD 6	R	R	R	G	Y	R	R	R	R
HEAD 4	R	R	R	R	R	R	G	Y	R

SPECIAL REQUIREMENTS

APPROACH	TEMPORARY VEHICLE DETECTOR	FLASHING BEACON ON ADVANCED WARNING SIGN
2	X	X
6	X	X
4	X	X

ENTER CHECK MARK IN APPROPRIATE BOX WHEN REQUIRED ON THIS PROJECT

PHASE II CONSTRUCTION

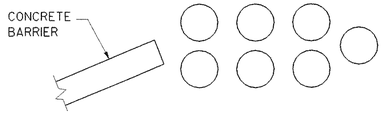
PHASING DIAGRAM AND SPECIAL NOTES FOR EACH LOCATION

PHASE	2			6			4		
MINIMUM	12	4	32	12	4	32	12	8	32
EXTENSION	2			2			2		
MAXIMUM	40			40			14		
HEAD 2	G	Y	R	R	R	R	R	R	R
HEAD 6	R	R	R	G	Y	R	R	R	R
HEAD 4	R	R	R	R	R	R	G	Y	R

SPECIAL REQUIREMENTS

APPROACH	TEMPORARY VEHICLE DETECTOR	FLASHING BEACON ON ADVANCED WARNING SIGN
2	X	X
6	X	X
4	X	X

ENTER CHECK MARK IN APPROPRIATE BOX WHEN REQUIRED ON THIS PROJECT



ENERGY ABSORPTION ATTENUATOR
(SAND - FILLED PLASTIC BARREL)

NOT TO SCALE

NOTE:

SAND BARREL LAYOUT SHALL BE DESIGNED BASED ON AN APPROVED MANUFACTURER'S RECOMMENDATIONS. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

zb308mpt3.dgn

ORIGINAL PREPARED ____

DATE	REVISIONS	BY

STDS.: E-100, E-101, E-102, E-102A, E-106, E-107, E-107A, E-110, E-121, E-140

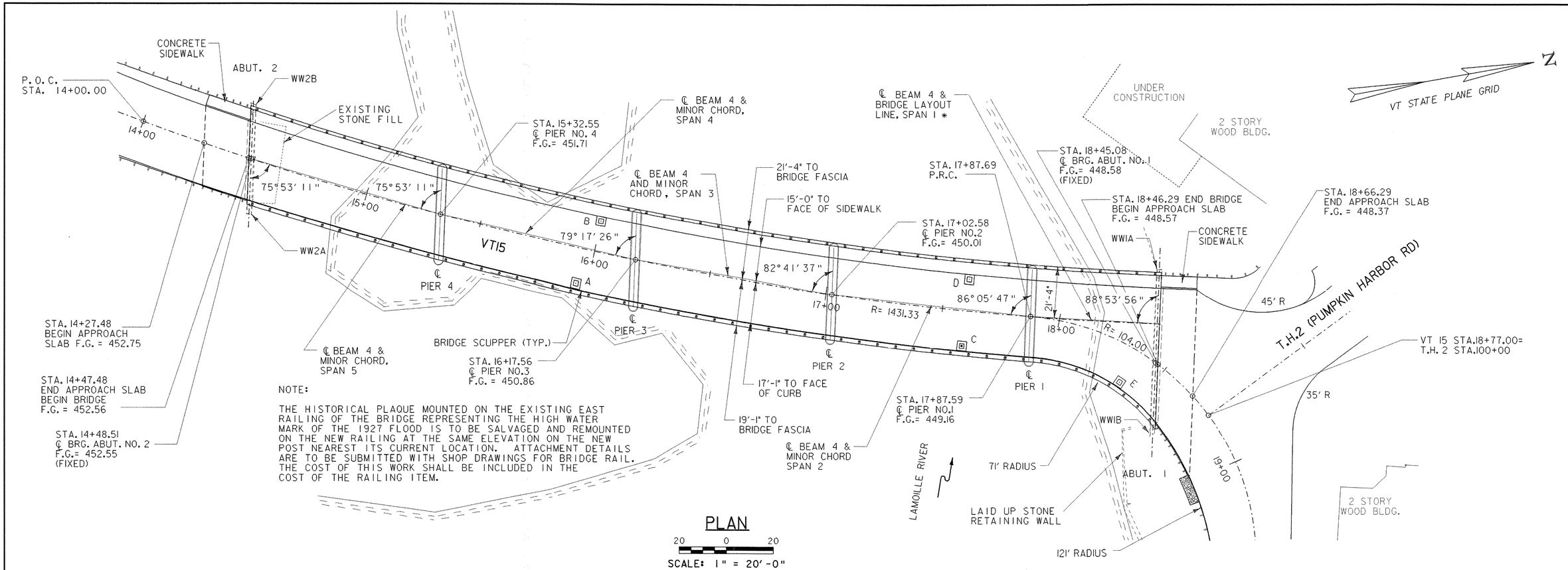
REQUIRED E-170, E-171A, E-171B, E-171C, E-172, E-175

TRAFFIC CONTROL (SHEET 3)

BRIDGE NO. 20

DESIGNED BY B. ERNST DATE ____
DRAWN BY A. N. BEY DATE ____
CHECKED BY K. HINSCH DATE ____
DESIGN SUPERVISOR M. CHEVALIER DATE ____
PROJ. CAMBRIDGE BHF 030-2(19)S

TRAFFIC SHEET NO. 3 OF 3
SHEET 18 OF 68 SHEETS



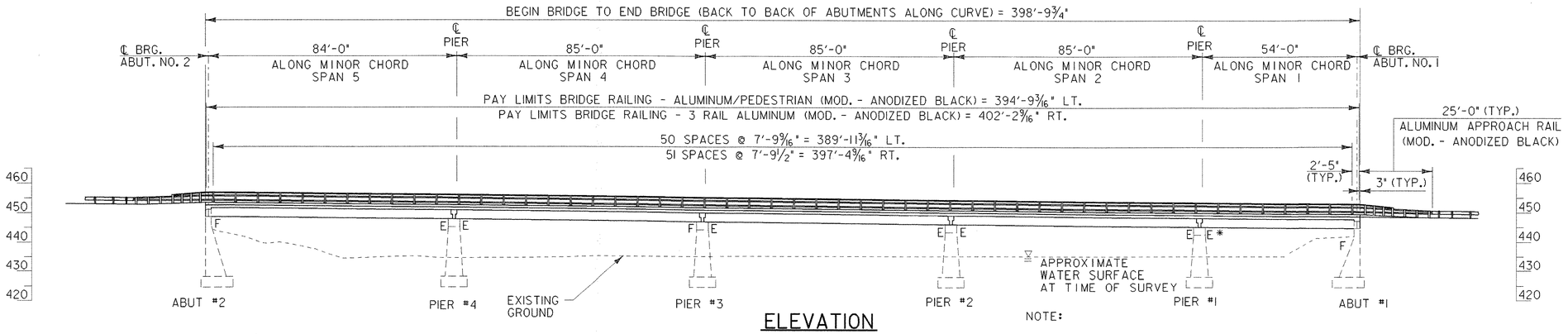
PLAN

20 0 20

SCALE: 1" = 20'-0"

* THE BRIDGE LAYOUT LINE IS THE MINOR CHORD OF THE 1431.33 FT. RADIUS CURVE THEORETICALLY EXTENDED ACROSS SPAN 1.

SCUPPER	LOCATION
A	STA 15+95.00, 17'1" RT
B	STA 16+00.00, 15'-0" LT
C	STA 17+60.00, 17'-1"RT
D	STA 17+60.00, 15'-0" LT
E	STA 18+37.00, 17'-1" RT



ELEVATION

20 0 20

SCALE: 1" = 20'-0"

NOTE:

* BEARING WILL REQUIRE SPECIAL SOLE PLATE. SEE EXPANSION BEARING DETAILS SHT. 31.

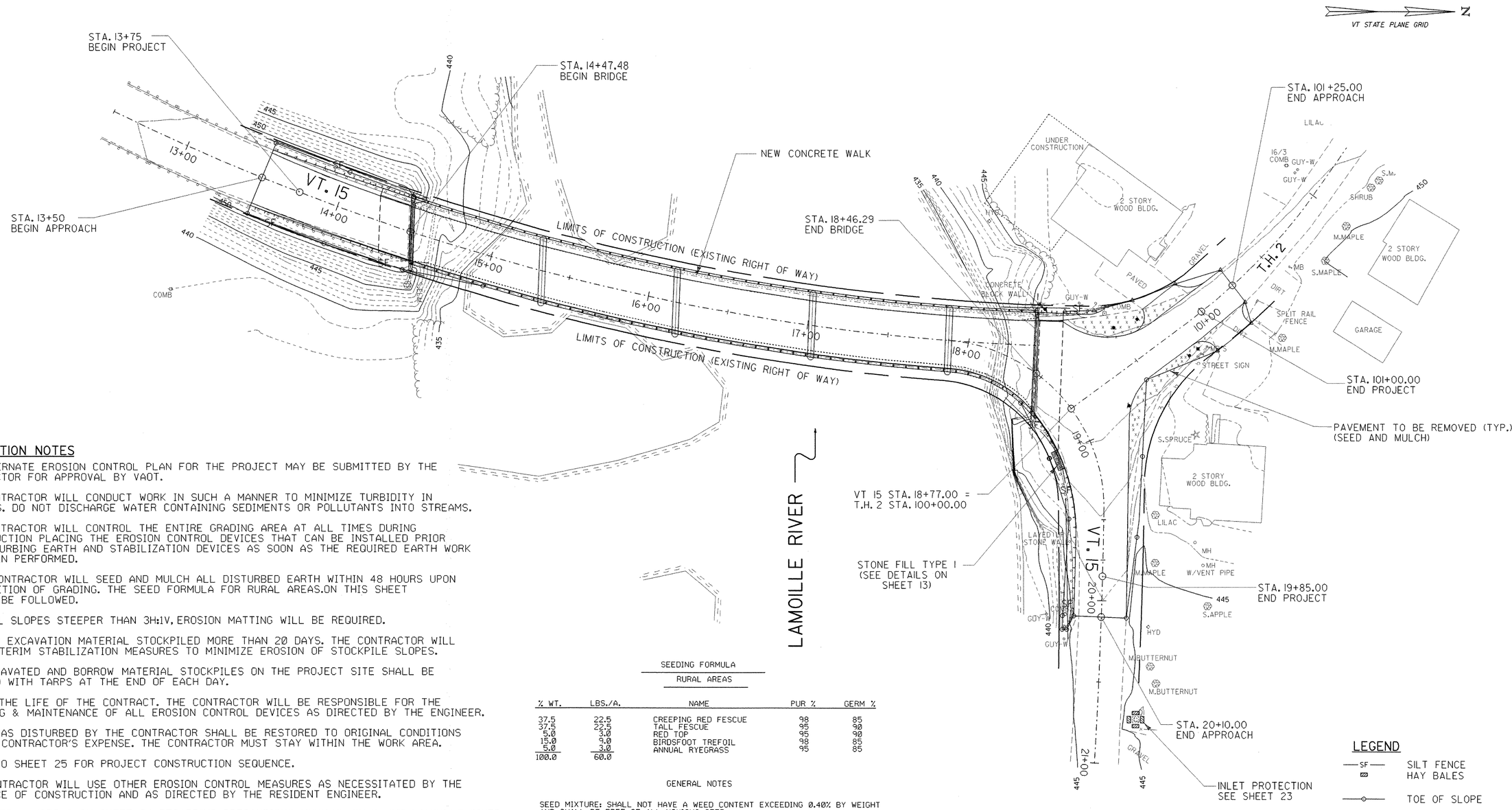
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.

VT 15 OVER LAMOILLE RIVER

PLAN AND ELEVATION

Designed By B. W. ERNST	Drawn By A.N. BEY
Checked By M. K. CHEVALIER Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308pel.dgn
Bridge Sheet No.	Sheet 19 of 68



CONSTRUCTION NOTES

1. AN ALTERNATE EROSION CONTROL PLAN FOR THE PROJECT MAY BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY VAOT.
2. THE CONTRACTOR WILL CONDUCT WORK IN SUCH A MANNER TO MINIMIZE TURBIDITY IN STREAMS. DO NOT DISCHARGE WATER CONTAINING SEDIMENTS OR POLLUTANTS INTO STREAMS.
3. THE CONTRACTOR WILL CONTROL THE ENTIRE GRADING AREA AT ALL TIMES DURING CONSTRUCTION PLACING THE EROSION CONTROL DEVICES THAT CAN BE INSTALLED PRIOR TO DISTURBING EARTH AND STABILIZATION DEVICES AS SOON AS THE REQUIRED EARTH WORK HAS BEEN PERFORMED.

4(a). THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED EARTH WITHIN 48 HOURS UPON COMPLETION OF GRADING. THE SEED FORMULA FOR RURAL AREAS.ON THIS SHEET SHALL BE FOLLOWED.

4(b). ON ALL SLOPES STEEPER THAN 3H:1V, EROSION MATTING WILL BE REQUIRED.

5. FOR ANY EXCAVATION MATERIAL STOCKPILED MORE THAN 20 DAYS. THE CONTRACTOR WILL TAKE INTERIM STABILIZATION MEASURES TO MINIMIZE EROSION OF STOCKPILE SLOPES.
6. ALL EXCAVATED AND BORROW MATERIAL STOCKPILES ON THE PROJECT SITE SHALL BE COVERED WITH TARPS AT THE END OF EACH DAY.
7. DURING THE LIFE OF THE CONTRACT. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CLEANING & MAINTENANCE OF ALL EROSION CONTROL DEVICES AS DIRECTED BY THE ENGINEER.
8. ALL AREAS DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO ORIGINAL CONDITIONS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR MUST STAY WITHIN THE WORK AREA.
9. REFER TO SHEET 25 FOR PROJECT CONSTRUCTION SEQUENCE.
10. THE CONTRACTOR WILL USE OTHER EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION AND AS DIRECTED BY THE RESIDENT ENGINEER.
11. SEE GENERAL NOTE 9 ON SHEET 24 REGARDING PRECAUTIONS WORKING OVER THE LAMOILLE RIVER.

SEEDING FORMULA

RURAL AREAS

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

GENERAL NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

LEGEND

—SF—	SILT FENCE
▨	HAY BALES
—o—	TOE OF SLOPE

EROSION CONTROL PLAN

30 0 30

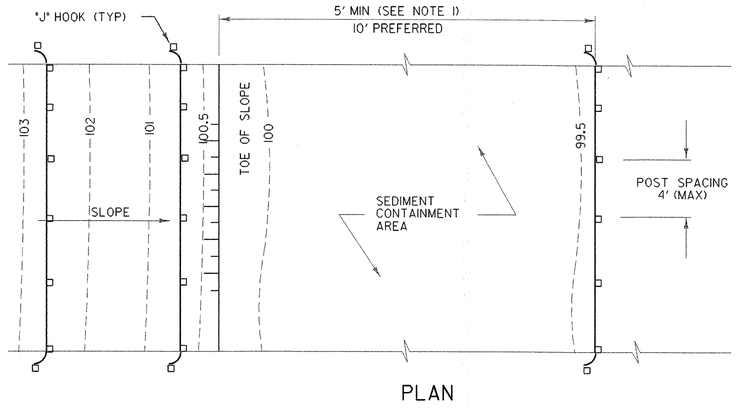
SCALE IN FEET

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83

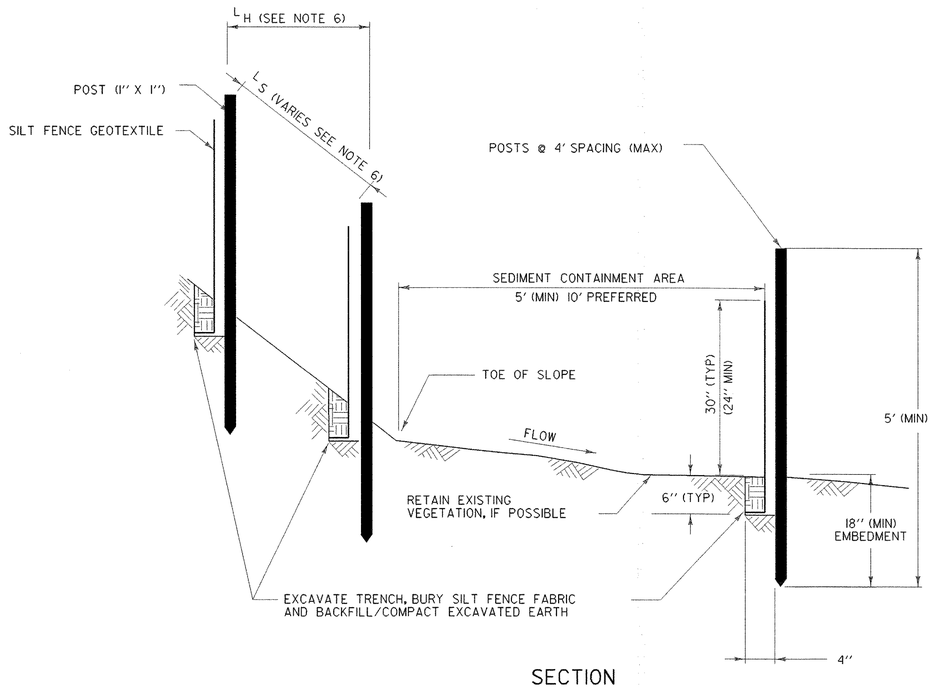
EROSION CONTROL & FINAL CONDITIONS PLAN

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: zb308ecl.dgn
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST
PLOT DATE: 22-NOV-2006
DRAWN BY: V. COMMISSO
CHECKED BY: M. K. CHEVALIER
SHEET 20 OF 68



PLAN



SECTION
SILT FENCE - TEMPORARY

SILT FENCE

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF SILT FENCE IS TO REDUCE RUNOFF VELOCITY AND TRAP SEDIMENT. VELOCITY IS REDUCED, WATER IS IMPOUNDED BEHIND THE MEASURE, AND SEDIMENT FALLS OUT OF SUSPENSION.

B. SILT FENCE SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). IT MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM, AS SHOWN IN THE DETAIL.

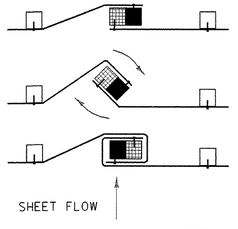
C. SILT FENCE SHALL NOT BE USED ACROSS CONCENTRATED FLOW.

GENERAL NOTES:

1. SILT FENCE SHALL GENERALLY BE PLACED A MINIMUM OF 5 FEET BEYOND TOE OF SLOPE, 10 FEET PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
2. ALL ENDS SHALL BE "J" HOOKED TO TRAP SEDIMENT.
3. IN AREAS WITH TWO SLOPES, SILT FENCE SHALL BE USED TO ERECT A DAM AND TRAP SEDIMENT AT THE BASE OF THE STEEPER SLOPE.
4. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6 INCHES BELOW GROUND, AND KEYED IN 4 INCHES. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
5. MAXIMUM DRAINAGE AREA TRIBUTARY TO 100 FEET OF SILT FENCE SHALL BE 0.25 ACRES.
6. THE FOLLOWING ARE MAXIMUM SLOPE LENGTHS FOR THESE MEASURES:

CONSTRUCTED SLOPE	SLOPE LENGTH (LS) FT	HORIZONTAL LENGTH (LH) FT
3 : 1	80	75
4 : 1	130	125
5 : 1	200	200
> 5 : 1	250	250

7. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
8. MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.
9. SILT FENCE SHALL BE REMOVED WHEN THE AREA HAS BEEN STABILIZED. AT TIME OF REMOVAL OF THE SILT FENCE, THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.
10. PAYMENT FOR INSTALLATION, REMOVAL, MONITORING AND MAINTAINING THE SILT FENCE SHALL BE MADE UNDER THE GEOTEXTILE FOR SILT FENCE ITEM.



1. PLACE THE END POST OF ONE FENCE INSIDE THE END POST OF THE OTHER FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL
3. DRIVE BOTH POSTS 18 INCHES INTO THE GROUND AND BURY THE FLAP IN THE TRENCH.

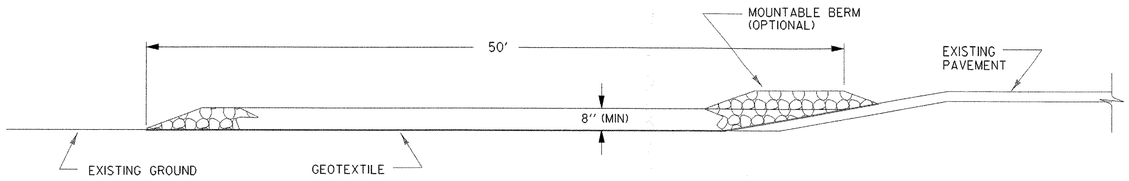
SPLICING DETAIL

EROSION PREVENTION & SEDIMENT CONTROL DETAILS
SILT FENCE

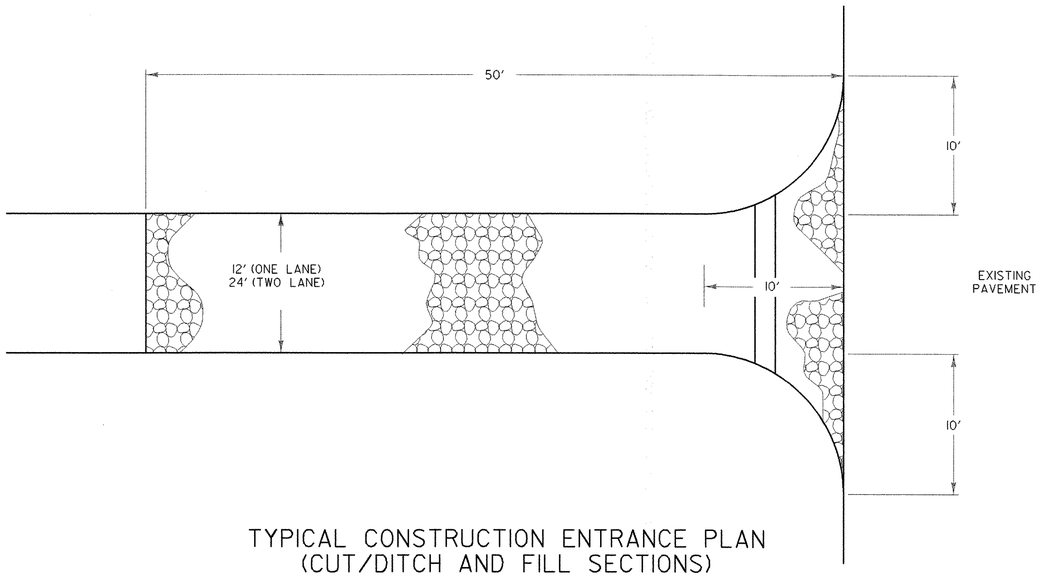
EROSION CONTROL DETAILS (SILT FENCE)

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2(19)S

FILE NAME: EPSC-1.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: D. BONNEAU
PLOT DATE: 22-NOV-2006
DRAWN BY: D. BONNEAU
CHECKED BY:
SHEET 21 OF 68



TYPICAL CONSTRUCTION ENTRANCE PROFILE
(CUT AND DITCH SECTIONS)



TYPICAL CONSTRUCTION ENTRANCE PLAN
(CUT/DITCH AND FILL SECTIONS)

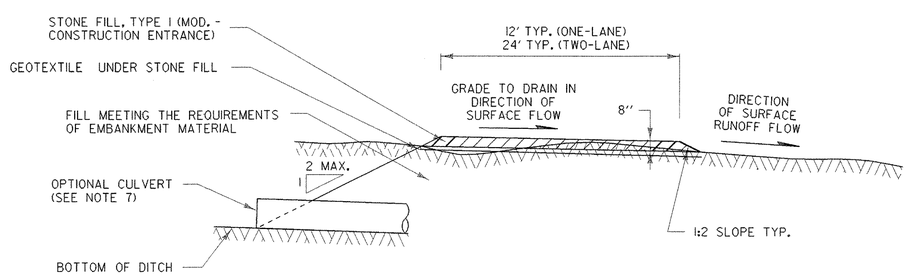
STABILIZED CONSTRUCTION ENTRANCE

APPLICATION NOTES:

A. THE PURPOSE OF A STABILIZED CONSTRUCTION ENTRANCE IS TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY OR STREETS.

GENERAL NOTES:

1. STONE SIZE - USE CLEAN STONE WITH GRADATION BETWEEN 2 INCHES AND 4 INCHES .
2. LENGTH - 50 FEET (MIN)
3. THICKNESS - 18 INCHES (MIN)
4. WIDTH - 12 FEET (MIN)
5. GEOTEXTILE UNDER STONE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE AS DIRECTED BY THE ENGINEER. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. PROPOSED DRAINAGE PIPES SHALL BE SIZED WITH SUFFICIENT CAPACITY TO CARRY DITCH FLOWS. ALTERNATIVE WAYS OF TRANSPORTING DITCH DRAINAGE ACROSS CONSTRUCTION ENTRANCES MAY BE PROPOSED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
8. WHEN WASHING OF VEHICLE IS NECESSARY, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.
10. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
11. AT THE TIME OF REMOVAL OF THE STABILIZED CONSTRUCTION ENTRANCE THE DISTURBED AREA SHALL BE REPAIRED AND STABILIZED.
12. PAYMENT OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS.

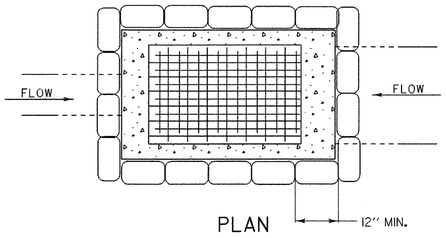


TYPICAL CONSTRUCTION ENTRANCE SECTION

EROSION PREVENTION & SEDIMENT CONTROL DETAILS CONSTRUCTION ENTRANCE

EROSION CONTROL DETAILS
(CONSTRUCTION ENTRANCE)

PROJECT NAME:	CAMBRIDGE
PROJECT NUMBER:	BHF 030-2(19)S
FILE NAME: EPSC-4.dgn	PLOT DATE: 22-NOV-2006
PROJECT LEADER: R. WHITCOMB	DRAWN BY: D. BONNEAU
DESIGNED BY: D. BONNEAU	CHECKED BY:
	SHEET 22 OF 68



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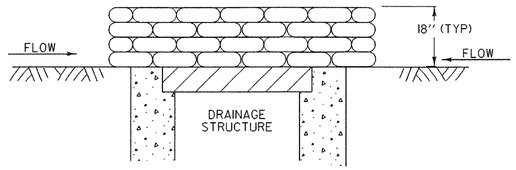
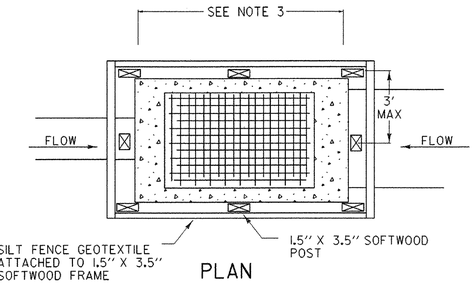


SECTION

GRAVEL BAG DROP INLET PROTECTION



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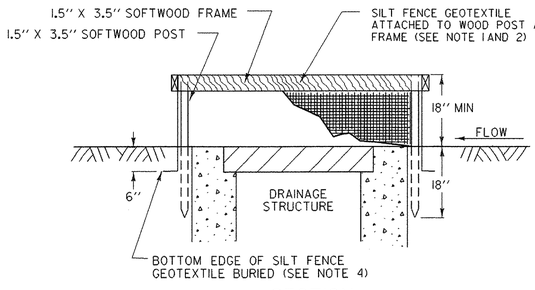
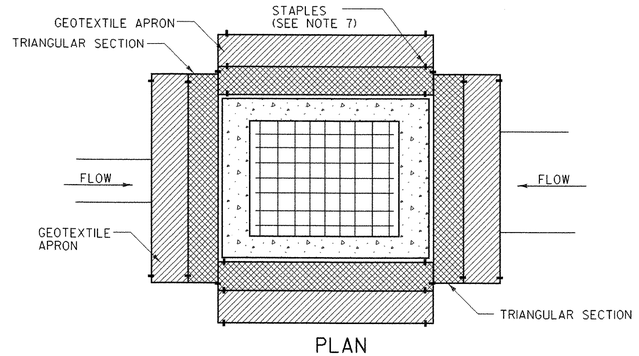


SECTION

SILT FENCE DROP INLET PROTECTION



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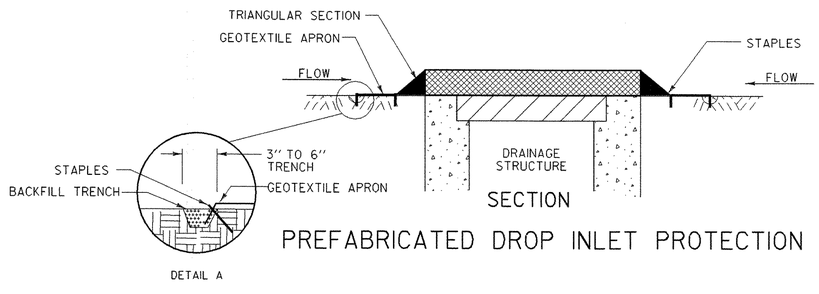
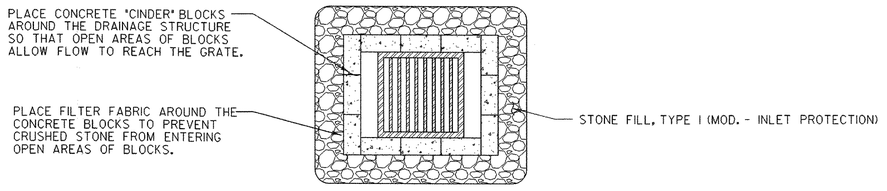


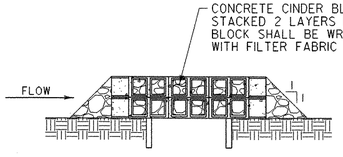
SECTION

DETAIL A

PREFABRICATED DROP INLET PROTECTION



PLAN



SECTION

ROCK BARRIER DROP INLET PROTECTION TEMPORARY PAVED AREAS

DROP INLET PROTECTION

APPLICATION NOTES:

A. THE PRIMARY PURPOSE OF DRAINAGE STRUCTURE INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE SYSTEM BY PONDING WATER WHICH ALLOWS SEDIMENT TO FALL OUT OF SUSPENSION.

B. THESE EXAMPLES OF DROP INLET PROTECTION ARE NOT INTENDED FOR USE ON GRADES. ON GRADE THEY MAY CAUSE WATER TO BYPASS THE STRUCTURE, CREATING ADDITIONAL EROSION OR FLOODING.

C. POSSIBLE MODIFICATIONS FOR USE ON GRADE INCLUDE ADDING A BERM DOWNSTREAM OF THE INLET TO CREATE PONDING. CHECK DAMS MAY ALSO BE USED UPSTREAM OF THE INLET TO SLOW VELOCITIES.

D. PREFABRICATED DROP INLET PROTECTION SPECIFICATIONS SHALL BE PROVIDED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.

GENERAL NOTES:

1. THE TOP OF THE INLET PROTECTION SHALL BE SET AT THE MAXIMUM DESIRED WATER LEVEL, BASED ON FIELD LOCATION AND CONDITIONS.

2. SILT FENCE GEOTEXTILE SHALL BE A SINGLE CONTINUOUS PIECE TO ELIMINATE JOINTS.

3. SPACE SILT FENCE POSTS EVENLY AROUND INLET WITH A MAXIMUM SPACING OF 3 FEET. DRIVE POSTS A MINIMUM OF 18 INCHES INTO GROUND. WIRE MESH MAY BE REQUIRED BEHIND GEOTEXTILE TO PROVIDE SUPPORT.

4. SILT FENCE GEOTEXTILE SHALL BE EMBEDDED A MINIMUM OF 6 INCHES AND BACKFILLED. GEOTEXTILE SHALL BE SECURELY FASTENED TO POSTS AND FRAME.

5. GRAVEL BAGS SHALL BE FILLED WITH CLEAN STONE, RATHER THAN SAND, TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE SYSTEM IF BAGS ARE DAMAGED DURING USE.

6. GRAVEL BAGS SHALL BE INDIVIDUALLY TIED, DOUBLE BAGGED AND INVERSELY INSERTED. GRAVEL BAGS SHALL LAP THE JOINTS BETWEEN THE BAGS IN THE LAYER BELOW.

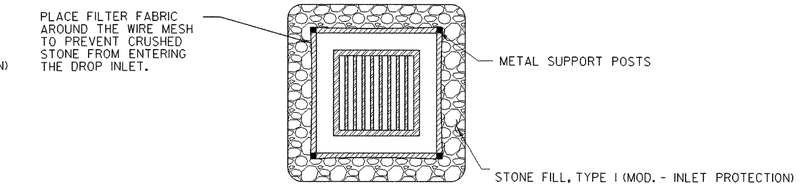
7. SECURE THE ENDS OF THE APRON FOR THE PREFABRICATED DRAINAGE STRUCTURE INLET PROTECTION WITH STAPLES AS DETAILED IN THE PLAN VIEW OR AS RECOMMENDED BY THE MANUFACTURERS LITERATURE.

8. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE WATER TO LEAVE THE CONSTRUCTION SITE.

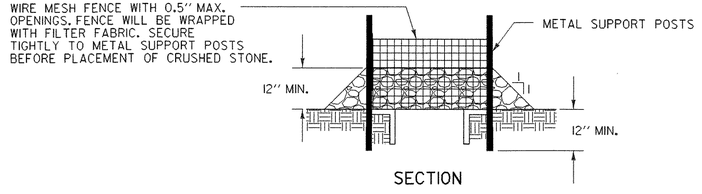
9. MEASURES SHALL BE CLEANED AND REPAIRED AS NEEDED, SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.

10. PAYMENT OF INLET PROTECTION SHALL BE MADE UNDER APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS.

11. PAYMENT FOR MONITORING AND MAINTAINING INLET PROTECTION SHALL BE INCIDENTAL TO APPLICABLE ITEMS INCLUDED IN THE CONTRACT PLANS.



PLAN



SECTION

ROCK BARRIER INLET PROTECTION TEMPORARY UNPAVED AREAS

EROSION PREVENTION & SEDIMENT CONTROL DETAILS DROP INLET PROTECTION

EROSION CONTROL DETAILS (INLET PROTECTION)

PROJECT NAME:	CAMBRIDGE
PROJECT NUMBER:	BHF 030-2(19)S
FILE NAME: EPSC-3.dgn	PLOT DATE: 22-NOV-2006
PROJECT LEADER: R. Whitcomb	DRAWN BY: str3
DESIGNED BY: C. Carlson	CHECKED BY: C. Carlson
zb308epsc3.i	SHEET 23 OF 68

GENERAL NOTES:

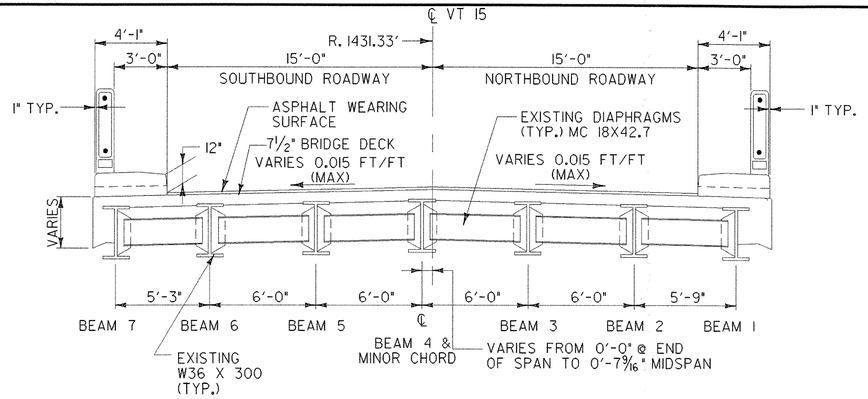
1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2001, INCLUDING ITS LATEST REVISIONS AND THE AASHTO STANDARD SPECIFICATIONS FOR BRIDGES, DATED 2002 INCLUDING ITS LATEST REVISION.
2. DESIGN OF THE NEW CONCRETE DECK IS FOR HS-25 LIVE LOADING WITH NO ALLOWANCE FOR FUTURE PAVEMENT.
3. SIGNALIZED ALTERNATING ONE-WAY TRAFFIC SHALL BE MAINTAINED DURING PHASE CONSTRUCTION.
4. ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" SHALL INCLUDE:
   A. REMOVAL OF THE EXISTING CONCRETE BRIDGE DECK, INCLUDING CURBS, SIDEWALKS, BRIDGE RAILINGS AND CURTAIN WALLS. CARE SHALL BE TAKEN NOT TO DAMAGE THE EXISTING BEAMS. ANY DAMAGE TO THE BEAMS DUE TO REMOVAL OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
   B. REMOVAL OF THE EXISTING BEARINGS.
   C. REMOVAL OF PORTIONS OF THE EXISTING ABUTMENTS.
   D. DISCONNECTING AND RECONNECTING DIAPHRAGMS, INCLUDING ALL MATERIALS AND LABOR.
5. ALL WORK SHALL BE DONE WITHIN THE EXISTING RIGHT-OF-WAY. SHOULD THE CONTRACTOR REQUIRE ANY ADDITIONAL RIGHT-OF-WAY, IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL EASEMENTS.
6. SHEAR STUD CONNECTORS SHALL BE INSTALLED ON ALL BEAMS.
7. ALL EXISTING BEARINGS SHALL BE REPLACED WITH FABRIC PAD TYPE BEARINGS.
8. (NOT USED)
9. THE CONTRACTOR SHALL TAKE CARE AND PRECAUTIONS TO ENSURE THAT NO DEBRIS FALLS INTO THE LAMOILLE RIVER. A BARRIER SUCH AS PLYWOOD OR NETTING ETC. SHALL BE INSTALLED PRIOR TO DEMOLITION OF THE DECK. PAYMENT FOR THIS WORK, INCLUDING INSTALLATION, MAINTENANCE AND REMOVAL SHALL BE MADE UNDER ITEM 527.11 "TRAFFIC PROTECTION FOR BRIDGE PROJECTS".
10. A. DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ENSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENTS ARE SUBMITTED FOR APPROVAL, FIELD MEASUREMENTS SHALL ALSO BE SUBMITTED FOR REFERENCE BY THE REVIEWER.
    B. THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR FOR WORK PERTAINING TO SUCH MODIFICATIONS AS MAY BE REQUIRED DUE TO MINOR DIFFERENCES BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN BY THE DETAILS AND DIMENSIONS ON THE PLANS.
11. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 F, UNLESS OTHERWISE NOTED.
12. CONCRETE FOR THE DECK SLAB, CURB AND SIDEWALK SHALL BE CONCRETE, HIGH PERFORMANCE CLASS A. CONCRETE FOR THE APPROACH SLABS AND SUBSTRUCTURE MODIFICATIONS SHALL BE CONCRETE, HIGH PERFORMANCE, CLASS B.
13. WHENEVER NEW CONCRETE IS BEING PLACED AGAINST EXISTING CONCRETE, THE SURFACE OF THE EXISTING CONCRETE SHALL BE CLEANED AS SPECIFIED IN SUBSECTION 501.13 AND CONTINUOUSLY WATERED FOR 12 HRS. EXCESS WATER SHALL BE SWEPT AWAY OR BLOWN OFF WITH COMPRESSED AIR PRIOR TO POURING NEW CONCRETE. THIS WORK SHALL BE INCIDENTAL TO THE CONCRETE ITEM BEING POURED.
14. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1", UNLESS OTHERWISE NOTED.
15. REINFORCING STEEL SHALL CONFORM TO AASHTO M31/M31M GRADE 60.
16. ALL REINFORCING STEEL IN THE CONCRETE DECK, CURB, APPROACH SLAB, SIDEWALK AND CURTAIN WALL SHALL BE EPOXY COATED AND PAID FOR UNDER THE ITEM 507.17. WHEN EPOXY COATED REINFORCING STEEL IS CUT, THE UNCOATED ENDS SHALL BE REPAIRED WITH MATERIALS AND PROCEDURES APPROVED BY THE COATING MANUFACTURER. FLAME CUTTING OF EPOXY COATED REINFORCING STEEL WILL NOT BE PERMITTED.
17. THE PHASE CONSTRUCTION SEQUENCE SHOWN IN THE PLANS IS A SUGGESTED METHOD. THE CONTRACTOR MAY PROPOSE A CLOSURE POUR OR OTHER METHOD FOR REVIEW & APPROVAL BY THE ENGINEER PRIOR TO THE START OF CONSTRUCTION.
18. THE MINIMUM COVER FOR REINFORCING STEEL (EXCEPT IN THE DECK) SHALL BE 2" ALONG BACK FACES OF WALLS AGAINST EARTH AND 3" ELSEWHERE.
19. REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:

SPACING	+/- 1"
CLEARANCE	+/- 1/4"

20. AFTER THE EXISTING BRIDGE DECK HAS BEEN REMOVED AND NEW BEARINGS HAVE BEEN SET, ELEVATIONS SHALL BE TAKEN ALONG THE CENTERLINE OF THE BEAMS AS DIRECTED BY THE ENGINEER FOR USE IN DETERMINING THE HAUNCHES.
21. JOINTS AND SCORE MARKS IN THE CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
22. THE KEY IN CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.
23. WHEN POURING THE DECK, THE CONCRETE SHALL BE DEPOSITED PARALLEL TO THE CENTERLINE OF BEARING SO AS TO LOAD THE BEAMS EQUALLY.
24. ITEM 514.10, "WATER REPELLENT (MOD. - SILANE)", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES INCLUDING ALL SUBSTRUCTURES EXCEPT THE UNDERSIDE OF THE BRIDGE DECK BETWEEN THE DRIP BEADS.
25. THE STRUCTURAL STEEL ON THIS PROJECT IS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. ALL STRUCTURAL STEEL THAT IS TO REMAIN SHALL HAVE 100% OF THE EXISTING COATINGS REMOVED AS PER SUPPLEMENTAL SPECIFICATION SECTION 513. ALL STRUCTURAL STEEL (NEW AND EXISTING) IS TO BE PAINTED AND GREASED PER SUPPLEMENTAL SPECIFICATION SECTION 513. PAINT COLOR SHALL BE BLACK AND SHALL CONFORM WITH FEDERAL STANDARD NO. 595, COLOR CHIP NO. 27038.
26. FLEMING BRACKETS OR SIMILAR FALSE WORK SHALL BE DESIGNED BY THE CONTRACTOR, BUT SHALL BE LIMITED TO A MAXIMUM SPACING OF 4'-0". ANY BOLT HOLES IN THE WEBS SHALL BE FILLED WITH TYPE I BUTTON HEAD OR HEX HEAD BOLTS MEETING AASHTO M164, GALVANIZED.
27. THE FINISHED GRADE ACROSS THE BRIDGE WILL BE 1.5"+\- HIGHER THAN THE EXISTING GRADE. ITEM 210.10, "COLD PLANING BITUMINOUS CONCRETE", SHALL BE REQUIRED FOR SHAPING THE APPROACH PAVEMENT TRANSITION FROM THE EXISTING ROADWAY PAVEMENT TO THE PROPOSED BRIDGE PAVEMENT.
28. ABBREVIATIONS AND SYMBOLS USED ON THE PLANS FOLLOW INDUSTRY AND VERMONT AGENCY OF TRANSPORTATION (VTRANS) STANDARD PRACTICES, UNLESS OTHERWISE NOTED.
29. (NOT USED)
30. THE PAY ITEM 507.19, "MECHANICAL BAR CONNECTORS" REQUIRE THE FOLLOWING TYPES AND SIZES OF CONNECTORS:
    12 - #5 BAR (EPOXY COATED) FOR SUPERSTRUCTURE
    17 - #5 BAR (EPOXY COATED) FOR APPROACH SLAB NO. 1
    132 - #6 BAR (EPOXY COATED) FOR SUPERSTRUCTURE
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GUARDING AND PROTECTING ALL OPEN EXCAVATIONS.
32. NEW STEEL DIAPHRAGMS AND CONNECTION PLATES SHALL BE AASHTO M270 GRADE 36 OR GRADE 50 - PAINTED, SEE NOTE 25.
33. ALL WELDING SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-BRIDGE WELDING CODE.
34. THE CONTRACTOR IS REQUIRED TO PERFORM A "DRY RUN" WITH THE SCREED MACHINE DEMONSTRATING THE CONTRACTOR'S ABILITY TO ACHIEVE THE BANKING TRANSITION IN SPANS 1 & 2.
35. ALL FIELD CONNECTIONS SHALL BE MADE USING 7/8 INCH DIAMETER, TYPE 1 BOLTS MEETING AASHTO M164, GALVANIZED. HOLES SHALL BE 15/16 INCH DIAMETER, UNLESS OTHERWISE NOTED. ANY CONNECTIONS NOT DESIGNED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
36. ITEM 613.11 "STONE FILL, TYPE II" SHALL BE USED AT THE DISCRETION OF THE RESIDENT ENGINEER TO PREVENT EROSION BEHIND THE WINGWALLS AND AS INDICATED ON THE PLANS.
37. THE HISTORICAL PLAQUE MARKING THE ELEVATION OF THE 1927 FLOOD WATER SHALL BE SALVAGED AND REMOUNTED ON THE NEW RAILING IN A SIMILAR LOCATION AT THE SAME ELEVATION. ATTACHMENT DETAILS SHALL BE SUBMITTED WITH THE RAILING SHOP DRAWINGS FOR REVIEW. PAYMENT FOR REMOVING, AND REATTACHING THE PLAQUE AS WELL AS ALL ASSOCIATED HARDWARE SHALL BE MADE INCIDENTAL TO THE BRIDGE RAILING PAY ITEM.
38. FOLLOWING THE WET-CURE OF THE DECK POURED IN PHASE 1, WATER REPLELLENT (MOD. - SILANE) SHALL BE APPLIED OVER THE ENTIRE TOP SURFACE OF THE DECK IF THE CONSTRUCTION SCHEDULE IS SUCH THAT THE DECK WILL NOT BE PAVED AND TRAFFIC WILL BE ON THE NEW BRIDGE SURFACE FOR THE WINTER. SEE PROJECT SPECIAL PROVISIONS FOR APPLICABLE DRYING PERIOD FOLLOWING THE WET CURE BEFORE THE WATERPROOFING IS TO BE APPLIED.
39. REMOVAL OF EXISTING PAVEMENT MARKINGS DURING PHASED CONSTRUCTION WILL BE PAID FOR WITH ITEM #646.85, "REMOVAL OF EXISTING PAVEMENT MARKINGS".
40. AREAS OF PAVEMENT REMOVED AT THE INTERSECTION OF VT 15 AND T.H. 2 SHALL BE TOPSOILED, SEEDED AND MULCHED. PAYMENT FOR EXCAVATION WILL BE UNDER ITEM 203.28, "EXCAVATION OF SURFACES AND PAVEMENTS".

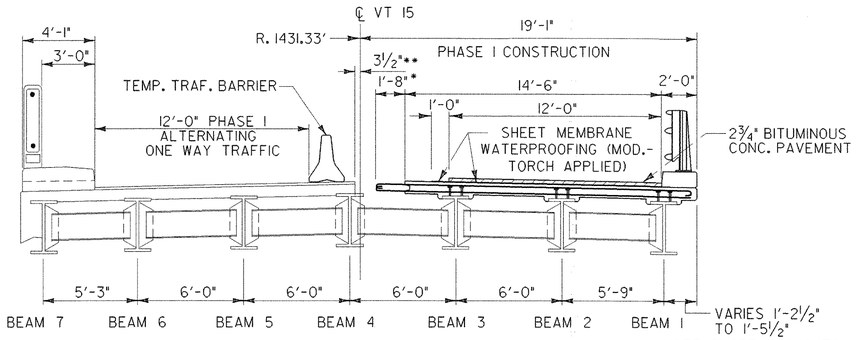
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
GENERAL NOTES	
Designed By B. W. ERNST	Drawn By C. L. SZCZEPANSKI
Checked By M. K. CHEVALIER Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308gnl.dgn
Bridge Sheet No.	Sheet 24 of 68



EXISTING STRUCTURE AT (SPANS 2-5)

SCALE: ¼" = 1'-0"



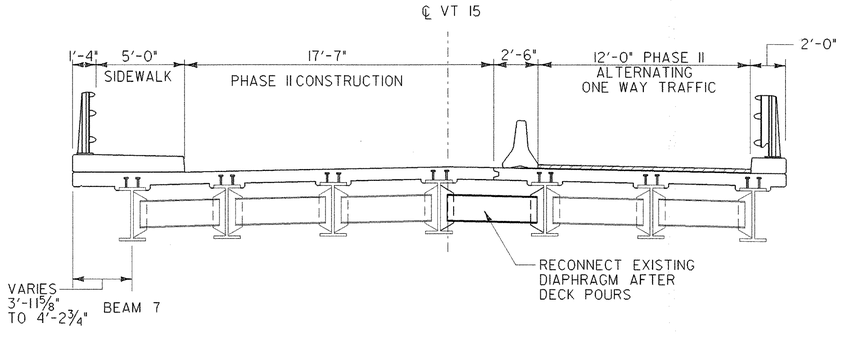
* NOTE: SLOPE HOOKS TO MAINTAIN CLEARANCES.

** NOTE: VARIES 7⅜" IF SAW CUT IN STRAIGHT LINE BETWEEN PIERS. SAW CUT SHOULD BE MADE FOLLOWING ROADWAY CURVATURE, HOWEVER, THE SAW CUT SHALL REMAIN ON OPPOSITE SIDE OF CENTER OF BEAM 4 FROM THE ROADWAY TRAFFIC.

NOTE: LONGITUDINAL STEEL NOT SHOWN FOR CLARITY.

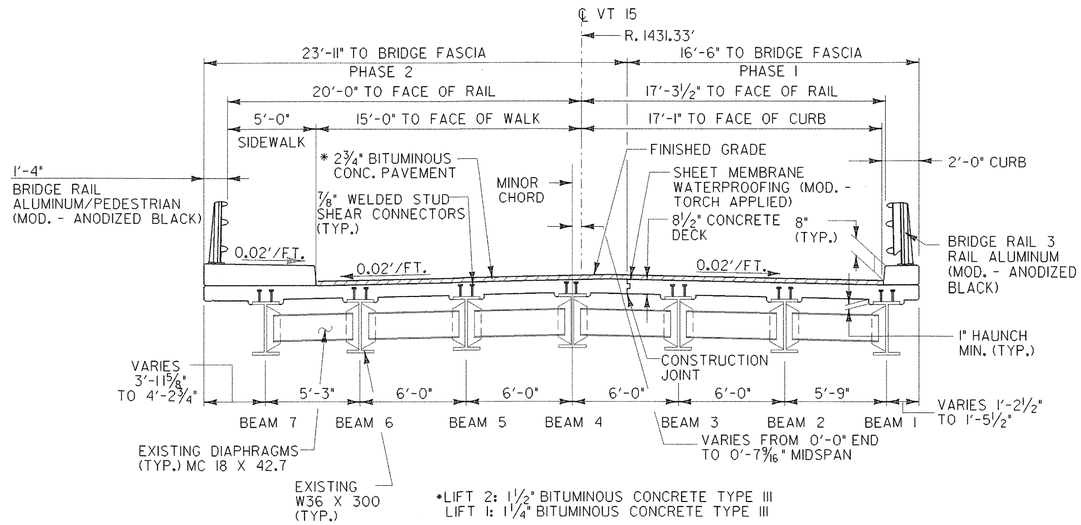
CONSTRUCTION PHASE I (SPANS 2-5)

(SPAN I SIMILAR)
SCALE: ¼" = 1'-0"



CONSTRUCTION PHASE II (SPANS 2-5)

(SPAN I SIMILAR)
SCALE: ¼" = 1'-0"



*LIFT 2: 1½" BITUMINOUS CONCRETE TYPE III
LIFT 1: 1¼" BITUMINOUS CONCRETE TYPE III

PROPOSED STRUCTURE (SPANS 2-5)

SCALE: ¼" = 1'-0"

PHASE CONSTRUCTION NOTES **

** CONTRACTOR MAY ALTER WORK FLOW AS NECESSARY TO COMPLETE THE WORK WITH PERMISSION OF THE RESIDENT ENGINEER.

PHASE 1

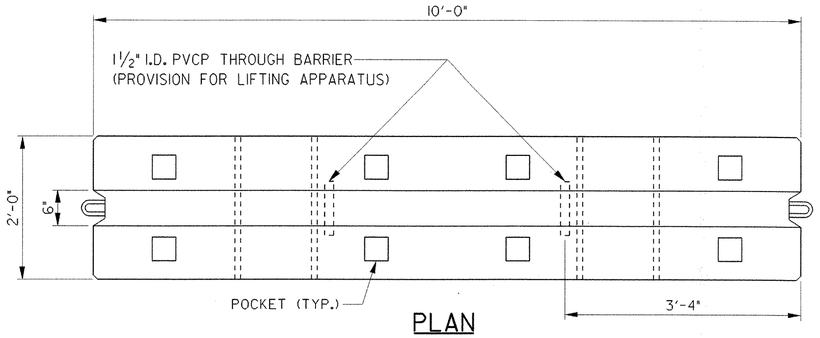
1. INSTALL EROSION CONTROL MEASURES.
2. INSTALL TEMPORARY TRAFFIC SIGNAL SYSTEM. BEGIN ALTERNATING ONE WAY TRAFFIC.
3. INSTALL TEMPORARY TRAFFIC BARRIER UTILIZING FLAGGERS AS NECESSARY.
4. MOVE TRAFFIC TO THE WESTERN SIDE OF THE BRIDGE.
5. DISCONNECT ONE END OF DIAPHRAGMS ON EAST SIDE OF BEAM 4 PRIOR TO PHASE I SUPERSTRUCTURE REMOVAL.
6. REMOVE EXISTING CONCRETE DECK AND BRIDGE RAILING TO LIMITS SHOWN.
7. RECONSTRUCT TOPS OF EXISTING WINGWALLS.
8. SHORE EXISTING BEAMS AT EACH ABUTMENT AND PIER IN ORDER TO REPLACE BEARINGS.
9. INSTALL NEW BEARINGS, WELDED SHEAR STUD CONNECTORS AND DIAPHRAGMS (WHERE REQUIRED).
10. CONSTRUCT NEW CONCRETE BRIDGE DECK, CURB AND BRIDGE RAIL.
11. CONSTRUCT APPROACH SLAB.
12. INSTALL SHEET MEMBRANE WATERPROOFING AND INSTALL 2¾" BITUMINOUS CONCRETE PAVEMENT (TWO LIFTS).

PHASE 2

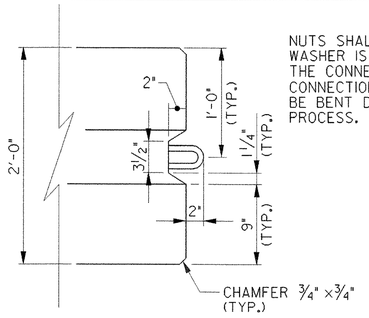
1. RELOCATE TEMPORARY PRECAST CONCRETE BARRIER FOR PHASE 2 CONSTRUCTION. MOVE VEHICULAR TRAFFIC TO EASTERN SIDE OF BRIDGE.
2. REMOVE EXISTING CONCRETE DECK, SIDEWALK AND BRIDGE RAILING TO LIMITS SHOWN.
3. RECONSTRUCT TOPS OF EXISTING WINGWALLS.
4. SHORE EXISTING BEAMS AT EACH ABUTMENT AND PIER IN ORDER TO REPLACE BEARINGS.
5. INSTALL NEW BEARINGS AND WELDED STUD SHEAR CONNECTORS.
6. CONSTRUCT NEW CONCRETE BRIDGE DECK.
7. RECONNECT DIAPHRAGMS TO CONNECTION PLATES. (SEE NOTE 17 OF THE GENERAL NOTES)
8. CONSTRUCT SIDEWALK AND BRIDGE RAILING.
9. COMPLETE RECONSTRUCTION OF APPROACH SLABS AND APPROACH WORK.
10. REMOVE ALL TEMPORARY TRAFFIC BARRIER FROM BRIDGE.
11. INSTALL BARRELS.
12. COMPLETE INSTALLATION OF SHEET MEMBRANE WATERPROOFING AND 2¾" BITUMINOUS CONCRETE PAVEMENT (TWO LIFTS).
13. STRIPE NEW LINES.
14. DEACTIVATE SIGNAL LIGHTS AND RESTORE TWO-WAY TRAFFIC.
15. COMPLETE MISCELLANEOUS CONSTRUCTION.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
PHASE CONSTRUCTION TYPICALS	
Designed By B. W. ERNST	Drawn By A.N. BEY
Checked By M. K. CHEVALIER Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info. zb308scl.dgn	
Bridge Sheet No.	Sheet 25 of 68

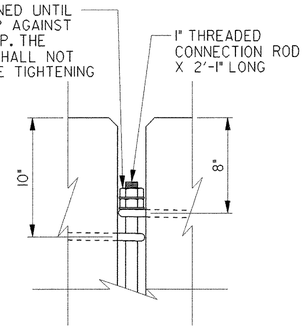


PLAN
SCALE: 1" = 1'-0"

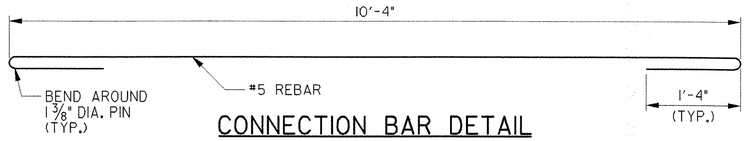


PLAN AT BARRIER ENDS
N.T.S.

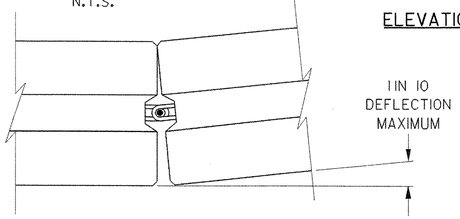
NUTS SHALL BE TURNED UNTIL WASHER IS DRAWN UP AGAINST THE CONNECTION LOOP. THE CONNECTION LOOPS SHALL NOT BE BENT DUE TO THE TIGHTENING PROCESS.



ELEVATION AT BARRIER END
N.T.S.



CONNECTION BAR DETAIL
SCALE: 1" = 1'-0"

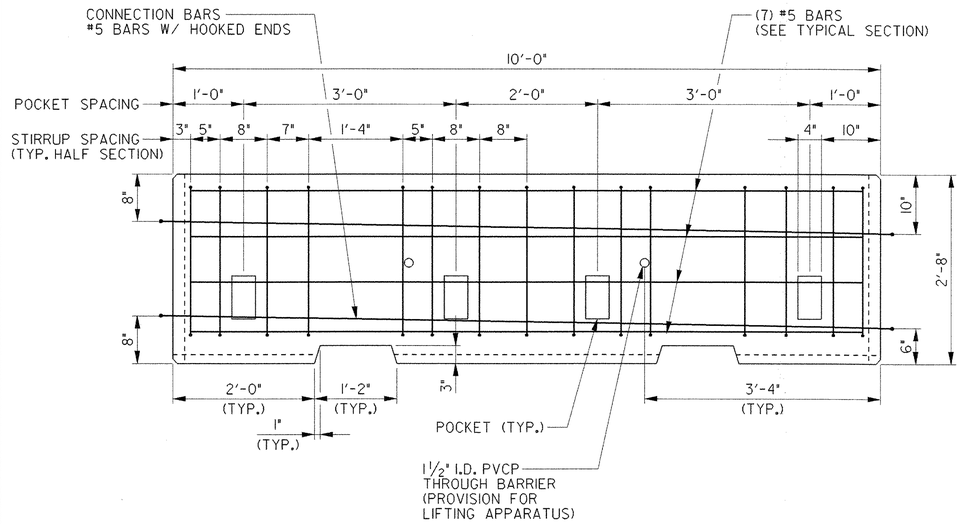


BARRIER CONNECTION PLAN
N.T.S.

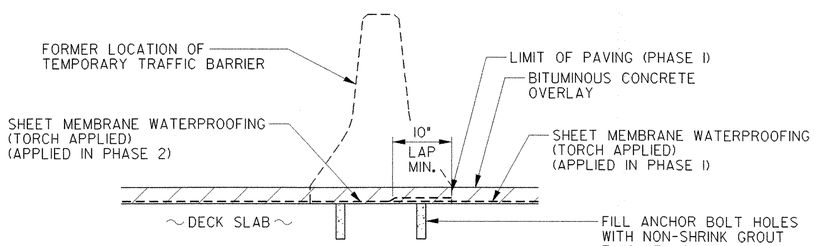
BARRIER CONNECTION DETAILS

NOTES

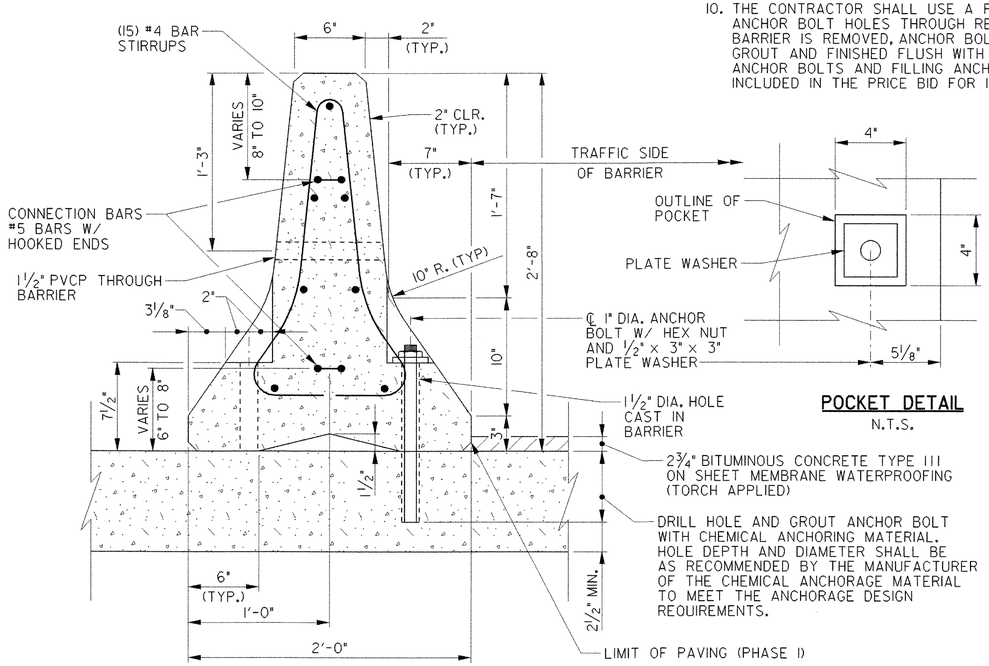
1. THESE TEMPORARY CONCRETE BARRIER DETAILS SHALL BE USED TO ATTACH THE BARRIER SECURELY TO THE DECK SLAB.
2. ALL CONCRETE SHALL BE CLASS A.
3. ALL REINFORCING STEEL SHALL BE UNCOATED AND CONFORM TO AASHTO M31/M31M, GRADE 60.
4. THE ANCHOR BOLTS SHALL BE FULLY THREADED RODS AND CONFORM TO THE REQUIREMENTS OF ASTM A449. THE NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291/M291M. THE PLATE WASHER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M293M.
5. THE ANCHOR BOLTS, NUTS AND WASHERS SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M232/M232M. THE ANCHOR BOLTS SHALL BE TREATED WITH A RESIN COATING THAT WILL ALLOW THE BOLTS TO BE REMOVED AFTER GROUTING WITH CHEMICAL GROUTING MATERIAL.
6. THE ANCHORAGE OF THE BARRIER TO THE DECK SHALL BE DESIGNED BY THE CONTRACTOR. EACH ANCHOR BOLT SHALL BE CAPABLE OF SAFELY RESISTING A TRANSVERSE SHEAR OF 6000 LBS. AND A TENSILE FORCE OF 12,000 LBS.
7. ALTERNATE ANCHORAGE DESIGNS FOR THE BARRIER MAY BE SUBMITTED TO THE ENGINEER IN ACCORDANCE WITH SUBSECTION 621.05(1).
8. REFLECTORS SHALL BE INSTALLED ON THE SIDE OF THE TEMPORARY TRAFFIC BARRIER. WHEN PLACED ON THE DRIVERS LEFT SIDE, THE REFLECTORS SHALL BE YELLOW. THE REFLECTORS SHALL BE WHITE WHEN PLACED ON THE DRIVERS RIGHT SIDE. THE REFLECTORS SHALL BE INSTALLED AT A HEIGHT OF 21 INCHES AT 20 FOOT INTERVALS AND SHALL BE AT LEAST 9 SQUARE INCHES. THE REFLECTORS SHALL MEET THE REQUIREMENTS FOR SUBSECTION 751.02. THE REFLECTORS SHALL BE INSTALLED ON BOTH SIDES WHEN PLACED IN THE MEDIAN AND IN ALL CASES SHALL BE FIRMLY ATTACHED TO THE SIDE OF THE BARRIER. THE TYPE OF REFLECTOR AND THE INSTALLATION PROCEDURE SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. COST OF FURNISHING AND INSTALLING REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR TEMPORARY TRAFFIC BARRIER.
9. CONNECTION RODS SHALL BE THREADED STEEL RODS CONFORMING TO THE REQUIREMENTS OF AASHTO M314 GRADE 55. THE RODS SHALL BE THREADED FOR A MINIMUM OF 4 INCHES ON EACH END. HARDENED STEEL WASHERS SHALL CONFORM TO AASHTO M293M. HEAVY HEX NUTS SHALL CONFORM TO AASHTO M291/M291M, GRADE A AND SHALL BE TAPPED OVERSIZE FOR GALVANIZING. THREADED RODS, WASHERS AND HEAVY HEX NUTS SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF CLASS C OF AASHTO M232/M232M.
10. THE CONTRACTOR SHALL USE A PACHOMETER OR OTHER METHOD TO AVOID DRILLING ANCHOR BOLT HOLES THROUGH REINFORCING STEEL. WHEN TEMPORARY TRAFFIC BARRIER IS REMOVED, ANCHOR BOLT HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND FINISHED FLUSH WITH DECK. THE COST OF DRILLING AND GROUTING ANCHOR BOLTS AND FILLING ANCHOR BOLT HOLES WITH NON-SHRINK GROUT SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 621.90, "TEMPORARY TRAFFIC BARRIER".



ELEVATION
SCALE: 1" = 1'-0"



BARRIER REMOVAL DETAILS
N.T.S.

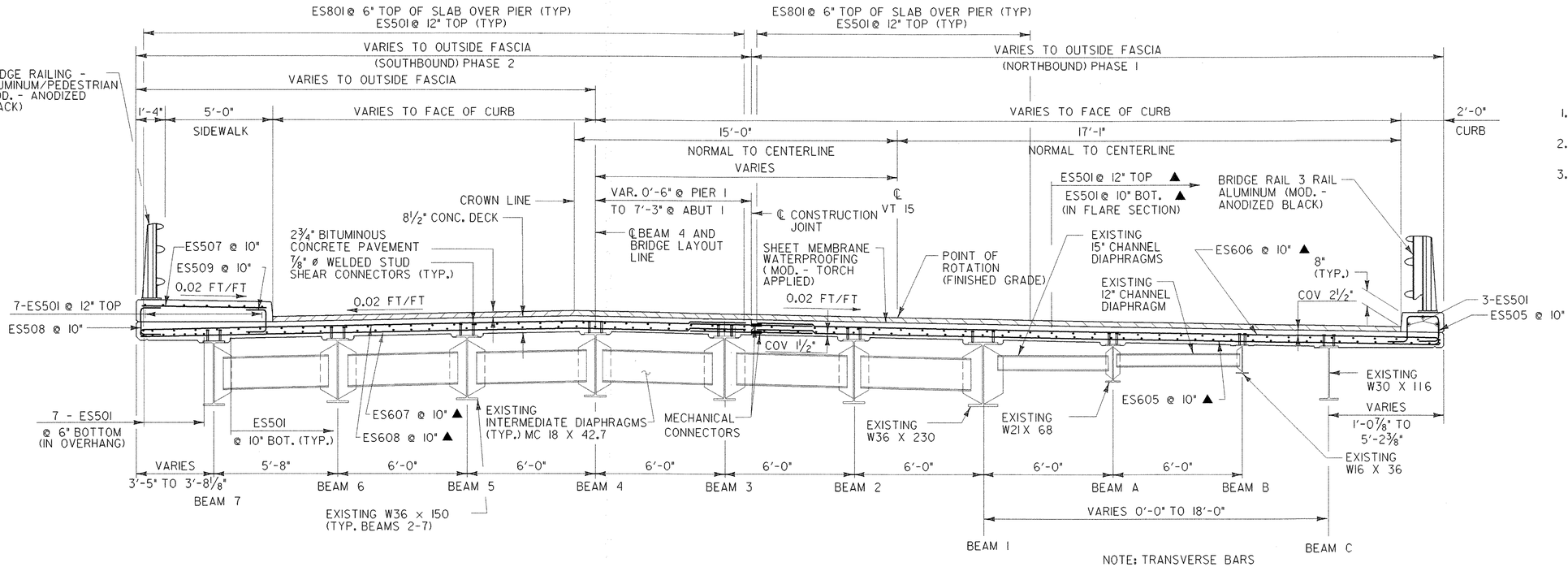


TYPICAL SECTION
SCALE: 2" = 1'-0"

POCKET DETAIL
N.T.S.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
TEMPORARY TRAFFIC BARRIER DETAILS	
Designed By B. W. ERNST	Drawn By J. IVES
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb314md2.dgn
Bridge Sheet No.	Sheet 26 of 68



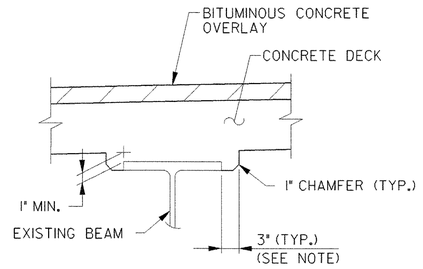
NOTE: TRANSVERSE BARS CONNECTED WITH MECHANICAL CONNECTORS IN SPAN 1

BRIDGE TYPICAL SECTION (SPAN 1)

SCALE: ⅜" = 1'-0"

NOTES:

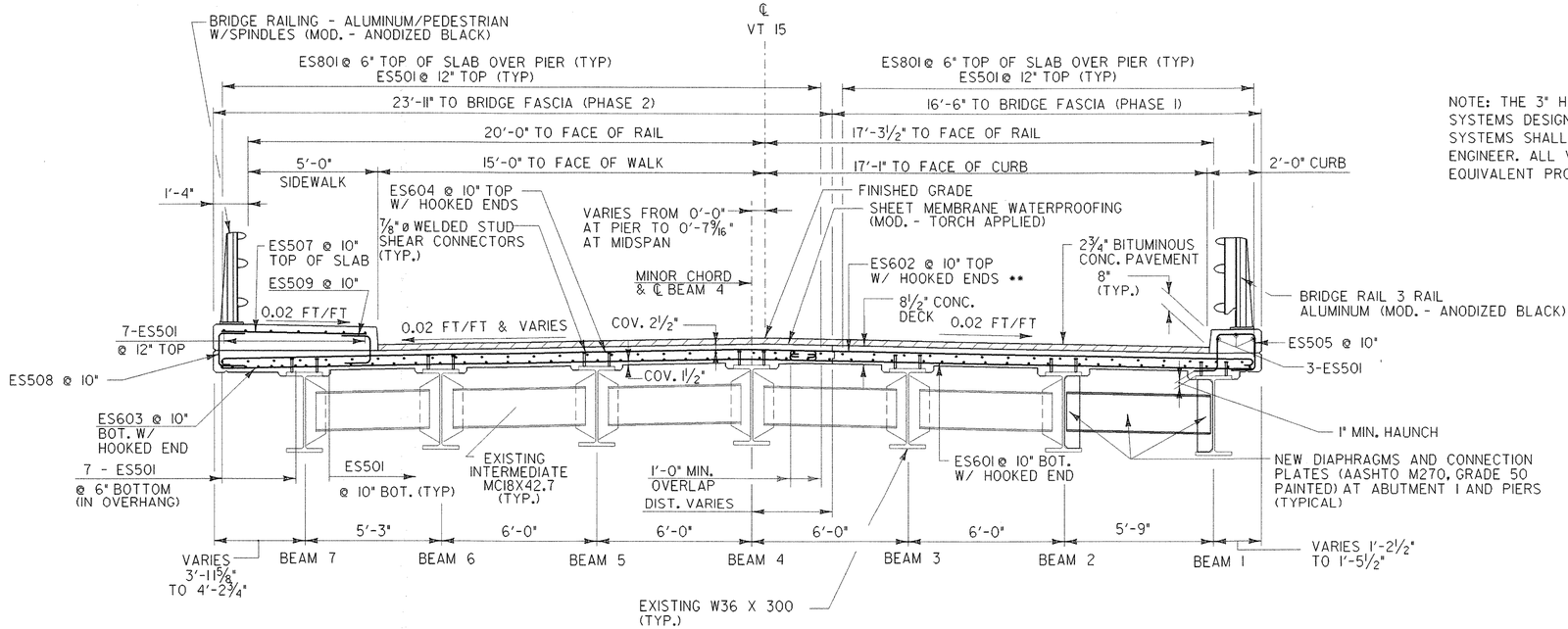
1. SEE SHEET 52 FOR SIDEWALK AND CURB DETAILS.
2. SEE SHEETS 54 - 56 FOR BRIDGE RAILING DETAILS.
3. SEE SHEET 44 FOR LONGITUDINAL JOINT DETAILS.



BEAM HAUNCH DETAIL

N.T.S.

NOTE: THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. SYSTEMS SHALL BE SUBMITTED FOR APPROVAL TO THE STRUCTURES ENGINEER. ALL VOIDS SHALL BE FILLED WITH MORTAR, TYPE IV OR AN EQUIVALENT PRODUCT FROM THE APPROVED PRODUCTS LIST.



BRIDGE TYPICAL SECTION (SPANS 2-5)

SCALE: ⅜" = 1'-0"

** SLANT HOOKS AS NECESSARY TO MAINTAIN CLEARANCES

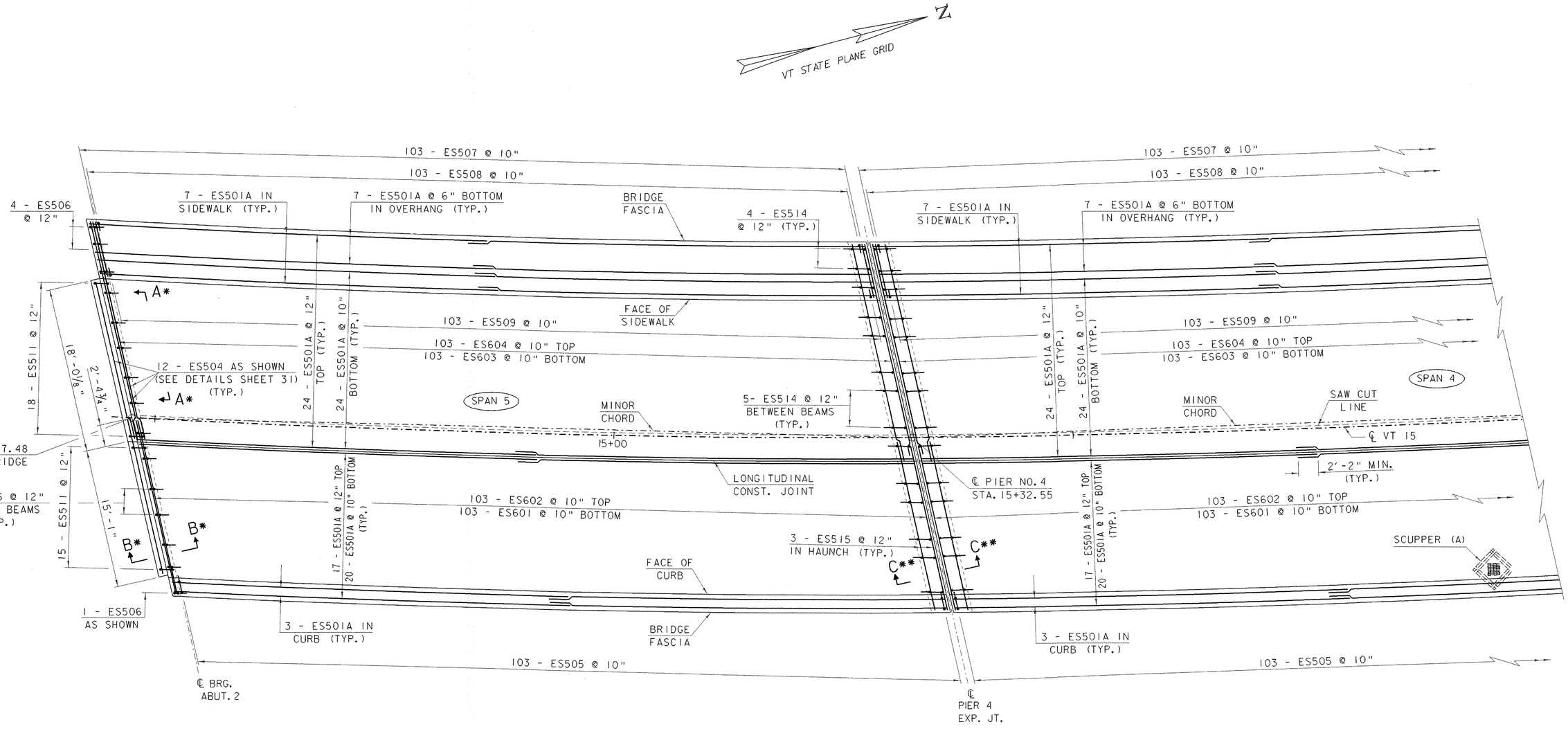
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
	Log Sta.
Highway No. VT 15	Surv. Sta.

VT 15 OVER LAMOILLE RIVER

DECK REINFORCING (TYPICAL SECTIONS)

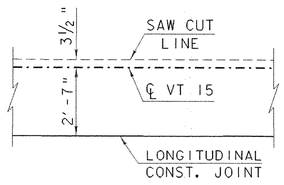
Designed By E.A.HARTWELL	Drawn By R. A. ROSS
Checked By Date R. SACCHI	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308dr1.dgn
Bridge Sheet No.	Sheet 27 of 68



LEGEND:

BF = BACK FACE
FF = FRONT FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" = CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS

* SEE SHEET 31
** SEE SHEET 39



SAW CUT LINE DETAIL

SCALE: 3/8" = 1'-0"

SEE SHEET 44 FOR LONGITUDINAL CONSTRUCTION JOINT DETAIL

SPAN 4 & 5 DECK REINFORCING PLAN

SCALE: 3/16" = 1'-0"

NOTE:

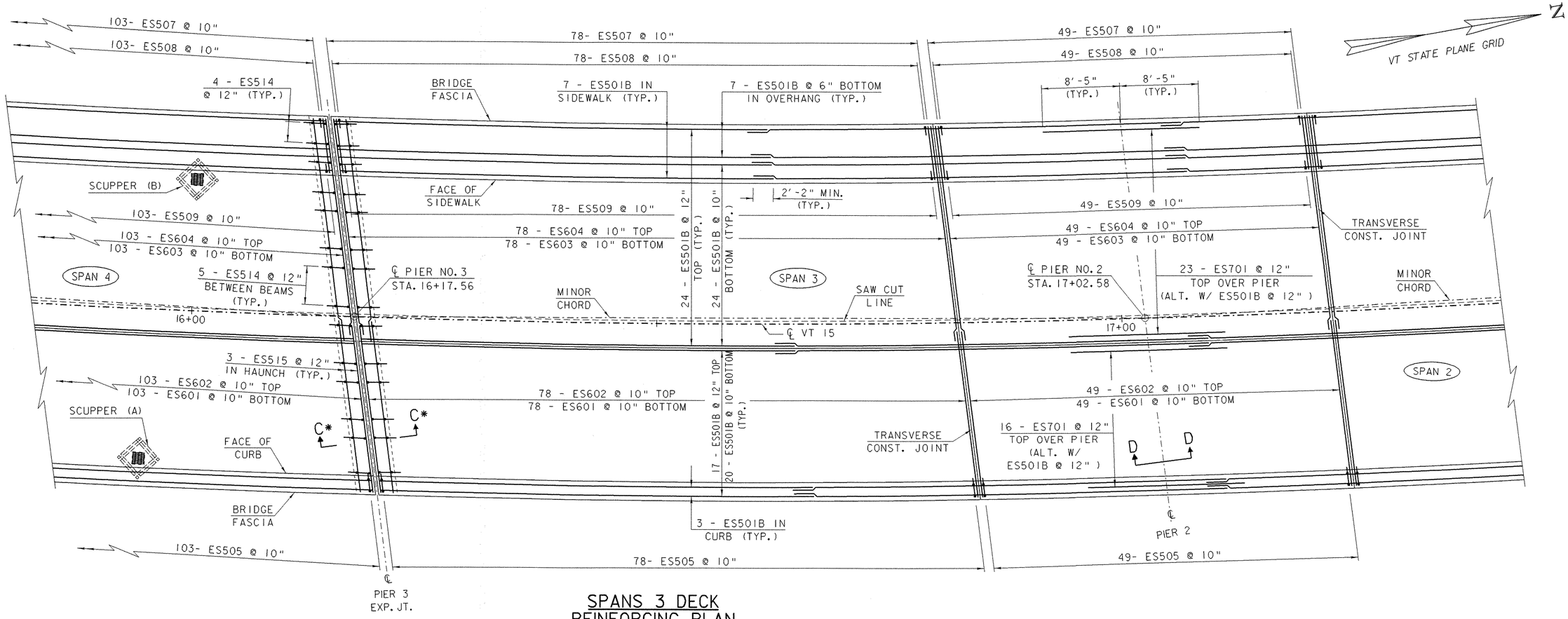
LONGITUDINAL REINFORCING STEEL IN SPANS 4 & 5 SHALL BE ES501A.

SCUPPER	LOCATION
A	STA. 15+95 RT.

SEE SHEET 42 FOR DETAILS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
	Log Sta.
Highway No. VT 15	Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
DECK REINFORCING (SPANS 4 & 5)	
Designed By E.A. HARTWELL	Drawn By R.A. ROSS
Checked By Date R. SACCHI	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308dr4-5.dgn
Bridge Sheet No.	Sheet 28 of 68



SPANS 3 DECK REINFORCING PLAN

SCALE: 3/16" = 1'-0"

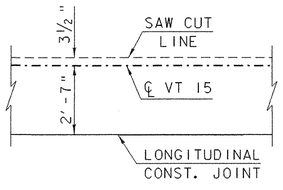
NOTE:

LONGITUDINAL REINFORCING STEEL IN SPANS 2 & 3 SHALL BE ES501B.

LONGITUDINAL REINFORCING STEEL IN SPAN 4 SHALL BE ES501A.

SCUPPER	LOCATION
A	STA. 15+95 RT.
B	STA. 16+00 LT.

SEE SHEET 42 FOR DETAILS



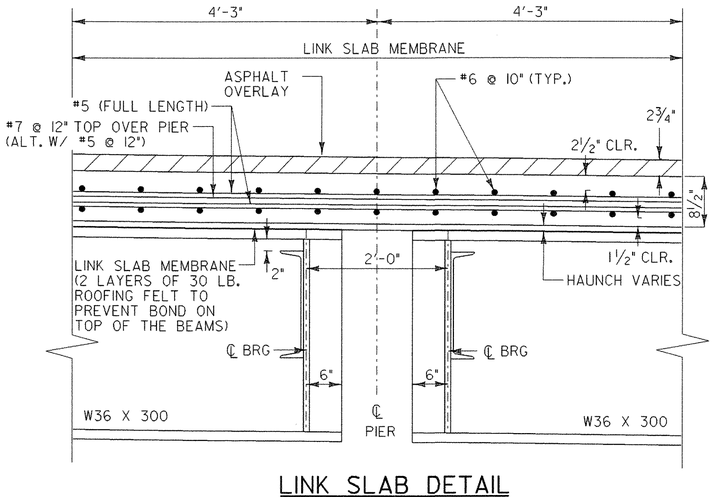
SAW CUT LINE DETAIL

SCALE: 3/8" = 1'-0"

SEE SHEET 44 FOR LONGITUDINAL CONSTRUCTION JOINT DETAIL

NOTES:

1. THE TOP OF THE BEAM IN THE REGION OF THE LINK SLAB SHALL BE SMOOTH AND FREE OF SHEAR CONNECTORS. NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.
2. THE COST OF THE LINK SLAB MEMBRANE SHALL BE INCIDENTAL TO PAY ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".



LINK SLAB DETAIL

SECTION D-D

SCALE: 1" = 1'-0"

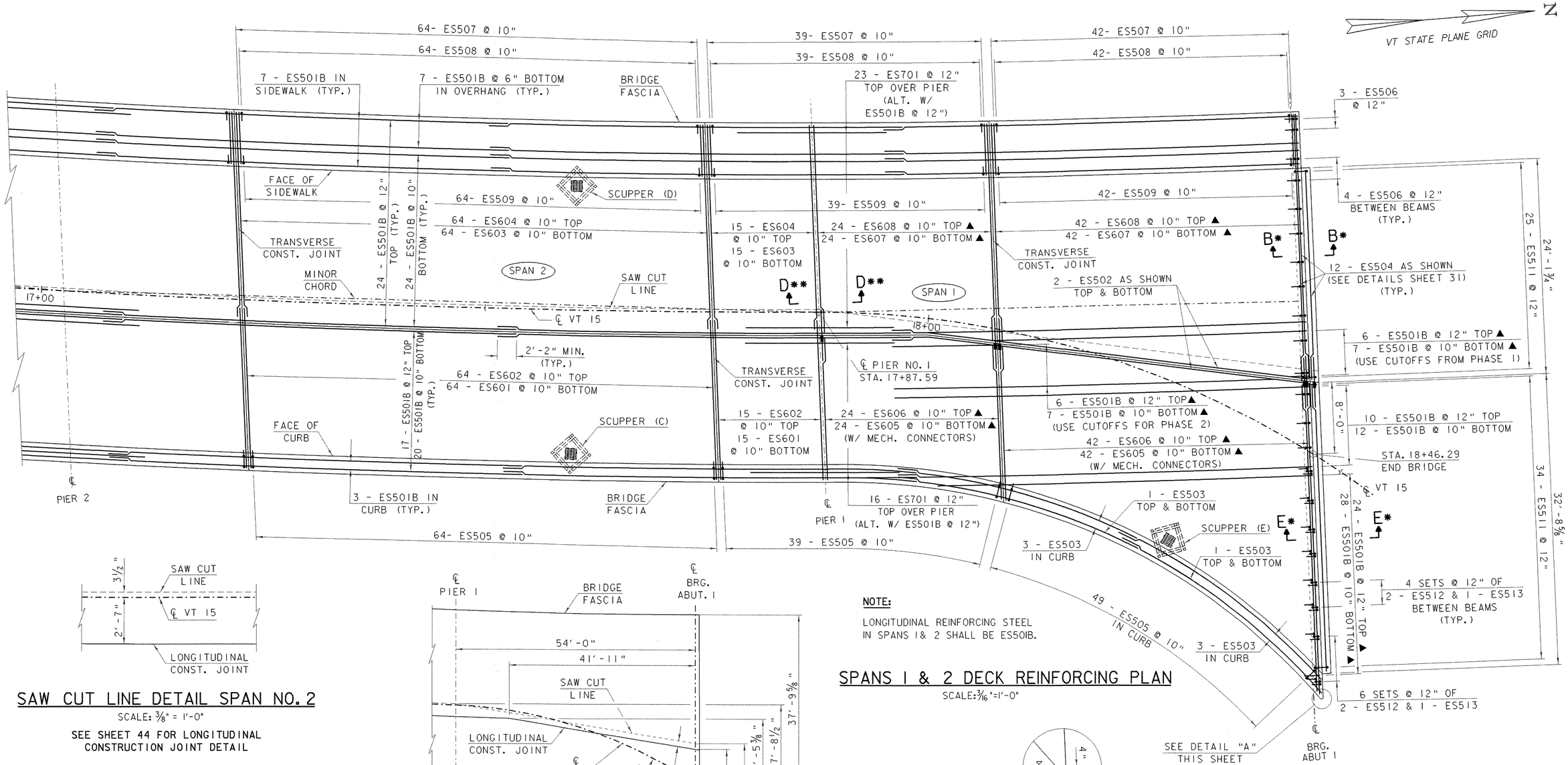
LEGEND:

BF = BACK FACE
FF = FRONT FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" = CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS

* SEE SHEET 39 FOR SECTIONS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
DECK REINFORCING (SPAN 3)	
Designed By E.A. HARTWELL	Drawn By R.A. ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308dr3-4.dgn
Bridge Sheet No.	Sheet 29 of 68



SPANS 1 & 2 DECK REINFORCING PLAN

SCALE: 3/16" = 1'-0"

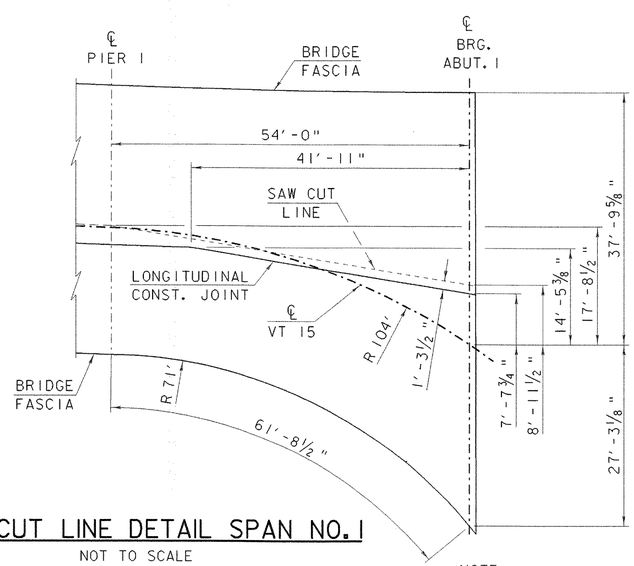
NOTE:

LONGITUDINAL REINFORCING STEEL IN SPANS 1& 2 SHALL BE ES501B.

SAW CUT LINE DETAIL SPAN NO. 2

SCALE: ⅜" = 1'-0"

SEE SHEET 44 FOR LONGITUDINAL CONSTRUCTION JOINT DETAIL

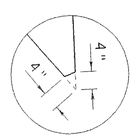


SAW CUT LINE DETAIL SPAN NO. 1

NOT TO SCALE

SEE SHEET 44 FOR LONGITUDINAL CONSTRUCTION JOINT DETAIL

NOTE:
ALL DIMENSIONS GIVEN FROM CENTERLINE BEARING



DETAIL "A"

SCALE: ¾"=1'-0"

SCUPPER	LOCATION
C	STA. 17+60 RT.
D	STA. 17+60 LT.
E	STA. 18+37 RT.

SEE SHEET 42 FOR DETAILS

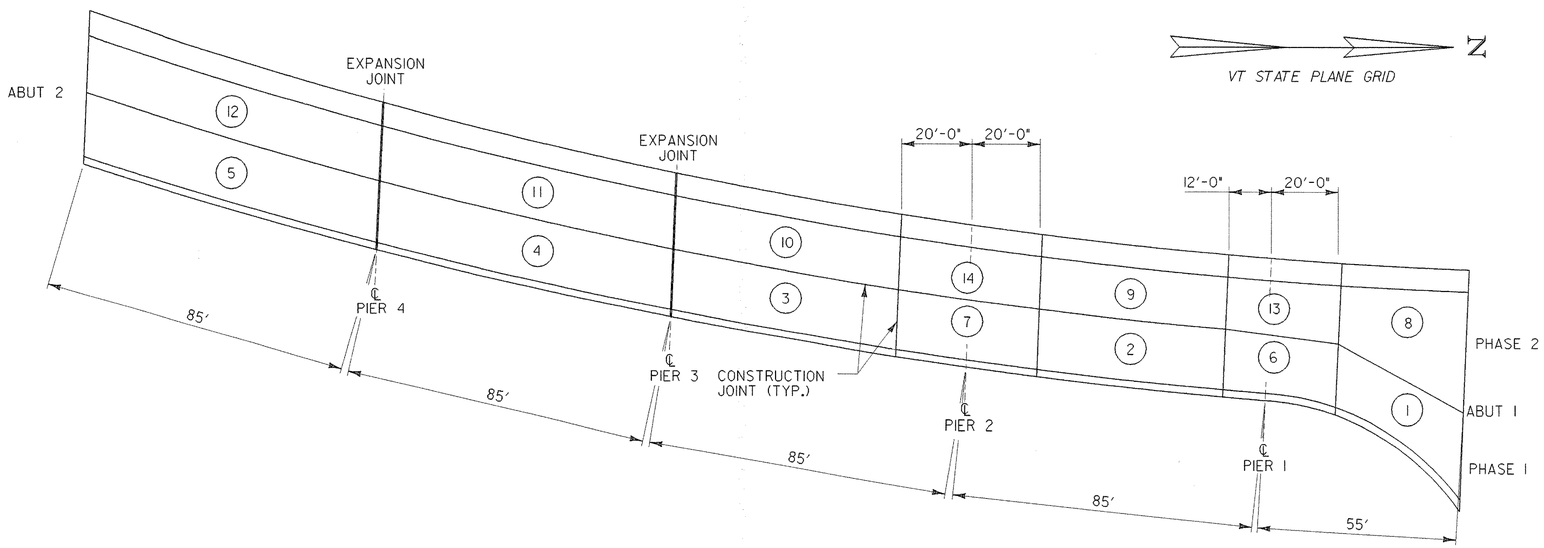
LEGEND:

BF = BACK FACE
FF = FRONT FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" = CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS

* SEE SHEET 31 FOR SECTIONS
* SEE SHEET 29 FOR SECTIONS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
DECK REINFORCING (SPANS 1 & 2)	
Designed By E. A. HARTWELL	Drawn By R. A. ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308dr1-2.dgn
Bridge Sheet No.	Sheet 30 of 68

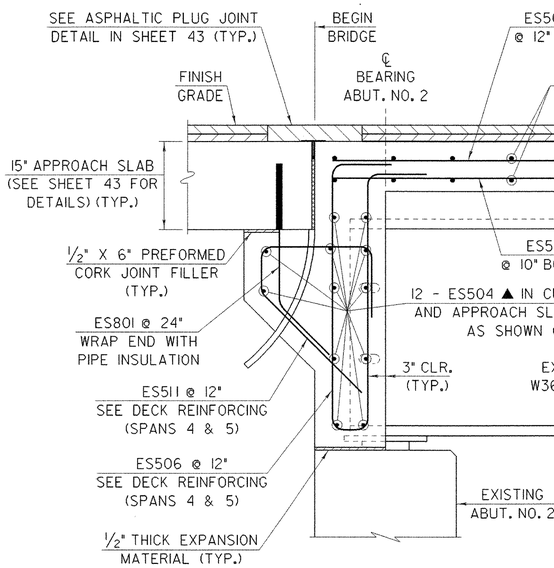


DECK POUR SEQUENCE PHASES 1 AND 2

NTS

DECK POUR NOTES:

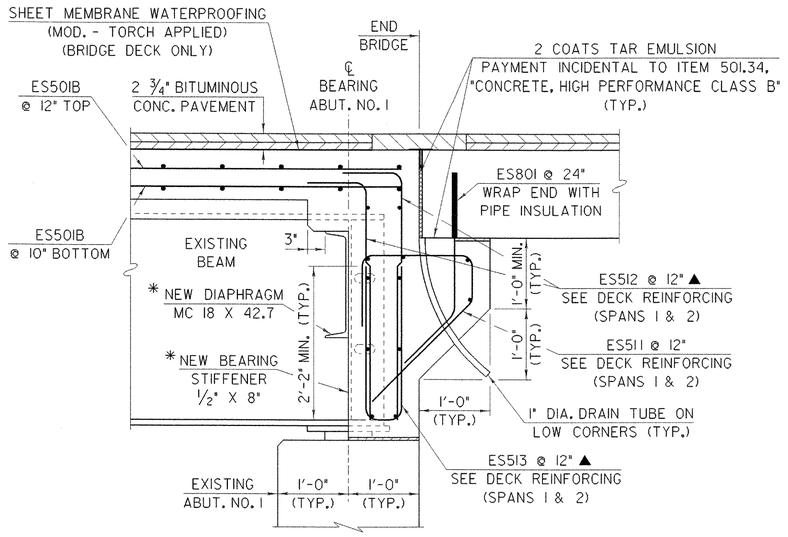
1. ANY PROPOSED POURING SEQUENCE OTHER THAN INDICATED SHALL BE SUBMITTED IN WRITING TO VAOT FOR APPROVAL.
2. POURS MUST BE MADE WITHIN A TIME SPAN OF EIGHT HOURS. AN APPROVED POURING SEQUENCE SHALL BE FOLLOWED AND A RETARDING ADMIXTURE USED SO THAT THE DECK CONCRETE WILL NOT SET UP UNTIL THE ENTIRE POUR HAS BEEN MADE. THE RETARDING ADMIXTURE SHALL BE INCIDENTAL TO PAY ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".
3. TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINTS SHALL BE USED BETWEEN ADJACENT DECK POURS.
4. ALL INDIVIDUAL DECK POURS SHALL START FROM THE LOW END (RELATIVE TO GRADE).
5. THERE SHALL BE A MINIMUM DELAY PERIOD OF 96 HOURS BETWEEN POURS.



SECTION B-B

SCALE: 1" = 1'-0"

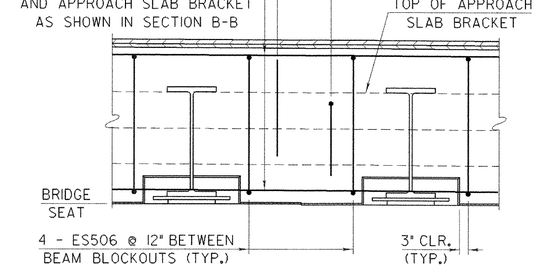
(ABUT. NO. 1 SIMILAR EXCEPT AT SECTION E-E)



SECTION E-E

SCALE: 1" = 1'-0"

* SEE FRAMING PLAN ON SHEET 32 FOR LOCATION OF NEW DIAPHRAGMS AND BEARING STIFFENERS AT ABUT. NO. 1.

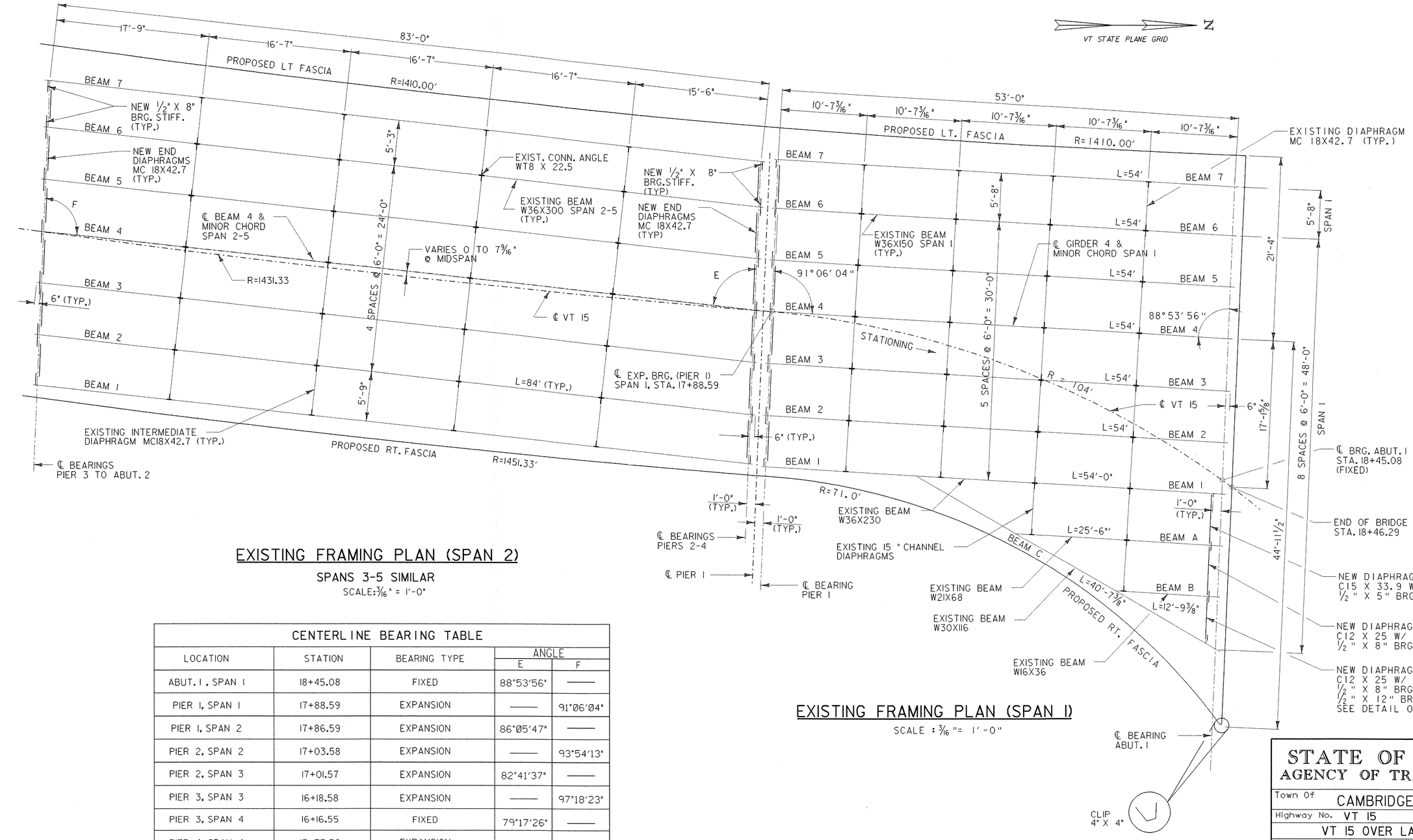


SECTION A-A

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

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
CONCRETE DETAILS	
Designed By B.W.ERNST/E.HARTWELL	Drawn By C.L. SZCZEPANSKI
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308md3.dgn
Bridge Sheet No.	Sheet 31 of 68



EXISTING FRAMING PLAN (SPAN 2)

SPANS 3-5 SIMILAR

SCALE: 3/16" = 1'-0"

CENTERLINE BEARING TABLE				
LOCATION	STATION	BEARING TYPE	ANGLE	
			E	F
ABUT. 1, SPAN 1	18+45.08	FIXED	88°53'56"	——
PIER 1, SPAN 1	17+88.59	EXPANSION	——	91°06'04"
PIER 1, SPAN 2	17+86.59	EXPANSION	86°05'47"	——
PIER 2, SPAN 2	17+03.58	EXPANSION	——	93°54'13"
PIER 2, SPAN 3	17+01.57	EXPANSION	82°41'37"	——
PIER 3, SPAN 3	16+18.58	EXPANSION	——	97°18'23"
PIER 3, SPAN 4	16+16.55	FIXED	79°17'26"	——
PIER 4, SPAN 4	15+33.58	EXPANSION	——	100°42'34"
PIER 4, SPAN 5	15+31.53	EXPANSION	75°53'11"	——
ABUT. 2, SPAN 5	14+48.52	FIXED	——	104°06'49"

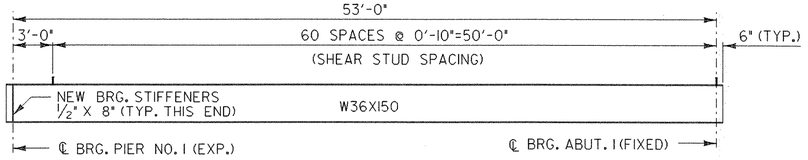
EXISTING FRAMING PLAN (SPAN 1)

SCALE : 3/16" = 1'-0"

NOTE: THIS CLIP WILL AFFECT THE LENGTH OF ANGLE SUPPORTING JOINT.

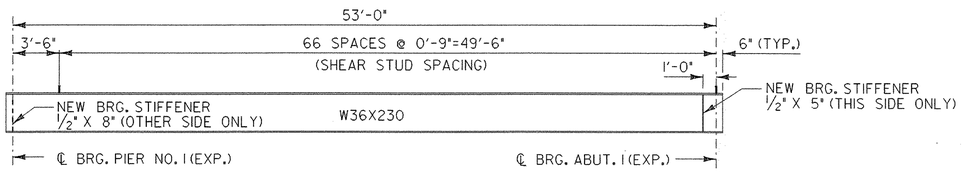
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
FRAMING PLAN	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308fp1-5.dgn
Bridge Sheet No.	Sheet 32 of 68



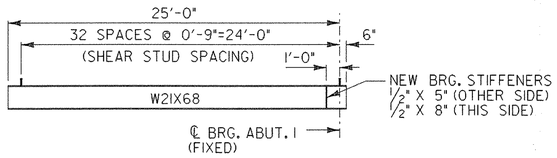
SHEAR STUD SPACING - BEAMS 2-7, SPAN 1

SCALE : 3/16" = 1'-0"



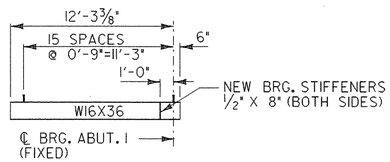
SHEAR STUD SPACING - BEAM 1, SPAN 1

SCALE : 3/16" = 1'-0"



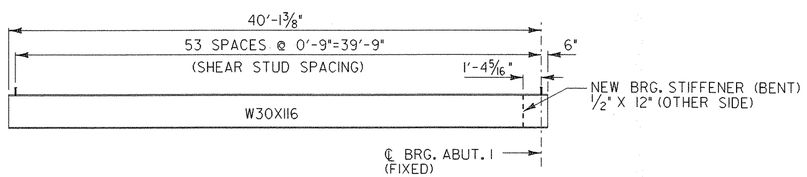
SHEAR STUD SPACING - BEAM A

SCALE : 3/16" = 1'-0"



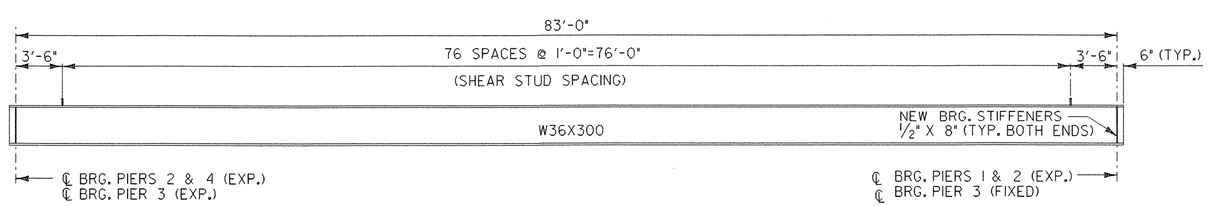
SHEAR STUD SPACING - BEAM B

SCALE : 3/16" = 1'-0"



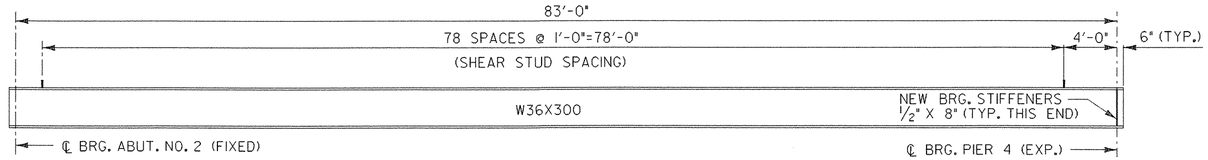
SHEAR STUD SPACING - BEAM C

SCALE : 3/16" = 1'-0"



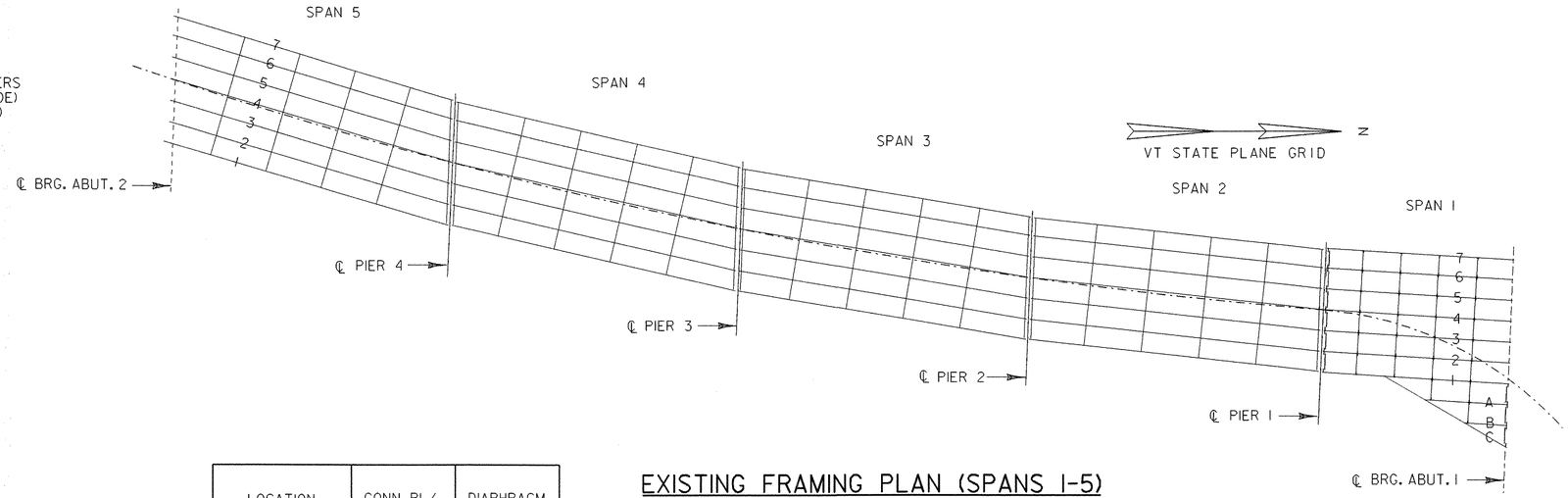
SHEAR STUD SPACING - BEAMS 1-7, SPANS 2-4

SCALE : 3/16" = 1'-0"



SHEAR STUD SPACING - BEAMS 1-7, SPAN 5

SCALE : 3/16" = 1'-0"



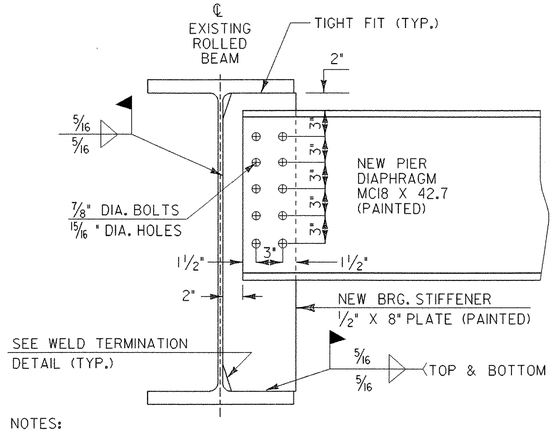
EXISTING FRAMING PLAN (SPANS 1-5)

SCALE : 1" = 20'-0"

LOCATION	CONN PL/ BRG STIFF	DIAPHRAGM
ABUT 1/SPAN 1	6 EA	3 EA
PIER 1/SPAN 1	12 EA	6 EA
PIER 1/SPAN 2	12 EA	6 EA
PIER 2/SPAN 2	12 EA	6 EA
PIER 2/SPAN 3	12 EA	6 EA
PIER 3/SPAN 3	12 EA	6 EA
PIER 3/SPAN 4	12 EA	6 EA
PIER 4/SPAN 4	12 EA	6 EA
PIER 4/SPAN 5	12 EA	6 EA

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
GIRDER ELEVATIONS	
Designed By E.A. HARTWELL	Drawn By R.A. ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308fp2.dgn
Bridge Sheet No.	Sheet 33 of 68

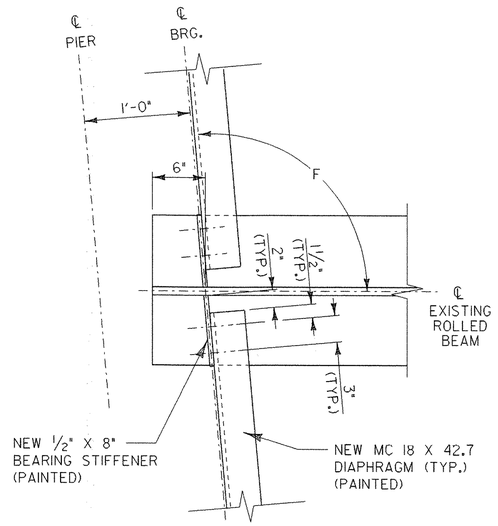


NOTES:

1. BEARING STIFFENERS WILL BE LAID OUT PARALLEL TO AND CENTERED ON THE CENTERLINE OF BEARING. (SEE FRAMING PLAN SHT. 32 & 33)

2. BEARING STIFFENERS TO BE PROVIDED WITH EXTRA LENGTH TO COMPENSATE FOR SLOPED AND DETERIORATED FLANGES. CONTRACTOR TO MEASURE AND FURNISH LENGTHS REQUIRED.

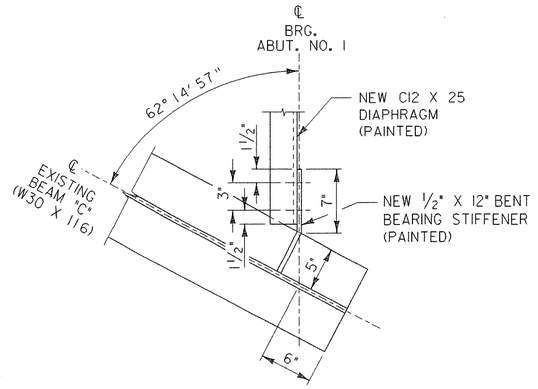
PIER DIAPHRAGMS



NOTE: SEE SHEET 32 FOR "F"

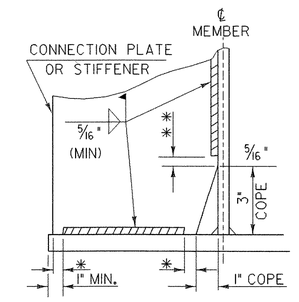
BEARING STIFFENER DETAIL @ PIERS

NTS



BEARING STIFFENER DETAIL @ BEAM "C"

NTS

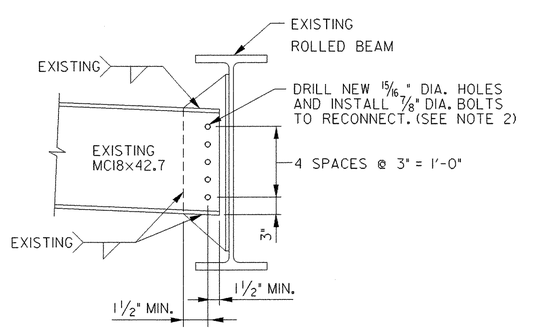


* NO WELD FOR ¼" MIN. ½" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

** ½" ± ¼" FOR CONNECTION PLATE OR STIFFENER TO WEB WELDS ONLY.

WELD TERMINATION AND COPING DETAILS FOR STEEL MEMBERS

N. T. S.



DISCONNECT AND RECONNECT DIAPHRAGM

SPAN 2-5

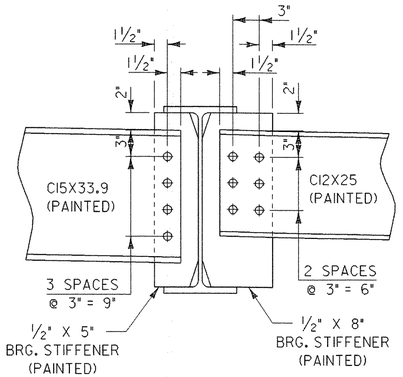
N.T.S.

NOTES:

1. PRIOR TO REMOVAL OF DECK IN PHASE I CONSTRUCTION, DISCONNECT DIAPHRAGMS ON EAST SIDE OF BEAM G4.

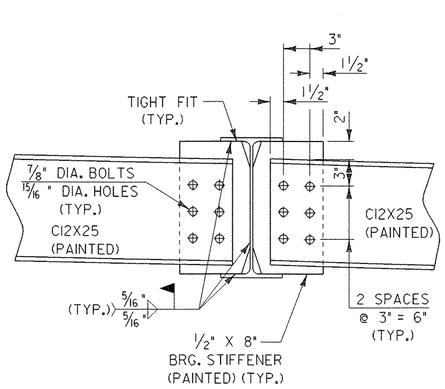
2. AFTER DECK IS POURED IN PHASE II, RECONNECT DIAPHRAGMS BY USING 7/8" DIA. BOLTS. IF 1½" MIN. EDGE DISTANCE CAN BE MAINTAINED. IF MINIMUM EDGE DISTANCE CANNOT BE MAINTAINED, RECONNECT BY WELDING. IF WELDING IS NECESSARY, A WELDING PROCEDURE SHALL BE SUBMITTED FOR APPROVAL.

3. DISCONNECTING AND RECONNECTING DIAPHRAGMS, INCLUDING BOLTS OR WELDING REQUIRED TO RECONNECT DIAPHRAGMS, AND ALL MATERIALS AND LABOR SHALL BE PAID FOR UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE".



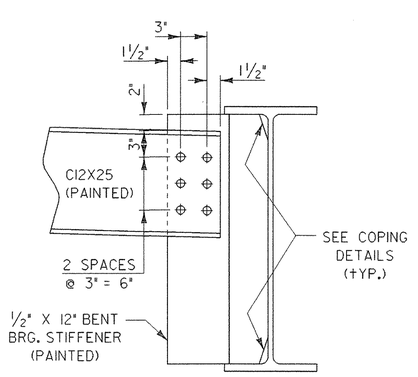
ABUTMENT DIAPHRAGM AT W21X 68

N.T.S.



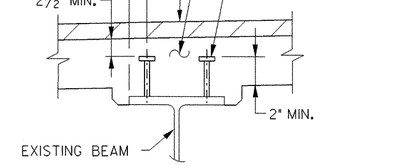
ABUTMENT DIAPHRAGM AT W16 X 36

N.T.S.



ABUTMENT DIAPHRAGM AT W30 X 116

N.T.S.



NOTE:

ONCE THE HAUNCHES HAVE BEEN CALCULATED, LONGER SHEAR STUDS WITHIN ANY AREAS WITH GREATER THAN 4" OF HAUNCH MUST BE USED. IN NO CASE SHALL THERE BE LESS THAN 2½" OF COVER OVER THE TOP OF THE STUDS OR SHALL THE STUDS HAVE LESS THAN 2" OF EMBEDMENT INTO THE CONCRETE DECK.

SHEAR CONNECTOR DETAIL

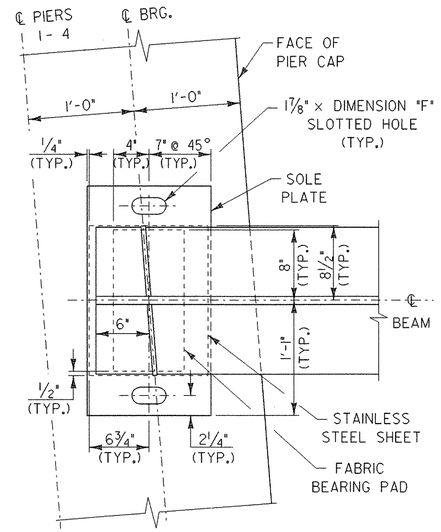
N.T.S.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
FRAMING DETAILS	
Designed By B.W.ERNST	Drawn By V. COMMISSO
Checked By Date R. SACCHI	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308fp3. dgn
Bridge Sheet No.	Sheet 34 of 68

NOTE:

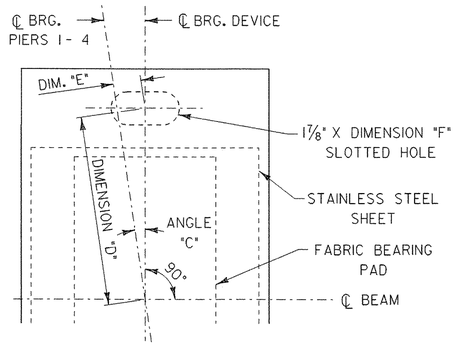
THE "A" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOAD IS ADDED TO THE GIRDERS. THE "B" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED AFTER THE DECK AND CURBS HAVE BEEN POURED. THE DIFFERENCE IS THE THEORETICAL ELONGATION OF THE BOTTOM FLANGE DUE TO DEAD LOAD DEFLECTION FROM THE DECK AND CURBS. THE FINAL "B" DISTANCE MUST BE REACHED WITHIN 1/8 ".



PLAN

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

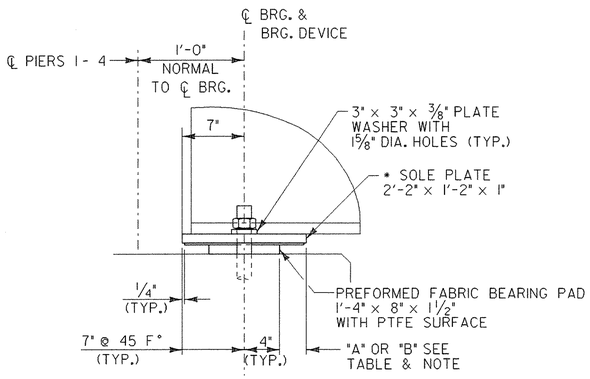
TEMPERATURE SETTING TABLE														
SUBSTRUCTURE	P4				P3		P2				P1			
SPAN	SPAN 5		SPAN 4		SPAN 3		SPAN 3		SPAN 2		SPAN 2		SPAN 1 *	
TEMP.	A	B	A	B	A	B	A	B	A	B	A	B	A	B
0° F	3 1/2 "	3 5/8"	2 9/16"	2 11/16 "	3 3/16"	3 5/16"	3 3/16"	3 5/16"	2 9/16"	2 11/16 "	3 1/2"	3 5/8"	2 5/16"	2 3/8"
15° F	3 1/4 "	3 3/8"	2 11/16 "	2 13/16 "	3 1/16"	3 3/16"	3 1/16"	3 3/16"	2 11/16 "	2 13/16 "	3 1/4"	3 3/8"	2 9/16"	2 5/8"
30° F	3 1/16 "	3 3/16"	2 3/4"	2 7/8"	3"	3 1/8"	3"	3 1/8"	2 3/4"	2 7/8"	3 1/16"	3 3/16"	2 3/4"	2 13/16 "
45° F	2 7/8 "	3"	2 7/8"	3"	2 7/8"	3"	2 7/8"	3"	2 7/8"	3"	2 7/8"	3"	2 15/16 "	3"
60° F	2 11/16 "	2 13/16 "	3"	3 1/8"	2 3/4"	2 7/8"	2 3/4"	2 7/8"	3"	3 1/8"	2 11/16 "	2 13/16 "	3 1/8"	3 3/16"
75° F	2 1/2 "	2 5/8"	3 1/16"	3 3/16"	2 11/16 "	2 13/16 "	2 11/16 "	2 13/16 "	3 1/16"	3 3/16"	2 1/2"	2 5/8"	3 5/16"	3 3/8"
90° F	2 1/4 "	2 3/8"	3 3/16"	3 5/16"	2 9/16"	2 11/16 "	2 9/16"	2 11/16 "	3 3/16"	3 5/16"	2 1/4"	2 3/8"	3 9/16"	3 5/8"
105° F	2 1/16"	2 3/16"	3 1/4"	3 3/8"	2 1/2"	2 5/8"	2 1/2"	2 5/8"	3 1/4"	3 3/8"	2 1/16"	2 3/16"	3 3/4"	3 13/16 "



ANCHOR BOLT LOCATION PLAN

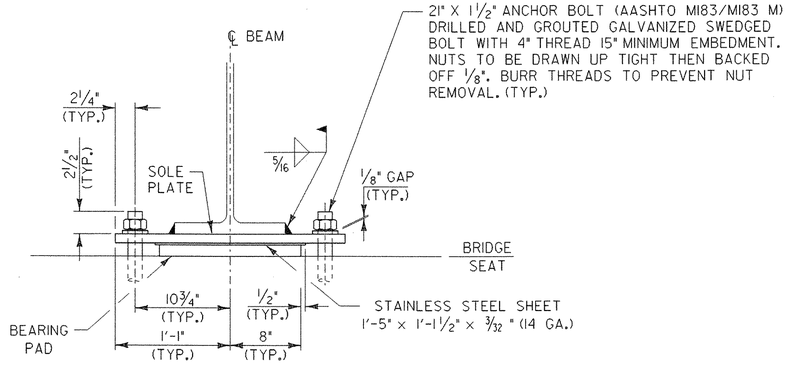
SCALE: 3" = 1'-0"

ANCHOR BOLT OFFSETS MEASURED FROM ℄ BEARING					
SPAN	LOCATION	ANGLE "C"	DIMENSION "D"	DIMENSION "E"	DIMENSION "F"
1	ABUT. 1	1° 06' 04"	10 3/4 "	3/16 "	1 7/8 "
	PIER 1	1° 06' 04"	10 3/4 "	3/16 "	3 7/8 "
2	PIER 1	3° 54' 13"	10 3/4 "	3/4 "	3 7/8 "
	PIER 2	3° 54' 13"	10 3/4 "	3/4 "	5 1/8 "
3	PIER 2	7° 18' 23"	10 11/16 "	1 3/8 "	5 1/8 "
	PIER 3	7° 18' 23"	10 11/16 "	1 3/8 "	7 1/8 "
4	PIER 3	10° 42' 34"	10 9/16 "	2 "	1 7/8 "
	PIER 4	10° 42' 34"	10 9/16 "	2 "	3 7/8 "
5	PIER 4	14° 06' 49"	10 7/16 "	2 5/8 "	3 7/8 "
	ABUT 2	14° 06' 49"	10 7/16 "	2 5/8 "	1 7/8 "



SIDE ELEVATION

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



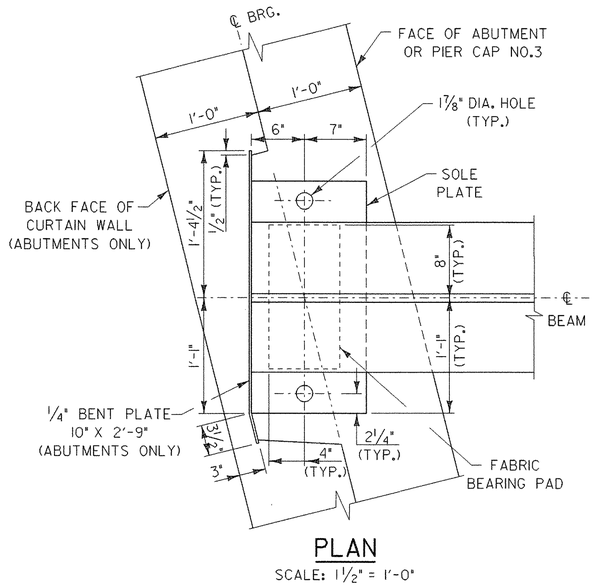
FRONT ELEVATION

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

* SOLE PLATE SIZE AT PIER 1, SPAN 1 IS 2'-2" X 1'-2" X 2 1/2"

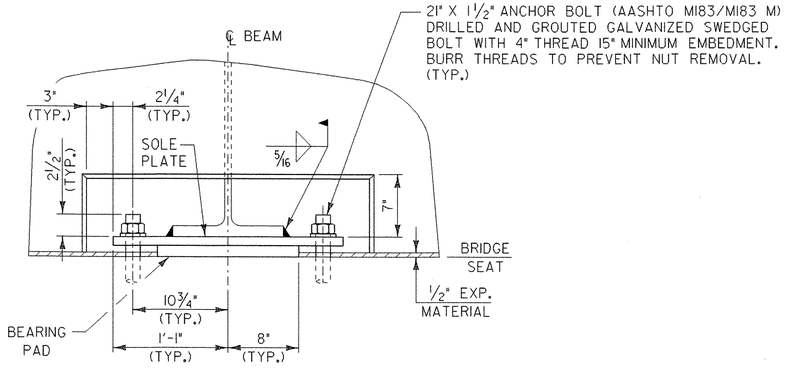
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
	Log Sta.
Highway No. VT 15	Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
EXPANSION BEARING DETAILS	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor RR.SAWHCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308bd1.dgn
Bridge Sheet No.	Sheet 35 of 68



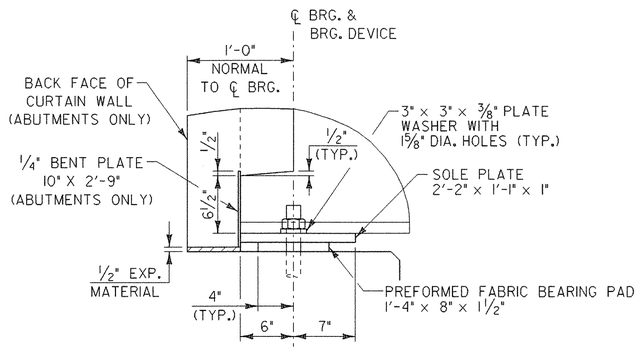
PLAN

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



FRONT ELEVATION

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



SIDE ELEVATION

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

BEARING NOTES

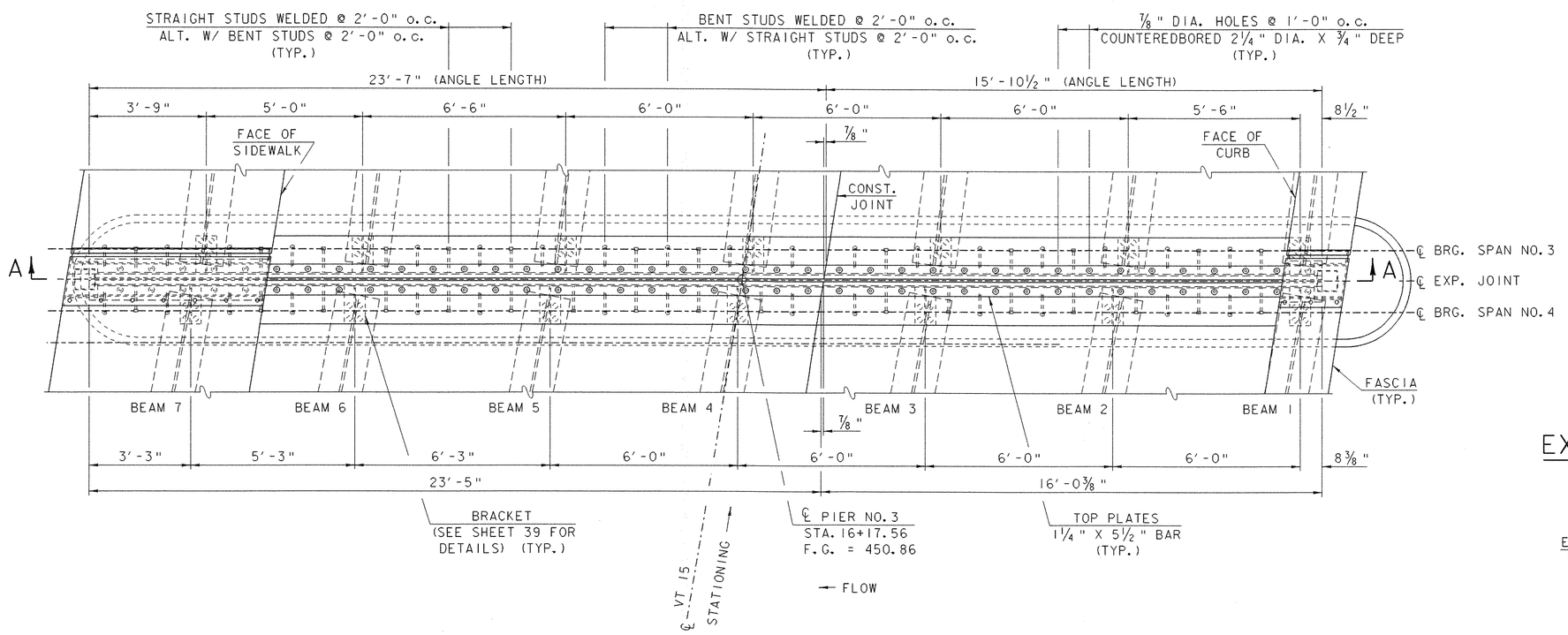
1. BEARINGS SHALL BE PAID FOR UNDER ITEM 531.10, "BEARING DEVICE ASSEMBLY (FABRIC)" AND SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 531 AND 731.
2. NEW 1 1/2" ANCHOR BOLTS SHALL BE INSTALLED BY DRILLING HOLES AND GROUTING THE BOLTS INTO THE ABUTMENT OR PIER SEATS. DRILLING AND GROUTING THE ANCHOR BOLTS SHALL BE INCIDENTAL TO ITEM 531.10, "BEARING DEVICE ASSEMBLY (FABRIC)".
3. THE FIELD WELD CONNECTING THE BOTTOM FLANGE WITH THE BEARING DEVICE SHALL BE MADE WITH E7018 ELECTRODES. THE CONTRACTOR SHALL ENSURE THE HEAT FROM WELDING DOES NOT DAMAGE THE BEARING PAD. AREAS OF GALVANIZING OR METALIZING DAMAGED BY WELDING AND/OR HANDLING SHALL BE REPAIRED IN ACCORDANCE WITH SECTION 513. WELD PROCEDURES MUST BE SUBMITTED FOR REVIEW.
4. ALTERNATE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THIS SHEET AND SHALL MAINTAIN THE ANCHORAGE SYSTEM SHOWN.
5. MASONRY SURFACES UNDER BEARINGS SHALL BE SMOOTH AND LEVEL BEFORE INSTALLING BEARING DEVICES. EXISTING ANCHOR BOLTS SHALL BE CUT FLUSH AND SMOOTH WITH THE BRIDGE SEAT.
6. **BEARINGS MUST BE INSTALLED BEFORE THE DIAPHRAGMS AND ANCHOR BOLTS ARE INSTALLED.**
7. DESIGN CRITERIA:
   A. BEARING PAD TO CONCRETE DESIGN PRESSURE = 1000 PSI MAXIMUM
   B. MINIMUM ALLOWABLE DESIGN ROTATION = 0.019 RADIANS.
   C. HORIZONTAL CAPACITY SHALL BE A MINIMUM 10% OF VERTICAL LOAD
   D. DESIGN LOAD PER BEARING (UNFACTORED)

	DL = 41.7 KIPS		DL = 23.2 KIPS
(SPANS 2-5)	LL+I = 60.1 KIPS	(SPANS 1)	LL+I = 58.0 KIPS
	SDL = 14.9 KIPS		SDL + 9.6 KIPS

8. ALL JACKING AND SHORING REQUIRED TO REPLACE BEARINGS WILL BE PAID FOR UNDER ITEM 502.11, "SHORING SUPERSTRUCTURE BEARINGS". THE CONTRACTOR SHALL SUBMIT DETAILS AND CALCULATIONS FOR SHORING AND JACKING AS SPECIFIED IN SECTION 502.
9. THE WORK REQUIRED TO REMOVE EXISTING BEARINGS IN ORDER TO INSTALL NEW BEARINGS AS SHOWN ON THE PLANS, SHALL BE INCLUDED IN ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE".
10. FABRICATION DRAWINGS CONFORMING TO SUBSECTION 531.03 SHALL BE SUBMITTED AND INCLUDE ANY NECESSARY WELDING OR BONDING PROCEDURES.
11. SOLE PLATES, ANCHOR BOLTS NUTS AND WASHERS SHALL BE GALVANIZED OR METALIZED AS PER SUBSECTION 531.04(b) AND 506.15. IF THE BEARINGS ARE METALIZED, THEY SHALL BE SEALED WITH AN APPROVED PRIMER AS SPECIFIED IN SUBSECTION 506.15. ALL WASHERS SHALL BE 3/8" PLATE MINIMUM. PAYMENT FOR ANCHOR BOLTS, NUTS AND WASHERS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR "BEARING DEVICE ASSEMBLY (FABRIC)".
12. ALL STEEL IN BEARING DEVICES (EXCEPT STAINLESS STEEL) AS WELL AS THE 1/4" PLATE SHALL BE AASHTO M270 GRADE 36.
13. FABRICATION DRAWINGS SHALL IDENTIFY THE NUMBER OF LAYERS OF VULCANIZED SHEETS AND CORRESPONDING SHEET THICKNESS TO BE USED FOR FABRICATING THE BEARING PAD AND SHALL INCLUDE DETAILED PROCEDURES FOR BONDING THESE SHEETS TOGETHER.

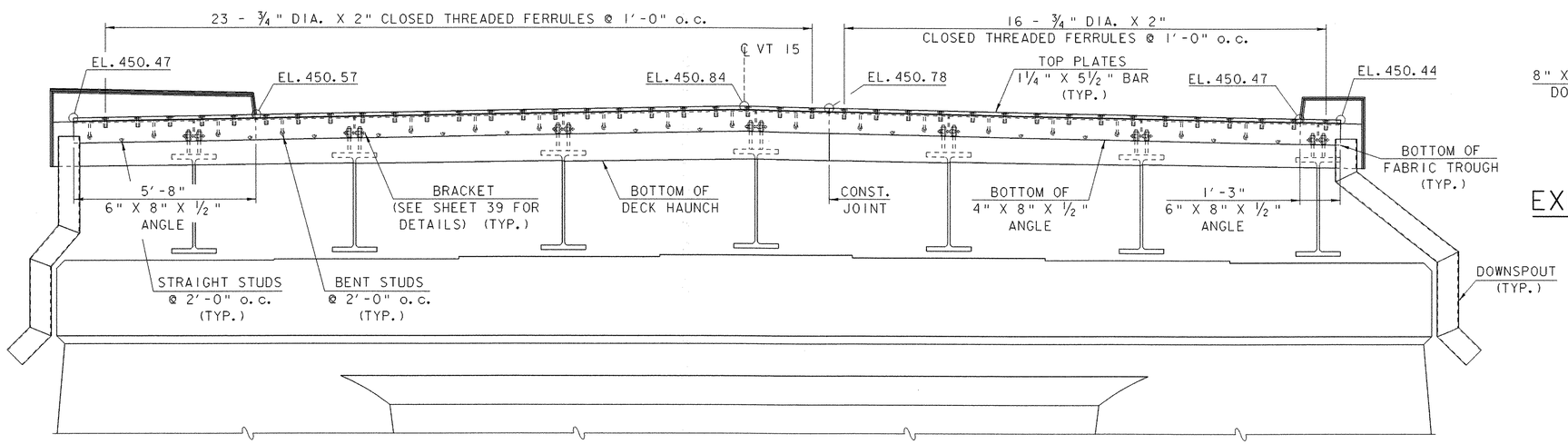
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
FIXED BEARING DETAILS	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308bd2.dgn
Bridge Sheet No.	Sheet 36 of 68



BRIDGE EXPANSION JOINT AT PIER NO. 3

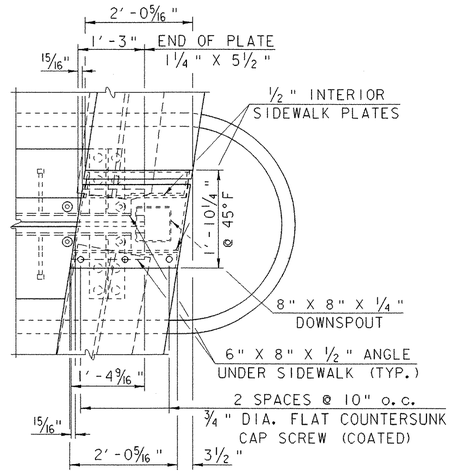
SCALE: 1/2" = 1'-0"



SECTION A-A

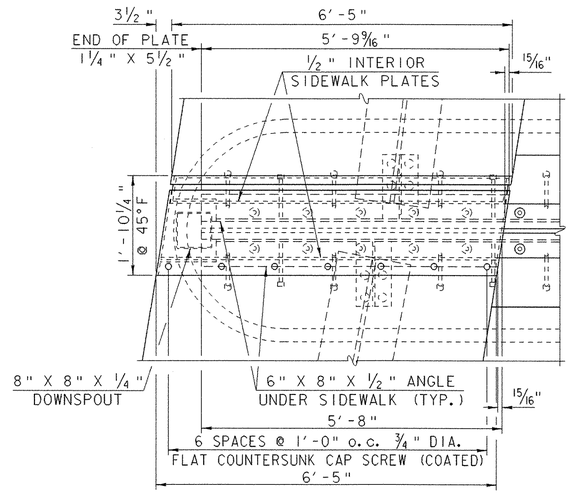
SCALE: 1/2" = 1'-0"

NOTE:
ELEVATIONS GIVEN AT TOP OF PLATES ALONG CENTERLINE OF EXPANSION JOINT.



EXPANSION JOINT DETAIL AT CURB

SCALE: 3/4" = 1'-0"
(STUDS FOR CURB PLATES NOT SHOWN)

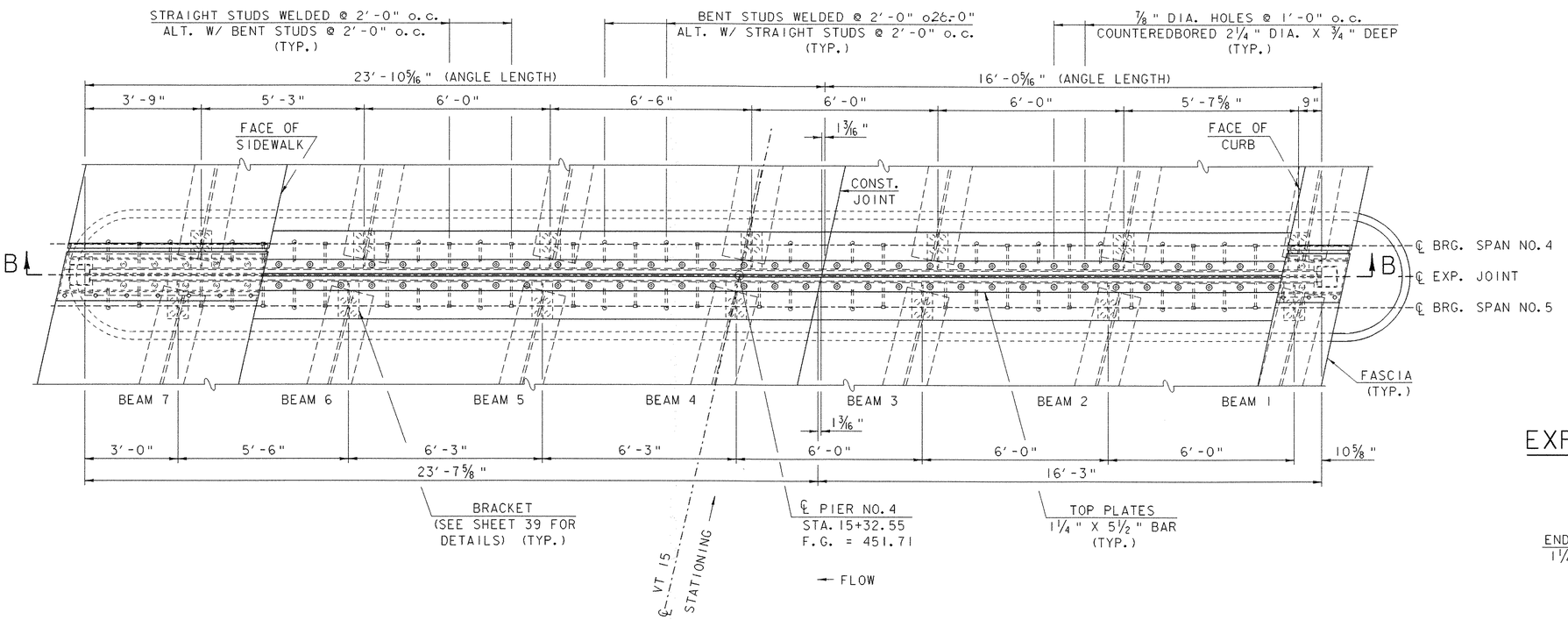


EXPANSION JOINT DETAIL AT SIDEWALK

SCALE: 3/4" = 1'-0"
(STUDS FOR SIDEWALK PLATES NOT SHOWN)

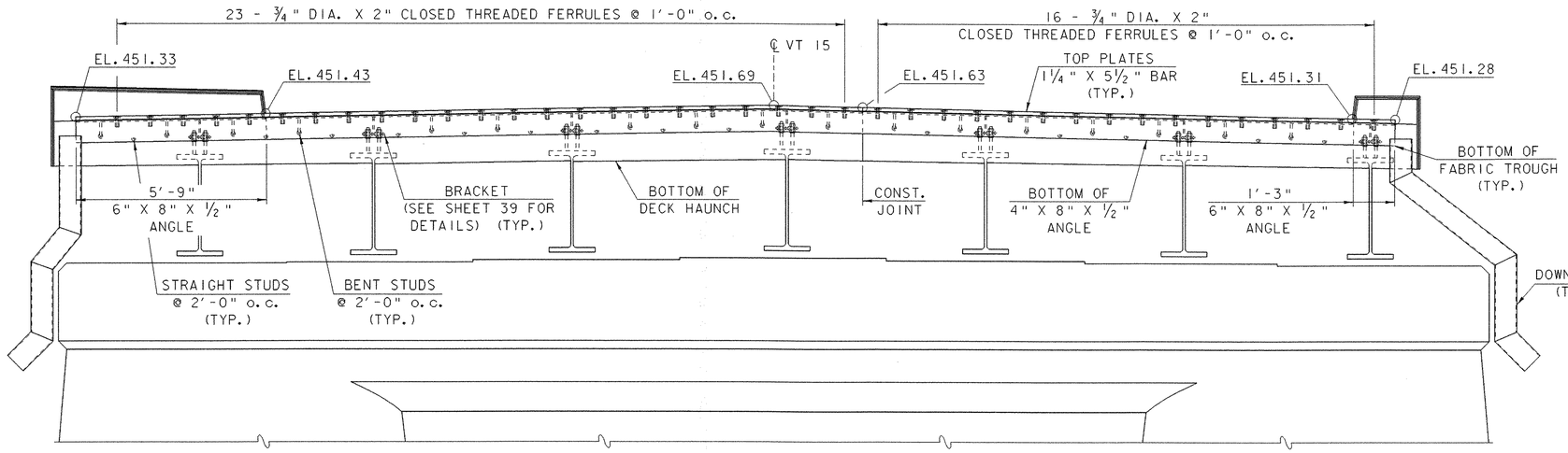
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
	Log Sta.
Highway No. VT 15	Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
EXPANSION JOINT - PIER NO. 3	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308ej1.dgn
Bridge Sheet No.	Sheet 37 of 68



BRIDGE EXPANSION JOINT AT PIER NO. 4

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

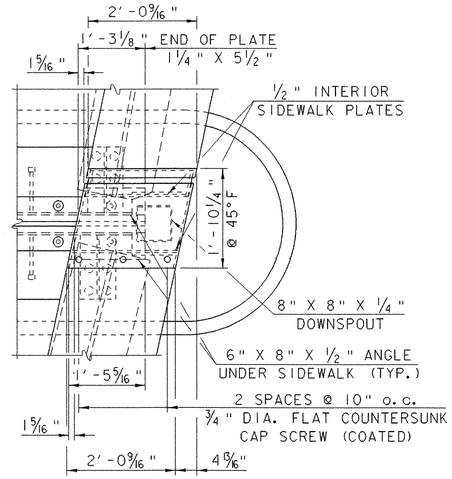


SECTION B-B

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

NOTE:

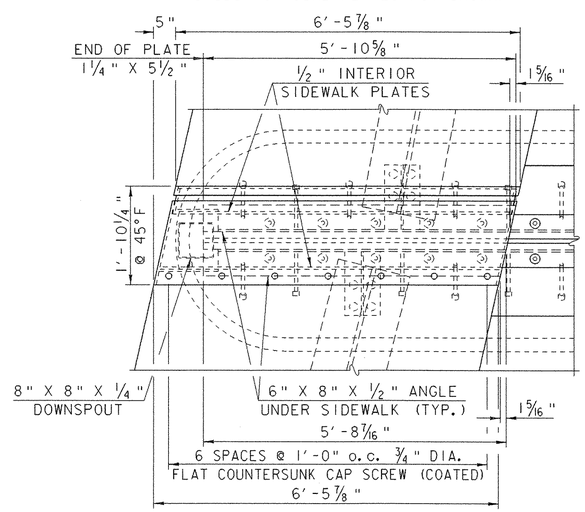
ELEVATIONS GIVEN AT TOP OF PLATES ALONG CENTERLINE OF EXPANSION JOINT.



EXPANSION JOINT DETAIL AT CURB

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

(STUDS FOR CURB PLATES NOT SHOWN)



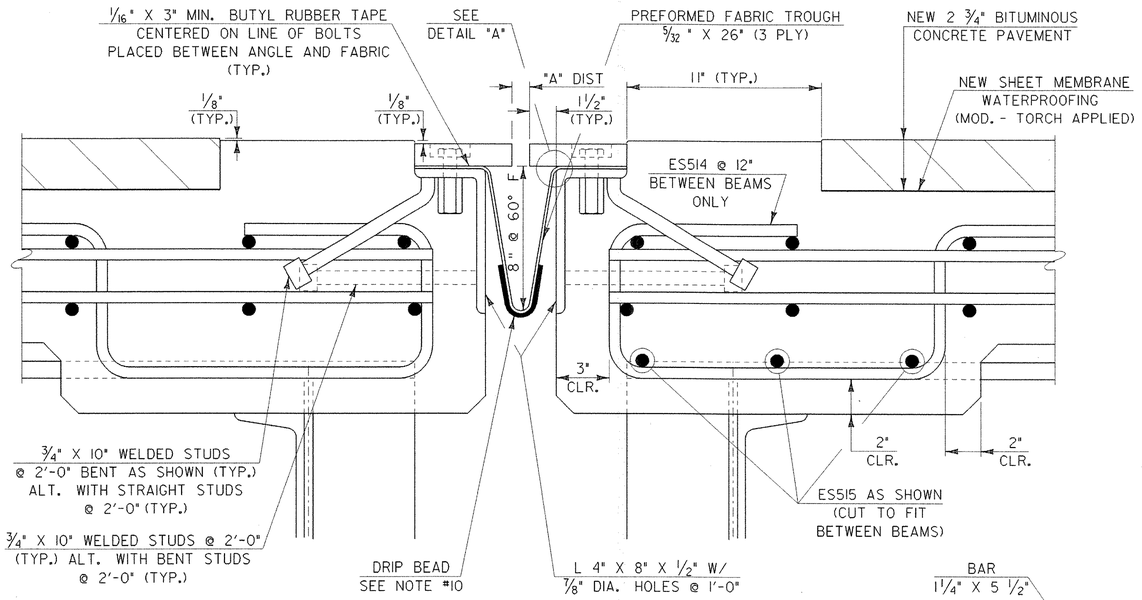
EXPANSION JOINT DETAIL AT SIDEWALK

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

(STUDS FOR SIDEWALK PLATES NOT SHOWN)

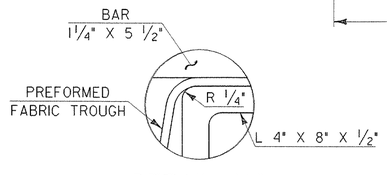
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
EXPANSION JOINT - PIER NO. 4	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.C.C. Info.	zb308ej2.dgn
Bridge Sheet No.	Sheet 38 of 68



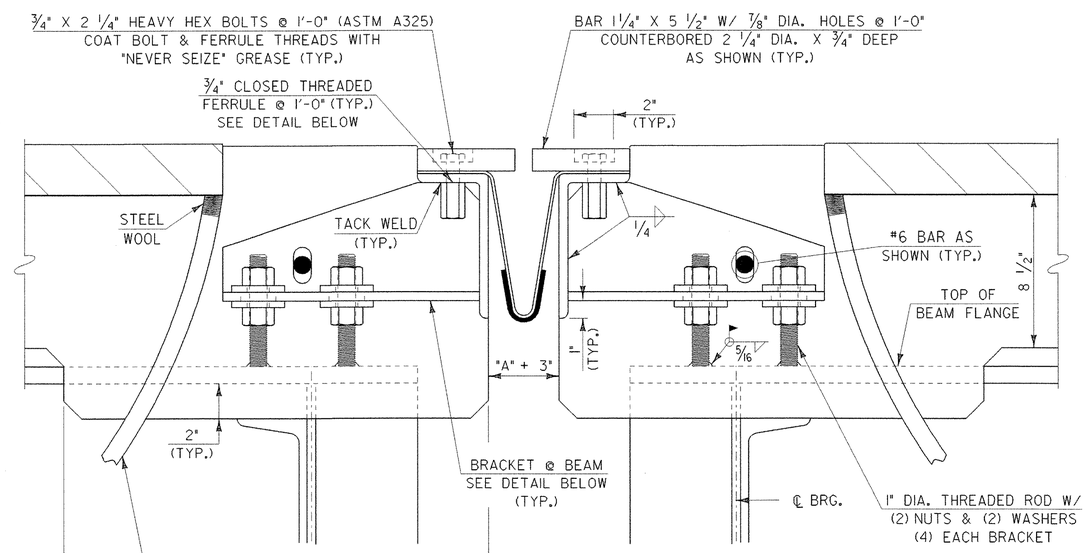
TYPICAL SECTION BETWEEN BEAMS

SCALE: 3" = 1'- 0" (NORMAL TO ℄ BEARING)



DETAIL "A"

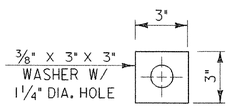
N.T.S.



TYPICAL SECTION AT BEAMS

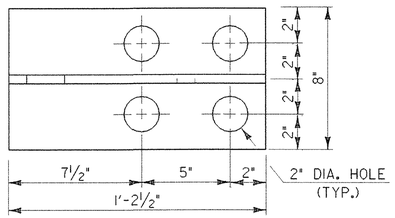
SCALE: 3" = 1'- 0" (NORMAL TO ℄ BEARING)

1. DETAILS ON THIS SHEET ARE FOR ITEM 516.10, "BRIDGE EXPANSION JOINT (VERMONT)".
2. PREFORMED FABRIC MATERIAL SHALL BE CONTINUOUS AND SHALL CONFORM TO SUBSECTION 707.07 OF THE STANDARD SPECIFICATIONS.
3. BUTYL RUBBER TAPE SHALL CONFORM TO AASHTO SPECIFICATION M-198, TYPE B.
4. THE FINAL FINISH OF THE EXPANSION DEVICE SHALL BE COVERED DURING THE PLACING OF ADJACENT BRIDGE DECK CONCRETE.
5. ALL STEEL COMPONENTS SHALL BE AASHTO M270 GRADE 36 GALVANIZED OR METALIZED AS PER SUBSECTION 506.15 UNLESS OTHERWISE SPECIFIED. THREADED RODS SHALL BE ASTM A449.
6. THE ITEM "BRIDGE EXPANSION JOINT (VERMONT)" SHALL INCLUDE THE FABRICATION AND ERECTION OF THE COMPLETE JOINT ASSEMBLY INCLUDING ALL STEEL PLATES, BRACKETS, ANGLES, WELDED STUDS OR RODS, PREFORMED FABRIC DRAIN TROUGH MATERIAL AND PLASTIC DRAIN TUBES, BUTYL RUBBER TAPE AND ANY OTHER MISCELLANEOUS MATERIAL NECESSARY TO INSTALL JOINT.
7. COAT CONCRETE CONTACT SURFACES WITH EPOXY BONDING COMPOUND MEETING THE REQUIREMENTS OF SUBSECTION 719.02. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 516.10, "BRIDGE EXPANSION JOINT (VERMONT)".
8. FILL COUNTERBORED HOLES WITH HOT POURED JOINT SEALER AFTER BOLT INSTALLATION. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO ITEM 516.10, "BRIDGE EXPANSION JOINT (VERMONT)".
9. A 1" DIA. PLASTIC DRAIN TUBE (PER STD. SPEC. 740.01) SHALL BE INSTALLED AS SHOWN AT THE FACE OF CURB/SIDEWALK. THE UPPER END IS TO BE PLUGGED WITH STEEL WOOL AND THE LOWER END IS TO EXTEND BELOW THE BOTTOM OF THE ADJACENT BEAM. THE DRAIN TUBES SHALL BE FASTENED TO THE BEAMS USING A METHOD APPROVED BY THE ENGINEER. PAYMENT FOR THE DRAIN TUBES AND THEIR INSTALLATION SHALL BE INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".
10. A DRIP BEAD OF 1/4" X 7" STRIP OF PREFORMED MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE APPLIED 1" FROM THE LOW END OF THE TROUGH.
11. FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION.
12. THE EXPANSION JOINT, EXCLUDING FABRIC, SHALL BE SHOP ASSEMBLED AND SHIPPED IN SECTIONS AS DETAILED SO THAT TRAFFIC MAY BE MAINTAINED DURING INSTALLATION. THE FABRIC TROUGH SHALL BE INSTALLED ONLY AFTER THE JOINT IS COMPLETELY IN PLACE. FLAGGERS WILL BE REQUIRED DURING FABRIC TROUGH INSTALLATION.
13. THE FABRICATOR SHALL DETAIL A BOLTED FIELD SPLICE AT THE CONSTRUCTION JOINT FOR APPROVAL.



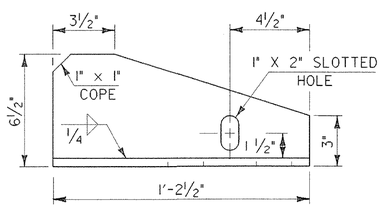
WASHER FOR BRACKET

SCALE: 3" = 1'- 0"



BRACKET PLAN

SCALE: 3" = 1'- 0"



BRACKET ELEVATION

SCALE: 3" = 1'- 0"

TEMP	"A" PIER 3	"A" PIER 4
0° F	2"	1 9/16"
15° F	1 3/4"	1 3/8"
30° F	1 1/2"	1 3/16"
45° F	1 1/4"	1"
60° F	1"	13/16"
75° F	3/4"	5/8"
90° F	1/2"	7/16"
105° F	1/4"	1/4"

ALL PLATES 1/2"

STATE OF VERMONT
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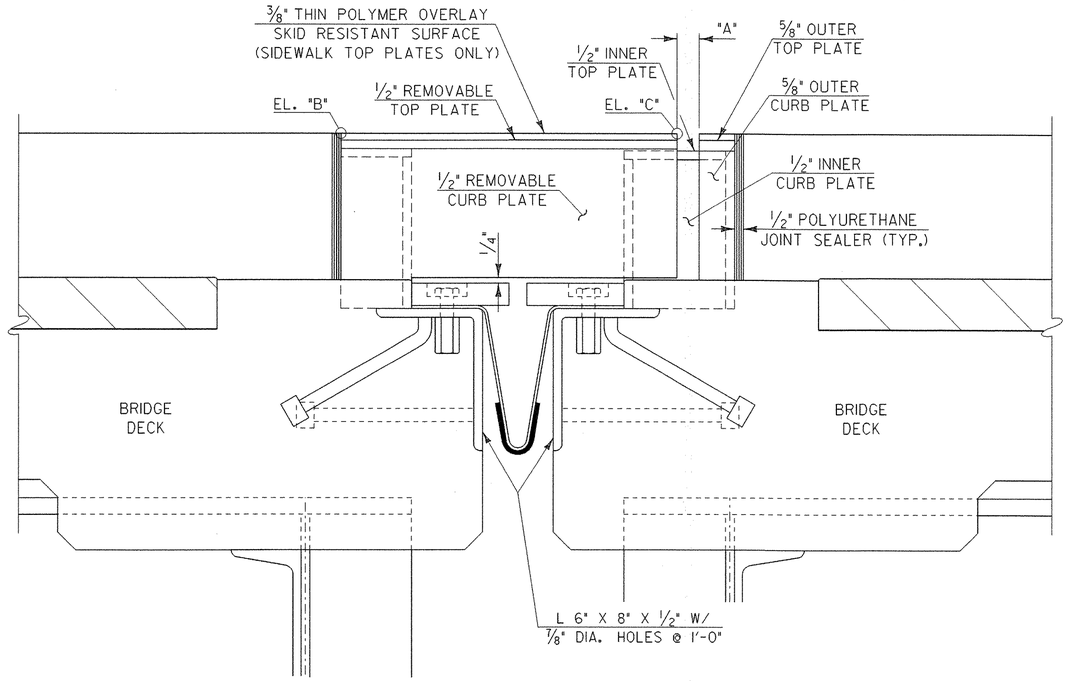
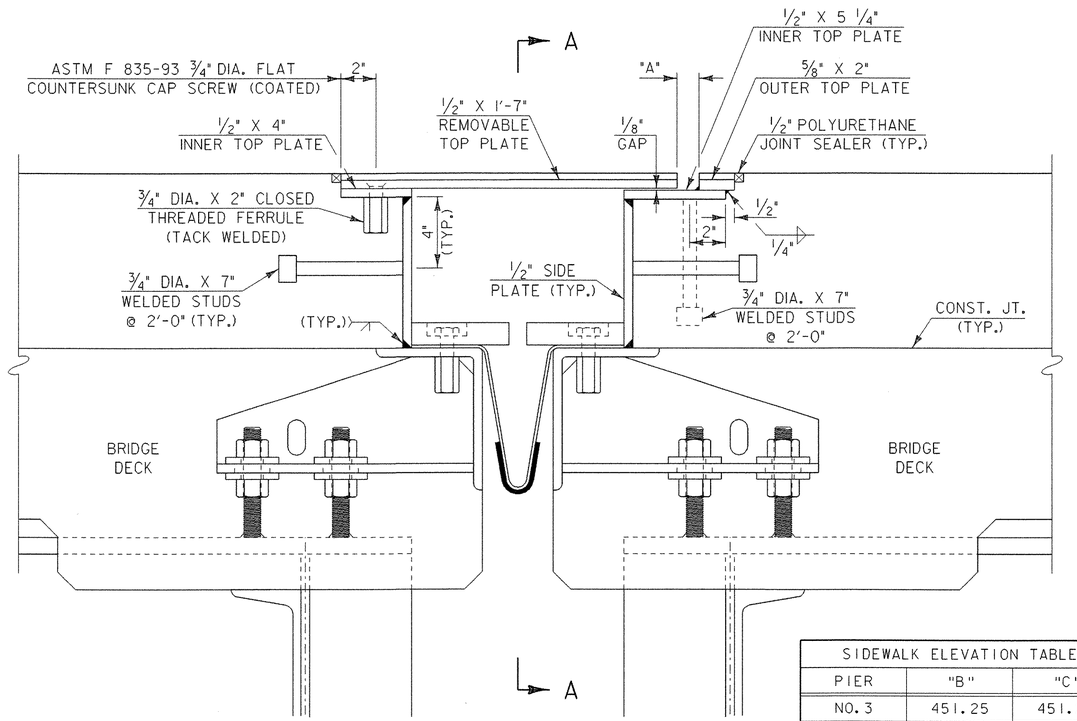
Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
EXPANSION JOINT DETAILS (SHEET 1)	
Designed By E.A.HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308ej3.dgn
Bridge Sheet No.	Sheet 39 of 68



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

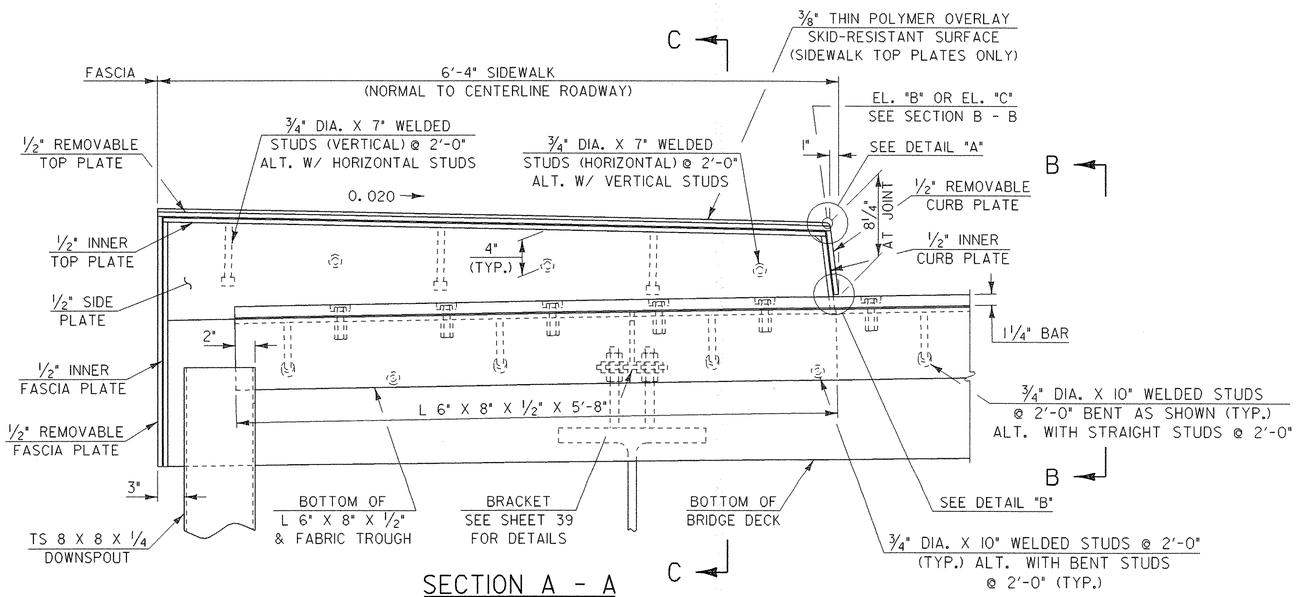


SECTION C - C
SCALE: 3" = 1'- 0"

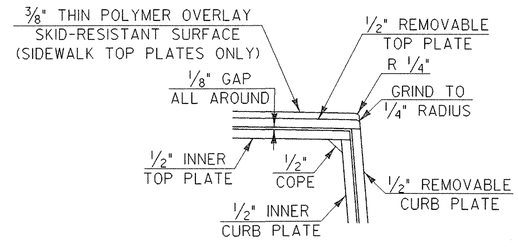
SIDEWALK ELEVATION TABLE		
PIER	"B"	"C"
NO. 3	451.25	451.23
NO. 4	452.12	452.10

CURB ELEVATION TABLE		
PIER	"B"	"C"
NO. 3	451.15	451.13
NO. 4	451.99	451.98

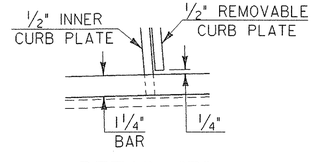
TEMP	"A" PIER 3	"A" PIER 4
0°F	2"	1 3/16"
15°F	1 3/4"	1 3/8"
30°F	1 1/2"	1 3/16"
45°F	1 1/4"	1"
60°F	1"	13/16"
75°F	3/4"	5/8"
90°F	1/2"	7/16"
105°F	1/4"	1/4"



SECTION A - A
SCALE: 3" = 1'- 0"
(CURB SIMILAR)



DETAIL "A"
SCALE: 3" = 1'- 0"



DETAIL "B"
SCALE: 3" = 1'- 0"

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.

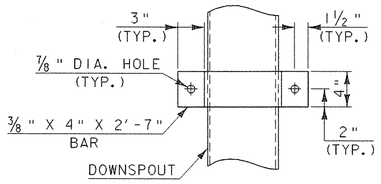
VT 15 OVER LAMOILLE RIVER

EXPANSION JOINT DETAILS (SHEET 2)

Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308ej4.dgn
Bridge Sheet No.	Sheet 40 of 68

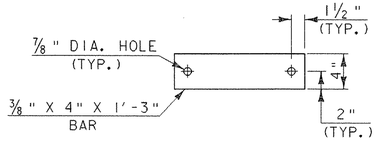
DOWNSPOUT NOTES:

1. HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO A500 OR A501.
2. ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO AASHTO M270 GR. 36.
3. DOWNSPOUT SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111M/M 111.
4. ALL BOLTS AND RELATED HARDWARE SHALL BE ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 (AASHTO M232).
5. DOWNSPOUT SHALL BE PAID FOR UNDER ITEM 506.60, "STRUCTURAL STEEL". ALL ANCHOR BOLTS WITH RELATED HARDWARE AND INSTALLATION SHALL BE INCIDENTAL TO ITEM 506.60, "STRUCTURAL STEEL".
6. ANY PLACE WHERE THE GALVANIZING HAS BEEN REMOVED FROM THE DOWNSPOUT EITHER BY CUTTING, BURNING, WELDING, PLACING OR ANY OTHER MEANS, IT SHALL BE REPAIRED BY THOROUGHLY CLEANING THE DAMAGED AREAS WITH A WIRE BRUSH AND PAINTING THE DAMAGED AREAS WITH AN APPROVED SEALANT IN ACCORDANCE WITH 513 SUPPLEMENTAL SPECIFICATIONS. THIS WORK SHALL BE INCIDENTAL TO ITEM 506.60, "STRUCTURAL STEEL".



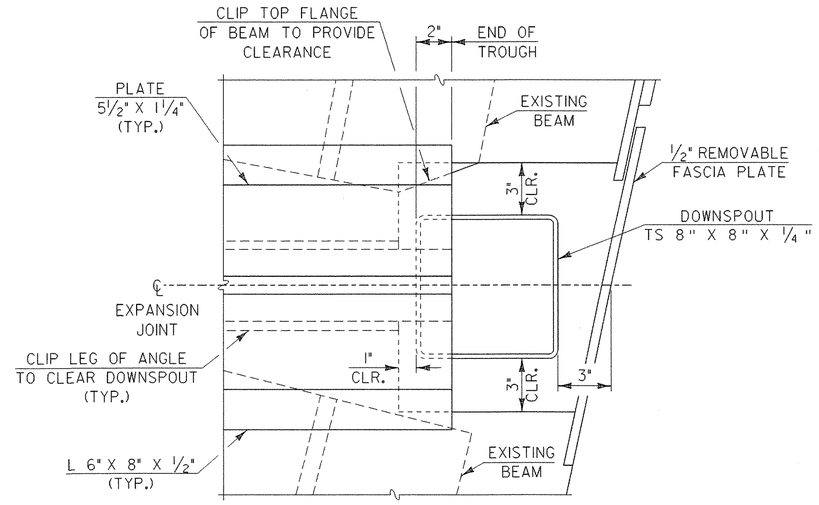
ELEVATION VIEW OF BAR "A"

SCALE: 1½" = 1'-0"



ELEVATION VIEW OF BAR "B"

SCALE: 1½" = 1'-0"

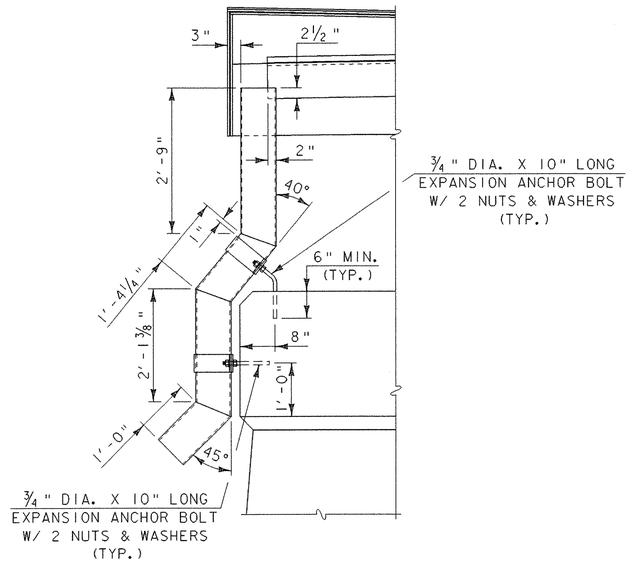


NOTES:

1. BOTTOM OF DECK TO BE BOXED OUT AS SHOWN TO ALLOW DOWNSPOUT TO COME UP UNDERNEATH THE DRAIN TROUGH.
2. DECK REINFORCING STEEL TO BE CUT AS REQUIRED TO MAINTAIN 3" CLEARANCE FROM BOXOUT.

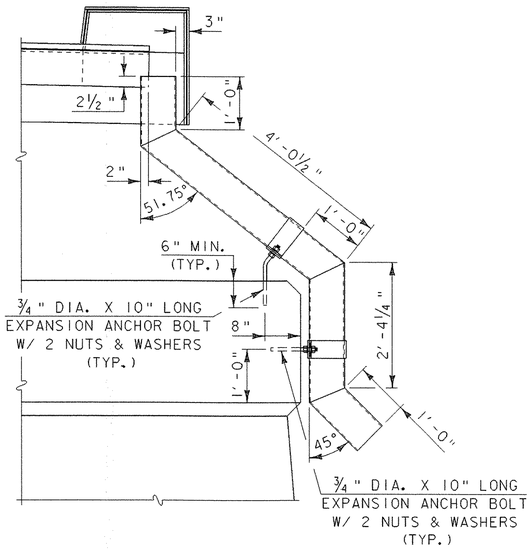
PLAN VIEW OF DECK BOXOUT FOR DOWNSPOUT

SCALE: 3" = 1'-0"



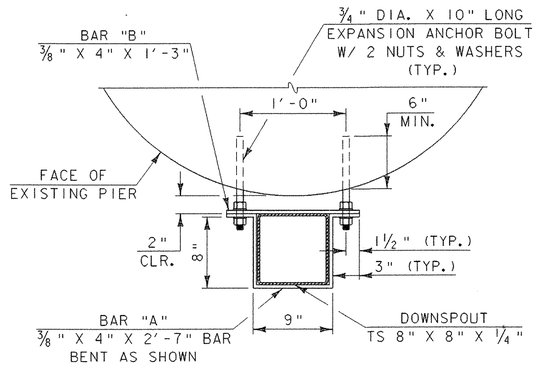
DOWNSPOUT ELEVATION AT SIDEWALK FASCIA

SCALE: ¾" = 1'-0"



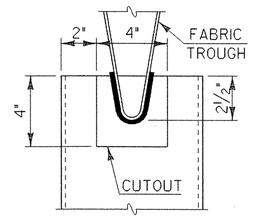
DOWNSPOUT ELEVATION AT CURB FASCIA

SCALE: ¾" = 1'-0"



DETAIL FOR ATTACHING DOWNSPOUT TO PIER PLAN VIEW

SCALE: 1½" = 1'-0"

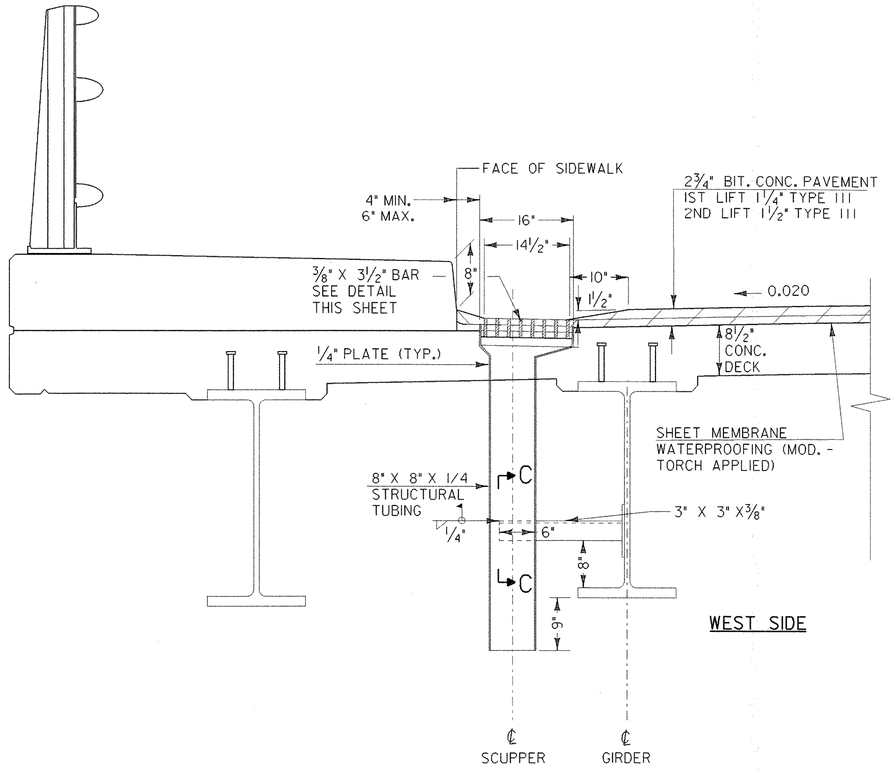


DOWNSPOUT CUTOUT DETAIL

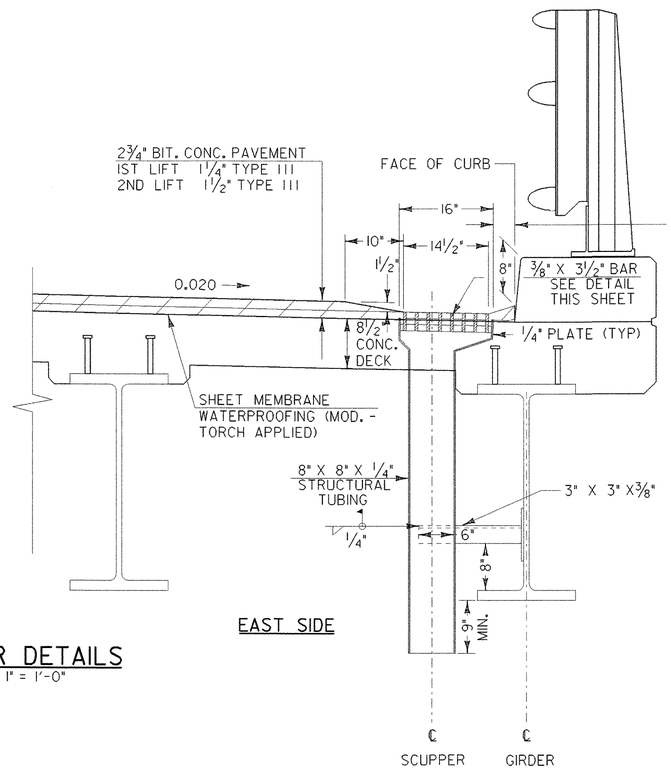
SCALE: 3" = 1'-0"

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
DOWNSPOUT DETAILS	
Designed By E.A. HARTWELL	Drawn By V. COMMISSO
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308sd2.dgn
Bridge Sheet No.	Sheet 41 of 68



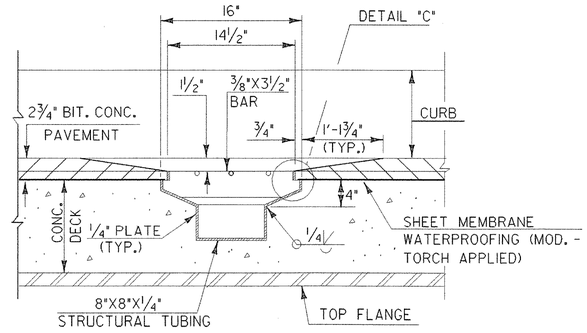
WEST SIDE



EAST SIDE

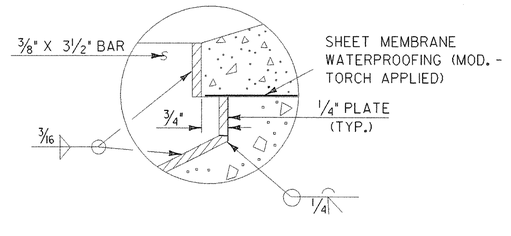
SCUPPER DETAILS

SCALE: 1" = 1'-0"



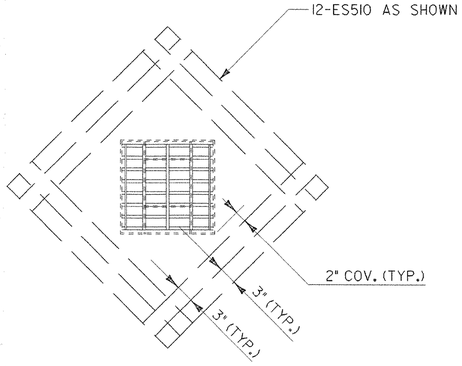
SECTION B-B

SCALE: 1½" = 1'-0



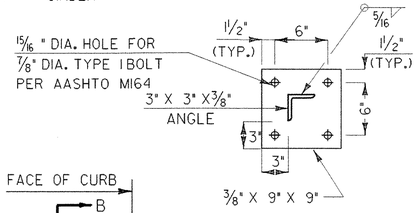
DETAIL "C"

N.T.S.



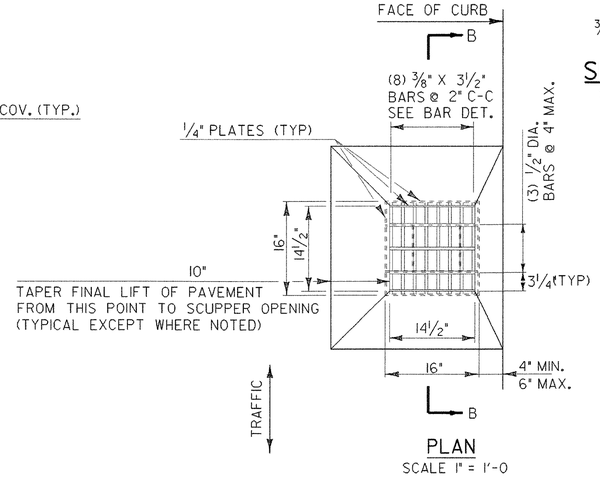
REINFORCING PLAN

SCALE 1" = 1'-0



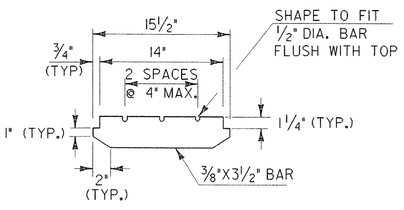
SECTION C-C

SCALE: 1½" = 1'-0"



PLAN

SCALE 1" = 1'-0



BAR DETAIL FOR GRATE

SCALE: 1½" = 1'-0

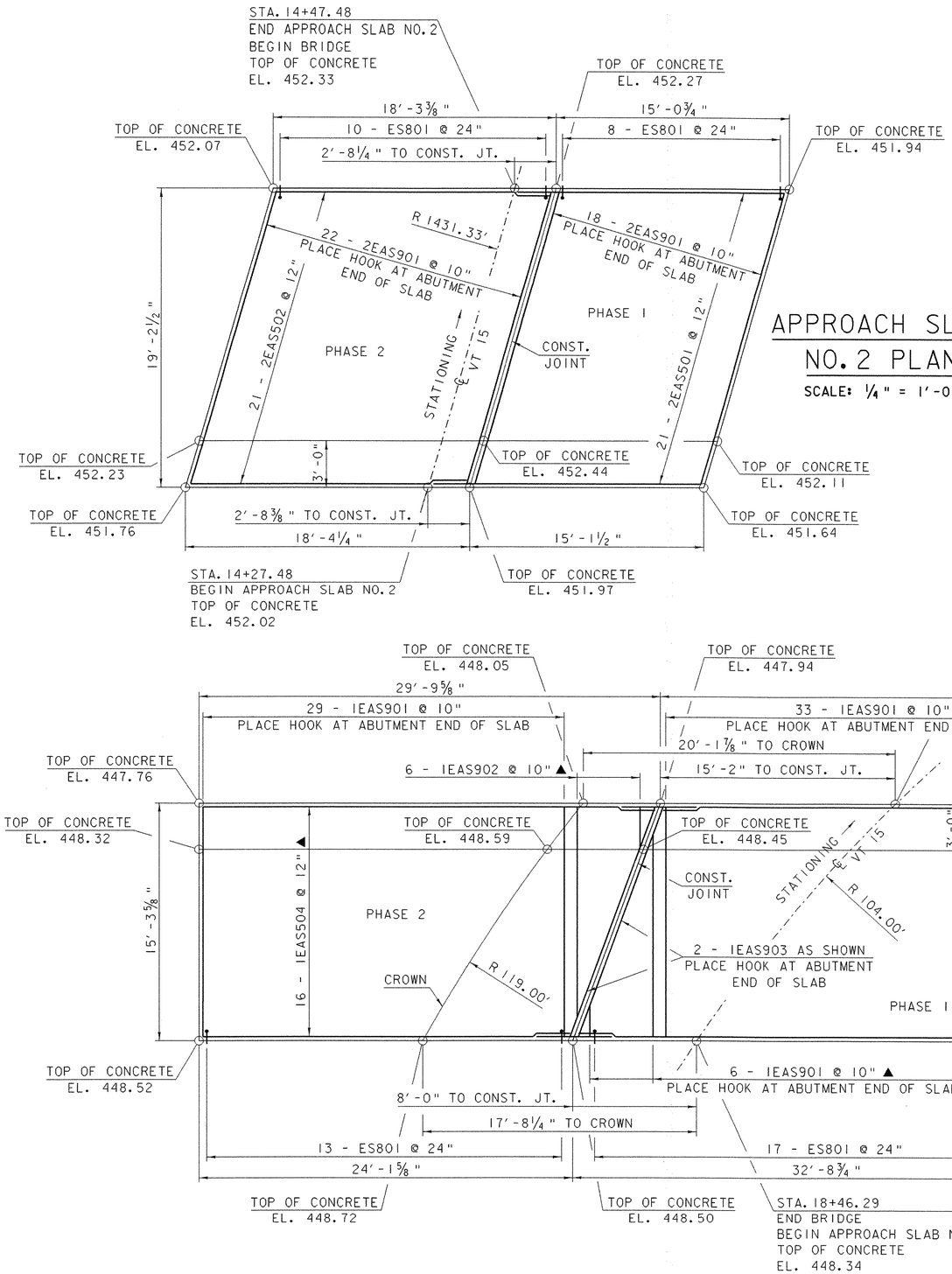
SCUPPER NOTES

THE FOLLOWING NOTES SHALL APPLY UNLESS OTHERWISE DETAILED ON PROJECT PLANS.

1. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 OR A-501
2. ALL PLATES, BARS AND ANGLES SHALL CONFORM TO AASHTO M270 GR36.
3. SCUPPER AND ALL RELATED HARDWARE AND INSTALLATION SHALL BE PAID FOR UNDER ITEM 506.60, "STRUCTURAL STEEL".
4. THE TOP SURFACE OF SCUPPER SHALL BE SLOPED TO MATCH ROADWAY SLOPE AND GRADE.
5. THE BAR AND GRATE SECTION OF SCUPPER MAY BE PREFABRICATED PROVIDED THE GEOMETRY AND SECTION PROPERTIES ARE EQUIVALENT TO THE DETAILS SHOWN.
6. ALL SCUPPERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123 (AASHTO M 111) AFTER FABRICATION.

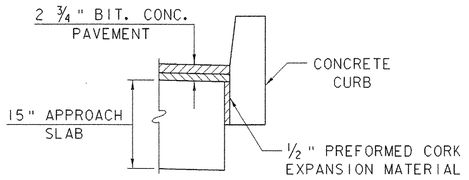
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
SCUPPER DETAILS	
Designed By E.A.HARTWELL	Drawn By C.L. SZCZEPANSKI
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308sdl.dgn
Bridge Sheet No.	Sheet 42 of 68



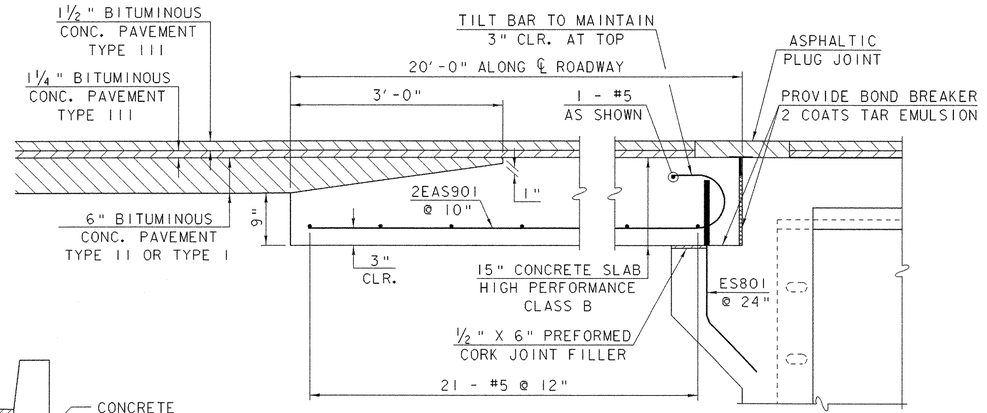
APPROACH SLAB NO. 2 PLAN

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



CURB DETAIL @ APPROACH SLAB

SCALE: 1" = 1'-0"

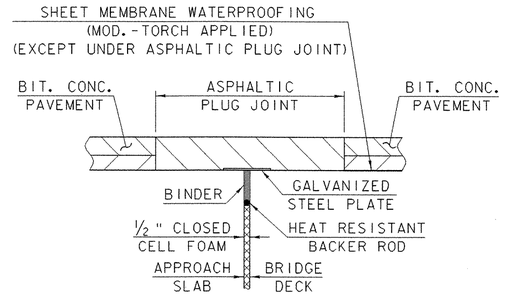


APPROACH SLAB NO. 2 DETAIL

SCALE: 1" = 1'-0"
(APPROACH SLAB NO. 1 SIMILAR)

APPROACH SLAB NO. 1 PLAN

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



ASPHALTIC PLUG JOINT DETAIL

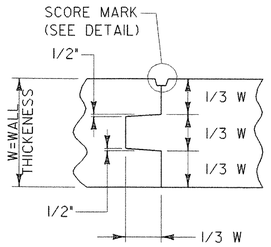
NOT TO SCALE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
APPROACH SLAB DETAILS	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308ap1.dgn
Bridge Sheet No.	Sheet 43 of 68

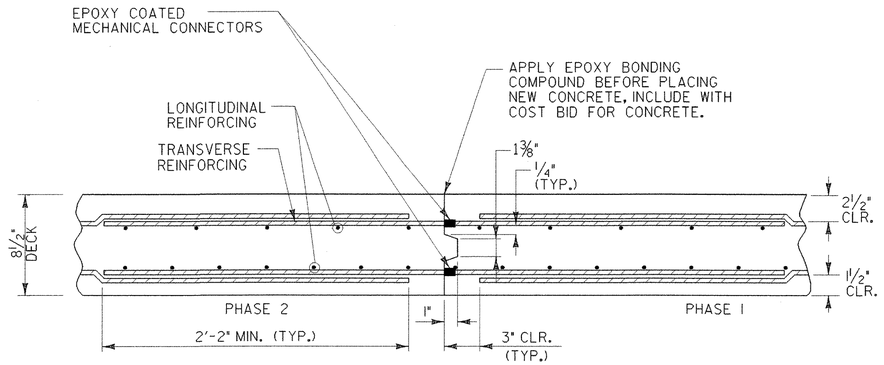
P.V.C. WATERSTOP FOR JOINTS

THE COSTS FOR P.V.C. WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM #501.33, "CONCRETE, HIGH PERFORMANCE CLASS A". OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE STUCTURES ENGINEER.
N.T.S.



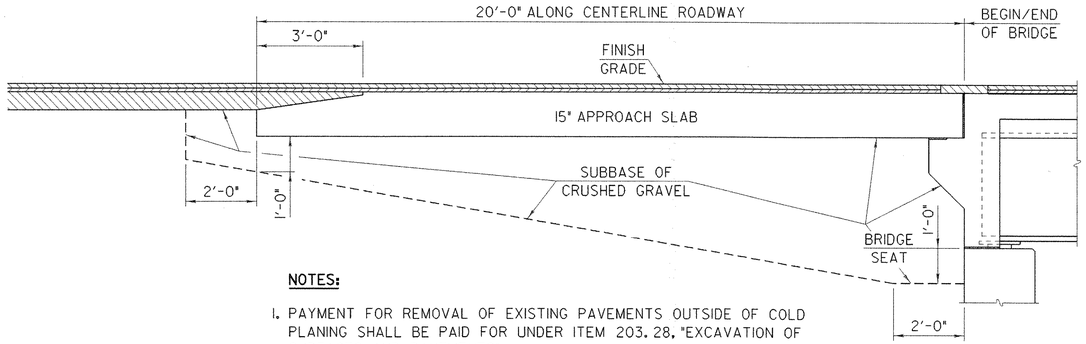
TYPICAL CONCRETE CONSTRUCTION JOINT

N.T.S.



LONGITUDINAL BRIDGE SLAB CONSTRUCTION JOINT DETAIL WITH MECHANICAL CONNECTORS

SPAN NO. 1 & APPROACH SLAB CONSTRUCTION JOINT SIMILAR
N.T.S.

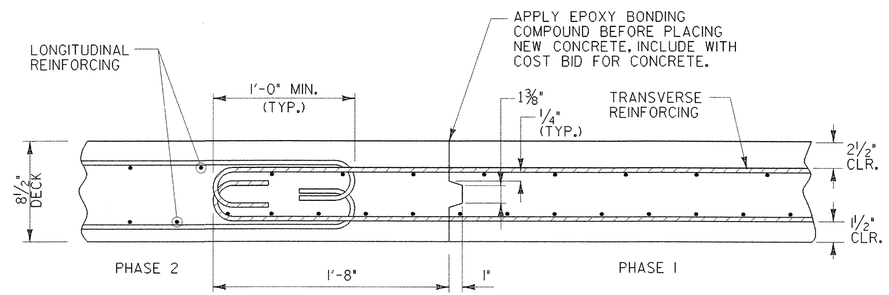


NOTES:

1. PAYMENT FOR REMOVAL OF EXISTING PAVEMENTS OUTSIDE OF COLD PLANING SHALL BE PAID FOR UNDER ITEM 203.28, "EXCAVATION OF SURFACES AND PAVEMENTS".
2. PAYMENT FOR EXCAVATION OF EXISTING MATERIAL BELOW EXISTING PAVEMENTS TO LIMITS OF NEW SUBGRADE SHALL BE PAID FOR UNDER ITEM 203.15, "COMMON EXCAVATION".
3. NEW SUBBASE OF CRUSHED GRAVEL SHALL BE PAID FOR UNDER ITEM 310.26, "SUBBASE OF CRUSHED GRAVEL (FINE GRADED)".

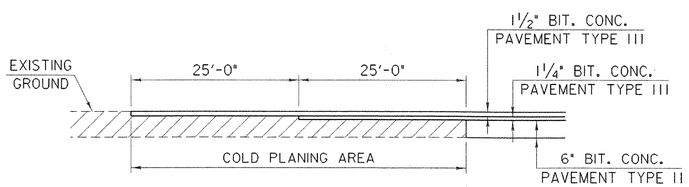
EXCAVATION PAYMENT LIMITS DETAIL

N.T.S.



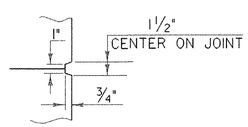
LONGITUDINAL BRIDGE SLAB CONSTRUCTION JOINT DETAIL WITH HOOKED REINFORCING

SPAN NO. 2 - 5 CONSTRUCTION JOINT SIMILAR
N.T.S.



COLD PLANING DETAIL

N.T.S.

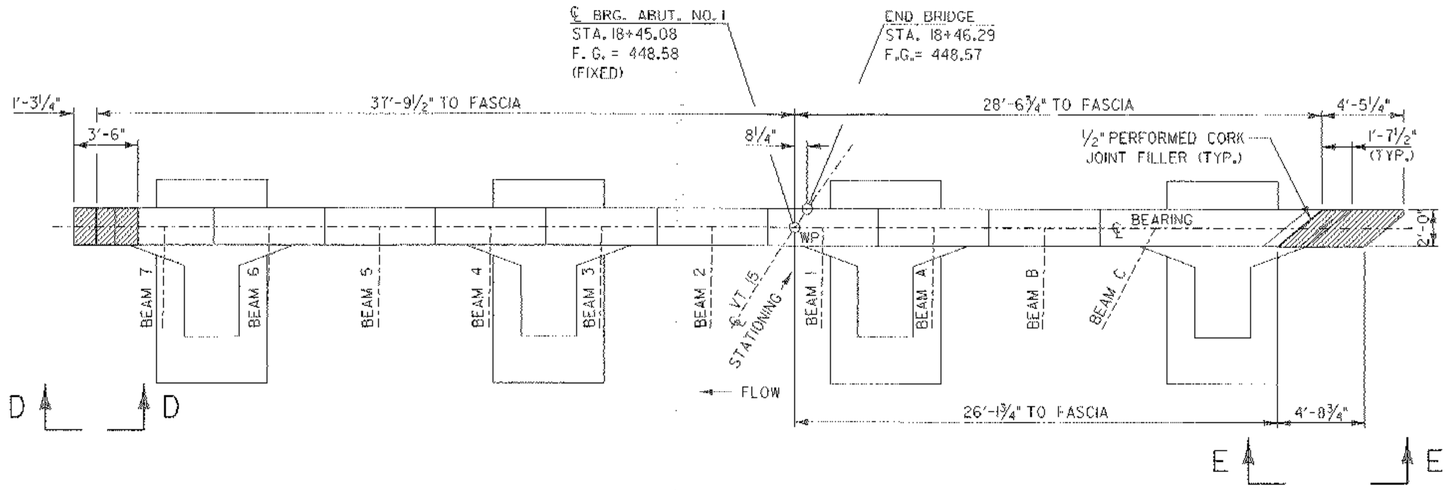


SCORE MARK DETAIL

N.T.S.

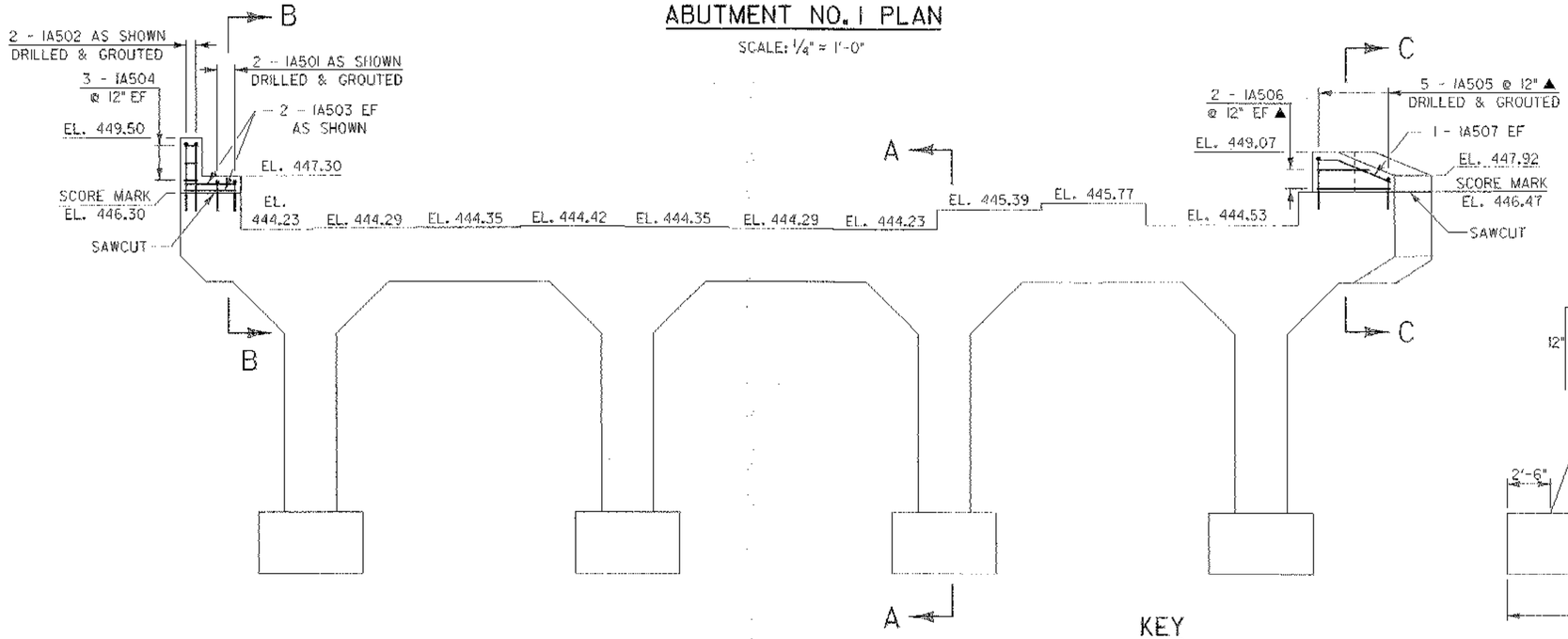
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
MISCELLANEOUS PROJECT DETAILS	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308ap3.dgn
Bridge Sheet No.	Sheet 44 of 68



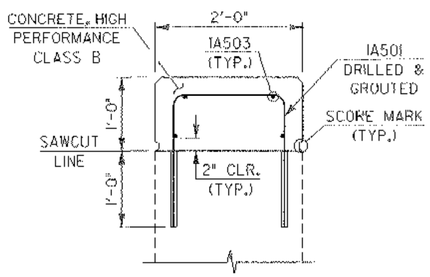
ABUTMENT NO. 1 PLAN

SCALE: ¼" = 1'-0"



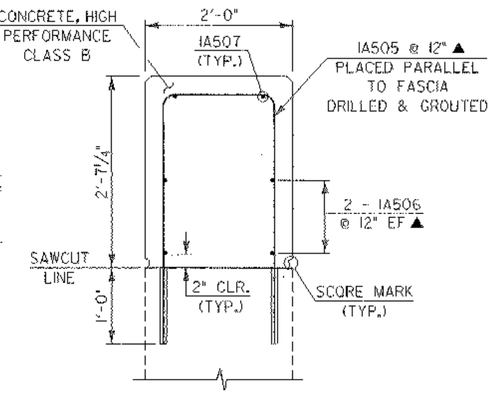
ABUTMENT NO. 1 ELEVATION

SCALE: ¼" = 1'-0"



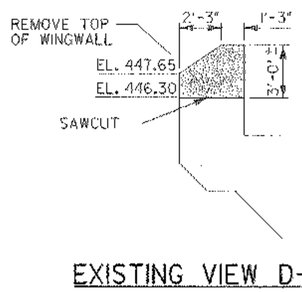
SECTION B-B

SCALE: 1" = 1'-0"



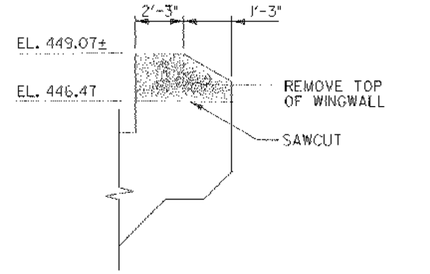
SECTION C-C

SCALE: 1" = 1'-0"



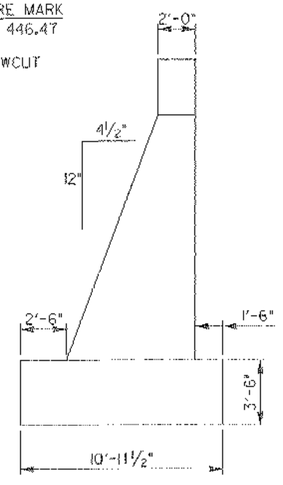
EXISTING VIEW D-D

SCALE: ¼" = 1'-0"



EXISTING VIEW E-E

SCALE: ¼" = 1'-0"



SECTION A-A

SCALE: ¼" = 1'-0"

KEY

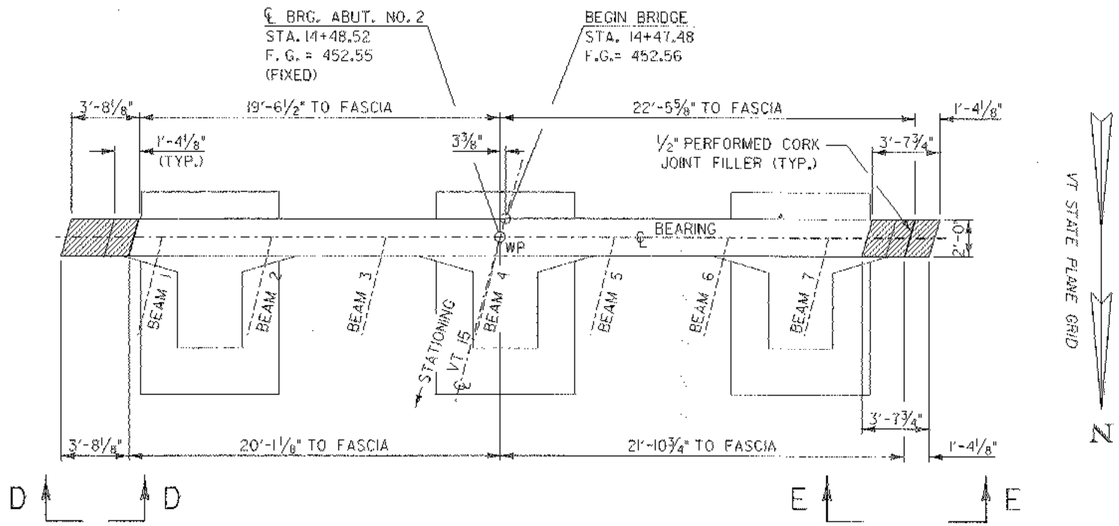
- PARTIAL REMOVAL OF STRUCTURE
- PROPOSED WINGWALL CAP

NOTES

1. THE COST OF WINGWALL REMOVAL, INCLUDING SAWCUTTING, SHALL BE INCLUDED IN THE PRICE FOR ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE".
2. FOR SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 51.
3. EXISTING PAD ELEVATIONS ARE BASED ON FIELD SURVEY.
4. THE DEFECTIVE AREAS INDICATED ARE APPROXIMATE. THE EXACT AREAS AND REPAIR TYPE ARE TO BE DETERMINED BY THE RESIDENT ENGINEER.
5. EF = EACH FACE
6. ▲ = CUT TO FIT IN FIELD
7. 3" CLR. UNLESS OTHERWISE NOTED.
8. DOWELS SHALL BE DRILLED AND GROUTED A MINIMUM OF 12" INTO EXISTING CONCRETE.

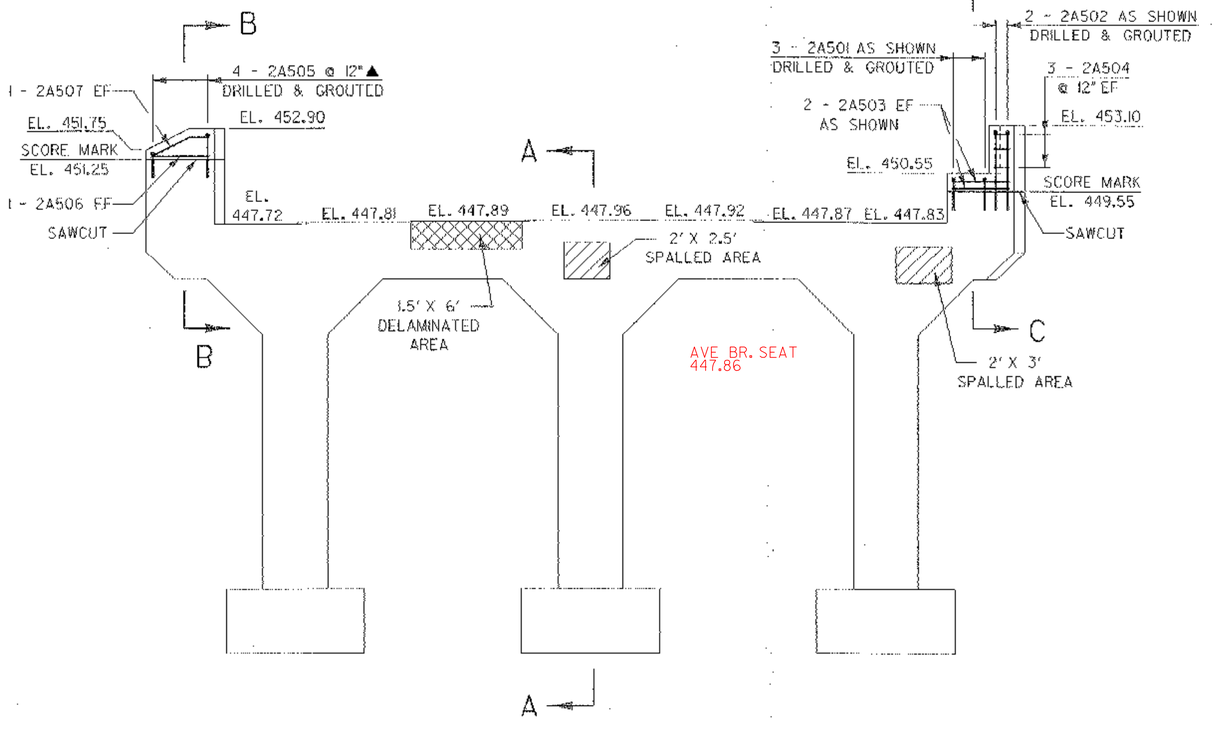
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
ABUTMENT 1 PLAN & ELEVATION	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
L.G.C. Info.	zb308eb1.dgn
Bridge Sheet No.	Sheet 45 of 68



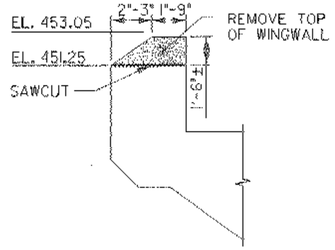
ABUTMENT NO. 2 PLAN

EAST ABUTMENT
SCALE: ¼" = 1'-0"



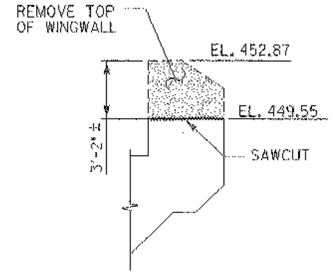
ABUTMENT NO. 2 ELEVATION

EAST ABUTMENT
SCALE: ¼" = 1'-0"



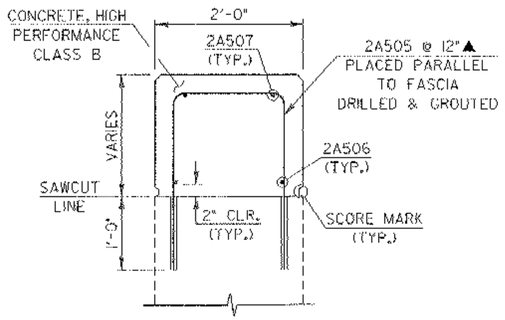
EXISTING VIEW D-D

SCALE: ¼" = 1'-0"



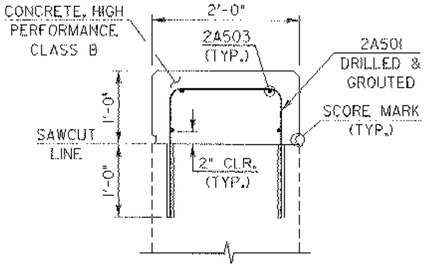
EXISTING VIEW E-E

SCALE: ¼" = 1'-0"



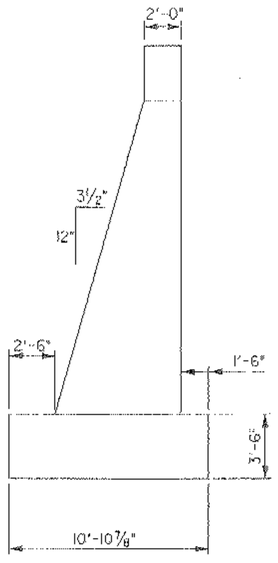
SECTION B-B

SCALE: 1" = 1'-0"



SECTION C-C

SCALE: 1" = 1'-0"



SECTION A-A

SCALE: ¼" = 1'-0"

NOTES

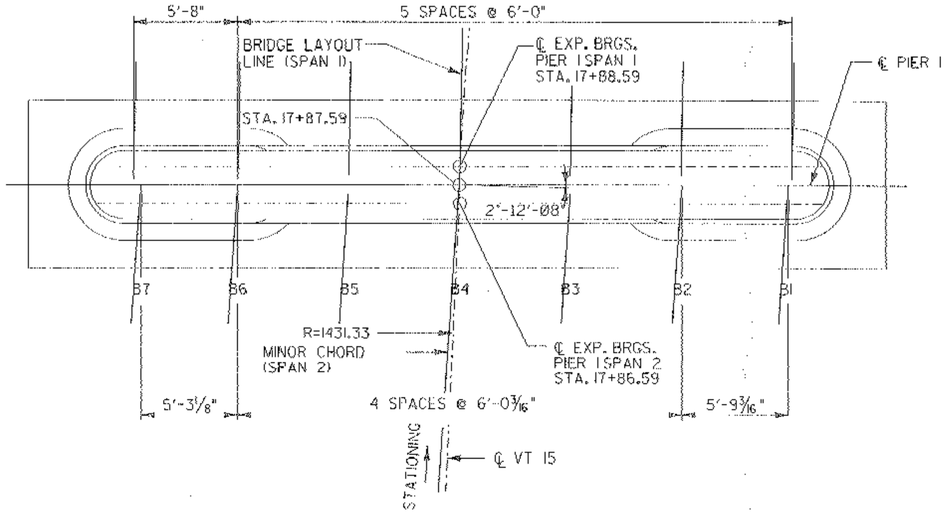
1. THE COST OF WINGWALL REMOVAL, INCLUDING SAWCUTTING, SHALL BE INCLUDED IN THE PRICE FOR ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE".
2. FOR SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 51.
3. EXISTING PAD ELEVATIONS ARE BASED ON FIELD SURVEY.
4. THE DEFECTIVE AREAS INDICATED ARE APPROXIMATE. THE EXACT AREAS AND REPAIR TYPE ARE TO BE DETERMINED BY THE RESIDENT ENGINEER.
5. EF = EACH FACE
6. ▲ = CUT TO FIT IN FIELD
7. 3" CLR. UNLESS OTHERWISE NOTED.
8. DOWELS SHALL BE DRILLED AND GROUTED A MINIMUM OF 12" INTO EXISTING CONCRETE.

KEY

- DELAMINATED AREAS
- SPALLED AREAS
- PARTIAL REMOVAL OF STRUCTURE
- PROPOSED WINGWALL CAP

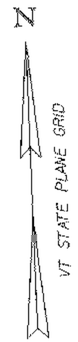
STATE OF VERMONT
AGENCY OF TRANSPORTATION

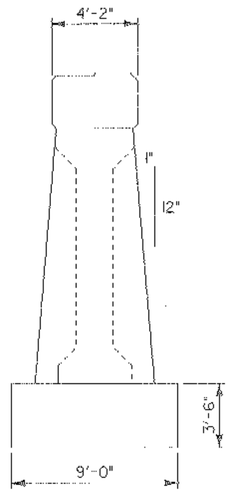
Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
ABUTMENT 2 PLAN & ELEVATION	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS/C.L.SZCZEPANSKI
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(09)S
I.G.C. Info.	zb308ab2.dgn
Bridge Sheet No.	Sheet 46 of 68



PIER NO. 1 PLAN

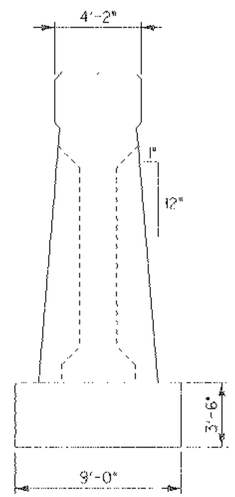
SCALE: ¼" = 1'-0"





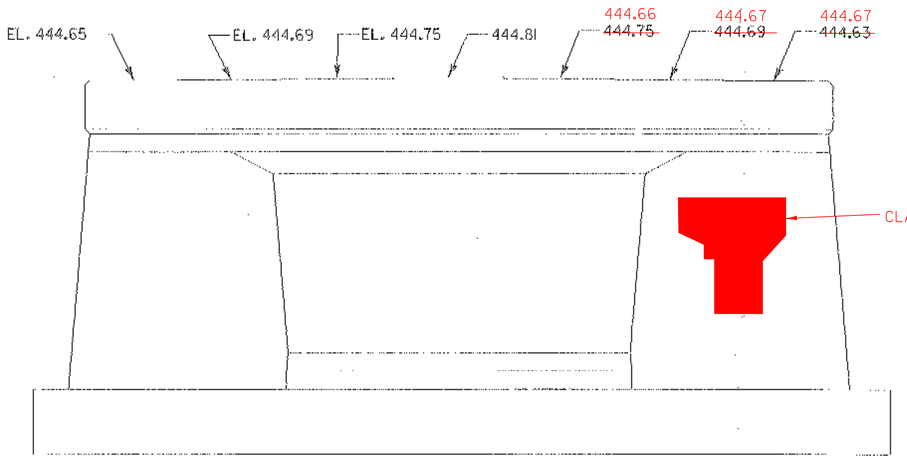
PIER NO. 1 EAST ELEVATION

SCALE: ¼" = 1'-0"



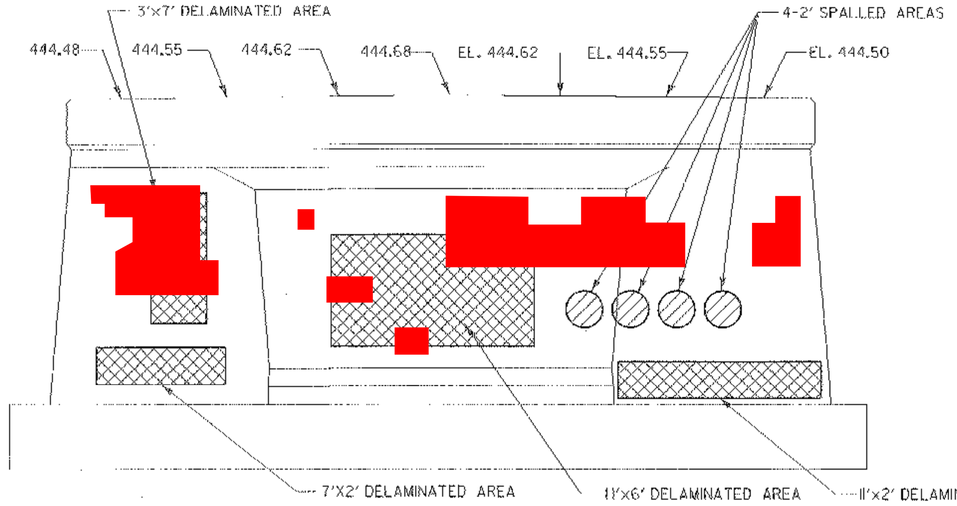
PIER NO. 1 WEST ELEVATION

SCALE: ¼" = 1'-0"



PIER NO. 1 SOUTH ELEVATION

SCALE: ¼" = 1'-0"



PIER NO. 1 NORTH ELEVATION

SCALE: ¼" = 1'-0"

CLASS II REPAIR

KEY

DELAMINATED AREAS

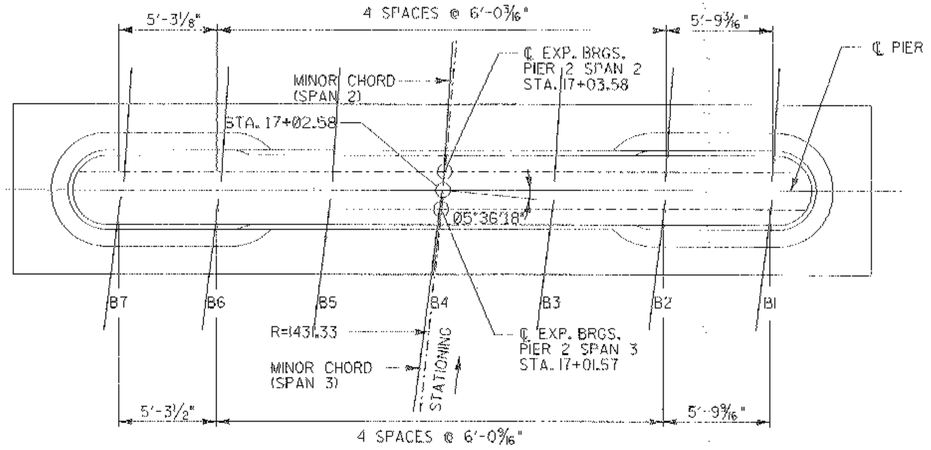
SPALLED AREAS

NOTES:

1. FOR SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 51.
2. EXISTING BEARING PAD ELEVATIONS ARE BASED ON FIELD SURVEY.
3. THE DEFECTIVE AREAS INDICATED ARE APPROXIMATE. THE EXACT AREAS AND REPAIR TYPE ARE TO BE DETERMINED BY THE RESIDENT ENGINEER.

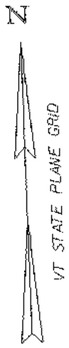
STATE OF VERMONT
AGENCY OF TRANSPORTATION

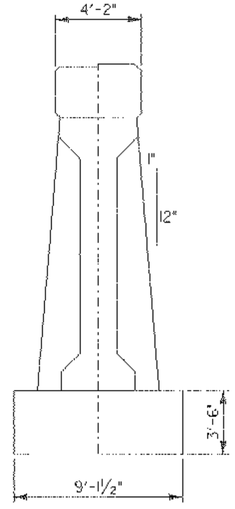
Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
PIER 1 PLAN & ELEVATION	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
L.G.C. Info.	2b308pier1.dgn
Bridge Sheet No.	Sheet 47 of 68



PIER NO. 2 PLAN

SCALE: ¼" = 1'-0"





PIER NO. 2 EAST ELEVATION

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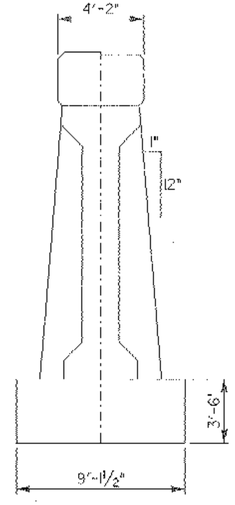
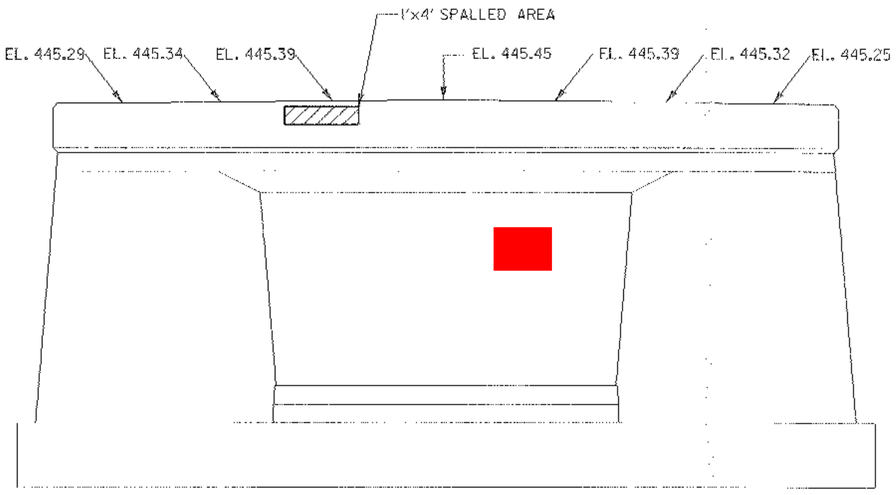


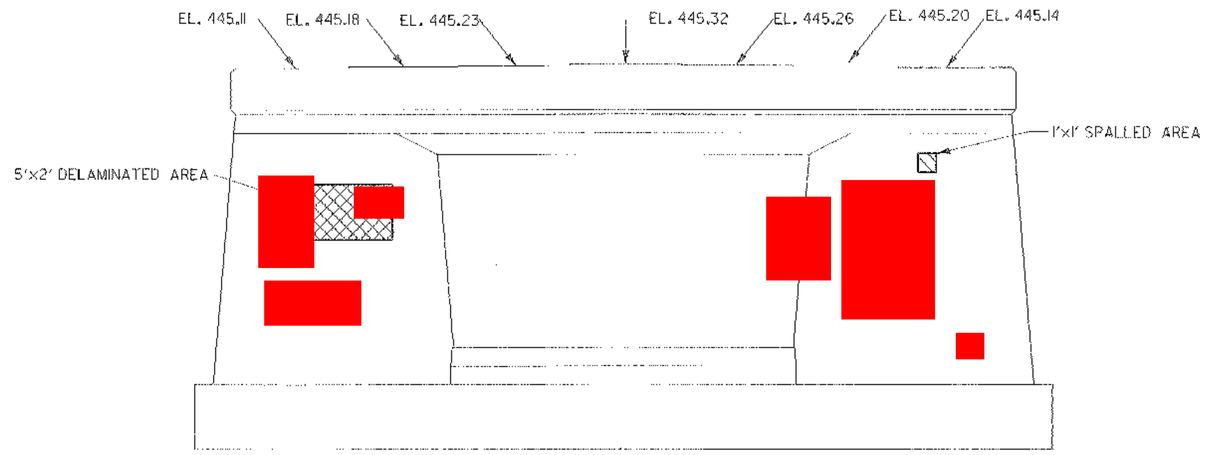
PIER NO. 2 WEST ELEVATION

SCALE: ¼" = 1'-0"



PIER NO. 2 SOUTH ELEVATION

SCALE: ¼" = 1'-0"



PIER NO. 2 NORTH ELEVATION

SCALE: ¼" = 1'-0"

CLASS II REPAIR

KEY

DELAMINATED AREAS

SPALLED AREAS

NOTES:

1. FOR SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 51.
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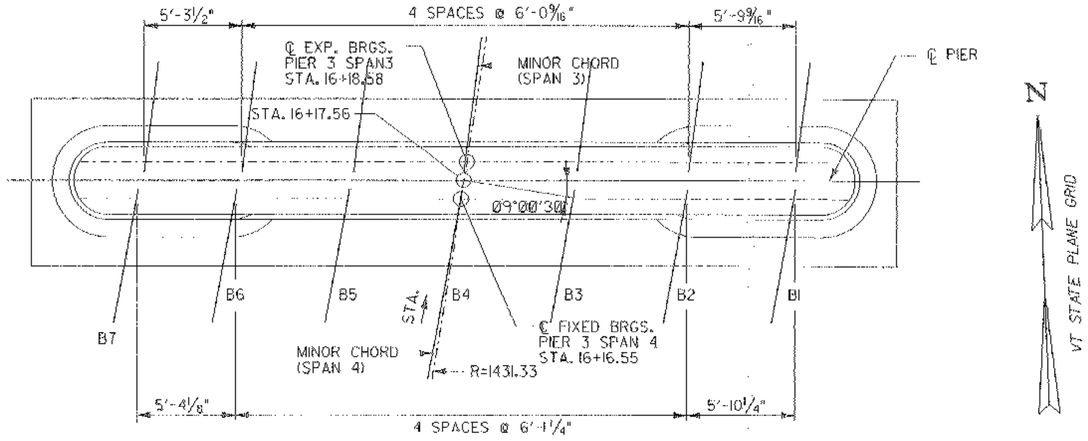
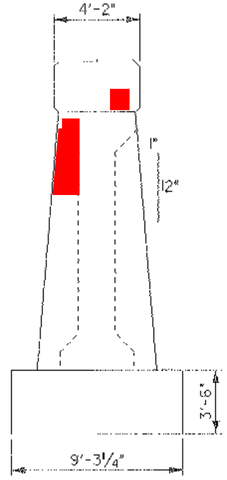
STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
PIER 2 PLAN & ELEVATION	
Designed By E.A.HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
L.G.C. Info.	zb308pier2.dgn
Bridge Sheet No.	Sheet 48 of 68



PIER NO. 3 PLAN

SCALE: ¼" = 1'-0"



PIER NO. 3 EAST ELEVATION

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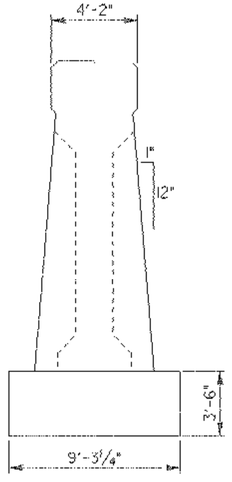
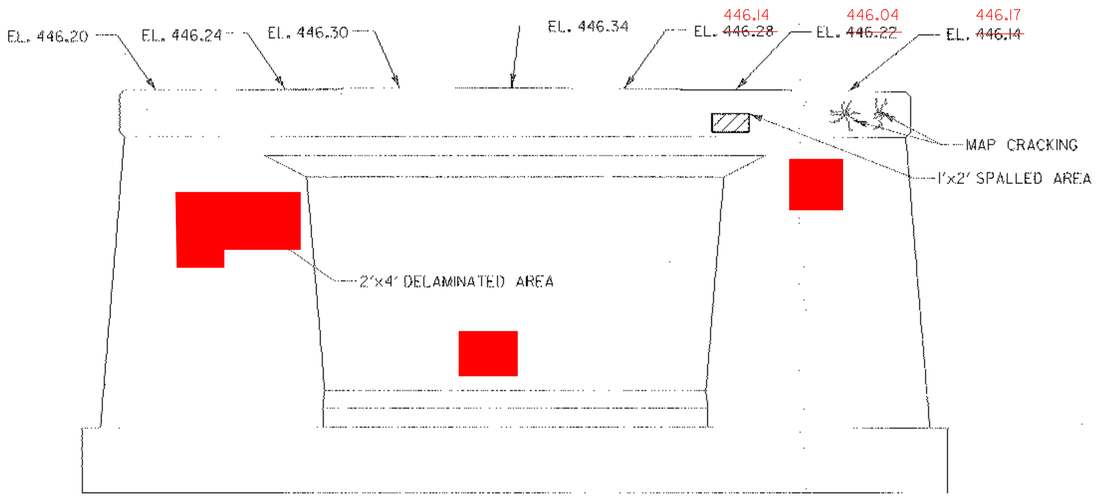


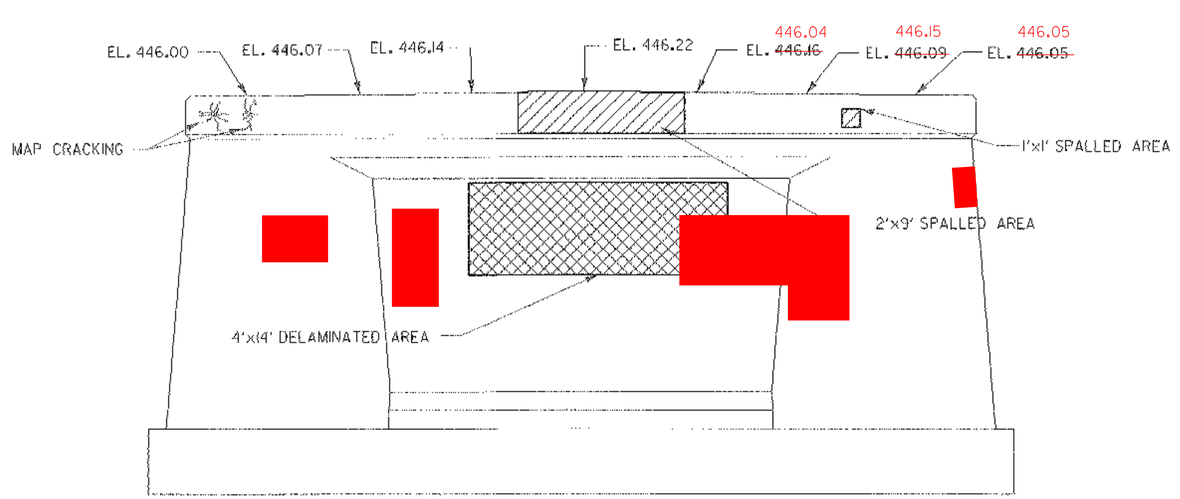
PIER NO. 3 WEST ELEVATION

SCALE: ¼" = 1'-0"



PIER NO. 3 SOUTH ELEVATION

SCALE: ⅛" = 1'-0"



PIER NO. 3 NORTH ELEVATION

SCALE: ¼" = 1'-0"

CLASS II REPAIR

KEY

DELAMINATED AREAS

SPALLED AREAS

NOTES:

1. FOR SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 51.
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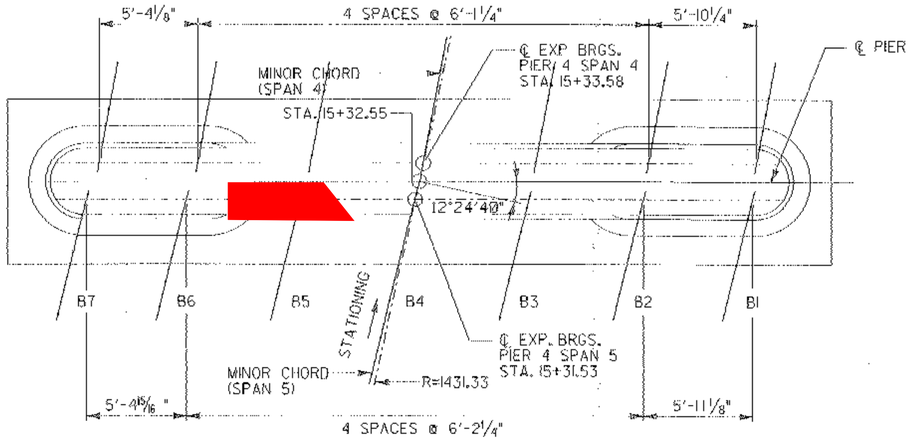
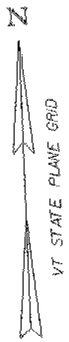
STATE OF VERMONT
AGENCY OF TRANSPORTATION

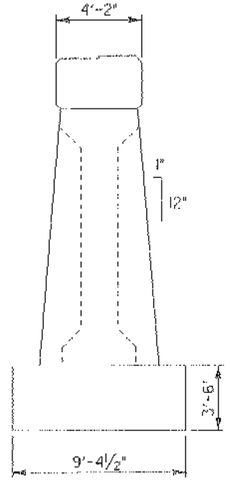
Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Leg Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
PIER 3 PLAN & ELEVATION	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
LGC. Info.	zb30&pier3.dgn
Bridge Sheet No.	Sheet 49 of 68



PIER NO. 4 PLAN

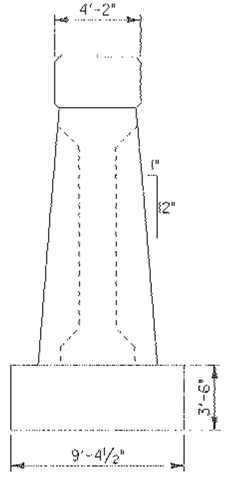
SCALE: 1/4" = 1'-0"





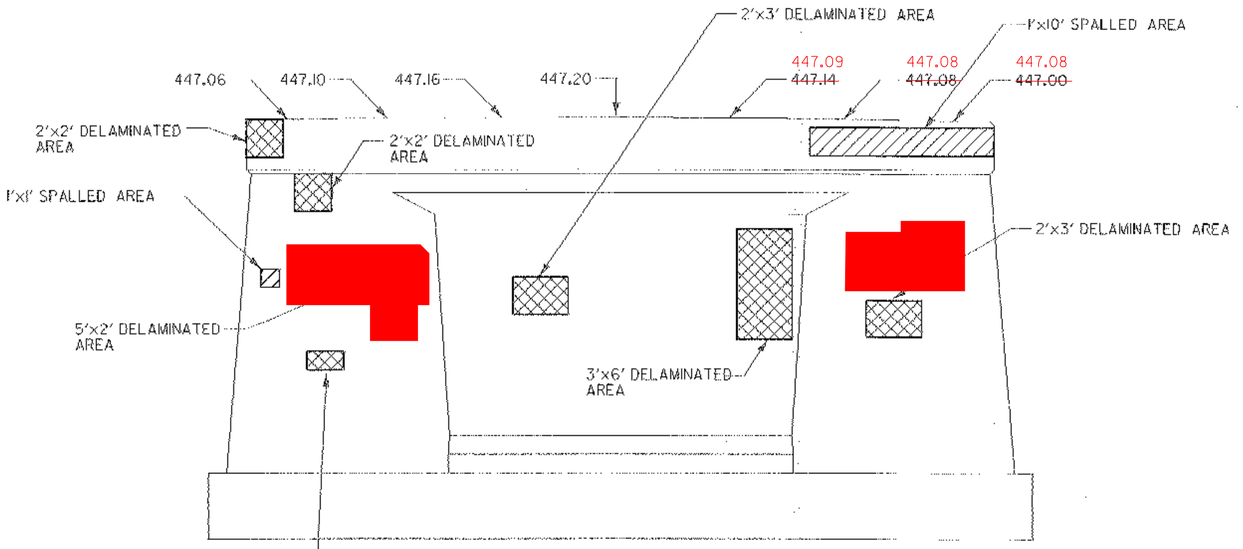
PIER NO. 4 EAST ELEVATION

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



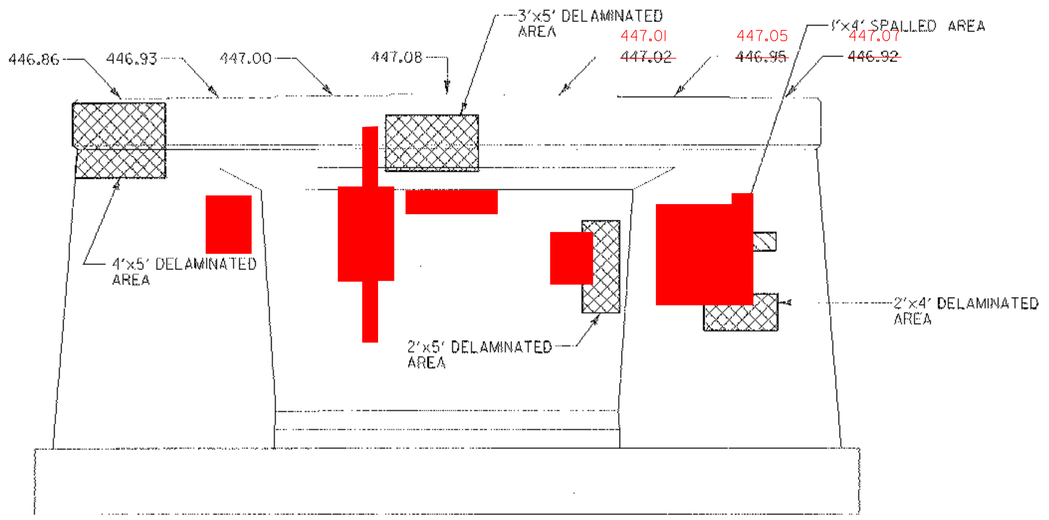
PIER NO. 4 WEST ELEVATION

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



PIER NO. 4 SOUTH ELEVATION

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



PIER NO. 4 NORTH ELEVATION

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

CLASS II REPAIR

KEY

DELAMINATED AREAS

SPALLED AREAS

NOTES:

1. FOR SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 51.
2. EXISTING PAD ELEVATIONS ARE BASED ON FIELD SURVEY.
3. THE DEFECTIVE AREAS INDICATED ARE APPROXIMATE. THE EXACT AREA AND REPAIR TYPE ARE TO BE DETERMINED BY THE RESIDENT ENGINEER.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
PIER 4 PLAN & ELEVATION	
Designed By E.A. HARTWELL	Drawn By R.A.ROSS
Checked By Date R. SACCHI	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.C.C. Info.	zb308pier4.dgn
Bridge Sheet No.	Sheet 50 of 68

EXISTING SUBSTRUCTURE CONCRETE REPAIR NOTES:

1. THIS WORK SHALL INCLUDE THE REMOVAL AND DISPOSAL OF UNSOUND AND DELAMINATED CONCRETE FROM ALL ABUTMENTS AND PIERS AS DIRECTED BY THE ENGINEER. UNSOUND CONCRETE SHALL INCLUDE DETERIORATED, LOOSE, SPALLED, POPCORNED AND MAP CRACKED CONCRETE. THE PREPARED SURFACES SHALL BE THOROUGHLY SANDBLASTED TO REMOVE ALL LOOSE MATERIAL AND ANY CONTAMINANTS OR EFFLORESCENCE. THE REINFORCING STEEL (IF EXPOSED), SHALL BE SANDBLASTED. THE MATERIAL USED TO FILL A PATCH SHALL BE PLACED AND FINISHED OR FORMED SO THAT THE FINAL SURFACE WILL HAVE THE SAME SCORE MARKS AND EXTERIOR FACE APPEARANCE AS THE ORIGINAL SURFACE BEING REPAIRED. THE SURFACE SHALL BE THOROUGHLY WETTED PRIOR TO PLACEMENT OF PATCHING MATERIAL OR NEW CONCRETE. IMMEDIATELY PRIOR TO PLACEMENT, THE SURFACE SHALL BE COATED WITH NEAT CEMENT PASTE, MIXED TO THE CONSISTENCY OF THICK LATEX PAINT, AND THOROUGHLY BRUSHED INTO THE SURFACE. WHEN "OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL" CONFORMING WITH SUPPLEMENTAL SPECIFICATION SECTION 780 IS USED, THE BONDING AGENT (IF ANY REQUIRED) AND ITS APPLICATION PROCEDURE SHALL COMPLY WITH THE REQUIREMENTS OF THE PATCHING MATERIAL MANUFACTURER. PAYMENT FOR BONDING AGENT SHALL BE INCLUDED IN THE APPLICABLE SUBSTRUCTURE REPAIR ITEM.

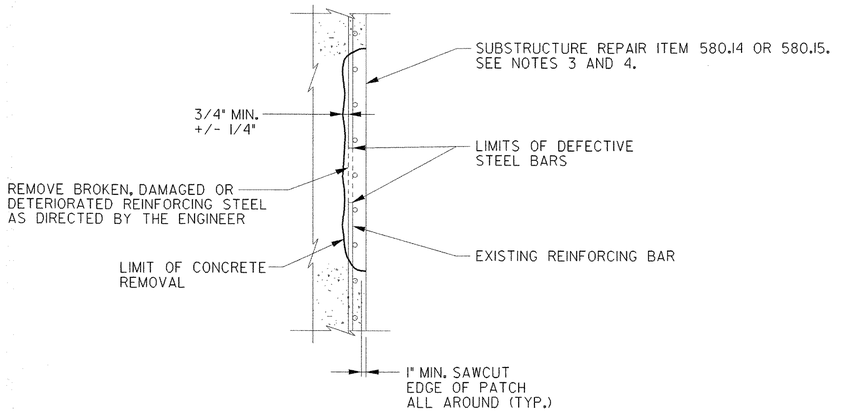
2. THE LIMITS FOR REMOVAL OF CONCRETE UNDER THE ITEM 580.13 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS I" SHALL BE FROM THE EXISTING CONCRETE SURFACE TO A MAXIMUM DEPTH OF THE OUTSIDE FACE OF THE REINFORCING STEEL. ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING IT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 580.13, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS I". THE FILLING MATERIAL SHALL BE "OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL" CONFORMING WITH SUPPLEMENTAL SPECIFICATION SECTION 780. THE EDGES OF ALL PATCHES SHALL BE SAW CUT IN STRAIGHT LINES TO A MINIMUM DEPTH OF 1 INCH. IF MORE THAN 1/4 OF THE REBAR IS EXPOSED, OR THE BOND BETWEEN THE REBAR AND THE CONCRETE IS BROKEN, THEN PROCEED TO ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II".

3. THE LIMITS FOR REMOVAL OF CONCRETE UNDER THE ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II" SHALL BE FROM THE EXISTING CONCRETE SURFACE TO A MINIMUM DEPTH OF 3/4" +/- 1/4" INSIDE THE INSIDE FACE OF REINFORCING STEEL AND TO A MAXIMUM DEPTH OF 6" FROM THE EXISTING CONCRETE SURFACE. ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING IT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II". THE FILLING MATERIAL WILL CONFORM WITH SUPPLEMENTAL SPECIFICATION SECTION 780, "CONCRETE CLASS AA", CLASS A, OR AN ACCEPTABLE PNEUMATICALLY APPLIED CONCRETE. THE EDGES OF ALL PATCHES SHALL BE SAW CUT IN STRAIGHT LINES TO A MINIMUM DEPTH OF 1 INCH.

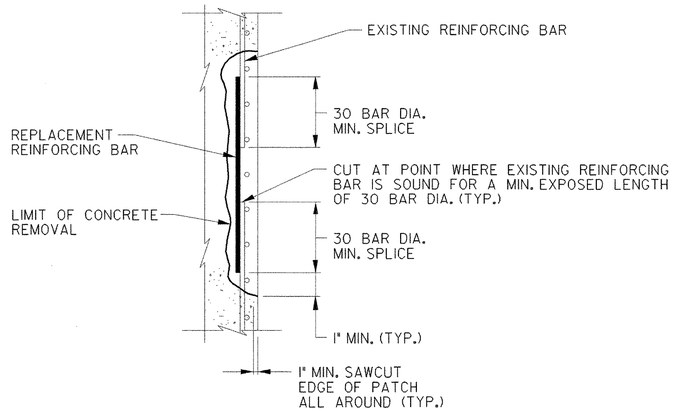
4. THE LIMITS FOR REMOVAL OF CONCRETE UNDER THE ITEM 580.15, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS III" SHALL BE FROM THE EXISTING CONCRETE SURFACE TO A DEPTH OF GREATER THAN 6". ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING IT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 580.15, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS III". THE FILLING MATERIAL MAY BE "CONCRETE CLASS AA", CLASS A, CLASS B OR AN ACCEPTABLE PNEUMATICALLY APPLIED CONCRETE. THE EDGES OF ALL PATCHES SHALL BE SAW CUT IN STRAIGHT LINES TO A MINIMUM DEPTH OF 1 INCH.

5. IF PNEUMATICALLY APPLIED CONCRETE IS SELECTED FOR REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II OR III, THEN THIS TYPE OF CONCRETE REPAIR SHALL BE CONFINED ONLY TO VERTICAL AND OVERHEAD SURFACES OF THE SUBSTRUCTURE. ALSO, THE BRIDGE BEARINGS AND GIRDERS SHOULD BE COMPLETELY PROTECTED FROM REBOUND MATERIAL DURING PNEUMATICALLY APPLIED CONCRETE APPLICATION PROCEDURES.

6. THE ENGINEER SHALL ORDER REPLACMENT OF ANY EXISTING SUBSTRUCTURE REINFORCING STEEL THAT IS DETERIORATED (WITH MORE THAN 25% SECTION LOSS) WITH NEW REINFORCING STEEL OF THE SAME SIZE. ALL REINFORCING STEEL SHALL HAVE AN APPROPRIATE LAP SPLICE. THE REPLACEMENT REINFORCING STEEL AND ASSOCIATED WORK SHALL BE CONSIDERED INCIDENTAL TO THE PRICE BID FOR THE APPLICABLE REPAIR CATEGORY.



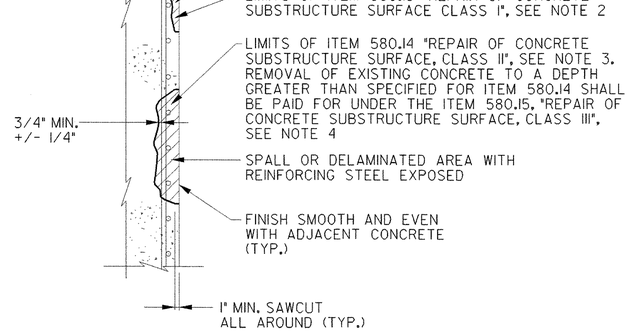
SECTION OF CONCRETE REMOVAL AREA
SHOWING EXISTING DEFECTIVE REINFORCING STEEL



SECTION SHOWING REPAIR OF DEFECTIVE STEEL BARS

REPAIR OF DEFECTIVE REINFORCING STEEL DETAILS

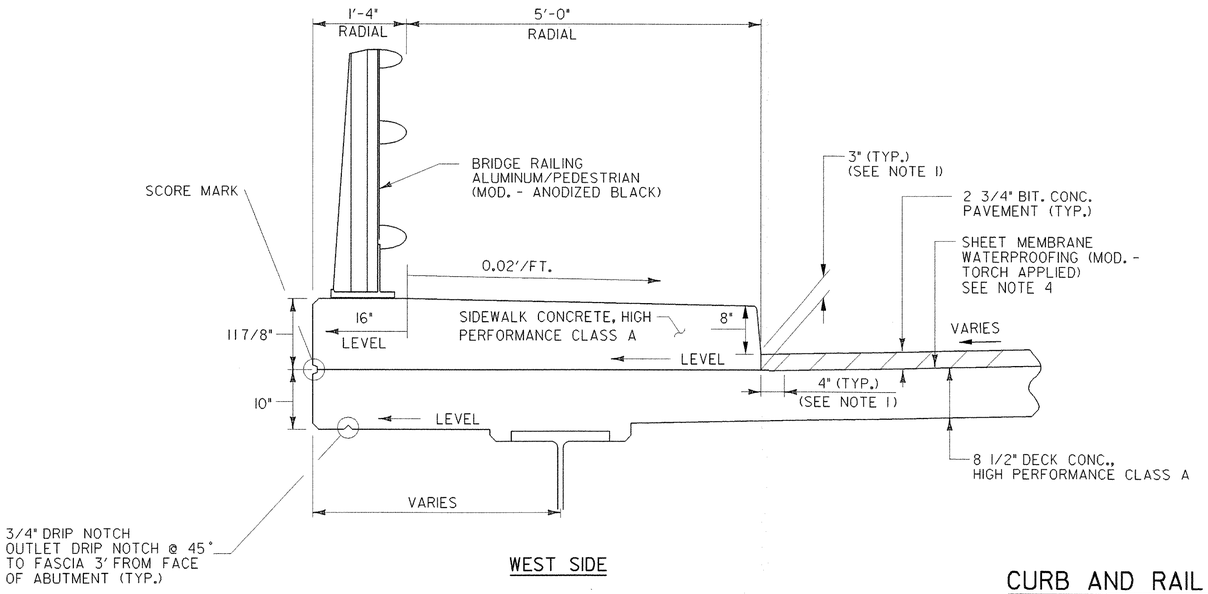
N.T.S.



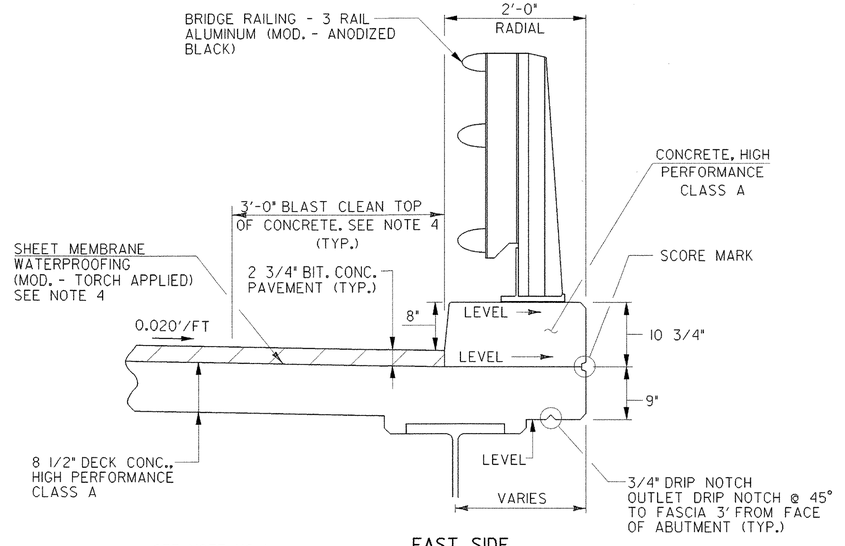
CONCRETE SUBSTRUCTURE REPAIR DETAIL

NTS

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of CAMBRIDGE	Bridge No. 20 Log Sta.
Highway No. VT 15	Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
SUBSTRUCTURE CONCRETE REPAIR DETAILS	
Designed By K. HINSCH	Drawn By G. HRICKO
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308sr1.dgn
Bridge Sheet No.	Sheet 51 of 68



WEST SIDE

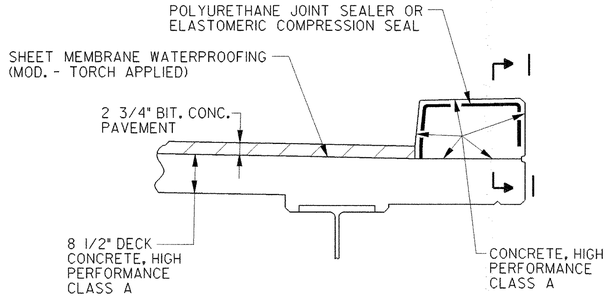


EAST SIDE

CURB AND RAIL SECTION

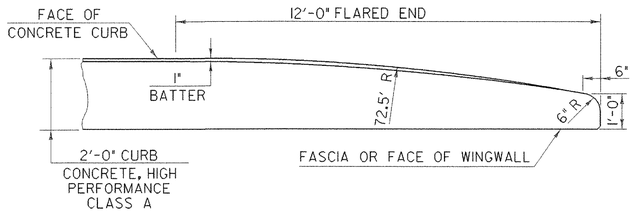
SCALE: 1" = 1'-0"

* SEE NOTE NO. 1



TYPICAL SECTION THROUGH CONCRETE CURB CONSTRUCTION JOINT

N.T.S.

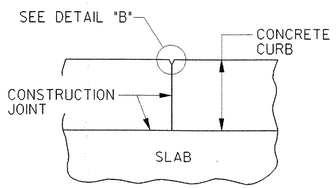


FLARED END DETAIL FOR 2'-0" CURB

N.T.S.

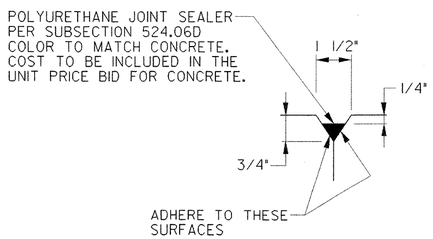
NOTES

1. INDICATES AREA ALONG DECK AND UP FACE OF CURB FOR PLACEMENT OF 2 COATS OF POLYURETHANE MEMBRANE.
2. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SHEET MEMBRANE WATERPROOFING (MOD. - TORCH APPLIED).
3. SHEET MEMBRANE WATERPROOFING (MOD. - TORCH APPLIED) SHALL EXTEND TO FACE OF CURB AS SHOWN.
4. BLAST CLEAN 3'-0" FROM FACE OF CURB AND 3" UP CURB FACE PRIOR TO PLACING MEMBRANE.
5. THERE SHALL BE A CONSTRUCTION JOINT IN THE CURB AND SIDEWALK CENTERED OVER PIERS 1 AND 2 AND 15'-0" EACH SIDE OF THOSE PIERS. THE REMAINDER OF THE CURBS AND SIDEWALKS MAY BE POURED CONTINUOUSLY.
6. CONSTRUCTION JOINTS THROUGH CONCRETE CURBS AND SIDEWALKS SHALL BE 1'-6" MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE PLACED IN SECTIONS SHALL HAVE A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
7. REINFORCING SHALL PASS THROUGH CONCRETE CONSTRUCTION JOINTS.



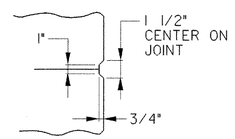
SECTION 1-1

N.T.S.



DETAIL "B"

N.T.S.

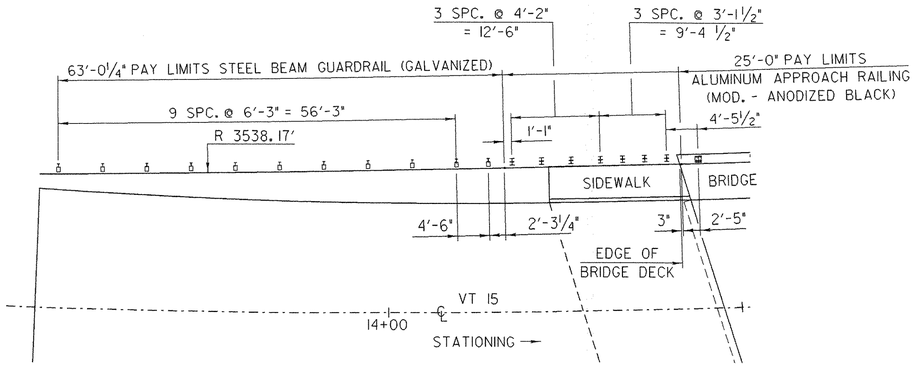


SCORE MARK DETAIL

N.T.S.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

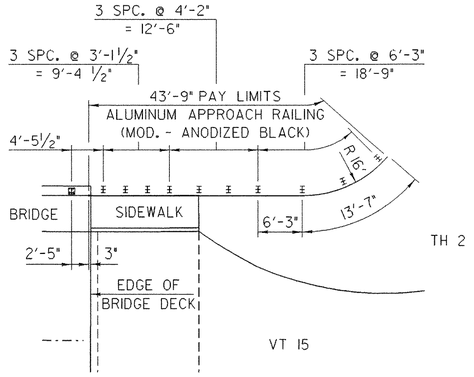
Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
CURB AND RAIL DETAILS	
Designed By E.A. HARTWELL	Drawn By C.L. SZCZEPANSKI
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308crl.dgn
Bridge Sheet No.	Sheet 52 of 68



APPROACH RAILING DETAILS @ STA. 13+50 LT. - 14+42 LT.

10 0 10

SCALE: 1" = 10'-0"



APPROACH RAILING DETAILS @ STA. 18+30 LT. - 100+55 LT.

10 0 10

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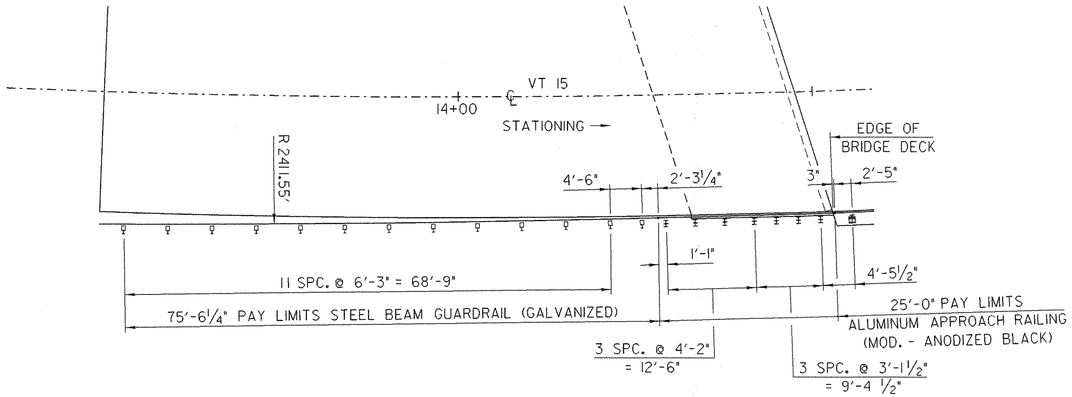

APPROACH RAILING DETAILS @ STA. 13+50 RT. - 14+53 RT.

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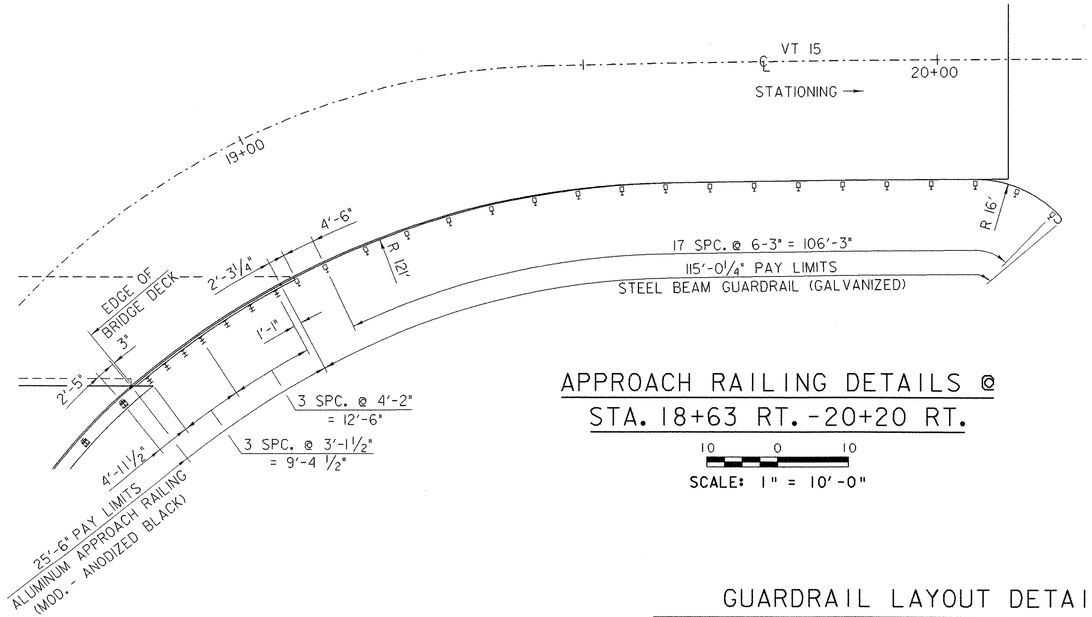


APPROACH RAILING DETAILS @ STA. 18+63 RT. - 20+20 RT.

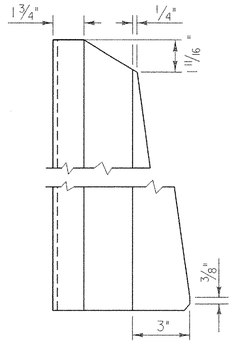
10 0 10

SCALE: 1" = 10'-0"

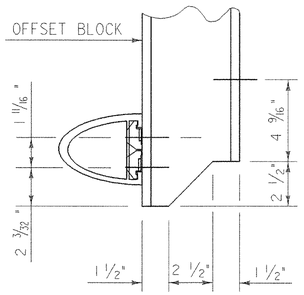
GUARDRAIL LAYOUT DETAILS

PROJECT NAME:	CAMBRIDGE
PROJECT NUMBER:	BHF 030-2(19)S

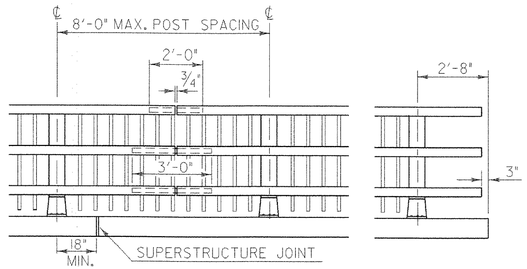
FILE NAME: 98b308/zb308grd.dgn	PLOT DATE: 22-NOV-2006
PROJECT LEADER: R. WHITCOMB	DRAWN BY: L. BULLOCK
DESIGNED BY:	CHECKED BY: D. BONNEAU
zb308grd.i	SHEET 53 OF 68



POST SIDE VIEW

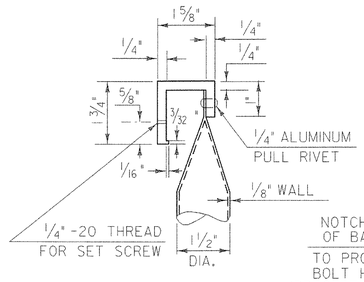


COPING DETAIL

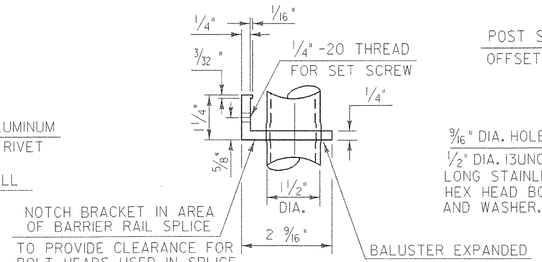


FRONT ELEVATION OF THREE RAIL WITH SPINDLES

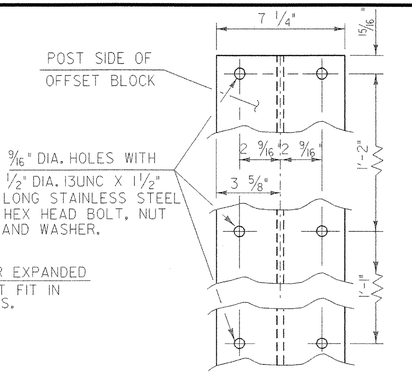
NOTE : RAIL POSTS ARE TO BE SET NORMAL TO GRADE UNLESS OTHERWISE DESIGNATED ON BRIDGE PLANS. ALL DIMENSIONS ARE TYPICAL UNLESS OTHERWISE DESIGNATED ON BRIDGE PLANS.



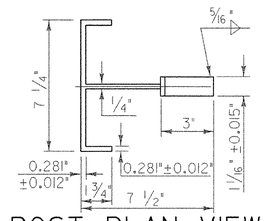
DETAIL A



DETAIL B



OFFSET BLOCK CONNECTION



POST PLAN VIEW

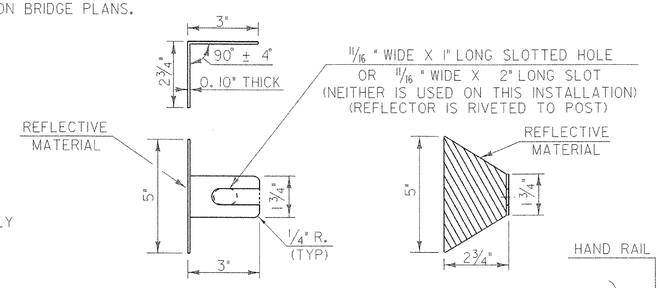
THIS REFLECTORIZED ALUMINUM DELINEATOR IS TO BE ERECTED EVERY 30 FEET (OR CLOSEST POST) WITH 2 NO. 8 X 3/4" SELF-TAPPING SCREWS.

DELINEATORS SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.

REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER. AMBER IS TO BE INSTALLED ON THE DRIVER'S LEFT AND SILVER ON THEIR RIGHT.

ON BRIDGES WITH A SIDEWALK, DELINEATORS ARE NOT TO BE INSTALLED ON THE SIDEWALK SIDE OF THE BRIDGE (I.E. DELINEATORS INSTALLED ONLY ON THE CURB SIDE AND ON THE APPROACH RAIL ON THE CURB SIDE)

PAYMENT SHALL BE INCIDENTAL TO ALL OTHER ITEMS.

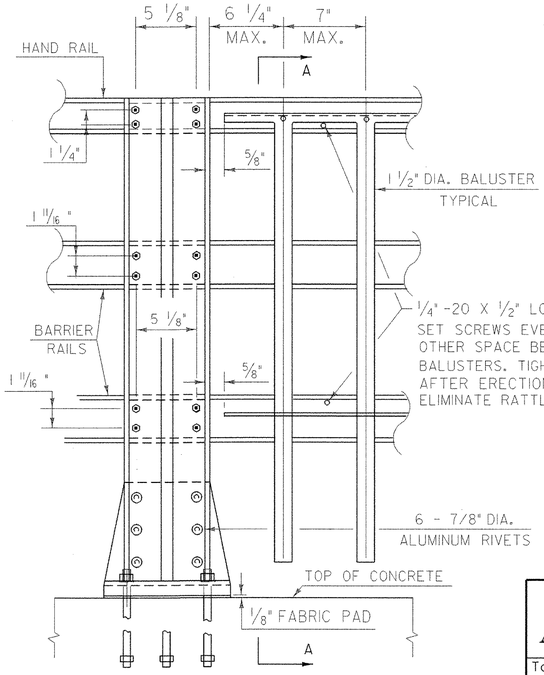


REFLECTOR DETAILS

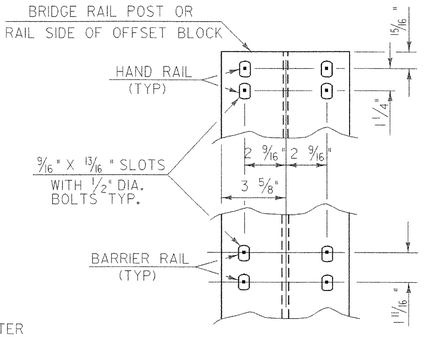
ALLOWABLE STRESSES:

RAILING : 21,000 PSI TENSION
22,000 PSI COMPRESSION

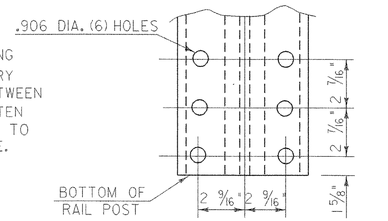
POSTS : 17,000 PSI TENSION
19,000 PSI COMPRESSION



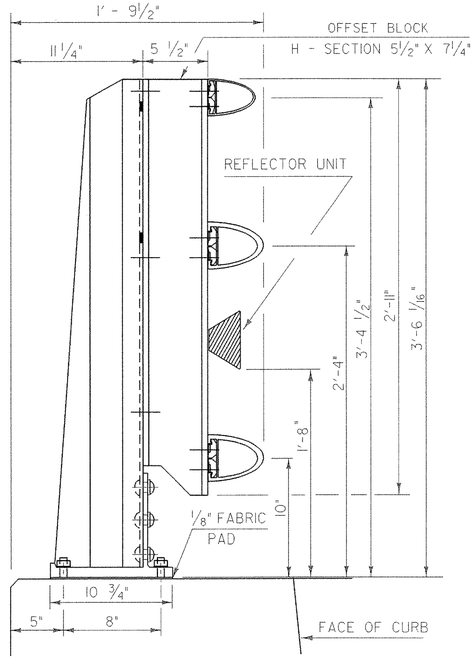
OUTSIDE ELEVATION OF THREE RAIL POST & SPINDLES



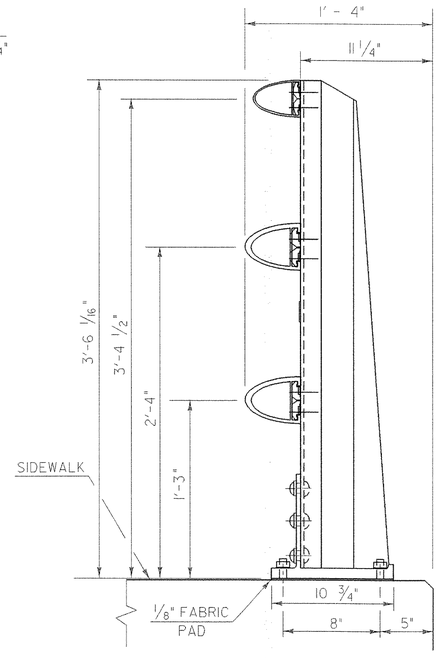
RAIL CONNECTION



POST BASE BOLT HOLE DETAILS

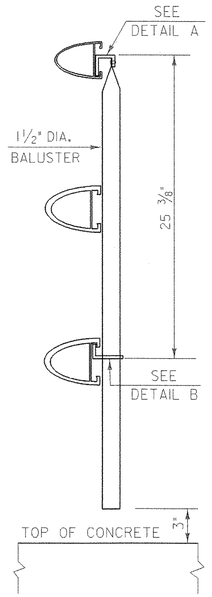


SIDE ELEVATION OF THREE RAIL TO BE USED ON CURB SIDE



SIDE ELEVATION OF THREE RAIL TO BE USED ON SIDEWALK SIDE

RAIL POST DETAILS ON SUPERSTRUCTURE

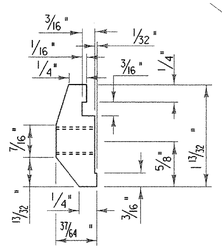


SECTION AA

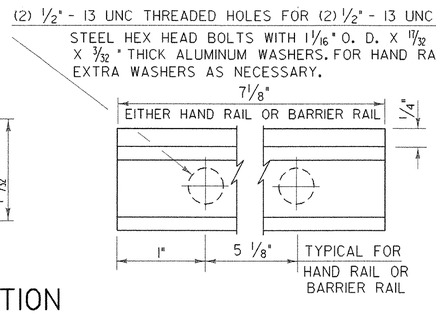
DETAILS OF SPINDLES FOR ALUMINUM RAILING

STATE OF VERMONT
AGENCY OF TRANSPORTATION

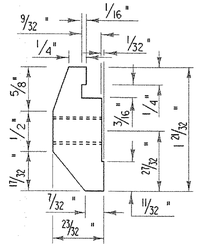
Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
ALUMINUM BRIDGE RAILING DETAILS (SHEET I)	
Designed By B. W. ERNST	Drawn By G. HRICKO
Checked By / Date	Bridge Design Supervisor R. R. WHITCOMB Date 11/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308br1.dgn
Bridge Sheet No.	Sheet 54 of 68



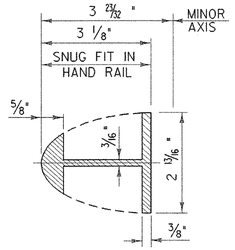
POST CONNECTION HAND RAIL SECTION



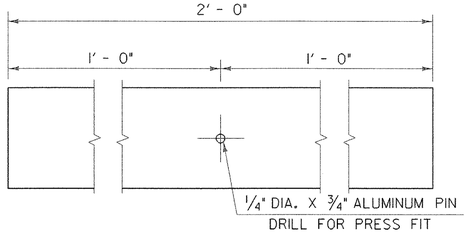
POST CONNECTION ELEVATION



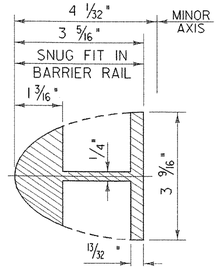
POST CONNECTION BARRIER RAIL SECTION



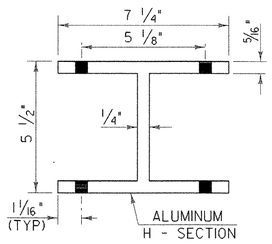
HAND RAIL SPLICE SECTION



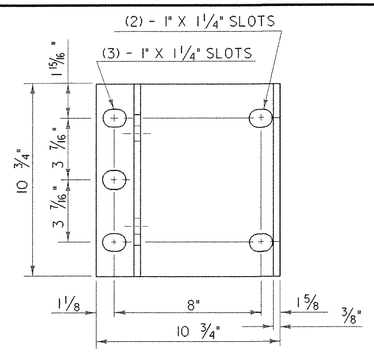
ELEVATION OF HAND RAIL SPLICE BAR



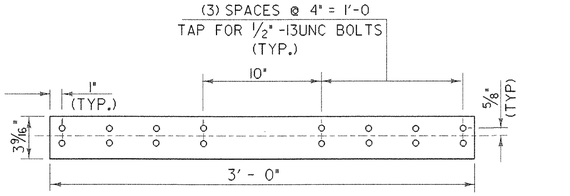
BARRIER RAIL SPLICE SECTION



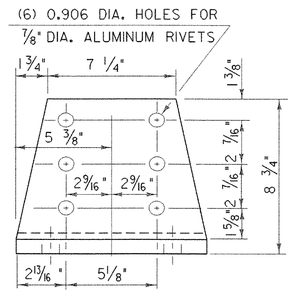
PLAN VIEW OF OFFSET BLOCK (TO BE USED ON SUPERSTRUCTURE ON CURB SIDE)



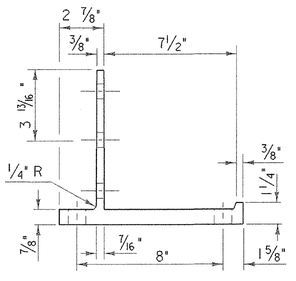
POST BASE PLAN



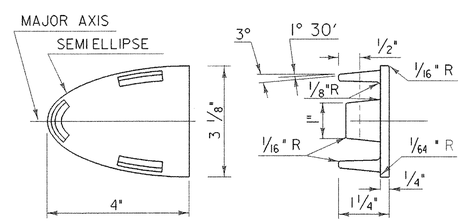
ELEVATION OF STD. BARRIER RAIL SPLICE BAR (FROM BACK)



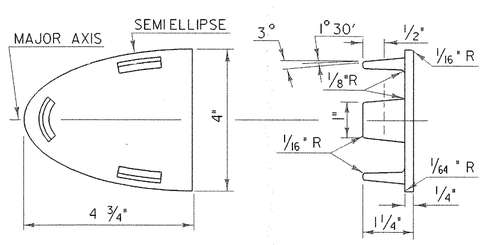
POST BASE FRONT ELEVATION



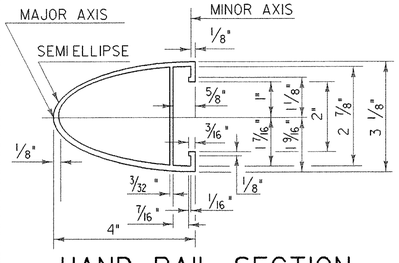
POST BASE SECTION



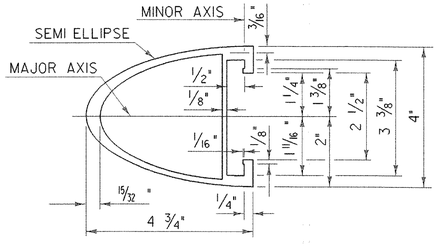
HAND RAIL END CAP



BARRIER RAIL END CAP

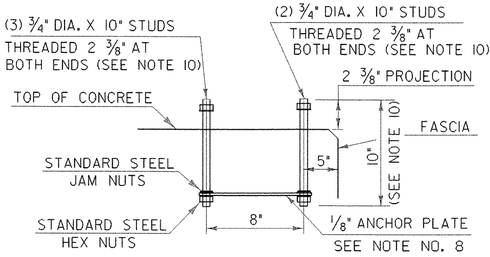


HAND RAIL SECTION

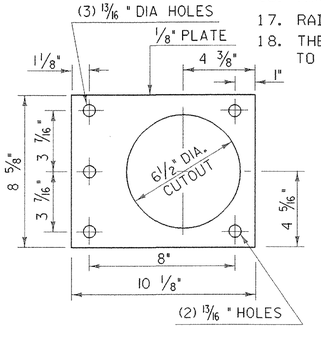


BARRIER RAIL SECTION

(SEE SHEET 25 FOR ELEVATION OF BARRIER RAIL)



POST ANCHOR ASSEMBLY



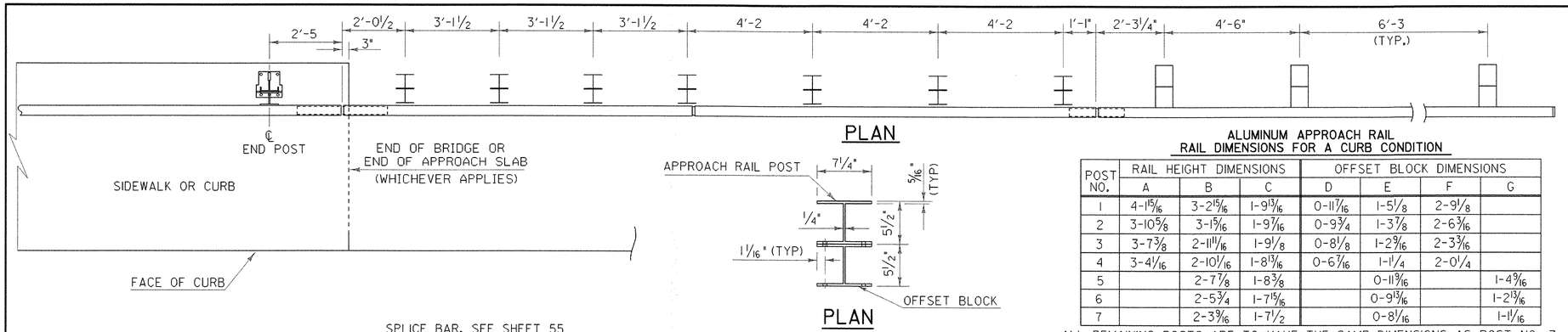
ANCHOR PLATE

NOTES

1. ANCHOR BOLTS, WASHERS & HEAVY HEX NUTS MAY BE ANY OF THE FOLLOWING BUT ARE NOT REQUIRED TO BE ANODIZED BLACK:
   - A. ASTM A449 GALVANIZED, OR
   - B. BOLTS AND WASHERS OF STAINLESS STEEL ASTM A276, TYPE 304 (MINIMUM ULTIMATE STRENGTH OF 100,000 PSI) WITH STAINLESS STEEL NUTS OF ASTM A194, GRADE 8NA.
2. ALUMINUM POSTS, POST BASES, SPLICE BARS, CONNECTION BARS, RAILS AND BALUSTER FRAMES SHALL CONFORM TO ASTM B221 ALLOY 6061-T6 OR ALLOY 6351-T5. MINIMUM ALLOWABLE STRESS F_y = 35,000 PSI.
3. ALUMINUM BALUSTER TUBES SHALL CONFORM TO ASTM B210 ALLOY 6061-T5 OR 6063-T5.
4. ALUMINUM RAIL END CAPS SHALL CONFORM TO ASTM B26 ALLOY 356-T6.
5. THE POST, RAIL, AND OFFSET BLOCK CONNECTION BOLTS SHALL CONFORM TO ASTM F 738M, CLASS A1-50, CONDITION AF, ALLOY TYPE 304. NUTS FOR THESE BOLTS SHALL CONFORM TO ASTM 836M, CLASS A1-50, CONDITION AF, ALLOY TYPE 304.
6. SET SCREWS FOR ATTACHING BALUSTERS TO RAILING SHALL CONFORM TO ASTM F 880M, CLASS A1-70, CONDITION CW, ALLOY TYPE 304.
7. RIVETS SHALL BE COLD DRIVEN HIGH BUTTON HEAD "CONE POINT", CONFORMING TO ASTM B316 ALLOY 6061-T6.
8. THE ANCHOR PLATE FOR THE POST ANCHOR ASSEMBLY SHALL BE ASTM A36 STRUCTURAL STEEL.
9. WELDING SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 506.10 USING THE GMAW-INERT GAS PROCESS AND AWS ER 5356 ELECTRODE WIRE.
10. UNLESS OTHERWISE SPECIFIED, ANCHOR BOLTS SHALL BE CAST INTO THE CONCRETE AS DETAILED.
11. WHENEVER FEASIBLE BARRIER RAIL AND HAND RAIL SECTIONS, SHALL BE FULL LENGTH SECTIONS (40' ±) AND WHEN POSSIBLE SHALL BE ATTACHED TO THREE POSTS. RAILS SHALL BE SPLICED AT EACH DECK JOINT AND INTERMITTENTLY AS REQUIRED. SPLICES SHALL OCCUR WITHIN THE SAME PANEL.
12. ENDS OF RAILS SHALL BE CUT SQUARE AND GROUND FREE OF BURRS OR RAGGED EDGES. EXPOSED ENDS SHALL BE CAPPED.
13. THE CONCRETE CONTACT SURFACE AT THE POST BASE SHALL BE BUSH HAMMERED AND/OR SHIMMED AS REQUIRED FOR PROPER POST ALIGNMENT. POST HEIGHT ADJUSTMENTS LESS THAN 1/4" SHALL BE WITH 1/16" AND 1/8" SHIMS. CORRECTIONS EXCEEDING 1/4" SHALL BE WITH EPOXY MORTAR CONFORMING WITH SECTION 530. FABRIC BEARING PADS AND ANY REQUIRED SHIMS OR EPOXY MORTAR ARE INCIDENTAL TO THE UNIT PRICE BID FOR THE RAILING.
14. SHIMS AND 1/8" FABRIC BEARING PADS SHALL BE 10 3/4" SQUARE WITH SLOTTED HOLES SIZED AND LOCATED THE SAME AS THE POST BASE DETAIL. FABRIC BEARING PADS SHALL CONFORM TO SUBSECTION 731.01 OR 731.02, SHIM MATERIAL SHALL BE ASTM B 209 ALLOY 1100-0.
15. EXTRUDED SECTIONS ARE DETAILED TO COMPLY WITH CURRENT AASHTO-AGC-ARTBA STANDARDS. MINOR VARIATIONS OF THE DETAILS SHOWN MAY BE CONSIDERED PROVIDING THEY DO NOT REDUCE THE STRENGTH CAPACITY OF THE RAIL SYSTEM.
16. ALUMINUM WASHERS SHALL BE ASTM B209 ALLOY ACLAD 2024-T4.
17. RAIL POSTS SHALL CONFORM TO ASTM SPEC. B 308/ B 308M.
18. THE RAILING SYSTEM AND ASSOCIATED HARDWARE SHALL BE ANODIZED TO A BLACK SATIN FINISH EXCEPT AS NOTED, SEE SPECIAL PROVISIONS.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.
VT 15 OVER LAMOILLE RIVER	
ALUMINUM BRIDGE RAILING DETAILS (SHEET 2)	
Designed By B. W. ERNST	Drawn By
Checked By Date	Bridge Design Supervisor R. R. WHITCOMB Dated 1/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308br2.dgn
Bridge Sheet No.	Sheet 55 of 68



PLAN

PLAN

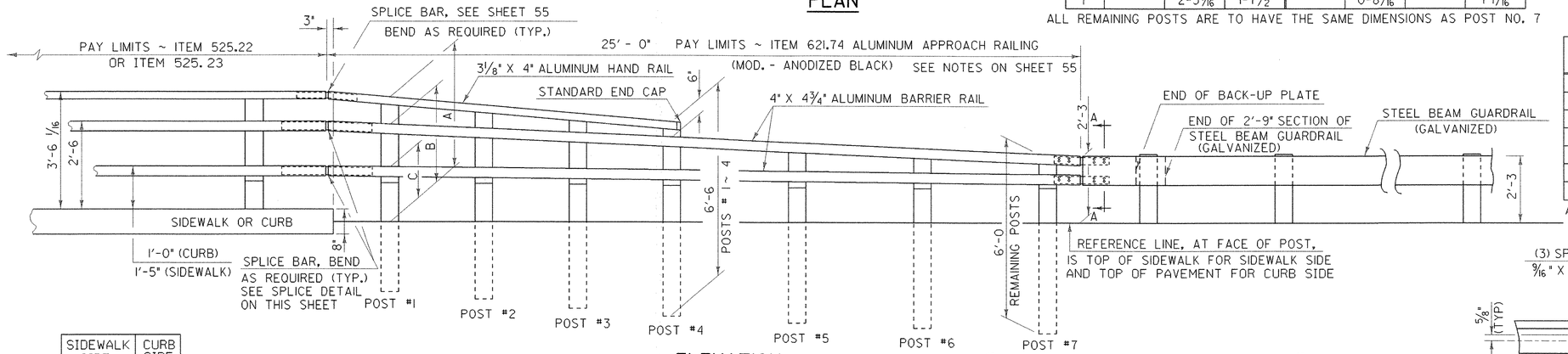
NOTES

1. POST 1 THROUGH 7 SHALL BE EXTRUDED ALUMINUM.
2. ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 36 GALVANIZED AFTER FABRICATION.
3. ALL ITEMS NOT OTHERWISE INDICATED SHALL MEET THE SPECIFICATION REQUIREMENTS OF THE STANDARD SHEETS ON WHICH THEY ARE DETAILED.
4. SEE STANDARD G-1 FOR STEEL BEAM GUARDRAIL DETAILS. SEE SHEETS 54 AND 55 FOR ALUMINUM BRIDGE RAILING DETAILS.
5. THE COST OF ALL MATERIALS AND LABOR FOR THE SPLICE BETWEEN THE ALUMINUM APPROACH RAILING AND THE STEEL BEAM GUARDRAIL SHALL BE INCIDENTAL TO ITEM 621.74, ALUMINUM APPROACH RAILING (MOD. - ANODIZED BLACK).
6. DETAILS ARE SHOWN FOR TRANSITION TO A 3 RAIL ALUMINUM BRIDGE RAILING.
7. DIMENSIONS SHOWN ARE FROM A REFERENCE LINE AT THE FACE OF POST FOR A NORMAL CROWNED SECTION. APPROPRIATE CORRECTIONS SHALL BE MADE FOR CROSS SLOPES OTHER THAN A NORMAL SECTION.
8. ALUMINUM APPROACH RAILING SHALL BE ANODIZED BLACK.

ALUMINUM APPROACH RAIL
RAIL DIMENSIONS FOR A CURB CONDITION

POST NO.	RAIL HEIGHT DIMENSIONS			OFFSET BLOCK DIMENSIONS			
	A	B	C	D	E	F	G
1	4-1 15/16	3-2 15/16	1-9 13/16	0-11 7/16	1-5 1/8	2-9 1/8	
2	3-10 5/8	3-1 5/16	1-9 7/16	0-9 3/4	1-3 7/8	2-6 3/16	
3	3-7 3/8	2-11 11/16	1-9 1/8	0-8 1/8	1-2 9/16	2-3 3/16	
4	3-4 1/16	2-10 1/16	1-8 13/16	0-6 7/16	1-1 1/4	2-0 1/4	
5		2-7 7/8	1-8 3/8		0-11 3/16		1-4 9/16
6		2-5 3/4	1-7 5/16		0-9 15/16		1-2 15/16
7		2-3 9/16	1-7 1/2		0-8 1/16		1-1 1/16

ALL REMAINING POSTS ARE TO HAVE THE SAME DIMENSIONS AS POST NO. 7



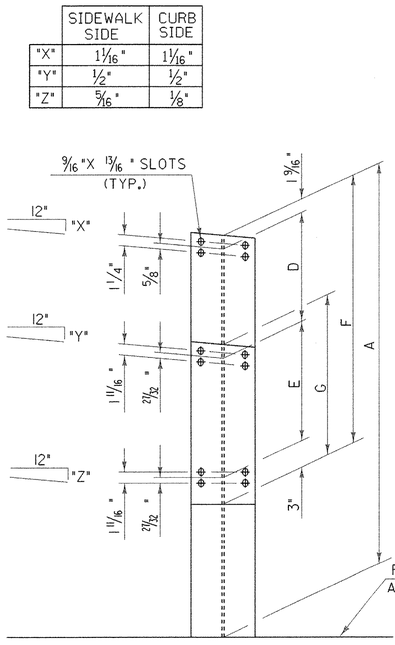
ELEVATION

ALUMINUM APPROACH RAIL
RAIL DIMENSIONS FOR A SIDEWALK CONDITION

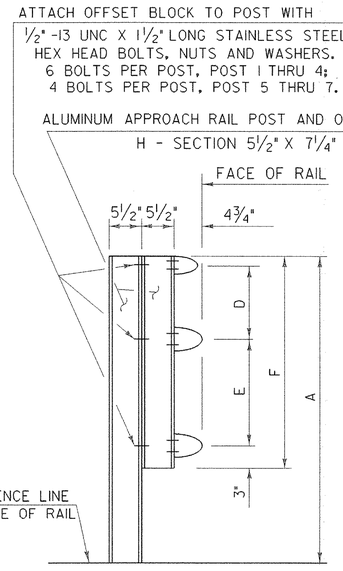
POST NO.	RAIL HEIGHT DIMENSIONS			OFFSET BLOCK DIMENSIONS			
	A	B	C	D	E	F	G
1	4-1 15/16	3-2 15/16	2-2 3/8	0-11 7/16	1-0 9/16	2-4 9/16	
2	3-10 5/8	3-1 5/16	2-1 7/16	0-9 3/4	0-11 7/8	2-2 3/16	
3	3-7 3/8	2-11 11/16	2-0 1/2	0-8 1/8	0-11 3/16	1-11 7/8	
4	3-4 1/16	2-10 1/16	1-11 1/2	0-6 7/16	0-10 9/16	1-9 9/16	
5		2-7 7/8	1-10 1/4		0-9 5/8		1-2 5/8
6		2-5 3/4	1-9		0-8 3/4		1-1 3/4
7		2-3 9/16	1-7 1/16		0-7 7/8		1-0 7/8

ALL REMAINING POSTS TO HAVE THE SAME DIMENSIONS AS POST NO. 7

	SIDEWALK SIDE	CURB SIDE
"X"	1 1/16"	1 1/16"
"Y"	1/2"	1/2"
"Z"	5/16"	1/8"

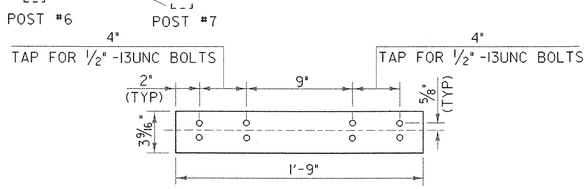


FRONT ELEVATION

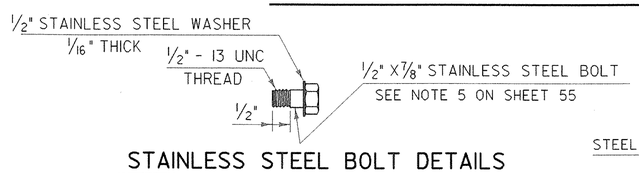


SIDE ELEVATION

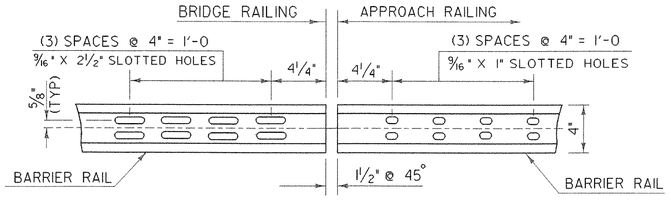
APPROACH RAIL DETAILS



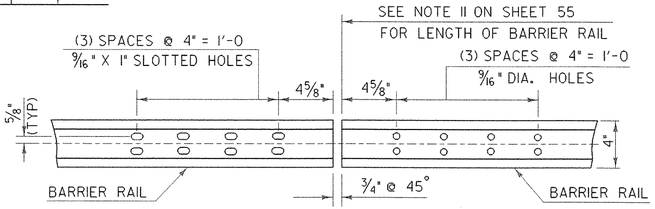
ELEVATION OF BARRIER RAIL SPLICE BAR
TO BE USED AT TRANSITION BETWEEN
APPROACH RAIL & GUARDRAIL (FROM BACK)



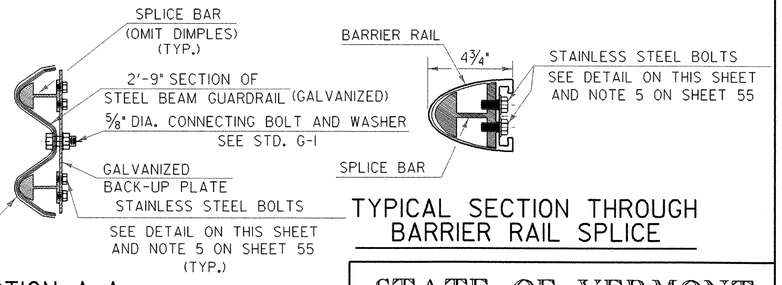
STAINLESS STEEL BOLT DETAILS



ELEVATION OF BARRIER RAIL (FROM BACK)

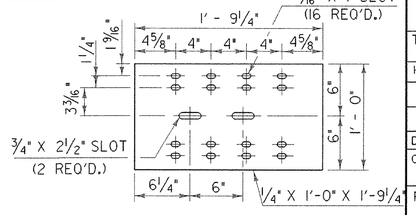


ELEVATION OF BARRIER RAIL (FROM BACK)
AT ALL INTERMEDIATE RAIL SPLICES



TYPICAL SECTION THROUGH
BARRIER RAIL SPLICE

SECTION A-A



BACK-UP PLATE DETAILS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of CAMBRIDGE	Bridge No. 20
Highway No. VT 15	Log Sta. / Surv. Sta.

VT 15 OVER LAMOILLE RIVER

ALUMINUM APPROACH RAILING DETAILS

Designed By B. W. ERNST	Drawn By
Checked By R. SACCHI Date	Bridge Design Supervisor R. R. WHITCOMB Date 1/3/2006
PROJECT CAMBRIDGE	PROJECT NO. BHF 030-2(19)S
I.G.C. Info.	zb308br3.dgn
Bridge Sheet No.	Sheet 56 of 68

STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

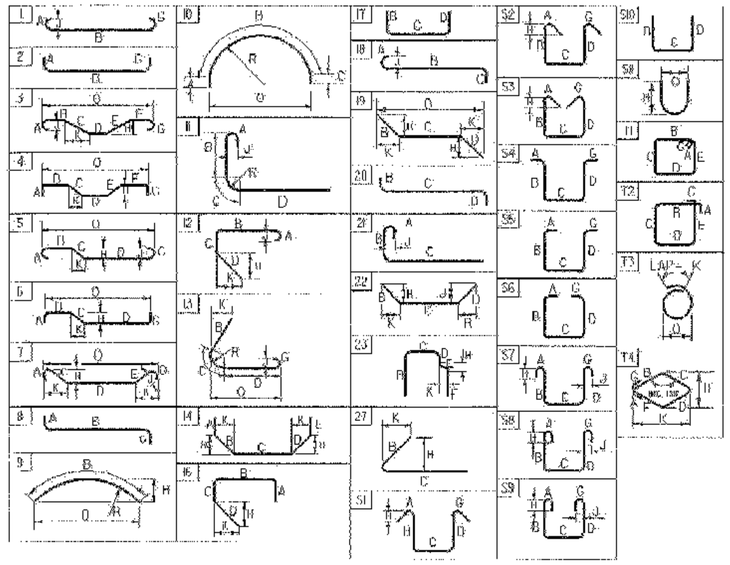
ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK PHASE I																
	160	5	43'- 4"	ES501A	STR												
▲	265	5	46'- 8"	ES501B	STR												
	2	5	45'- 9"	ES502	STR												
*	11	5	28'- 5"	ES503	STR												
▲	24	5	35'- 0"	ES504	STR												
	485	5	5'- 7"	ES505	S5	0'- 10"	1'- 3"	1'- 5"	1'- 3"			0'- 10"					
	17	5	9'- 7"	ES506	S5	0'- 10"	3'- 10"	0'- 8"	3'- 7"			0'- 10"					
	36	5	3'- 3"	ES510	STR												
	49	5	5'- 2"	ES511	16	1'- 0"	1'- 6"	0'- 8"	2'- 0"								
▲	36	5	4'- 4"	ES512	S10		3'- 6"	0'- 10"	---								
▲	18	5	4'- 10"	ES513	S10		2'- 2"	0'- 6"	2'- 2"								
	82	5	4'- 5"	ES514	S5	0'- 10"	0'- 7"	1'- 7"	0'- 7"			0'- 10"					
▲	12	5	24'- 0"	ES515	STR												
	412	6	19'- 4"	ES601	1	0'- 8"	18'- 8"					---		0'- 6"			
	412	6	20'- 0"	ES602	1	0'- 8"	18'- 8"					0'- 8"		0'- 6"			
* ▲	67	6	38'- 0"	ES603	STR												
▲	66	6	35'- 8"	ES606	1	0'- 8"	35'- 0"					---		0'- 6"			
*	33	7	16'- 10"	ES701	STR												
	27	8	3'- 0"	ES801	19		1'- 0"	2'- 0"	---								
	DECK PHASE I I																
	248	5	43'- 4"	ES501A	STR												
	310	5	46'- 8"	ES501B	STR												
	2	5	45'- 9"	ES502	STR												
* ▲	25	5	36'- 0"	ES504	STR												
	39	5	9'- 7"	ES506	S5	0'- 10"	3'- 10"	0'- 8"	3'- 7"			0'- 10"					
	478	5	5'- 9"	ES507	STR												
	478	5	3'- 4"	ES508	S10		1'- 0"	1'- 4"	1'- 0"								
	478	5	3'- 3"	ES509	S10		1'- 0"	1'- 3"	1'- 0"								
	24	5	3'- 3"	ES510	STR												
	43	5	5'- 2"	ES511	16	1'- 0"	1'- 6"	0'- 8"	2'- 0"								
	84	5	4'- 5"	ES514	S5	0'- 10"	0'- 7"	1'- 7"	0'- 7"			0'- 10"					
▲	12	5	24'- 0"	ES515	STR												
	412	6	24'- 6"	ES603	1	0'- 8"	23'- 10"					---		0'- 6"			
	412	6	28'- 2"	ES604	1	0'- 8"	23'- 10"					0'- 8"		0'- 6"			
* ▲	67	6	29'- 9"	ES607	STR												
▲	66	6	30'- 6"	ES608	1	0'- 8"	29'- 9"					---		0'- 6"			
*	47	7	18'- 10"	ES701	STR												
	21	8	3'- 9"	ES801	19		1'- 0"	2'- 0"	---								
	ABUTMENT NO. 1 PHASE I																
▲	5	5	9'- 3"	1A505	S10		3'- 4"	2'- 7"	3'- 4"								
▲	4	6	4'- 3"	1A506	STR												
	2	5	4'- 8"	1A507	17		1'- 2"	3'- 4"	---				0'- 5"		1'- 1"		
	ABUTMENT NO.1 PHASE I I																
	2	5	5'- 0"	1A501	S10		1'- 9"	1'- 6"	1'- 9"								
	2	5	9'- 4"	1A502	S10		3'- 11"	1'- 6"	3'- 11"								
	4	5	3'- 0"	1A503	STR												
	8	5	0'- 9"	1A504	STR												
	ABUTMENT NO.2 PHASE I																
▲	4	5	6'- 5"	2A505	S10		2'- 5"	1'- 7"	2'- 5"								
	2	5	3'- 2"	2A506	STR												
	2	5	3'- 5"	2A507	19		2'- 4"	1'- 1"	---				0'- 6"		0'- 11"		
	ABUTMENT NO.2 PHASE I I																
	3	5	5'- 1"	2A501	S10		1'- 9"	1'- 7"	1'- 9"								
	2	5	10'- 3"	2A502	S10		4'- 4"	1'- 7"	4'- 4"								
	4	5	3'- 2"	2A503	STR												
	8	5	0'- 10"	2A504	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	APPROACH SLAB NO.1 PHASE I																
	17	5	32'- 4"	1EAS501	STR												
* ▲	15	5	19'- 10"	1EAS502	STR												
	1	5	27'- 6"	1EAS503	STR												
▲	39	9	16'- 1"	1EAS901	1	1'- 3"	14'- 10"					---					
* ▲	25	9	14'- 2"	1EAS902	STR												
	1	9	15'- 9"	1EAS903	STR												
	APPROACH SLAB NO.1 PHASE I I																
▲	17	5	29'- 2"	1EAS504	STR												
	29	9	16'- 1"	1EAS901	1	1'- 3"	14'- 10"					---					
▲	8	9	14'- 2"	1EAS902	STR												
	1	9	15'- 9"	1EAS903	STR												
	APPROACH SLAB NO.2 PHASE I																
	22	5	17'- 10"	2EAS502	STR												
	19	9	20'- 9"	2EAS901	1	1'- 3"	19'- 6"					---					
	APPROACH SLAB NO.2 PHASE I I																
*	23	5	17'- 4"	2EAS501	STR												
*	23	9	20'- 9"	2EAS901	1	1'- 3"	19'- 6"					---					

SEE FIELD BOOK # 1 PG 138~146

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-91). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "I" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



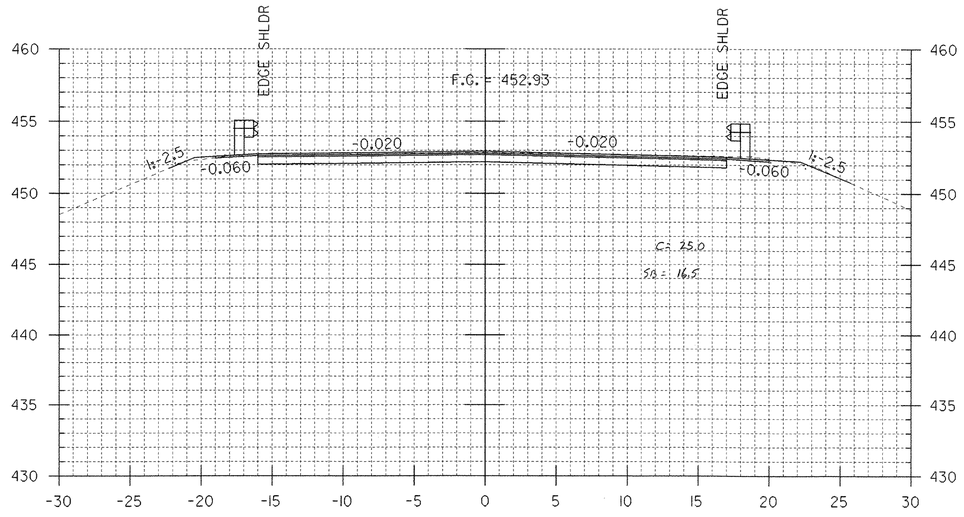
ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES^2	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.66	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2(19)S

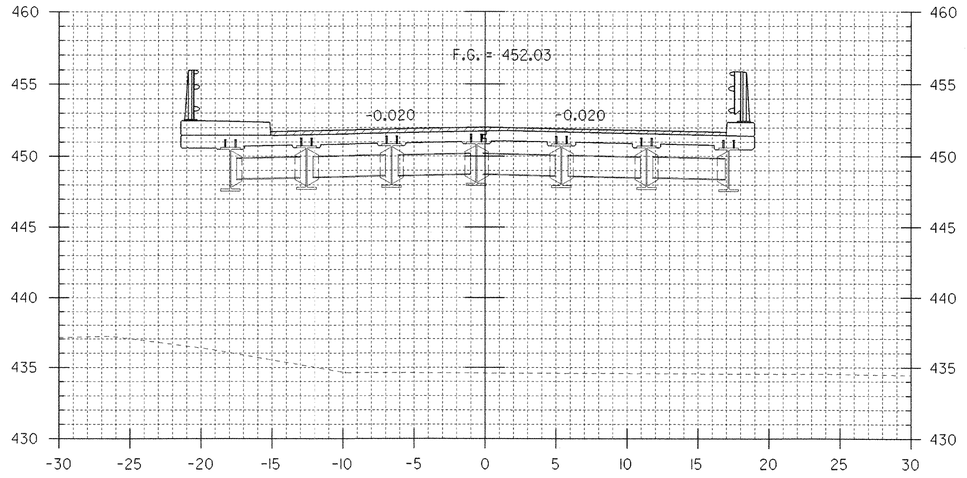
FILE NAME: \98b308\Structures\sb308rss.xls
PROJECT MANAGER: R. R. WHITCOMB
DESIGNED BY: E. A. HARTWELL
REINFORCING STEEL SCHEDULE SHEET #1

PLOT DATE: 11/8/2006
DRAWN BY: G. ROY
CHECKED BY: C. CARLSON
SHEET 58 OF 68



14+00.00 ℄ +27.5

BEGIN PROJECT STA 13+75



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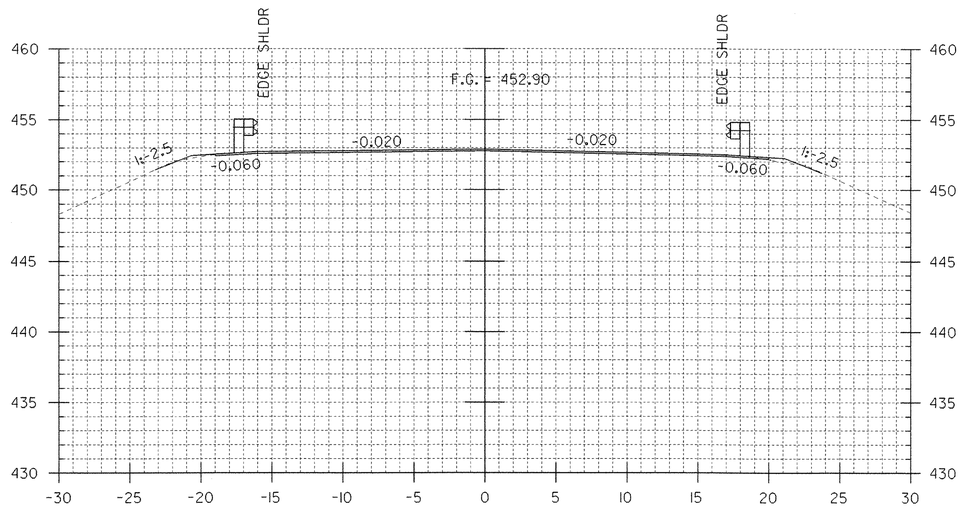

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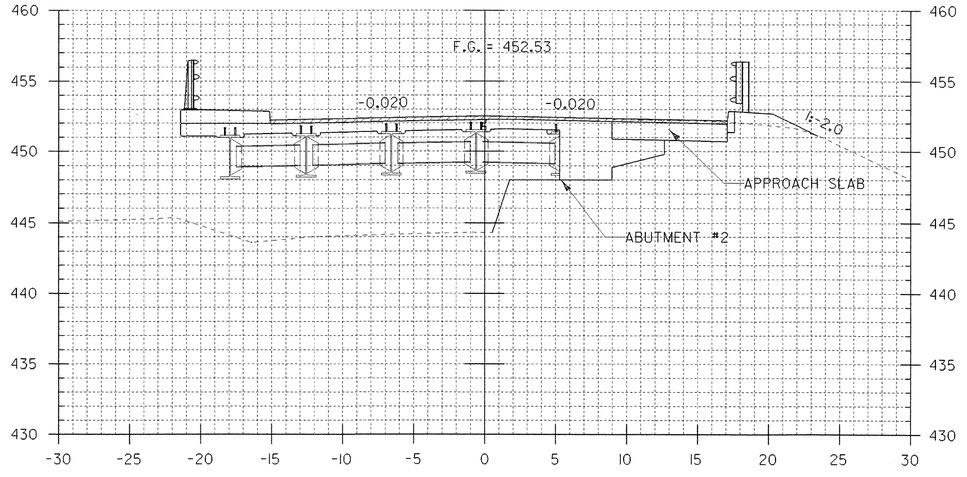
BEGIN APPROACH



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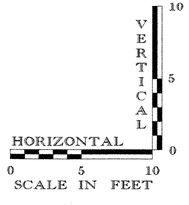


VT. 15
CROSS-SECTIONS

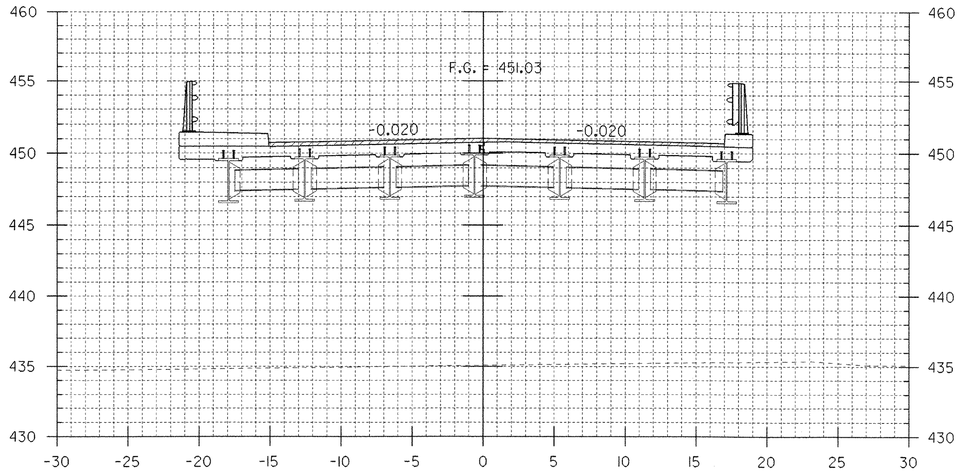
DATUM
VERTICAL _____
HORIZONTAL _____

ROADWAY CROSS SECTIONS (SHEET 1)

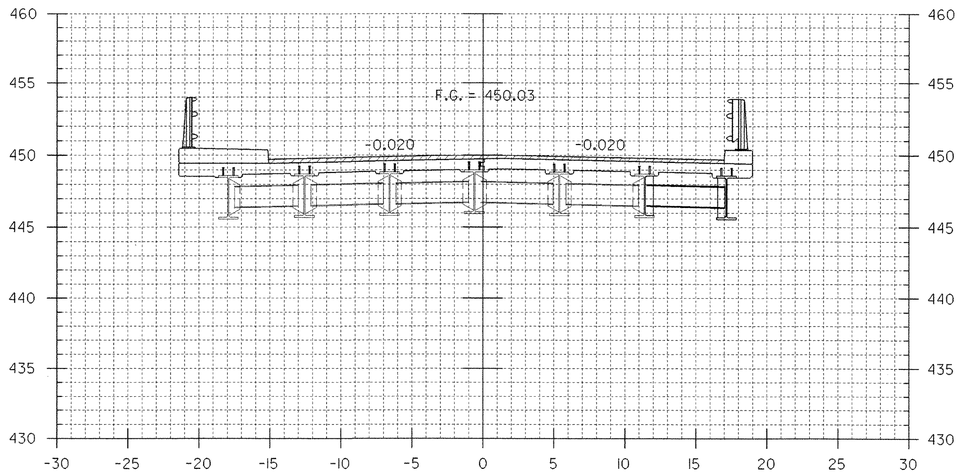
PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: zb308csl.dgn
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST

PLOT DATE: 22-NOV-2006
DRAWN BY: A.N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 59 OF 68



16+00.00



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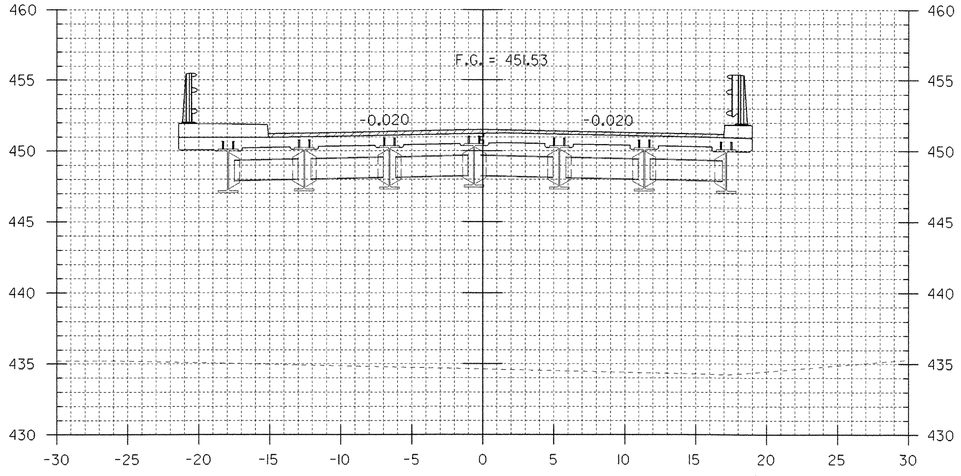

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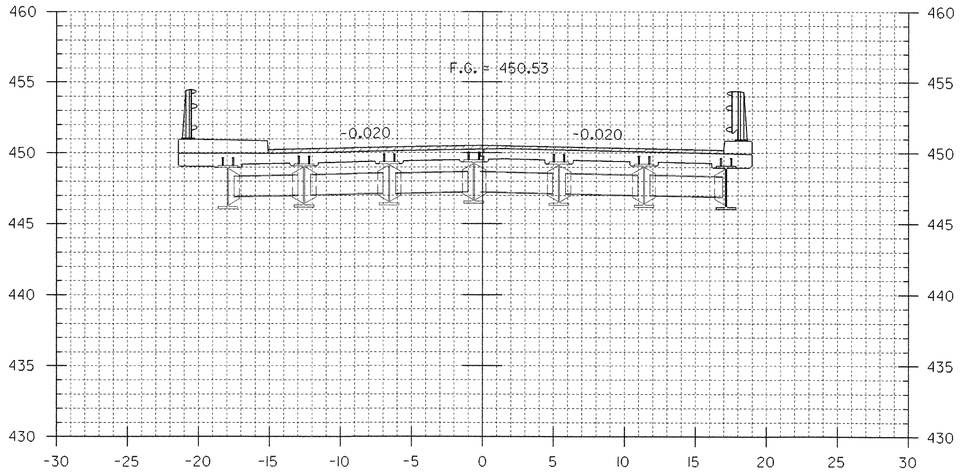

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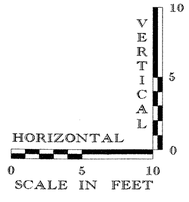


VT. 15
CROSS-SECTIONS

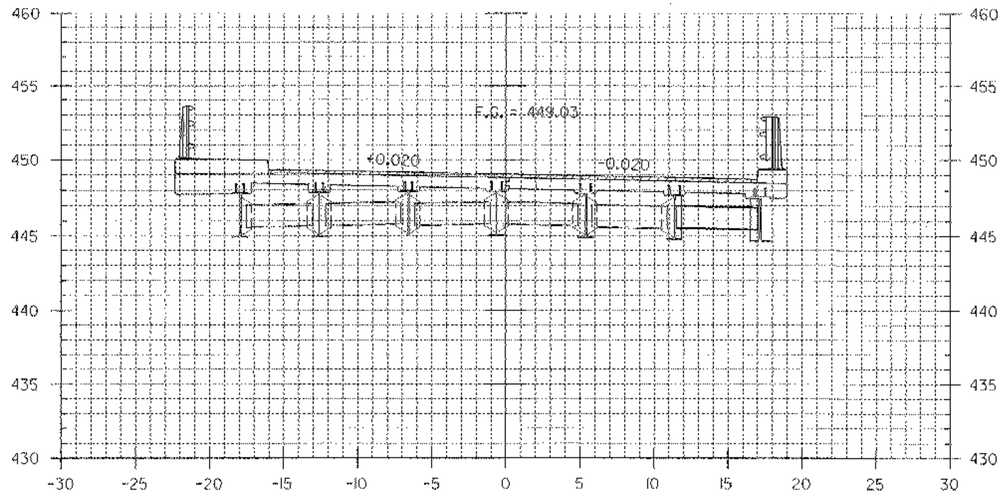
DATUM
VERTICAL _____
HORIZONTAL _____

ROADWAY CROSS SECTIONS (SHEET 2)

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: zb308cs2.dgn
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST

PLOT DATE: 22-NOV-2006
DRAWN BY: A.N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 60 OF 68



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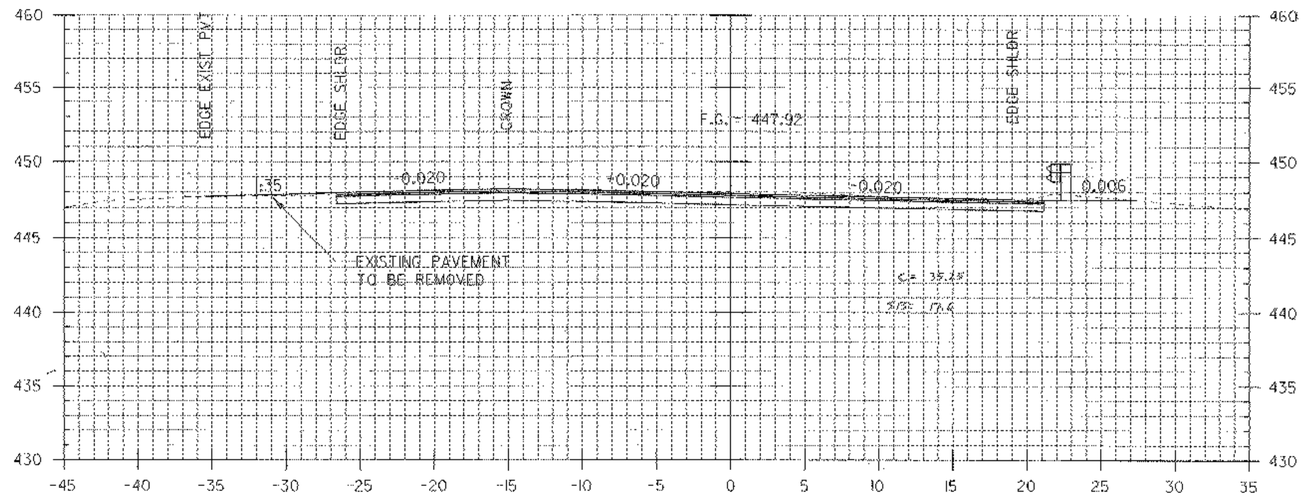

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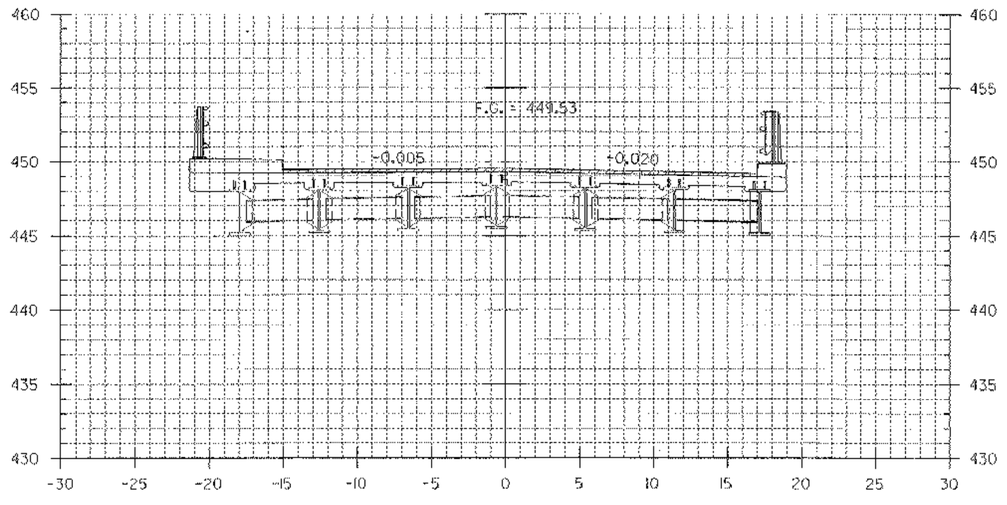

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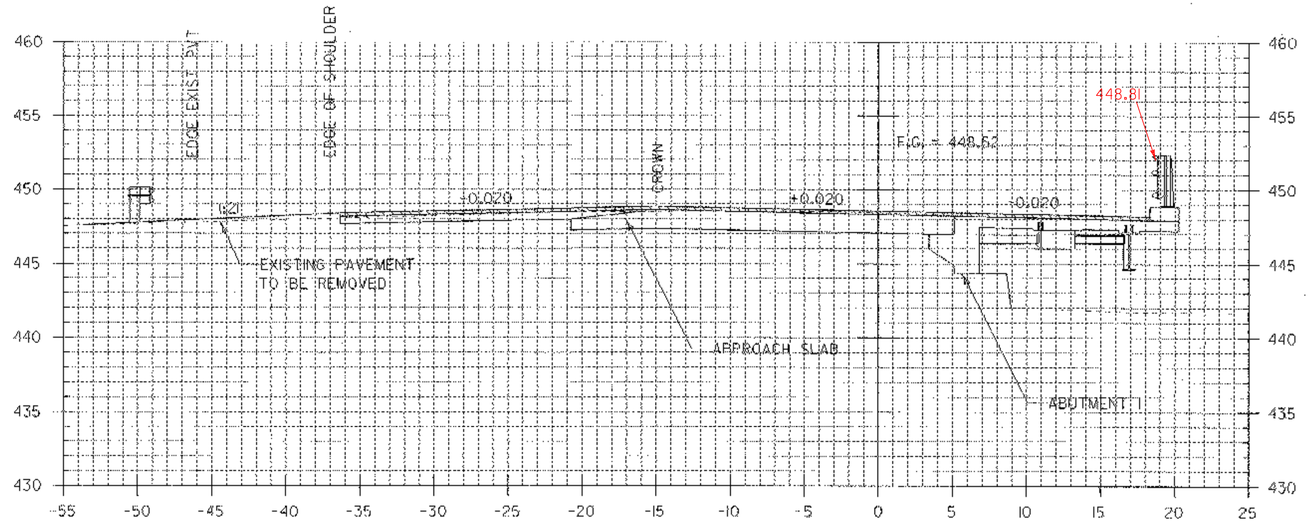
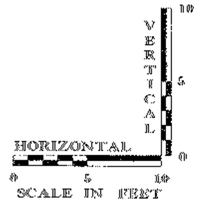


18+50.00
END BRIDGE 18+46.29



DATUM
VERTICAL _____
HORIZONTAL .....

VT. 15
CROSS-SECTIONS

ROADWAY CROSS SECTIONS (SHEET 3)

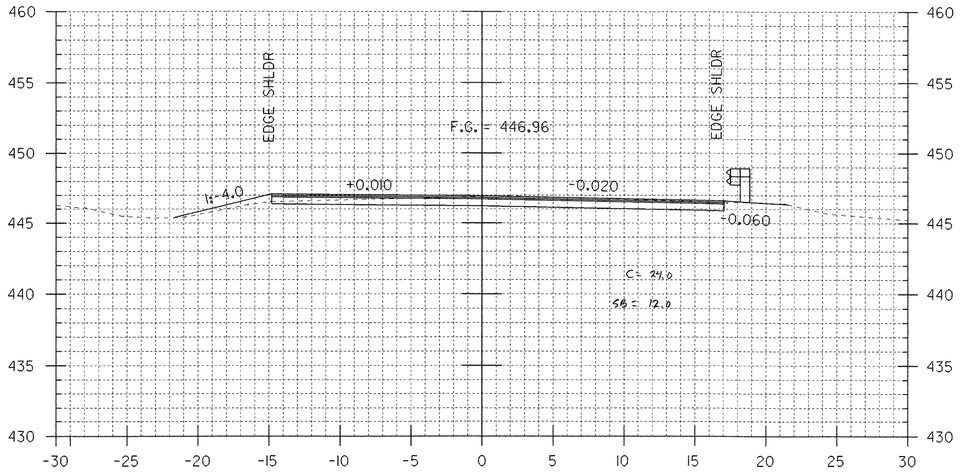
PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: zb308cs3.dgn
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: G. W. ERNST

PLOT DATE: 22-NOV-2006
DRAWN BY: A.N. BEY
CHECKED BY: M. K. CHEVALIER
SHEET 61 OF 68

END PROJECT

STA 19+85



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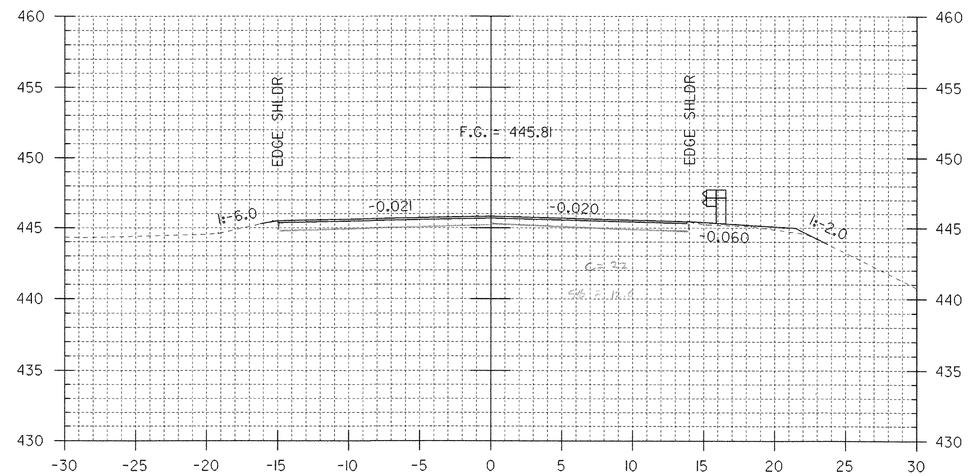

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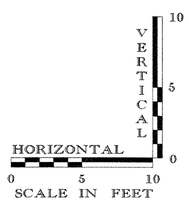
20+~~10.00~~

END APPROACH

VT. 15
CROSS-SECTIONS



DATUM

VERTICAL _____

HORIZONTAL _____

ROADWAY CROSS SECTIONS (SHEET 4)

PROJECT NAME: CAMBRIDGE

PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: zb308cs4.dgn

PROJECT LEADER: M. K. CHEVALIER

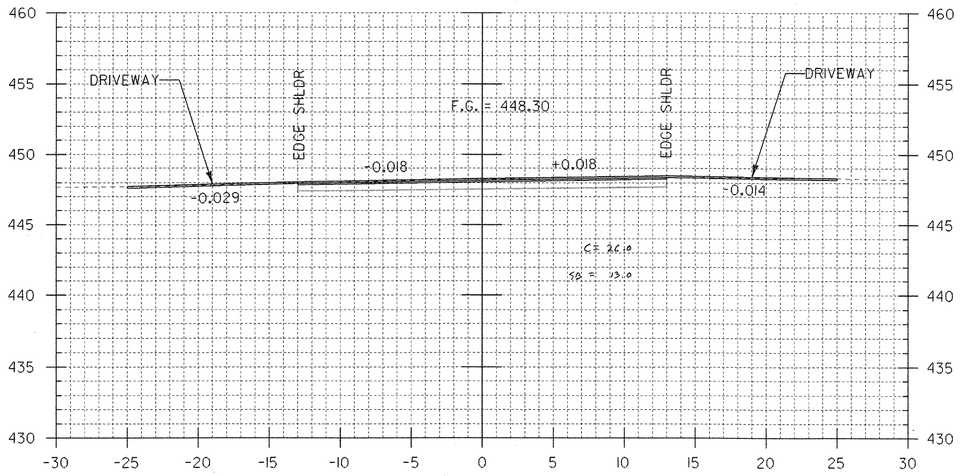
DESIGNED BY: B. W. ERNST

PLOT DATE: 22-NOV-2006

DRAWN BY: A.N. BEY

CHECKED BY: M. K. CHEVALIER

SHEET 62 OF 68



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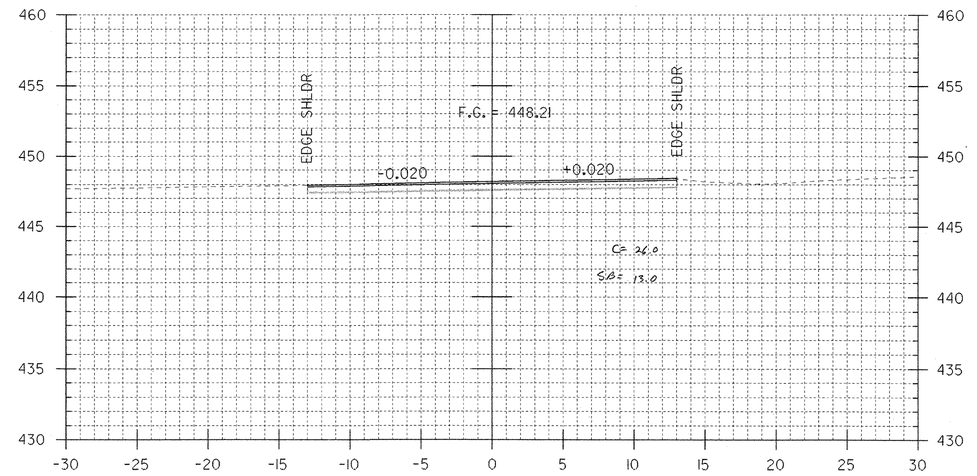
SKEWED AT 20 ° LEFT



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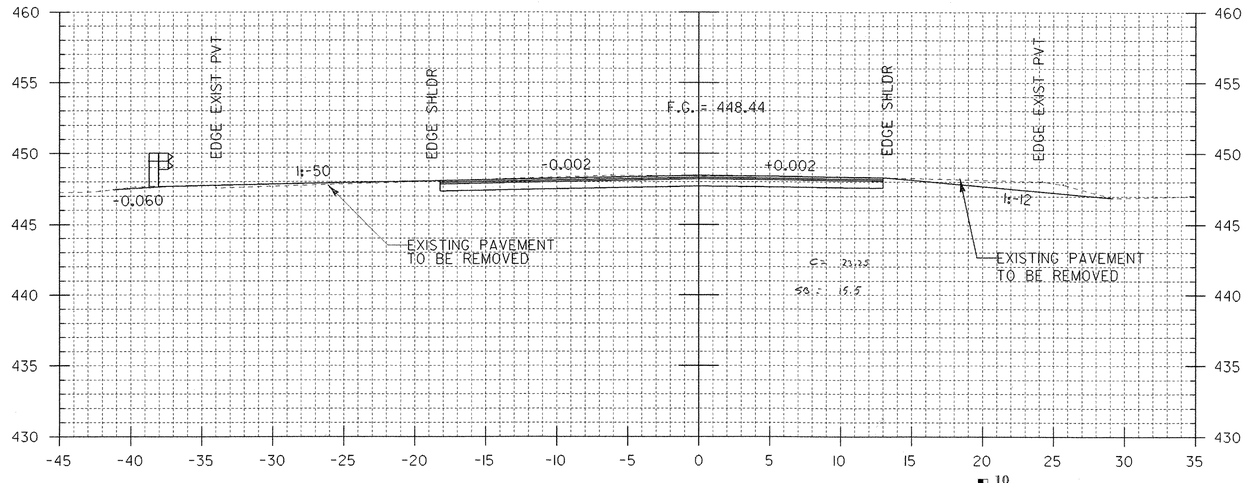
END APPROACH



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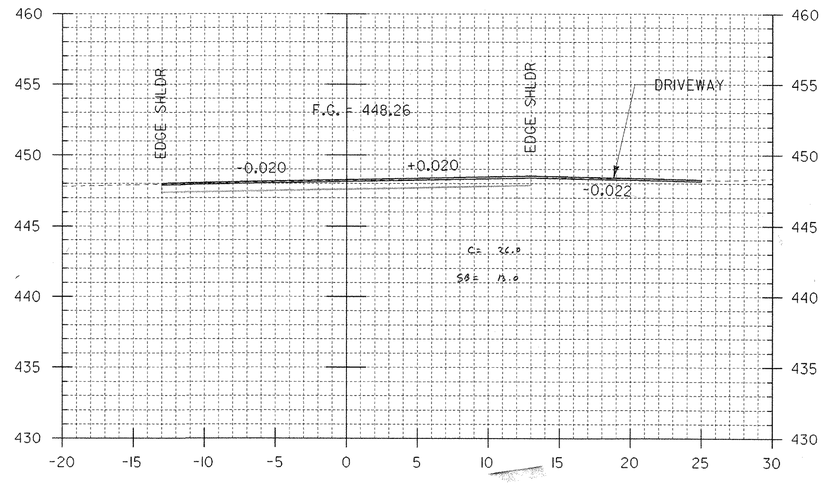

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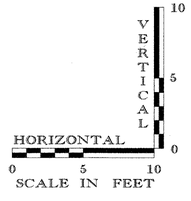


DATUM
VERTICAL _____
HORIZONTAL _____

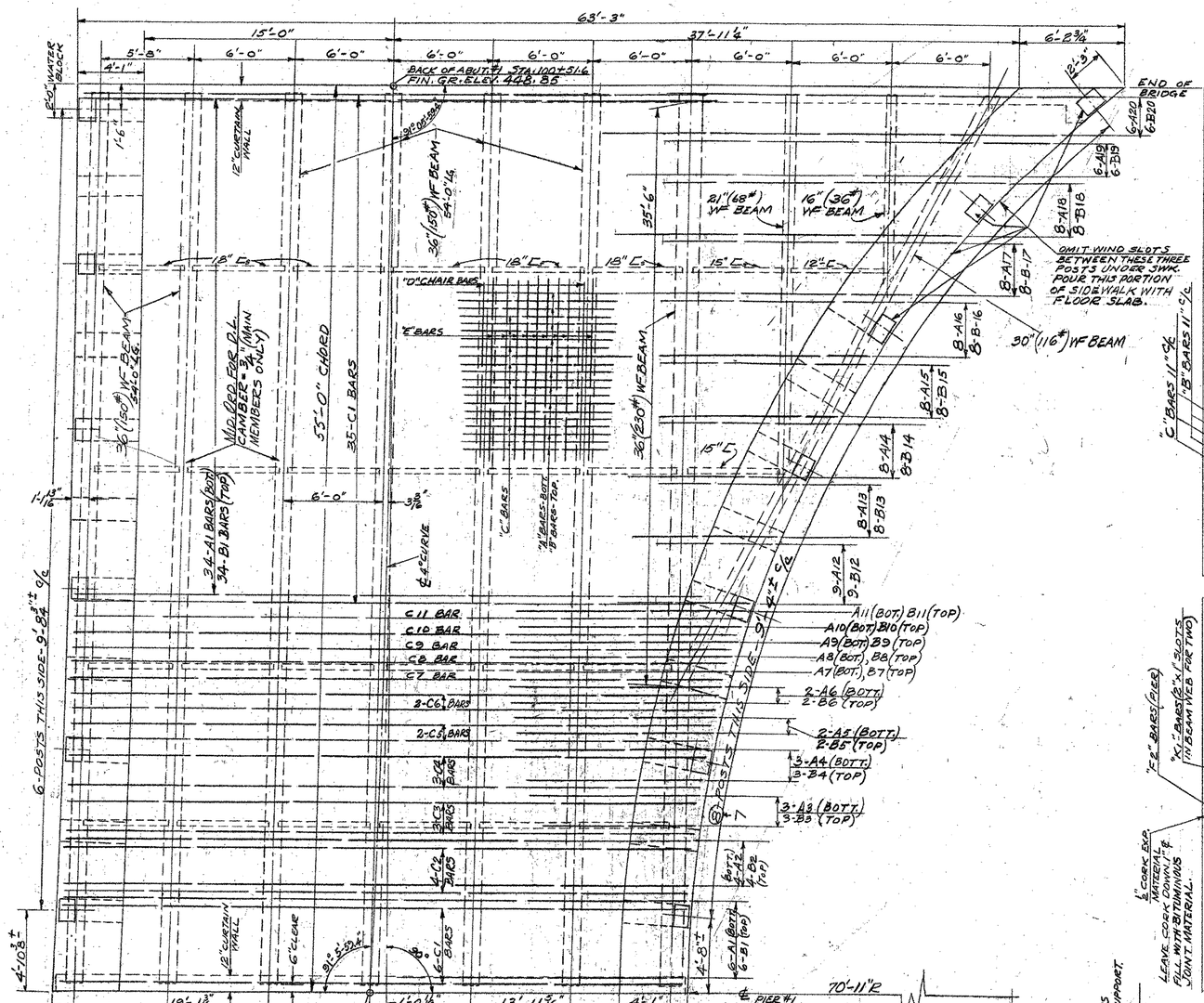
PUMPKIN HARBOR RD, T.H. 2
CROSS-SECTIONS

ROADWAY CROSS SECTIONS (SHEET 5)

PROJECT NAME: CAMBRIDGE
PROJECT NUMBER: BHF 030-2 (19) S

FILE NAME: zb308cs5.dgn
PROJECT LEADER: M. K. CHEVALIER
DESIGNED BY: B. W. ERNST

PLOT DATE: 22-NOV-2006
DRAWN BY: A.N.BEY
CHECKED BY: M. K. CHEVALIER
SHEET 63 OF 68



(CONT'D) REINFORCING STEEL (INTERMEDIATE GRADE)

BAR	SIZE	REQ.	TOT. LGTH	DETAIL
E1	5/8" ℄	152	28'-5"	STRAIGHT
E2	5/8" ℄	35	25'-0"	STRAIGHT. CUT TO SUIT IN FIELD.
F1	1" ℄	52	6'-1"	A = 2'-5½" CUT AND REBEND WHERE REQ'D. 3" 8" A
F2	1" ℄	30	4'-5"	A = 1'-7½"
G	5/8" ℄	178	3'-11"	3'-7" 4" 45°
H	1" ℄	42	6'-3"	3'-7" 1'-1" 3" 45°
J1	1" ℄	20	28'-3"	STRAIGHT
J2	1" ℄	20	32'-3"	CUT WHERE NECESSARY. STRAIGHT. BEND IN FIELD.
K1	5/8" ℄	6	37'-6"	STRAIGHT
K2	5/8" ℄	12	32'-7"	"

REINFORCING STEEL (INTERMEDIATE GRADE)

BAR	SIZE	REQ.	TOT. LGTH	DETAIL
A1	5/8" ℄	40	37'-8"	STRAIGHT
A2	5/8" ℄	4	37'-10"	"
A3	5/8" ℄	3	38'-2"	"
A4	5/8" ℄	3	38'-7"	"
A5	5/8" ℄	2	39'-1"	"
A6	5/8" ℄	2	39'-6"	"
A7	5/8" ℄	1	39'-11"	"
A8	5/8" ℄	1	40'-2"	"
A9	5/8" ℄	1	40'-5"	"
A10	5/8" ℄	1	40'-8"	"
A11	5/8" ℄	1	41'-0"	"
A12	5/8" ℄	9	7'-6"	"
A13	5/8" ℄	8	9'-1"	"
A14	5/8" ℄	8	10'-11"	"
A15	5/8" ℄	8	13'-1"	"
A16	5/8" ℄	8	15'-7"	"
A17	5/8" ℄	8	18'-4"	"
A18	5/8" ℄	8	21'-7"	"
A19	5/8" ℄	6	24'-3"	"
A20	5/8" ℄	6	37'-4"	"

BAR	SIZE	REQ.	"X"	TOT. LGTH	BAR	REQ.	"X"	TOT. LGTH	BAR	REQ.	"X"	TOT. LGTH
B	5/8" ℄											
B1	40	37'-3"	39'-3"		B8	1	39'-9"	41'-9"	B15	8	12'-8"	14'-8"
B2	4	37'-5"	39'-5"		B9	1	40'-0"	42'-0"	B16	8	15'-2"	17'-2"
B3	3	37'-9"	39'-9"		B10	1	40'-3"	42'-3"	B17	8	17'-11"	19'-11"
B4	3	38'-2"	40'-2"		B11	1	40'-7"	42'-7"	B18	8	21'-2"	23'-2"
B5	2	38'-8"	40'-8"		B12	9	7'-1"	9'-1"	B19	6	23'-10"	25'-10"
B6	2	39'-1"	41'-1"		B13	8	8'-8"	10'-8"	B20	6	26'-11"	28'-11"
B7	1	39'-6"	41'-6"		B14	8	10'-6"	12'-6"				

BAR	SIZE	REQ.	X	Y	TOT. LGTH	BAR	REQ.	X	Y	TOT. LGTH
C	5/8" ℄									
C1	41	37'-3"	2'-1"		41'-2"	C7	1	39'-6"	4'-4"	43'-5"
C2	4	37'-5"	2'-3"		41'-4"	C8	1	39'-9"	4'-7"	43'-8"
C3	3	37'-9"	2'-7"		41'-8"	C9	1	40'-0"	4'-10"	43'-11"
C4	3	38'-2"	3'-0"		42'-1"	C10	1	40'-3"	5'-1"	44'-2"
C5	2	38'-8"	3'-6"		42'-7"	C11	1	40'-7"	5'-5"	44'-6"
C6	2	39'-1"	3'-11"		43'-0"					

BAR	SIZE	REQ.	TOT. LGTH	DETAIL
D1	¾" ℄	14	28'-8"	STRAIGHT
D2	¾" ℄	2	21'-8"	"
D3	¾" ℄	1	23'-9"	"
D4	¾" ℄	1	11'-9"	"

NOTES

STEEL SUPERSTRUCTURE TO INCLUDE WF BEAMS, BEARING PLATE ASSEMBLIES AND INDICATED DIAPHRAGMS FOR SPAN. ALL STEEL BEAMS SHALL BE ROLLED TO A TRUE CIRCULAR CAMBER, FULL LENGTH OF THE BEAM AND THE MIDDLE ORDINATE TO BE AS NOTED.

ALL STRUCTURAL STEEL SHALL BE PAINTED AS SPECIFIED UNDER ITEM 403 A & B OF STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION FOR THE STATE OF VERMONT-1948.

THE FINAL COAT OF PAINT IN FIELD SHALL BE GREEN, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

THIS SHEET DOES NOT INCLUDE QUANTITIES FOR RAILING OR POSTS.

ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STANDARD ROAD & BRIDGE SPECIFICATION FOR THE STATE OF VERMONT-1948 AND THE A.A.S.H.O. SPECIFICATION-1949.

DESIGNED FOR H-20(44) LIVE LOADING, 25#/0' PAVING ALLOWANCE, DEAD LOAD INCLUDES WEIGHT OF BEAMS, SLAB & PIPE RAIL.

FOR LOCATION OF FIXED & EXPANSION BEARINGS, SEE PLAN & PROFILE SHEET.

REFERENCE SHEET ONLY
SHEET 64 OF 68

CAMBRIDGE
ROUTE-15

SUPERSTRUCTURE
SPAN No. 1

ESTIMATED QUANTITIES
STEEL SUPERSTRUCTURE - 79900# ~~82612~~
REINFORCING STEEL 16624 ~~17212~~
CONCRETE CLASS "B" 100 ~~110.0~~ c.y.
BITUMINOUS CONCRETE 19 ~~13.0~~ c.y.

Surveyed by
Designed by L.M.B.
Drawn by H.R.D. 5/49
Traced by
Checked by (HAS QUANTITIES CHKD) J.L.H. Except Quant.
Series ST No. 122(M) Filed
Sheet 9 of 29 Sheets

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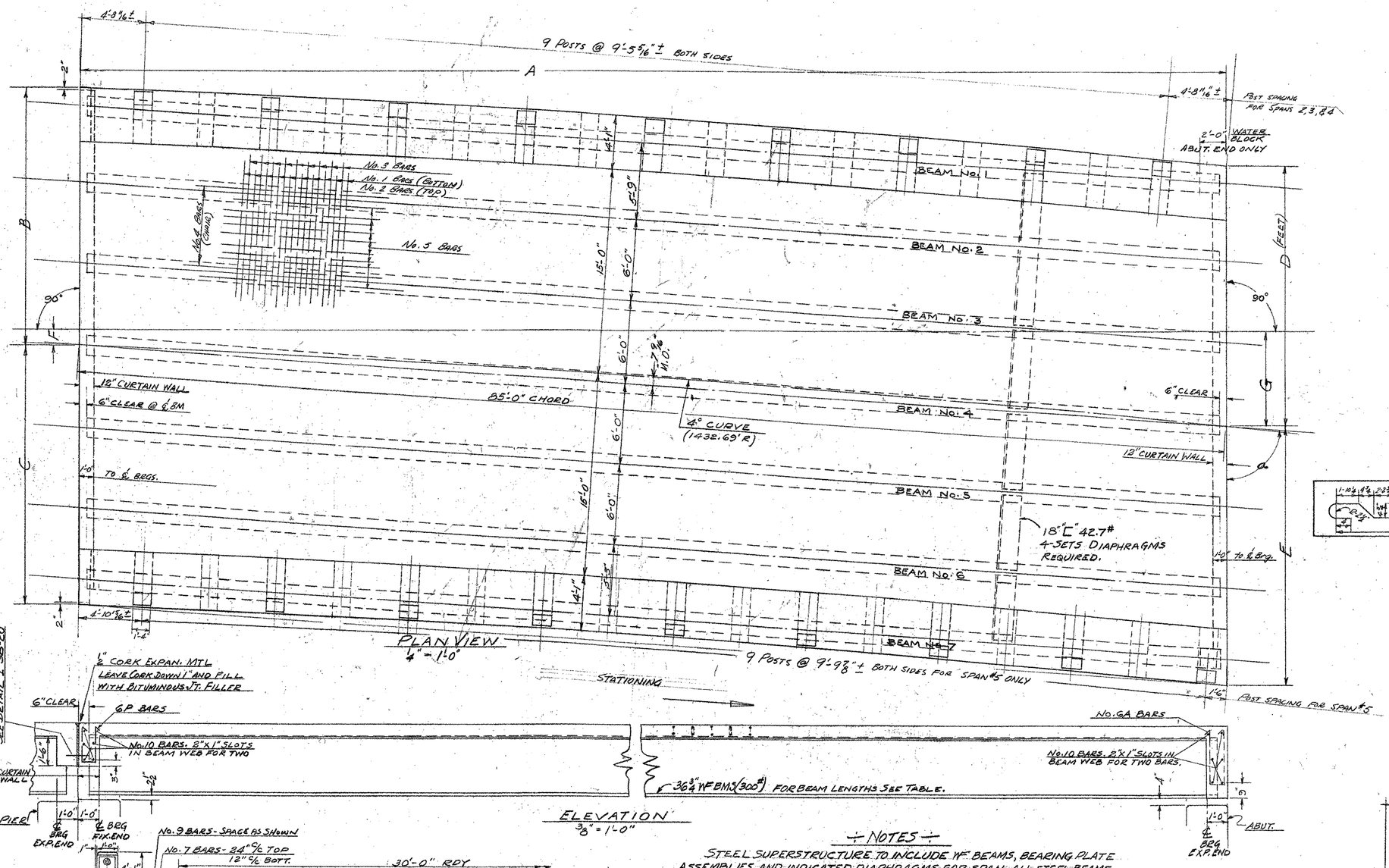

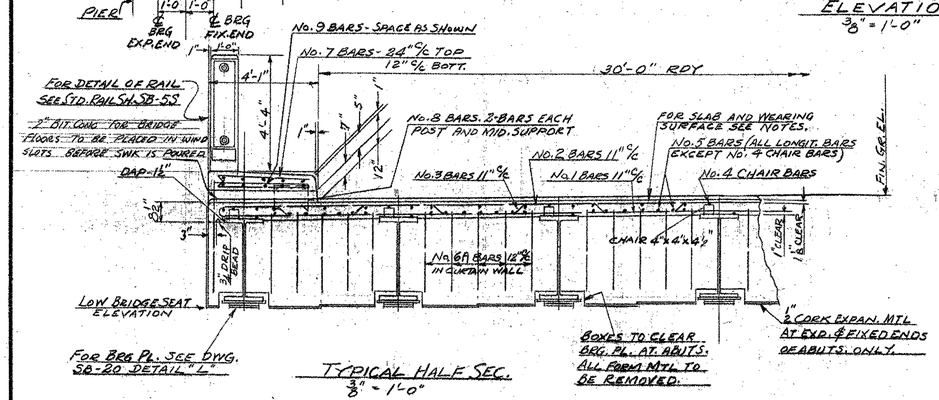

SPAN	2	3	4	5
A	84'-9 5/8"	84'-3 3/4"	83'-6 1/4"	82'-5 1/4"
B	19'-1"	19'-2 1/16"	19'-3 13/16"	19'-6 3/8"
C	19'-1 3/16"	19'-2 1/8"	19'-3 7/8"	19'-6 9/16"
D	19'-2 1/16"	19'-3 3/16"	19'-6 3/8"	19'-9 7/8"
E	19'-2 1/8"	19'-3 1/8"	19'-6 9/16"	19'-10 1/8"
F	1'-0 11/16"	6'-10 1/16"	17'-7 5/8"	33'-5"
G	6'-10 1/16"	17'-7 5/8"	33'-5"	54'-1 1/2"
BEAM-1	84'-0"	84'-0	84'-0"	84'-0"
" -2	84'-0"	84'-0"	84'-0"	84'-0"
" -3	84'-0"	84'-0"	84'-0"	84'-0"
" -4	84'-0"	84'-0"	84'-0"	84'-0"
" -5	84'-0"	84'-0"	84'-0"	84'-0"
" -6	84'-0"	84'-0"	84'-0"	84'-0"
" -7	84'-0"	84'-0"	84'-0"	84'-0"
a	86°6'-2".08	82°42'-1".65	79°18'-4.18	75°53'-40".53

1 SPAN
REINFORCING STEEL (INTERMEDIATE GRADE)

BAR	SIZE	REQ.	TOT. LGTH.	DETAIL
1	5/8" ϕ	93	37'-8"	STRAIGHT
2	5/8" ϕ	93	39'-5"	2 1/2" R, 37'-3", 4
3	5/8" ϕ	93	41'-2"	SEE DET. ABOVE
4	3/4" ϕ	21	30'-2"	STRAIGHT
5	1/2" ϕ	222	29'-6"	STRAIGHT
6A	1" ϕ 2	(64) 32.7#	6'-9"	A = 2.19", B, 3", * FOR SPAN #5
6P	2	32#	4'-5"	A = 1.72", 3'-7", 45°
7	5/8" ϕ	256	3'-11"	45°
8	1/2" ϕ	72	6'-3"	1'-7", 3'-7", 3"
9	1/2" ϕ	60	29'-6"	STRAIGHT
10	5/8" ϕ	24	20'-10"	STRAIGHT

÷ NOTES ÷

STEEL SUPERSTRUCTURE TO INCLUDE WF BEAMS, BEARING PLATE ASSEMBLIES AND INDICATED DIAPHRAGMS FOR SPAN. ALL STEEL BEAMS SHALL BE ROLLED TO A TRUE CIRCULAR CAMBER, FULL LENGTH OF THE BEAM WITH A MIDDLE ORDINATE OF 2". FOR DIAPHRAGMS SEE DWG. SB-20, DET. K.

ALL STRUCTURAL STEEL SHALL BE PAINTED AS SPECIFIED UNDER ITEM 403 A & B OF STD. SPEC. FOR ROAD & BRIDGE CONSTRUCTION FOR THE STATE OF VERMONT - 1948. THE FINAL COAT OF PAINT IN FIELD SHALL BE GREEN, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

FLOOR SLAB SHALL BE CLASS "B" CONCRETE 7½" THICK, DAPPED ½" AT BEAMS. SURFACE TO BE SCREEDED, FLOATED AND BROOMED. CROWN OF ⅛" PER FOOT TO BE OBTAINED BY STEPPING BRIDGE SEATS.

WEARING SURFACE COURSE OF BITUMINOUS CONCRETE 2" THICK TO BE APPLIED TO BRIDGE FLOOR. SEE ITEM-381 - STD. SPEC. 3. OF VT.-1948.

THIS SHEET DOES NOT INCLUDE QUANTITIES FOR RAILING OR POSTS.

ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STD. ROAD & BRIDGE SPEC. FOR THE STATE OF VERMONT-1948 AND THE A.A.S.H.O. SPEC.-1949.

DESIGNED FOR H-20(44) LIVE LOADING, 35#/ft² PAVING ALLOWANCE. DEAD LOAD INCLUDES WEIGHT OF BEAMS, SLAB & PIPE RAIL.

FOR LOCATION OF FIXED & EXPANSION BEARINGS, SEE PLAN AND PROFILE SHEET.

REFERENCE SHEET ONLY
SHEET 65 OF 68

CAMBRIDGE
ROUTE-15
SUPERSTRUCTURE
SPANS-#2, 3, 4 & 5

ESTIMATED QUANTITIES

MATERIAL	SPAN-2	SPAN-3	SPAN-4	SPAN-5
SUPERSTRUCTURAL STEEL	186,320 Lb	186,535 Lb	186,540 Lb	186,590 Lb
REINFORCING STEEL	~~20,100 Lb~~	~~20,100 Lb~~	~~20,100 Lb~~	~~20,100 Lb~~
CONCRETE CLASS "B"	~~102~~ c.y.	~~102~~ c.y.	~~102~~ c.y.	~~103~~ c.y.
BITUMINOUS CONCRETE	~~76~~ c.y.	~~76~~ c.y.	~~76~~ c.y.	~~76~~ c.y.
REINFORCING STEEL	20,240 Lb	20,040 Lb	20,040 Lb	20,091 Lb
CONCRETE CLASS "B"	121.6 cy	121.6 cy	121.6 cy	121.6 cy
BITUMINOUS CONCRETE	19 cy	19 cy	19 cy	19 cy

SCALE AS SHOWN

Surveyed by
Designed by - H.R.D
Drawn by - H.R.D 5/49
Traced by (HAS QUANTITIES CHK'D)
Checked by (QTH Except Quant.)
Series ST No. 122 M Filed
Sheet 10 of 29 Sheets

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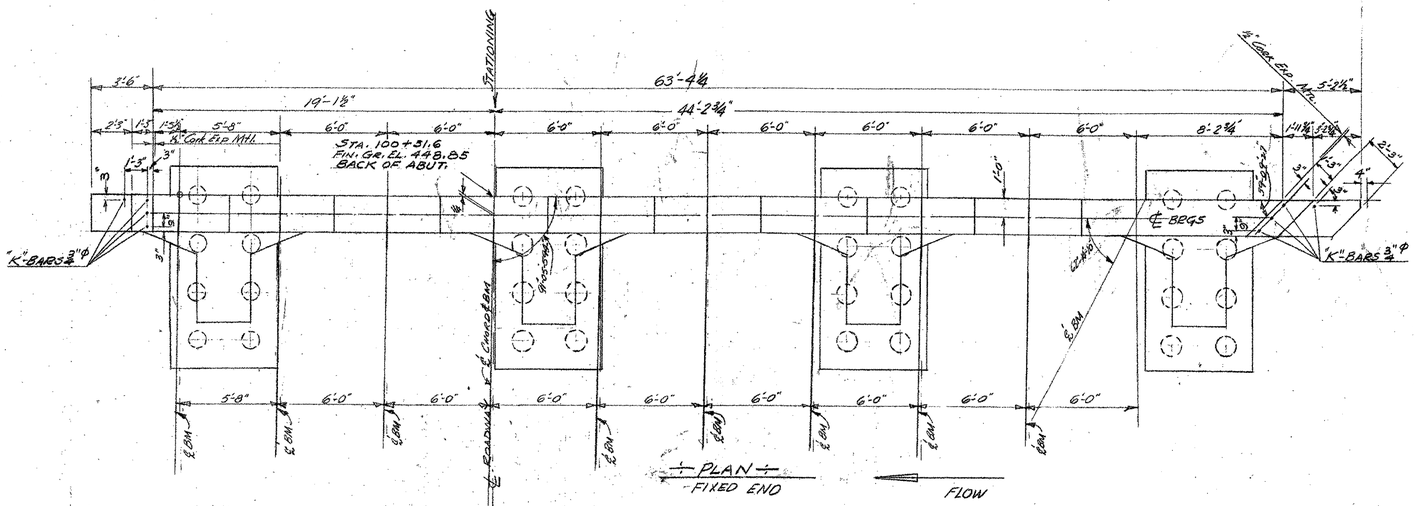

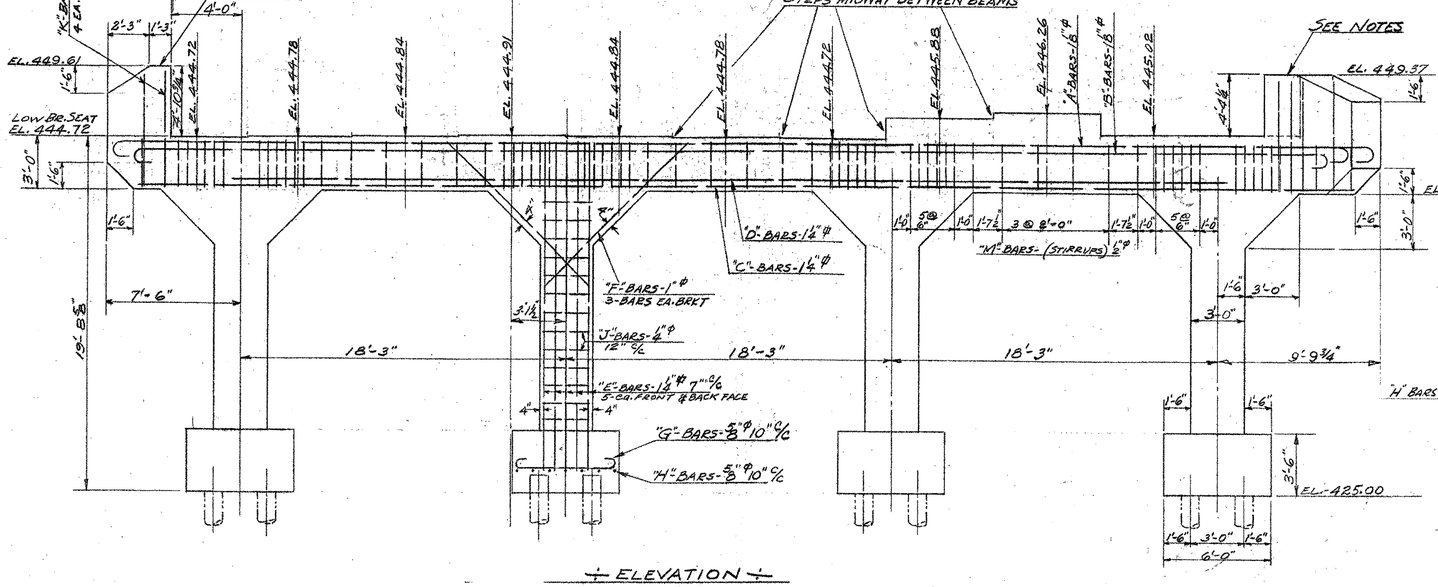

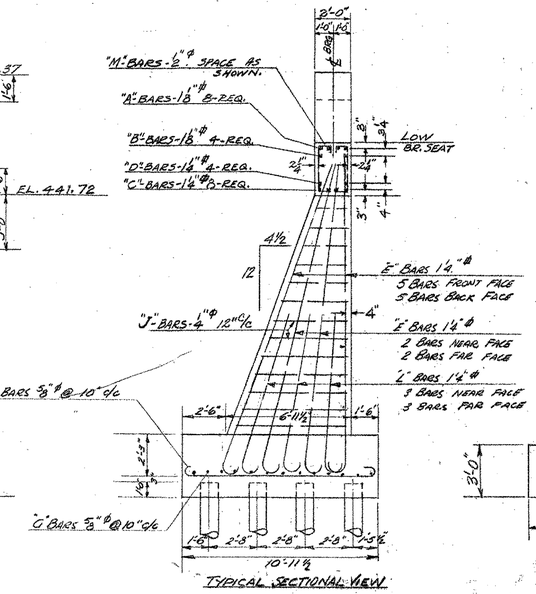

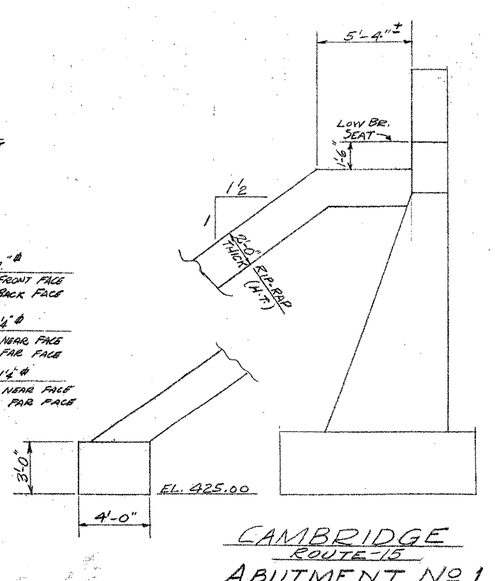

REINFORCING STEEL (INTERMEDIATE GRADE)

BAR	SIZE	NO. REQ.	TOT. LGTH	DETAIL
A	1⅛" ϕ	8	39'-4"	5"R, 5", 37'-7"
B	1⅛" ϕ	4	37'-4"	5"R, 5", 35'-7"
C	1¼" ϕ	8	36'-6"	STRAIGHT
D	1¼" ϕ	4	34'-6"	STRAIGHT
E	1¼" ϕ	56	19'-4"	5"R, 5", 17'-7"
F	1" ϕ	24	11'-3"	STRAIGHT
G	⅝" ϕ	52	7'-3"	3"R, 4", 4", 5'-0", 3"R
H	⅝" ϕ	28	12'-3"	3"R, 4", 4", 10'-0", 3"R
J	¾" ϕ	52	AVERAGE 15'-1"	STRAIGHT (BEND IN FIELD TO SUIT)
K	¾" ϕ	8	6'-4"	STRAIGHT
L	1¼" ϕ	24	10'-2"	5"R, 5", 8'-5"
M	½" ϕ	71	8'-10"	1'-7½", 4, 5⅝, 2'-7½", 5⅝, 7⅝, 4½

NOTES

ALL REINFORCING STEEL DIMENSIONED TO ℄ OF BARS.

EXPOSED EDGES OF CONCRETE TO BE CHAMFERED ¾".

HAUNCHES TO BE POURED AFTER SUPERSTRUCTURE IS IN PLACE.

PILING TO BE DRIVEN TO A BEARING CAPACITY OF 18 STONS EACH AND TRIMMED TO SIZE. UNTREATED TIMBER MAY BE USED. APPROXIMATE LENGTH OF PILES ASSUMED TO BE 30 FEET.

LAP REINFORCING STEEL IN SPLICE 45 DIAM.

REFERENCE SHEET ONLY

SHEET 66 OF 68

ESTIMATED QUANTITIES

STRUCTURE EXCAVATION	373 ~~417~~	c.y.
CONCRETE-CLASS "B"	88.5 ~~99~~	c.y.
REINFORCING STEEL	13632 ~~15264~~	LBS
PILING (SEE NOTES)	933 ~~1045~~	L.F.
RIP-RAP (H.T.)	237 ~~265~~	c.y.

CAMBRIDGE
ROUTE-15
ABUTMENT NO. 1
scale-¼"=1'-0"

Surveyed by
Designed by H.R.D. 5/27/49
Drawn by H.R.D.
Traced by (HAS QUANTITIES ONLY)
Checked by (J.L.H. EXCEPT QUANTS.)
Series ST No. 122(11) Filed
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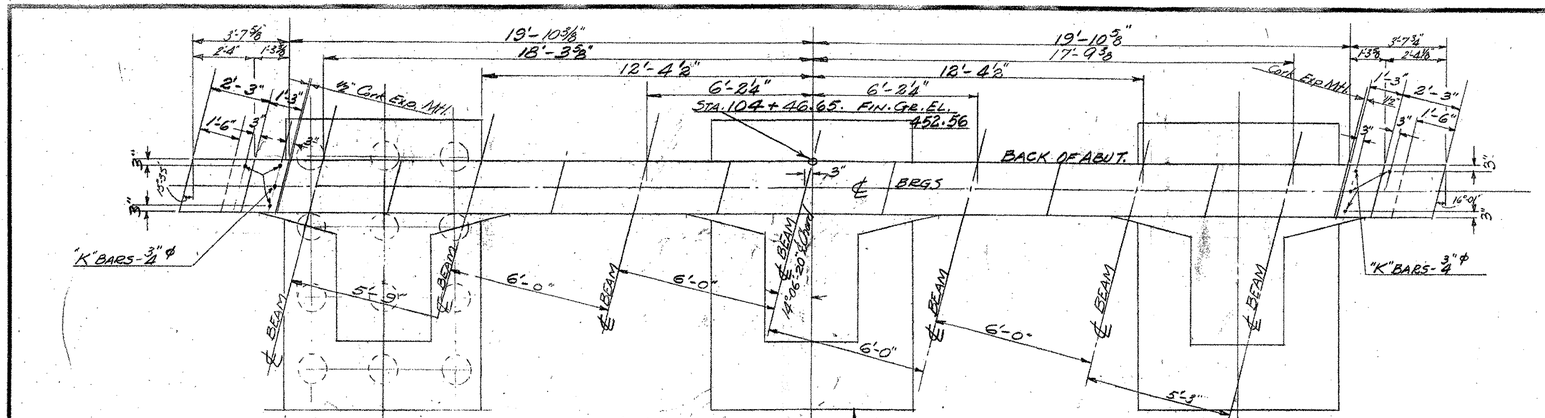
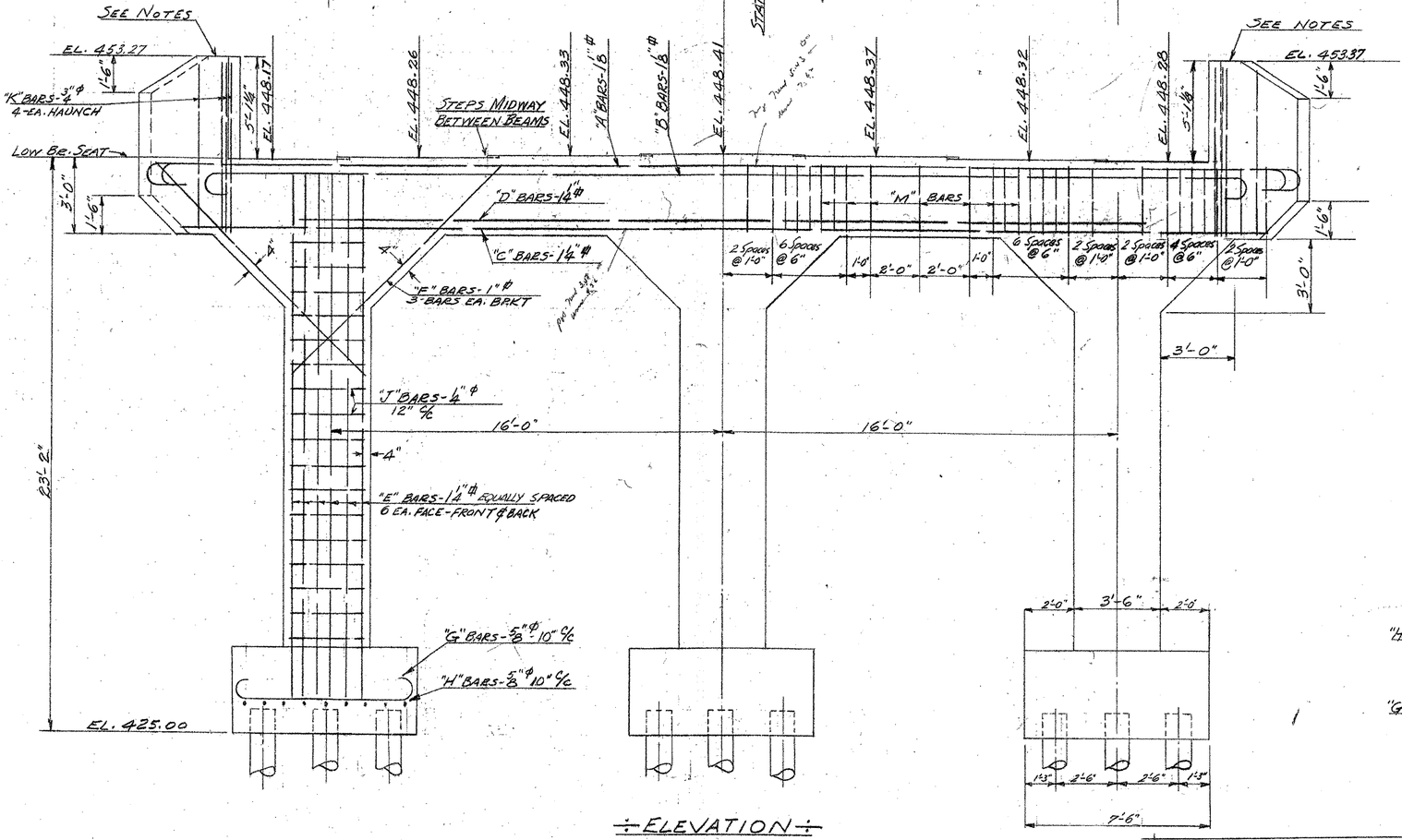




÷ NOTES ÷

ALL REINFORCING STEEL DIMENSIONED TO ℄ OF BARS.

EXPOSED EDGES OF CONCRETE TO BE CHAMFERED 3/4".

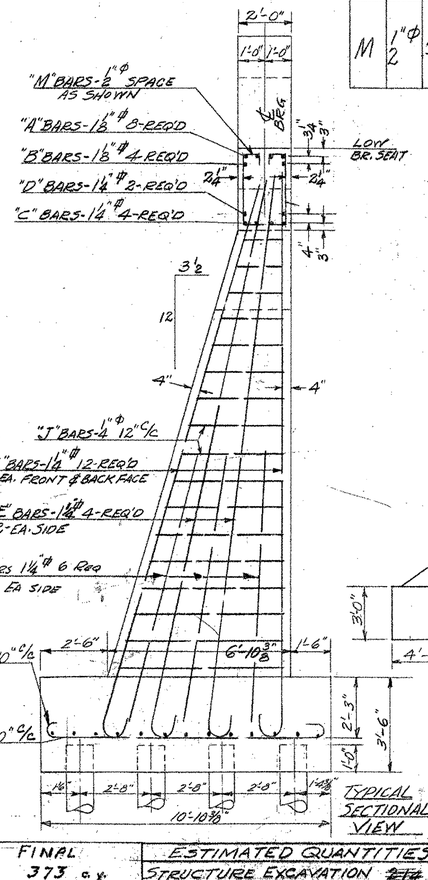
HAUNCHES TO BE POURED AFTER SUPERSTRUCTURE IS IN PLACE.

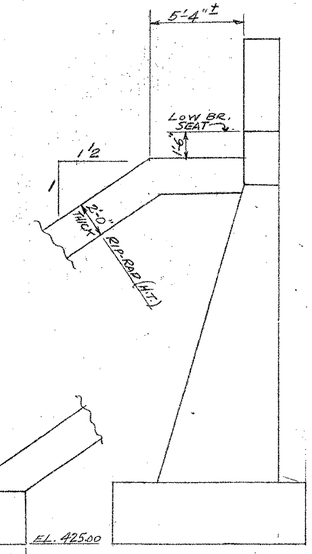
PILING TO BE DRIVEN TO A BEARING CAPACITY OF 15 TONS EACH AND TRIMMED TO SIZE. UNTREATED TIMBER MAY BE USED. APPROXIMATE LENGTH OF PILES ASSUMED TO BE 30 FEET.

LAP ALL BARS 45 DIAM. IN SPLICING.

REINFORCING STEEL (INTERMEDIATE GRADE)

BAR	SIZE	NO REQ.	TOTAL LENGTH	DETAIL
A	1" ϕ	8	29'-3"	5"R, 5", 27'-6"
B	1" ϕ	4	28'-3"	5"R, 5", 26'-6"
C	1 1/4" ϕ	4	43'-0"	STRAIGHT
D	1 1/4" ϕ	2	41'-6"	STRAIGHT
E	1 1/4" ϕ	48	22'-7"	5"R, 5", 20'-10"
F	1" ϕ	18	12'-0"	STRAIGHT
G	5/8" ϕ	39	8'-9"	3"R, 3"R, 4", 6'-6", 4"
H	5/8" ϕ	27	12'-1"	3"R, 3"R, 4", 9'-10", 4"
J	1/4" ϕ	51	AVER. 19'-0"	STRAIGHT (BEND IN FIELD TO SUIT)
K	3/4" ϕ	8	6'-6"	STRAIGHT
L	1/4" ϕ	18	11'-11"	5", 10'-2"
M	1/2" ϕ	54	8'-10"	1'-7½", 4", 2'-7½", 7½", 7½"





CAMBRIDGE
ROUTE-15
ABUTMENT - Nº 2
Scale - 3/8" = 1'-0"

FINAL	ESTIMATED QUANTITIES	
373 c.y.	STRUCTURE EXCAVATION	~~274~~ c.y.
885 "	CONCRETE-CLASS "B"	~~714~~ c.y.
13,632 lbs	REINFORCING STEEL	~~11,650~~ Lbs.
835 L.F.	PILING (SEE NOTES)	~~720~~ L.F.
237 c.y.	RIP-RAP	~~163~~ c.y.
245 L.F.	PILING CUT-OFFS	

REFERENCE SHEET ONLY

SHEET 67 OF 68

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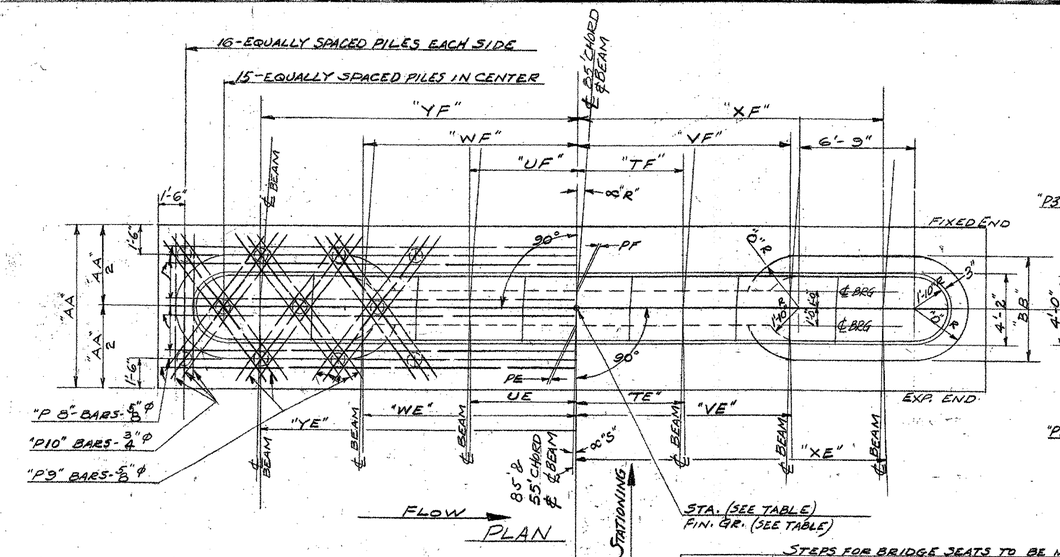
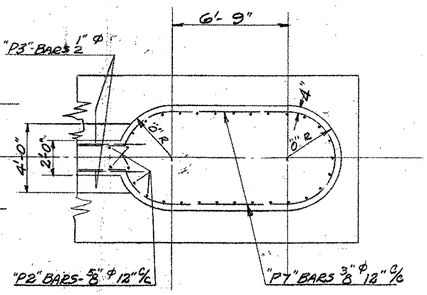
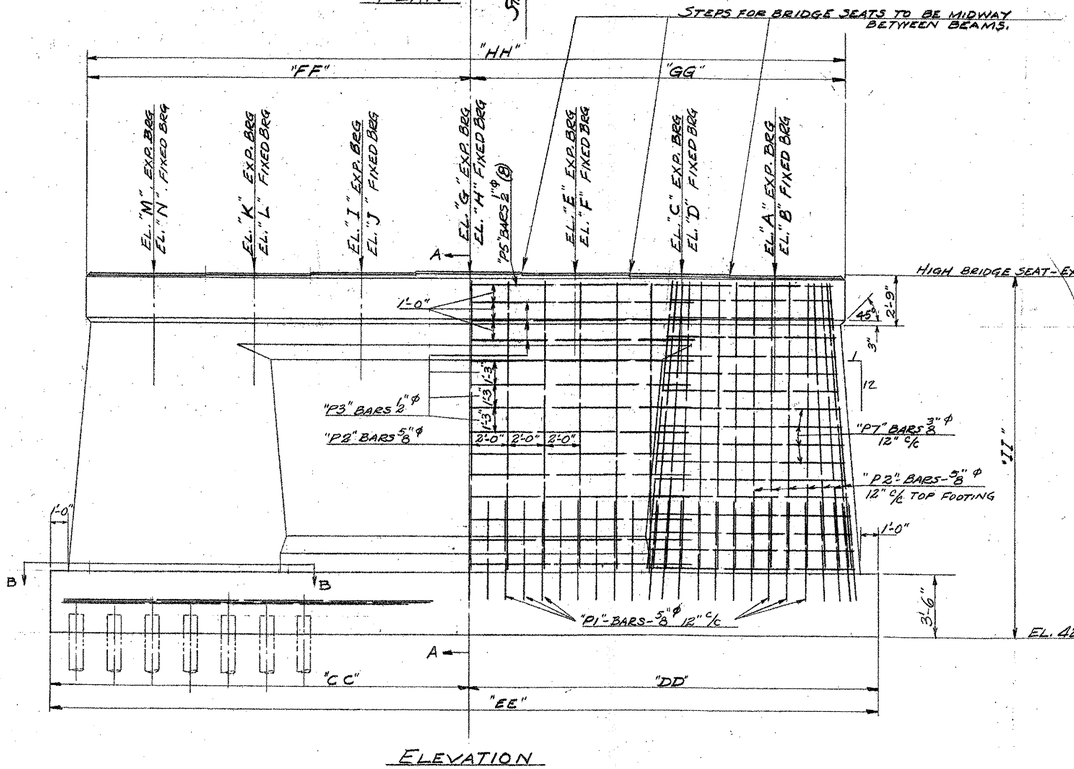
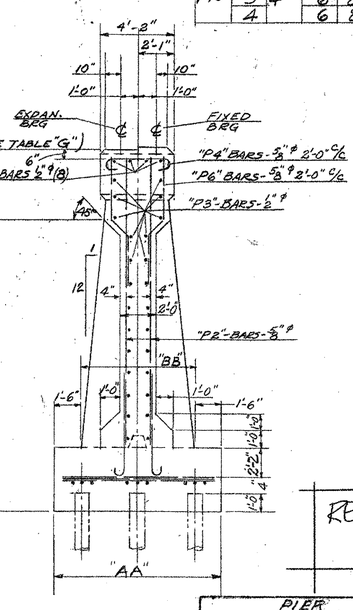




SECTION "BB"



ELEVATION



SECTION "A-A"

REINFORCING STEEL (INTERMEDIATE GRADE)

BAR	PIER	SIZE	NO. REQ.	TOTAL LENGTH	DETAIL
P1	1	⅝"φ	96	6'-4½"	3"R, 4", 5'-3"
	2		96	6'-4½"	
	3		96	6'-4½"	
	4		98	6'-4½"	
P2	1	⅝"φ	78	16'-3"	STRAIGHT
	2		78	17'-0"	
	3		78	17'-10"	
	4		80	18'-7"	
P3	1	½"φ	26	25'-3"	STRAIGHT
	2		26	25'-3"	
	3		27	25'-6"	
	4		27	25'-11"	
P4	1	⅝"φ	20	5'-5"	3"R, 4", 3'-2", 4", 3"R
	2		20	5'-5"	
	3		21	5'-5"	
	4		21	5'-5"	
P5	1	½"φ	8	21'-2"	STRAIGHT
	2		8	21'-2"	
	3		8	21'-4"	
	4		8	21'-6"	
P6	1	⅝"φ	20	7'-6"	3'-3", 10½", 3'-0", 12"
	2		20	7'-6"	
	3		21	7'-6"	
	4		21	7'-6"	
P7	1	⅜"φ	34	30'-6"	STRAIGHT. BEND IN FIELD.
	2		34	30'-6"	
	3		34	30'-6"	
	4		34	30'-6"	
P8	1	⅝"φ	18	24'-0"	STRAIGHT
	2		18	24'-0"	
	3		18	24'-3"	
	4		18	24'-7"	
P9	1	⅝"φ	90	8'-10"	STRAIGHT
	2		90	9'-0"	
	3		90	9'-2"	
	4		90	9'-2"	
P10	1	¾"φ	6	8'-6"	STRAIGHT
	2		6	8'-6"	
	3		6	8'-9"	
	4		6	8'-9"	

PIER	1	2	3	4
STATION	101+06.61	101+91.62	102+76.63	103+61.64
FINISH GRADE	449.37	450.17	450.97	451.76
A	445.04	445.84	446.66	447.47
B	445.19	445.99	446.80	447.61
C	445.090	445.90	446.69	447.51
D	445.23	446.04	446.84	447.65
E	445.16	445.96	446.76	447.55
F	445.23	446.09	446.90	447.70
G	445.22	446.02	446.82	447.60
H	445.35	446.15	446.94	447.74
I	445.16	445.94	446.74	447.53
J	445.29	446.09	446.88	447.68
K	445.09	445.88	446.67	447.46
L	445.23	446.02	446.82	447.60
M	445.02	445.81	446.60	447.39
N	445.17	445.95	446.74	447.53
O	3°-0" RAD.	3°-0½" RAD.	3°-1⅝" RAD.	3°-2⅜" RAD.
R	3°-53'-59"	7°-17'-58"	10°-41'-57"	14°-06'-20"
S	1°-5'-59"	3°-53'-59"	7°-17'-58"	10°-41'-57"
TE	6'-0"	6'-0⅛"	6'-0⅜"	6'-1¼"
UE	6'-0⅛"	6'-0⅜"	6'-0⅝"	6'-1⅝"
UE	6'-0"	6'-0⅛"	6'-0⅜"	6'-1⅛"
VE	6'-0⅛"	6'-0⅜"	6'-0⅝"	6'-1⅝"
VE	12'-0"	12'-0⅜"	12'-1⅛"	12'-2⅝"
WE	12'-0⅜"	12'-1⅛"	12'-2⅝"	12'-4⅛"
WE	12'-0"	12'-0⅜"	12'-1⅛"	12'-2⅝"
XE	12'-0⅜"	12'-1⅛"	12'-2⅝"	12'-4⅛"
XE	17'-8"	17'-8⅜"	17'-9⅛"	17'-10⅝"
YE	17'-8⅜"	17'-8⅞"	17'-9⅝"	17'-11⅜"
YE	17'-8"	17'-8⅜"	17'-9⅛"	17'-10⅝"
ZE	17'-8⅜"	17'-8⅞"	17'-9⅝"	17'-11⅜"
ZE	17'-8"	17'-8⅜"	17'-9⅛"	17'-10⅝"
AA	9'-0"	9'-1½"	9'-3¼"	9'-4¾"
BB	6'-0"	6'-1½"	6'-3¼"	6'-4¾"
CC	23'-1"	23'-2⅜"	23'-5½"	23'-8¾"
DD	23'-4¼"	23'-2⅜"	23'-5½"	23'-8¾"
EE	46'-5¼"	46'-5¾"	46'-11"	47'-5⅛"
FF	21'-2"	21'-3⅜"	21'-4⅞"	21'-7⅜"
GG	21'-2¼"	21'-3⅜"	21'-4⅞"	21'-7½"
HH	42'-4¼"	42'-6¼"	42'-9⅜"	43'-2⅛"
II	20'-2⅜"	21'-0¼"	21'-9⅛"	22'-7¼"

NOTES

ALL CONCRETE TO BE CLASS "C".
ALL EXPOSED EDGES OF CONCRETE TO BE CHAMFERED 1".
CONSTRUCTION JOINTS WHERE AND AS NECESSARY TO BE IN ACCORDANCE WITH DETAIL "D" ON DWG. 38-20.
TIMBER PILES TO BE DRIVEN TO A BEARING CAPACITY OF 16 TONS EACH, THEN TRIMMED TO SIZE. UNTREATED TIMBER MAY BE USED. APPROXIMATE LENGTH OF PILES ASSUMED TO BE 30 FEET.
ALL REINFORCING STEEL DIMENSIONED TO ℄.

REFERENCE SHEET ONLY
SHEET 68 OF 68

FINALS

PIER	1	2	3	4
STRUCTURE EXCAVATION	139 cy.	139 cy	489 cy.	355 cy.
CONCRETE CLASS "C"	1917 cy	1931 cy	2051 cy.	171 cy
REINFORCING STEEL	4527 lbs	4604 lbs	4728 lbs	4856 lbs
PILING (SEE NOTES)	1371 L.F	1272 L.F	1302 L.F.	1582 L.F.
PILINGS (CUT-OFFS)	277 L.F	333 L.F.	154 L.F.	216 L.F.

PIER	1	2	3	4
STRUCTURE EXCAVATION	80 c.y.	85 c.y.	398 c.y.	356 c.y.
CONCRETE CLASS "C"	147 c.y.	154 c.y.	161 c.y.	168 c.y.
REINFORCING STEEL	4530 Lbs	4605 Lbs	4725 Lbs	4850 Lbs
PILING (SEE NOTES)	1410 L.F.	1410 L.F.	1410 L.F.	1410 L.F.

CAMBRIDGE
ROUTE-15
PIER Nos 1, 2, 3 & 4
SCALE-½" = 1'-0"

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D.S. BROWN

JOINT WELDING PROCEDURE

Material Specification: **A709Gr36(GR250); A709Gr50(Gr345); A709Gr50W(Gr345W)**
304 SS; 316SS

Welding process: GTAW Position of welding: **2F** Manual or Machine: MANUAL

Filler metal specification: A5.9 Filler metal classification: **ER309L (Lincoln)**

Flux: N/A Shielding gas: 100% Argon Flow rate: 20 CFH

Single or multiple pass: SINGLE Single or multiple arc: SINGLE ESO: N/A

Welding current: DC Polarity: STRAIGHT Welding progression: STRINGER

Preheat and interpass temperature: SEE NOTE BELOW (NO PREHEAT OF STAINLESS STEEL)
A709Gr36(Gr250);A709Gr50(Gr345); A709Gr50W(Gr345W):
To 3/4"Include.(19 mm)=50°F ;Over3/4" to 1.5"Include.(19 to 38mm)=70°F
Over 1.5" to 2.5"Incl.(38 to 63.5mm)=150°F; Over 2.5"(63,5mm)=225F.
Root Treatment: Clean to bright sound metal.

Pass No.	Electrode Size	Welding Current Amps	Voltage	Travel Speed in.(mm)/min.	Weld Size "S" (Material thickness)
1	1/8(3 MM)	130 - 160	10 - 12	4(102) - 7(177)	20 GA. (SEAL)
1	1/8(3 MM)	130 - 160	10 - 12	4(102) - 7(177)	16GA. (1.5MM)
1	1/8(3 MM)	130 - 160	10 - 12	4(102) - 7(177)	14GA. (1.9MM)
1	1/8(3 MM)	130 - 160	10 - 12	4(102) - 7(177)	12GA. (2.7MM)
1	1/8(3 MM)	130 - 160	10 - 12	4(102) - 7(177)	11GA. (3.0MM)
1	1/8(3 MM)	130 - 160	10 - 12	4(102) - 7(177)	10GA. (3.4MM)

Notes:
T1 = VARIES

"S" FILLET WELD LEG SIZE SHALL NOT EXCEED THICKNESS OF STAINLESS STEEL.

NO PREHEAT REQUIRED ON THE STAINLESS STEEL MATERIAL.

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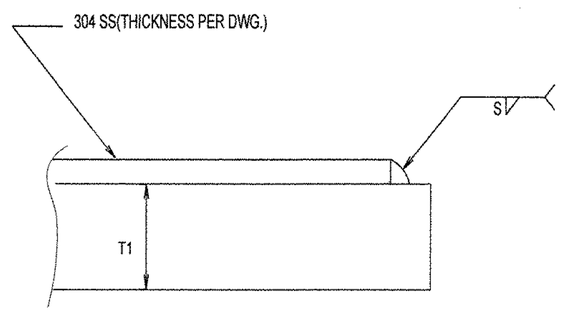

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within limitation of variables given in the AWS/AASHTO/ D1.1 Structural Welding Code and/or the D1.5 Bridge Welding Code (as applicable).

Procedure No.: **(NB)GTF-01** Revision No.: 02 Date: March 21, 2003

Project: DSB Job No.:

Prepared By:	Authorized by:
James R. Connor DSB QA Manager	

069 bb

DSBROWN

Production Joint Welding Procedure Specification (D1.5-02)

Procedure No: **A-GTF-01** Date Issued: 1-9-04 Revision No: 0 Rev. Date: _____

Contractor (Fabricator) D.S. Brown Company Prepared by: James R. Connor, Quality Assurance Manager

1. Non-Fracture Critical [X] Fracture Critical [ ] WPS Expiration Date: _____
2. Qualified in accordance with: AWS D1.5- 2002 , AWS D1.6-99
   Referenced PQR No(s). PQR-GTAW-01-(03) __ , __ , _____
   Referenced FWST No(s). PQR-GTAW-01(03) , _____ , __ , _____
3. Material specification(s) ASTM A709 Gr. 36, 50, 50W, 304SS, 316SS
4. Material Thickness (es) Unlimited
5. Welding process GTAW
6. Manual [X] , machine [ ] , or semiautomatic [ ]
7. Position(s) of welding 1F, 2F
8. Filler metal specification AWS A5.9
9. Filler metal class and brand name ER309L (Murrex)
10. Flux class & brand N/A , Type N/A
11. Shielding gas 100% Argon Flow rate 20 CFH
12. Single pass [X] Or multiple pass [ ]
13. Single arc [X] Or multiple arc [ ]
14. Welding Current DCEN
15. Polarity Straight
16. Welding progression stringers
17. Root treatment Clean to bright sound metal or per AWS D1.5 (3.2.1 & 3.11)
18. Postheat treatment N/A
19. Calculated Heat Input (KJ/In) Min 10.9 KJ Max 20.4 KJ
20. Electrode extension (electrical stickout) N/A

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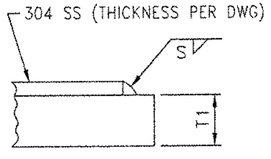
Weld size (In)	Pass No(s).	Electrode Size (In)	Welding Process Variables AMPS/WFS*	VOLTS	Travel Speed (IPM)
20 ga.	1	1/8"	170-200	15-17	10-14
16 ga.	1	1/8"	170-200	15-17	10-14
14 ga.	1	1/8"	170-200	15-17	10-14
12 ga.	1	1/8"	170-200	15-17	10-14
11 ga.	1	1/8"	170-200	15-17	10-14
10 ga.	1	1/8"	170-200	15-17	10-14
8 ga.	1	1/8"	170-200	15-17	10-14
3/16"	1	1/8"	170-200	15-17	10-14

Joint Detail (Flare Bevel)
Show all dimensions, weld sizes, passes, and AWS symbols



T_1 = Varies
S = Fillet Weld Size (Fillet weld must not exceed thickness of stainless steel)

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

Prepared By: James R. Connor DSB QA Manager

Project: _____

DSB Job: 19368-1106

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

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

07066

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Bonding Procedure

The bonding process for laminating PTFE to the fabric pad is as follows:

The fabric pad surface to be bonded is prepared for lamination. A two-part structural grade epoxy is then applied per the manufacture's instructions. The PTFE is cut slightly oversize to account for the possible drift. The PTFE is then applied to the fabric pad and put into a vacuum press at the appropriate pressure for the necessary time period.

Once the fabric pad PTFE is removed from the press, the PTFE is trimmed to plan size and the pads are submitted for quality control review.

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GENERAL NOTES:

1. PAD AND MATERIALS SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, DATED 2001 AND THE LATEST REVISIONS, INCLUDING SUPPLEMENTARY SPECIFICATIONS, CONTRACT PLANS, AND THE SPECIAL PROVISIONS. GENERAL SHOP PRACTICES, STRUCTURAL FABRICATION, WELDING AND ASSEMBLY SHALL BE GOVERNED BY ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE.

2. THESE SHOP DRAWINGS ARE PREPARED IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS. THE D.S. BROWN COMPANY DOES NOT ACCEPT LIABILITY FOR THE DESIGN OF THE PRODUCTS DETAILED IN THESE SHOP DRAWINGS.

3. THE D.S. BROWN COMPANY TO SUPPLY ONLY THE PARTS SHOWN ON THESE DRAWINGS.

4. ALL STEEL SHALL BE PRODUCED IN THE UNITED STATES OF AMERICA.

5. ALL CORNERS AND EDGES OF STEEL PLATES SHALL BE GROUND TO A 0.063" RADIUS FOR GALVANIZING.

6. PTFE SHALL BE PURE VIRGIN UNFILLED POLYTETRAFLUOROETHYLENE.

7. STAINLESS STEEL SHALL CONFORM TO ASTM A240–TYPE 304 AND SHALL BE 12 GA. (0.105"). STAINLESS STEEL SLIDING SURFACES IN CONTACT WITH PTFE SHALL HAVE A NO. 8 MIRROR FINISH AND ALL OTHERS SHALL HAVE A 2B FINISH. ⚠

8. ALL STRUCTURAL STEEL SURFACES TO BE GALVANIZED SHALL BE CLEANED IN ACCORDANCE WITH SSPC–SP10.

9. ALL EXTERNAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. GALVANIZATION LIFTING DEVICES MAY BE WELDED TO PARTS IF NECESSARY. WHEN THEIR USE IS COMPLETE, REMOVE AND GRIND FLUSH ALL CONNECTION LOCATIONS. REPAIR ALL GALVANIZATION IN ACCORDANCE WITH ASTM A780. GALVANIZING REPAIR PAINTS CONTAINING ALUMINUM SHALL NOT BE USED ON SURFACES TO BE IN CONTACT WITH FRESH CONCRETE.

10. UNLESS OTHERWISE NOTED, DIMENSIONAL TOLERANCES & SURFACE FINISHES SHALL SATISFY THE REQUIREMENTS OF AASHTO DIVISION II, SECTION 18, TABLE 18.5.1.5–1.

11. THE TEMPERATURE OF THE STEEL ADJACENT TO THE PTFE & FABRIC PAD SHALL NOT EXCEED 300°F (149°C). TEMPERATURE SHALL BE CONTROLLED BY THE USE OF TEMPERATURE INDICATING CRAYON OR OTHER DEVICES APPROVED BY THE ENGINEERS.

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CK'D BY LBB OK'D BY CWC
FEB 2 2 2007
RESUBMIT ____ APPROVED ✓
BY EKW DATE 2/26/07
Structures

REV.	DESCRIPTION	DATE	DET.	CK'D.
⚠	REV. S.S. THICKNESS	2/15/07	DA	NRH

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

	ITEM	QUANTITY
LOCATION — VT 15 OVER LAMOILLE RIVER	–	–
BRIDGE — 20	–	–
PROJECT — BHF 030–2(19)S	–	–
—	–	–
—	–	–
DESIGNER — URS	–	–
CUSTOMER — BECK & BELLUCCI, INC.	–	–
	–	–

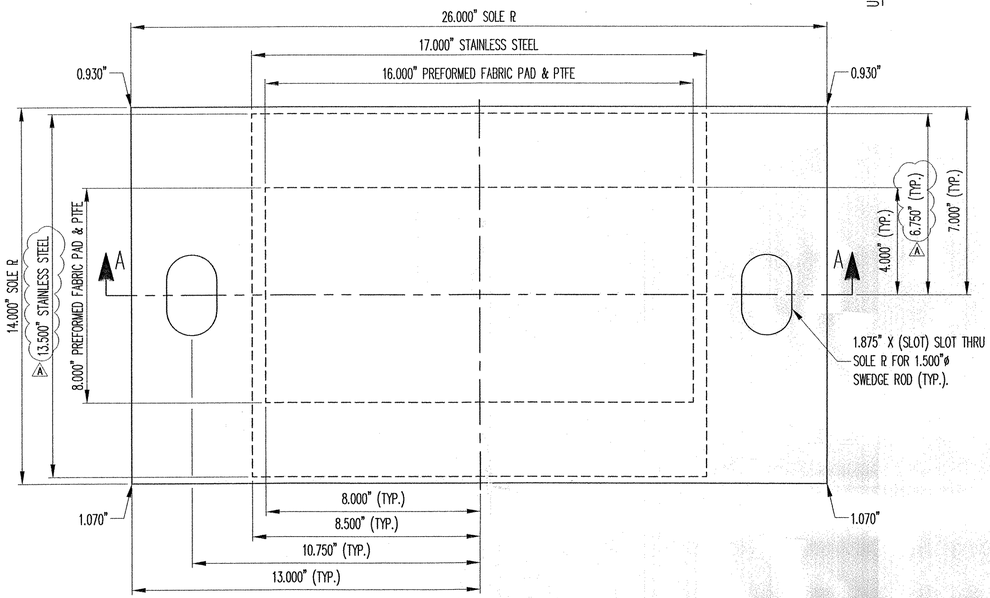
DESCRIPTION:
GENERAL NOTES
LAMOILLE CO., VT

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	–
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
19368	1106	1	GN1	

072 66

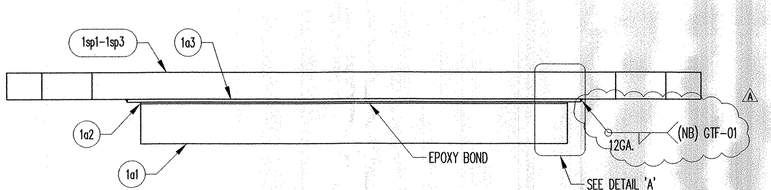
SLOTTED HOLE SCHEDULE

ASSM MARK	LOCATION	QTY	SLOTTED HOLE SLOT
1A	SPAN 2, PIER 1	7	3.875"
1F	SPAN 2, PIER 2	7	5.125"
1F	SPAN 3, PIER 2	7	5.125"
1G	SPAN 3, PIER 3	7	7.125"
1A	SPAN 4, PIER 4	7	3.875"
1A	SPAN 5, PIER 4	7	3.875"

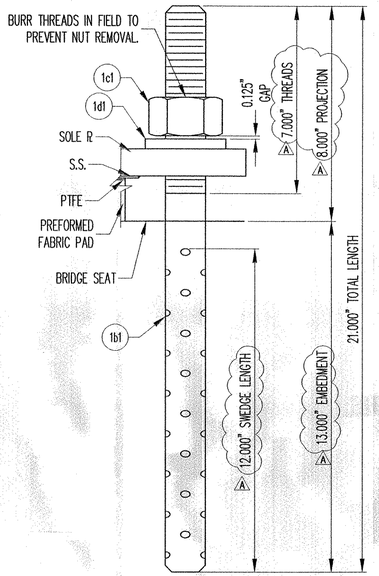


PLAN VIEW

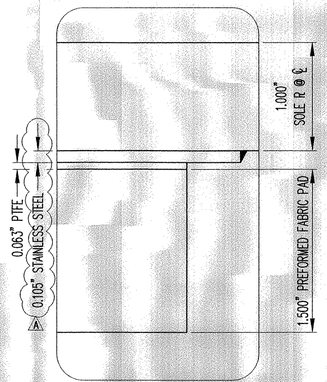
SLIDING PREFORMED FABRIC BEARING
(7) REQ'D @ SPAN 2, PIER 1
(7) REQ'D @ SPAN 2, PIER 2
(7) REQ'D @ SPAN 3, PIER 2
(7) REQ'D @ SPAN 3, PIER 3
(7) REQ'D @ SPAN 4, PIER 4
(7) REQ'D @ SPAN 5, PIER 4



SECTION 'A-A'



SWEDGE ROD DETAIL



DETAIL 'A'

LOAD TABLE

LOAD DATA	
DEAD LOAD REACTION (KIPS)	56.6
LIVE LOAD REACTION (KIPS)	60.1
TOTAL LOAD REACTION (KIPS)	116.7

MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
1A	21	FABRIC BEARING				
1a1	21	1.500" X 16.000"	AASHTO 18.4.9.1	8.000"		
1a2	21	0.063" X 16.000"	PTFE	8.000"	PURE VIRGIN UNFILLED	
1a3	21	12 GA. X 17.000"	A240 T304, #8 & 2B	13.500"	PLAIN	
1sp1	21	1.070" X 26.000"	A709 GR 36	14.000"	A123-HDG	
1B	84	SWEDGE ROD				
1b1	84	1.500"ø X 21.000" SWEDGED ROD	A449		7" THREADS, 12" SWEDGE; A153-HDG	
1C	84	HEAVY HEX NUT				
1c1	84	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
1D	84	WASHER PLATE				
1d1	84	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	
1F	14	FABRIC BEARING				
1a1	14	1.500" X 16.000"	AASHTO 18.4.9.1	8.000"		
1a2	14	0.063" X 16.000"	PTFE	8.000"	PURE VIRGIN UNFILLED	
1a3	14	12 GA. X 17.000"	A240 T304, #8 & 2B	13.500"	PLAIN	
1sp2	14	1.070" X 26.000"	A709 GR 36	14.000"	A123-HDG	
1G	7	FABRIC BEARING				
1a1	7	1.500" X 16.000"	AASHTO 18.4.9.1	8.000"		
1a2	7	0.063" X 16.000"	PTFE	8.000"	PURE VIRGIN UNFILLED	
1a3	7	12 GA. X 17.000"	A240 T304, #8 & 2B	13.500"	PLAIN	
1sp3	7	1.070" X 26.000"	A709 GR 36	14.000"	A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

SEE SHT. GN1 FOR GENERAL NOTES.

RECEIVED
CK'D BY LBB CK'D BY
FEB 2 2 2007
RESUBMIT APPROVED
BY RRW DATE 2/26/07

REV.	DESCRIPTION	DATE	DET.	CKD.
1	REV. S.S. THICKNESS, ANCHOR BOLT & BOM	2/15/07	DA	NRH

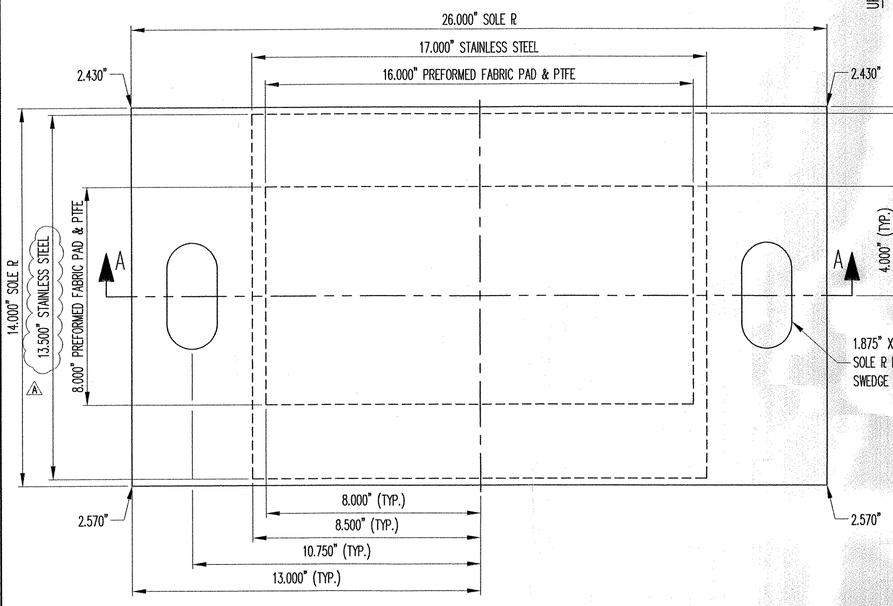
D.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — VT 15 OVER LAMOILLE RIVER	19368-1106-1	42 OF 42
BRIDGE — 20	–	–
PROJECT — BHF 030-2(19)S	–	–
—	–	–
—	–	–
DESIGNER — URS	–	–
CUSTOMER — BECK & BELLUCCI, INC.	–	–
	–	–

DESCRIPTION:
PREFORMED FABRIC BEARING
LAMOILLE CO., VT

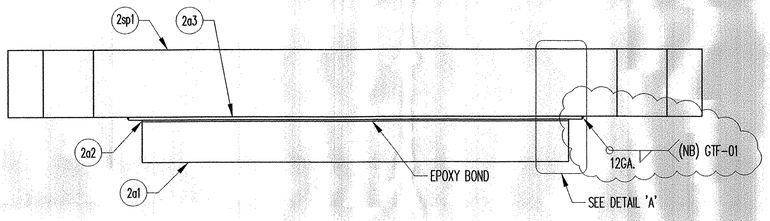
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	–
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
19368	1106	1	01	

01366

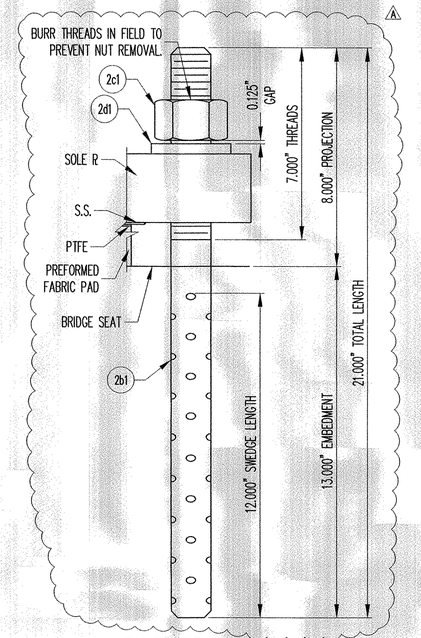


PLAN VIEW

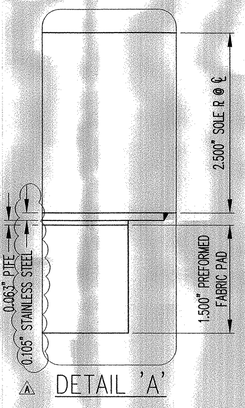
SLIDING PREFORMED FABRIC BEARING
(1) REQ'D @ SPAN 1, PIER 1, BEAM 1



SECTION 'A-A'



SWEDGE ROD DETAIL



DETAIL 'A'

MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
2A	1	FABRIC BEARING				
2a1	1	1.500" X 16.000"	AASHTO 18.4.9.1	8.000"		
2a2	1	0.063" X 16.000"	PTFE	8.000"	PURE VIRGIN UNFILLED	
2a3	1	12 GA. X 17.000"	A240 T304, §8 & 2B	13.500"	PLAIN	
2sp1	1	2.570" X 26.000"	A709 GR 36	14.000"	A123-HDG	
2B	2	SWEDGE ROD				
2b1	2	1.500"ø X 21.000" SWEDGED ROD	A449		(7" THREADS, 12" SWEDGE; A153-HDG	
2C	2	HEAVY HEX NUT				
2c1	2	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
2D	2	WASHER PLATE				
2d1	2	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

LOAD TABLE

LOAD DATA	
DEAD LOAD REACTION (KIPS)	32.8
LIVE LOAD REACTION (KIPS)	58.0
TOTAL LOAD REACTION (KIPS)	90.8

RECEIVED
CK'D BY LBB OK'D BY
FEB 2 2 2007
RESUBMIT APPROVED
BY DKW DATE 2/26/07

SEE SHT. GN1 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	DET.	CKD.
1	REV. QTY, S.S. THICKNESS, ANCHOR ROD & BOM	2/15/07	DA	NRH

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

LOCATION — VT 15 OVER LAMOILLE RIVER
BRIDGE — 20
PROJECT — BHF 030-2(19)S
—
—
DESIGNER — URS
CUSTOMER — BECK & BELLUCCI, INC.

ITEM	QUANTITY
19368-1106-2	1 OF 7
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–

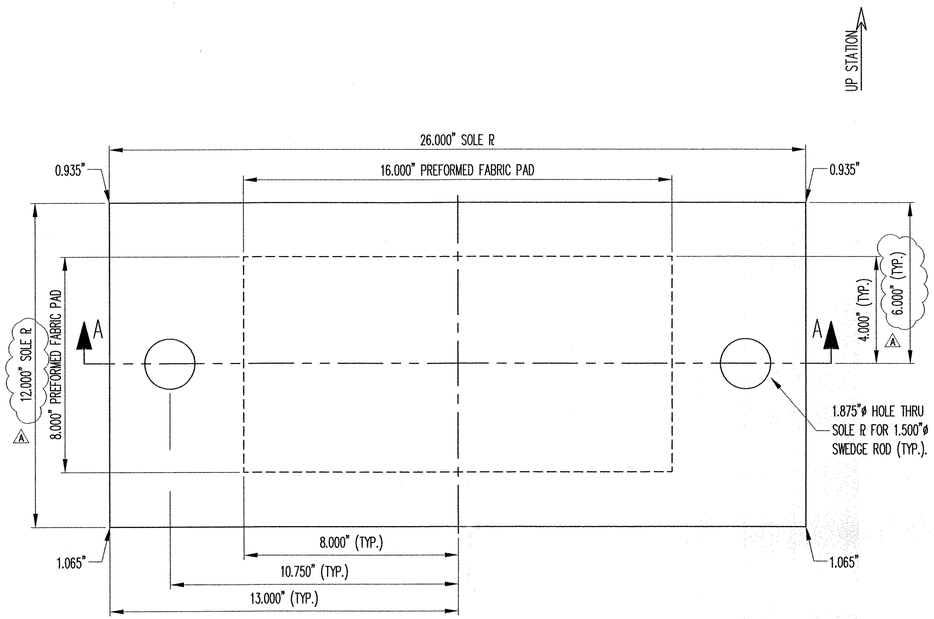
DESCRIPTION: PREFORMED FABRIC BEARING
LAMOILLE CO., VT

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	–
PROJECT NUMBER: 19368	PRODUCT CODE: 1106	RELEASE: 1	SHEET: 02	

074

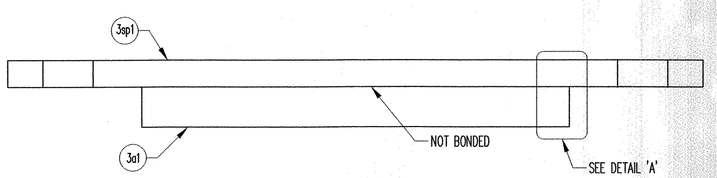
MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
3A	15	FABRIC BEARING				
3a1	15	1.500" X 16.000"	AASHTO 18.4.9.1	8.000"		
3sp1	15	1.065" X 26.000"	A709 GR 36	12.000"	EPOXY BOND TO SOLE PLATE; A123-HDG	
3B	30	SWEDGE ROD				
3b1	30	1.500"ø X 21.000" SWEDGED ROD	A449		7" THREADS, 12" SWEDGE; A153-HDG	
3C	30	HEAVY HEX NUT				
3c1	30	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
3D	30	WASHER PLATE				
3d1	30	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

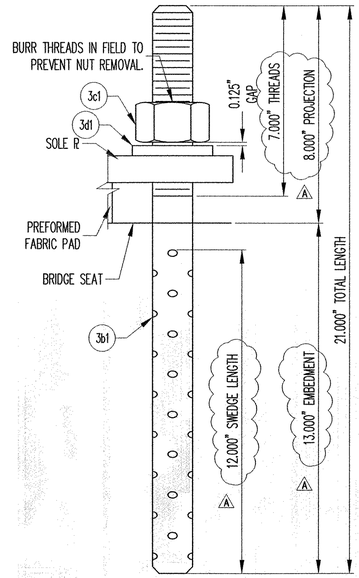


PLAN VIEW

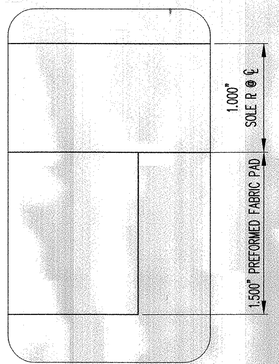
FIXED PREFORMED FABRIC BEARING
(1) REQ'D @ ABUT. 1, BEAM 1
(7) REQ'D @ SPAN 4, PIER 3
(7) REQ'D @ ABUT. 2



SECTION 'A-A'



SWEDGE ROD DETAIL



DETAIL 'A'

RECEIVED
CK'D BY LBB CK'D BY
FEB 2 2 2007
RESUBMIT APPROVED
BY RW DATE 2/26/07

SEE SHT. GN1 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	DET.	CKD.
1	REV. QTY, SOLE PL. DIMENSION, ANCHOR ROD & BOM	2/15/07	DA	NRH

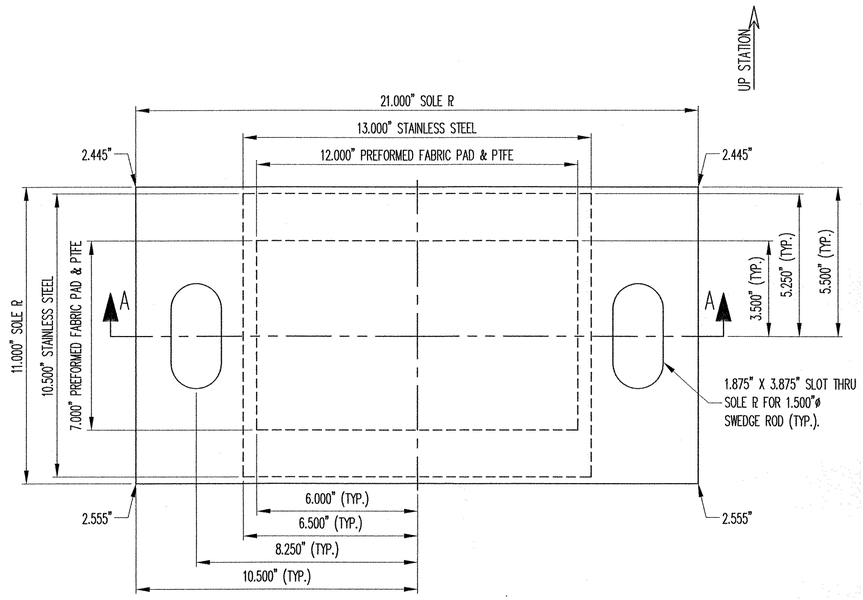
D.S. BROWN
THE D.S. BROWN COMPANY
300 E. CHERRY STREET
NORTH BALTIMORE, OHIO 45872
419.257.3561
FAX: 419.257.0332
WWW.DSBROWN.COM

	ITEM	QUANTITY
LOCATION — VT 15 OVER LAMOILLE RIVER	19368-1106-3	(15 OF 24)
BRIDGE — 20	–	1
PROJECT — BHF 030-2(19)S	–	–
—	–	–
—	–	–
DESIGNER — URS	–	–
CUSTOMER — BECK & BELLUCCI, INC.	–	–
	–	–

DESCRIPTION:
PREFORMED FABRIC BEARING
LAMOILLE CO., VT

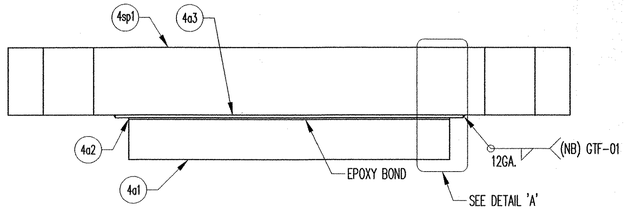
SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	–
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET:	
19368	1106	1	03	

075 66

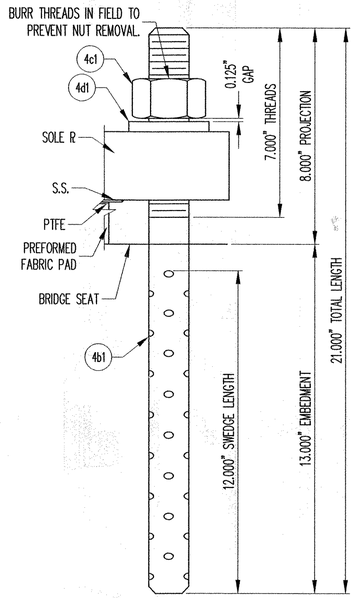


PLAN VIEW

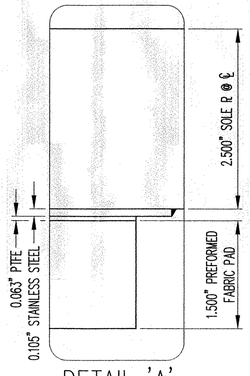
SLIDING PREFORMED FABRIC BEARING
(6) REQ'D @ SPAN 1, PIER 1, BEAM 2-7



SECTION 'A-A'



SWEDGE ROD DETAIL



DETAIL 'A'

MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
4A	6	FABRIC BEARING				
4a1	6	1.500" X 12.000"	AASHTO 18.4.9.1	7.000"		
4a2	6	0.063" X 12.000"	PTFE	7.000"	PURE VIRGIN UNFILLED	
4a3	6	12 GA. X 13.000"	A240 T304, §8 & 2B	10.500"	PLAIN	
4sp1	6	2.555" X 21.000"	A709 GR 36	11.000"	A123-HDG	
4B	12	SWEDGE ROD				
4b1	12	1.500"ø X 21.000" SWEDGED ROD	A449		7" THREADS, 12" SWEDGE; A153-HDG	
4C	12	HEAVY HEX NUT				
4c1	12	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
4D	12	WASHER PLATE				
4d1	12	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

LOAD TABLE

LOAD DATA	
DEAD LOAD REACTION (KIPS)	32.8
LIVE LOAD REACTION (KIPS)	58.0
TOTAL LOAD REACTION (KIPS)	90.8

RECEIVED
CK'D BY LBB OK'D BY
FEB 2 2 2007
RESUBMIT APPROVED
BY RRW DATE 2/26/07

SEE SHT. GN1 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	DET.	CKD.
1	ADDED NEW SHT. FROM SHT. 2	2/15/07	DA	NRH

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

LOCATION — VT 15 OVER LAMOILLE RIVER
BRIDGE — 20
PROJECT — BHF 030-2(19)S
—
—
DESIGNER — URS
CUSTOMER — BECK & BELLUCCI, INC.

ITEM	QUANTITY
19368-1106-2	6 OF 7
–	–
–	–
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–	–
–	–
–	–

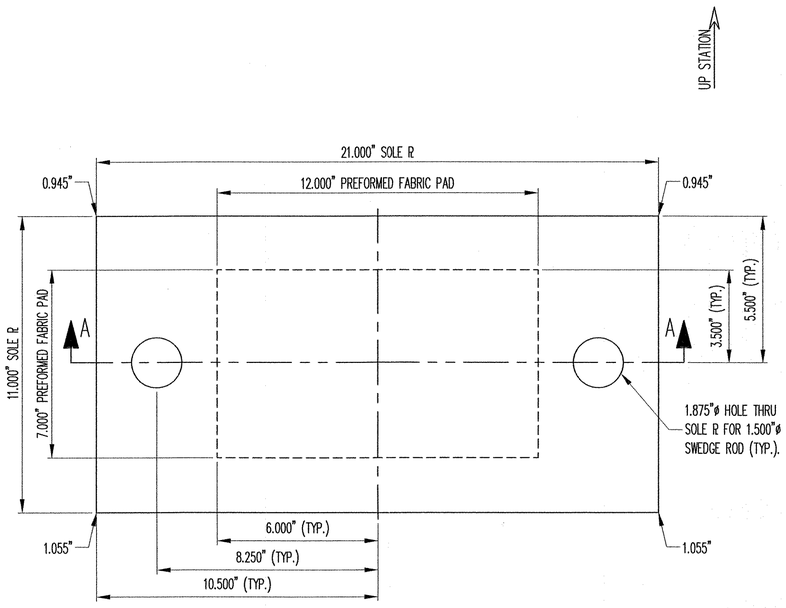
DESCRIPTION:
PREFORMED FABRIC BEARING
LAMOILLE CO., VT

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	2/15/07	–
PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET	
19368	1106	1	04	

6 of 6

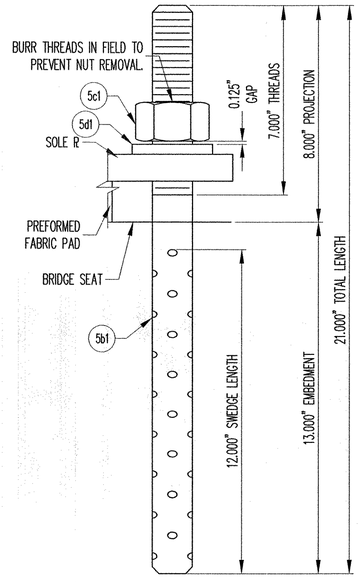
MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
5A	6	FABRIC BEARING				
5a1	6	1.500" X 12.000"	AASHTO 18.4.9.1	7.000"		
5sp1	6	1.055" X 21.000"	A709 GR 36	11.000"	EPOXY BOND TO SOLE PLATE; A123-HDG	
5B	12	SWEDGE ROD				
5b1	12	1.500"ø X 21.000" SWEDGED ROD	A449		7" THREADS, 12" SWEDGE; A153-HDG	
5C	12	HEAVY HEX NUT				
5c1	12	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
5D	12	WASHER PLATE				
5d1	12	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

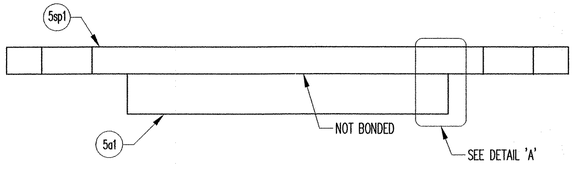


PLAN VIEW

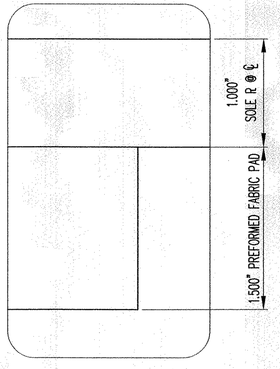
FIXED PREFORMED FABRIC BEARING
(6) REQ'D @ ABUT. 1, BEAM 2-7



SWEDGE ROD DETAIL



SECTION 'A-A'



DETAIL 'A'

SEE SHT. GN1 FOR GENERAL NOTES.

RECEIVED
CK'D BY LBB OK'D BY
FEB 2 2 2007
RESUBMIT APPROVED
BY DATE 2/26/07

REV.	DESCRIPTION	DATE	DET.	CKD.
1	ADDED NEW SHT. FROM SHT. 3	2/15/07	DA	NRH

D.S. BROWN

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

LOCATION — VT 15 OVER LAMOILLE RIVER
BRIDGE — 20
PROJECT — BHF 030-2(19)S
—
—
DESIGNER — URS
CUSTOMER — BECK & BELLUCCI, INC.

ITEM	QUANTITY
19368-1106-3	6 OF 24
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–

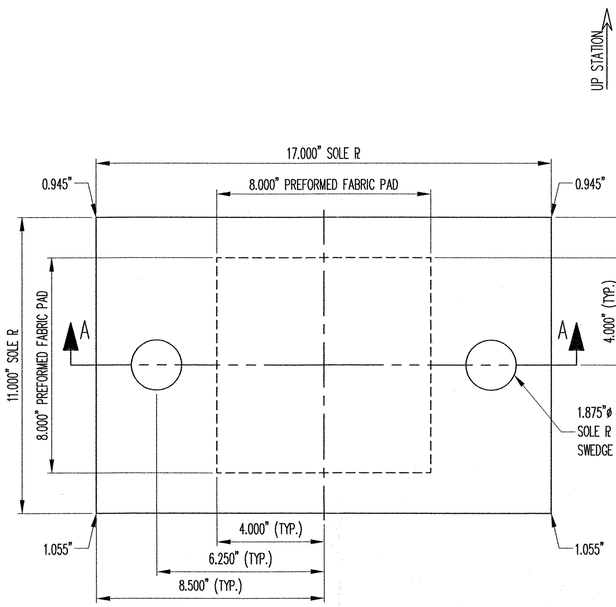
DESCRIPTION:
PREFORMED FABRIC BEARING
LAMOILLE CO., VT

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	–
PROJECT NUMBER		PRODUCT CODE	RELEASE	SHEET
19368		1106	1	05

077 bb

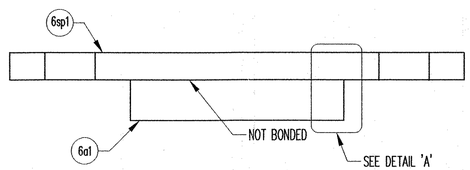
MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
6A	1	FABRIC BEARING				
6a1	1	1.500" X 8.000"	AASHTO 18.4.9.1	8.000"		
6sp1	1	1.055" X 17.000"	A709 GR 36	11.000"	EPOXY BOND TO SOLE PLATE; A123-HDG	
6B	2	SWEDGE ROD				
6b1	2	1.500"ø X 21.000" SWEDGED ROD	A449		7" THREADS, 12" SWEDGE; A153-HDG	
6C	2	HEAVY HEX NUT				
6c1	2	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
6D	2	WASHER PLATE				
6d1	2	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

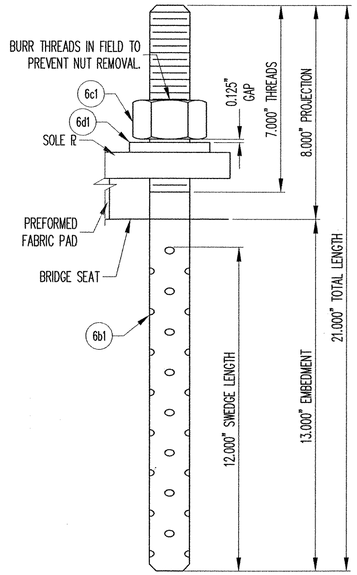


PLAN VIEW

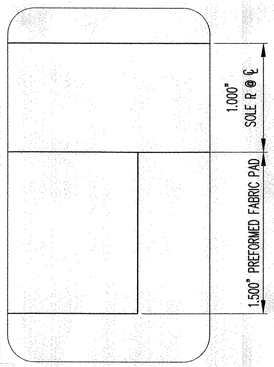
FIXED PREFORMED FABRIC BEARING
(1) REQ'D @ ABUT. 1, BEAM A



SECTION 'A-A'



SWEDGE ROD DETAIL



DETAIL 'A'

RECEIVED
CK'D BY LBB OK'D BY
FEB 2 2 2007
RESUBMIT. APPROVED
BY DATE 2/24/07

SEE SHT. GN1 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	DET.	CKD.
1	ADDED NEW SHT. FROM SHT. 3	2/15/07	DA	NRH

D.S. BROWN

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

LOCATION — VT 15 OVER LAMOILLE RIVER
BRIDGE — 20
PROJECT — BHF 030-2(19)S
—
—
DESIGNER — URS
CUSTOMER — BECK & BELLUCCI, INC.

ITEM	QUANTITY
19368-1106-3	1 OF 24
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–

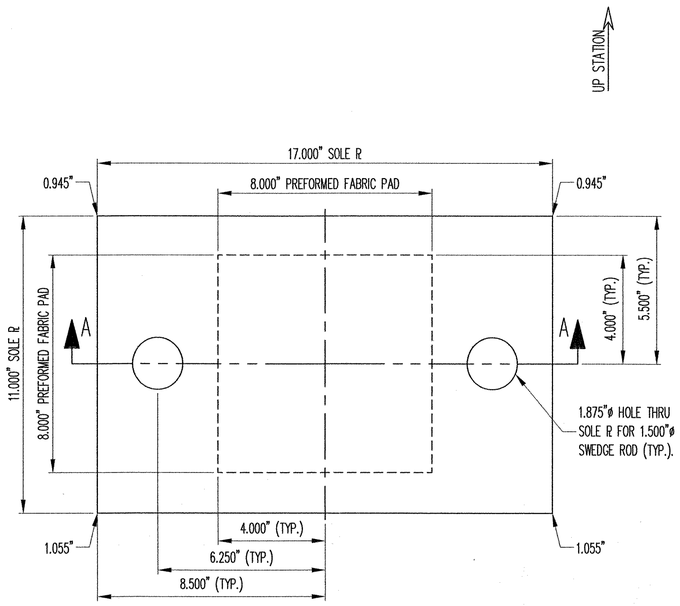
DESCRIPTION:
PREFORMED FABRIC BEARING
LAMOILLE CO., VT

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	–
PROJECT NUMBER		PRODUCT CODE	RELEASE	SHEET
19368		1106	1	06

0786

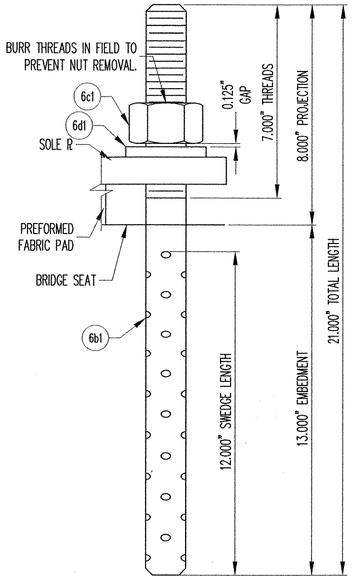
MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
6A	1	FABRIC BEARING				
6a1	1	1.500" X 8.000"	AASHTO 18.4.9.1	8.000"		
6sp1	1	1.055" X 17.000"	A709 GR 36	11.000"	EPOXY BOND TO SOLE PLATE; A123-HDG	
6B	2	SWEDGE ROD				
6b1	2	1.500"ø X 21.000" SWEDGED ROD	A449		7" THREADS, 12" SWEDGE; A153-HDG	
6C	2	HEAVY HEX NUT				
6c1	2	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
6D	2	WASHER PLATE				
6d1	2	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

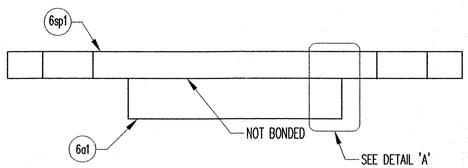


PLAN VIEW

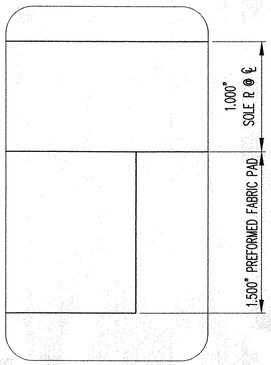
FIXED PREFORMED FABRIC BEARING
(1) REQ'D @ ABUT. 1, BEAM A



SWEDGE ROD DETAIL



SECTION 'A-A'



DETAIL 'A'

RECEIVED
CK'D BY LBB OK'D BY
FEB 2 2 2007
RESUBMIT APPROVED
BY DATE 2/26/07

SEE SHT. GN1 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	DET.	CKD.
1	ADDED NEW SHT. FROM SHT. 3	2/15/07	DA	NRH

D.S. BROWN

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

LOCATION — VT 15 OVER LAMOILLE RIVER
BRIDGE — 20
PROJECT — BHF 030-2(19)S
—
—
DESIGNER — URS
CUSTOMER — BECK & BELLUCCI, INC.

ITEM	QUANTITY
19368-1106-3	1 OF 24
–	–
–	–
–	–
–	–
–	–
–	–
–	–
–	–

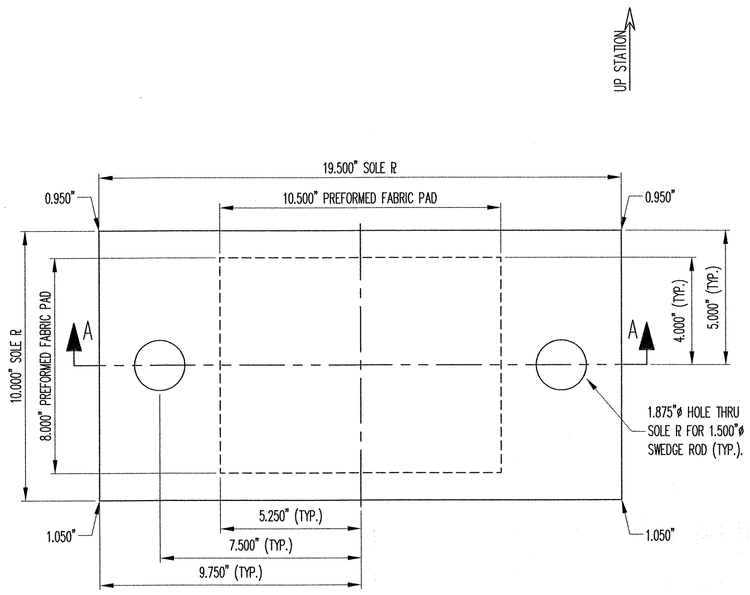
DESCRIPTION:
PREFORMED FABRIC BEARING
LAMOILLE CO., VT

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	–

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
19368	1106	1	06

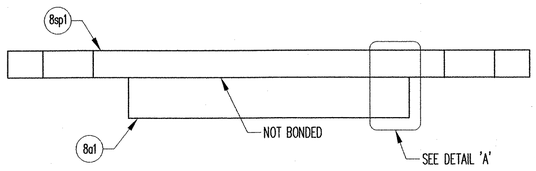
MK	QTY.	DESCRIPTION	MATERIAL	LENGTH	REMARKS	PART NO.
8A	1	FABRIC BEARING				
8a1	1	1.500" X 10.500"	AASHTO 18.4.9.1	8.000"		
8sp1	1	1.050" X 19.500"	A709 GR 36	10.000"	EPOXY BOND TO SOLE PLATE; A123-HDG	
8B	2	SWEDGE ROD				
8b1	2	1.500"ø X 21.000" SWEDGED ROD	A449		7" THREADS, 12" SWEDGE; A153-HDG	
8C	2	HEAVY HEX NUT				
8c1	2	1.500"ø HEX NUT	A563-DH OR A194-2H		A153-HDG	
8D	2	WASHER PLATE				
8d1	2	0.375" X 3.000"	A36	3.000"	1.625" DIA. HOLE @ CENTER; A123-HDG	

NOTE: ALL MATERIAL SPECIFICATION DESCRIPTIONS ARE ASTM, UNLESS OTHERWISE NOTED.

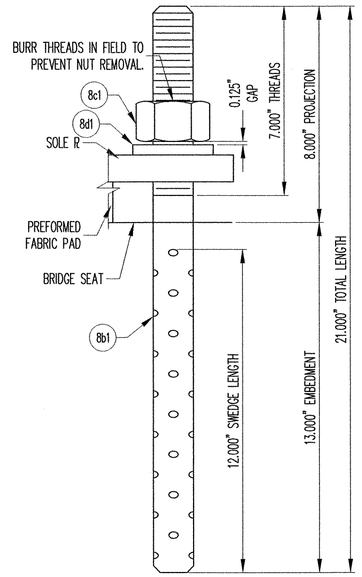


PLAN VIEW

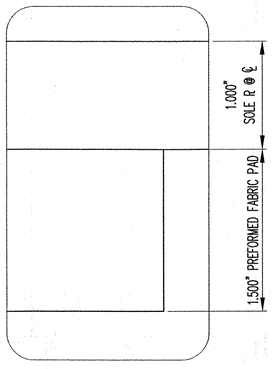
FIXED PREFORMED FABRIC BEARING
(1) REQ'D @ ABUT. 1, BEAM C



SECTION 'A-A'



SWEDGE ROD DETAIL



DETAIL 'A'

RECEIVED
OK'D BY LBB OK'D BY
FEB 2 2 2007
RESUBMIT APPROVED
BY RJW DATE 2/26/07

SEE SHT. GN1 FOR GENERAL NOTES.

REV.	DESCRIPTION	DATE	DET.	CKD.
A	ADDED NEW SHT. FROM SHT. 3	2/15/07	DA	NRH

D.S. BROWN

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

	ITEM	QUANTITY
LOCATION — VT 15 OVER LAMOILLE RIVER	19368-1106-3	1 OF 24
BRIDGE — 20	—	—
PROJECT — BHF 030-2(19)S	—	—
—	—	—
—	—	—
DESIGNER — URS	—	—
CUSTOMER — BECK & BELLUCCI, INC.	—	—
	—	—

DESCRIPTION:
PREFORMED FABRIC BEARING
LAMOILLE CO., VT

SCALE:	DRAWN BY:	CHECKED BY:	DATE:	
N.T.S.	DA	NRH	1/22/07	—

PROJECT NUMBER	PRODUCT CODE	RELEASE	SHEET
19368	1106	1	08

80

Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

hone: (207) 772-2533 Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

Material specification ASTM 709-Gr36-50-50W (250-345-345W.)
Welding process Shielded Metal Arc welding (SMAW)
Manual or machine Manual
Position of welding Flat (1F), Horizontal (2F)
Filler metal specification ANSI/AWS A5.1 - A5.5
Filler metal classification E7018 - 8018 C1/C3 - 702B
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single and multiple
Single or multiple arc Single
Welding current AC/DC
Polarity STraight / Reverse
Welding progression
Root treatment Meet AWS SPECIFICATION
Preheat and interpass temperature To 3/4(19) 50°F(10°C) 3/4(19) To 1 1/2(38) 70°F(20°C) 1 1/2(38) To 2 1/2(63.5) 150°F(65°C) over 2 1/2(63.5) 225°F(110°C)
Postheat temperature NA
Heat Input Min NA Max NA

VTRANS
RECEIVED
CK'D BY OK'D BY JWC
FEB 2 1 2007
RESUBMIT APPROVED ✓
BY DATE 2-23-07

VT. 15 over Lamille Rv.
Cambridge VT
Proj. BHF-030-2-19-5
BR No. 20, CBSS 313

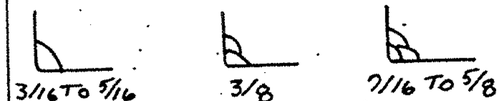
WELDING PROCEDURE (Metric)

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
	7018			
	1/8 (3.2)	70-170	22-26	
AS	5/32 (3.9)	120-225	22-26	AS
	3/16 (4.8)	170-300	24-27	
REQ.	8018			REQ
	1/8 (3.2)	90-160	22-26	
	5/32 (3.9)	120-225	22-26	
	3/16 (4.8)	180-290	24-27	
	7028			
	5/32 (3.9)	170-290	22-26	
	3/16 (4.8)	210-330	24-27	

AWS D1.1-5 Joint detail Fillet

1F

2F



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

AWS QC 1 PAUL E. HOODALE 08102001 CWI

Procedure no. 401
Revision no.
Form III-2

Contractor Casco Bay Steel
Authorized By Paul E. Hoodale
Date 3/2/00

Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

Phone: (207) 772-2533 Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

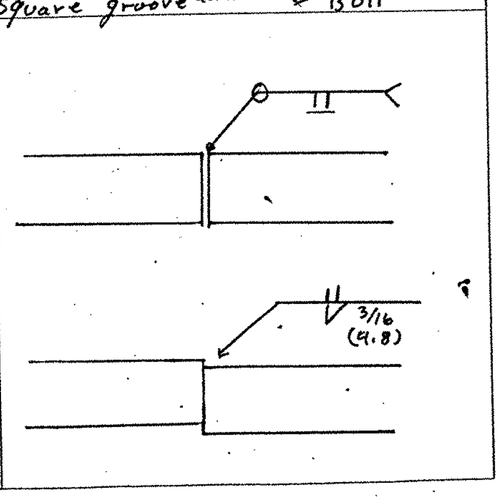
Material specification A36 - A572 - A588 .. (ASTM 709 Gr 36-50-50W
Welding process Flux Cored Arc Welding (FCAW)
Manual or machine Semi - AUTO
Position of welding Flat
Filler metal specification AWS 5.20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40 E5
Single or multiple pass Single. Electrode stick out 3/4 to 1 1/4
Single or multiple arc Single
Welding current Direct current
Polarity Reverse Electode Positive
Welding progression See Detail
Root treatment Meet A.W.S., weld From one side only
Preheat and interpass temperature 0 To 3/4-50° F (19-10° C) T 3/4 To 1 1/2-70° F (+19 To 38-20° C)
Posfheat temperature NA
Heat Input Min NA Max NA

VT. 15 over Lamille RV
Cambridge VT
Proj. BHF-030-2-19-5
BY No. 20, CBSS 313

WELDING PROCEDURE

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
	1/16	280 ±28	25 ±1.7	17 Ipm ±1.7
	1.6	280 ±28	25 ±1.7	432 ±43.2

AWS D1-5
Square groove Joint detail Fillet / BUTT



VTRANS
RECEIVED
FEB 2 1 2007

CK'D BY OK'D BY JWC
RESUBMIT APPROVED ✓
BY DATE 3-5-07

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

Procedure no. 105
Revision no.
Form III-2

AWS - QC1
Paul E. Goodale
83100201
C.W.I.

Contractor Casco Bay Steel
Authorized By Paul E. Goodale
Date 2/2/99

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

Phone: (207) 282-7360 Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A709/A709M - Grade 36(250) 50(345) 50W(345W)
Welding process Flux Cored Arc welding (FCAW)
Manual or machine Semi AUTO
Position of welding Flat (1G) Horizontal (2G)
Filler metal specification AWS A5-20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40CFH ±5
Single or multiple pass Single and Multiple - Electrode Extension 5/8 ± 1/4 (15.87 ± 6.35)
Single or multiple arc Single
Welding current DC
Polarity Reverse
Welding progression See Joint Detail
Root treatment To meet AWS specification
Preheat and interpass temperature To 3/4 (19): 50°(10°) - 3/4 (19) To 1 1/2 (38): 70°(20) - 1 1/2 (38) To 2 1/2 (63) 150°(65) over 2 1/2 (63) = 225°(110°)
Postheat temperature NA
Heat Input Min _____ Max _____

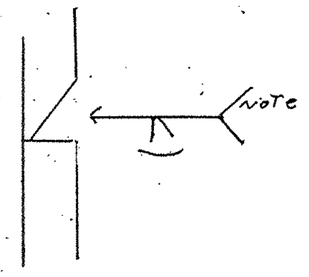
VT. 15 over Lamille Rd
Cambridge VT
Proj. BHF-030-2-19-5
BV no. 20, CBSS 313

WELDING PROCEDURE

(METRIC)

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
	1/16	275 247.5 To 302.5	28.8 26.8 To 30.8	11.6 10.4 To 12.8
		(METRIC)		
	1.6	275 247.5 To 302.5	28.8 26.8 To 30.8	294.6 264.2 To 325.12

Joint detail AWS D1.5 TC P4-F



NOTE: Grind Flush as Req

RECEIVED
FEB 21 2007

CK'D BY _____ OK'D BY _____
RESUBMIT _____ APPROVED _____
BY _____ DATE _____

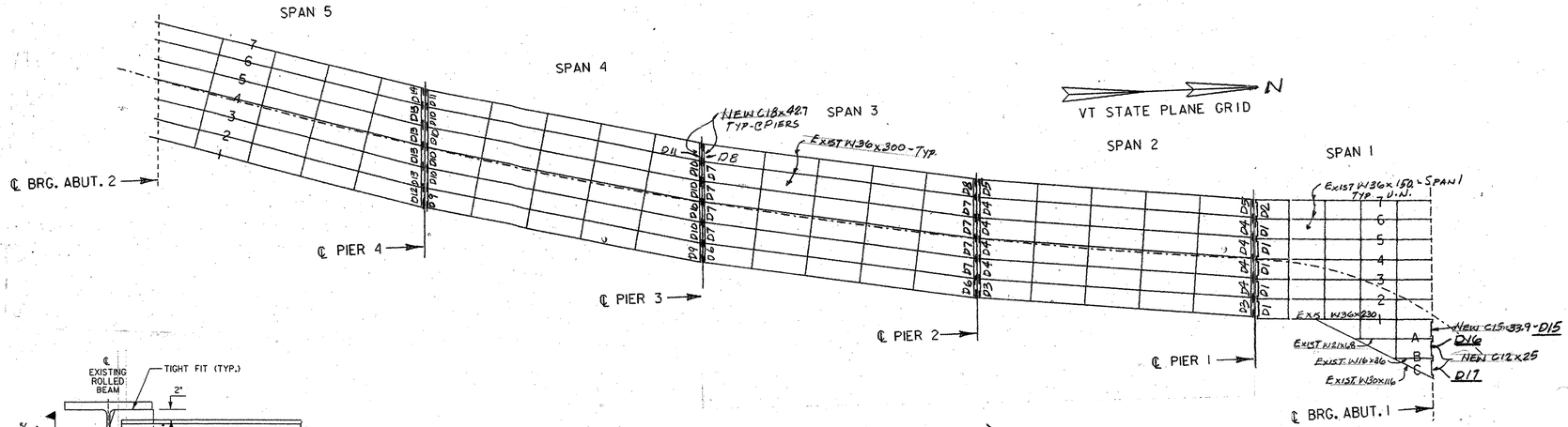
This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 103
Revision no. _____
Form III-2

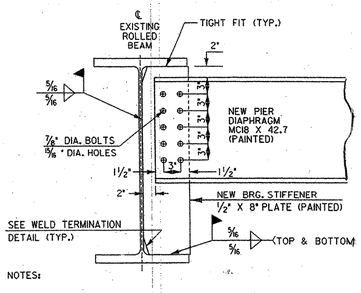
AWS QC1 PAUL E. GOODALE 03100201 CWI

Contractor Casco Bay Steel
Authorized By Paul E. Goodale
Date 3/23/00

JOB NO. 313 | DRG. NO. E1



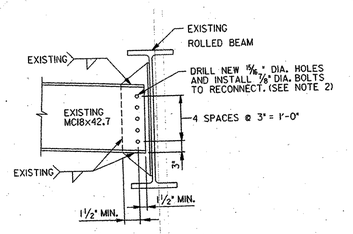
EXISTING FRAMING PLAN (SPANS 1-5)



NOTES:

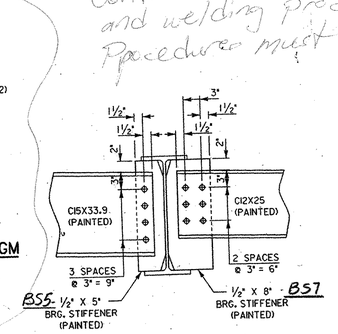
1. BEARING STIFFENERS WILL BE LAID OUT PARALLEL TO AND CENTERED ON THE CENTERLINE OF BEARING.
2. BEARING STIFFENERS TO BE PROVIDED WITH EXTRA LENGTH TO COMPENSATE FOR SLOPED AND DETERIORATED FLANGES. CONTRACTOR TO MEASURE AND FURNISH LENGTHS REQUIRED.

PIER DIAPHRAGMS



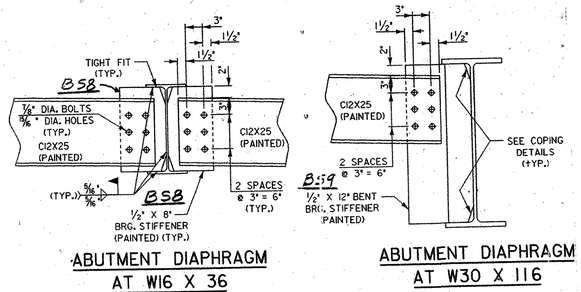
DISCONNECT AND RECONNECT DIAPHRAGM SPAN 2-5

N.T.S.



ABUTMENT DIAPHRAGM AT W21X 68

N.T.S.

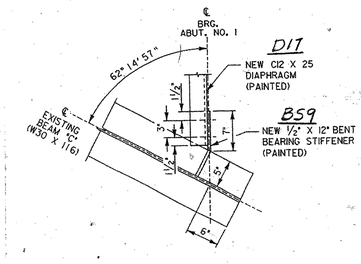


ABUTMENT DIAPHRAGM AT W16 X 36

N.T.S.

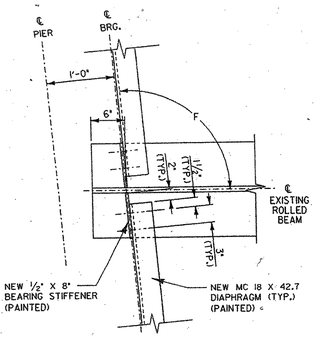
ABUTMENT DIAPHRAGM AT W30 X 116

N.T.S.



BEARING STIFFENER DETAIL @ BEAM "C"

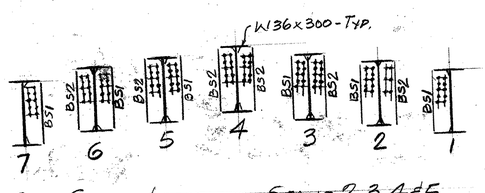
NTS



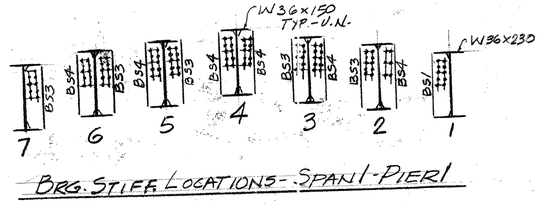
NOTE: SEE SHEET 32 FOR 'F'

BEARING STIFFENER DETAIL @ PIERS

NTS



BRG. STIFF. LOCATIONS - SPANS 2, 3, 4 & 5



BRG. STIFF. LOCATIONS - SPAN 1 - PIER 1

RECEIVED
CK'D BY JPF CK'D BY EJ
FEB 2 1 2007
RESUBMIT ____ APPROVED AS NOTED
BY DATE

Contractor must submit weld removal procedure and welding procedures for all field welding. Procedures must be approved prior to field work.

Structures Copy

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-13-07									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE - 20
MATERIAL: AASHTO M270-GR36-50 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: ⅞" A325
SURFACE PREP. & PAINT:
SHOP COAT PER SUPPLEMENTAL SPEC. SECT. 513

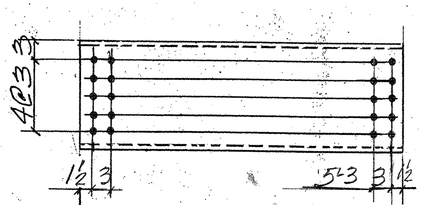
DESCRIPTION: FRAMING PLAN
JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.
CUSTOMER: BECK & BELLUCCI

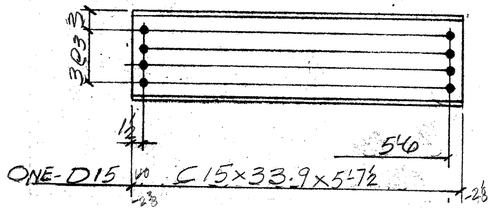
DRAWN BY	DATE
JPF	1-07
CHKD BY	
EJ	
APPROV BY	
Q.A.	

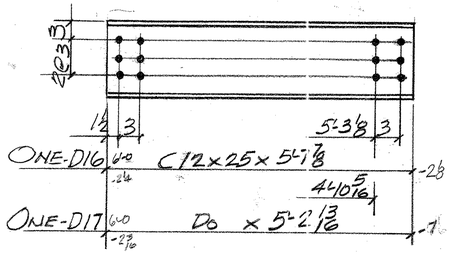
JOB NO.	DRG. NO.
313	E1
	REV. △

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

1" = 1'-0"



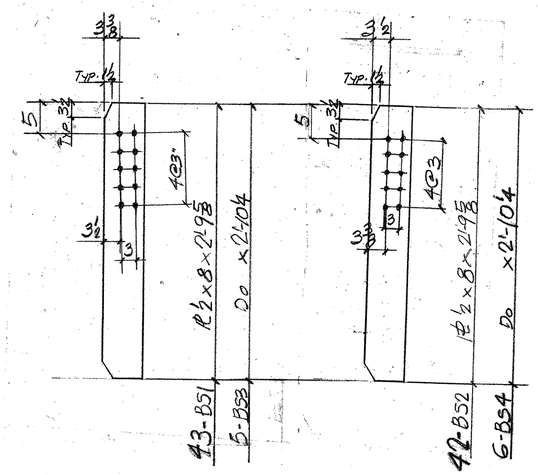


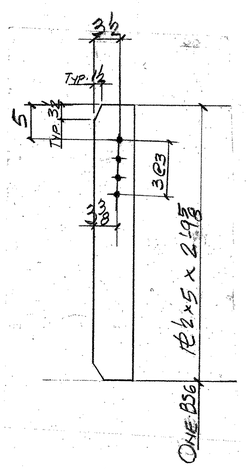


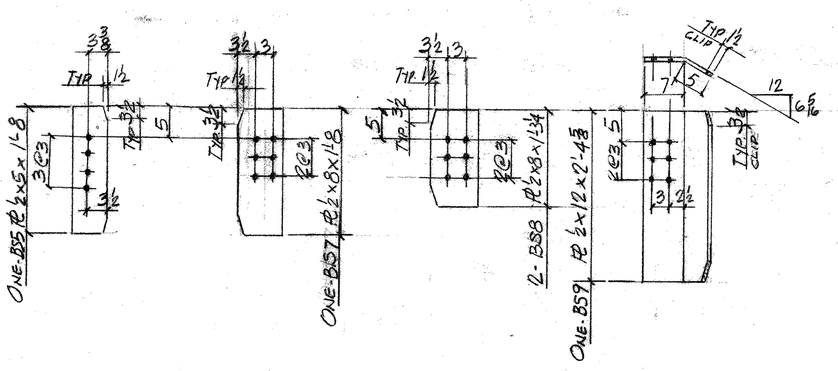
SPAN			
1	5-D1	6'-0 -2 7/16	MC18x42.7x5'-7 1/2 -2 5/16
	ONE-D2	5'-8 2 7/16	4'-11 x 5'-3 1/2 2 5/16
2	2-D3	5'-9 3/16 -2 3/8	4'-11 13/16 x 5'-4 5/16 -2 1/2
	8-D4	6'-0 3/16 -2 3/8	5'-2 13/16 x 5'-7 5/16 -2 1/2
	2-D5	5'-3 1/8 -2 3/8	4'-5 3/4 x 4'-10 1/4 -2 1/2
3	2-D6	5'-9 9/16 -2 3/8	5'-0 3/16 x 5'-4 11/16 -2 1/2
	8-D7	6'-0 9/16 -2 3/8	5'-3 3/16 x 5'-7 1/16 -2 1/2
	2-D8	5'-3 1/2 -2 3/8	4'-6 1/8 x 4'-10 5/8 -2 1/2
4	2-D9	5'-10 1/4 -2 7/16	5'-0 3/4 x 5'-5 1/4 -2 9/16
	8-D10	6'-1 1/4 -2 7/16	5'-3 3/4 x 5'-8 1/4 -2 9/16
	2-D11	5'-4 1/8 -2 7/16	4'-6 5/8 x 4'-11 1/8 -2 9/16
5	ONE-D12	5'-1 1/8 -2 7/16	5'-1 5/8 x 5'-6 1/8 -2 9/16
	4-D13	6'-0 1/4 -2 7/16	5'-4 3/4 x 5'-9 1/4 -2 9/16
	ONE-D14	4'-5 15/16 -2 7/16	MC18x42.7x4'-0 5/16 -2 9/16

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		5	MC18x42.7	5	7 1/2		D1		
		1		5	3 1/2		D2		
		2		5	4 3/16		D3		
		8		5	7 1/16		D4		
		2		4	10 4		D5		
		2		5	4 1/16		D6		
		8		5	7 1/16		D7		
		2		4	10 3/8		D8		
		2		5	5 4		D9		
		8		5	8 4		D10		
		2		4	11 3/8		D11		
		1		5	6 3/8		D12		
		4		5	9 4		D13		
		1	MC18x42.7	4	0 5/16		D14		
		1	C15x33.9	5	7 1/2		D15		
		1	C12x25	5	7 7/8		D16		
		1	D0	5	2 13/16		D17		
		43	PL 1/2 x 8	2	9 3/8		B51		
		42	D0	2	9 3/8		B52		
		5	D0	2	10 4		B53		
		6	D0	2	10 4		B54		
		1	PL 1/2 x 5	1	8		B55		
		1	D0	2	9 3/8		B56		
		1	PL 1/2 x 8	1	8		B57		
		2	D0	1	3 4		B58		
		1	PL 1/2 x 12	2	4 5/8		B59	BENT	
		992	7/8" BOLTS A325		24		FIELD	W/N&W.	
		992							

PAY ITEM 560.60







FIELD NOTE
4" HAS BEEN ADDED TO LENGTHS OF BEARING STIFF'S FOR FIELD FIT-UP.
PLEASE ADVISE IF THIS IS SUFFICIENT

RECEIVED
CK'D BY DRP CK'D BY
FEB 21 2007
RESUBMIT APPROVED
BY DATE

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-13-07									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

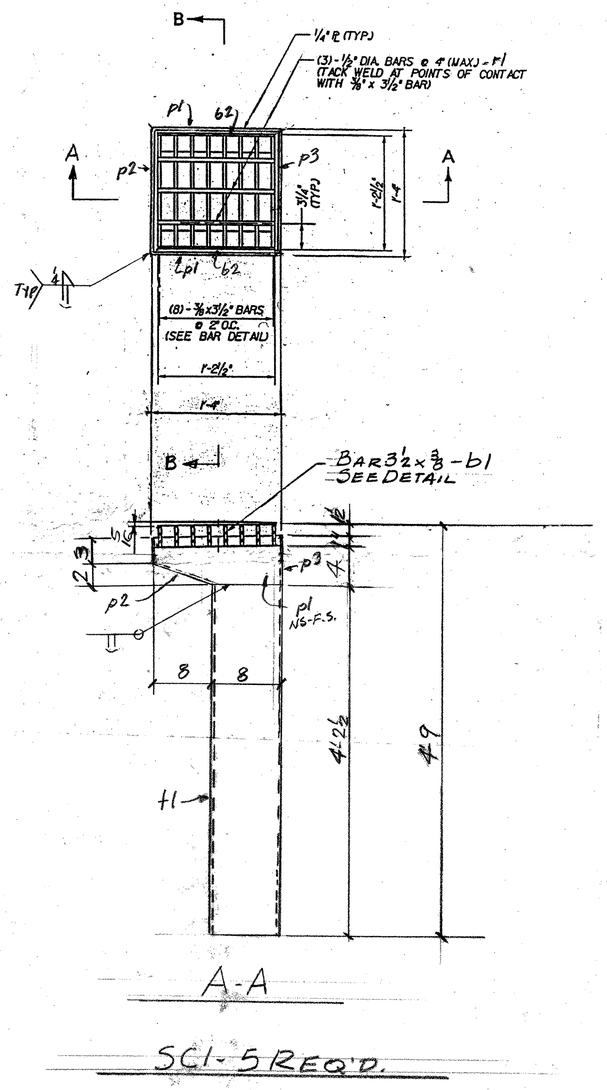
PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE-20
MATERIAL AASHTO M270 Gr 345 WPS3 ELECTRODES: SEE PROC. HOLES: 15/16" ø SHOP BOLTS: —
SURFACE PREP. & PAINT:

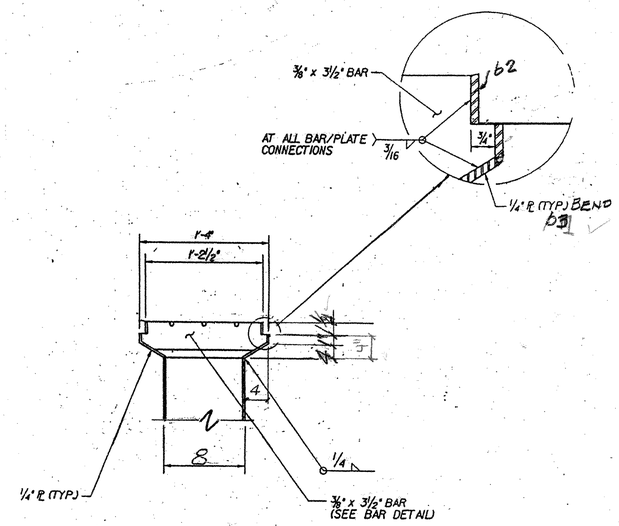
DESCRIPTION: DIAPHRAGM DETAILS
JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.
CUSTOMER: BECK & BELLUCCI

DRAWN BY	DATE
JPF	1-07
CHKD BY	
APPROV BY	
Q.A.	

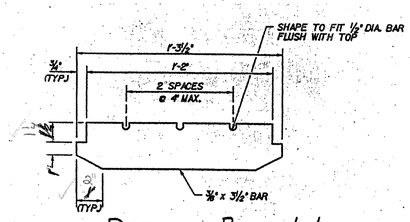
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
313	51
	REV. △

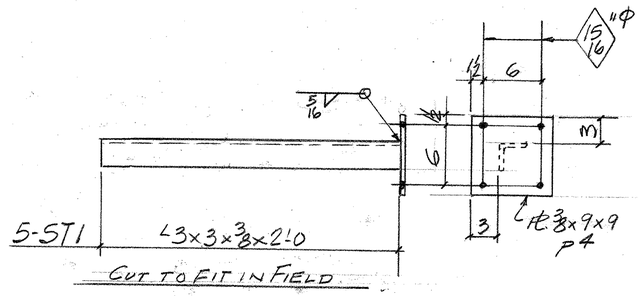




SECTION B-B



DETAIL-BAR b1



CUT TO FIT IN FIELD

ABM INFO		SHOP BILL						JOB NO. 313	DRG. NO. 52
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		5	SCUPPERS	4	9		SC1		—
		5	TS 8x8x4	4	2½	t1		ASTM A500-A501	
		40	BAR 3½ x ⅜	1	3½	b1			
		10	BAR 1¼ x 4	1	2½	b2			
		15	½"Φ BAR	1	2½	r1			
		10	PL 4 x 6 ¾	1	4	p1		BEND	
		5	PL 4 x 11 4	1	3½	p2		BEND	
		5	PL 4 x 5	1	3½	p3			
		5	L 3 x 3 x ⅜	2	0		ST1		
		5	PL ⅜ x 9		9	p4			
		20	⅞"Φ BOLTS - A325 GALV		2¾		FIELD	W/NEW	

PAY ITEM 506.60

OUT FOR APPROVAL	2-13-07									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE-20

MATERIAL: M270-50W / M270-50S ELECTRODES: PER PROC. HOLES: AS NOTED. SHOP BOLTS: —

SURFACE PREP. & PAINT:

GALVANIZE AFTER FAB (ASTM-A123)

DESCRIPTION: SCUPPERS

JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.

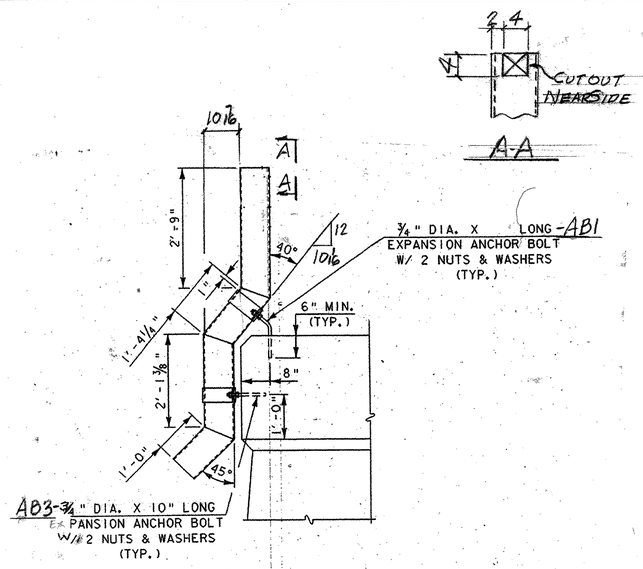
CUSTOMER: BECK & BELLUCCI

DRAWN BY	DATE
JPF	1-07
CHKD BY	
EJ	
APPROV BY	
Q.A.	
JOB NO.	DRG. NO.
313	52
	REV. △

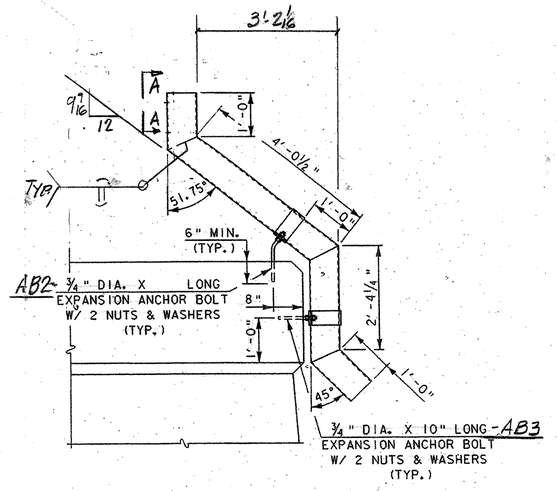
RECEIVED
CK'D BY DRD OK'D BY
FEB 21 2007
RESUBMIT APPROVED AS NOTED
BY DATE

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

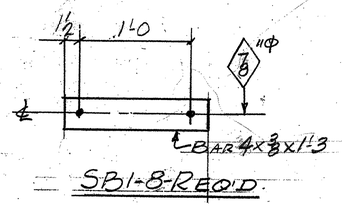
1" = 1'-0



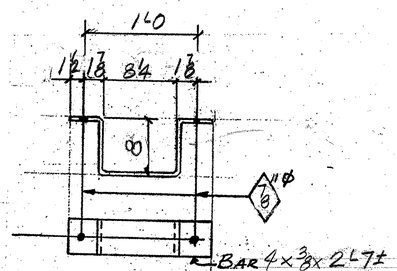
DOWNSPOUT - DS1 - 2 REQ'D
AT SIDEWALK FASCIA



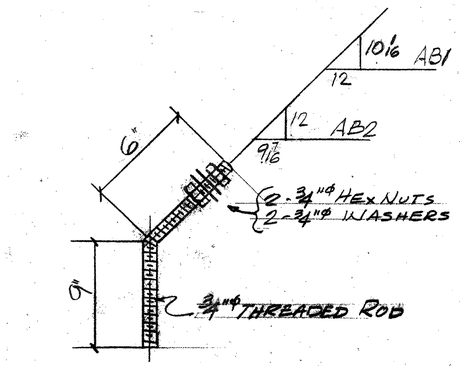
DOWNSPOUT - DS2 - 2 REQ'D.
AT CURB FASCIA



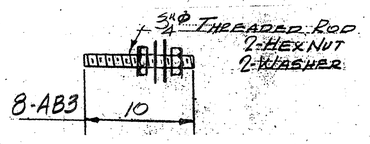
SB1 - 8 - REQ'D.



SA1 - 8 - REQ'D



AB1 - 4 - REQ'D.
AB2 - 4 REQ'D.



ABM INFO		SHOP BILL						JOB NO. 313	DRG. NO. S3
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		2	DOWNSPOUTS	7	0±		DS1		—
		2	DO	7	0±		DS2		—
		1	TS 8x8x1/4	32	0	SHOP		ASTM A500-A501	
		8	BAR 4x3/8	1	8		SB1		
		8	DO	2	7		SB2	BEND	
		4	3/4 "ϕ THREADED ROD	1	3		AB1	BEND	
		4	DO	1	3		AB2	BEND	
		8	DO		10		AB3		
		32	3/4 "ϕ HEX NUTS			SHOP			
		32	3/4 "ϕ WASHERS			SHOP			

PAY ITEM 506.60

OUT FOR APPROVAL	2-13-07
OUT FOR APPROVAL	
ISSUED TO SHOP	
FIELD & OFFICE	

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE-20

MATERIAL: ASTM A36 & A307 | ELECTRODES: PER PROC | HOLES: AS NOTED | SHOP BOLTS: —

SURFACE PREP. & PAINT:
GALVANIZE AFTER FAB (ASTM-A123)
BOLTS ETC (ASTM-A153)

DESCRIPTION: DOWNSPOUTS

JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.

CUSTOMER: BECK & BELLUCCI

	DRAWN BY	DATE
	JPF	2-07
CHKD BY	EJ	
APPROV BY		
Q.A.		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 313 | DRG. NO. S3 | REV. △

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CK'D BY DRD CK'D BY CMV
FEB 21 2007
RESUBMIT ____ APPROVED AS NOTED
BY DATE

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

Phone: (207) 282-7360 **Fax: (207) 282-1179**

WELDING PROCEDURE SPECIFICATION

Material specification ASTM A709/A709M - Grade 36(250) 50(345) 50W(345W).
Welding process Flux Cored Arc welding (FCAW)
Manual or machine Semi AUTO
Position of welding FLAT (1F) Horizontal (2F)
Filler metal specification AWS A5-20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40CFH ±5
Single or multiple pass Single and Multiple - Electrode Extension 5/8 ±1/4 (15.82 ± 6.35)
Single or multiple arc Single
Welding current DC
Polarity Reverse
Welding progression
Root treatment To meet AWS specification
Preheat and interpass temperature To 3/4 (19): 50°(10°) - 3/4 (19") To 1 1/2 (38): 70°(20) - 1 1/2 (38") To 2 1/2 (63) 150°(65) over 2 1/2 (63) = 225°(110°)
Postheat temperature NA
Heat Input Min NA Max NA

Cambridge VT,
Proj # BH-030-2(19)S
Br #20 CBSS # 313

WELDING PROCEDURE

(METRIC)

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
	1/16	275 247.5 TO 302.5	28.8 26.8 TO 30.8	11.6 10.4 TO 12.8
	1.6	285 247.5 TO 302.5	28.8 26.8 TO 30.8	294.6 264.2 TO 325.12

Joint detail AWS D1.5 FILet

1F

To 1/2 (12.7) V TRANS

2F

To 3/8 (9.5)

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MAR 09 2007

CK'D BY _____ OK'D BY JWC
RESUBMIT _____ APPROVED ✓
BY _____ DATE 3-22-07

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

Procedure no. 101
Revision no. _____
Form III-2

AWS QC 1 PAUL E. BOODALE 05100201 CWI

Contractor Casco Bay Steel
Authorized By Paul E. Boodale
Date 3/23/00

OSB EJ

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

Phone: (207) 282-7360 Fax: (207) 282-1179

WELDING PROCEDURE SPECIFICATION

Material specification ASTM-A709/A709M - Gr36-50-50W (250-345-345W) (S.W.)
Welding process Stud Welder
Manual or machine Machine
Position of welding Flat
Filler metal specification NA
Filler metal classification NA
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single
Single or multiple arc Single
Welding current DC
Polarity DC EN
Welding progression NA
Root treatment Clean Surface To be welded
Preheat and interpass temperature To 3/4-50°F, 3/4" To 1 1/2-70°F, 1 1/2" To 2 1/2-150°F, over 2 1/2-225°F
Posfheat temperature NA
Heat Input Min NA Max NA

Cambridge VT.
Proj# BH-030-269S
Br#20 CBSS#313

WELDING PROCEDURE

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed
	Stud size		Weld Time	
	1/2	350 650	.35±	
	5/8	350 650	.35±	NA
	3/4	550 750	.40±	
	7/8	650 850 V-TRANS	1.0±	

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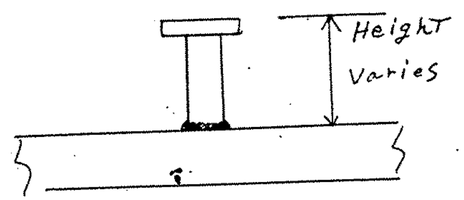
MAR 09 2007

OK'D BY _____ OK'D BY JWC
RESUBMIT _____ APPROVED ✓
BY _____ DATE 3-22-07

Joint detail AWS D1-1 AWS D1-5



NoTe!
This Procedure is only a guide To SeTup.

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

Procedure no. # 1 S.W.
Revision no. _____
Form III-2

Contractor Casco Bay Steel
Authorized By _____
Date May 3- 199[illegible]

AWS QC 1
PAUL E. GRONDIN
05100291
CWI

09 F.J

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

Phone: (207) 282-7360 **Fax: (207) 282-1179**

WELDING PROCEDURE SPECIFICATION

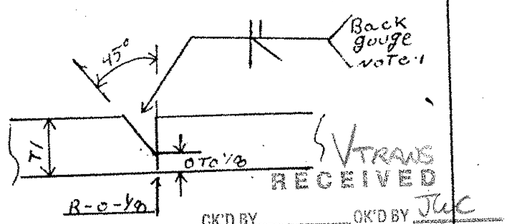
Material specification ASTM 709-Gr36-50-50W (250-345-345W)
Welding process Shielded Metal Arc welding (SMAW)
Manual or machine Manual
Position of welding Flat (1G), Horizontal (2G)
Filler metal specification AWS/ASME A5.1 - A5.5
Filler metal classification E7018 - E8018-C1/C3 - E7028
Flux N.A.
Shielding gas N.A. Flow rate N.A.
Single or multiple pass Single and multiple
Single or multiple arc Single
Welding current AC / DC
Polarity Straight / Reverse
Welding progression
Root treatment To AWS specification
Preheat and interpass temperature To 3/4(19) 50°F (10°) 3/4"(19") To 1 1/2 (38) 70°F (20°)
Postheat temperature N.A.
Heat Input Min N.A. Max N.A.

Cambridge VT.
Proj# BH-030-2(19)S
Br#20 CBSS#313

WELDING PROCEDURE (METRIC)

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
AS REQ	7018 1/8 (3.2)	70-170	22-26	AS REQ
	5/32 (3.9)	120 TO 225	22-26	
	8018 1/8 (3.2)	90-160	22-26	
	5/32 (3.9)	120-225	22-26	
	7028 5/32 (3.9)	170-220	22-26	

Joint detail B-U46 AWS D1.5



VTRAN'S RECEIVED
MAR 09 2007

CK'D BY ____ OK'D BY JLC
RESUBMIT ____ APPROVED ✓
BY ____ DATE 3-22-07

T1 = UNLIMITED, NOTE-Grind Flush as REQ.

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

Procedure no. 402
Revision no. ____
Form III-2

Contractor Casco Bay Steel
Authorized By Paul E. Goodale
Date 10-16-01

AWS QC 1 PAUL E. GOODALE 03100[illegible] CWI

090 EJ

Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

hone: (207) 772-2533 Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

Material specification ASTM 709-Gr36-50-50W (250-345-345W)
Welding process Shielded Metal Arc Welding (SMAW)
Manual or machine Manual
Position of welding Flat (1F), Horizontal (2F)
Filler metal specification ANSI/AWS A5.1 - A5.5
Filler metal classification E7018 - 8018 C1/C3 - 7028
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single and multiple
Single or multiple arc single
Welding current AC/DC
Polarity STraight / Reverse
Welding progression
Root treatment Meet AWS specification
Preheat and interpass temperature To 3/4(19) 50°F(10°C) 3/4(19) To 1 1/2(38) 70°F(20°C) 1 1/2(38) To 2 1/2(63.5) 150°F(65°C) over 2 1/2(63.5) 225°F(110°C)
Postheat temperature NA
Heat Input Min NA Max NA

VTRANS
RECEIVED
MAR 09 2007
CK'D BY OK'D BY JLC
RESUBMIT APPROVED ✓
BY DATE 3-22-07

Cambridge VT,
Proj# BH-030-2(19)S
Br#20 CBSS#313

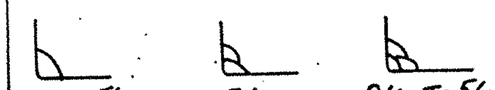
WELDING PROCEDURE (metric)

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
	7018			
	1/8 (3.2)	70-170	22-26	
AS.	5/32 (3.9)	120-225	22-26	AS
	3/16 (4.8)	170-300	24-27	
REQ.	8018			REQ
	1/8 (3.2)	90-160	22-26	
	5/32 (3.9)	120-225	22-26	
	3/16 (4.8)	180-290	24-27	
	7028			
	5/32 (3.9)	170-290	22-26	
	3/16 (4.8)	210-330	24-27	

AWS D1.5 Joint detail Fillet

1F

2F



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

AWS QC 1 PAUL E. HOODALE CWI

Procedure no. 401
Revision no.
Form III-2

Contractor Casco Bay Steel
Authorized By Paul E. Hoodale
Date 3/2/00

Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

Phone: (207) 772-2533 Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

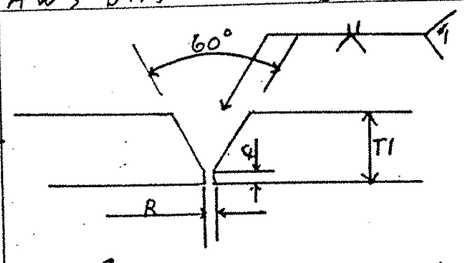
Material specification A36-A572-A588 (ASTM 709 Gr 36-50-50w
Welding process Flux Cored Arc welding (FCAW)
Manual or machine Semi-Auto
Position of welding Flat - 1G
Filler metal specification Aws A5-20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40 ±5
Single or multiple pass Both Electrode Stick out 3/4 ± 1/4
Single or multiple arc Single
Welding current Direct Current
Polarity Reverse Electrode positive
Welding progression See Detail
Root treatment weld side #1, backgouge side #2 - grind - then weld
Preheat and interpass temperature To 3/4-50° F (10-10° C) + 3/4 To 1 1/2-70° F (+19 To 38-20° C)
Posfheat temperature NA
Heat Input Min NA Max NA

Cambridge VT.
Proj # BH-030-209S
Br #20 CBSS # 313

WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed
	1/16	280 ±28	25 ±1.7	11 ±1.1
	1.6	280 ±28	25 ±1.7	280 ±28

AWS D1.5 Joint detail BU2-F



T1 - UNLIMITED
α - 0 To 1/8 / 0 To 3.2mm
R - 0 To 1/8 / 0 To 3.2mm

1-Grind as required

V-TRANS RECEIVED MAR 09 2007

CK'D BY ____ OK'D BY Jue
RESUBMIT ____ APPROVED ✓
BY ____ DATE 3-22-07

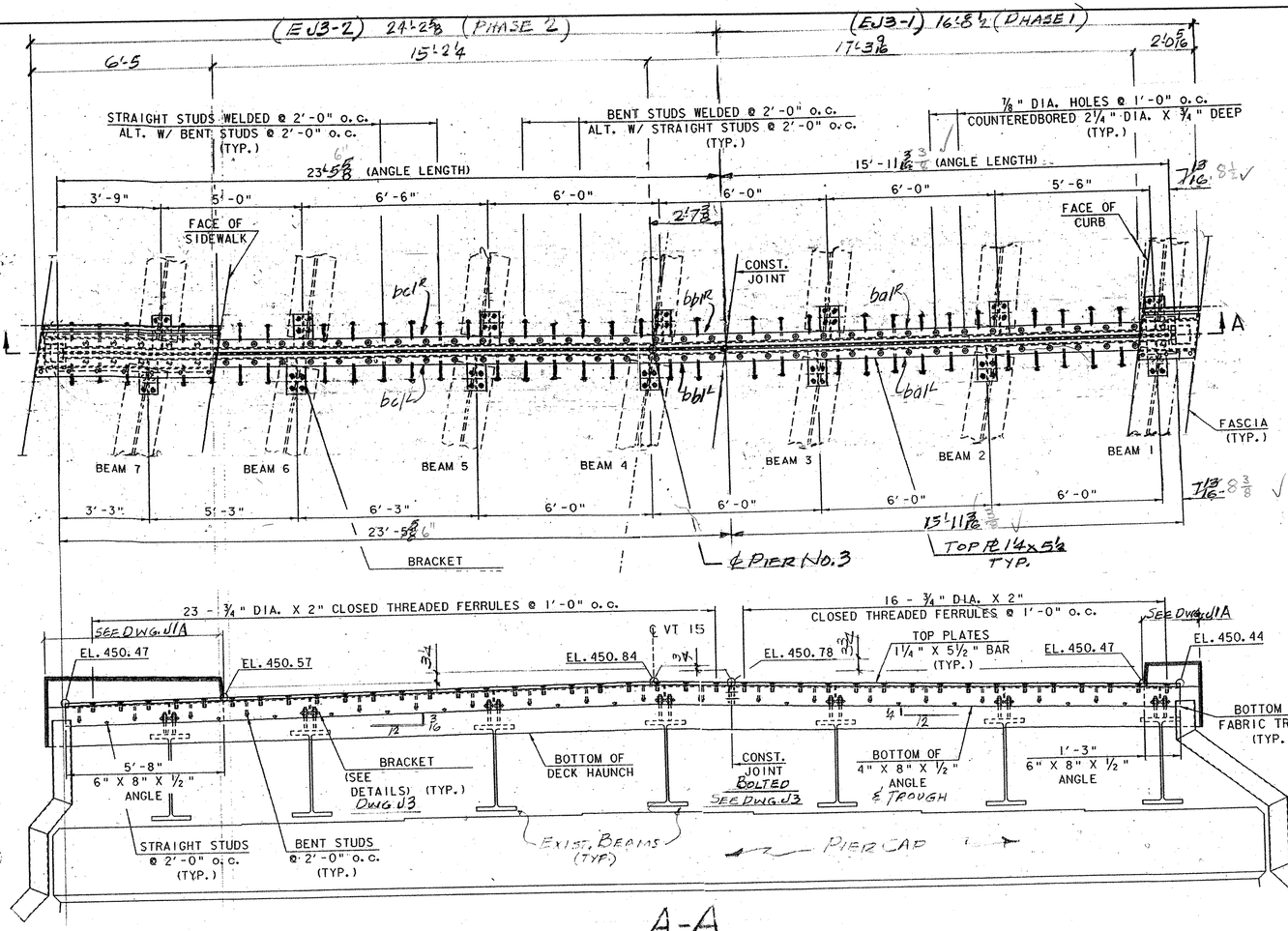
This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in applicable A.W.S. codes or contract specifications

Procedure no. 104
Revision no. ____
Form III-2

AWS - QC1
Paul E. Goodale
83100201
C.W.I.

Contractor Casco Bay Steel
Authorized By Paul E. Goodale
Date 2/2/99

OK EJ 1 3 2



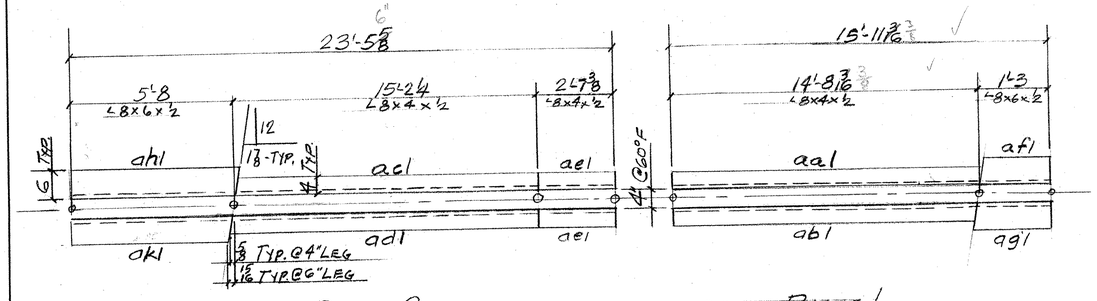
A-A

EJ3-2 - ONE REQ'D (PHASE 2)

EJ3-1 - ONE REQ'D. (PHASE 1)

ALL DIM'S GIVEN ALONG ℄ OF EXPANSION JOINT

ELEVATIONS GIVEN @ TOP OF PL'S ALONG ℄ OF EXPANSION JOINT.



PHASE 2

PHASE 1

ANGLE ASSEMBLY PLAN

FOR WELDING DETAIL SEE DWG. J3

THE EXPANSION JOINT, EXCLUDING FABRIC, SHALL BE SHOP ASSEMBLED AND SHIPPED IN SECTIONS AS DETAILED SO THAT TRAFFIC MAY BE MAINTAINED DURING INSTALLATION. THE FABRIC TROUGH SHALL BE INSTALLED ONLY AFTER THE JOINT IS COMPLETELY IN PLACE.

RECEIVED
CK'D BY DRP OK'D BY
MAR 09 2007
RESUBMIT APPROVED AS NOTED
BY DATE 3/30/07

SHOP BILL

JOB NO. 313 — DRG. NO. J1

ABM INFO PAGE	ABM INFO LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP JOINT	17	0±		EJ3-1	PHASE 1	—
		1	DO	24	6±		EJ3-2	DO 2	—
		1	L8x4x½	14	9⅞	aa1			
		1	DO	12	8¾	ab1			
		1	DO	15	2⅛	ac1			
		1	DO	15	5⅛	ad1			
		2	DO	2	7⅜	ae1			
		1	L8x6x½	1	2⅛	af1			
		1	DO	1	4⅜	ag1			
		1	DO	5	7⅜	ah1			
		1	DO	5	7⅜	ak1			
		2	BAR 5½ x ¼	15	11⅞	ba1			
		2	DO	2	7⅜	bb1			
		2	DO	20	10¾	bc1			
		2	PL ½ x 3½		7½	bp1			
		2	DO		7½	bp2			
		4	3/4" THRD FERRULE		2	mb1			
		4	3/4" ANC. STUDS		7	mb1		BENT	
		4	3/4" BOLTS		2½		FIELD	W/ 1-WASH	
		14	PL ½ x 6	1	2½	ba1			
		14	PL ½ x 8	1	2½	bb1			
			3/4" HEX BOLTS			hb1			
			3/4" THRD FERRULE		2	mb1			
			3/4" ANC. STUDS		10	mb1			
		1	FROM: FABTROUGH 5/32 x 26	40	0±	(A)	MR3	3 PCS PER SUBSELF	107.07
		2	BUTYL RUBBER TAPE 16x3	40	0±	rng1	NTS	ASSUME M198-TYPE B	
		56	1" THREADED RODS		7		TS1	ASTM-A449	
		112	1" HEX NUTS				FIELD		
		112	PL ⅜ x 3		3		W1	PL W/ WASH	
		8	L4x4x½	1	0	sa1		FOR SHIPPING	
		16	3/4" BOLTS		3	SHOP		DO	

NOTE
SEE DWG. J1 FOR SIDEWALK & CURB MATERIAL

PAY ITEM 516.10

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-7-07									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE-20
MATERIAL AASHTO M270-36 ELECTRODES: E70 PROT. HOLES: AS NOTED SHOP BOLTS: 3/4" ø
SURFACE PREP. & PAINT:
GALVANIZE AFTER FAB - ASTM-A123

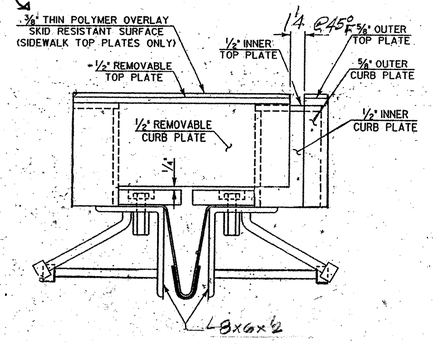
DESCRIPTION: EXP JOINT - PIER 3
JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.
CUSTOMER: BECK & BELLUCCI

DRAWN BY	DATE
JPF	2-07
CHK'D BY	
APPROV BY	
Q.A.	

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

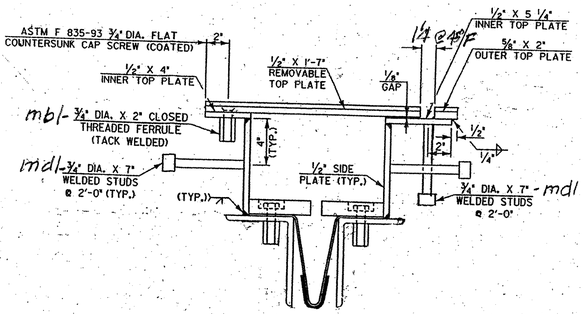
JOB NO. 313 — DRG. NO. J1 — REV. △

FURNISHED & APPLIED IN FIELD BY OTHERS.

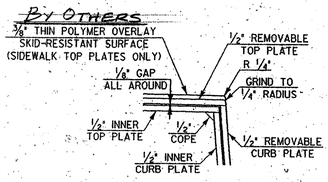


B-B

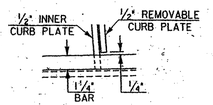
BC - BC - ODD HAND



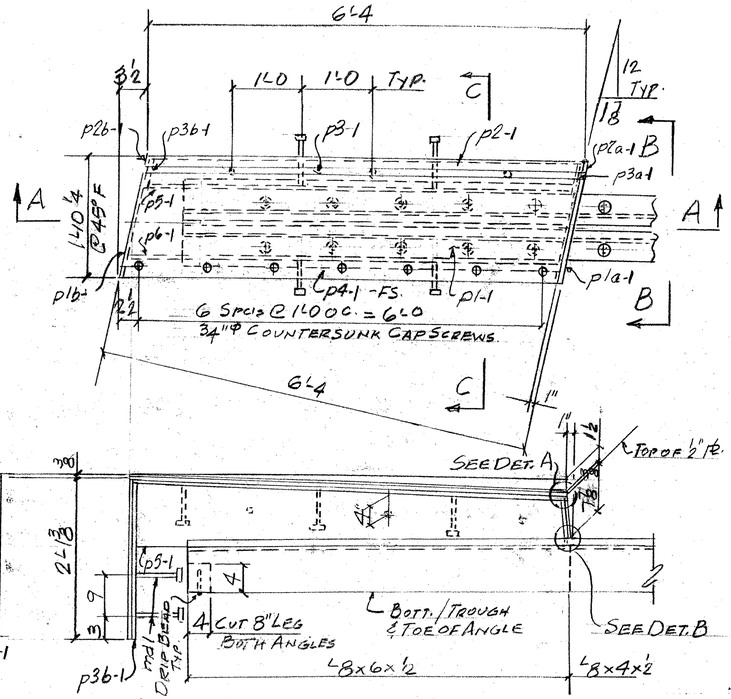
C-C



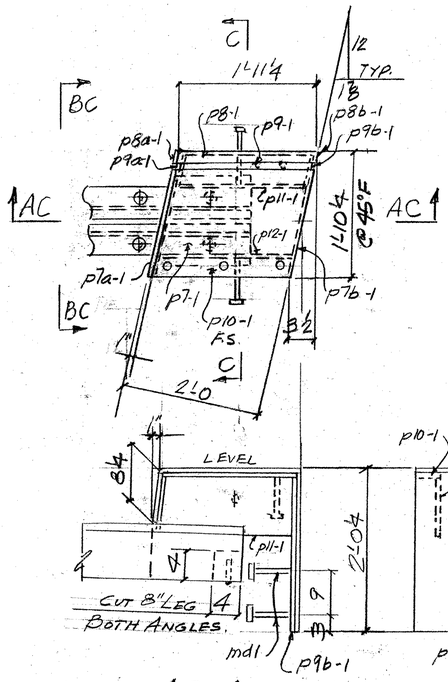
DETAIL "A"



DETAIL "B"



A A



AC-AC

RECEIVED
OK'D BY: DRP OK'D BY:
MAR 09 2007
RESUBMIT: APPROVED: ✓
BY: DATE: 3/30/07

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	PL 1/2 x 1'-9	6	7	p1-1			
		1	PL 1/2 x 2'-3 3/8	1	7 1/4	p1a-1			
		1	PL 1/2 x 1'-9 1/4	2	0 3/8	p1b-1			
		1	BAR 2 x 5/8	6	4 7/8	p2-1			
		1	DO		8 3/4	p2a-1			
		1	DO	2	0 3/4	p2b-1			
		1	PL 1/2 x 5 1/4	6	3 3/8	p3-1			
		1	DO		8	p3a-1			
		1	DO	2	6 1/4	p3b-1			
		1	PL 1/2 x 4	6	3 3/8	p4-1			
		1	PL 1/2 x 10 3/4	6	2 3/8	p5-1			
		1	PL 1/2 x 10 3/8	6	3 3/8	p6-1			
		1	PL 1/2 x 1'-9	2	2 1/4	p7-1			
		1	PL 1/2 x 9	1	7 1/4	p7a-1			
		1	PL 1/2 x 1'-9 1/4	1	11 3/4	p7b-1			
		1	BAR 2 x 5/8	1	11 1/2	p8-1			
		1	DO		8 3/4	p8a-1			
		1	DO	1	11 3/8	p8b-1			
		1	PL 1/2 x 5 1/4	1	10 1/4	p9-1			
		1	DO		8 3/8	p9a-1			
		1	DO	1	11 3/8	p9b-1			
		1	PL 1/2 x 4	1	10 3/4	p10-1			
		1	PL 1/2 x 8 3/4	1	9 7/8	p11-1			
		1	x 8 3/8	1	11 7/8	p12-1			
		15	3/4"Φ ANC. STUDS		7	mdl			
		10	3/4"Φ THREADED FERRULE		2	mbl			
		10	3/4"Φ FLAT HEAD CAP SCREWS		2 2	mhl		ASTM F 835-93	
			PAY ITEM 516.10						

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	7-07									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE-20

MATERIAL: AASHTO M270-36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: 3/4"Φ F.H. CAPSCREWS

SURFACE PREP. & PAINT:

GALVANIZE AFTER FAB - ASTM-A123

DESCRIPTION: SIDEWALK & CURB PER

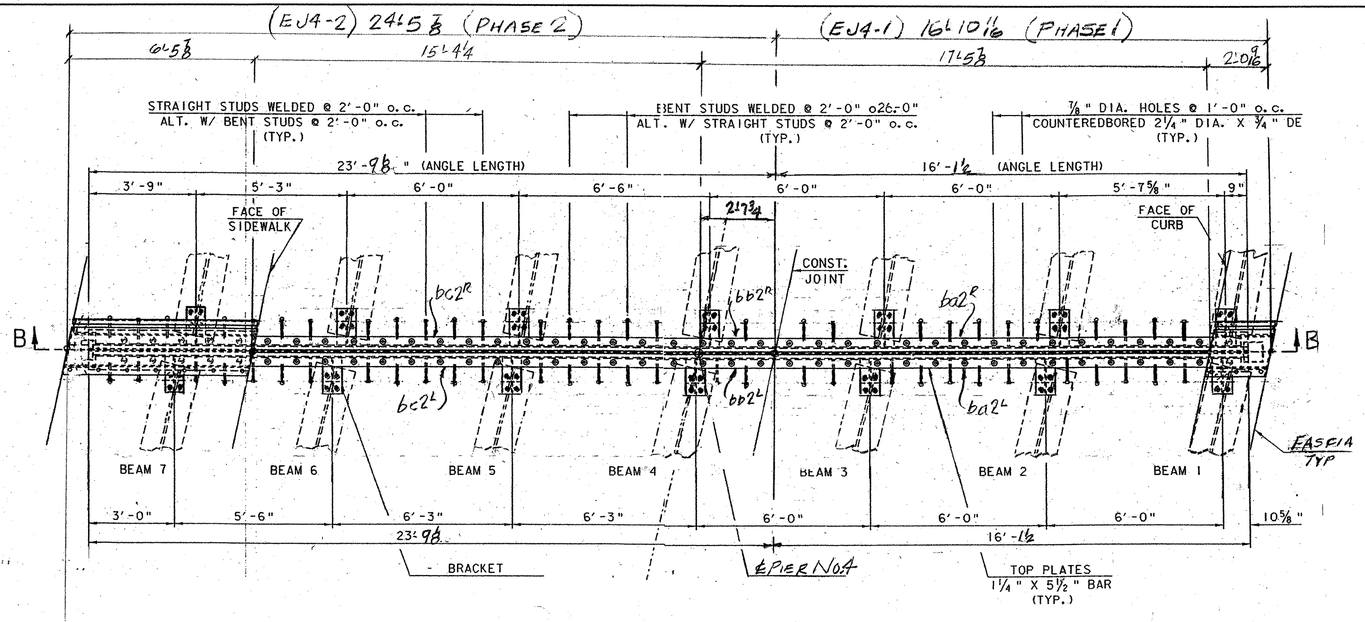
JOB: VELMONT IS OVER LAMOILLE RIVER CAMBRIDGE, VT.

CUSTOMER: BECK & BELLUCCI

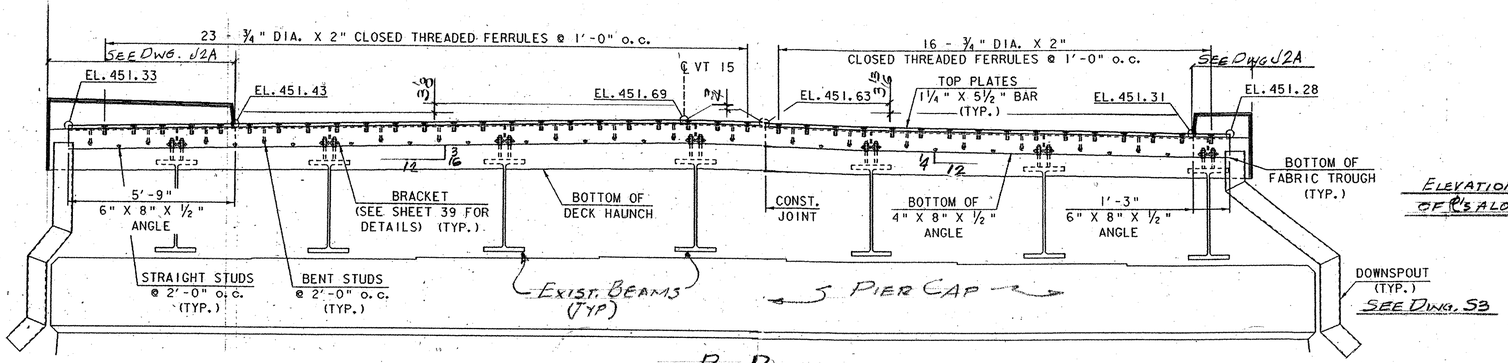
DRAWN BY	DATE
JPF	2-07
CHKD BY	
APPROV BY	
Q.A.	

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
313	J1A
	REV. △



ALL DIM'S GIVEN ALONG ℄ OF EXPANSION JOINT

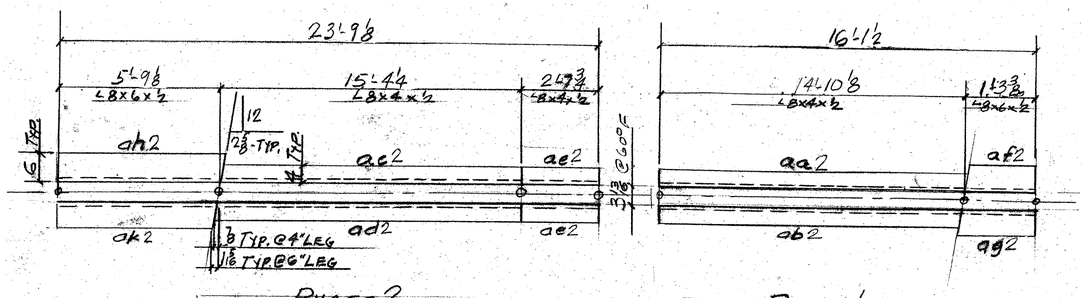


ELEVATIONS GIVEN @ TOP OF P's ALONG ℄ OF EXP. JOINT

B-B

EJ4-2 - ONE REQ'D (PHASE 2)

EJ4-1 - ONE REQ'D (PHASE 1)



PHASE 2

PHASE 1

ANGLE ASSEMBLY PLAN

FOR WELDING DETAIL SEE DWG. J3

THE EXPANSION JOINT, EXCLUDING FABRIC, SHALL BE SHOP ASSEMBLED AND SHIPPED IN SECTIONS AS DETAILED SO THAT TRAFFIC MAY BE MAINTAINED DURING INSTALLATION. THE FABRIC TROUGH SHALL BE INSTALLED ONLY AFTER THE JOINT IS COMPLETELY IN PLACE.

RECEIVED
CK'D BY DRP OK'D BY
MAR 09 2007
RESUBMIT APPROVED
BY DATE 3/30/07

SHOP BILL

JOB NO. 313 DRG. NO. J2

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP JOINT	17	0±		EJ4-1	PHASE 1	—
		1	DO	25	8±		EJ4-2	PHASE 2	—
		1	L 8x4x1/2	14	11 1/16	aa2			
		1	DO	14	9 1/16	ab2			
		1	DO	15	3 3/8	ac2			
		1	DO	15	5 5/16	ad2			
		2	DO	2	7 3/4	ae2			
		1	L 8x6x1/2	1	2 1/16	af2			
		1	DO	1	5 3/8	ag2			
		1	DO	5	10 3/8	ah2			
		1	DO	5	8 1/16	ak2			
		2	BAR 5 1/2 x 1 1/4	16	1/2	bb2R			
		2	DO	2	7 3/4	bb2L			
		2	DO	21	1 3/8	bc2L			
		2	PL 1/2 x 3 1/2		7 1/2	sp1			
		2	DO		7 1/2	sp2			
		4	3/4" THR'D FERRULE			mb1			
		4	3/4" ANC STUDS		7	mb1		BENT	
		4	3/4" BOLTS		2 1/2		FIELD	¼" WASH	
		14	PL 1/2 x 6	1	2 1/2	pb1			
		14	PL 1/2 x 8	1	2 1/2	pb1			
			3/4" HEX BOLTS		24	mb1			
			3/4" THR'D FERRULES		2	mb1			
			3/4" ANC STUDS		10	mb1			
		1	PREF. FAB. TROUGH 432x216	42	0±		MF4	3 PLY PER SUBJECT TO 207	
		2	BUTYL RUBBER TAPE 16"x3	42	0±	mg2		AASHTO M198-TYPE B	
		56	1" THREADED RODS		7		TS1	ASTM-A449	
		112	1" HEX NUTS				FIELD		
		112	PL 3/8 x 3		3		IW1	PL WASH	
		8	L 4x4x1/2	1	0	sq1		FOR SHIPPING	
		16	3/4" BOLTS		3	SHOP		DO	

NOTE
SEE DWG. J2A FOR SIDEWALK & CURB MATERIAL

PAY ITEM: 516.10

OUT FOR APPROVAL	3-7-07									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE-20
MATERIAL AASHTO M270-36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS: A325 H.S.
SURFACE PREP. & PAINT:
GALVANIZE AFTER FAB. - ASTM-A123

DESCRIPTION: EXP. JOINT - PIER 4
JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.
CUSTOMER: BECK & BELLUCCI

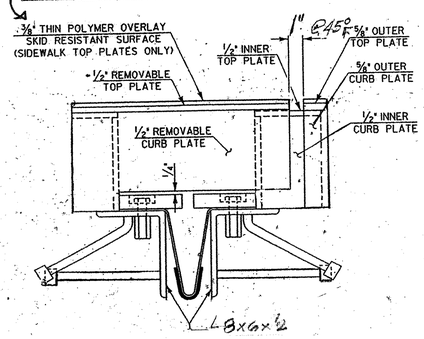
	DRAWN BY	DATE
	JPF	2-07
CHKD BY		
APPROV BY		
Q.A.		

CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 313 DRG. NO. J2 REV. △

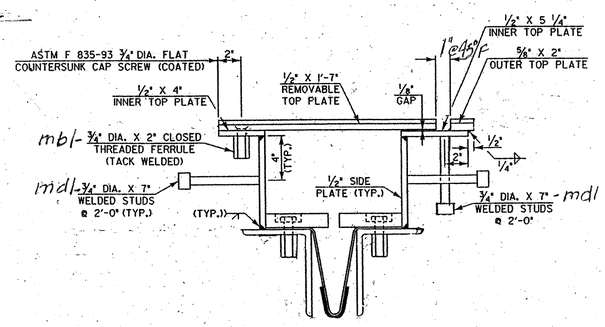
1"=1'-0"

FURNISHED & APPLIED IN FIELD BY OTHERS.

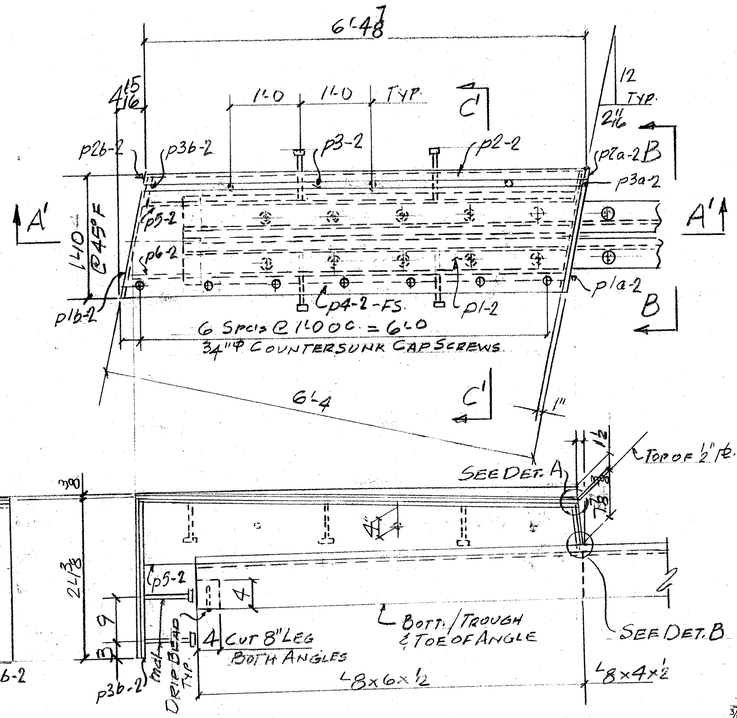


B'-B'

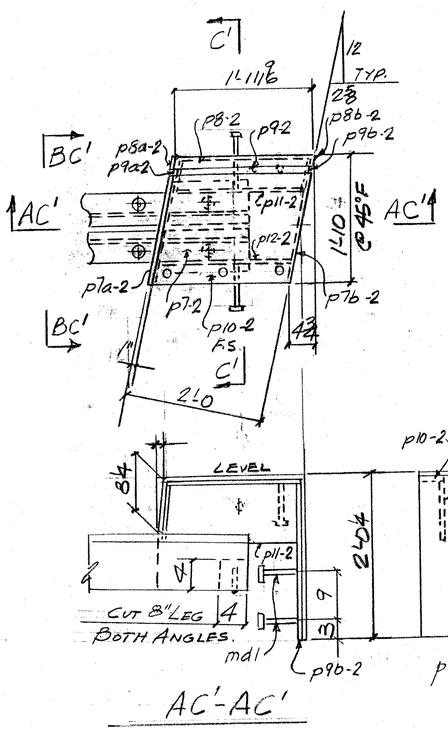
BC'-BC' - OPP HAND



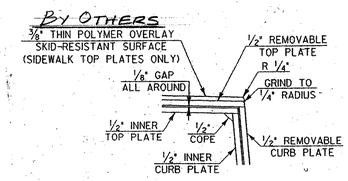
C'-C'



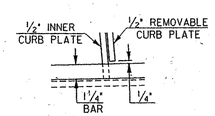
A-A



AC'-AC'



DETAIL "A"



DETAIL "B"

RECEIVED
CK'D BY DRP OK'D BY
MAR 09 2007
RESUBMIT ____ APPROVED ✓
BY CMC DATE 3/30/07

SHOP BILL

JOB NO. 313 DRG. NO. J2A

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	PL 1/2 x 19	6	9 1/2	p1-2			
		1	PL 2 x 8 3/8	1	7 2	p1a-2			
		1	PL 1/2 x 19 1/2	2	0 7/8	p1b-2			
		1	BAR 2 x 5/8	6	5 1/8	p2-2			
		1	DO		8 2	p2a-2			
		1	DO	2	0 3/4	p2b-2			
		1	PL 1/2 x 5 1/4	6	3 3	p3-2			
		1	DO		8	p3a-2			
		1	DO	2	0 4	p3b-2			
		1	PL 1/2 x 4	6	4 1/4	p4-2			
		1	PL 1/2 x 10 3/4	6	2 3 3	p5-2			
		1	PL 1/2 x 10 3/8	6	3 3	p6-2			
		1	PL 1/2 x 19	2	3 1/4	p7-2			
		1	PL 1/2 x 9	1	7 2	p7a-2			
		1	PL 1/2 x 19 1/2	1	11 3/4	p7b-2			
		1	BAR 2 x 5/8	2	0	p8-2			
		1	DO		8 3/8	p8a-2			
		1	DO	1	11 3/8	p8b-2			
		1	PL 1/2 x 5 1/4	1	10 1/2	p9-2			
		1	DO		8 3/8	p9a-2			
		1	DO	1	11 3/8	p9b-2			
		1	PL 1/2 x 4	1	11 3/8	p10-2			
		1	PL 1/2 x 8 3/4	1	10 1/2	p11-2			
		1	PL 1/2 x 8 3/8	1	11 1/2	p12-2			
		15	3/4" Φ ANC STUDS		7	md1			
		10	3/4" Φ THREADED FERRULE		2	mb1			
		10	3/4" Φ FLAT HEAD CAP SCREWS		2 1/2	mh1		ASTM F 835-93	

PAY ITEM 516.10

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-7-07									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. BHF-030-2(19)S STATE PROJECT NO. BRIDGE-20

MATERIAL AASHTO M270-36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: 3/4" Φ F.H. CAP SCREWS

SURFACE PREP. & PAINT:

GALVANIZE AFTER FAB. ASTM-A123

DESCRIPTION: SIDEWALK & CURB - PIER 4

JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.

CUSTOMER: BECK & BELLUCCI

	DRAWN BY	DATE
	JPF	2-07
CHK'D BY		
APPROV BY		
Q.A.		

CASCO BAY STEEL STRUCTURES, INC.

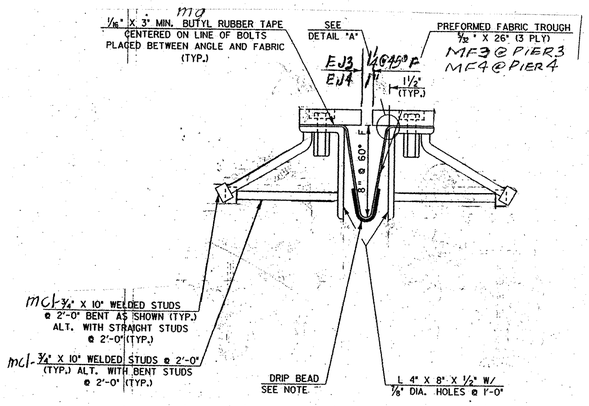
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 313 DRG. NO. J2A REV. △

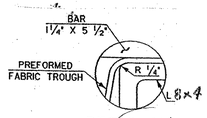
1" = 1'-0"

0716 EJ

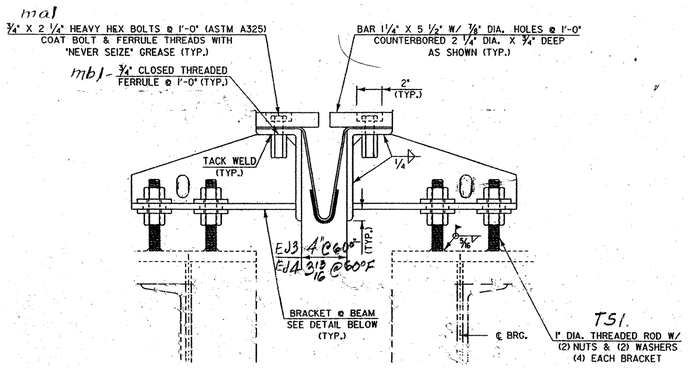
JOB NO.	DRG. NO.
313	J3



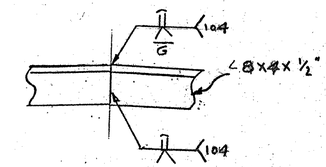
TYPICAL SECTION BETWEEN BEAMS



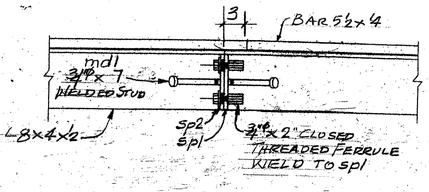
DETAIL "A"



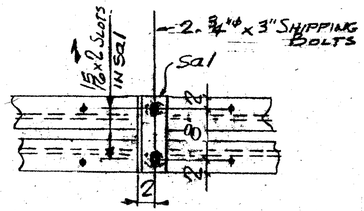
TYPICAL SECTION AT BEAMS



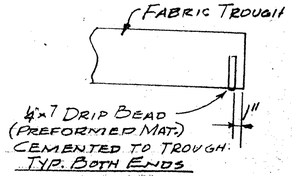
WELDING DETAIL

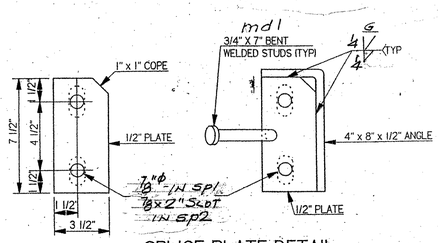


BOLTED FIELD SPLICE

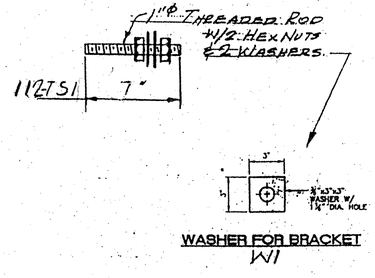


SHIPPING DEVICE
SPACED 50. OC. MAX.

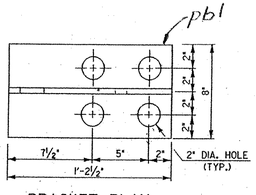




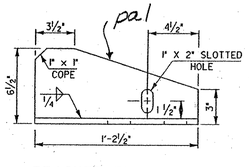
SPLICE PLATE DETAIL



WASHER FOR BRACKET
W1



BRACKET PLAN



BRACKET ELEVATION

RECEIVED
CK'D BY DRB OK'D BY
MAR 09 2007
RESUBMIT APPROVED
BY DATE 3/30/07

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-7-07				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-030-2 (19) STATE PROJECT NO. BRIDGE-20

MATERIAL AASHTO M270-36 | ELECTRODES: PER PROC | HOLES: AS NOTED | SHOP BOLTS: 3/4" H.S.

SURFACE PREP. & PAINT:

GALVANIZE AFTER FAB ASTM-A123

DESCRIPTION: MISC SECTIONS & DETAILS

JOB: VERMONT 15 OVER LAMOILLE RIVER CAMBRIDGE, VT.

CUSTOMER: BECK & BELLUCCI

	DRAWN BY	DATE
	JPE	2-07
CHKD BY		
APPROV BY		
Q.A.		

CASCO BAY STEEL STRUCTURES, INC.

75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
313	J3
	REV. △

07 EJ

BECK & BELLUCCI, INC.
PO BOX 428, 10 SALISBURY ROAD
FRANKLIN, NH 03235
(603) 934-5236
Fax (603) 934-7044

FAX

To:	Carolyn Carlson	**From:**	Chris Schroeder
Company:	VT AOT Structures Division	**Pages:**	7
Fax:	802-828-3566	**Date:**	3/12/2007
Re:	Cambridge Aluminum Rail Welding	**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

• **Comments:**

Carolyn:

Regarding Cambridge, Job BHF 030-2 (19) S. I have attached welding procedure specifications for the aluminum bridge rail, as requested. Originals should be in the mail to you directly from LB Foster. Let me know if you do not receive them by Wednesday.

If you need anything else on the submittals, please let Dale or me know.

Regards,

Chris Schroeder

C78 BR

L.B. FOSTER CO.
R.D.#2 BOX C
BEDFORD INDUSTRIAL PARK
BEDFORD, PA. 15522

WELDING PROCEDURE SPECIFICATION (WPS- AL-102)

Cleaning STAINLESS STEEL
Initial cleaning before WIRE BRUSH
Initial cleaning of next pass SAME
Interpass cleaning

Post Weld Heat Treatment
Original temper N/A
Final temper N/A
Temperature N/A
Time N/A
Cleaning N/A

Process(es)
Process GMAW Type SEMI-AUTOMATIC
Process Type
Electrode (GTAW)

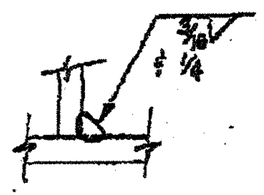
Technique
Stringer or weave bead STRINGER
Orifice or gas cup size 5/8" DIAMETER
Oscillation NO
Contact tube to work distance 1/2"
Single pass or multipass SINGLE per side
Tungsten electrode N/A
Method of backgouging N/A
Other

Weld layer(s)	Pass no.	Welding process	Amps	Volts	Travel speed
3/16	1	GMAW	160	23	25 IPM
1/4	1	GMAW	180	24	19 IPM

AWS QC 1 ROBERT E. STACHEL WELDING ENGINEER 6391

DATE: NOV 18 1997
APPROVED FOR:
PENNSYLVANIA DOT
BY: ROBERT W. HUNT CO

AL-102



FILLET WELD

Sketch of welding sequence

Form AWS

099 BR

WELDING PROCEDURE SPECIFICATION (WPS)

Welding procedure specification no. AL-102 Date 10-4-90 Approved
Revisions 1 Date 11-14-97 Approved

Supporting PQR Number(s) AL-100

Joints
Groove Design Sketch

Filler metal
F-No. 22 AWS No. ER5356 Class
Size of electrode .035"
Type of electrode BARE WIRE
Other

Welding gas
Shielding gas(es) ARGON
Percent composition 100%
Flow rate 35 cfh
Other

Backing
Type
Permanent
Removed
Other

Position
Position HORIZONTAL (2F)
Welding progression FORWARD
Other

Base Metals
Group no. 3 Thickness 1/8" MIN.
Alloy and temper 6061-T6 OR 6063-T6

Preheat
Preheat temperature N/A
Interpass temperature N/A

Form 8(a) (cont'd)

L.B.FOSTER CO.
R.D.#2 BOX C
BEDFORD INDUSTRIAL PARK
BEDFORD, PA. 15522

WELDING PROCEDURE SPECIFICATION (WPS AL-103)

Cleaning: STAINLESS STEEL
Initial cleaning solvent: WIRE BRUSH
Interpass cleaning: SAME
Post-Weld Heat Treatment
Original temper: N/A
Final temper: N/A
Temperature: N/A
Time: N/A
Current: N/A

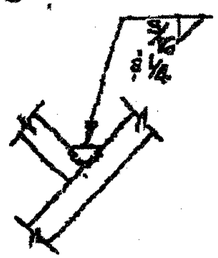
Process(es)
Process: GMAW Type: SEMI-AUTOMATIC
Process: ____ Type: ____
Electrode (SFA/AWS): ____

Technique
Stringer or weave bead: STRINGER
Orifice or gas cup size: 5/8" DIAMETER
Oscillation: NO
Contact tube to work distance: 1/2"
Single pass or multiple pass per side: SINGLE
Torquem activation: N/A
Method of backgouging: N/A
Other: ____

Weld size	Pass no.	Welding process	Amps	Volts	Travel speed
5/16	1	GMAW	160	23	25IPM
1/4	1	GMAW	180	24	19IPM

AWS QC 1 ROBERT E. STRICKEL INSPECTOR SWI
DATE NOV 18 1997
APPROVED FOR L.B. FOSTER CO.

AL-103



FILLET WELD

Sketch of welding sequence

Form 6(a)

101 BR

WELDING PROCEDURE SPECIFICATION (WPS)

Welding procedure specification no. AL-103 Date 10-30-90 Approved
Revisions 1 Date 11-14-97 Approved
Supporting PQR Numbers AL-100

Joining
Groove Design Sketch

Filler metal
F-No. 22 AWS No. ER5356
Size of electrode .035"
Type of electrode BARE WIRE
Other

Shielding gas
Shielding gas(es) ARGON
Percent composition 100%
Flow rate 35 cfh
Other

Backing
Type
Permanent
Removed
Other

Position
Position FLAT (1F)
Welding progression FOREWARD
Other

Base Metals
Group no. 3 Thickness 1/8" MIN.
Alloy and temper 6061-T6 OR 6063-T6

Preheat
Preheat temperature N/A
Interpass temperature N/A

Form E(a) (cont'd)

L. B. FOSTER CO.
R.D.#2 BOX C
BEDFORD INDUSTRIAL PARK
BEDFORD, PA. 15522

WELDING PROCEDURE SPECIFICATION (WPS AL-106)

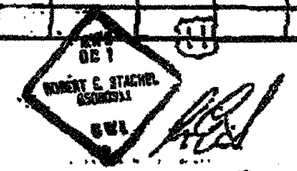
Cleaning: STAINLESS STEEL
Initial cleaning metho: WIRE BRUSH
Initial cleaning oil and dirt: SAME
Interpass cleaning: ____

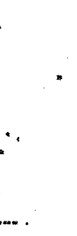
Post Weld Heat Treatment
Original temper: N/A
Final temper: N/A
Temperature: N/A
Time: N/A
Quench: N/A

Process(es)
Process: GMAW Type: SEMI-AUTOMATIC
Process: ____ Type: ____
Electrode (GTAW): ____

Technique
Stringer or weave bead: STRINGER
Orifice or gas cup size: 5/8" DIAMETER
Oscillation: NO
Contact tube to work distance: 1/2"
Single pass or multipass: SINGLE OR MULTIPASS per side
Tungsten extension: N/A
Method of backgouging: N/A
Other: ____

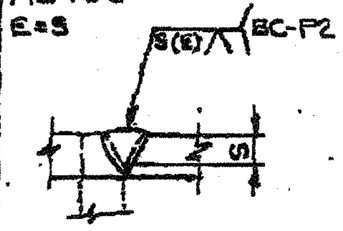
S	Pass no.	Welding process	Amps	Volts	Travel speed
3/16	1	GMAW	160	23	20 IPM





NOV 28 1997
L. B. FOSTER CO.

AL-106
E=S



BUTT JOINT
SINGLE V-GROOVE
PARTIAL PENETRATION

Sketch of welding sequence

Form E(a)

WELDING PROCEDURE SPECIFICATION (WPS)

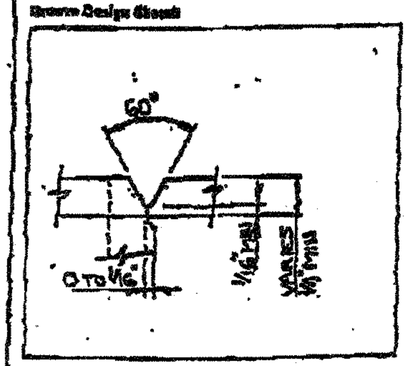
Welding procedure specification no. AL-106 Date 7-19-90 Approved
Revisions 1 Date 11-14-97 Approved

DATE: NOV 19 1997
APPROVED FOR:
PENNSYLVANIA DOT
BY: ROBERT W. HUNT CO.

Supporting PQR Numbers AL-100

Joints

Groove Design Sketch



Filler metal
F-No. 22 AWS No. ER 5356
Size of electrode .035"
Type of electrode BARE WIRE
Other

Shielding gas
Shielding gas(es) ARGON
Percent composition 100%
Flow rate 35 cfh
Other

Position
Position of groove FLAT (1G)
Welding progression FORWARD
Other

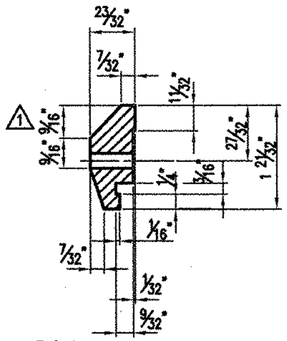
Backing
Type
Permanent
Removed
Other

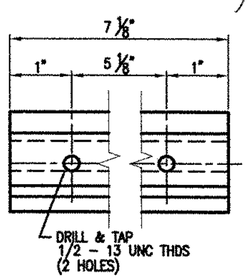
Base Metals
Group No. 3 Thickness 1/4" MIN
Alloy and temper 6061-T6 OR 6063-T6

Preheat
Preheat temperature N/A
Interpass temperature N/A

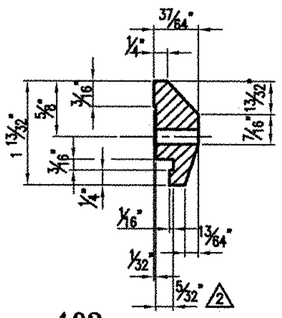
Post-weld treatments

104 BR

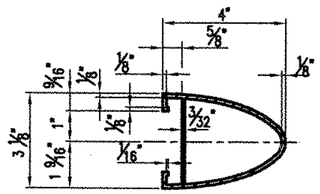




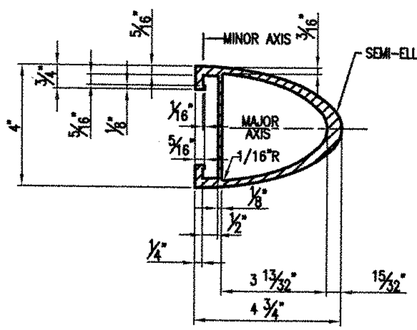
204 ~ REQ'D CLAMP BAR CB-03-A #19447
(BARRIER RAIL)



102 ~ REQ'D CLAMP BAR CB-01-H #28596
(HANDRAIL)



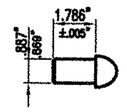
TYPICAL SECTION
(HANDRAIL)



TYPICAL SECTION
(BARRIER RAIL)

ANODIZED

- ALL ALUM. COMPONENTS SHALL BE ANODIZED TO A BLACK (HARD SATIN FINISH) COLOR, FED. STD. COLOR No. 27038. THE ANODIC COATING SHALL BE ARCHITECTURAL CLASS I WITH A MIN. THICKNESS OF 0.7 mils AND A MIN. WEIGHT OF 35 mg/sq in
- ALL VISIBLE STN. STL. HARDWARE SHALL BE FIELD PAINTED BLACK TO MATCH THE ANODIZED RAIL. TOUCH UP PAINT SHALL BE PROVIDED.
- SAMPLES SHALL BE SUBMITTED FOR THE ENGINEER'S APPROVAL.



RIVET DETAIL 'rv1'
#19420

GENERAL NOTES

ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001 AND ITS LATEST REVISIONS.

DESCRIPTION	ASTM	ALLOY/GR.	REMARKS
RAILS, POSTS, BASES, SPLICES, CLAMP BARS, PINS, & BALUSTER FRAMES	B221	6061-T6 OR 6351-T5	MIN. YIELD STRENGTH Fy = 35,000 psi.
BALUSTERS	B221	6061 OR 6063 (1)	T4 - USED FOR SUPERIOR EXPANDING QUALITIES
RIVETS	B316	6061-T6	BUTTON HD., CONE PT.
SET SCREWS FOR BALUSTERS	F880	TYPE 303	
STAINLESS STEEL BOLTS	A193	GRADE B8	
ANCHOR RODS	A449		GALV. A153
STEEL HEX. NUTS	A563	GRADE DH	GALV. A153
STEEL WASHERS	F436		GALV. A153
ANCHOR PLATES	A569		COMMERCIAL QUALITY (PLAIN)
ALUMINUM WASHERS	B209	2024-T4	
PREFORMED PADS			SECTION 731.01 OR 731.02
ELECTRODES FOR WELDING	AWS A5.10 ER5356		

POSTS TO BE NORMAL TO GRADE AND RAILS SHALL BE PARALLEL TO GRADE. RAILS TO BE ATTACHED TO A MINIMUM OF THREE POSTS WHEN POSSIBLE.

ALL RAILS AND WELDS TO BE FREE FROM ALL BURRS AND ROUGH EDGES. ENDS OF TUBE SECTIONS SHALL BE SAWED OR MILLED. GRIND ALL CUT EDGES SMOOTH.

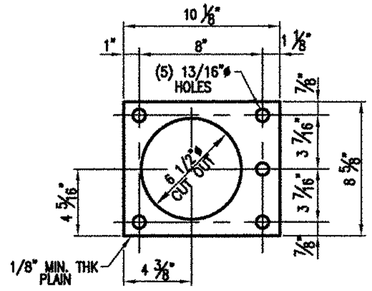
ALL THREADS TO BE UNC CLASS 2A/2B.

ALL EXTRUSION TOLERANCES NOT SHOWN SHALL BE IN ACCORDANCE WITH ASTM B221.

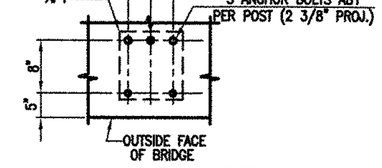
IF CUT THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN NOMINAL DIAMETER. IF ROLLED THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN THE ROOT DIAMETER OF THREADS

THE SPLICE BAR SHALL BE ATTACHED TO THE RAIL ELEMENT AS FOLLOWS:
THE RAIL SPLICE AT THE BRIDGE EXPANSION JOINT SHALL BE FASTENED ON BOTH SIDES OF THE RAIL SPLICE USING THE FULLY THREADED WASHER FACED BOLTS, TIGHTENED SECURELY TO THE END OF THREADS, AND LEAVING A 1/8" GAP. THIS ALLOWS EXPANSION ON BOTH SIDES OF THE JOINT.

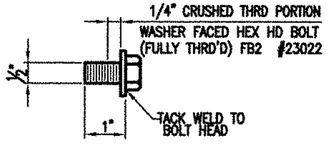
ALL NUTS SHALL COMPLY WITH AMERICAN HEXAGON ANSI SPECIFICATIONS B18.2



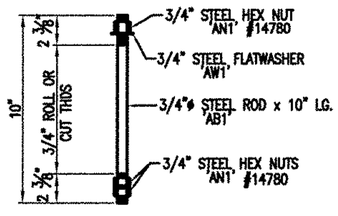
51 ~ REQ'D ANCHOR PLATE AP1
#31286



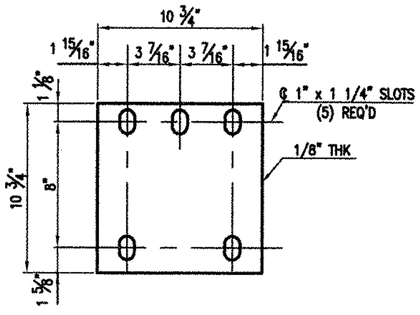
TYPICAL ANCHOR BOLT SETTING



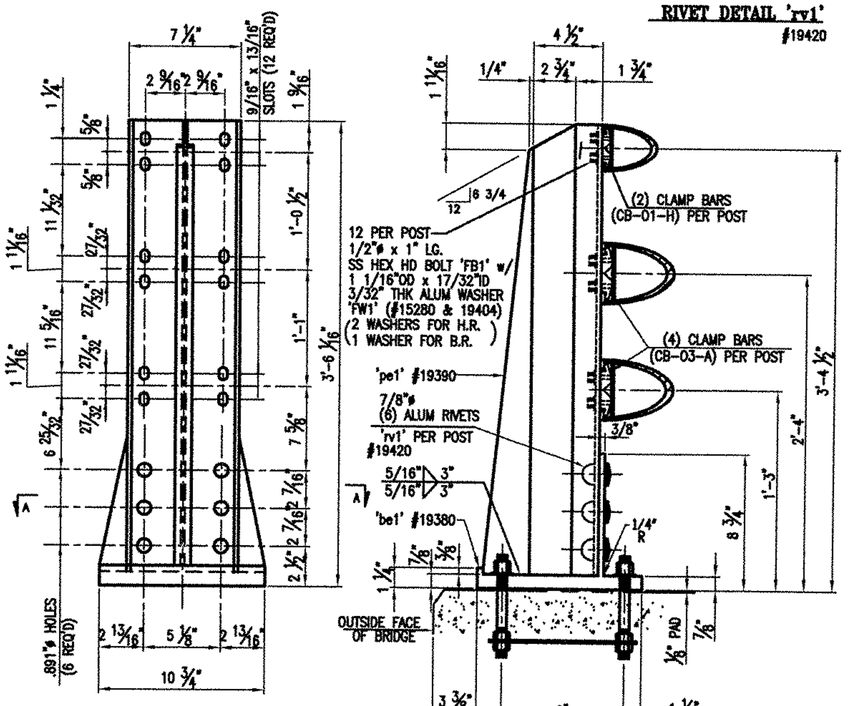
SPLICE BOLT DETAILS



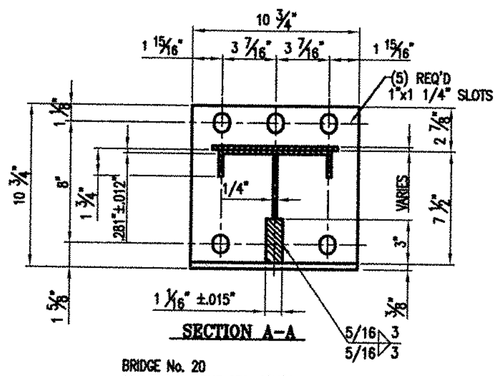
255 ~ REQ'D ANCHOR BOLTS AB1



51 ~ REQ'D FABRIC PADS 'EP1'



51 ~ REQ'D FABRICATED RAIL POSTS P-301-K
(SIDEWALK)



SECTION A-A

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 525.23

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUM BRIDGE RAILING ~ GENERAL NOTES & TYP. DETAILS

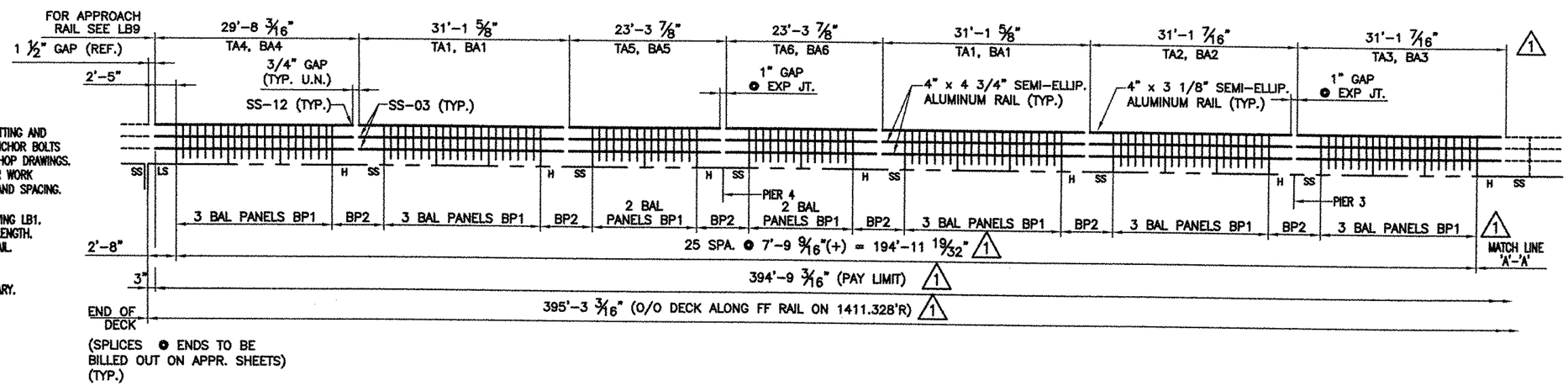
REV.	DESCRIPTION	BY	DATE
2	REVISED PER APPROVER MARKUPS	CMS	03 27 07
1	REVISED PER APPROVER MARKUPS	CMS	03 22 07

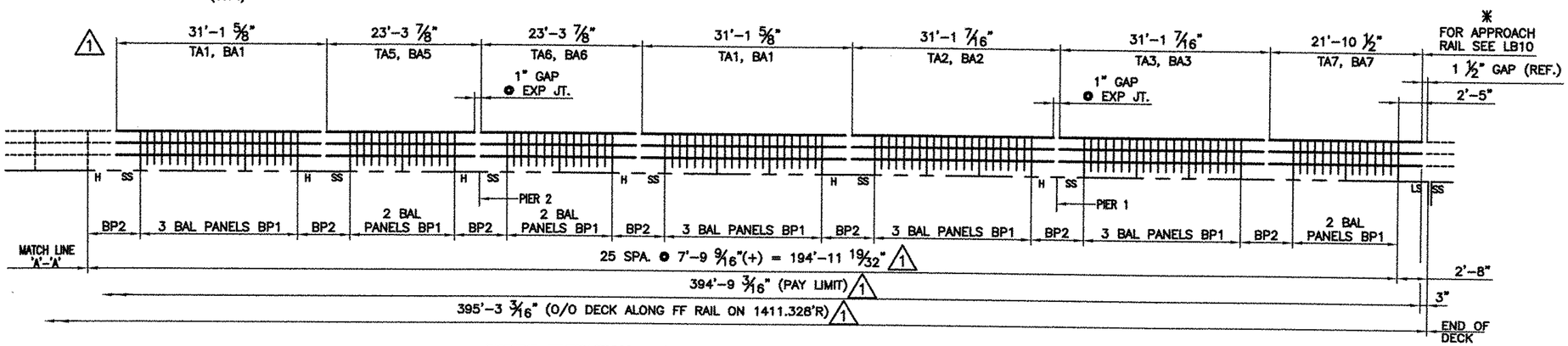
MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/27/07 DRAWING LB1 REV. No. 2

105BR

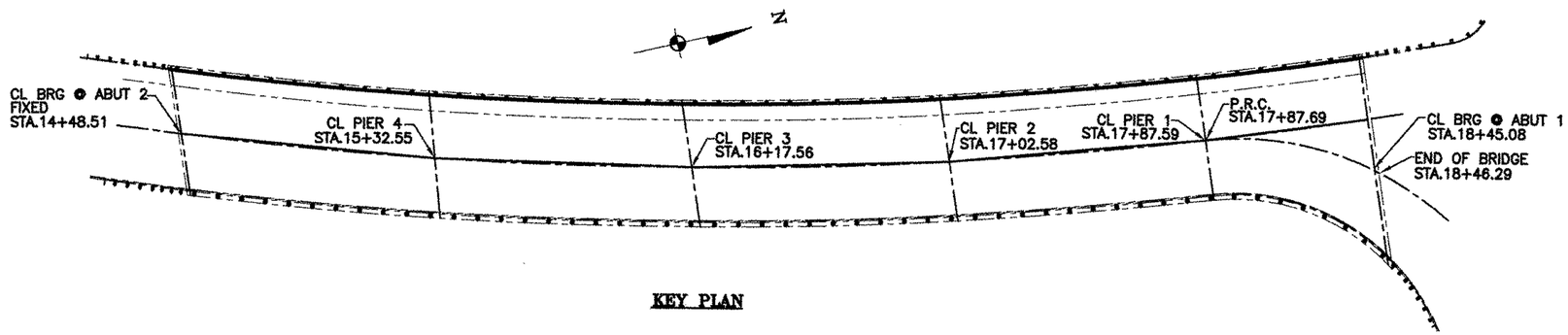
H = HOLE SIDE
SS = SHORT SLOTTED SIDE
LS = LONG SLOTTED SIDE

NOTE:
- THIS CONTRACT IS BASED UPON THE CONTRACTOR SETTING AND THIS CONTRACT IS BASED UPON THE SPACING THE ANCHOR BOLTS TO THE MEASUREMENTS SHOWN ON THE APPROVED SHOP DRAWINGS. THE L.B. FOSTER CO. WILL NOT BE RESPONSIBLE FOR WORK RESPONSIBLE NECESSITATED BY ANY OTHER SETTING AND SPACING.
- THIS DRAWING IS NOT TO SCALE.
- FOR GENERAL NOTES AND TYPICAL DETAILS SEE DRAWING LB1.
- LENGTH OF RAILING ON THIS SHEET IS 395 LF PAY LENGTH.
- POST SPACING IS MEASURED HORIZONTALLY FF OR RAIL.
- SPLICE GAP AT SLEEVE = 3/4" TYP U.N..
- ✱ RAIL LENGTHS DO NOT INCLUDE GAPS.
- COMPENSATION FOR VERTICAL CURVE IS NOT NECESSARY.
- RAILS ON LARGE RADIUS TO BE FIELD BENT.





INSIDE ELEVATION ~ WEST RAIL ~ SIDEWALK SIDE



KEY PLAN

ANODIZED
(SEE NOTES ON LB1)

REV.	DESCRIPTION	BY	DATE
1	REVISED PER APPROVER MARKUP	CMS	03 22 07

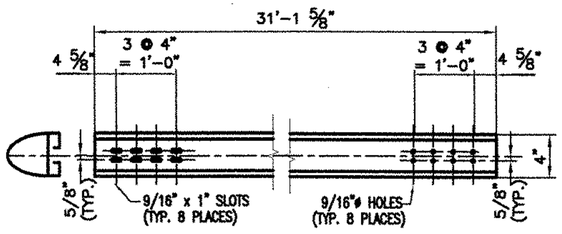
BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 525.23

APPROVED: _____ REC'D APPROVAL ____ DRAWING ____

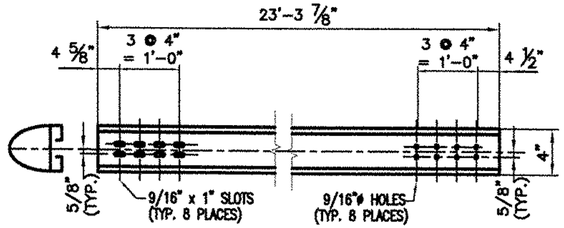
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUM BRIDGE RAILING ~ GENERAL NOTES & TYP. DETAILS

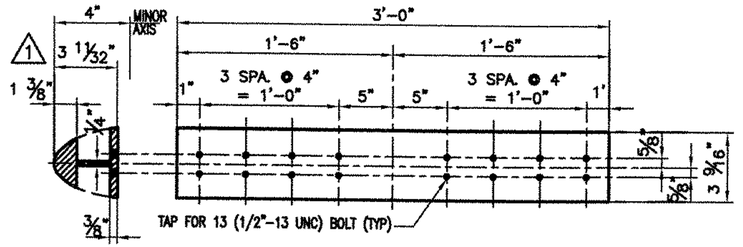
MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/27/07 DRAWING LB2 REV. No. ONE



8 REQ'D. ~ RAIL 'BA1' 1
(BACK ELEVATION VIEW)

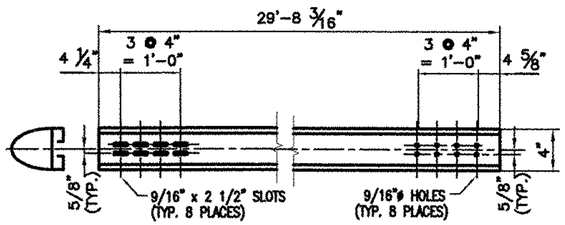


4 REQ'D. ~ RAIL 'BA5' 1
(BACK ELEVATION VIEW)

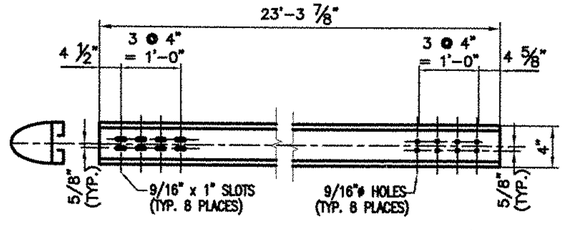


26 ~ REQ'D SPLICE SLEEVES SS-03-G
(BARRIER RAIL)

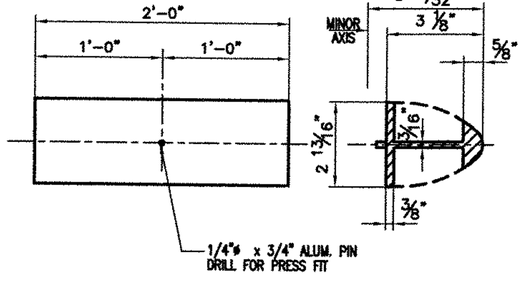
ANODIZED
(SEE NOTES ON LB1)



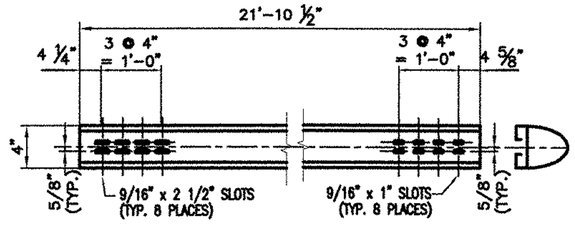
2 REQ'D. ~ RAIL 'BA4' 1
(BACK ELEVATION VIEW)



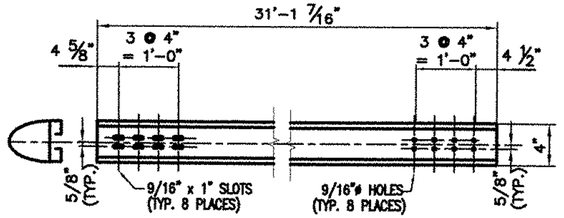
4 REQ'D. ~ RAIL 'BA6' 1
(BACK ELEVATION VIEW)



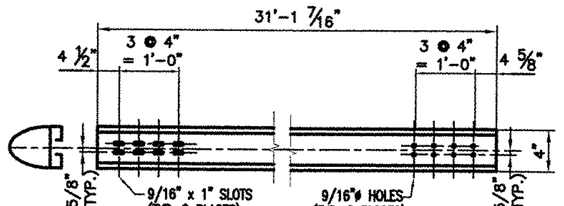
13 ~ REQ'D SPLICE SLEEVES SS-12-A
(HANDRAIL)



2 REQ'D. ~ RAIL 'BA7' 1
(BACK ELEVATION VIEW)



4 REQ'D. ~ RAIL 'BA2' 1
(BACK ELEVATION VIEW)



4 REQ'D. ~ RAIL 'BA3' 1
(BACK ELEVATION VIEW)

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 525.23

APPROVED: _____ REC'D APPROVAL _____
DRAWING _____

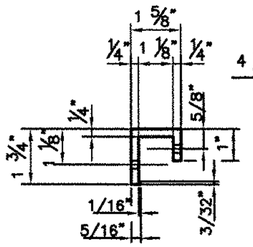
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

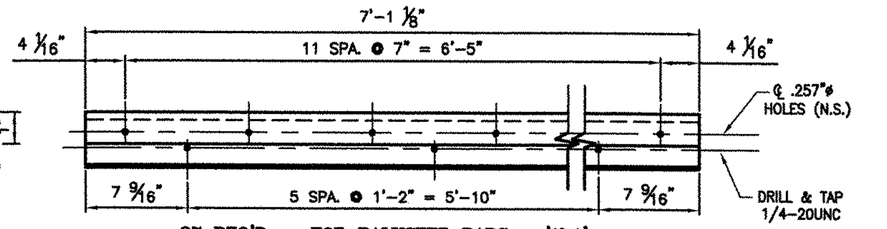
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3-LINE ALUM BRIDGE RAIL ~ MISC. RAIL DETAILS

MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/27/07 DRAWING LB3 REV. No. ONE

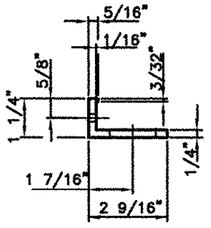
REV.	DESCRIPTION	BY	DATE
1	REVISED PER APPROVER MARKUP	CMS	03 22 07

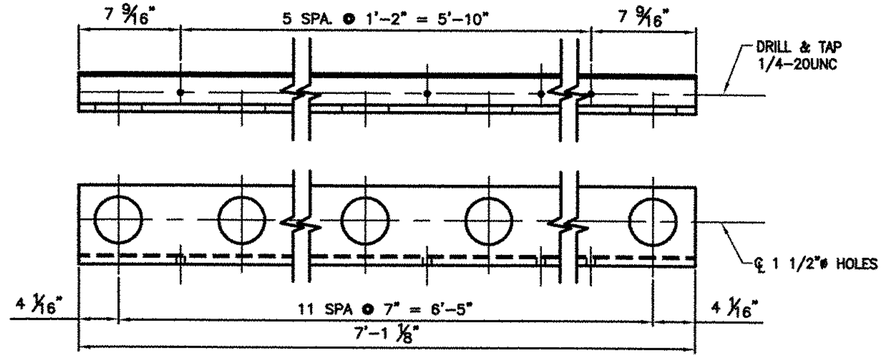
107 BR



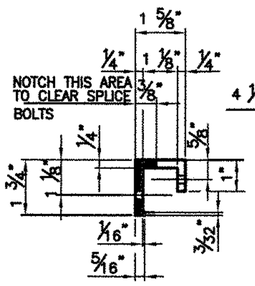


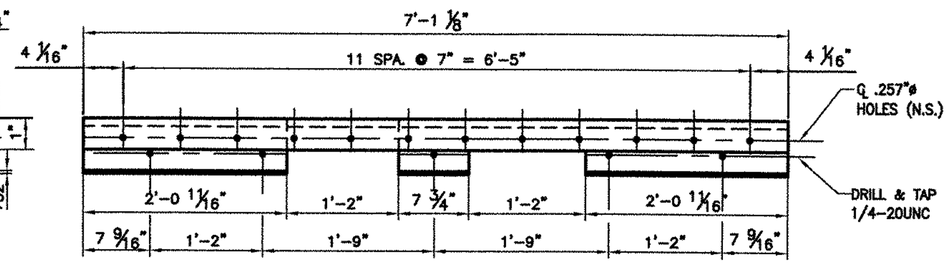
37 REQ'D. ~ TOP BALUSTER BARS ~ 'tb1'
(BAL. PANEL BP1) #19470



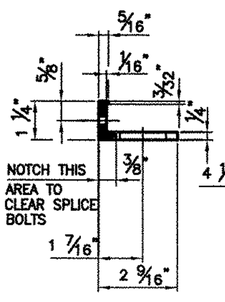


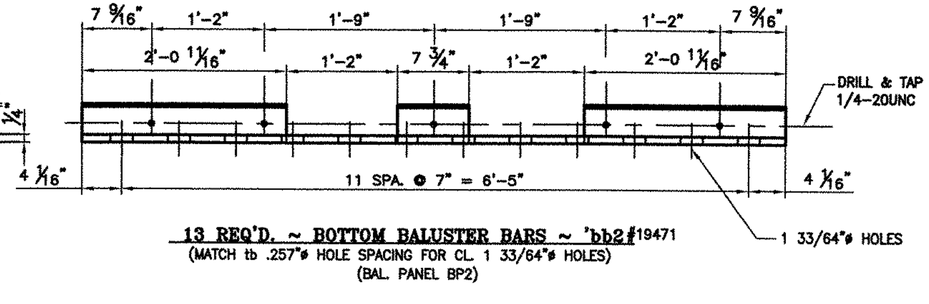
37 REQ'D. ~ BOTTOM BALUSTER BARS ~ 'bb1' #19471
(MATCH tb .257"ø HOLE SPACING FOR CL. 1 33/64"ø HOLES)
(BAL. PANEL BP1)



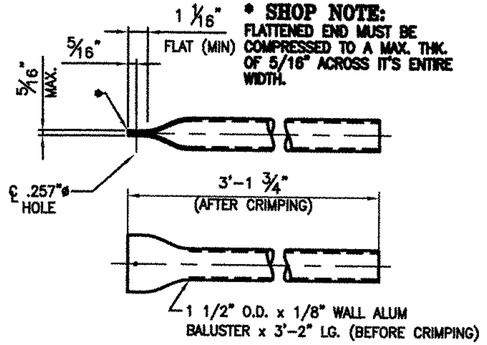


13 REQ'D. ~ TOP BALUSTER BARS ~ 'tb2'
(BAL. PANEL BP2) #19470



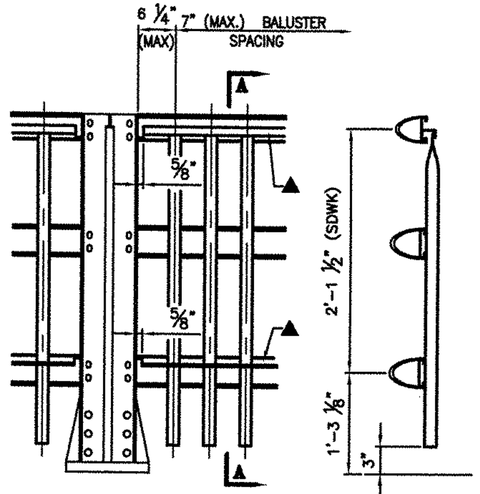


13 REQ'D. ~ BOTTOM BALUSTER BARS ~ 'bb2' #19471
(MATCH tb .257"ø HOLE SPACING FOR CL. 1 33/64"ø HOLES)
(BAL. PANEL BP2)



600 ~ REQ'D BALUSTERS 'b1'
#19451

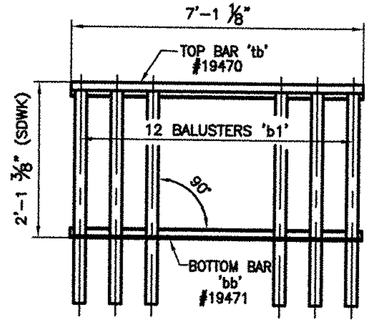
ANODIZED
(SEE NOTES ON LB1)



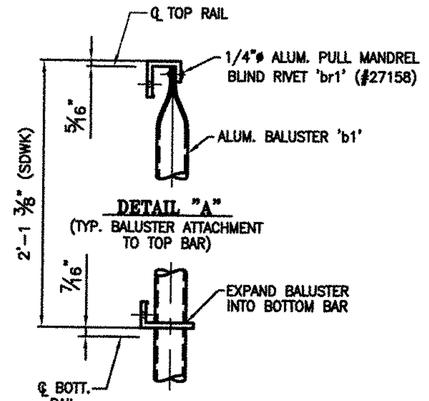
TYPICAL ELEVATION

▲ 1/4"–20UNC S.S. SOCKET SET SCREW x 1/2" – 'SS1' (#22079) EVERY OTHER SPACE BETWEEN BALUSTERS IF POSSIBLE

SECTION A–A



37 REQ'D. ~ BALUSTER PANEL ASSEMBLY 'BP1'
13 REQ'D. ~ BALUSTER PANEL ASSEMBLY 'BP2'



ITEM No: 525.23
BRIDGE No. 20
PROJECT No. BHF 030-2(19)S

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

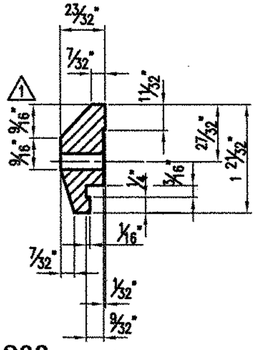
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

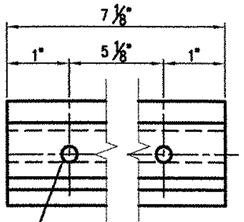
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3-LINE ALUM BRIDGE RAIL ~ BALUSTER PANEL DETAILS

REV.	DESCRIPTION	BY	DATE

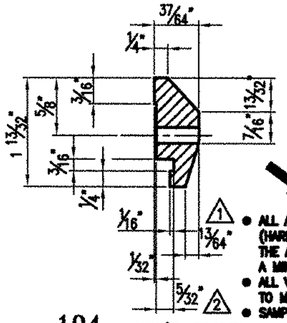
MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/27/07 DRAWING LB4 REV. No.

10 of BR





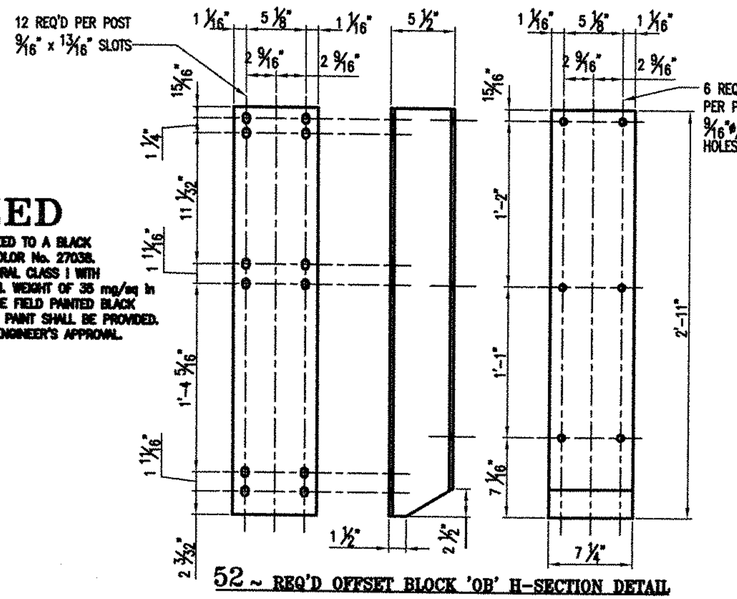
208 ~ REQ'D CLAMP BAR CB-03-A #19447
(BARRIER RAIL)



104 ~ REQ'D CLAMP BAR CB-01-H #28596
(HANDRAIL)

ANODIZED

- ALL ALUM. COMPONENTS SHALL BE ANODIZED TO A BLACK (HARD SATIN FINISH) COLOR, FED. STD. COLOR No. 27038. THE ANODIC COATING SHALL BE ARCHITECTURAL CLASS I WITH A MIN. THICKNESS OF 0.7 mils AND A MIN. WEIGHT OF 35 mg/sq in
- ALL VISIBLE STN. STL. HARDWARE SHALL BE FIELD PAINTED BLACK TO MATCH THE ANODIZED RAIL. TOUCH UP PAINT SHALL BE PROVIDED.
- SAMPLES SHALL BE SUBMITTED FOR THE ENGINEER'S APPROVAL.



52 ~ REQ'D OFFSET BLOCK 'OB' H-SECTION DETAIL

GENERAL NOTES

ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001 AND ITS LATEST REVISIONS.

DESCRIPTION	ASTM	ALLOY/GR.	REMARKS
RAILS, POSTS, BASES, SPLICES, CLAMP BARS, PINS,	B221	6061-T6 OR 6351-T5	MIN. YIELD STRENGTH Fy = 240 MPa (35,000 psi.)
RIVETS	B316	6061-T6	BUTTON HD., CONE PT. COLD DRIVEN
OFFSET BLOCKS (H-SECT.)	B308	6061-T6	
STAINLESS STEEL BOLTS	A193	GRADE B8	
STAINLESS STEEL HEX NUTS	A276	TYPE 304	
STAINLESS WASHERS	A276	TYPE 304	
ANCHOR RODS	A449		GALV. A153
STEEL HEX NUTS	A563	GRADE DH	GALV. A153
STEEL WASHERS	F436		GALV. A153
ANCHOR PLATES	A569		COMMERCIAL QUALITY (PLAIN)
ALUMINUM WASHERS	B209	6061-T6	
PREFORMED PADS			SECTION 731.01 OR 731.02
BACK-UP PLATES	A36		GALV. A123
ELECTRODES FOR WELDING	AWS A5.10 ER5356		

POSTS TO BE NORMAL TO GRADE AND RAILS SHALL BE PARALLEL TO GRADE. RAILS TO BE ATTACHED TO A MINIMUM OF THREE POSTS WHEN POSSIBLE.

ALL RAILS AND WELDS TO BE FREE FROM ALL BURRS AND ROUGH EDGES. ENDS OF TUBE SECTIONS SHALL BE SAWED OR MILLED. GRIND ALL CUT EDGES SMOOTH.

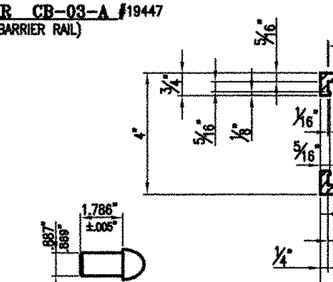
ALL THREADS TO BE UNC CLASS 2A/2B.

ALL EXTRUSION TOLERANCES NOT SHOWN SHALL BE IN ACCORDANCE WITH ASTM B221.

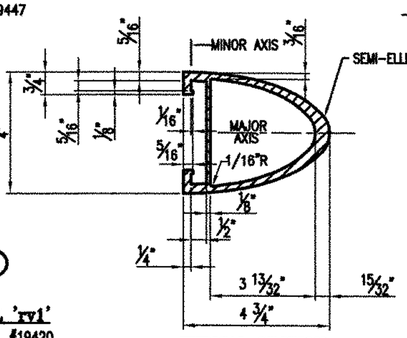
IF CUT THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN NOMINAL DIAMETER. IF ROLLED THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN THE ROOT DIAMETER OF THREADS

THE SPLICE BAR SHALL BE ATTACHED TO THE RAIL ELEMENT AS FOLLOWS: THE RAIL SPLICE AT THE BRIDGE EXPANSION JOINT SHALL BE FASTENED ON BOTH SIDES OF THE RAIL SPLICE USING THE FULLY THREADED WASHER FACED BOLTS, TIGHTENED SECURELY TO THE END OF THREADS, AND LEAVING A 1/8" GAP. THIS ALLOWS EXPANSION ON BOTH SIDES OF THE JOINT.

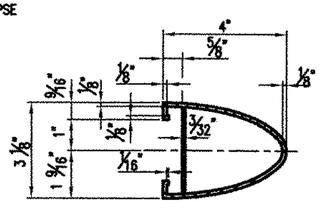
ALL NUTS SHALL COMPLY WITH AMERICAN HEXAGON ANSI SPECIFICATIONS B18.2



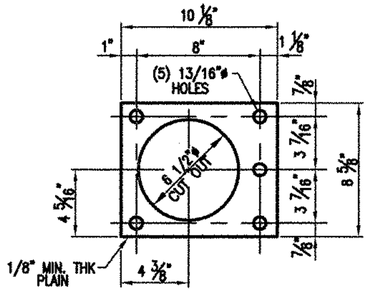
RIVET DETAIL 'rv1'
#19420



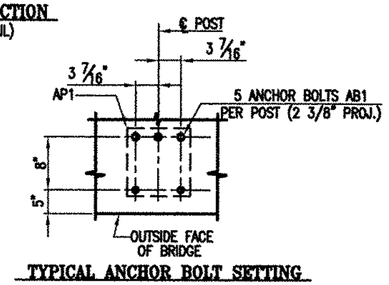
TYPICAL SECTION
(BARRIER RAIL)
#19466



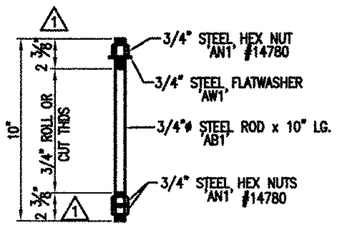
TYPICAL SECTION
(HANDRAIL)
#19464



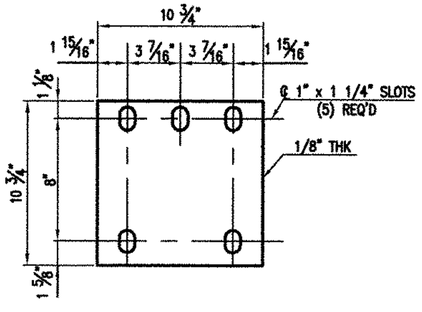
52 ~ REQ'D ANCHOR PLATE AP1
#31286



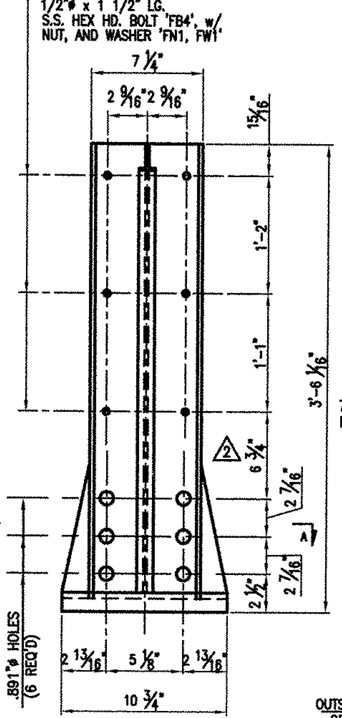
TYPICAL ANCHOR BOLT SETTING



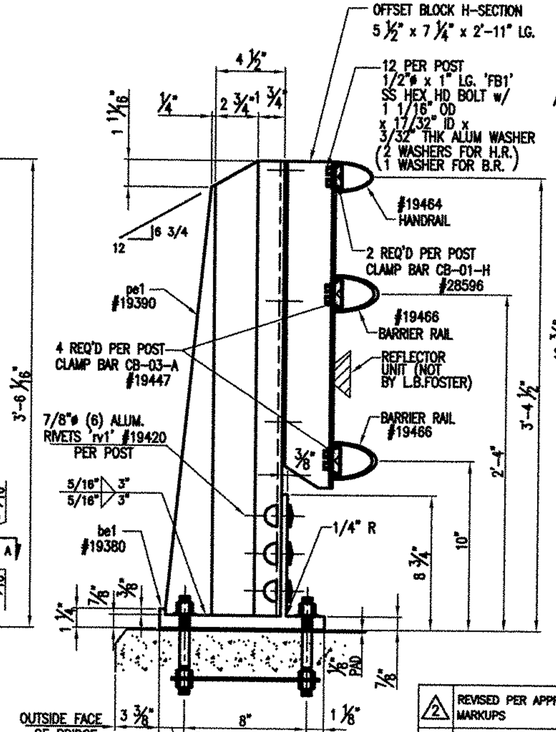
260 ~ REQ'D ANCHOR BOLTS AB1

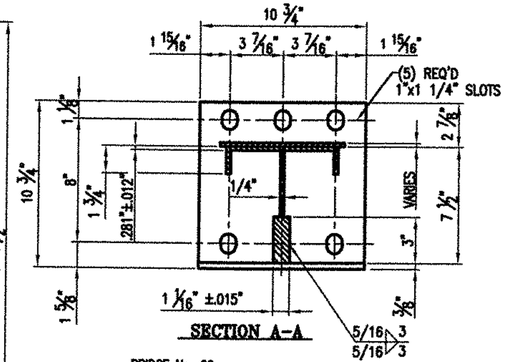


52 ~ REQ'D FABRIC PADS 'EP1'



52 ~ REQ'D FABRICATED RAIL POSTS 'P1'
(CURBSIDE)(REFLECTOR UNITS TO BE SUPPLIED & PLACED BY OTHERS)





SECTION A-A

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 525.22

APPROVED: _____ REQ'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION

TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUM BRIDGE RAILING ~ GENERAL NOTES & TYP. DETAILS

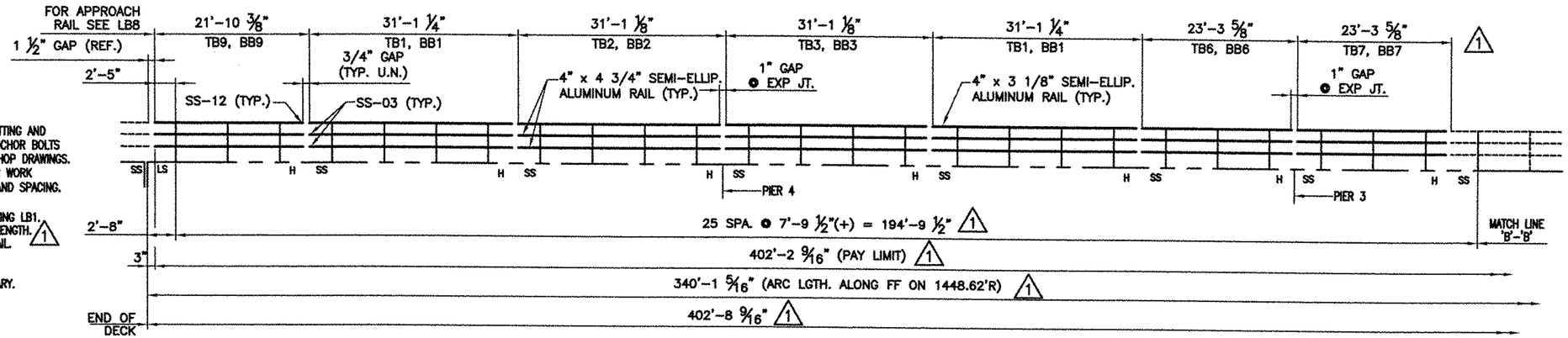
MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/26/07 DRAWING LB5 REV. No. 2

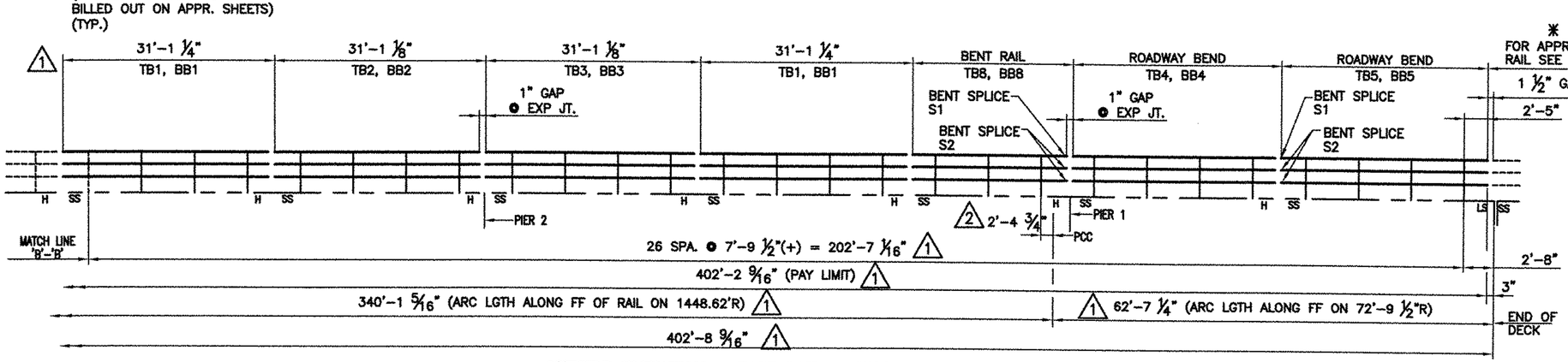
REV.	DESCRIPTION	BY	DATE
2	REVISED PER APPROVER MARKUPS	CMS	03 22 07
1	REVISED PER APPROVER MARKUPS	CMS	03 22 07

10 of BR

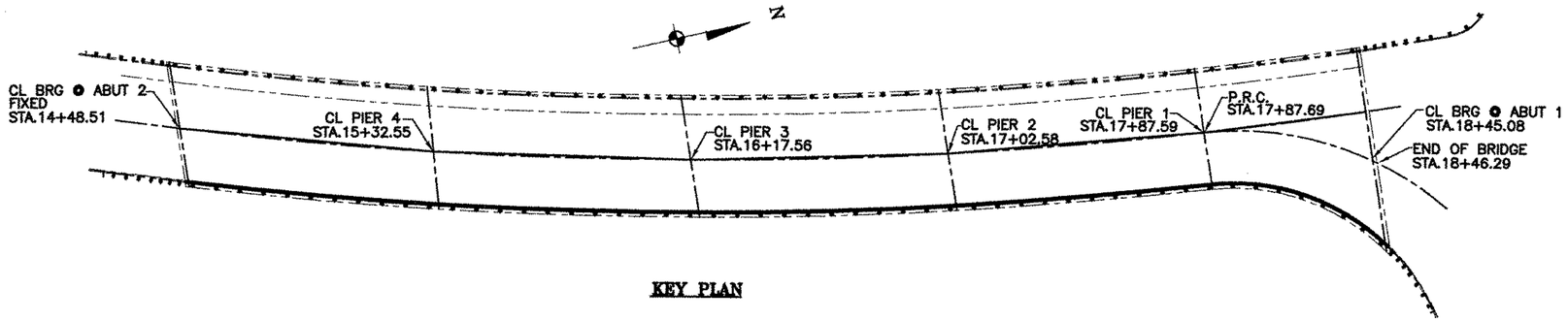
H = HOLE SIDE
SS = SHORT SLOTTED SIDE
LS = LONG SLOTTED SIDE

NOTE:
- THIS CONTRACT IS BASED UPON THE CONTRACTOR SETTING AND THIS CONTRACT IS BASED UPON THE SPACING THE ANCHOR BOLTS TO THE MEASUREMENTS SHOWN ON THE APPROVED SHOP DRAWINGS. THE L.B. FOSTER CO. WILL NOT BE RESPONSIBLE FOR WORK RESPONSIBLE NECESSITATED BY ANY OTHER SETTING AND SPACING.
- THIS DRAWING IS NOT TO SCALE.
- FOR GENERAL NOTES AND TYPICAL DETAILS SEE DRAWING LB1.
- LENGTH OF RAILING ON THIS SHEET IS 402 LF PAY LENGTH.
- POST SPACING IS MEASURED HORIZONTALLY FF OR RAIL.
- SPLICE GAP AT SLEEVE = 3/4" TYP U.N..
- ✱ RAIL LENGTHS DO NOT INCLUDE GAPS.
- COMPENSATION FOR VERTICAL CURVE IS NOT NECESSARY.
- RAILS ON LARGE RADIUS TO BE FIELD BENT.





OUTSIDE ELEVATION ~ EAST RAIL ~ CURB SIDE



KEY PLAN

ANODIZED
(SEE NOTES ON LB5)

REV.	DESCRIPTION	BY	DATE
2	REVISED DIMENSION APPROVER MARKUP	CMS	03 27 07
1	REVISED PER APPROVER MARKUP	CMS	03 22 07

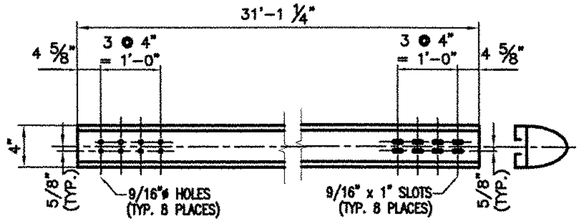
BRIDGE No. 20
PROJECT No. BHF 030-2(19)S
ITEM No: 525.22

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

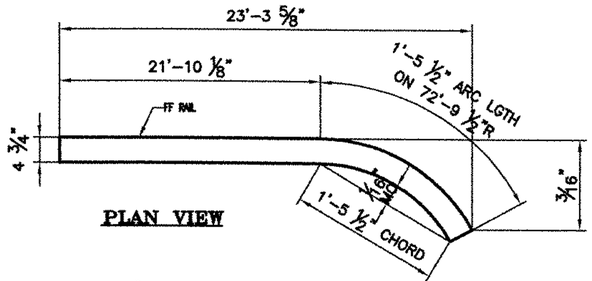
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUM BRIDGE RAILING ~ GENERAL NOTES & TYP. DETAILS

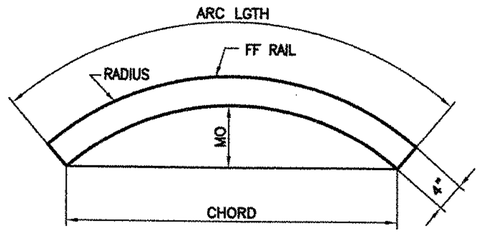
MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/28/07 DRAWING LB6 REV. No. 2

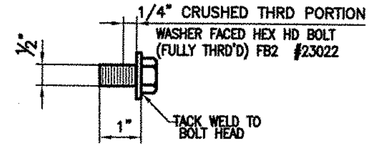


8 REQ'D. ~ RAIL 'BB1'
(BACK ELEVATION VIEW) 1

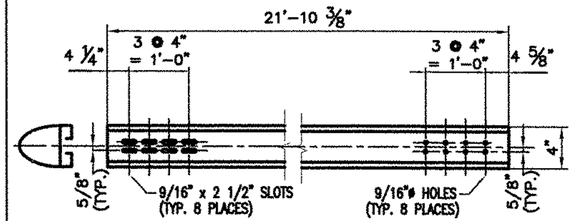


PLAN VIEW

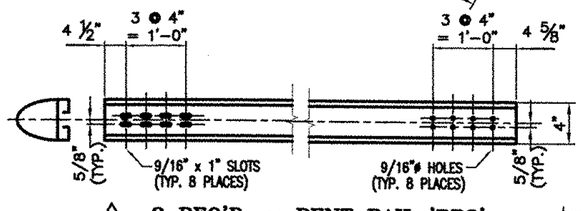




SPLICE BOLT DETAILS

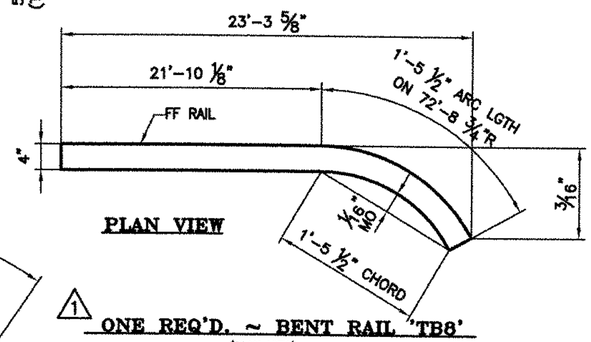


2 REQ'D. ~ RAIL 'BB9'
(BACK ELEVATION VIEW) 1



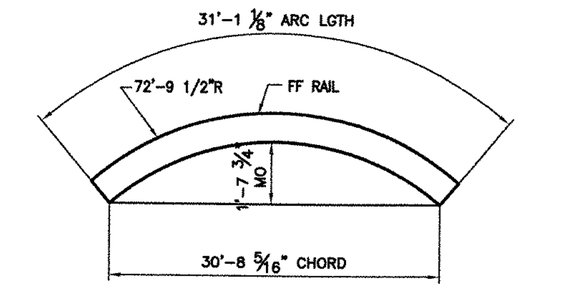
1 2 REQ'D. ~ BENT RAIL 'BB8'
(BACK ELEVATION VIEW)

	ROADWAY BEND TOP RAILS						MATL FOR BENDING
	MK.	QTY	ARC LGTH	MO	CHORD	RADIUS	
1	TB4	1	31'-0 13/16"	1'-7 3/4"	30'-8 5/16"	72'-8 3/4"	+4'-0"
1	TB5	1	29'-7 9/16"	1'-5 15/16"	29'-3 1/2"	72'-8 3/4"	+4'-0"

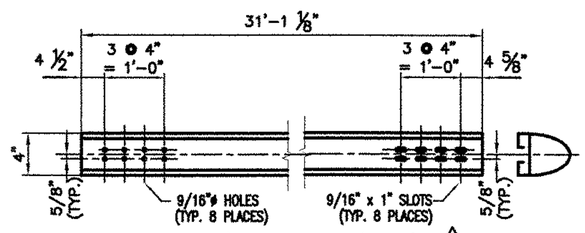


PLAN VIEW

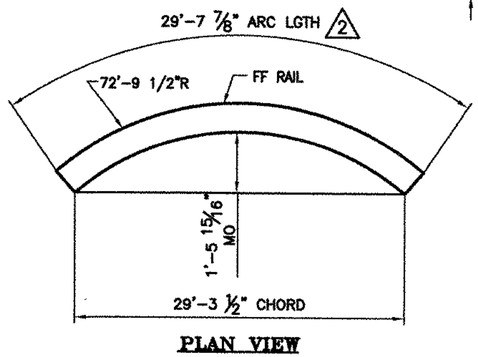
1 ONE REQ'D. ~ BENT RAIL 'TB8'
(PLAN VIEW)



PLAN VIEW

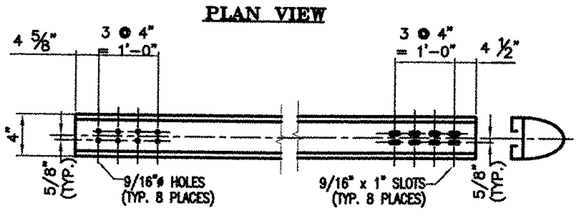


4 REQ'D. ~ RAIL 'BB2'
(BACK ELEVATION VIEW) 1

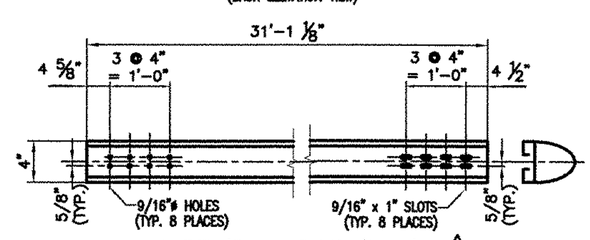


PLAN VIEW

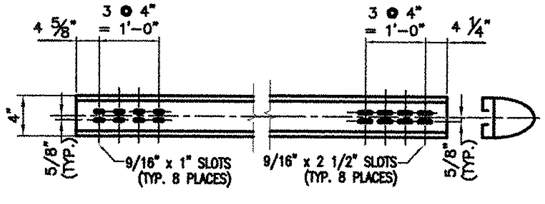
ANODIZED
(SEE NOTES ON LBS)



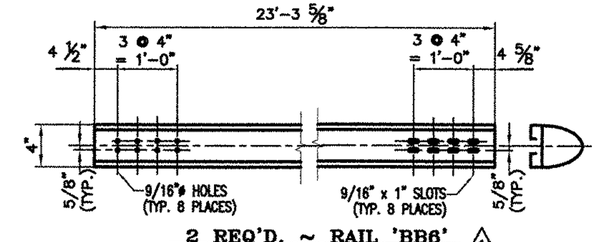
1 2 REQ'D. ~ ROADWAY BENT RAIL 'BB4'
(BACK ELEVATION VIEW)(ADD 4'-0" FOR SHOP BENDING)



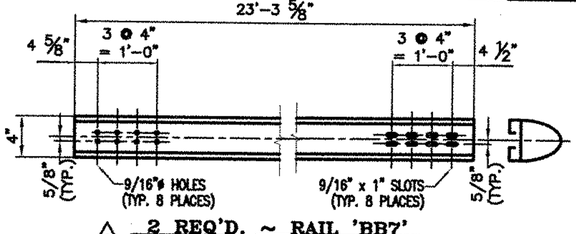
4 REQ'D. ~ RAIL 'BB3'
(BACK ELEVATION VIEW) 1



2 REQ'D. ~ ROADWAY BENT RAIL 'BB5'
(BACK ELEVATION VIEW)(ADD 4'-0" FOR SHOP BENDING) 1



2 REQ'D. ~ RAIL 'BB6'
(BACK ELEVATION VIEW) 1



1 2 REQ'D. ~ RAIL 'BB7'
(BACK ELEVATION VIEW)

REV.	DESCRIPTION	BY	DATE
2	REVISED DIMENSION APPROVER MARKUP	CMS	03 27 07
1	REVISED PER APPROVER MARKUP	CMS	03 22 07

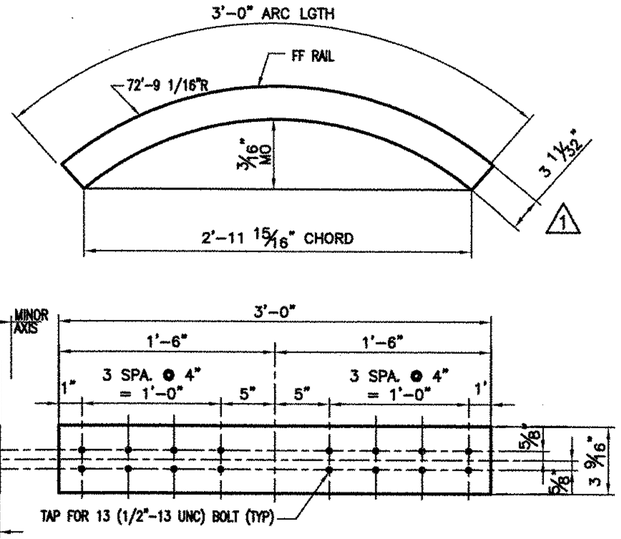
BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 525.22

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

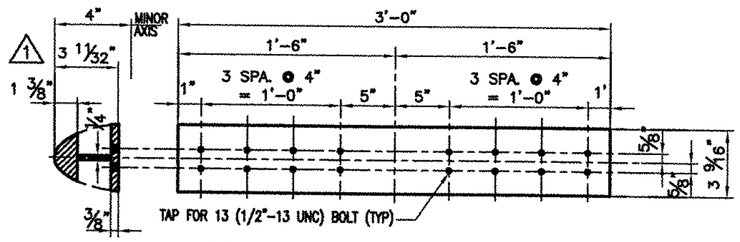
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3-LINE ALUM BRIDGE RAIL ~ MISC RAIL DETAILS

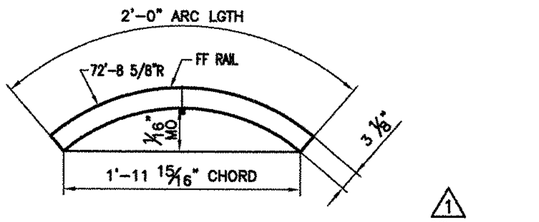
MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/27/07 DRAWING LB7 REV. No. 2

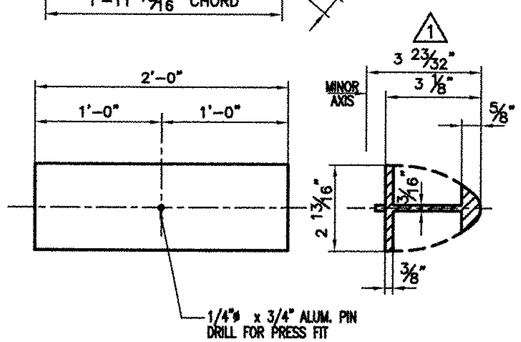


4 ~ REQ'D BENT SPLICE SLEEVES S2
(BARRIER RAIL)

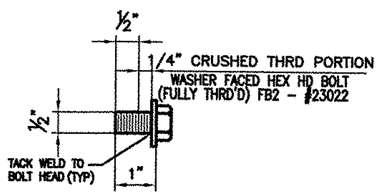


22 ~ REQ'D BENT SPLICE SLEEVES SS-03-G
(BARRIER RAIL)

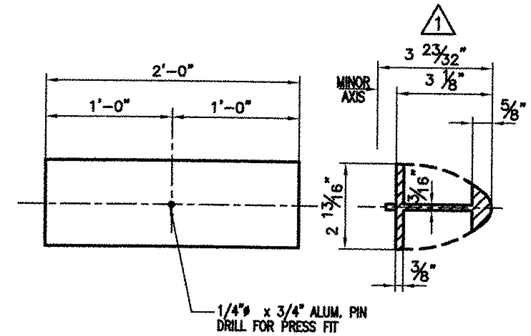




2 ~ REQ'D BENT SPLICE SLEEVES S1
(HANDRAIL)



SPLICE BOLT DETAILS



11 ~ REQ'D SPLICE SLEEVES SS-12-A
(HANDRAIL)

ANODIZED
(SEE NOTES ON LB5)

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S
ITEM No: 525.22

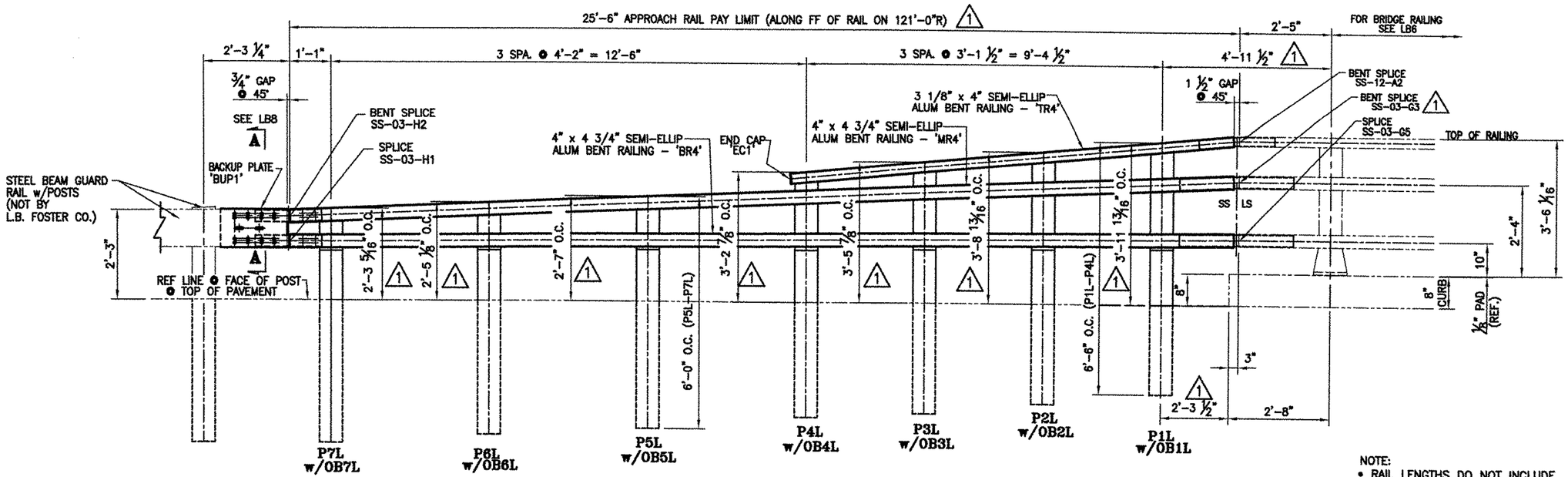
APPROVED: _____ REC'D APPROVAL ____ DRAWING ____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

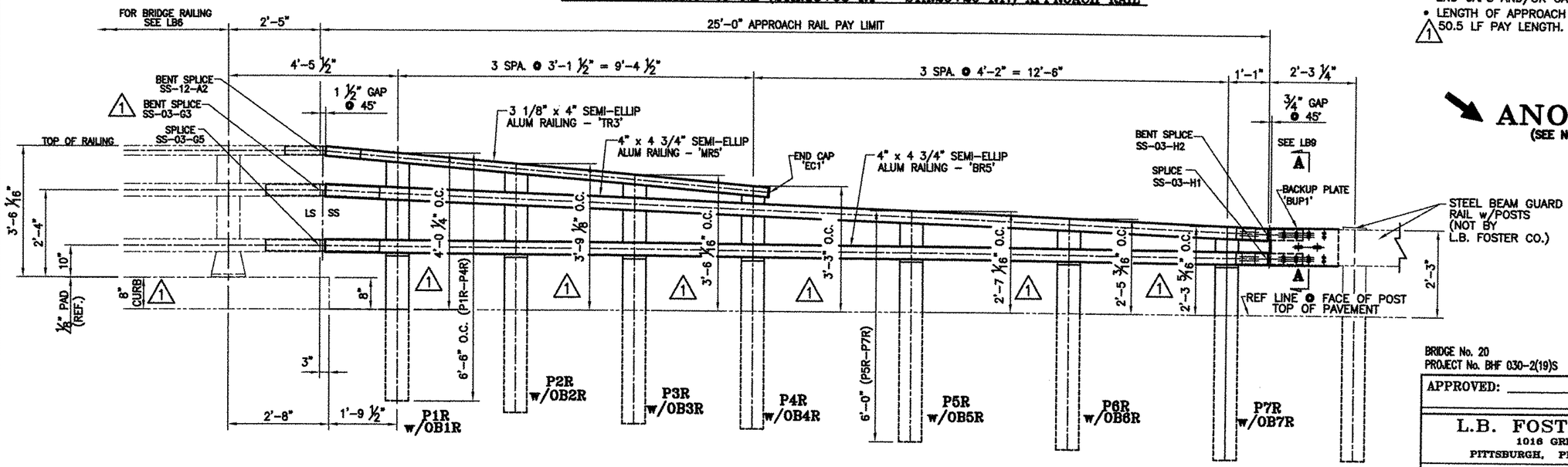
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3-LINE ALUM BRIDGE RAIL ~ SPLICE DETAILS

REV.	DESCRIPTION	BY	DATE
1	REVISED PER APPROVER MARKUP	CMS	03 22 07

MADE CMS DATE 01/30/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/28/07 DRAWING LB7A REV. No. ONE



INSIDE ELEVATION OF NE (STA.18+63 RT - STA.20+20 RT.) APPROACH RAIL



INSIDE ELEVATION OF SE APPROACH RAIL

NOTE:
- RAIL LENGTHS DO NOT INCLUDE END CAPS AND/OR GAPS.
- LENGTH OF APPROACH RAILING ON THIS SHEET IS 1 50.5 LF PAY LENGTH.

ANODIZED
(SEE NOTES ON LB1)

REV.	DESCRIPTION	BY	DATE
1	REVISED PER APPROVAL MARKUP	Dd	03 22 07

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S
ITEM No: 621.74

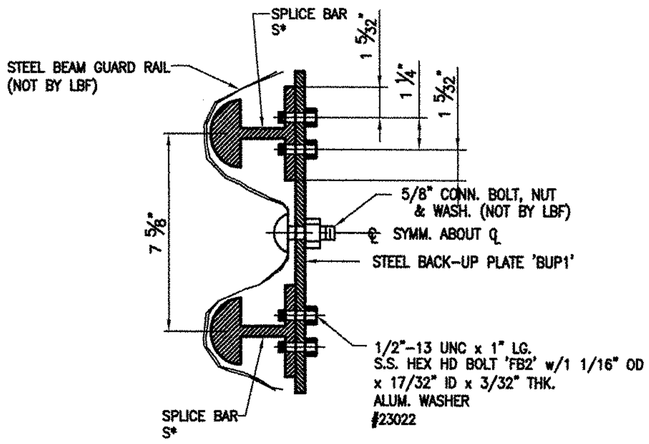
APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

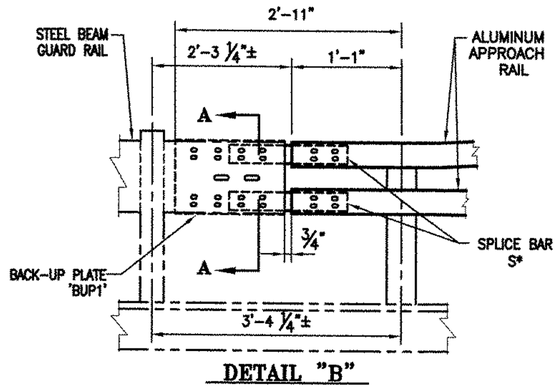
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUM BRIDGE APPROACH RAILING ~ ELEVATION VIEWS

MADE CMS DATE 01/29/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/28/07 DRAWING LB8 REV. No. ONE

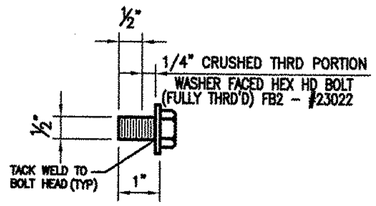
113 BR



SECTION A-A



DETAIL "B"



SPLICE BOLT DETAILS

GENERAL NOTES

ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001 AND ITS LATEST REVISIONS.

DESCRIPTION	ASTM	ALLOY/GR.	REMARKS
RAILS, POSTS, SPLICES, CLAMP BARS, PINS,	B221	6061-T6 OR 6351-T5	MIN. YIELD STRENGTH Fy = 241.3 MPa (35,000 psi.) 2
OFFSET BLOCKS (H-SECT.)	B308/B221	6061-T6	
STAINLESS STEEL BOLTS	A193	GRADE B8	
STAINLESS STEEL HEX NUTS	A194	GRADE B8	
STAINLESS WASHERS	A240	TYPE 304	
ALUMINUM WASHERS	B209	2024-T3	
END CAPS	B26	356-F	
BACK-UP PLATES			GALV. A123
ELECTRODES FOR WELDING			AWS A5.10 ALLOY ER4043

POSTS TO BE NORMAL TO GRADE AND RAILS SHALL BE PARALLEL TO GRADE.

ALL RAILS AND WELDS TO BE FREE FROM ALL BURRS AND ROUGH EDGES. ENDS OF TUBE SECTIONS SHALL BE SAWED OR MILLED. GRIND ALL CUT EDGES SMOOTH.

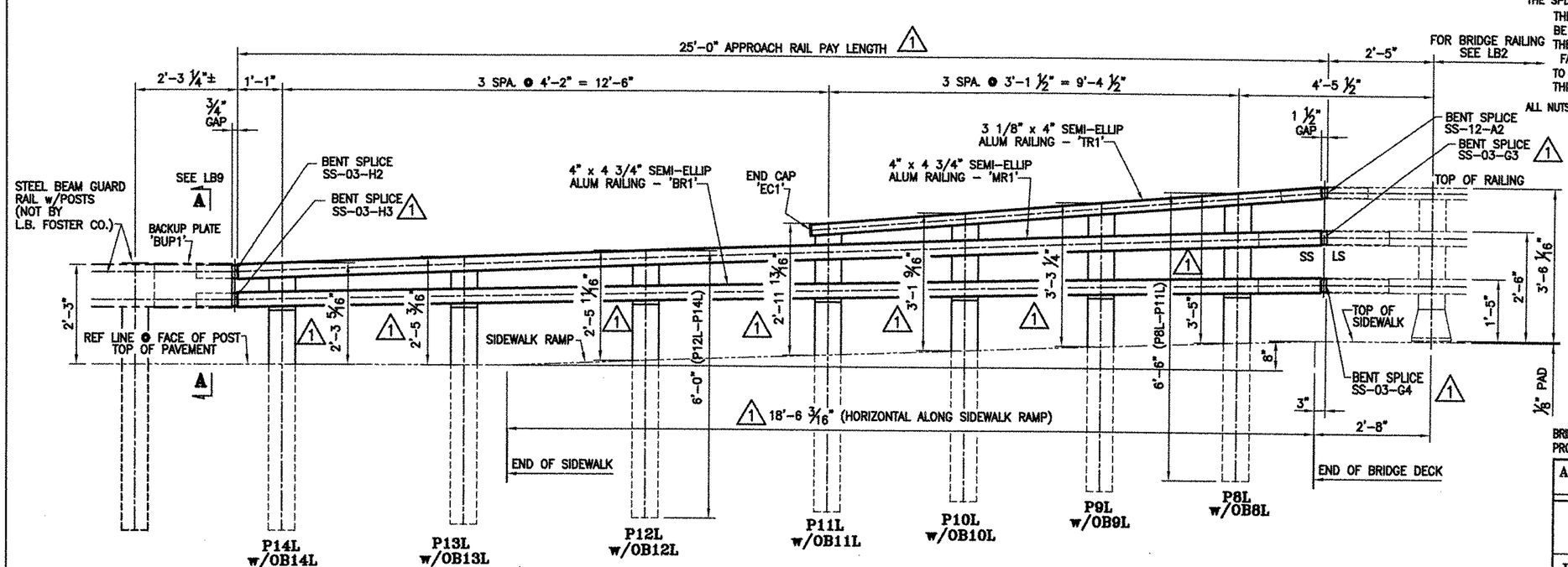
ALL THREADS TO BE UNC CLASS 2A/2B.

ALL EXTRUSION TOLERANCES NOT SHOWN SHALL BE IN ACCORDANCE WITH ASTM B221.

IF CUT THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN NOMINAL DIAMETER. IF ROLLED THREADS ARE USED, BOLT DIAMETER SHALL NOT BE LESS THAN THE ROOT DIAMETER OF THREADS

THE SPLICE BAR SHALL BE ATTACHED TO THE RAIL ELEMENT AS FOLLOWS: THE RAIL SPLICE AT THE BRIDGE EXPANSION JOINT SHALL BE FASTENED ON BOTH SIDES OF THE RAIL SPLICE USING THE PARTIALLY THREADED BOLTS, WITH THE WASHER FACED BOLT, TIGHTENED SECURELY TO THE END OF THREADS, AND LEAVING A 1/8" GAP, THIS ALLOWS EXPANSION ON BOTH SIDES OF THE JOINT.

ALL NUTS SHALL COMPLY WITH AMERICAN HEXAGON ANSI SPECIFICATIONS B18.2



1 INSIDE ELEVATION OF SW APPROACH RAIL @ SIDEWALK (STA.13+50 LT - STA.14+42 LT)

ANODIZED
(SEE NOTES ON LB1)

REV.	DESCRIPTION	BY	DATE
1	REVISED ALL POST HGTS. PER APPROVER'S MARKUPS	CMS	03 22 07

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 621.74

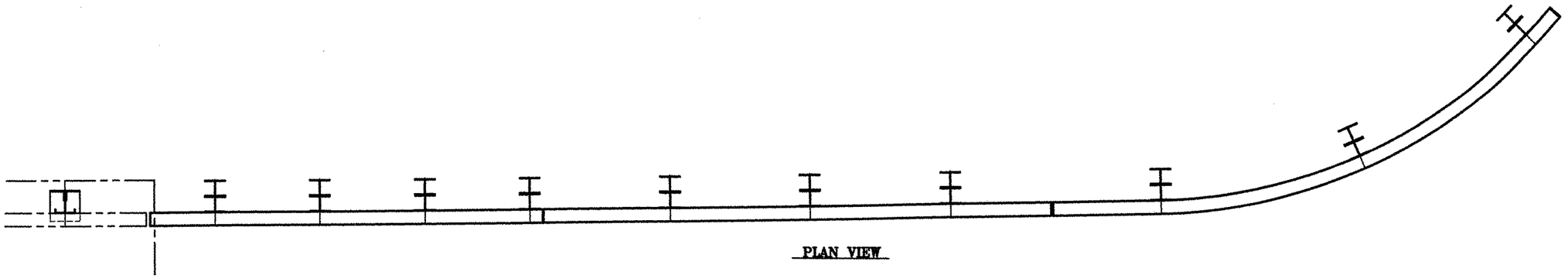
APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

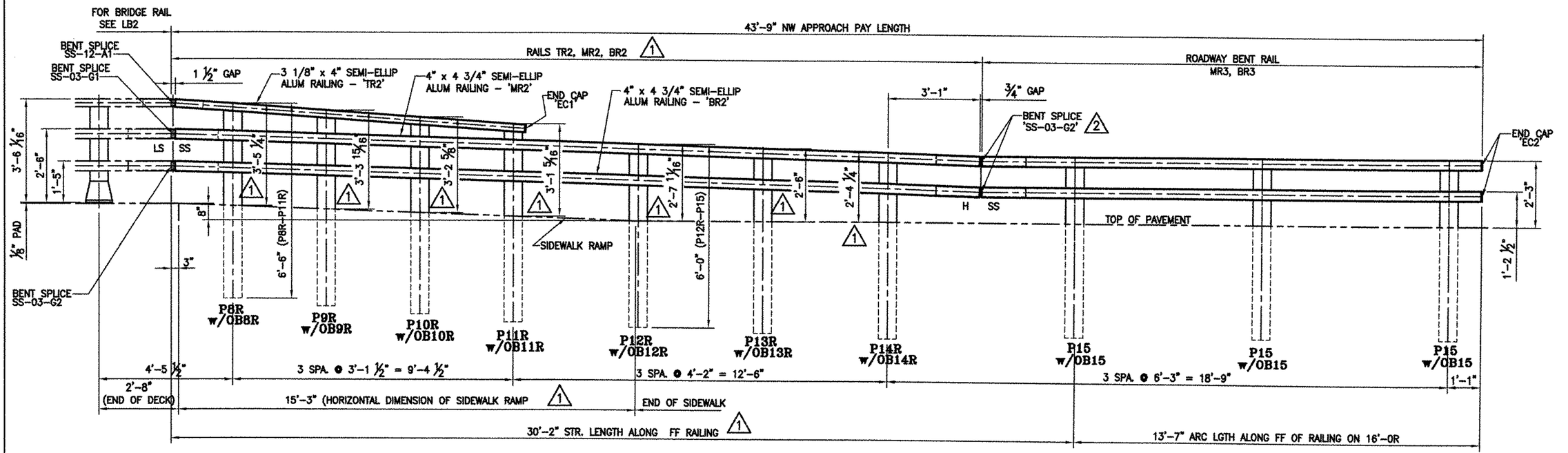
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUMINUM APPROACH RAIL ELEVATIONS

MADE CMS DATE 01/29/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/28/07 DRAWING LB9 REV. No. ONE

4 BR



PLAN VIEW



1 INSIDE ELEVATION OF NW SIDEWALK APPROACH RAIL (STA.18+30 LT. - STA.100+55 LT)

NOTE:
- RAIL LENGTHS DO NOT INCLUDE END CAPS AND/OR GAPS.
- LENGTH OF APPROACH RAILING ON THIS SHEET IS 44 LF PAY LENGTH.
- DIMENSIONS ARE IN INCHES, UNLESS NOTED.
- RAILS ON LARGE RADIUS TO BE BENT IN THE FIELD.

ANODIZED
(SEE NOTES ON LB1)

REV.	DESCRIPTION	BY	DATE
2	REPLACED SS-03-G6 PER APPROVER'S MARKUP	CMS	03 27 07
1	REVISED ALL POST HGTS. PER APPROVER'S MARKUP	CMS	03 22 07

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S
ITEM No: 621.74

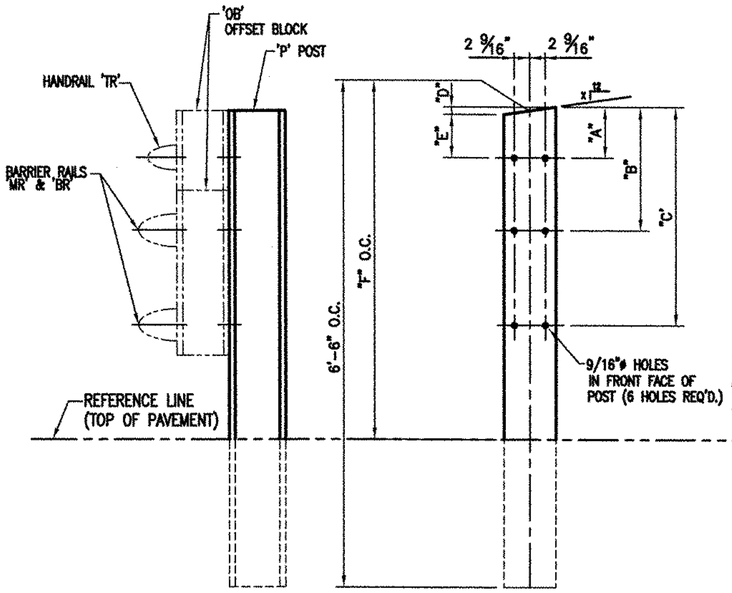
APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

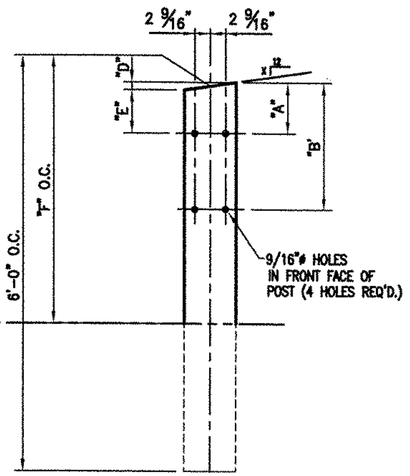
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUMINUM APPROACH RAIL ELEVATIONS

MADE CMS DATE 01/28/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 02/28/07 DRAWING LB10 REV. No. 2

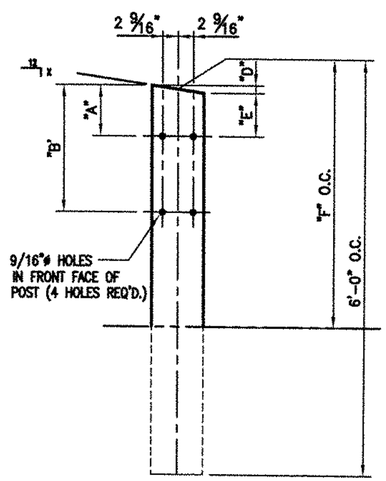
115 BR



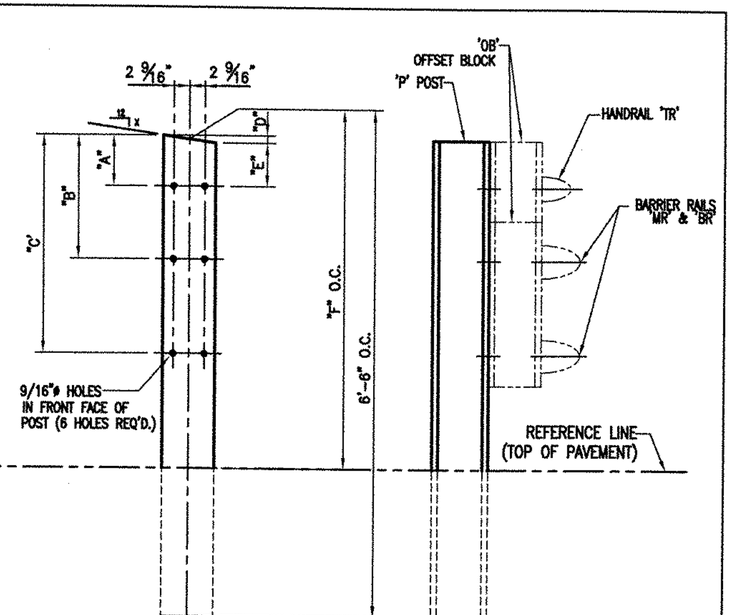
P1L – P4L



P5L – P7L



P5R – P7R



P1R – P4R

POST DETAIL CHART FOR BRIDGE 20 NE APPROACH CURB CONDITION (STA.18+63 RT – STA.20+20 RT)

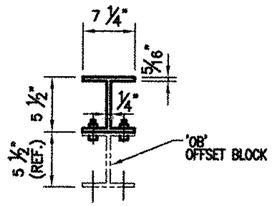
		OFFSET BLOCK MTG. DIMENSIONS						BEV
POST No.	QTY.	A	B	C	D	E	F (0.C.)	X
P1L	1	1 7/8"	1'–1 1/16"	2'–6 1/16"	9/16"	1 1/4"	3'–11 13/16"	1
P2L	1	1 7/8"	11 1/2"	2'–3 3/16"	9/16"	1 1/4"	3'–8 13/16"	1
P3L	1	1 7/8"	9 7/8"	2'–0 5/16"	9/16"	1 1/4"	3'–5 7/8"	1
P4L	1	1 7/8"	8 5/16"	1'–9 7/16"	9/16"	1 1/4"	3'–2 7/8"	1
P5L	1	2 1/8"	1'–1 5/8"		1/4"	1 7/8"	2'–7"	7/16
P6L	1	2 1/8"	11 7/8"		1/4"	1 7/8"	2'–5 1/8"	7/16
P7L	1	2 1/8"	10 3/16"		1/4"	1 7/8"	2'–3 5/16"	7/16

POST DETAIL CHART FOR BRIDGE 20 SE APPROACH CURB CONDITION (STA.13+30 RT – STA.14+53 RT)

		OFFSET BLOCK MTG. DIMENSIONS						BEV
POST No.	QTY.	A	B	C	D	E	F (0.C.)	X
P1R	1	1 7/8"	1'–1 5/16"	2'–6 1/2"	5/8"	1 1/4"	4'–0 1/4"	1
P2R	1	1 7/8"	11 5/8"	2'–3 1/2"	5/8"	1 1/4"	3'–9 1/8"	1
P3R	1	1 7/8"	10"	2'–0 9/16"	5/8"	1 1/4"	3'–6 1/16"	1
P4R	1	1 7/8"	8 5/16"	1'–9 9/16"	5/8"	1 1/4"	3'–3"	1
P5R	1	2 1/8"	1'–1 11/16"		1/4"	1 7/8"	2'–7 1/16"	7/16
P6R	1	2 1/8"	11 15/16"		1/4"	1 7/8"	2'–5 3/16"	7/16
P7R	1	2 1/8"	10 1/4"		1/4"	1 7/8"	2'–3 5/16"	7/16

NOTE:
2 CLAMPING BARS CB–01–H (#28596) PER POSTS P1–P4
4 CLAMPING BARS CB–03–A (#19447) PER POSTS P1–P4 w/ 1/2"ø–13 UNC S.S. BOLT x 1" LG. 'FB1', 1 1/16" O.D. x 17/32" I.D. x 3/32" THK. ALUM WASHER 'FW1' (#15280 & # 19404) (16 PER POST)

NOTE:
4 CLAMPING BARS CB–03–A (#19447) PER POSTS P5–P7 w/ 1/2"ø–13 UNC S.S. BOLT x 1" LG. 'FB1', 1 1/16" O.D. x 17/32" I.D. x 3/32" THK. ALUM WASHER 'FW1' (#15280 & # 19404) (8 PER POST)



TYP. SECT. POST & OFFSET BLOCK

ANODIZED
(SEE NOTES ON LB1)

BRIDGE No. 20
PROJECT No. BHF 030–2(19)S
ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

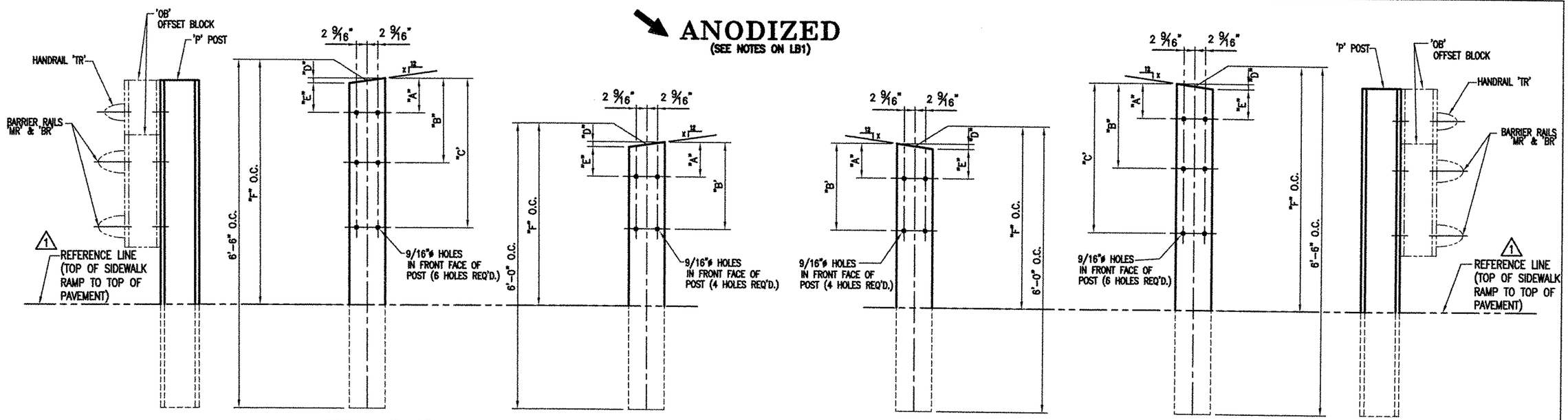
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUMINUM APPROACH RAIL POST DETAILS

REV.	DESCRIPTION	BY	DATE
1	REVISED ALL POST HGHTS. PER APPROVERS NEW DIM'S.	CMS	03 22 07

MADE CMS DATE 01/28/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 03/01/07 DRAWING LB11 REV. No. ONE

116 BR

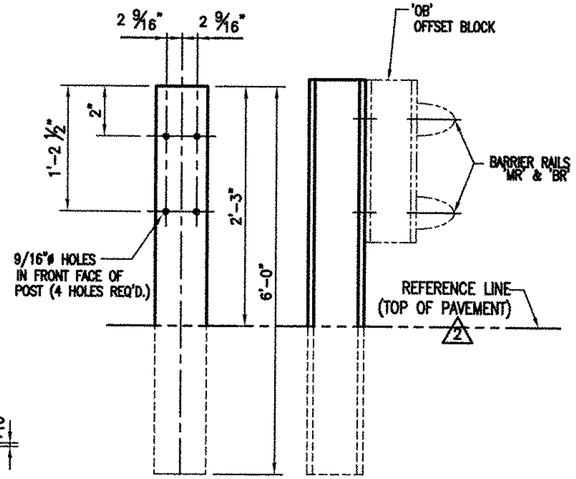
ANODIZED
(SEE NOTES ON LB1)



P8L – P11L | P12L – P14L | P12R – P14R | P8R – P11R

POST DETAIL CHART FOR BRIDGE 20 SW APPROACH SIDEWALK CONDITION (STA.13+50 LT – STA.14+42 LT)

		OFFSET BLOCK MTG. DIMENSIONS						BEV
POST No.	QTY.	A	B	C	D	E	F (O.C.)	X
P8L	1	1 7/8"	1'-1 5/16"	2'-1 7/8"	5/8"	1 1/4"	3'-5"	1
P9L	1	1 7/8"	11 5/8"	1'-11 9/16"	5/8"	1 1/4"	3'-3 1/4"	1
P10L	1	1 7/8"	10"	1'-9 3/16"	5/8"	1 1/4"	3'-1 9/16"	1
P11L	1	1 7/8"	8 5/16"	1'-6 7/8"	5/8"	1 1/4"	2'-11 13/16"	1
P12L	1	2 1/8"	11 13/16"		1/4"	1 7/8"	2'-5 11/16"	7/16
P13L	1	2 1/8"	10 7/8"		1/4"	1 7/8"	2'-5 3/16"	7/16
P14L	1	2 1/8"	10"		1/4"	1 7/8"	2'-3 5/16"	7/16



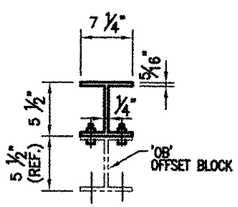
POST P15 ~ 3 REQ'D.
POST DETAIL FOR BRIDGE 20 NW APPROACH

POST DETAIL CHART FOR BRIDGE 20 NW APPROACHES SIDEWALK CONDITION (STA.18+30 LT – STA.100+55 LT)

		OFFSET BLOCK MTG. DIMENSIONS						BEV
POST No.	QTY.	A	B	C	D	E	F (O.C.)	X
P8R	1	1 7/8"	1'-1 5/16"	2'-2 1/4"	9/16"	1 5/16"	3'-5 1/4"	15/16
P9R	1	1 7/8"	11 5/8"	2'-0 1/2"	9/16"	1 5/16"	3'-3 15/16"	15/16
P10R	1	1 7/8"	9 15/16"	1'-10 13/16"	9/16"	1 5/16"	3'-2 5/8"	15/16
P11R	1	1 7/8"	8 5/16"	1'-9 1/16"	9/16"	1 5/16"	3'-1 5/16"	15/16
P12R	1	2 1/8"	1'-2 13/16"		1/4"	1 7/8"	2'-7 11/16"	7/16
P13R	1	2 1/8"	1'-2 3/4"		1/4"	1 7/8"	2'-6"	7/16
P14R	1	2 1/8"	1'-2 11/16"		1/4"	1 7/8"	2'-4 1/4"	7/16

NOTE:
2 CLAMPING BARS CB-01-H (#28596) PER POSTS P8-P11
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P12-P14
w/ 1/2"ø-13 UNC S.S. BOLT x 1" LG. 'FB1', 1 1/16" O.D. x 17/32" I.D. x 3/32" THK. ALUM WASHER 'FW1' (#15280 & # 19404) (16 PER POST)

NOTE:
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P12-P14
w/ 1/2"ø-13 UNC S.S. BOLT x 1" LG. 'FB1', 1 1/16" O.D. x 17/32" I.D. x 3/32" THK. ALUM WASHER 'FW1' (#15280 & # 19404) (8 PER POST)



TYP. SECT. POST & OFFSET BLOCK

REV.	DESCRIPTION	BY	DATE
2	REVISED NOTATION PER APPROVER MARKUP	CMS	03 27 07
1	REVISED ALL POST HGHTS. PER APPROVERS DIMENSIONS	CMS	03 23 07

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S
ITEM No: 621.74

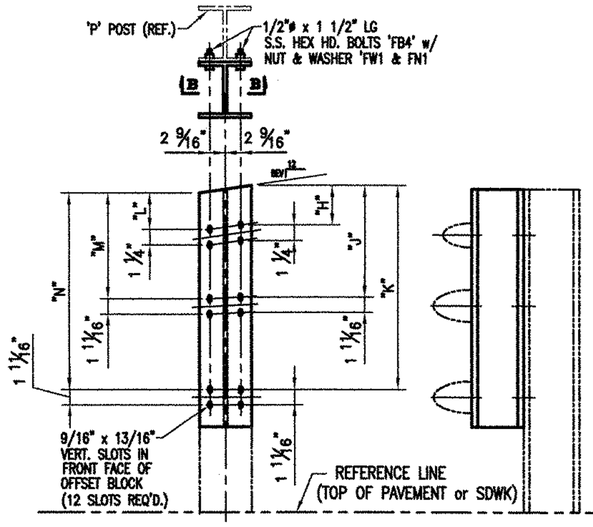
APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

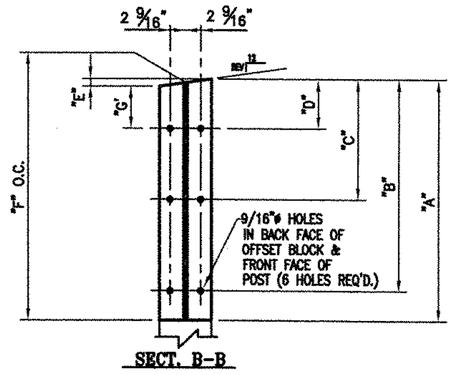
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

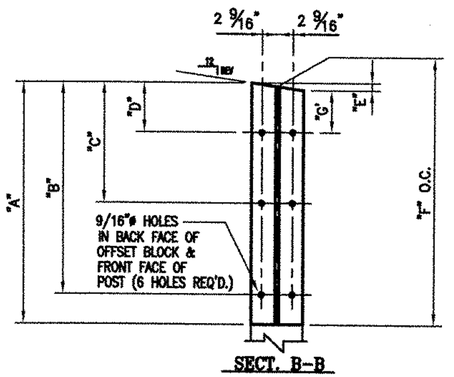
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUMINUM APPROACH RAIL POST DETAILS

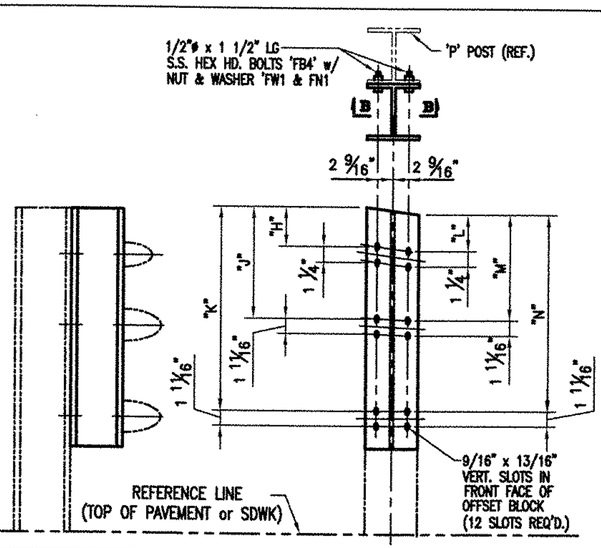
MADE CMS DATE 01/28/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 03/01/07 DRAWING LB12 REV. No. 2

11 of RR







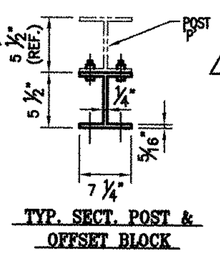


OFFSET BLOCK CHART FOR BRIDGE 20 NE & SW APPROACHES
POSTS P1L – P4L, P8L – P11L

			OFFSET BLOCK ~ POST MTG. DIMENSIONS							BEV
POST No.	OFFSET BLOCK	QTY.	A	B	C	D	E	F (O.C.)	G	X
P1L	OB1L	1	2'-9 1/16"	2'-6 1/16"	1'-1 1/16"	1 7/8"	9/16"	2'-8 13/16"	1 1/4"	15/16
P2L	OB2L	1	2'-6 3/16"	2'-3 3/16"	11 1/2"	1 7/8"	9/16"	2'-5 15/16"	1 1/4"	15/16
P3L	OB3L	1	2'-3 5/16"	2'-0 5/16"	9 7/8"	1 7/8"	9/16"	2'-3 1/16"	1 1/4"	15/16
P4L	OB4L	1	2'-0 7/16"	1'-9 7/16"	8 5/16"	1 7/8"	9/16"	2'-0 3/16"	1 1/4"	15/16
P8L	OB8L	1	2'-4 7/8"	2'-1 7/8"	1'-1 5/16"	1 7/8"	5/8"	2'-4 9/16"	1 1/4"	1
P9L	OB9L	1	2'-2 9/16"	1'-11 9/16"	11 5/8"	1 7/8"	5/8"	2'-2 1/4"	1 1/4"	1
P10L	OB10L	1	2'-0 3/16"	1'-9 3/16"	10"	1 7/8"	5/8"	1'-11 7/8"	1 1/4"	1
P11L	OB11L	1	1'-9 7/8"	1'-6 7/8"	8 5/16"	1 7/8"	5/8"	1'-9 9/16"	1 1/4"	1

OFFSET BLOCK ~ RAIL MTG. DIMENSIONS

POST No.	OFFSET BLOCK	H	J	K	L	M	N
P1L	OB1L	1"	1'-0 1/8"	2'-5 1/4"	7/8"	11 3/4"	2'-4 11/16"
P2L	OB2L	1"	10 9/16"	2'-2 3/8"	7/8"	10 3/16"	2'-1 13/16"
P3L	OB3L	1"	8 15/16"	1'-11 1/2"	7/8"	8 9/16"	1'-10 15/16"
P4L	OB4L	1"	7 3/8"	1'-8 5/8"	7/8"	7"	1'-8 1/16"
P8L	OB8L	1"	1'-0 3/8"	2'-1"	7/8"	11 15/16"	2'-0 1/2"
P9L	OB9L	1"	10 11/16"	1'-10 5/8"	7/8"	10 5/16"	1'-10 1/8"
P10L	OB10L	1"	9"	1'-8 5/16"	7/8"	8 5/8"	1'-7 13/16"
P11L	OB11L	1"	7 3/8"	1'-5 15/16"	7/8"	6 15/16"	1'-5 7/16"



TYP. SECT. POST & OFFSET BLOCK

OFFSET BLOCK CHART FOR BRIDGE 20 SE & NW APPROACHES
POSTS P1R – P4R, P8R – P11R

			OFFSET BLOCK ~ POST MTG. DIMENSIONS							BEV
POST No.	OFFSET BLOCK	QTY.	A	B	C	D	E	F (O.C.)	G	X
P1R	OB1R	1	2'-9 1/2"	2'-6 1/2"	1'-1 5/16"	1 7/8"	5/8"	2'-9 3/16"	1 1/4"	1
P2R	OB2R	1	2'-6 1/2"	2'-3 1/2"	11 5/8"	1 7/8"	5/8"	2'-6 3/16"	1 1/4"	1
P3R	OB3R	1	2'-3 9/16"	2'-0 9/16"	10"	1 7/8"	5/8"	2'-3 1/4"	1 1/4"	1
P4R	OB4R	1	2'-0 9/16"	1'-9 9/16"	8 5/16"	1 7/8"	5/8"	2'-0 5/16"	1 1/4"	1
P8R	OB8R	1	2'-5 1/4"	2'-2 1/4"	1'-1 5/16"	1 7/8"	9/16"	2'-4 15/16"	1 5/16"	15/16
P9R	OB9R	1	2'-3 1/2"	2'-0 1/2"	11 5/8"	1 7/8"	9/16"	2'-3 1/4"	1 5/16"	15/16
P10R	OB10R	1	2'-1 13/16"	1'-10 13/16"	9 15/16"	1 7/8"	9/16"	2'-1 1/2"	1 5/16"	15/16
P11R	OB11R	1	2'-0 1/16"	1'-9 1/16"	8 5/16"	1 7/8"	9/16"	1'-11 13/16"	1 5/16"	15/16

OFFSET BLOCK ~ RAIL MTG. DIMENSIONS

POST No.	OFFSET BLOCK	H	J	K	L	M	N
P1R	OB1R	1"	1'-0 3/8"	2'-5 5/8"	7/8"	11 15/16"	2'-5 1/16"
P2R	OB2R	1"	10 11/16"	2'-2 11/16"	7/8"	10 5/16"	2'-2 1/16"
P3R	OB3R	1"	9"	1'-11 11/16"	7/8"	8 5/8"	1'-11 1/8"
P4R	OB4R	1"	7 3/8"	1'-8 3/4"	7/8"	6 15/16"	1'-8 1/8"
P8R	OB8R	1"	1'-0 3/8"	2'-1 5/16"	7/8"	11 15/16"	2'-0 15/16"
P9R	OB9R	1"	10 11/16"	1'-11 5/8"	7/8"	10 5/16"	1'-11 3/16"
P10R	OB10R	1"	9"	1'-9 7/8"	7/8"	8 5/8"	1'-9 1/2"
P11R	OB11R	1"	7 3/8"	1'-8 1/8"	7/8"	6 15/16"	1'-7 3/4"

NOTE:
2 CLAMPING BARS CB-01-H (#28596) PER POSTS P1- P4, P8 - P11
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P1- P4, P8 - P11 w/ 1/2"ø-13 UNC S.S. BOLT x 1" LG. 'FB1', 1 1/16" O.D. x 17/32" I.D. x 3/32" THK. ALUM WASHER 'FW1' (#15280 & #19404) (16 PER POST)

NOTE:
4 CLAMPING BARS CB-03-A (#19447) PER POSTS P1 - P4, P8 - P11 w/ 1/2"ø-13 UNC S.S. BOLT x 1" LG. 'FB1', 1 1/16" O.D. x 17/32" I.D. x 3/32" THK. ALUM WASHER 'FW1' (#15280 & #19404) (8 PER POST)

ANODIZED
(SEE NOTES ON LB1)

REV.	DESCRIPTION	BY	DATE
2	REVISED POST HEIGHT PER APPROVER MARKUP	CMS	03 27 07
1	REVISED ALL POST HGHTS. PER APPROVERS DIMENSIONS	CMS	03 23 07

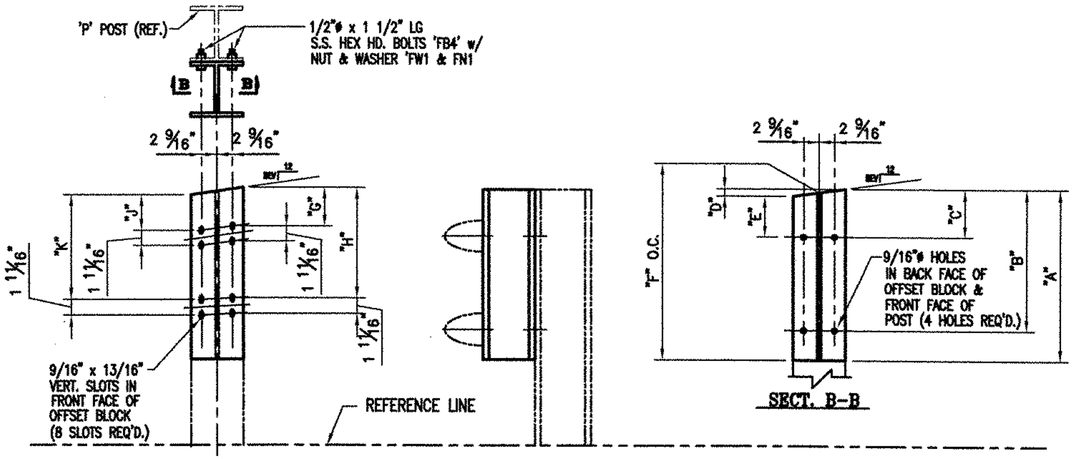
BRIDGE No. 20
PROJECT No. BHF 030-2(19)S
ITEM No: 621.74

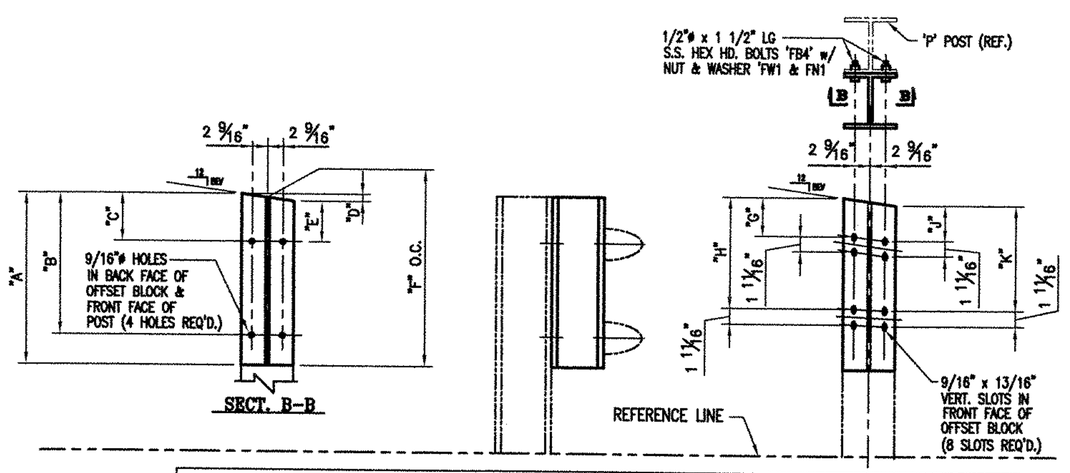
APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
OFFSET BOX DETAILS

MADE CMS DATE 01/28/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 03/01/07 DRAWING LB13 REV. No. 2

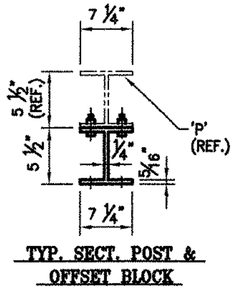




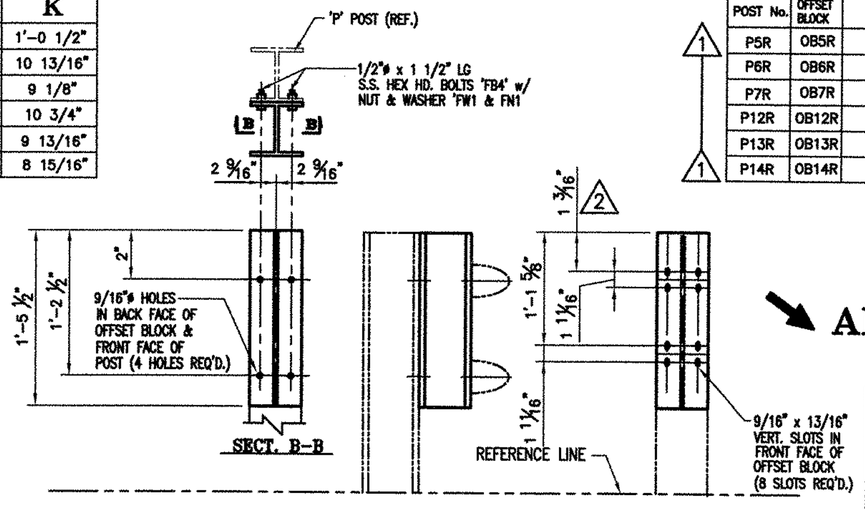
OFFSET BLOCK CHART FOR BRIDGE 20 SW & NE APPROACHES POSTS P5L – P7L, P12L – P14L

	POST No.	OFFSET BLOCK	QTY.	OFFSET BLOCK ~ POST MTG. DIMENSIONS A	B	C	D	E	F (O.C.)	BEV X
1	P5L	OB5L	1	1'–4 5/8"	1'–1 5/8"	2 1/8"	1/4"	1 7/8"	1'–4 7/16"	7/16
	P6L	OB6L	1	1'–2 7/8"	11 7/8"	2 1/8"	1/4"	1 7/8"	1'–2 3/4"	7/16
	P7L	OB7L	1	1'–1 3/16"	10 3/16"	2 1/8"	1/4"	1 7/8"	1'–1 1/16"	7/16
	P12L	OB12L	1	1'–2 13/16"	11 13/16"	2 1/8"	1/4"	1 7/8"	1'–2 5/8"	7/16
	P13L	OB13L	1	1'–1 7/8"	10 7/8"	2 1/8"	1/4"	1 7/8"	1'–1 3/4"	7/16
1	P14L	OB14L	1	1'–1"	10"	2 1/8"	1/4"	1 7/8"	1'–0 7/8"	7/16

	POST No.	OFFSET BLOCK	OFFSET BLOCK ~ RAIL MTG. DIMENSIONS G	H	J	K
1	P5L	OB5L	1 3/16"	1'–0 3/4"	1 1/8"	1'–0 1/2"
	P6L	OB6L	1 3/16"	11 1/16"	1 1/8"	10 13/16"
	P5L	OB5L	1 3/16"	9 3/8"	1 1/8"	9 1/8"
	P12L	OB12L	1 3/16"	10 7/8"	1 1/8"	10 3/4"
	P13L	OB13L	1 3/16"	10"	1 1/8"	9 13/16"
1	P14L	OB14L	1 3/16"	9 1/8"	1 1/8"	8 15/16"



TYP. SECT. POST & OFFSET BLOCK



OFFSET BLOCK OB15 ~ 3 REQ'D.

OFFSET BLOCK CHART FOR BRIDGE 20 SE & NW APPROACHES POSTS P5R – P7R, P12R – P14R

	POST No.	OFFSET BLOCK	QTY.	OFFSET BLOCK ~ POST MTG. DIMENSIONS A	B	C	D	E	F (O.C.)	BEV X
1	P5R	OB5R	1	1'–4 11/16"	1'–1 11/16"	2 1/8"	1/4"	1 7/8"	1'–4 9/16"	7/16
	P6R	OB6R	1	1'–2 15/16"	11 15/16"	2 1/8"	1/4"	1 7/8"	1'–2 13/16"	7/16
	P7R	OB7R	1	1'–1 3/16"	10 1/4"	2 1/8"	1/4"	1 7/8"	1'–1 1/16"	7/16
	P12R	OB12R	1	1'–5 13/16"	1'–2 13/16"	2 1/8"	1/4"	1 7/8"	1'–5 11/16"	7/16
	P13R	OB13R	1	1'–5 3/4"	1'–2 3/4"	2 1/8"	1/4"	1 7/8"	1'–5 5/8"	7/16
1	P14R	OB14R	1	1'–5 11/16"	1'–2 11/16"	2 1/8"	1/4"	1 7/8"	1'–5 9/16"	7/16

	POST No.	OFFSET BLOCK	OFFSET BLOCK ~ RAIL MTG. DIMENSIONS G	H	J	K
1	P5R	OB5R	1 3/16"	1'–0 13/16"	1 1/8"	1'–0 9/16"
	P6R	OB6R	1 3/16"	11 1/8"	1 1/8"	10 13/16"
	P7R	OB7R	1 3/16"	9 3/8"	1 1/8"	9 1/8"
	P12R	OB12R	1 3/16"	1'–1 15/16"	1 1/8"	1'–1 13/16"
	P13R	OB13R	1 3/16"	1'–1 13/16"	1 1/8"	1'–1 3/4"
1	P14R	OB14R	1 3/16"	1'–1 3/4"	1 1/8"	1'–1 11/16"

NOTE:
4 CLAMPING BARS CB–03–A (#19447) PER POSTS P5 – P7, P12 – P14 w/ 1/2"ø–13 UNC S.S. BOLT x 1" LG. 'FB1', 1 1/16" O.D. x 17/32" I.D. x 3/32" THK. ALUM WASHER 'FW1' (#15280 & #19404) (8 PER POST)

ANODIZED
(SEE NOTES ON LB1)

REV.	DESCRIPTION	BY	DATE
2	REVISED DIMENSION PER APPROVER MARKUP	CMS	03 27 07
1	REVISED ALL POST HGHTS. PER APPROVERS DIMENSIONS	CMS	03 23 07

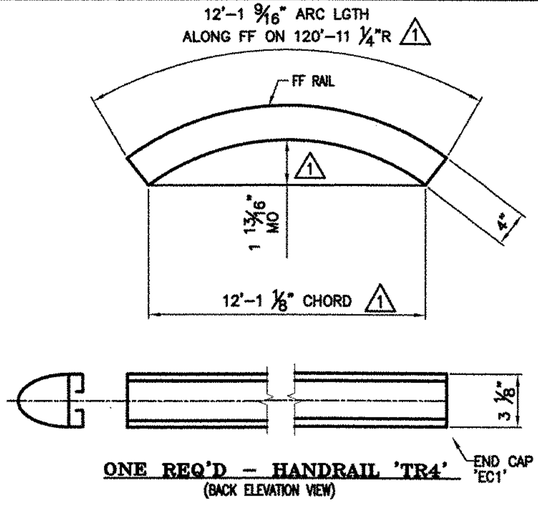
BRIDGE No. 20
PROJECT No. BHF 030–2(19)S ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

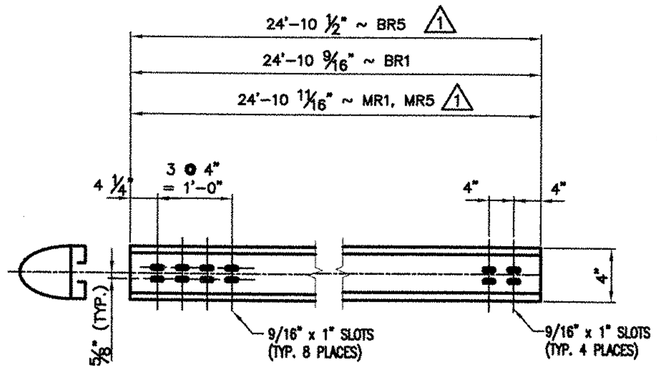
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
OFFSET BLOCK DETAILS

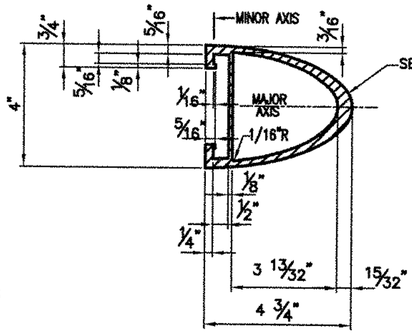
MADE CMS DATE 01/28/07 JOB No. AR0364 CUST. No.
CHECK BHJ DATE 03/01/07 DRAWING LB14 REV. No. 2



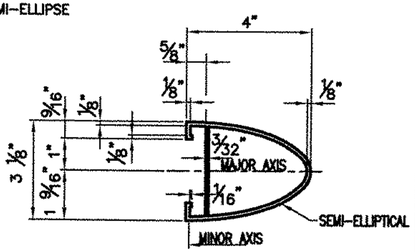
ONE REQ'D – HANDRAIL 'TR4'
(BACK ELEVATION VIEW)



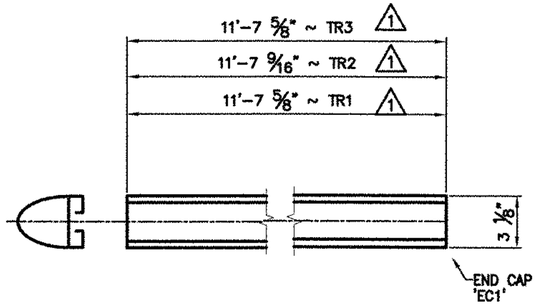
ONE REQ'D – BARRIER RAIL 'MR1'
(BACK ELEVATION VIEW)
ONE REQ'D – BARRIER RAIL 'BR1'
(BACK ELEVATION VIEW)
ONE REQ'D – BARRIER RAIL 'MR5'
(BACK ELEVATION VIEW)
ONE REQ'D – BARRIER RAIL 'BR5'
(BACK ELEVATION VIEW)



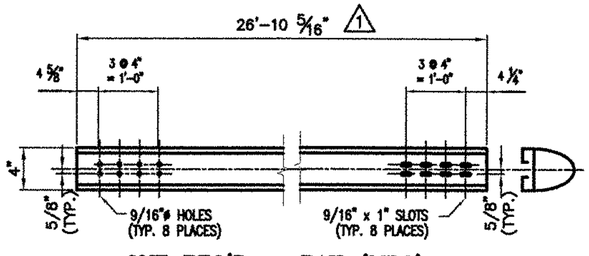
TYPICAL SECTION
(BARRIER RAIL)



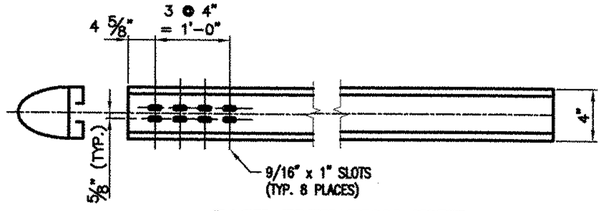
TYPICAL SECTION
(HANDRAIL)



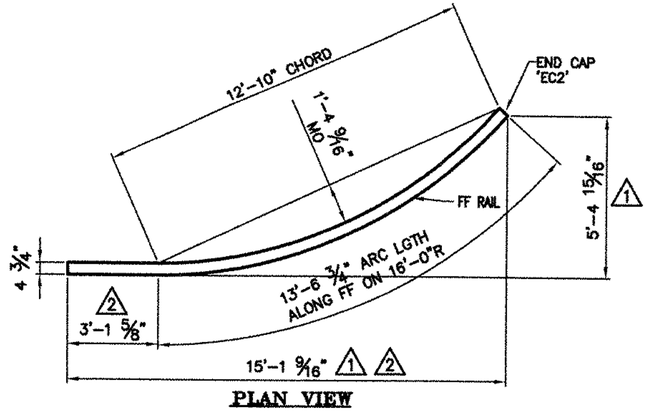
ONE REQ'D – HANDRAIL 'TR1'
(BACK ELEVATION VIEW)
ONE REQ'D – HANDRAIL 'TR2'
(BACK ELEVATION VIEW)
ONE REQ'D – HANDRAIL 'TR3'
(BACK ELEVATION VIEW)



ONE REQ'D. ~ RAIL 'MR2'
(BACK ELEVATION VIEW)
ONE REQ'D. ~ RAIL 'BR2'
(BACK ELEVATION VIEW)



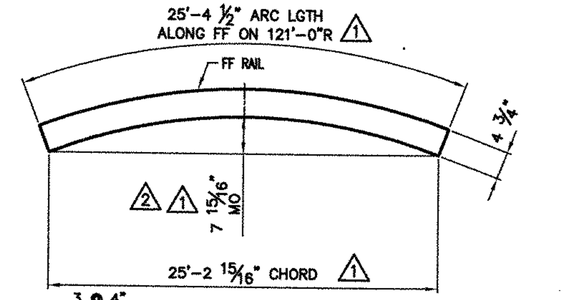
BACK ELEVATION VIEW

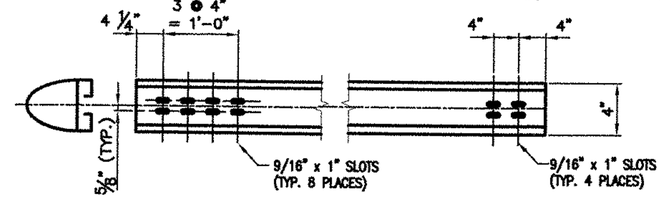


PLAN VIEW

ONE REQ'D – BARRIER RAIL 'MR3'

ONE REQ'D – BARRIER RAIL 'BR3'





ONE REQ'D – BARRIER RAIL 'MR4'
(BACK ELEVATION VIEW)
ONE REQ'D – BARRIER RAIL 'BR4'
(BACK ELEVATION VIEW)

ANODIZED
(SEE NOTES ON LB1)

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 621.74

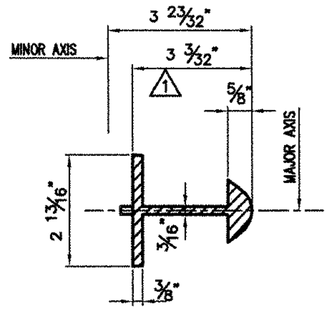
APPROVED: _____ REQ'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

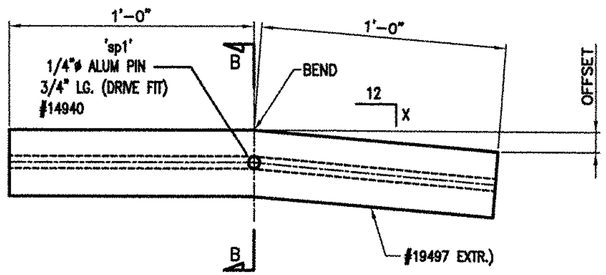
FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUMINUM APPROACH RAIL – RAIL DETAILS

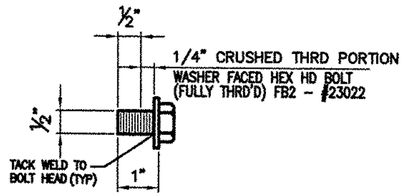
REV.	DESCRIPTION	BY	DATE
2	REVISED PER APPROVAL MARKUP	CMS	03 27 07
1	REVISED PER APPROVAL MARKUP	CMS	03 22 07

MADE CMS DATE 01/31/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 03/01/07 DRAWING LB15 REV. No. 2



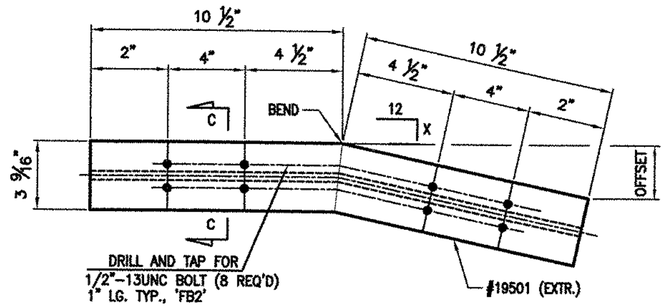
SECTION B-B

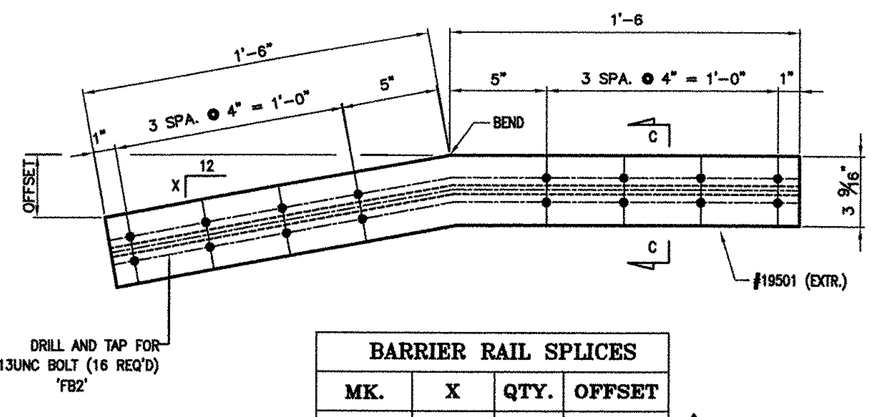


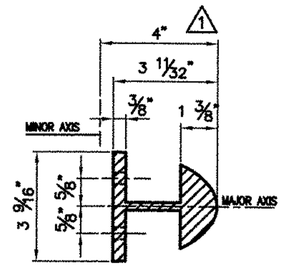


SPLICE BOLT DETAILS

HANDRAIL SPLICES			
MK.	X	QTY.	OFFSET
SS-12-A1	15/16	2	15/16"
SS-12-A2	1	2	1"







SECTION C-C

BARRIER RAIL SPLICES			
MK.	X	QTY.	OFFSET
SS-03-H1	1/16	2	1/16"
SS-03-H2	7/16	3	3/8"
SS-03-H3	1/4	1	3/16"

1

BARRIER RAIL SPLICES			
MK.	X	QTY.	OFFSET
SS-03-G1	7/16	1	5/8"
SS-03-G2	3/8	3	9/16"
SS-03-G3	7/16	3	11/16"
SS-03-G4	1/4	1	3/8"
SS-03-G5	1/16	2	1/16"

1

ANODIZED
(SEE NOTES ON LB1)

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

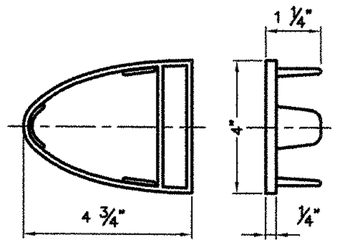
L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUMINUM APPROACH ~ SPLICE DETAILS

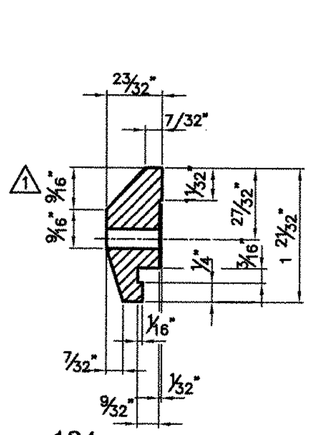
MADE CMS DATE 01/29/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 03/01/07 DRAWING LB16 KEY. No. 2

REV.	DESCRIPTION	BY	DATE
2	REMOVED SS-03-G6 PER APPROVER MARKUP	CMS	03 27 07
1	REVISED ALL POST HGHTS. PER APPROVERS NEW DIM'S.	CMS	03 22 07

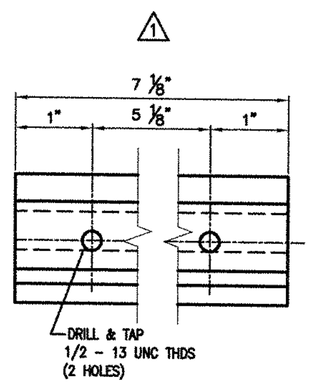
L21 BR

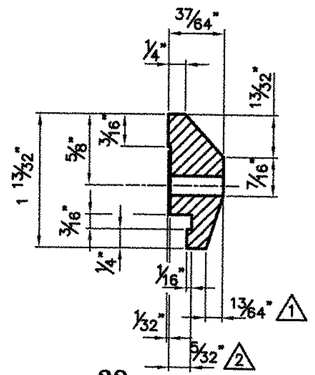


2 ~ REQ'D. ALUM
END CAPS EC2
#19345

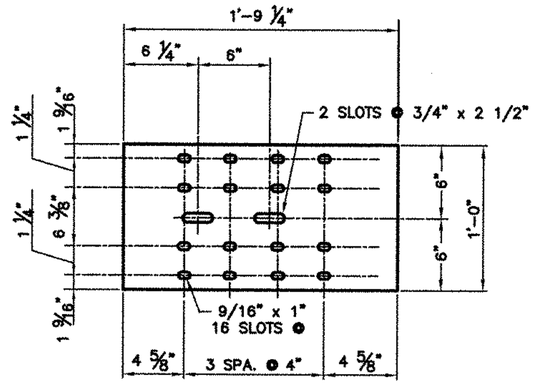


124 ~ REQ'D CLAMP
BAR CB-03-A
(BARRIER RAIL - 4 PER POST)
(#19447)

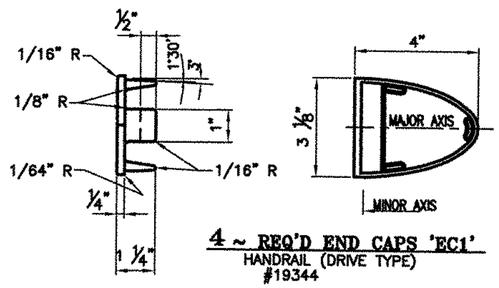




32 ~ REQ'D CLAMP
BAR CB-01-H
(HANDRAIL - 2 PER POST)
(#28596)



3 REQ'D. ~ BACK-UP PLATE BUP1
(1/4" THK. PLATE ~ A36 ~ GALV.)



4 ~ REQ'D END CAPS 'EC1'
HANDRAIL (DRIVE TYPE)
#19344

ANODIZED
(SEE NOTES ON LB1)

BRIDGE No. 20
PROJECT No. BHF 030-2(19)S ITEM No: 621.74

APPROVED: _____ REC'D APPROVAL _____ DRAWING _____

L.B. FOSTER COMPANY
1016 GREENTREE ROAD
PITTSBURGH, PENNSYLVANIA 15220

FOR: BECK & BELLUCCI, INCORPORATED
VERMONT AGENCY OF TRANSPORTATION
TOWN OF CAMBRIDGE, COUNTY LAMOILLE
BRIDGE RAILING FOR VT15 (MINOR ARTERIAL) OVER LAMOILLE RIVER
3L ALUMINUM APPROACH RAIL ~ MISC DETAILS

REV.	DESCRIPTION	BY	DATE
2	REVISED PER APPROVAL MARKUP	CMS	03 27 07
1	REVISED PER APPROVAL MARKUP	CMS	03 23 07

MADE CMS DATE 01/31/07 JOB No. AR0364 CUST. No.
CHECK BLJ DATE 03/01/07 DRAWING LB17 (LAST) REV. No. 2

122 BR