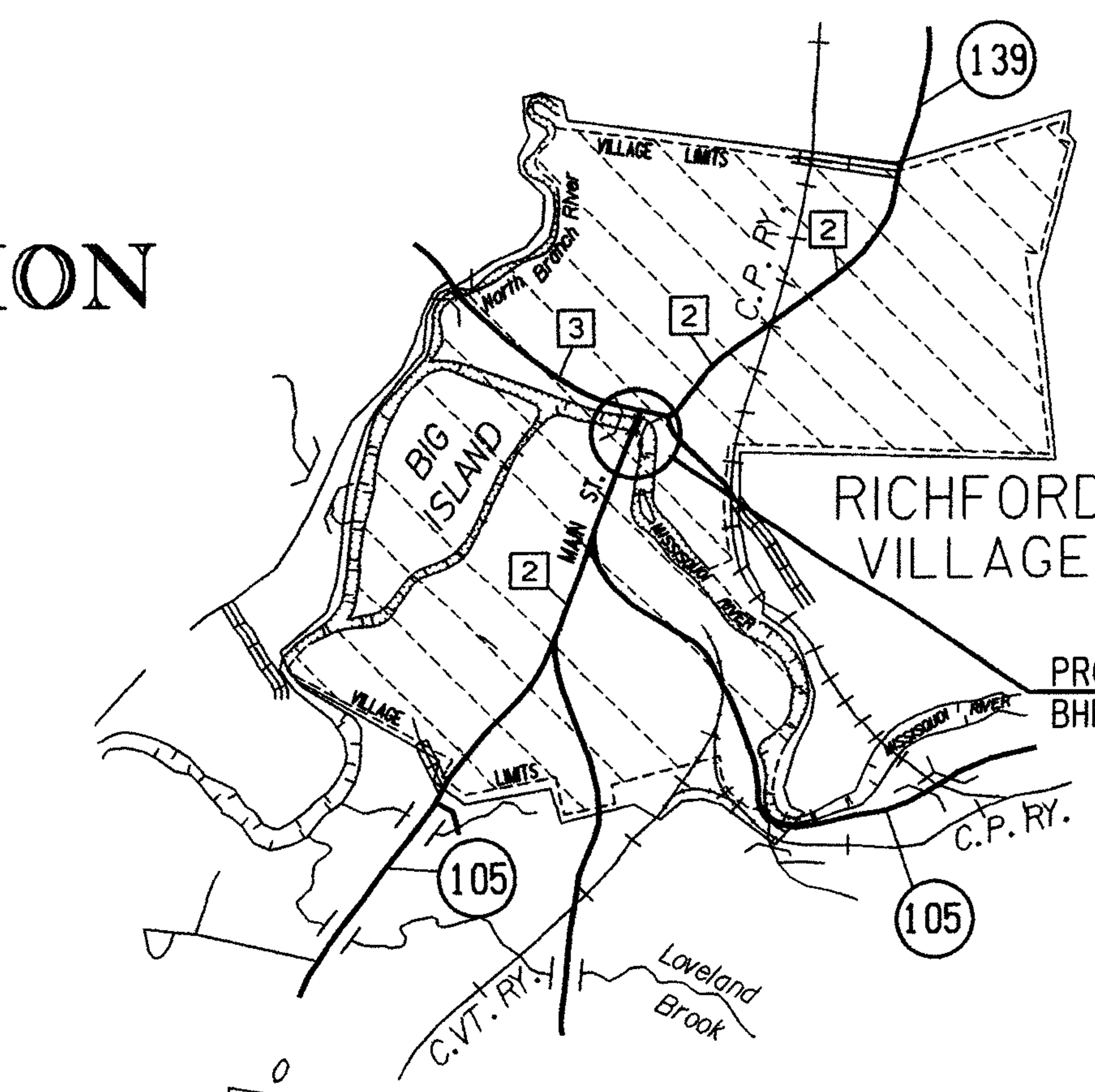
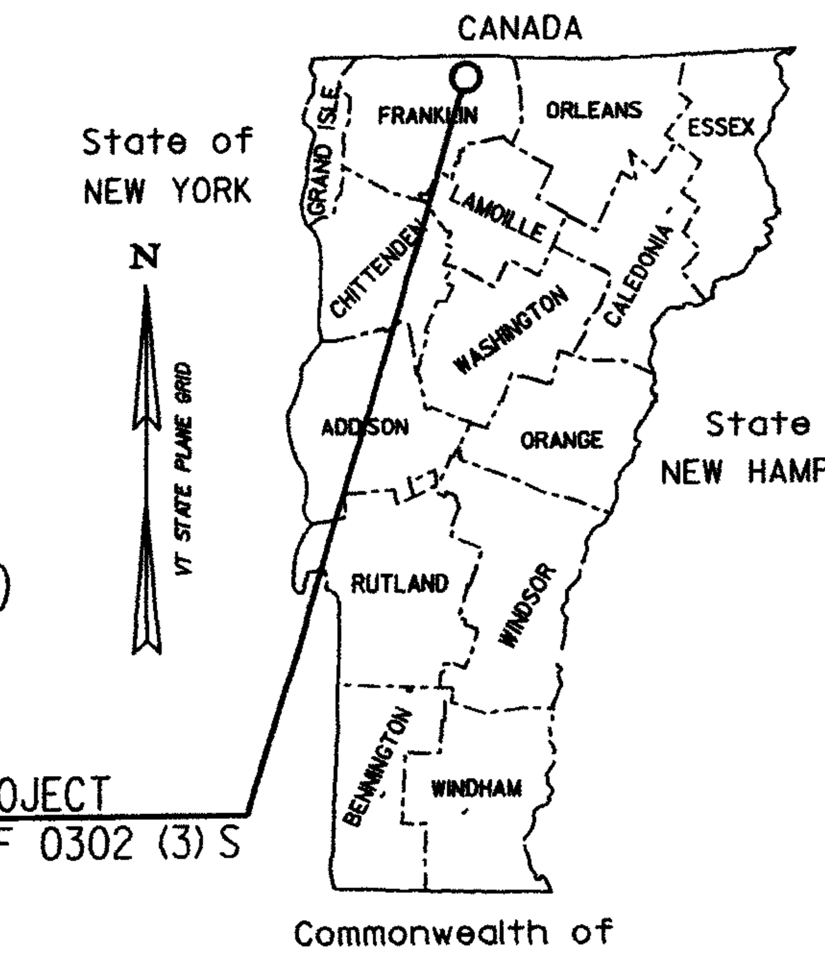
STATE OF VERMONT
AGENCY OF TRANSPORTATION

SEE SHEET 2 FOR THE INDEX OF SHEETS AND THE LIST OF STANDARDS



LOCATION MAP
N.T.S.

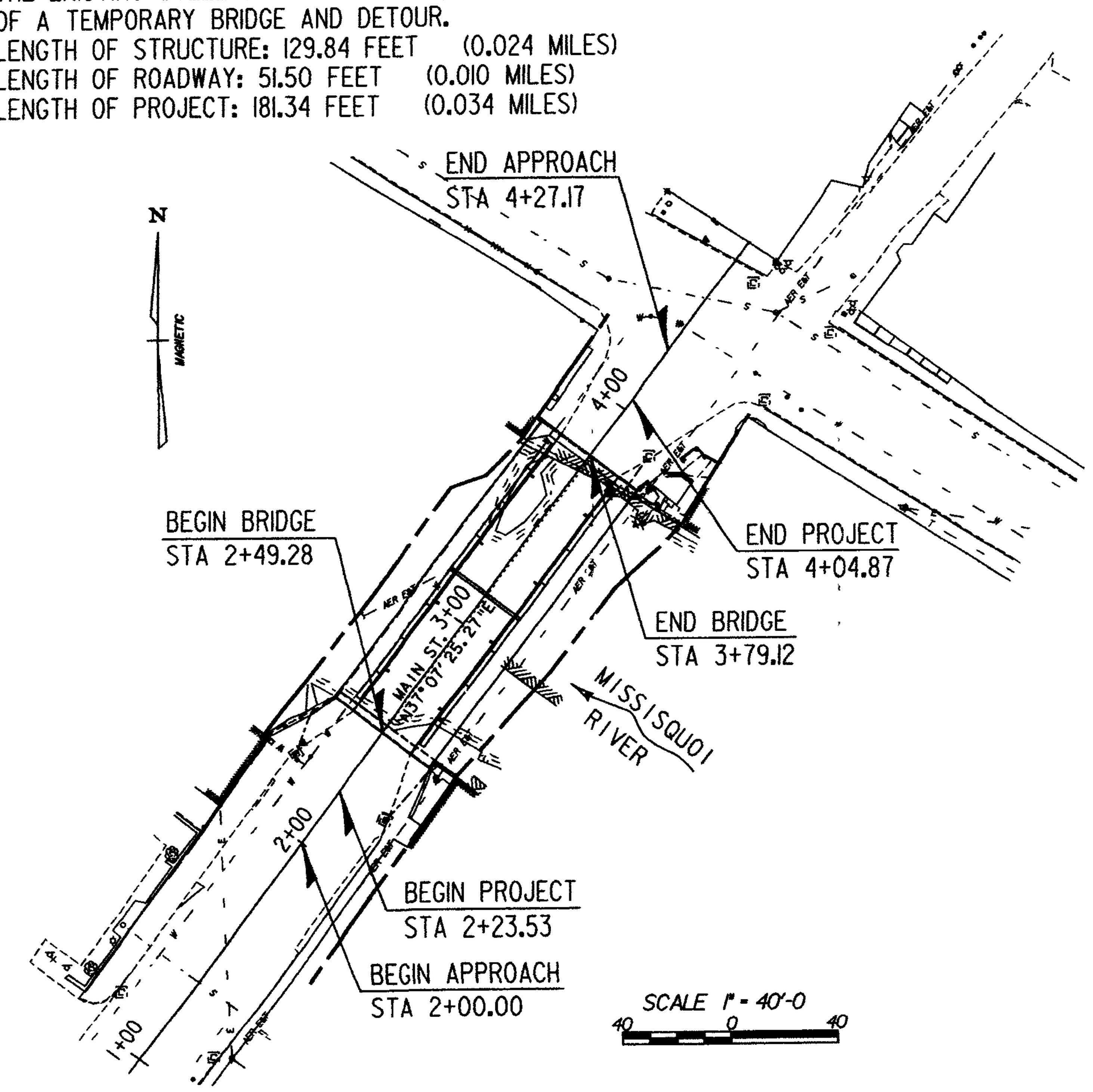


PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF RICHFORD
COUNTY OF FRANKLIN
BRIDGE NO. 41 ON TOWN HIGHWAY NO. 2

PROJECT LOCATION: MAIN STREET, APPROXIMATELY 0.25 MILES NORTH OF THE INTERSECTION OF VERMONT ROUTE 105 AND MAIN STREET (T.H. 2) IN THE VILLAGE OF RICHFORD.

PROJECT DESCRIPTION: THIS PROJECT INVOLVES THE REMOVAL OF THE EXISTING BRIDGE DECK, REMOVAL OF EXISTING STEEL MEMBERS, REPAIR OF THE EXISTING STEEL FRAMING, MINOR REPAIR OF EXISTING ABUTMENTS, NEW STEEL FRAMING, CONSTRUCTION OF A NEW BRIDGE DECK, PAINTING THE EXISTING STEEL SUPERSTRUCTURE, MINOR APPROACH RECONSTRUCTION AND CONSTRUCTION OF A TEMPORARY BRIDGE AND DETOUR.

LENGTH OF STRUCTURE: 129.84 FEET (0.024 MILES)
LENGTH OF ROADWAY: 51.50 FEET (0.010 MILES)
LENGTH OF PROJECT: 181.34 FEET (0.034 MILES)



RECORD PLANS	
CONTRACTOR	BLOW & COTE – MORRISVILLE, VT
RESIDENT ENGINEER	CARL GLEASON
CONSTRUCTION BEGAN	MARCH 7, 2008
CONSTRUCTION COMPLETE	MAY 5, 2009
RECORD PLANS BY	CARL GLEASON

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

BY Carl W. Gleason RESIDENT ENGINEER

DATE 6/14/10

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

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

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

CONVENTIONAL SYMBOLS	
COUNTY LINE	COUNTY LINE
TOWN LINE	TOWN LINE
LIMITS OF ACCESS	
POINT OF ACCESS	X
FENCE LINE	X——X——X——X
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	SR SR SR
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY : VTRANS
SURVEYED DATE : JUNE 2007

DATUM
VERTICAL NGVD 1988
HORIZONTAL MAGNETIC 1999

STATE OF VERMONT — MICHAEL J. CHENETTE — No. 3800 — PROFESSIONAL ENGINEER

Stantec

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED [signature] DATE 12/18/07

PROJECT MANAGER : WARREN TRIPP

PROJECT NAME : RICHFORD
PROJECT NUMBER : BHF 0302 (3) S

SHEET 1 OF 41 SHEETS

INDEX OF SHEETS

VAOT STANDARDS

C-1	01/03/00
C-2A	10/14/05
D-8	01/03/00
D-9	06/01/94
D-15	06/01/94
E-100	01/02/04
E-100A	01/02/04
E-101	05/30/03
E-102	06/30/03
E-102A	05/01/04
E-106	03/01/04
E-107	06/30/03
E-107A	08/08/95
E-121	08/08/95
E-140	08/30/96
E-142	09/20/95
E-170	11/04/99
E-171A	08/09/95
E-171B	08/09/95
E-171C	08/09/95
E-172	08/09/95
E-175	11/17/93
E-191	02/01/99
E-192	10/12/00
E-193	08/18/95
G-1b	06/01/94
SB-R6-82	01/06/95

FINAL HYDRAULICS REPORT

HYDROLOGIC DATA

DRAINAGE AREA= 393.4 square miles
CHARACTER OF TERRAIN:
CHARACTER & TYPE OF STREAM:

NATURE OF STREAMBED:

Q2.33= 8,300 cfs Q50= 18,000 cfs
Q10= 13,300 cfs Q100= 20,000 cfs
Q25= 15,600 cfs Q500= 25,500 cfs

DATE OF FLOOD OF RECORD:
WATER SURFACE ELEV.: ESTIMATED DISCHARGE:
NATURAL STREAM VELOCITY @ Q25 =
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: STEEL PONY TRUSS BRIDGE
YEAR BUILT: 1934
CLEAR SPAN (NORMAL TO STREAM): 119 feet
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY OF FULL OPENING:
DISPOSITION OF STRUCTURE: Rehabilitation
TYPE OF MATERIAL UNDER SUBSTRUCTURE: Ledge

WATER SURFACE ELEV. @ Q2.33= 435.5 ft VELOCITY=
Q10= 442.6 ft "
Q25= 444.0 ft "
Q50= 445.4 ft "
Q100= 446.6 ft "

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: N/A

CLEAR SPAN (NORMAL TO STREAM):
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:

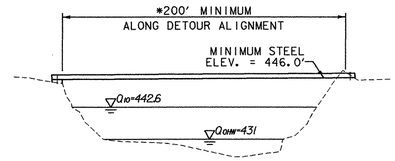
AVERAGE LOW ELEVATION OF SUPERSTRUCTURE:
VERTICAL CLEARANCE:

SCOUR:

REQUIRED CHANNEL PROTECTION:

PERMIT INFORMATION

AVERAGE DAILY FLOW: 800 cfs
ORDINARY LOW WATER: 350 cfs DEPTH: EL. 427'
ORDINARY HIGH WATER: 3,600 cfs DEPTH: EL. 431'



* - CONTRACTOR SHALL HAVE THE OPTION OF CONSTRUCTING A SINGLE SPAN OR TWO SPAN TEMPORARY BRIDGE. MAXIMUM PIER WIDTH SHALL BE 3 FEET.

TEMPORARY BRIDGE REQUIREMENTS
NTS

DESIGN CRITERIA:
1. DESIGN LIVE LOAD AASHTO HS-20
2. DESIGN SPAN 125'
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
4. ALLOWABLE LOAD FOR PILING TYPE ESTIMATED LENGTH
5. STRUCTURAL STEEL AASHTO GRADE SEE PROJECT GENERAL NOTES
6. REINFORCING STEEL GRADE 60
   CONCRETE, HIGH PERFORMANCE CLASS A f'_c : 4000 PSI f_c=1600 psi
   CONCRETE, HIGH PERFORMANCE CLASS B f'_c : 3500 PSI f_c=1400 psi

TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE YES
2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TWO WAY TRAFFIC CONTROL SIGNALS REQUIRED YES
   MINIMUM CLEAR SPAN (NORMAL TO STREAM) 200 feet MINIMUM CLEAR HEIGHT SEE TEMPORARY BRIDGE SKETCH
   MINIMUM WATERWAY AREA
   ARE SIDEWALKS REQUIRED? YES IF SO, ON WHAT SIDE? UPSTREAM
   STRUCTURE TYPE

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	35	39					
POSTED A=1.55; B=1.40	48	55	60		51	53	56
OPERATING A=1.30; B=1.67		66	72	79	61	63	

TRUSS TOP CHORD OF BAY #2 & #7 ARE THE CONTROLLING MEMBER

STRENGTH RF= $\frac{\phi M_N - 1.3\, M_{DL}}{A \times M_{LL+I}}$

TRAFFIC DATA

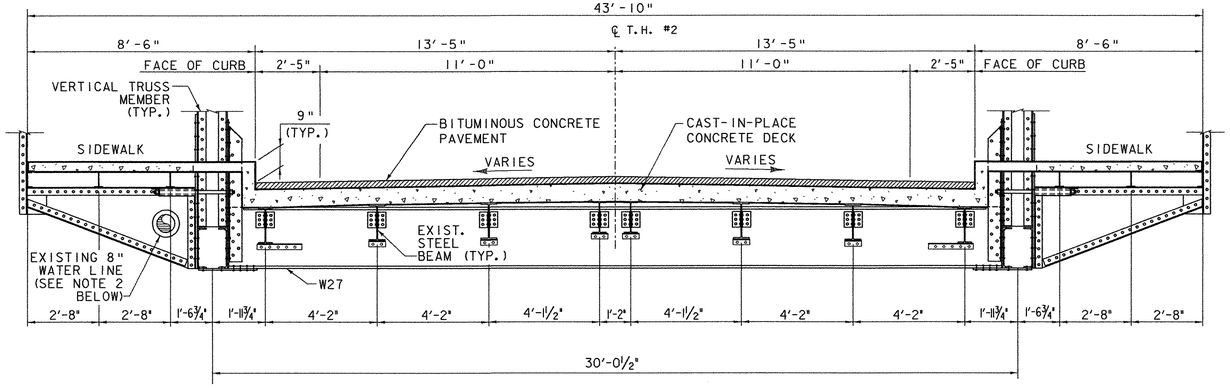
YEAR	AADT	DHV	% D	% T	ADTT
2008	4900	550	52	2.1	220
2028	6000	680	52	3.2	410

20 year ESAL for flexible pavement 2008 to 2028 : 2,079,000
40 year ESAL for flexible pavement 2008 to 2048 : 5,391,000
Design speed: 25 mph

Stantec

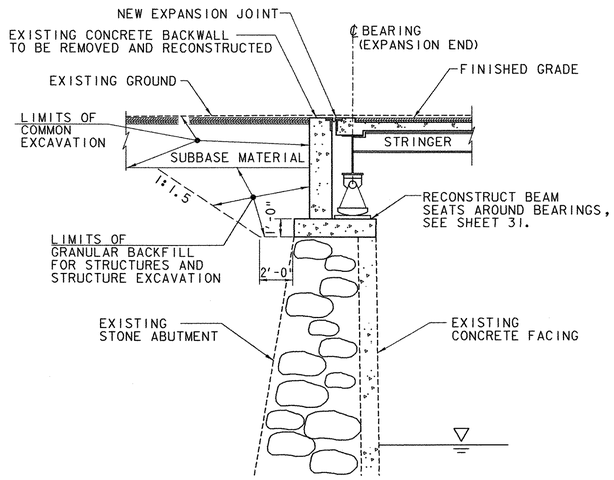
PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

FILE NAME: ...\Structures\Design\rich-pi.dgn PLOT DATE: 12/19/2007
PROJECT LEADER: MJC DRAWN BY: JTS
DESIGNED BY: SEB CHECKED BY: MJC
PRELIMINARY INFORMATION SHEET SHEET 2 OF 41



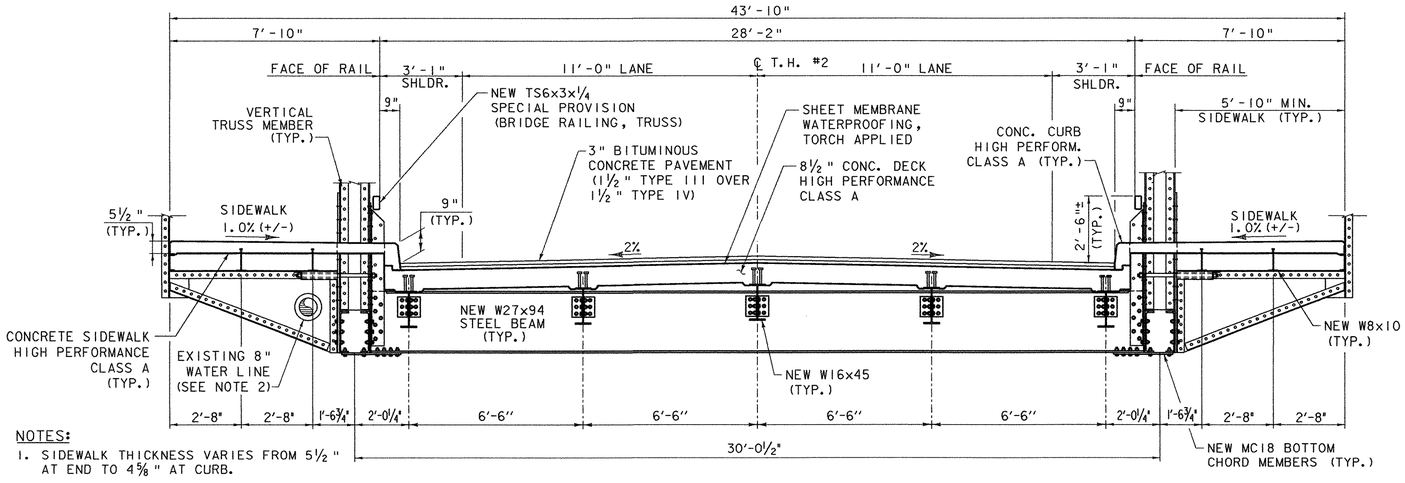
EXISTING BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0



ABUTMENT NO. 1 EARTHWORK TYPICAL SECTION

SCALE 1/4" = 1'-0



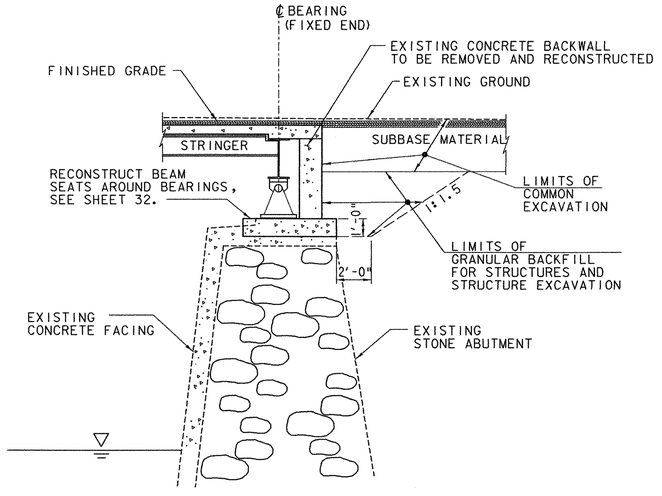
NOTES:

1. SIDEWALK THICKNESS VARIES FROM 5½" AT END TO 4⅝" AT CURB.
2. EXISTING 8" WATER LINE TO BE PROTECTED AND MAINTAINED IN SERVICE DURING CONSTRUCTION. IF THE CONTRACTOR CHOOSES TO REMOVE THE TRUSS FROM THE SITE FOR REHABILITATION AND/OR PAINTING, THE CONTRACTOR SHALL PROVIDE TEMPORARY WATER SERVICE MEETING THE REQUIREMENTS OF SECTION 629. PAYMENT FOR PROTECTING AND MAINTAINING WATERLINE SERVICE SHALL BE INCIDENTAL TO ALL CONTRACT ITEMS.

NOTE: ANY MEMBERS THAT ARE NOT OTHERWISE NOTED AS NEW, SHALL BE RETAINED.

REHABILITATED BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0

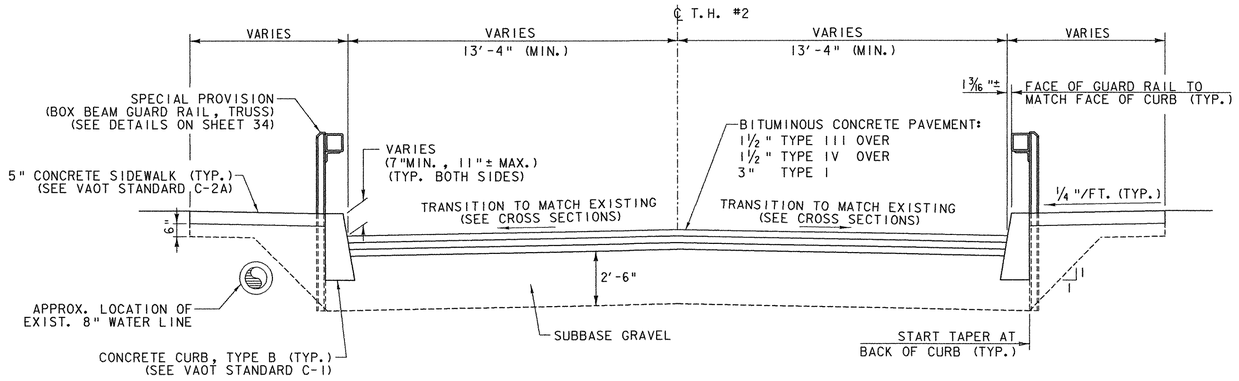


ABUTMENT NO. 2 EARTHWORK TYPICAL SECTION

SCALE 1/4" = 1'-0

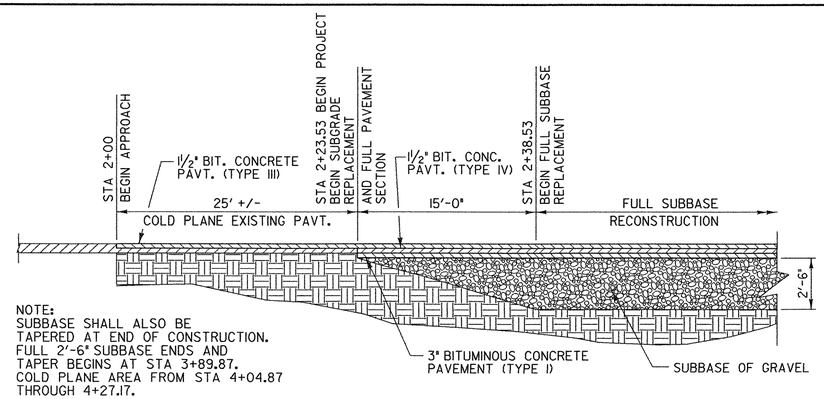
Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-brsect.dgn	PLOT DATE: 12/19/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
TYPICAL BRIDGE SECTIONS	SHEET 3 OF 41



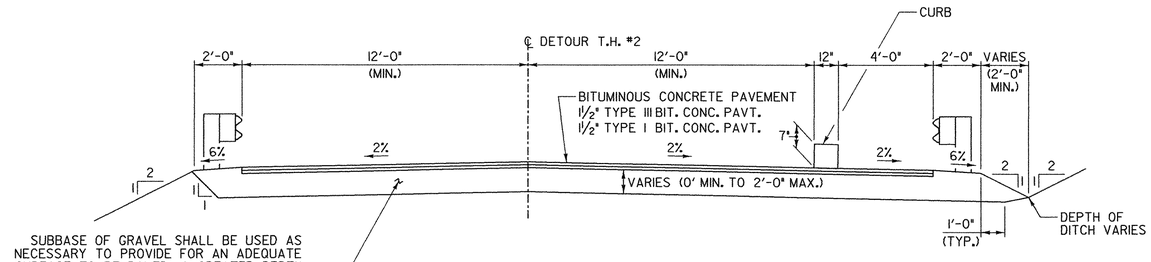
ROADWAY TYPICAL SECTION

NOT TO SCALE



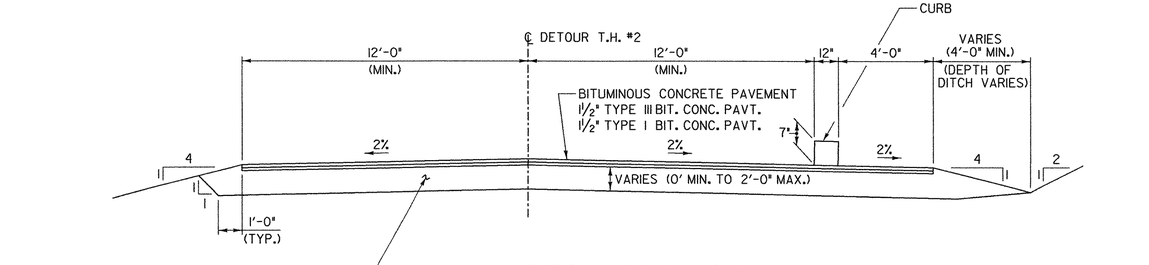
TYPICAL APPROACH SECTION

NOT TO SCALE



DETOUR TYPICAL SECTION WITH GUARDRAIL

NOT TO SCALE



DETOUR TYPICAL SECTION

NOT TO SCALE

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-rdwysect.dgn	PLOT DATE: 12/19/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
TYPICAL ROADWAY SECTIONS	SHEET 4 OF 41

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET #1

SUMMARY OF ESTIMATED QUANTITIES

TRAINING	FULL C.E. ITEMS	ROADWAY	EROSION CONTROL	ABUTMENT No. 1	ABUTMENT No. 2	DECK	BRIDGE QUANTITY
		180					
		22					
		90					
		1					
				30	30		60
				30	30		60
		253					
		150					
		1				1	1
		182				54	66
				6		138	144
		1		11	12	1	23
				2			1
							2
					2		2
						87510	87510
						1400	1400
				1070	1715		2785
				223	178		401
				1150		24395	25545
						1	1
						1	1
						1	1
						1	1
						1	1
						1	1
				5	5	15	25
						27	27
						380	380
		31					
		1					
						388	388
						1	1
				4	2		6
				5	15		20
				2	8		10
		110					
				3			3
		1					
		242					
		215					
		154					

TOTALS

ROUND	GRAND TOTAL	FINAL
	180	
	22	
	90	
	1	
	60	
	60	
	253	
	150	
	2	
	228	
	144	
	24	
	1	
	2	
	2	
	87510	
	1400	
	2785	
	401	
	25545	
	1	
	1	
	1	
	1	
	1	
	1	
	1	
	1	
	25	
	27	
	380	
	31	
	1	
	388	
	1	
	6	
	20	
	10	
	110	
	3	
	1	
	242	
	215	
	154	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
CY	COMMON EXCAVATION	203.10
CY	SOLID ROCK EXCAVATION	203.15
CY	TRENCH EXCAVATION OF EARTH	204.20
CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22
CY	STRUCTURE EXCAVATION	204.25
CY	GRANULAR BACKFILL FOR STRUCTURES	204.30
SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10
CY	SUBBASE OF GRAVEL	301.15
CWT	EMULSIFIED ASPHALT	404.55
TON	MEDIUM DUTY BITUMINOUS CONCRETE PAVEMENT (PG 58-34)	406.27
CY	CONCRETE, HIGH PERFORMANCE CLASS A (FPO)	501.33
CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34
LS	SHORING SUPERSTRUCTURE	502.10
EA	SHORING SUPERSTRUCTURE BEARINGS (STA. 2+51.70)	502.11
EA	SHORING SUPERSTRUCTURE BEARINGS (STA. 3+76.70)	502.11
LB	STRUCTURAL STEEL, ROLLED BEAM	506.50
LB	STRUCTURAL STEEL	506.60
LB	REINFORCING STEEL	507.15
LF	DRILLING AND GROUTING DOWELS	507.16
LB	EPOXY COATED REINFORCING STEEL	507.17
LS	SHEAR CONNECTORS (264 - 1/2" X 1 3/4")	508.15
LS	SHEAR CONNECTORS (2852 - 7/8" X 7")	508.15
LS	STRUCTURAL PAINTING, SHOP APPLIED (44 TONS)	513.25
LS	STRUCTURAL PAINTING, FIELD APPLIED (30 TONS)	513.30
LS	CONTAINMENT & ENVIRONMENTAL PROTECTION, SHOP	513.35
LS	CONTAINMENT & ENVIRONMENTAL PROTECTION, FIELD	513.36
LS	SURFACE PREPARATION, SHOP (44 TONS)	513.40
LS	SURFACE PREPARATION, FIELD (30 TONS)	513.41
GAL	WATER REPELLENT, SILANE	514.10
LF	BRIDGE EXPANSION JOINT, VERMONT	516.11
SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20
LF	REMOVAL OF EXISTING RAILING	525.10
LS	TWO-WAY TEMPORARY BRIDGE (6000 SF - EST.)	528.11
SY	REMOVAL OF BRIDGE PAVEMENT	529.10
EACH	PARTIAL REMOVAL OF STRUCTURE	529.20
CY	REMOVAL OF CONCRETE OR MASONRY	529.25
SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13
SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14
LF	18" CPEP (SL)	601.2615
SY	STONE MASONRY FACING	602.25
EACH	PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE	604.15
LF	CAST - IN - PLACE CONCRETE CURB, TYPE B	616.28
LF	REMOVAL OF EXISTING CURB	616.41
SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: **RICHFORD**
PROJECT NUMBER: **BHF 0302 (3) S**

FILE NAME: **rich-quant.xls**
PROJECT LEADER: **MJC**
DESIGNED BY: **SEB**
QUANTITY SHEET #1

PLOT DATE: **1/8/2008**
DRAWN BY: **AET**
CHECKED BY: **MJC**
SHEET **5** OF **41**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET #2

SUMMARY OF ESTIMATED QUANTITIES

TRAINING	FULL C.E ITEMS	ROADWAY	EROSION CONTROL	ABUTMENT No. 1	ABUTMENT No. 2	DECK	BRIDGE QUANTITY
		10					
		60					
	1						
	1						
	1						
	1						
520							
		1					
		1					
		350				260	260
		690				260	260
		36					
		95					
		102					
		54					
		4					
		146					
		215					
			60				
			220				
		10	10				
		1	1				
			1				
			80				
			1				
			430				
			2				
			40				
			1				
			1				
			180				
			540				
		1					
		2					
		2					
		1					
		1					
		3					
			1				
		85	50				
		31				222	222

TOTALS

ROUND	GRAND TOTAL	FINAL
	10	
	60	
	1	
	1	
	1	
	1	
	520	
	1	
	1	
	610	
	950	
	36	
	95	
	102	
	54	
	4	
	146	
	215	
	60	
	220	
	20	
	2	
	1	
	80	
	1	
	430	
	2	
	40	
	1	
	1	
	180	
	540	
	1	
	2	
	2	
	1	
	1	
	3	
	1	
	50	
	85	
	222	
	31	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER
SF	DETECTABLE WARNING SURFACE	616.50
LF	TEMPORARY TRAFFIC BARRIER	621.90
LS	FIELD OFFICE, ENGINEERS	631.10
LS	TESTING EQUIPMENT, CONCRETE	631.16
LS	TESTING EQUIPMENT, BITUMINOUS	631.17
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 INCH WHITE LINE	646.409
LF	DURABLE 4 INCH YELLOW LINE	646.410
LF	DURABLE 6 INCH WHITE LINE	646.420
LF	DURABLE CROSSWALK MARKING	646.500
LF	TEMPORARY 8 INCH WHITE LINE	646.640
LF	TEMPORARY 24 INCH STOP BAR	646.680
EACH	TEMPORARY LETTER OR SYMBOL	646.690
LF	PAINTED CURB	646.81
SF	REMOVAL OF EXISTING PAVEMENT MARKINGS	646.85
SY	GEOTEXTILE FOR SILT FENCE	649.51
SY	GEOTEXTILE FOR FILTER CURTAIN	649.61
LB	SEED	651.15
TON	HAY MULCH	651.25
LS	EPSC PLAN	652.10
HR	MONITORING EPSC PLAN	652.20
LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30
SY	TEMPORARY EROSION MATTING	653.20
CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25
CY	VEHICLE TRACKING PAD	653.35
EACH	INLET PROTECTION DEVICE, TYPE I	653.40
EACH	FILTER BAG	653.45
LF	BARRIER FENCE	653.50
LF	PROJECT DEMARCATION FENCE	653.55
EACH	TRANSPLANTING SHRUBS (2")	656.50
EACH	REMOVING SIGNS	675.50
EACH	ERECTING SALVAGED SIGNS	675.60
EACH	SETTING SALVAGED POSTS	675.61
EACH	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40
EACH	TEMPORARY DETECTOR	678.42
EACH	SPECIAL PROVISION (GRASS OUTLET SEDIMENT TRAP)	900.620
EACH	SPECIAL PROVISION (GRAVEL BAGS)	900.620
LF	SPECIAL PROVISION (BOX BEAM GUARD RAIL, TRUSS)	900.640
LF	SPECIAL PROVISION (BRIDGE RAILING, TRUSS)	900.640
LF	SPECIAL PROVISION (METAL HAND RAILING)	900.640

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: **RICHFORD**
PROJECT NUMBER: **BHF 0302 (3) S**

FILE NAME: **rich-quant.x/s**
PROJECT LEADER: **MJC**
DESIGNED BY: **SEB**
QUANTITY SHEET #2

PLOT DATE: **1/8/2008**
DRAWN BY: **AET**
CHECKED BY: **MJC**
SHEET **8** OF **41**

GPS CONTROL POINTS

BM #8

C2 = P14 RESET

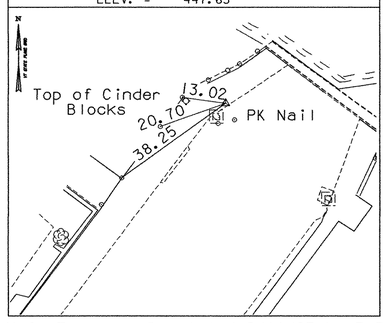
ELEV. = 465.82

DESCRIBED BY VERMONT AGENCY OF TRANSPORTATION 1995 (CHR) GENERAL LOCATION RICHFORD VERMONT. ABOUT 23.5 MI (37.8 KM) NORTHEAST OF ST. ALBANS, ABOUT 25.5 MI (41.0 KM) WEST OF NEWPORT AND ABOUT 1.5 MI (2.4 KM) SOUTH OF THE US/CANADA BORDER. TO REACH FROM THE INTERSECTION OF VERMONT ROUTES 105 AND 139 (MAIN STREET), GO NORTHEAST ON VT ROUTE 139 FOR 0.1 MI (0.2 KM) TO THE MARK ON THE RIGHT, SET IN THE EAST CORNER OF THE 1.7 M (5.6 FT) SQUARE GRANITE BASE OF THE RICHFORD VETERANS MEMORIAL. THE MARK IS 12.5 M (41.0 FT) SOUTHEAST OF AND ABOUT 1 M (3.3 FT) HIGHER THAN THE CENTERLINE OF ROUTE 139, 8.5 M (27.9 FT) NORTHEAST OF THE NORTH CORNER OF THE FRANKLIN-LAMOILLE BANK, 3.7 M (12.1 FT) SOUTHWEST OF A FLAGPOLE, AND 8.2 M (26.9 FT) NORTHEAST OF A FIBERGLASS WITNESS POST.

TRAVERSE TIES

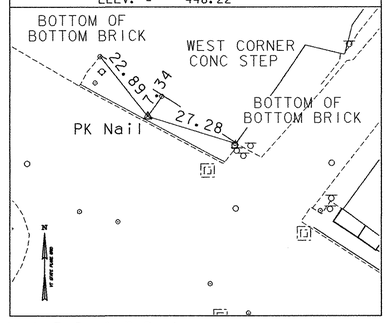
HVCTRL #1

NORTH =	10000.00
EAST =	5000.00
ELEV. =	447.63



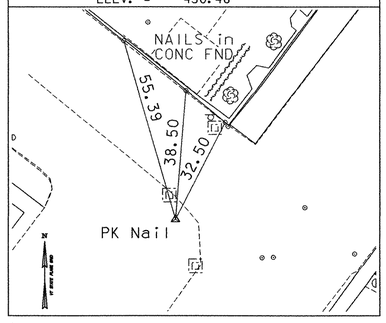
HVCTRL #2

NORTH =	10185.49
EAST =	5150.21
ELEV. =	448.22



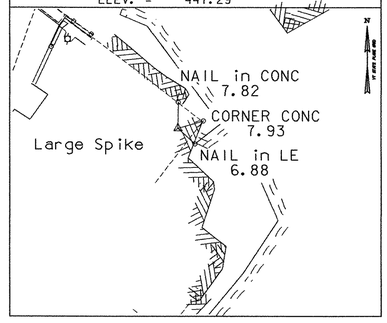
HVCTRL #3

NORTH =	9793.09
EAST =	4834.62
ELEV. =	450.46



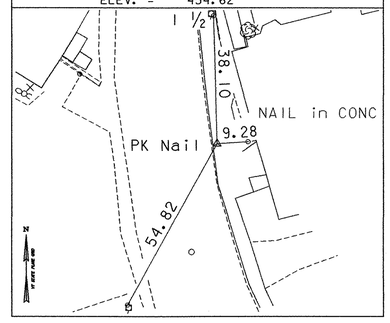
HVCTRL #4

NORTH =	9959.26
EAST =	5082.51
ELEV. =	447.29



HVCTRL #5

NORTH =	9944.16
EAST =	5396.82
ELEV. =	454.62

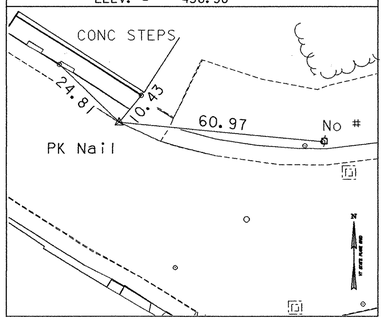


* Main Traverse Completed 6/11/07 by R. Bullock P.C. & T. Parker

TRAVERSE TIES

HVCTRL #6

NORTH =	10060.73
EAST =	5340.28
ELEV. =	456.38



HVCTRL #8

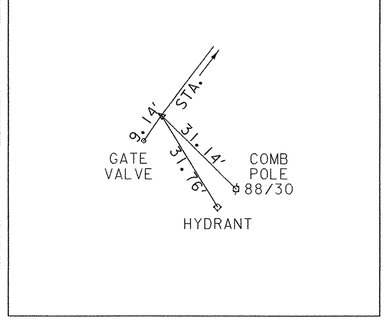
NORTH =	9439.45
EAST =	4664.84
ELEV. =	465.82

NOT TIED

ALIGNMENT TIES

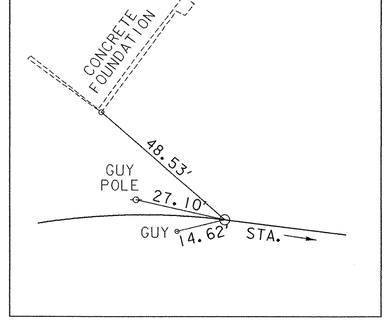
MAINLINE POB STA 0+0.00

NORTH =	9804.07
EAST =	4878.44



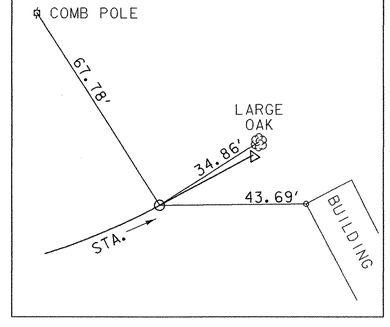
DETOUR PT STA 103+47.45

NORTH =	9846.66
EAST =	5041.72



DETOUR PT STA 107+18.49

NORTH =	9838.49
EAST =	5407.12



DATUM

VERTICAL NAVD 88

HORIZONTAL ASSUMED

ADJUSTMENT COMPASS

PROJECT NAME: Richford

PROJECT NUMBER: BHF 0302(3)S

FILE NAME: 99J242\survey\x94J242ti.dgn
PROJECT LEADER: MJC
DESIGNED BY: VTRANS/STANTEC
TIE SHEET

PLOT DATE: 12/18/2007
DRAWN BY: R. Bullock
CHECKED BY: VTRANS/STANTE
SHEET 7 OF 41

SPECIAL PROVISION
(METAL HAND RAILING)
STA. 2+23 TO STA. 2+49 LT.

REMOVE AND REPLACE EXISTING RAIL
(SEE SHEET 35)

REMOVE & REPLACE CONCRETE CAP
(SEE SHEET 31)

SEE NOTE 2 (THIS SHEET)

REMOVAL OF EXISTING RAIL
STA. 2+23 TO STA. 2+49 LT.

EXISTING POWER TO CLOCK
(POWER TO CLOCK TO BE RETAINED)

REMOVE AND REPLACE
CONCRETE SIDEWALK
(TYP. FOUR CORNERS)

SEE NOTE 2 (THIS SHEET)

REMOVE EXISTING SIDEWALK PER
PAY ITEM SOLID ROCK EXCAVATION
STA. 2+23 TO 2+49 LT & RT.
STA. 3+79 TO 4+05 LT & RT.

PORTLAND CEMENT CONC. SIDEWALK, 5 INCH
STA. 2+23 TO 2+49 LT & RT.
STA. 3+79 TO 4+05 LT & RT.

REMOVAL OF EXISTING CURB
STA. 2+23 TO 2+49 LT & RT.
STA. 3+79 TO 4+05 LT & RT.

CAST-IN-PLACE
CONCRETE CURB, TYPE B
STA. 2+23 TO 2+49 LT & RT.
STA. 3+79 TO 4+05 LT & RT.

EXISTING HANDRAIL
TO BE RETAINED

℄ BRG.
ABUT. #1

NEW EXPANSION JT.

EXISTING STEEL
TRUSS

EXIST. R.O.W.

℄ BRG.
ABUT. #2

SIDEWALK

COLD PLANING
AREA

TO ROUTE 105
EAST BERKSHIRE
AND STEVENS MILLS

161.1° ±

STA 2+49.28
BEGIN BRIDGE
F.G. EL. 448.09

REMOVE AND
REPLACE SUBBASE

MAIN STREET
N37° 07' 25.27"E

14'-1" F/RAIL

14'-1" F/RAIL

LEDGE
(below)

174.0° ±

STA 4+04.87
END PROJECT

RIVER STREET

STA 4+27.17
END APPROACH

2+00

STA 2+00.00
BEGIN APPROACH

STA 2+23.53
BEGIN PROJECT

90°

SCUPPER (TYP.)

3+00

STA 3+79.12
END BRIDGE
F.G. EL. 448.18

REMOVE AND
REPLACE
SUBBASE

4+00

COLD PLANING AREA

162.8° ±

203.6° ±

SIDEWALK

AER E&T

EXISTING HAND RAIL
TO BE RETAINED

EXISTING HANDRAIL
TO BE RETAINED

EXIST. R.O.W.

TO ABERCORN
QUEBEC, CANADA

SPECIAL PROVISION
(BOX BEAM GUARD RAIL, TRUSS)
(SEE SHEET 34)
STA. 2+30 TO STA. 2+56 LT. & RT.
STA. 3+72 TO STA. 3+88 LT. & RT.

NEW BOX BEAM GUARD RAIL, TRUSS
(TYP. EA. CORNER)
SEE SHEET 34

REMOVE EXISTING CONCRETE CAP
PER PAY ITEM REMOVAL OF CONCRETE
OR MASONRY
STA. 2+23 TO STA. 2+49 LT.

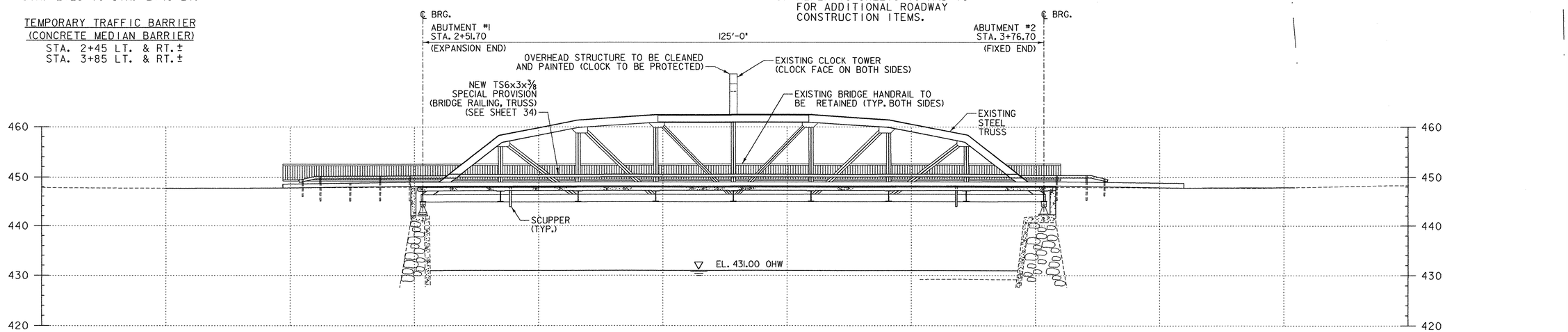
TEMPORARY TRAFFIC BARRIER
(CONCRETE MEDIAN BARRIER)
STA. 2+45 LT. & RT.±
STA. 3+85 LT. & RT.±

NOTES:

1. EXISTING BRIDGE DECK AND SIDEWALK TO BE REPLACED.
2. HAND EXCAVATE TO LOCATE WATER LINE. PROVIDE 1'-0" MIN. CLEARANCE WITH GUARD RAIL POSTS.
3. REFER TO SHEETS 16 AND 18 FOR ADDITIONAL ROADWAY CONSTRUCTION ITEMS.

SITE PLAN

SCALE 1" = 10'-0
10 0 10



ELEVATION

SCALE 1" = 10'-0
10 0 10

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-plan.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
SITE PLAN AND ELEVATION	SHEET 8 OF 41

EROSION CONTROL NARRATIVE

I.I PROJECT DESCRIPTION

THIS PROJECT IS LOCATED IN THE VILLAGE OF RICHFORD, ON MAIN STREET (T.H. #2) OVER THE MISSISQUOI RIVER, APPROXIMATELY 0.25 MILES NORTH OF THE INTERSECTION OF VT ROUTE 105 AND MAIN STREET (T.H. #2).

THIS PROJECT INVOLVES THE REMOVAL AND REPLACEMENT OF; THE BRIDGE DECK, THE TRUSS' BOTTOM CHORD AND THE TRUSS' FLOOR BEAMS AND STRINGERS. THE REPAIR AND PAINTING OF THE TRUSS' EXISTING STEEL, MINOR REPAIR OF THE EXISTING ABUTMENTS AND MINOR APPROACH RECONSTRUCTION. A DETOUR WITH A TEMPORARY BRIDGE WILL BE CONSTRUCTED TO THE SOUTHEAST OF THE EXISTING BRIDGE. THE ROADWAY ALIGNMENT WILL REMAIN THE SAME EXCEPT FOR A SLIGHT INCREASE (2.5") IN THE VERTICAL ALIGNMENT DUE TO THE INCREASE OF THE CROSS SLOPE ON THE BRIDGE TO 2% OR NORMAL CROWN.

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

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.5 ACRES.

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

I.2 SITE INVENTORY AND ANALYSIS

I.2.I OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN -GRADIENT)

THE AREA SURROUNDING THE PROJECT IS LOCATED IN AN URBAN AREA WITH MINIMAL GRASSY AREAS, AND SEVERAL ADJOINING GRAVEL OR PAVED PARKING LOTS. CONCRETE SIDEWALKS AND CURBS ARE LOCATED ON BOTH SIDES OF MAIN, RIVER AND PROVIDENCE STREETS WHICH ARE PAVED. THE APPROACHES ARE RELATIVELY FLAT WITH AN INCREASE IN GRADE AS YOU TRAVEL FURTHER NORTH OR SOUTH OF THE PROJECT, BEFORE FLATTENING OUT AGAIN. DIs ARE LOCATED ALONG THE CURB LINES OF ALL THE STREETS ON EACH SIDE OF THE RIVER. STORMWATER IS COLLECTED IN THESE DIs AND DISCHARGED INTO THE MISSISQUOI RIVER ON EITHER SIDE OF THE RIVER.

I.2.2 DRAINAGE, WATERWAYS BODIES OF WATER PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE MISSISQUOI RIVER GOES DIRECTLY THROUGH THE PROJECT SITE AND IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE MISSISQUOI RIVER IS FLANKED BY BRICK OR STONE BUILDINGS CONSTRUCTED ON STONE RETAINING WALLS WHICH ALSO FORM THE BRIDGE'S ABUTMENTS. THESE RETAINING WALLS AND ABUTMENTS FORM THE RIVER'S BANKS. WHERE THERE ARE NO BUILDINGS OR RETAINING WALLS THE RIVER'S BANKS CONSIST OF STEEP LEDGE OR STEEP SLOPES COVERED WITH FLAT STONES FOR STABILIZATION. TREES ARE LOCATED AT THE TOP OF THE RIVER BANKS WHERE THERE ARE NO BUILDINGS.

I.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE TOPOGRAPHY OF THE AREA IS A SMALL RIVER VALLEY WITH GRADUAL SLOPES DESCENDING TOWARDS THE RIVER, WITH STEEP SLOPES AT THE RIVERS EDGE. PAVED VILLAGE STREETS (MAIN, RIVER AND PROVIDENCE) WITH CONCRETE CURBS AND SIDEWALKS ARE LOCATED ABOVE THE RIVER IN THE VALLEY AREA. BRICK AND WOODEN BUILDINGS ARE LOCATED ALONG THE STREETS WITH SEVERAL GRAVEL OR PAVED PARKING LOTS NEXT TO THE BUILDINGS AND THE RIVER. THERE ARE SEWER AND WATERLINES BURIED UNDER THE STREETS (THE WATERLINE CROSSES THE RIVER UNDER THE BRIDGE). THERE ARE OVERHEAD UTILITIES ALONG ALL THE ROADS AND THEY CROSS THE RIVER TO THE EAST OF THE BRIDGE.

I.2.4 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF GRASS LAWNS AND HARDWOOD TREES AND UNDERGROWTH ON THE TOPS OF THE RIVER BANKS, WHERE NO BUILDINGS ARE LOCATED. THE IMPACT TO THE VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY THE CONSTRUCTION OF THE DETOUR AND THE REPLACEMENT OF THE SIDEWALKS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

I.2.5 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF FRANKLIN, VERMONT. SOILS ON THE PROJECT SITE VARY BY LOCATION.

I.2.5 SOILS (CONTINUED)

THE HIGHLY ERODIBLE SOILS ARE ONDAWA VARINAT SILT LOAM, SLOPES ARE NOT LISTED, "K FACTOR" = 0.37, EAST SIDE OF THE RIVER, RUMNEY VARIANT SILT LOAM, SLOPES ARE NOT LISTED, "K FACTOR" = 0.37, SOUTHEAST SIDE OF THE RIVER AND MUNSON SILT LOAM, 3% TO 8% SLOPES, "K FACTOR" = 0.49, NORTH SIDE OF THE RIVER. THE LOW ERODIBLE SOILS ARE DEERFIELD LOAMY FINE SAND, 0% TO 8%, "K FACTOR" = 0.17, EAST SIDE OF THE RIVER, WINDSOR LOAMY FINE SAND, 8% TO 15% SLOPES, "K FACTOR" = 0.17, EAST SIDE OF THE RIVER AND EXISTING GRAVEL AND SAND PLACED DURING THE CONSTRUCTION OF THE EXISTING ROADWAY, EXISTING GRAVEL PARKING LOT AND BRIDGE, SLOPES UNKNOWN, "K FACTOR" = 0.23 AND LESS.

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

I.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS - NO, HISTORICAL - THE EXISTING TRUSS BIRDGE IS A HISTORIC STRUCTURE, ARCHEOLOGICAL - THERE IS A KNOWN ARCHEOLOGICALLY SENSITIVE SITE OFF EASTERN AVENUE, SOUTH OF THE MUNICIPAL PARKING LOT (OUTSIDE OF PROJECT LIMITS), PRIME AGRICULTURAL LAND - NO, THREATENED AND ENDANGERED SPECIES - NO, WATER RESOURCE - MISSISQUOI RIVER - TEMPORARY PIER (APPROXIMATELY 300 SF IMPACT), WETLANDS - NO.

I.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

I.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS, OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHERE EVER POSSIBLE.

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

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING):

I.4.I MARK SITE BOUNDARIES

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS, IS USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

I.4.2 LIMIT DISTURBANCE AREA

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

I.4.3 STABILIZED CONSTRUCTION ENTRANCE

STABILIZED CONSTRUCTION ENTRANCE SHALL BE UTILIZED AS NECESSARY.

I.4.4 INSTALL SILT FENCE

SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AS SHOWN ON THE PLANS OR AS NECESSARY.

I.4.5 DIVERT UPLAND RUNOFF

INSTALL A NEW PERMANENT DI, PRIOR TO THE DETOUR EXITING MAIN STREET, TO COLLECT ALL UPLAND STORMWATER RUNOFF. USE GRAVEL BAGS TO DIRECT AND/OR DIVERT OFF-SITE RUNOFF FROM ENTERING THE DISTURBED AREAS.

I.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK DAMS SHALL BE UTILIZED AS NECESSARY.

I.4.7 CONSTRUCT PERMANENT CONTROLS

SEED AND MULCH
NEW DRAINAGE INLET AND PIPING

I.4.8 STABILIZE EXPOSED SOILS

SEED AND MULCH
EROSION MATTING

TRACKING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, WILL BE UTILIZED ON A REGULAR BASIS. SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF FORECASTED RAIN. SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN I:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING INTERMITTENT PHASES OF CONSTRUCTION.

I.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER (SEE LOW RISK HANDBOOK)

I.4.I0 STABILIZE SOIL AT FINAL GRADE

SEED AND MULCH
EROSION MATTING

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN I:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

I.4.II DE-WATERING ACTIVITIES

A FILTER BAG WILL BE USED IN THE EVENT THAT IT IS NECESSARY TO DEWATER BEHIND THE ABUTMENTS. A SEDIMENT BASIN SHALL BE USED FOR THE TEMPORARY PIER WORK AS NECESSARY.

I.4.I2 INSPECT YOUR SITE

INSPECT SITE BASED ON PERMIT AUTHORIZATION OR SPECIAL PROVISION REQUIREMENTS.

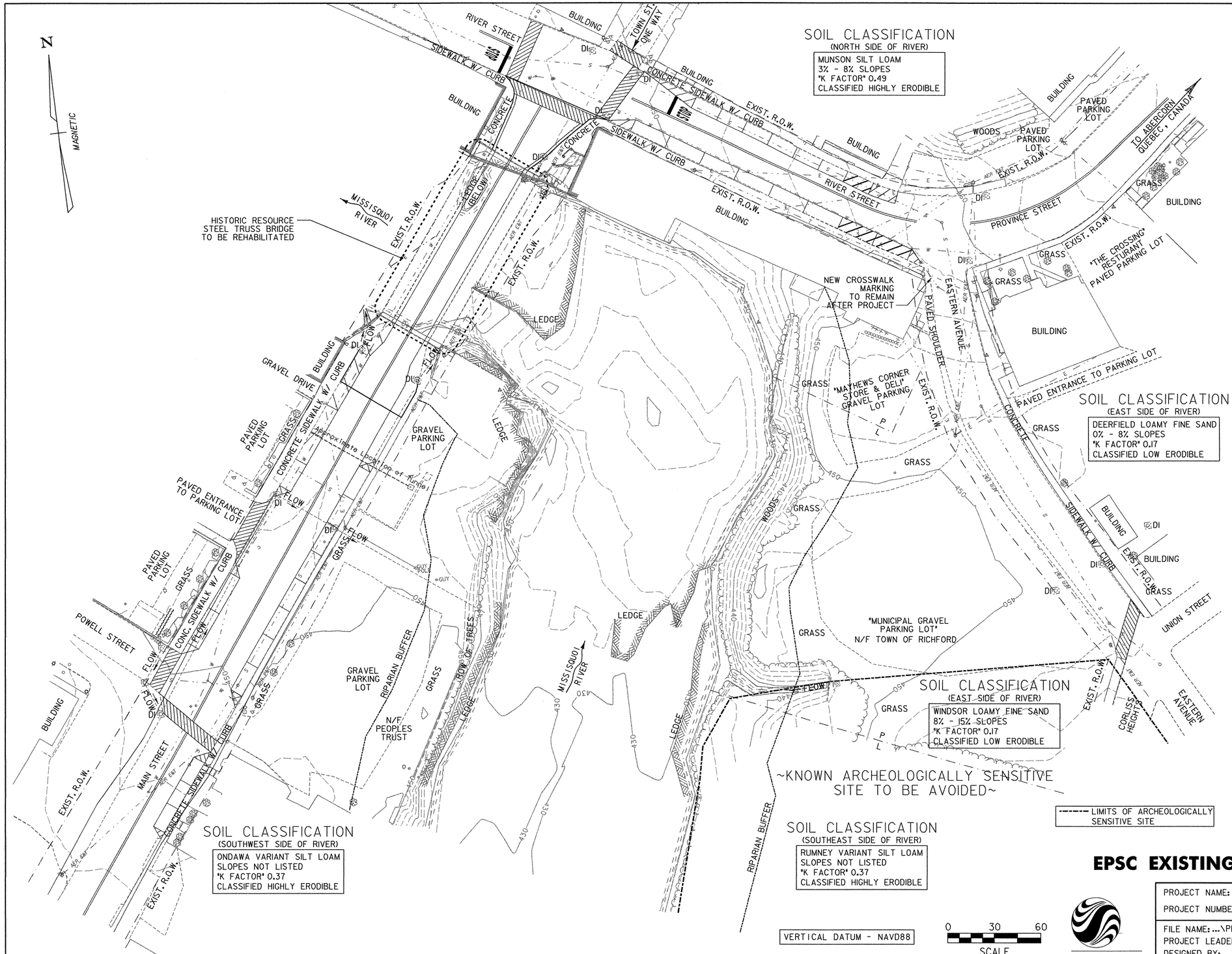
EPSC NARRATIVE

Stantec

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

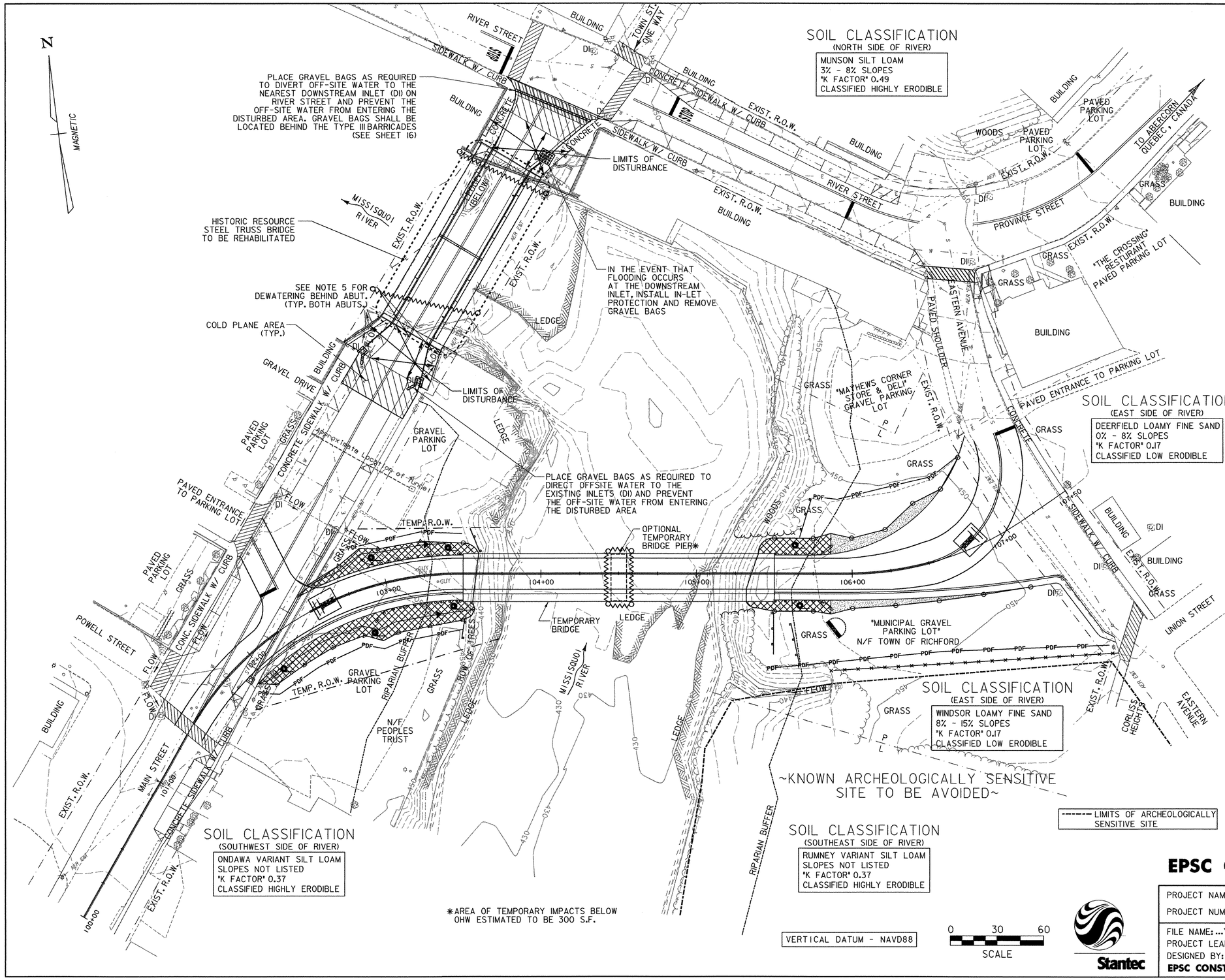
FILE NAME: ...\Design\rich-eronar.dgn
PROJECT LEADER: MJC
DESIGNED BY: SEB
EPSC NARRATIVE

PLOT DATE: 12/18/2007
DRAWN BY: JTS
CHECKED BY: MJC
SHEET 9 OF 41



EPSC EXISTING CONDITIONS SITE PLAN

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\PlotFiles\rich-exist.ptf	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JTS
DESIGNED BY: SEB	CHECKED BY: MJC
EPSC EXISTING CONDITIONS SITE PLAN	SHEET 10 OF 41



SOIL CLASSIFICATION
(NORTH SIDE OF RIVER)

MUNSON SILT LOAM
3% - 8% SLOPES
"K FACTOR" 0.49
CLASSIFIED HIGHLY ERODIBLE

SOIL CLASSIFICATION
(EAST SIDE OF RIVER)

DEERFIELD LOAMY FINE SAND
0% - 8% SLOPES
"K FACTOR" 0.17
CLASSIFIED LOW ERODIBLE

SOIL CLASSIFICATION
(EAST SIDE OF RIVER)

WINDSOR LOAMY FINE SAND
8% - 15% SLOPES
"K FACTOR" 0.17
CLASSIFIED LOW ERODIBLE

SOIL CLASSIFICATION
(SOUTHWEST SIDE OF RIVER)

ONDAWA VARIANT SILT LOAM
SLOPES NOT LISTED
"K FACTOR" 0.37
CLASSIFIED HIGHLY ERODIBLE

SOIL CLASSIFICATION
(SOUTHEAST SIDE OF RIVER)

RUMNEY VARIANT SILT LOAM
SLOPES NOT LISTED
"K FACTOR" 0.37
CLASSIFIED HIGHLY ERODIBLE

NOTES

1. HEIGHT, LENGTH AND LOCATION OF ALL GRAVEL BAGS USED FOR DIVERTING AND/OR DIRECTING OFF-SITE WATER SHALL BE APPROVED BY THE ENGINEER AND THE ON-SITE COORDINATOR. THE CONTRACTOR SHALL HAVE ADEQUATE AMOUNTS OF GRAVEL BAGS ON SITE FOR ANY REPAIRS OR MODIFICATIONS TO THE EROSION CONTROL PLAN. GRAVEL BAGS SHALL BE PAID FOR UNDER THE ITEM 900.620, "SPECIAL PROVISION (GRAVEL BAGS)".

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

3. ALL DISTURBED AREAS SHALL BE MATTED WITHIN 24 HOURS OR SOONER IF A RAIN EVENT IS EXPECTED. ALL BACKFILLED AND FINAL GRADED AREAS SHALL BE PROTECTED WITH EROSION MATTING.

4. STOCKPILES SHALL BE MATTED IF THEY WILL BE UNDISTURBED FOR MORE THAN 24 HOURS OR SOONER IF A RAIN EVENT IS EXPECTED.

5. IF IT IS NECESSARY TO DEWATER THE EXCAVATED AREA DIRECTLY BEHIND THE ABUTMENT BACKWALLS (SEE SHEET 3), THE CONTRACTOR SHALL PUMP THE WATER UPSTREAM OF AN INLET (DI) AND DISCHARGE THE WATER THRU A FILTER BAG AND INTO THE INLET (DI). THE LOCATION OF THE DISCHARGE POINT SHALL BE APPROVED BY THE ENGINEER AND THE ON-SITE COORDINATOR.

6. THE CONTRACTOR SHALL REMOVE ACCUMULATED SEDIMENT FROM CONTAINMENT SYSTEMS AND OTHER SEDIMENT CONTROL STRUCTURES OR DEVICES AS REQUIRED, SUCH THAT PERFORMANCE OF THESE SYSTEMS IS NOT COMPROMISED OR IN ANY WAY IMPAIRED.

7. THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND REPAIR ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION EQUIPMENT AT OR BEFORE THE END OF EACH WORKING DAY.

LEGEND

- CONSTRUCTION LIMITS
- CHECK DAM (LINE STYLE)
- GRASS OUTLET SEDIMENT TRAP ST-II
- STONE & BLOCK DROP INLET PROTECTION
- SEED
- ROLLED EROSION CONTROL PRODUCT (RECP)
- SILT FENCE (LINE STYLE)
- STABILIZED CONSTRUCTION ENTRANCE
- TURBIDITY CURTAIN
- BARRIER FENCE
- PROJECT DEMARCATION FENCE
- GRAVEL (TO BE USED ON SLOPES)
- GRAVEL BAG INLET PROTECTION
- ORDINARY HIGH WATER LIMITS

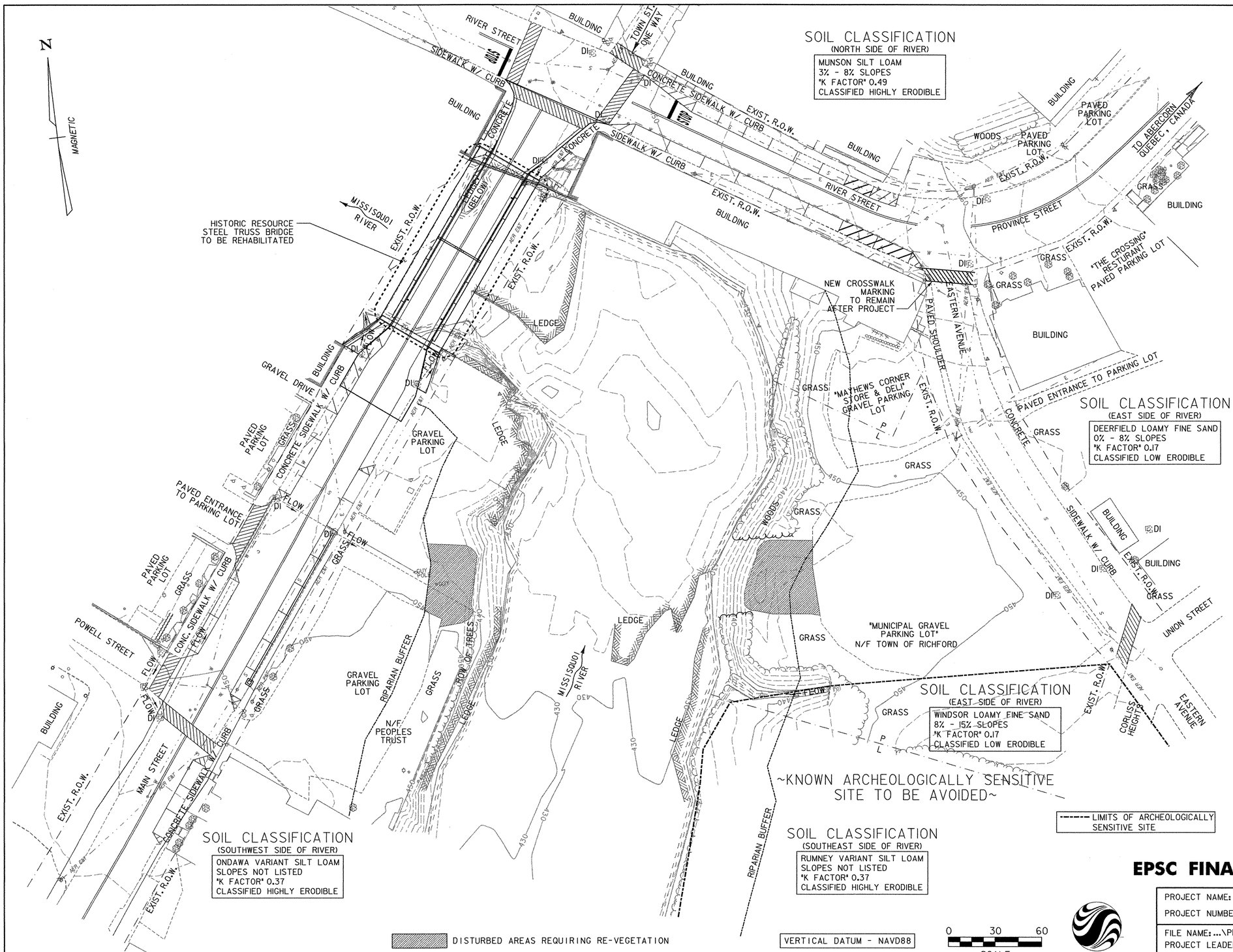
EPSC CONSTRUCTION SITE PLAN

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

FILE NAME: ...\PlotFiles\rich-epsc.ptf
PROJECT LEADER: MJC
DESIGNED BY: SEB
EPSC CONSTRUCTION SITE PLAN

PLOT DATE: 12/18/2007
DRAWN BY: JTS
CHECKED BY: MJC
SHEET 11 OF 41

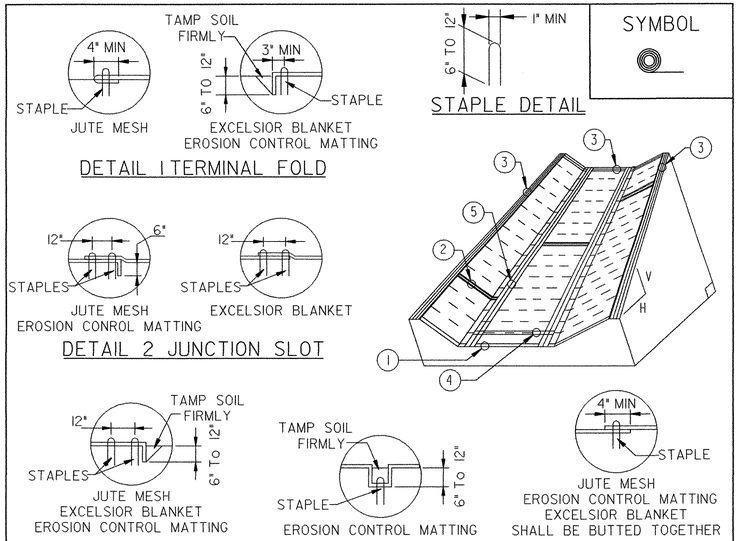
Stantec



EPSC FINAL CONDITIONS SITE PLAN

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\PlotFiles\rich-final.ptf	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JTS
DESIGNED BY: SEB	CHECKED BY: MJC
EPSC FINAL CONDITIONS SITE PLAN	SHEET 12 OF 41



SYMBOL

CONSTRUCTION SPECIFICATIONS

1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.

2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.

3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.

4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.

5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

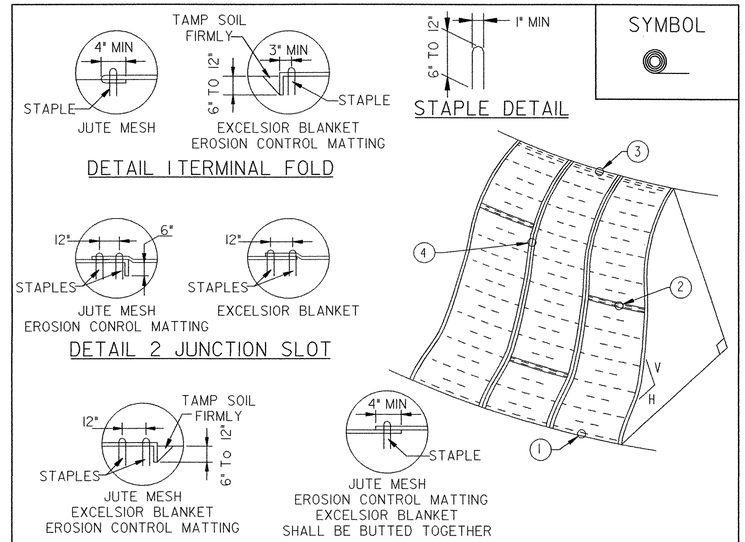
ADAPTED FROM DETAILS PROVIDED BY: ILLINOIS USDA-NRCS
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) DITCH

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.20 TEMPORARY EROSION MATTING

REVISIONS	
MARCH 8, 2007	JMF
APRIL 16, 2007	WHF



SYMBOL

CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.

2. APPLY FERTILIZER, LIME AND SEED PRIOR TO PLACING MATTING.

3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.

4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.

5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

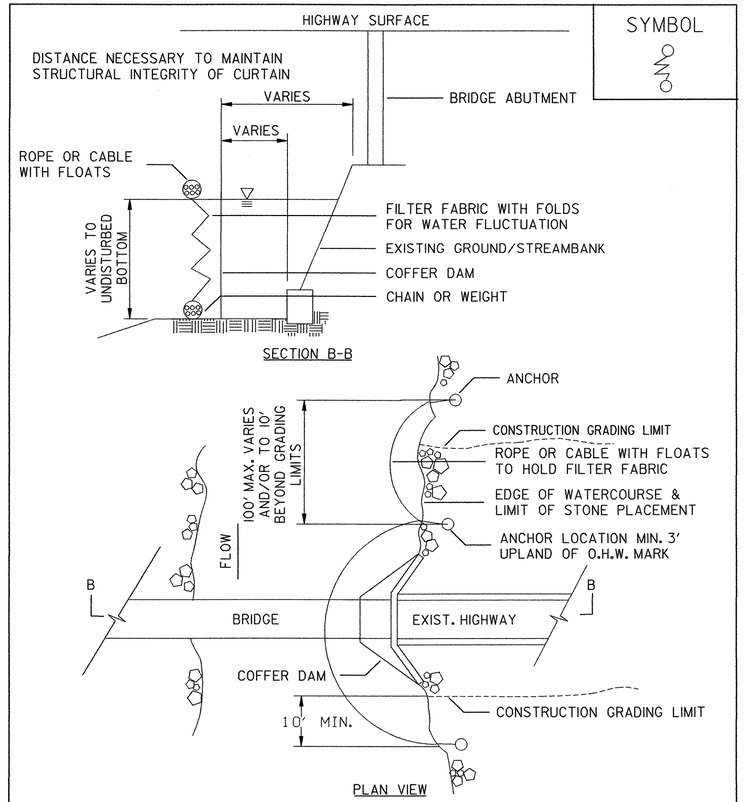
ADAPTED FROM DETAILS PROVIDED BY: ILLINOIS USDA-NRCS
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.20 TEMPORARY EROSION MATTING

NEW	
APRIL 16, 2007	WHF
REVISIONS	



SYMBOL

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT AGENCY OF TRANSPORTATION

TURBIDITY CURTAIN

NOTES:

THIS ITEM SHALL BE PAID FOR UNDER ITEM
649.61 GEOTEXTILE FOR FILTER CURTAIN

Stantec

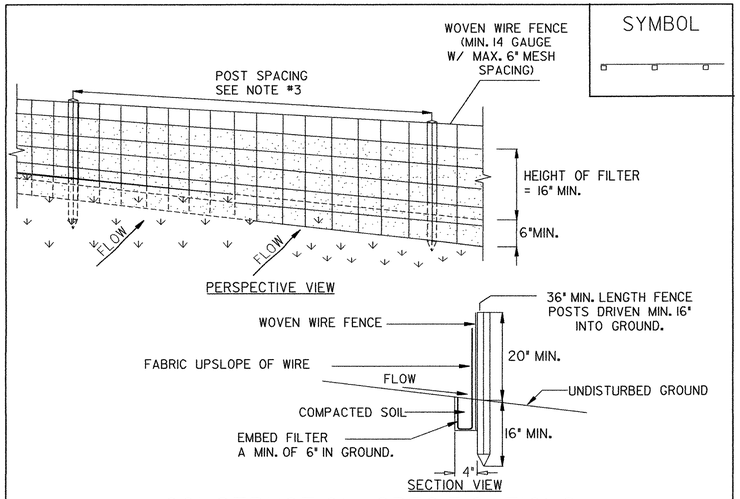
EPSC DETAIL SHEETS

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

FILE NAME: ...\Design\rich-erodet.dgn
PROJECT LEADER: MJC
DESIGNED BY: SEB
EPSC DETAILS SHEET 1

PLOT DATE: 12/18/2007
DRAWN BY: JTS
CHECKED BY: MJC
SHEET 13 OF 41

SYMBOL



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE REINFORCEMENT IS ONLY REQUIRED WITHIN 100 FT UPSLOPE OF RECEIVING WATERS.
2. WHERE REQUIRED FENCE SHALL BE WOVEN WIRE, MIN. 14 GAUGE WITH A 6" MAXIMUM MESH OPENING. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4'. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED.
6. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

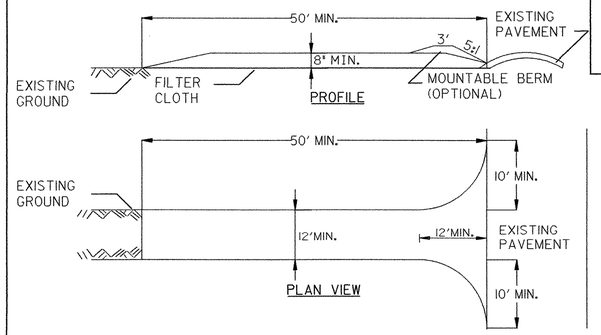
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
649.51 GEOTEXTILE FOR SILT FENCE

SYMBOL



CONSTRUCTION SPECIFICATIONS

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

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

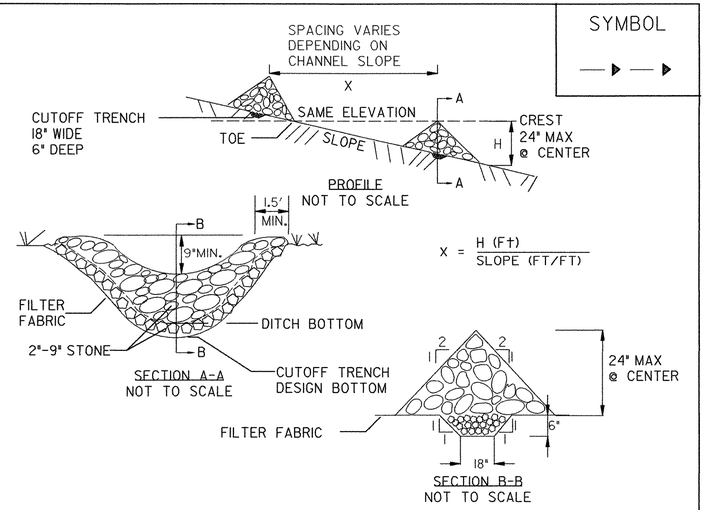
STABILIZED CONSTRUCTION ENTRANCE

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.35 VEHICLE TRACKING PAD

REVISIONS	
FEBRUARY 9, 2007	WHF
MARCH 8, 2007	JMF

SYMBOL



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. SET SPACING OF CHECK DAMS SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DECORIGINALLY DEVELOPED BY USDA-NRCSVERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

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

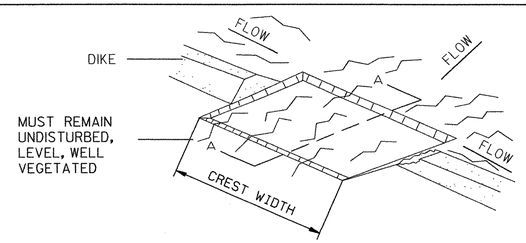
THIS ITEM SHALL BE PAID FOR UNDER ITEM
653.25 TEMPORARY STONE CHECK DAM, TYPE I

REVISIONS	
MARCH 8, 2007	JMF

EPSC DETAIL SHEETS

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-erodet.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JTS
DESIGNED BY: SEB	CHECKED BY: MJC
EPSC DETAILS SHEET 2	SHEET 14 OF 41



SYMBOL

DIKE IF REQUIRED TO DIVERT WATER TO TRAP INFLOW OF SEDIMENT LADEN WATER

OUTFLOW OF CLEANER WATER

CREST WIDTH (FT)=4xDRAINAGE AREA (ACRES)

SECTION A - A
EXCAVATED GRASS OUTLET SEDIMENT TRAP

CONSTRUCTION SPECIFICATIONS

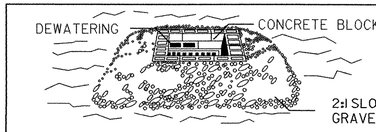
1. VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE AREA.
2. MINIMUM CREST WIDTH (FEET) SHALL BE 4 x DRAINAGE AREA (ACRES).
3. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
4. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
6. THE SEDIMENT TRAP SHALL BE REMOVED AND AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
7. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.

MAXIMUM DRAINAGE AREA: 5 ACRES

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	GRASS OUTLET SEDIMENT TRAP ST-11

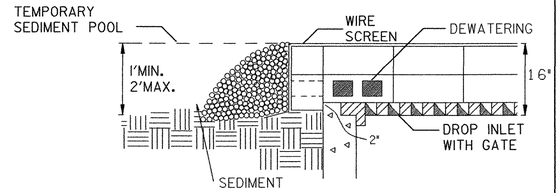
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 900.620 SPECIAL PROVISION (GRASS OUTLET SEDIMENT TRAP)

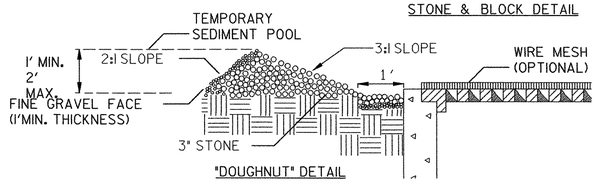


STONE & BLOCK PLAN VIEW

SYMBOL



STONE & BLOCK DETAIL



"DOUGHNUT" DETAIL

CONSTRUCTION SPECIFICATIONS

1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2- 3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	STONE & BLOCK DROP INLET PROTECTION

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

THIS ITEM SHALL BE PAID FOR UNDER ITEM 653.40 INLET PROTECTION DEVICE, TYPE I

EPSC DETAIL SHEETS

Stantec

PROJECT NAME: RICHFORD	
PROJECT NUMBER: BHF 0302 (3) S	
FILE NAME: ...\Design\rich-erodet.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JTS
DESIGNED BY: SEB	CHECKED BY: MJC
EPSC DETAILS SHEET 3	SHEET 15 OF 41

*PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
STA. 101+86 RT. TO STA. 102+82 LT.

*CAST-IN-PLACE CONCRETE CURB, TYPE B
STA. 101+86 RT. TO STA. 102+82 LT.

*** CONSTRUCTION ITEMS TO BE DONE AFTER DETOUR IS REMOVED, TO RESTORE MAIN STREET TO ITS PRE-DETOUR CONDITION**

SOLID ROCK EXCAVATION
STA. 101+86 RT. TO STA. 102+82 LT.

PRECAST REINFORCED CONCRETE DROP INLET WITH CAST IRON GRATE
STA. 101+89 RT.

18" CPEP (SL)
STA. 101+89 RT. TO 102+80 LT.

TEMPORARY 24 INCH STOP BAR
STA. 102+32 LT.
STA. 107+40 LT.
RIVER STREET
PROVINCE STREET

TEMPORARY LETTER OR SYMBOL
STA. 102+32 LT.

TEMPORARY 8 INCH WHITE LINE
RIVER STREET (3 PARKING SPACES)

REMOVAL OF EXISTING PAVEMENT MARKINGS
STA. 101+43 LT. & RT. TO STA. 102+50, LT.
(DOUBLE YELLOW LINE)
STA. 101+67 RT. TO STA. 102+50, LT.
(WHITE PARKING SPACES LINES)
INTERSECTION OF RIVER STREET, PROVINCE STREET AND EASTERN AVENUE
(DOUBLE YELLOW LINE)

NEW 18" x 110' CPEP (SL)
INV. AT INLET = 445.20 IN NEW DI
INV. AT OUTLET = 443.45 IN EXIST. DI

INSTALL TEMPORARY POST WITH EMERGENCY SIGNAL PREEMPTION BUTTON. BUTTON TO BE CONTAINED IN A LOCKABLE WATERPROOF BOX SECURED TO THE POST (SEE NOTE 3 ON SHEET 19)

EXISTING POWER DROP STANCHION FOR AMBULANCE & FIRE STATION

NET&T CO. POLE #1

NEW PRECAST CONCRETE DIW/ TYPE D GRATE
RIM = 449.52
SUMP = 444.52'

DETOUR STA. 101+77.61, 9.14' LT. = MAINLINE STA. 0+00.00, 0.00' RT.

TEMPORARY R. O. W.
STA. 102+92.00, 38.12' LT. TO STA. 103+77.00, 30.0' LT.
STA. 101+76.00, 27.20' RT. TO STA. 103+73.00, 42.0' LT.

DETOUR CURVE #1 DATA
△ = 60° 30' 32.73"
D = 28° 38' 52.40"
R = 200.00'
T = 116.66'
L = 211.22'
E = 31.54'
BANK = N/C

DETOUR CURVE #2 DATA
△ = 34° 44' 40.54"
D = 28° 38' 52.40"
R = 200.00'
T = 62.57'
L = 121.28'
E = 9.56'
BANK = N/C

SCALE 0 30 60

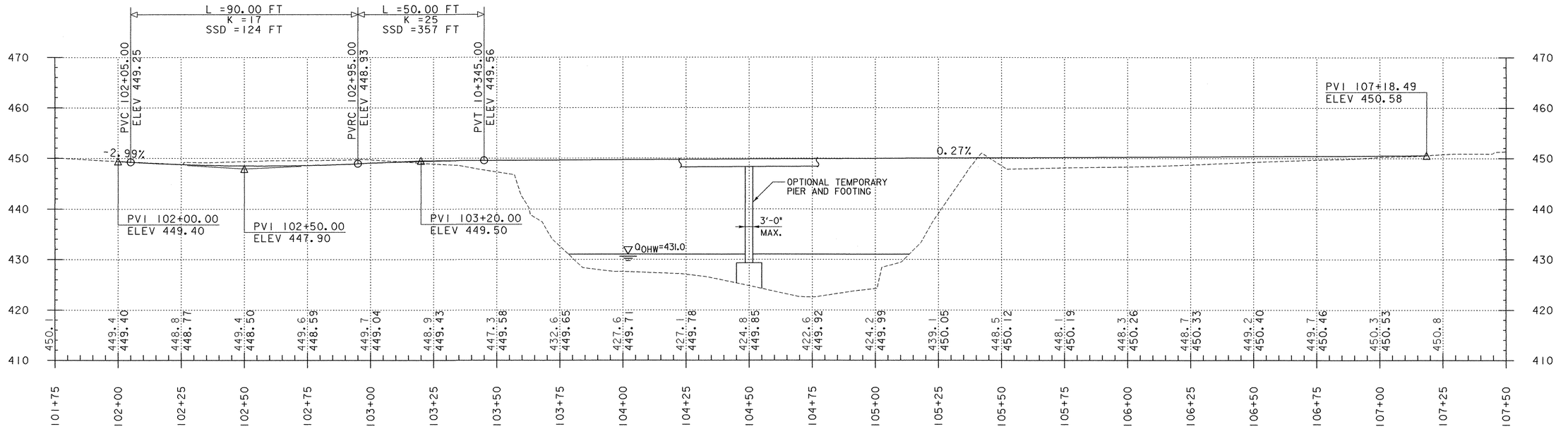
NOTES:

1. SEE TEMPORARY TRAFFIC SIGNAL PLAN FOR SIGNAL INFORMATION.
2. THE CONTRACTOR MAY MAKE MINOR ADJUSTMENTS TO THE TEMPORARY DETOUR PROFILE, SUBJECT TOTHE APPROVAL OF THE ENGINEER, PROVIDED THAT ALL WORK REMAINS WITHIN THE LIMITS SHOWN AND THE MINIMUM BEAM ELEVATIONS AND SPAN LENGTH ARE MAINTAINED.
3. ALL TRAFFIC SIGNS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2003 EDITION.
4. CONTRACTOR SHALL CONTACT:
   CAROLYN SMITH
   TRUCKING SUPERVISOR
   BLUE SEAL FEEDS
   RICHFORD, VT
   (802) 848-7718
   A MINIMUM OF TWO WEEKS PRIOR TO TRAFFIC BEING RE-DIRECTED TO THE TEMPORARY BRIDGE DETOUR.
5. COSTS FOR ALL APPROACH WORK FOR THE TEMPORARY BRIDGE INCLUDING PAVEMENT, SUBBASE, RAILING, PAVEMENT MARKINGS (ALL TEMPORARY DOUBLE YELLOW AND TEMPORARY WHITE SHOULDER LINES), CURBS AND SIDEWALKS WILL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR TWO-WAY TEMPORARY BRIDGE (6000 SF - EST.), ITEM 528.11.
6. COSTS FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES INCLUDING TRAFFIC BARRICADES, SIGNS AND SIGN POSTS WILL BE CONSIDERED TO BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR TRAFFIC CONTROL, ITEM 641.10.
7. CONTRACTOR SHALL VERIFY LOCATION AND CONDITION OF EXISTING 18" CMP. NOTIFY ENGINEER IF ANY EXISTING PROBLEMS OR IF MODIFICATIONS ARE PROPOSED DUE TO CONFLICTS WITH THE TEMPORARY BRIDGE ABUTMENT.
8. UNLESS NOTED OTHERWISE, WORK ITEMS SHOWN ON THIS SHEET ARE NECESSITATED BY THE DETOUR ROUTE, AND MUST BE COMPLETED PRIOR TO OPENING THE DETOUR TO TRAFFIC. THE WORK WILL BE PAID UNDER THE ITEMS AS INDICATED, NOT AS A PART OF THE TEMPORARY BRIDGE ITEM, AND ARE TO BE PERMANENT IN NATURE.

LEGEND
- TRAFFIC SIGNAL POLE WITH LUMINAIRE
- REFLECTORIZED PLASTIC DRUMS (SEE STD. E-106).
- TYPE III BARRICADES (SEE STD. E-107A)
- TYPE III BARRICADES (MOD.) (SEE STD. E-107A).
- PAVEMENT MARKING REMOVAL
- SIGNAL HEAD AND PHASE
- FLASHING BEACON

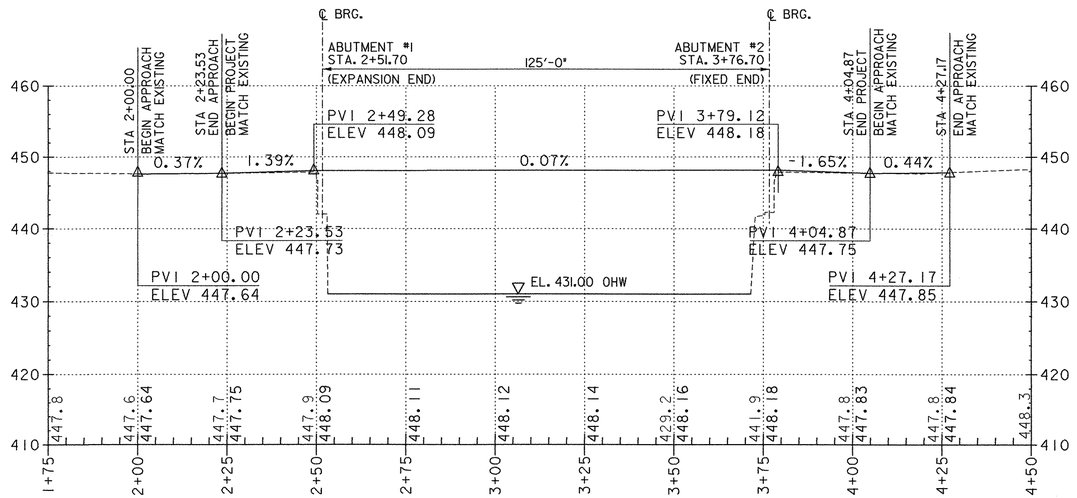
Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Plotfiles\rich-detour.ptf	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JTS
DESIGNED BY: SEB	CHECKED BY: MJC
TRAFFIC CONTROL PLAN	SHEET 16 OF 41



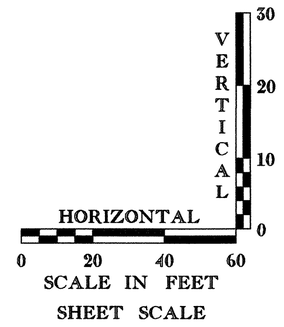
NOTE: ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG CENTERLINE.
ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG CENTERLINE.

DETOUR PROFILE



NOTE: ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG CENTERLINE.
ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE FINISH GRADE ALONG CENTERLINE.

BRIDGE PROFILE

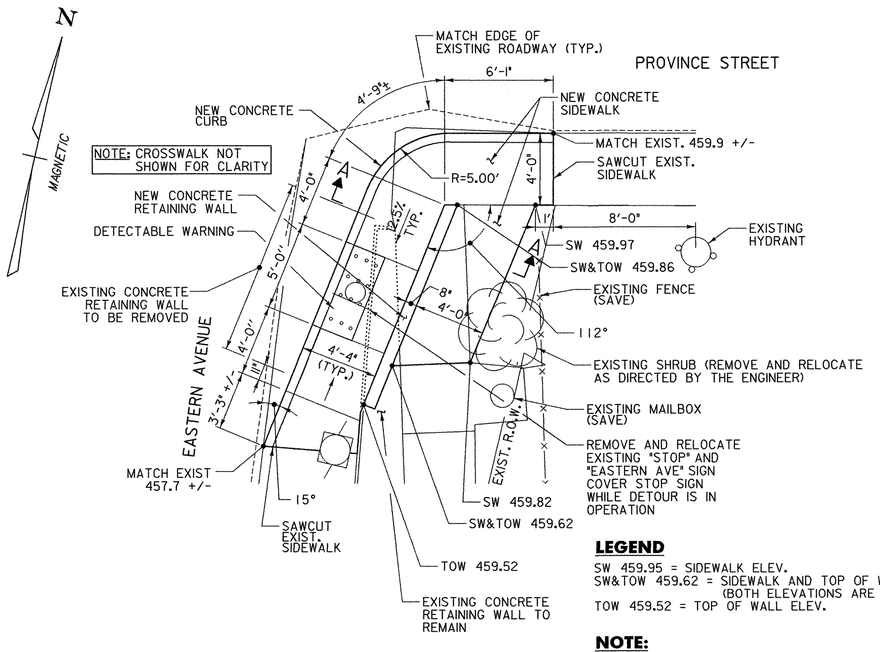


SHEET SCALE

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHO 0302 (3) S
FILE NAME: ...\Design\rich-prof.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: SEB
DESIGNED BY: SEB	CHECKED BY: MJC
BRIDGE AND DETOUR PROFILE	SHEET 17 OF 41

DURABLE CROSSWALK MARKING	REMOVING SIGNS	ERECTING SALVAGED SIGNS	SETTING SALVAGED POSTS
35 LF (SEE DETAIL ON SHEET 36)	2 EA	2 EA	1 EA
TRANSPLANTING SHRUBS (2")	**SOLID ROCK EXCAVATION**	**DETECTABLE WARNING SURFACE**	**SUBBASE OF GRAVEL**
1 EA	3 CY	10 SF	11 CY
PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	**CONCRETE, HIGH PERFORMANCE CLASS B**	**COMMON EXCAVATION**	**CAST-IN-PLACE CONCRETE CURB, TYPE B**
18 SY	1 CY	12 CY	28 LF



LEGEND

SW 459.95 = SIDEWALK ELEV.
SW&TOW 459.62 = SIDEWALK AND TOP OF WALL ELEV. (BOTH ELEVATIONS ARE THE SAME)
TOW 459.52 = TOP OF WALL ELEV.

NOTE:

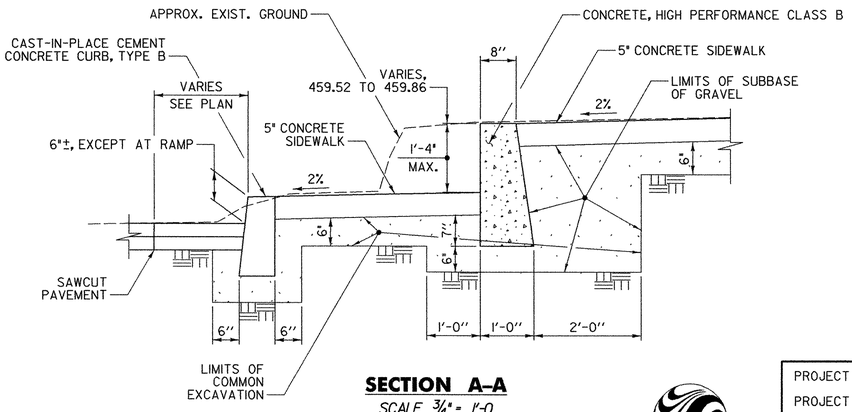
SAW CUTTING AND REMOVAL OF EXISTING PAVEMENT AND/OR CONCRETE SHALL BE INCIDENTAL TO SOLID ROCK EXCAVATION.

RELOCATED SIDEWALK PLAN AT THE INTERSECTION OF EASTERN AVENUE AND PROVINCE STREET

SCALE 1/4" = 1'-0

EXISTING SIDEWALK PLAN AT THE INTERSECTION OF EASTERN AVENUE AND PROVINCE STREET

SCALE 1/4" = 1'-0



SECTION A-A

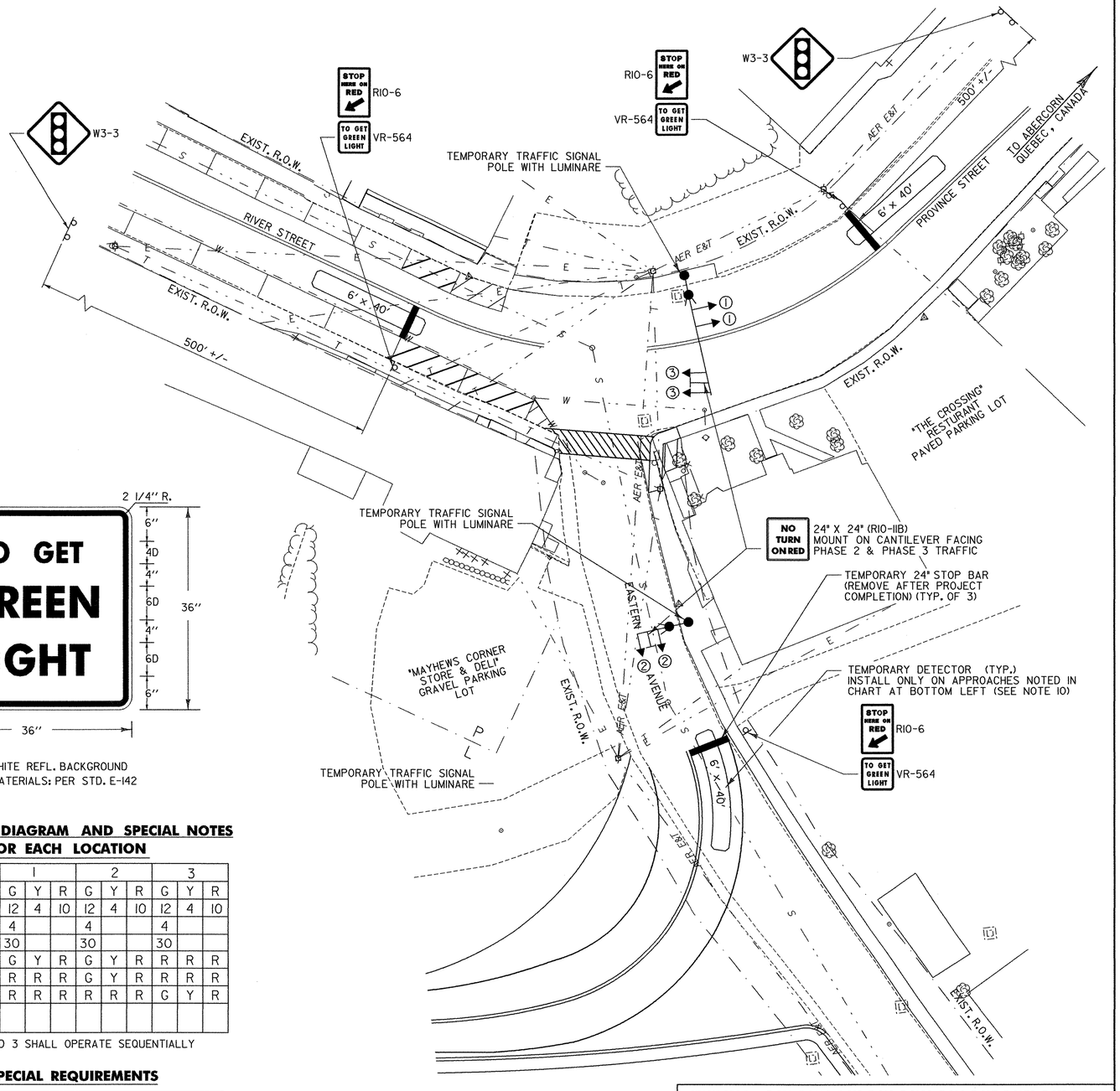
SCALE 3/4" = 1'-0

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-sdwlk mod.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: SEB
DESIGNED BY: SEB	CHECKED BY: MJC
SIDEWALK MODIFICATIONS	SHEET 18 OF 41

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 ENGINEER SHALL BE ACCOMPLISHED WITHIN A 48 HOUR PERIOD AND PAYMENT SHALL BE INCIDENTAL TO THE TRAFFIC SIGNAL ITEM. THE ALL-RED CLEARANCE INTERVAL IS BASED ON AN ASSUMED SPEED OF 10-20 MPH, THE ENGINEER SHALL MAKE SEVERAL TRIAL RUNS TO DETERMINE THE PROPER ALL-RED CLEARANCE INTERVAL.
3. THE SIGNAL SYSTEM SHALL INCLUDE "HARD WIRED" PREEMPTION. A MANUALLY OPERATED BUTTON LOCATED AS INDICATED ON THE PLANS (SEE SHEET 16) SHALL ACTIVATE THE SYSTEM. THE CONTRACTOR SHALL COORDINATE WITH RESIDENT ENGINEER, TOWN FIRE, AMBULANCE, POLICE AND ANY OTHER APPROPRIATE DEPARTMENTS TO DETERMINE THE PROPER TIMING REQUIRED FOR EMERGENCY VEHICLES TO CLEAR THE PROJECT AREA ONCE PREEMPTION IS ACTIVATED. SEVERAL TRIAL RUNS SHALL BE MADE. PAYMENT SHALL BE INCIDENTAL TO ITEM 678.40, TEMPORARY TRAFFIC SIGNAL SYSTEM.
4. SIGNAL FACES SHALL CONSIST OF 12" LENSES. (RED, YELLOW, AND GREEN)
5. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16.5 FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY, SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO INSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
6. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER FACES.
7. 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 14.5 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. 2003 EDITION FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
8. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
9. THE SIGNAL SYSTEM SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGN, LUMINARIES, SIGNAL EQUIPMENT, CONTROLLER AND CABINET AND WIRING TO DETECTORS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. IT ALSO INCLUDES PERMITS AND COSTS ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
10. THE CONTRACTOR SHALL PROVIDE AN ACTUATED CONTROLLER. THE APPROACHES NOTED SHALL HAVE A TEMPORARY 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.
11. WHEN USED, TEMPORARY DETECTOR SHALL BE 6' X 40' FOR PRESENCE DETECTION AT THE STOP BAR WITH THE NEAR PORTION LOCATED 5 FEET BEYOND THE STOP BAR.
12. INTERVAL TIMING SHOWN IN SECONDS.
13. INSTALL WIRING BETWEEN SIGNAL POLES BY WHATEVER MEANS POSSIBLE OR CONVENIENT TO PROVIDE FOR A SAFE INSTALLATION. ATTACHMENT TO UTILITY POLES TO BE COORDINATED BY THE CONTRACTOR WITH UTILITY COMPANY.
14. PLACE TEMPORARY POLES BEHIND GUARDRAIL WHERE POSSIBLE.
15. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELLING PUBLIC.
16. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, TYPE III BARRICADES, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR REMOVAL, INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
17. 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 FEET ABOVE ROADWAY CENTERLINE. THE INTENT IS TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICENT.
18. SIGNAL HEAD SHALL BE LOCATED A MINIMUM OF 40' AND A MAXIMUM OF 120' FROM THE NEAREST STOP BAR.
19. PAYMENT FOR THE TEMPORARY DETECTORS SHALL BE FOR EACH UNIT INSTALLED.
20. 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", "NO TURN ON RED", AND "TO GET GREEN LIGHT", ETC.) THE TEMPORARY STOP BARS WILL BE PAID FOR UNDER THE TEMPORARY 24" STOP BAR ITEM.
21. SEE STD. E-140 FOR "STOP HERE ON RED" AND "NO TURN ON RED" SIGN DETAIL, E-101 FOR "SIGNAL AHEAD" SYMBOL SIGN AND CHEVRON SYMBOL SIGN. SEE STANDARD E-102A FOR "ROAD CLOSED" SIGN. SEE STANDARD E-121 FOR SIGN PLACEMENT. SEE STANDARD E-171A AND E-172 FOR ADDITIONAL INFORMATION ON SIGNALS AND DETECTORS.
22. ALL ELECTRICAL WORK SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND STATE INSPECTOR.
23. ALL STOP SIGNS AND ANY TRAFFIC SIGNS MADE IRRELEVANT DUE TO THE TEMPORARY SIGNAL SHALL BE COVERED WITH A NON TRANSLUCENT WEATHER RESISTANT MATERIAL. THESE SIGNS SHOULD ONLY BE COVERED DURING THE OPERATION OF THE TEMPORARY SIGNAL OR AT THE DISCRETION OF THE ENGINEER. THE COSTS OF COVERING AND UNCOVERING THESE SIGNS SHALL BE INCLUDED IN THE PAYMENT FOR CONTRACT ITEM 678.40.
24. CONSTRUCTION APPROACH SIGNS SHALL BE PROVIDED ON EACH APPROACH PER STANDARD E-100. ADDITIONAL CONSTRUCTION APPROACH SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER PER STANDARD E-100A, E-101, E-102 AND E-102A. PAYMENT FOR THESE SIGNS, THE REFLECTORIZED PLASTIC DRUMS, ETC., SHALL BE PAID AS A PART OF CONTRACT ITEM 641.10.



WHITE REFL. BACKGROUND
MATERIALS: PER STD. E-142

PHASING DIAGRAM AND SPECIAL NOTES FOR EACH LOCATION

PHASE	1			2			3		
	G	Y	R	G	Y	R	G	Y	R
MINIMUM	12	4	10	12	4	10	12	4	10
EXTENSION	4			4			4		
MAXIMUM	30			30			30		
HEAD 1	G	Y	R	G	Y	R	R	R	R
HEAD 2	R	R	R	G	Y	R	R	R	R
HEAD 3	R	R	R	R	R	R	G	Y	R

PHASES 1, 2 AND 3 SHALL OPERATE SEQUENTIALLY

SPECIAL REQUIREMENTS

APPROACH	TEMPORARY DETECTOR	FLASHING BEACON ON ADVANCED WARNING SIGN
1	✓	
2	✓	
3	✓	

ENTER CHECK MARK IN APPROPRIATE BOX WHEN REQUIRED ON THIS PROJECT

LEGEND

- TRAFFIC SIGNAL POLE WITH LUMINAIRE
- ②▷ SIGNAL HEAD AND PHASE
- FLASHING BEACON

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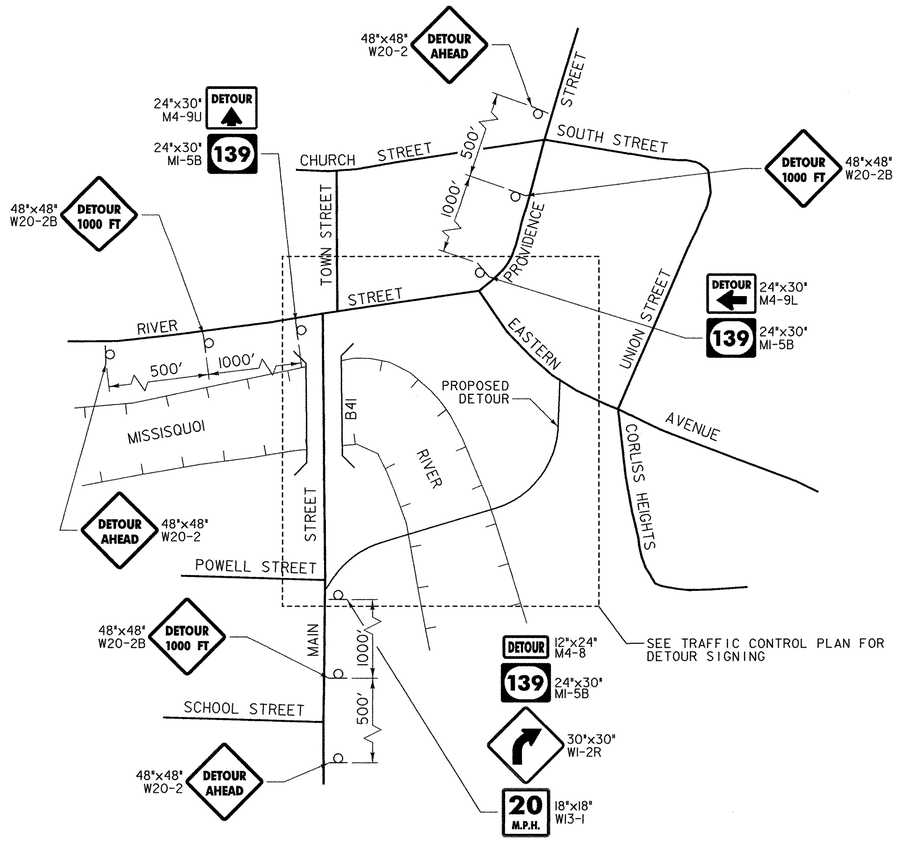
STANDARDS REQUIRED: E-100, E-100A, E-101, E-102, E-102A, E-106, E-107, E-107A, E-121, E-140, E-142, E-170, E-171A, E-171B, E-171C, E-172, E-175

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

FILE NAME: ...\Design\rich-signal.dgn
PROJECT LEADER: MJC
DESIGNED BY: SEB
PLOT DATE: 12/18/2007
DRAWN BY: JTS
CHECKED BY: MJC

TEMPORARY TRAFFIC SIGNAL PLAN



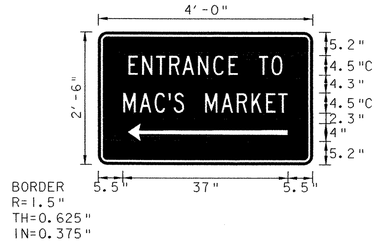
NOTE: PAYMENT FOR CONSTRUCTION SIGNING WILL BE MADE INCIDENTAL TO CONTRACT ITEM 641.10

CONSTRUCTION SIGN PLAN

NOT TO SCALE

SIGN DETAIL

1:20



SIGN NUMBER	name
WIDTH x HGHT.	4'-0" x 2'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT
ARLONG	180	6.5	5.2	4	36

Panel Style onstruction_guide.ssi
Dimensions are inches.tenths Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)																						LENGTH	SERIES/SIZE
E	N	T	R	A	N	C	E		T	O													C 2000
6.7	9.7	12.9	15.8	18.7	22.2	25.6	29.1	31.4	35.9	38.7												34.7	4.5
M	A	C	'	S		M	A	R	K	E	T												C 2000
5.5	9.1	12.5	15.6	16.8	19.3	23.8	27.4	30.9	34.2	37.5	40.2											37	4.5

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-detsign.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: SEB
DESIGNED BY: SEB	CHECKED BY: MJC
DETOUR SIGN SHEET	SHEET 20 OF 41

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2006 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 2002, AND ITS LATEST REVISIONS.
2. ALL WORK ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS, EXCEPT FOR WORK ASSOCIATED WITH THE TEMPORARY BRIDGE. NO ADDITIONAL PERMANENT R.O.W. RIGHTS ARE ANTICIPATED FOR THIS PROJECT.
3. NO EQUIPMENT SHALL BE PLACED IN THE WATERCOURSE. MATERIALS SHALL NOT BE PLACED IN THE WATERCOURSE, EXCEPT FOR CONSTRUCTION OF THE TEMPORARY BRIDGE PIER. AREA OF MATERIAL IMPACT FOR THE TEMPORARY PIER SHALL BE LIMITED TO 300 SF AND SHALL BE COMPLETELY REMOVED AT THE END OF CONSTRUCTION.
4. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AT 68 DEGREES FAHRENHEIT.
5. PLANS FOR THE EXISTING BRIDGE ARE NOT AVAILABLE. DIMENSIONS SHOWN ON EXISTING DETAILS ARE TAKEN FROM FIELD MEASUREMENTS MADE BY THE DESIGN ENGINEER AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND VERIFY ALL DIMENSIONS AND EXISTING DETAILS NECESSARY FOR THE COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THEY HAVE MADE THE REQUIRED MEASUREMENTS ON THE EXISTING STRUCTURE.
6. THE ITEMS 502.11, "SHORING SUPERSTRUCTURE BEARINGS (STA. 2+51.70) AND 502.11, "SHORING SUPERSTRUCTURE BEARINGS (STA. 3+76.70) SHALL BE PAYMENT FOR SUPPORTING THE SUPERSTRUCTURE WHILE THE SUBSTRUCTURES AND BEARINGS ARE BEING REPAIRED. THE BEARINGS AT ABUTMENTS NO. 1 AND NO. 2 SHALL BE JACKED SIMULTANEOUSLY ABOVE THE EXISTING TOP OF THE BEAM SEAT. ITEM 502.10, "SHORING SUPERSTRUCTURE" SHALL BE PAYMENT FOR SUPPORTING THE SUPERSTRUCTURE IN PLACE DURING REPAIRS OR REMOVAL OFF-SITE FOR REPAIRS, AT THE DISCRETION OF THE CONTRACTOR.
7. THE FOLLOWING SHALL BE PAID FOR UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE"; REMOVAL AND DISPOSAL OF THE EXISTING CONCRETE BRIDGE DECK, BRIDGE CURBS, BRIDGE SIDEWALKS, BACKWALLS, AND ALL STEEL MEMBERS THAT ARE TO BE REPLACED AS DETAILED IN THE CONTRACT PLANS OR AS DIRECTED BY THE ENGINEER. REMOVAL OF BRIDGE PAVEMENT SHALL BE PAID FOR UNDER ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT". THE EXISTING STRUCTURAL STEEL ON THIS PROJECT WAS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE STRUCTURAL STEEL. TEN DAYS PRIOR TO COMMENCING WORK WHICH INVOLVES THE HANDLING OR DISTURBANCE OF PAINTED COMPONENTS, THE CONTRACTOR SHALL PROVIDE DOCUMENTS TO THE ENGINEER, AS REFERENCED IN SECTION 513 OF THE SPECIFICATIONS.

CONCRETE AND REINFORCING STEEL

8. CONCRETE FOR THE DECK, EXPANSION JOINT BLOCKOUT AND CURBS SHALL BE HIGH PERFORMANCE CLASS A AND WILL BE PAID FOR UNDER ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A (FPO)". ALL OTHER CONCRETE SHALL BE HIGH PERFORMANCE CLASS B AND WILL BE PAID FOR UNDER ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B" UNLESS OTHERWISE NOTED.
9. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES.
10. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1".
11. CONCRETE CONSTRUCTION JOINTS SHALL BE CONSTRUCTED AS SHOWN ON SHEET 25 OF THE PLANS OR AS DIRECTED BY THE ENGINEER.
12. ALL SUPERSTRUCTURE REINFORCING STEEL SHALL BE EPOXY COATED AND PAID FOR UNDER ITEM 507.17, "EPOXY COATED REINFORCING STEEL" UNLESS NOTED OHTERWISE. WHEN EPOXY COATED REINFORCING STEEL IS TO BE 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.
13. ALL SUBSTRUCTURE REINFORCING STEEL SHALL BE PAID FOR UNDER ITEM 507.15, "REINFORCING STEEL".
14. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH AND APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE."
15. MINIMUM COVER FOR REINFORCING STEEL IN THE SUBSTRUCTURES SHALL BE TWO INCHES ALONG WALL FACES AGAINST EARTH, AND THREE INCHES ELSEWHERE UNLESS DETAILED OTHERWISE.
16. REINFORCING PLACEMENT TOLERANCES SHALL BE:
    SPACING +/- 1"
    CLEARANCE +/-1/4"
17. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. THE BRIDGE SEAT SURFACE SHALL BE GIVEN A STEEL TROWEL FINISH.

STRUCTURAL STEEL

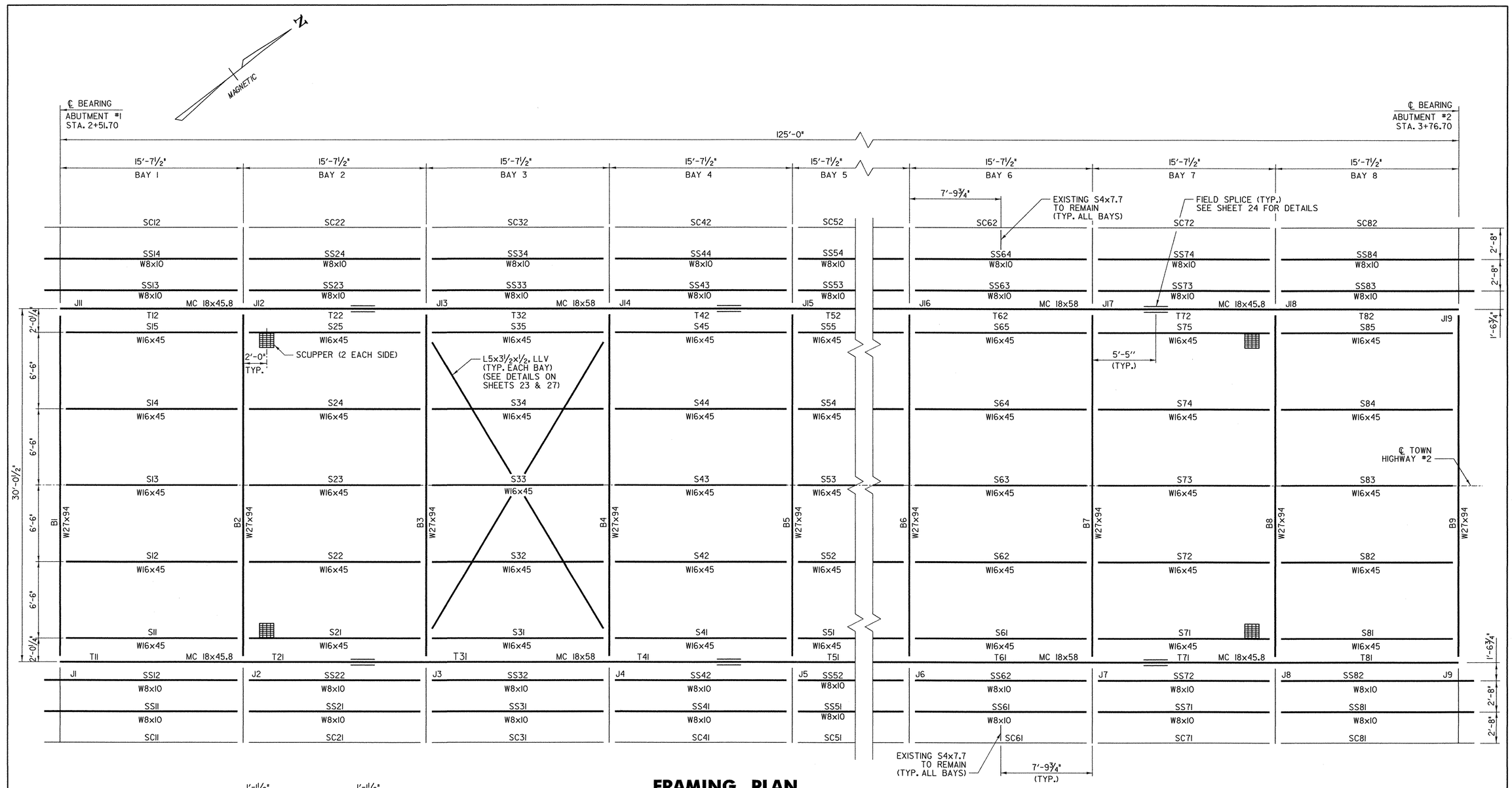
18. ALL STRUCTURAL COMPONENTS OF THE BRIDGE SHALL BE INSPECTED BY THE CONTRACTOR AND THE ENGINEER FOR ADDITIONAL AREAS IN NEED OF REPAIR NOT SHOWN ON THE CONTRACT DOCUMENTS. SOME OF THE AREAS INDICATED ON THESE PLANS AS REQUIRING PATCHES MAY HAVE BEEN PATCHED SUBSEQUENT TO DEVELOPMENT OF THESE PLANS, AND ADDITIONAL AREAS OF PATCHING ARE ANTICIPATED. ANY ADDITIONAL REPAIRS SHALL BE MADE AT THE DISCRETION OF THE ENGINEER AND SHALL BE APPROVED BY THE ENGINEER. THE PLATES USED FOR PATCHING SHALL BE 3/8" THICK AND CUT TO THE REQUIRED SIZE BASED ON FIELD MEASUREMENTS. ADDITIONAL REPAIRS SHALL BE PAID FOR UNDER CONTRACT ITEM 506.60.
19. ALL NEW STEEL BEAMS, CHANNELS, CONNECTION ANGLES, PLATES, WASHER PLATES AND BOLTS SHALL BE PAID FOR UNDER ITEM 506.50, "STRUCTURAL STEEL, ROLLED BEAM". ALL 3/8" PATCHING PLATES, SCUPPERS AND DOWNSPOUTS SHALL BE PAID FOR UNDER ITEM 506.60, "STRUCTURAL STEEL".
20. ALL STRUCTURAL STEEL PAID UNDER THE ITEM 506.50, "STRUCTURAL STEEL, ROLLED BEAM" SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 50 UNLESS NOTED OTHERWISE ON THE PLANS. ALL STRUCTURAL STEEL PAID UNDER THE ITEM 506.60, "STRUCTURAL STEEL" SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 36 OR HIGHER UNLESS NOTED OTHERWISE ON THE PLANS. EXCEPT ALL STRUCTURAL TUBING SHALL CONFORM TO SUBSECTIONS 714.11 OR 732.03, AS NOTED ON THE PLANS.
21. ANY EXISTING RIVETS THAT ARE MISSING OR REMOVED FOR REPAIRS AS DETAILED ON THE PLANS OR AS ORDERED BY THE ENGINEER SHALL BE REPLACED WITH 7/8" DIAMETER HIGH STRENGTH BOLTS MEETING THE REQUIREMENTS OF NOTE 22 AND 23. WHERE RIVET HEADS ARE IN DIRECT CONTACT WITH MEMBERS TO BE RETAINED, TORCHES AND/OR THE USE OF FLAME CUTTING WILL NOT BE PERMITTED FOR ANY PORTION OF THE RIVET REMOVAL. THE CONTRACTOR SHALL VERIFY THAT THE EXISTING HOLE DIAMETER IS 15/16 " AND BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER. THE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.
22. ALL NEW CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH BOLTS, MEETING AASHTO M-164 TYPE 1. ALL BOLTS SHALL BE FULL DIAMETER BODY ROUND HEAD BOLTS MEETING ANSI/ASME B 18.5 REQUIREMENTS. EXCEPT BOLTS FOR THE NEW BRIDGE RAILING AND SIDEWALK STRINGERS SHALL BE 3/4" DIAMETER MEETING THE REQUIREMENTS ABOVE. CONNECTIONS NOT DESIGNATED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
23. ALL BOLTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M-298. BOLTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCIDENTAL TO ITEM 506.50, "STRUCTURAL STEEL, ROLLED BEAMS". THE FASTENERS SHALL RECEIVE INTERMEDIATE AND FINAL COATS OF THE PAINT SYSTEM AFTER INSTALLATION.
24. THE SURFACE PREPARATION OF THE EXISTING STEEL SHALL INCLUDE 100% REMOVAL OF THE EXISTING PAINT SYSTEM.
25. THE COLOR OF THE FINAL COAT OF PAINT SHALL BE GREEN CONFORMING TO SUBSECTION 708.03.
26. THE EXISTING HANDRAIL TO BE RETAINED SHALL HAVE THE EXISTING PAINT REMOVED AND BE PAINTED USING THE SAME PAINT SYSTEM AS THE BRIDGE STEEL. THE REMOVAL OF EXISTING PAINT AND PAINTING OF THE RETAINED HANDRAIL SHALL BE INCIDENTAL TO ITEMS 513.41, "SURFACE PREPARATION, FIELD (30 TONS)", 513.36, "CONTAINMENT & ENVIRONMENTAL PROTECTION, FIELD", AND 513.30, "STRUCTURAL PAINTING, FIELD APPLIED (30 TONS)".
27. ALL NEW STEEL ELEMENTS PROVIDED UNDER THE ITEMS 506.50, "STRUCTURAL STEEL, ROLLED BEAMS", 900.640, "SPECIAL PROVISIONS (BOX BEAM GUARD RAIL, TRUSS)" AND 900.640, "SPECIAL PROVISION (BRIDGE RAILLING, TRUSS)" SHALL BE GIVEN A SHOP APPLIED PRIMER, INTERMEDIATE AND TOP COATING OF PAINT PER SECTION 513. THE PRIMER SYSTEM USED IN THE SHOP SHALL BE THE SAME SYSTEM AS THAT EMPLOYED FOR THE FIELD APPLIED PAINT SYSTEM.
28. AFTER THE FINAL COAT OF FIELD APPLIED PAINT HAS BEEN APPLIED AND THOROUGHLY CURED, BUT PRIOR TO THE REMOVAL OF THE ENVIRONMENTAL PROTECTION, THE FOLLOWING STRUCTURAL STEEL SHALL BE GREASED PER SECTION 513; ENTIRE BRIDGE FLOOR SYSTEM, EXCEPT THE UNDERSIDE OF THE DECK. ALL TRUSS COMPONENTS BELOW THE TOP OF THE CURB, AND THE BEARINGS. PAYMENT FOR THE GREASE SHALL BE INCIDENTAL TO THE ITEM 513.30 "STRUCTURAL PAINTING, FIELD APPLIED (30 TONS)". THE COLOR OF THE GREASE SHALL BE GREEN.

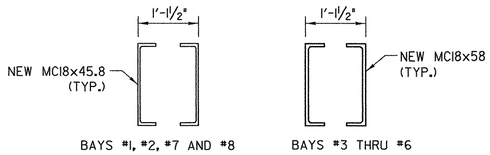
EROSION CONTROL

29. APPROPRIATE EROSION CONTROL MEASURES SHALL BE UTILIZED THROUGHOUT THE DURATION OF THE CONSTRUCTION AS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-notes.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
PROJECT NOTES	SHEET 21 OF 41





BOTTOM CHORD SECTIONS

SCALE ¾" = 1'-0

FRAMING PLAN

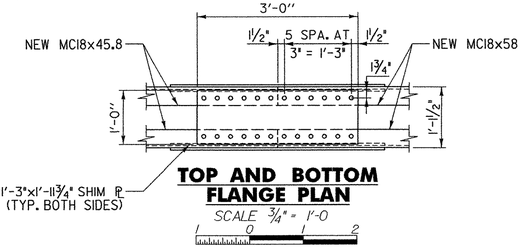
SCALE 1/4" = 1'-0

LEGEND

J = JOINT
S = FLOOR STRINGER (NEW W16x45)
B = BEAM (NEW W27x94)
T = TRUSS BOTTOM CHORD (SEE SECTIONS AT LEFT)
SS = SIDEWALK STRINGER (NEW W8x10)
SC = EXISTING SIDEWALK CHANNEL (C7)
——— = NEW FRAMING MEMBER
——— = EXISTING FRAMING MEMBER TO BE RETAINED

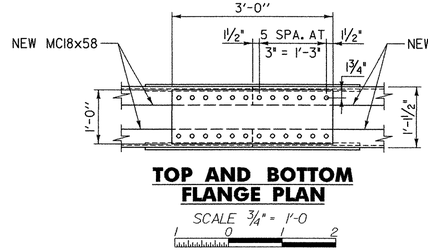
Stantec

PROJECT NAME: RICHFORD	
PROJECT NUMBER: BHF 0302 (3) S	
FILE NAME: ...\Design\rich-frame.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JJS
DESIGNED BY: SEB	CHECKED BY: MJC
FRAMING PLAN	SHEET 22 OF 41



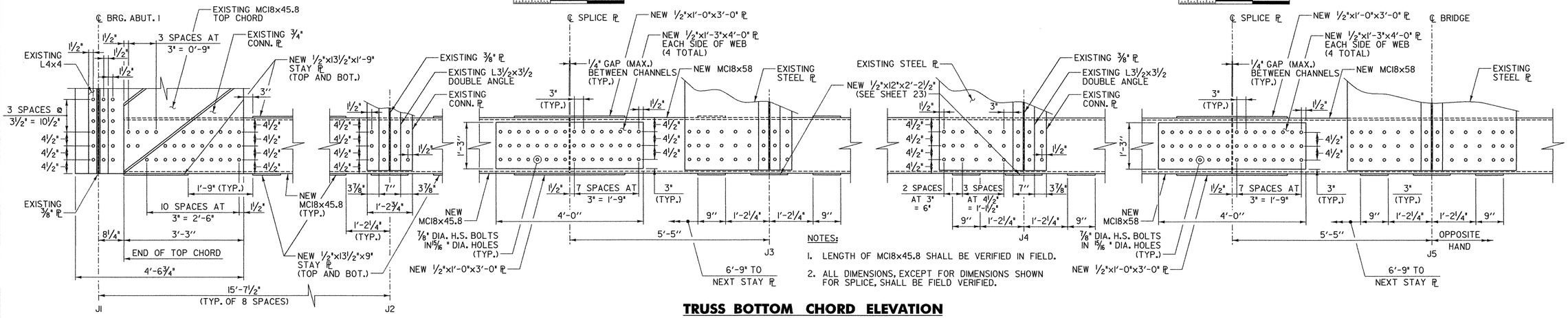
TOP AND BOTTOM FLANGE PLAN

SCALE ¾" = 1'-0



TOP AND BOTTOM FLANGE PLAN

SCALE ¾" = 1'-0

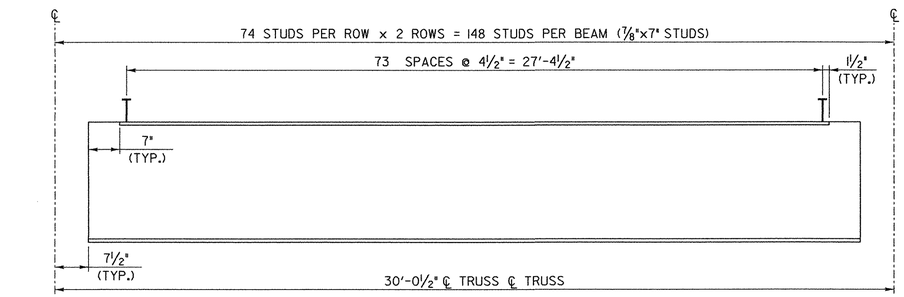


NOTES:

1. LENGTH OF MCI8x45.8 SHALL BE VERIFIED IN FIELD.
2. ALL DIMENSIONS, EXCEPT FOR DIMENSIONS SHOWN FOR SPLICE, SHALL BE FIELD VERIFIED.

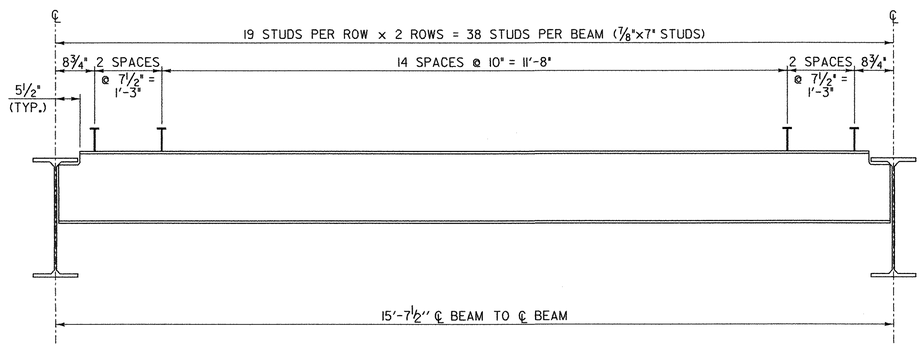
TRUSS BOTTOM CHORD ELEVATION

SCALE ¾" = 1'-0



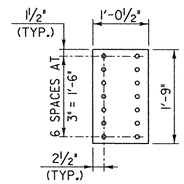
W27 ELEVATION

NOT TO SCALE



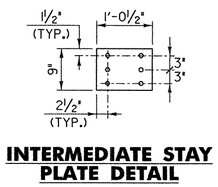
W16 ELEVATION

NOT TO SCALE



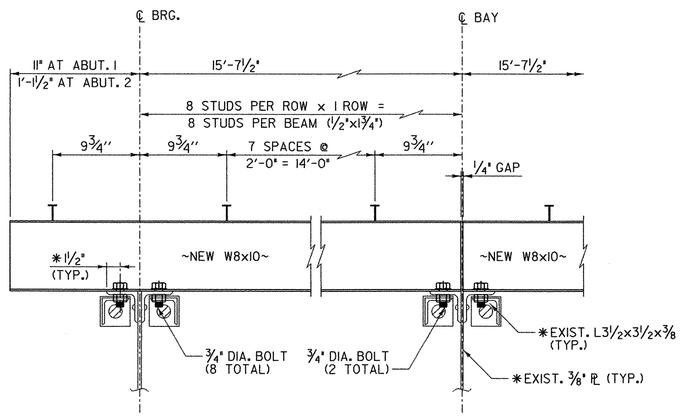
END STAY PLATE DETAIL

SCALE ¾" = 1'-0



INTERMEDIATE STAY PLATE DETAIL

SCALE ¾" = 1'-0



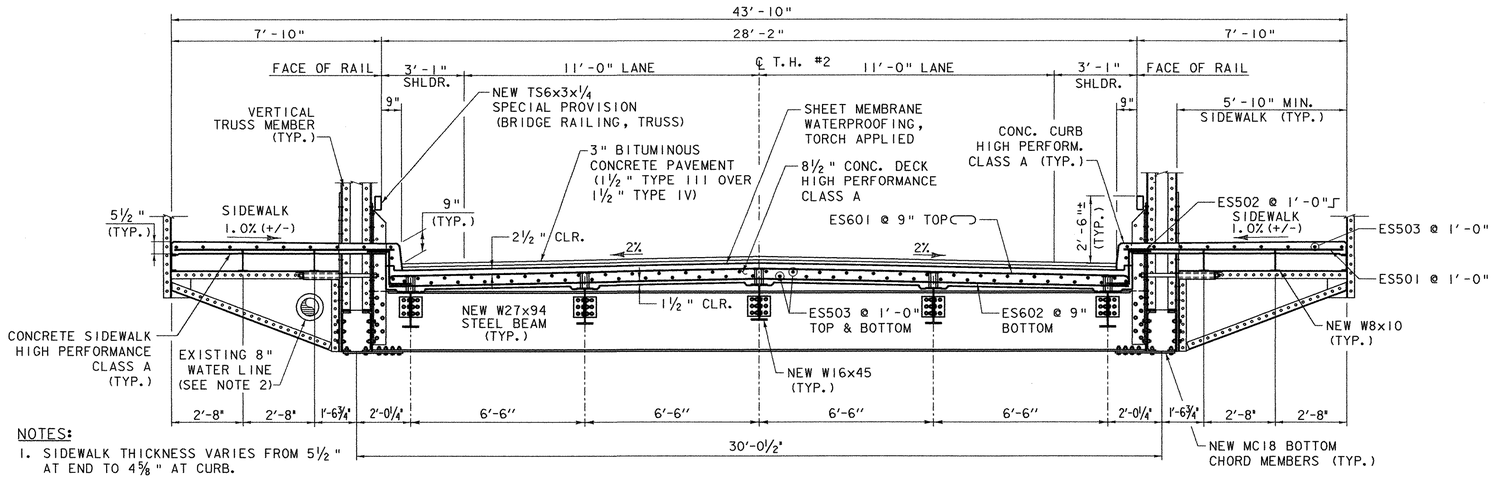
*-VERIFY IN FIELD

SIDEWALK STRINGER CONNECTION DETAIL

SCALE 1½" = 1'-0

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-steeldets2.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JJS
DESIGNED BY: SEB	CHECKED BY: MJC
STEEL DETAILS SHEET 2	SHEET 24 OF 41



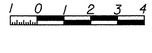
NOTES:

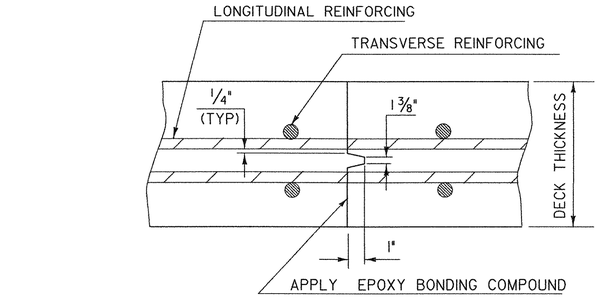
1. SIDEWALK THICKNESS VARIES FROM 5½" AT END TO 4⅝" AT CURB.
2. EXISTING 8" WATER LINE TO BE PROTECTED AND MAINTAINED IN SERVICE DURING CONSTRUCTION. IF THE CONTRACTOR CHOOSES TO REMOVE THE TRUSS FROM THE SITE FOR REHABILITATION AND/OR PAINTING, THE CONTRACTOR SHALL PROVIDE TEMPORARY WATER SERVICE MEETING THE REQUIREMENTS OF SECTION 629. PAYMENT FOR PROTECTING AND MAINTAINING WATERLINE SERVICE SHALL BE INCIDENTAL TO ALL CONTRACT ITEMS.

NOTE: ANY MEMBERS THAT ARE NOT OTHERWISE NOTED AS NEW, SHALL BE RETAINED.

TYPICAL DECK SECTION

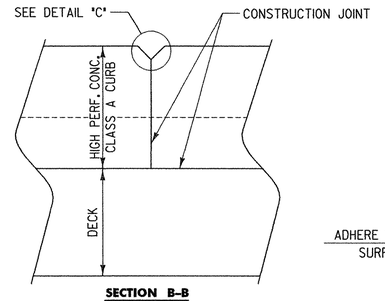
SCALE ⅜" = 1'-0



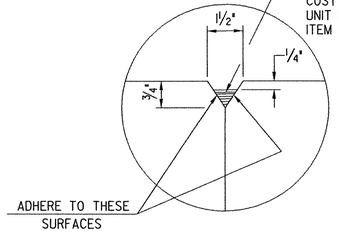


TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAIL

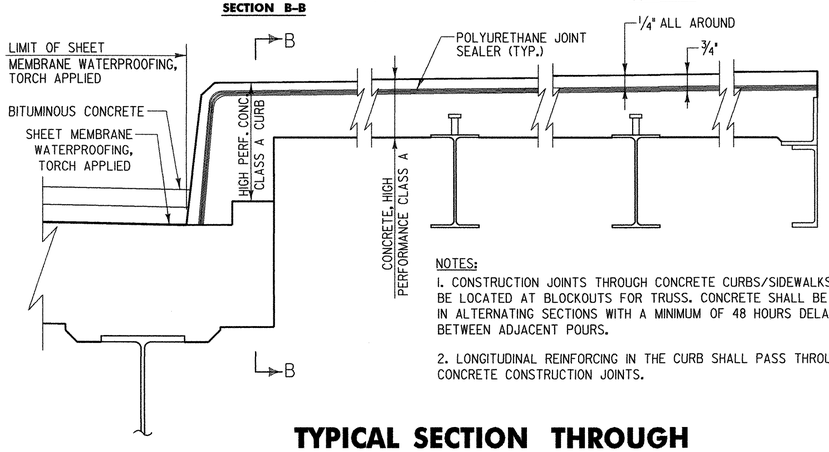
NOT TO SCALE



SECTION B-B



DETAIL "C"

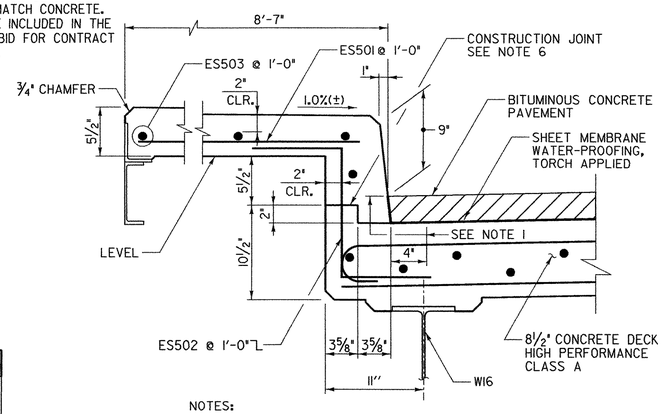


NOTES:

1. CONSTRUCTION JOINTS THROUGH CONCRETE CURBS/SIDEWALKS SHALL BE LOCATED AT BLOCKOUTS FOR TRUSS. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
2. LONGITUDINAL REINFORCING IN THE CURB SHALL PASS THROUGH THE CONCRETE CONSTRUCTION JOINTS.

TYPICAL SECTION THROUGH CONCRETE CURB / SIDEWALK CONSTRUCTION JOINT

NOT TO SCALE

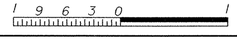


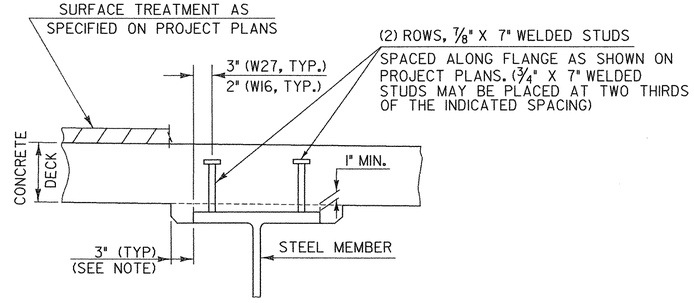
NOTES:

1. INDICATES AREA ALONG DECK AND UP FACE OF CURB FOR PLACEMENT OF TWO COATS OF POLYURETHANE MEMBRANE.
2. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SHEET MEMBRANE WATERPROOFING, TORCH APPLIED.
3. SHEET MEMBRANE AND WATERPROOFING SHALL EXTEND TO FACE OF CURB AS SHOWN ABOVE.
4. IN ADDITION TO THE REQUIREMENTS OF SUBSECTION 519.04, BLAST CLEAN 3" UP THE CURB FACE PRIOR TO PLACING THE MEMBRANE.
5. ALL CONCRETE IN CURB AND SIDEWALK SHALL BE HIGH PERFORMANCE, CLASS A CONCRETE.
6. CONTRACTOR MAY ELIMINATE KEYED CONSTRUCTION JOINT SHOWN. IF ELIMINATED, JOINT SURFACE SHALL BE ROUGHENED TO ¼" AMPLITUDE.

CONCRETE CURB AND SIDEWALK DETAIL

SCALE 1½" = 1'-0

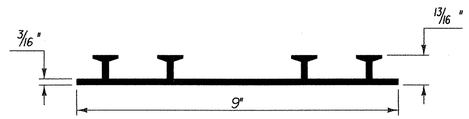




NOTE: THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. SYSTEMS SHALL BE SUBMITTED FOR APPROVAL TO THE STRUCTURES ENGINEER. ALL VOIDS SHALL BE FILLED WITH MORTAR, TYPE IV OR AN EQUIVALENT PRODUCT FROM THE APPROVED PRODUCTS LIST.

HAUNCH AND SHEAR CONNECTOR DETAILS

NOT TO SCALE



P. V. C. WATERSTOP FOR CONSTRUCTION JOINTS

THE COSTS FOR P. V. C. WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 501.34. OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE ENGINEER.

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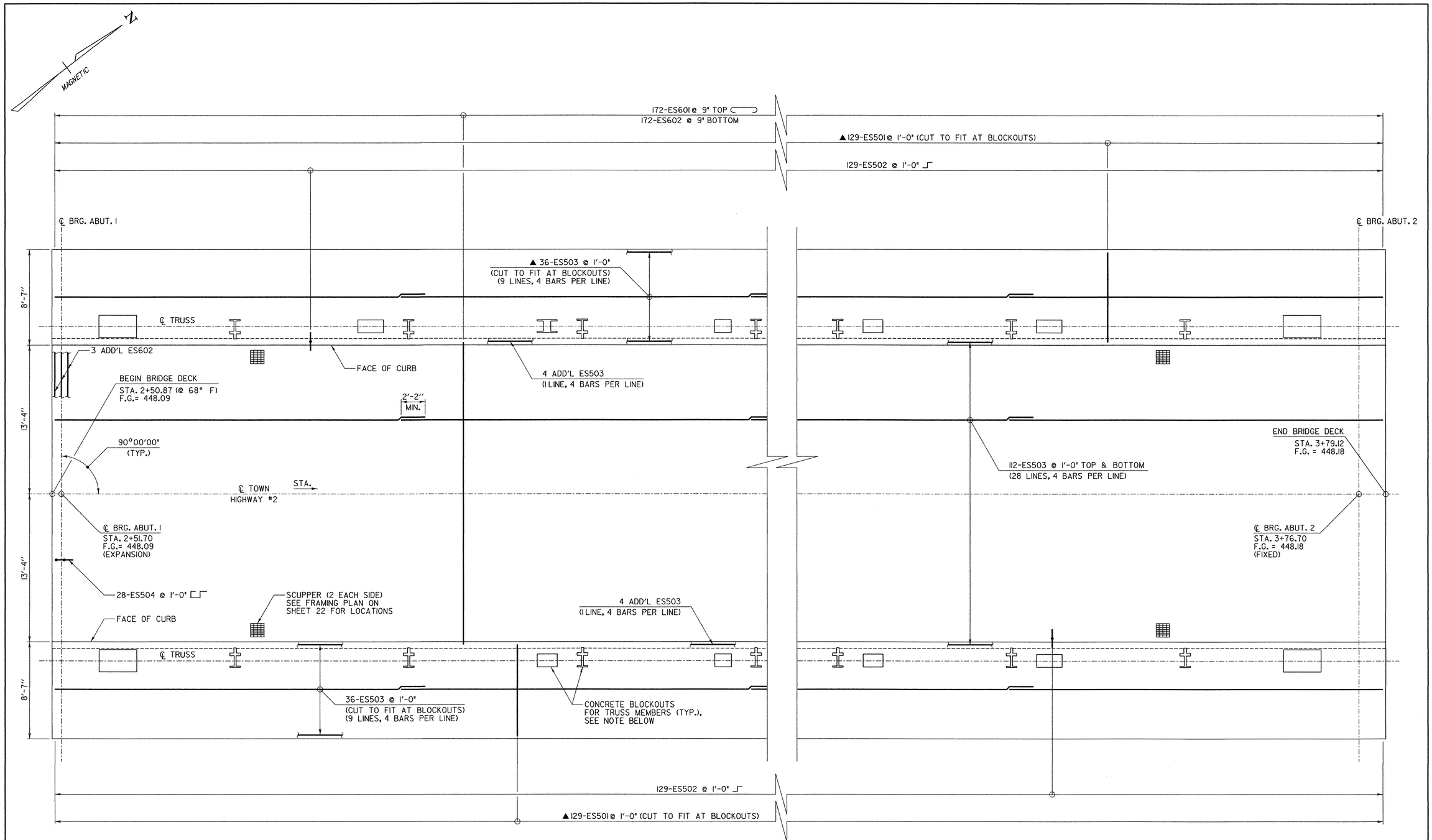
PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-decksect.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
TYPICAL DECK SECTION AND DETAILS	SHEET 25 OF 41



NOTE:

CLEARANCE TO STEEL FRAMING AT BLOCKOUTS SHALL BE A MAXIMUM OF 2" AND A MINIMUM OF 1½".

DECK PLAN

SCALE 1/4" = 1'-0

0 2 4 6

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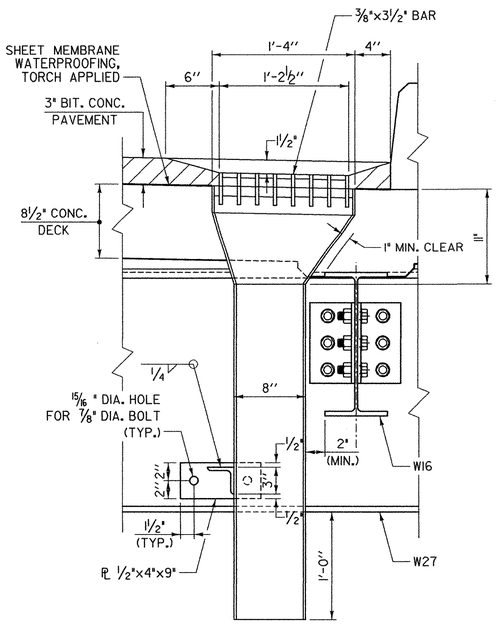
PROJECT NAME: RICHFORD	
PROJECT NUMBER: BHF 0302 (3) S	
FILE NAME: ...\Design\rich-deckpln.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JTS
DESIGNED BY: SEB	CHECKED BY: MJC
DECK REINFORCING PLAN	SHEET 26 OF 41

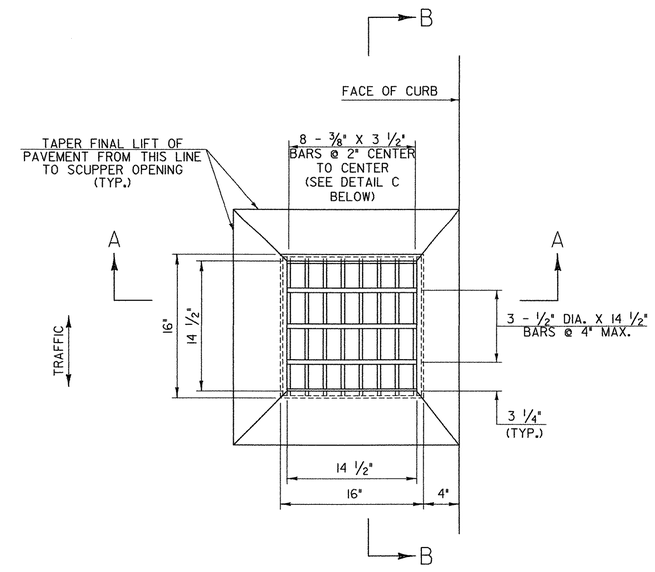


SECTION A–A

SCALE 1 1/2" = 1'-0

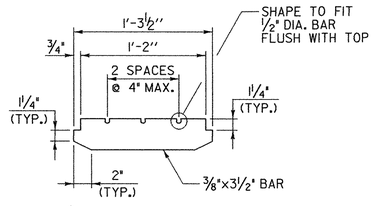
SECTION B–B

SCALE 1 1/2" = 1'-0



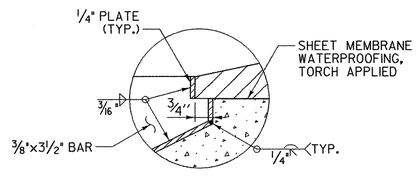
SCUPPER PLAN

SCALE 1 1/2" = 1'-0



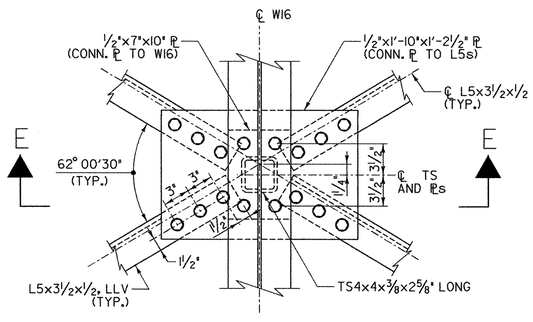
DETAIL C

SCALE 1 1/2" = 1'-0



DETAIL D

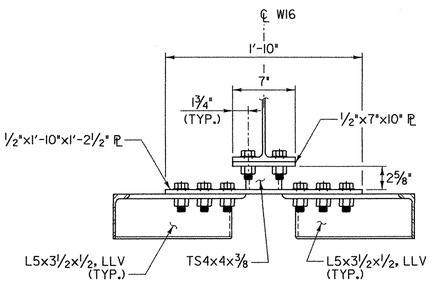
NOT TO SCALE



NOTE: DIMENSIONS FOR ANGLE CONNECTION ARE TYPICAL FOR ALL FOUR ANGLES

DIAGONAL CONNECTION DETAIL AT CENTER STRINGER

SCALE 1 1/2" = 1'-0



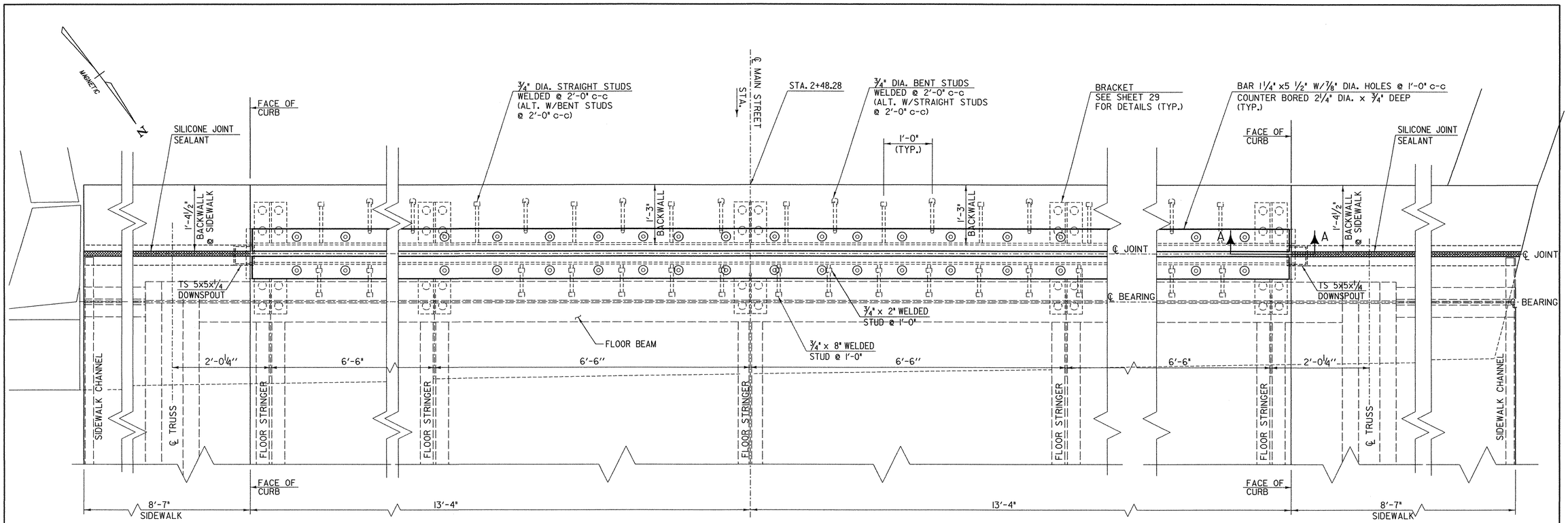
SECTION E–E

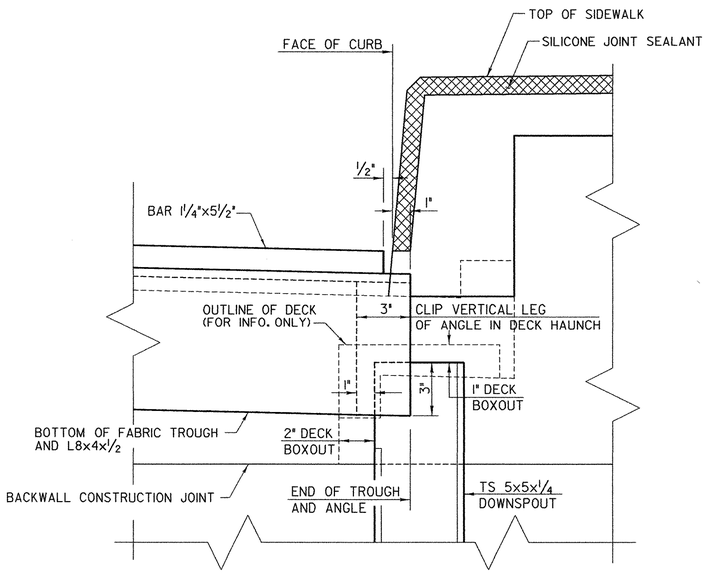
SCUPPER NOTES

1. HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO SUBSECTION 714.11.
2. ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO SUBSECTION 714.03.
3. ALL SCUPPERS, INCLUDING SUPPORT ANGLES, SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH SUBSECTION 506.15, PART (a).
4. THE TOP SURFACE OF THE SCUPPER SHALL BE SLOPED TO MATCH ROADWAY SLOPE AND GRADE.
5. ANY PLACE WHERE THE GALVANIZING HAS BEEN REMOVED FROM THE SCUPPER EITHER BY CUTTING, BURNING, WELDING, PLACING, OR ANY OTHER MEANS, SHALL BE REPAIRED PER SECTION 513.
6. SCUPPERS SHALL BE PAID FOR UNDER ITEM 506.60, "STRUCTURAL STEEL"

Stantec

PROJECT NAME: RICHFORD	
PROJECT NUMBER: BHF 0302 (3) S	
FILE NAME: ...\Design\rich-scupper.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: TEK
DESIGNED BY: SEB	CHECKED BY: MJC
SCUPPER AND MISC. DETAILS	SHEET 27 OF 41





SECTION A–A

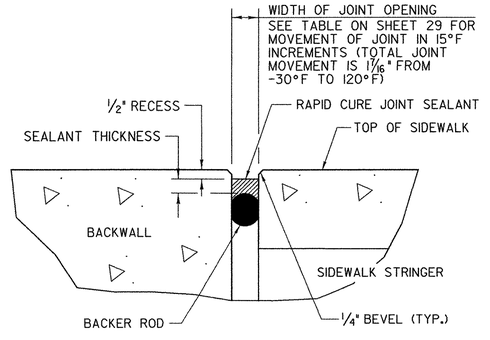
SCALE 3" = 1'-0

EXPANSION JOINT PLAN AT ABUTMENT NO. 1

SCALE 1" = 1'-0

SIDEWALK JOINT NOTES:

1. THE JOINT WILL BE A "SILICONE SEALANT WITH BACKER ROD."
2. THE SILICONE SEALANT THICKNESS AND WIDTH OF JOINT OPENING SHALL BE AS RECOMMENDED BY SILICONE SEALANT SUPPLIER. THE JOINT SHALL BE INSTALLED AS RECOMMENDED BY SEALANT SUPPLIER.
3. THE LIMITS OF "SILICONE SEALANT WITH BACKER ROD" SHALL BE 5½ INCHES DOWN THE FASCIA FROM THE TOP, ACROSS THE TOP OF THE SIDEWALK AND DOWN THE CURB SIDE OF THE SIDEWALK TO THE TOP OF THE CONCRETE DECK.
4. SIDEWALK EXPANSION JOINT SHALL BE PAID INCIDENTAL TO CONTRACT ITEM 618.10.



SIDEWALK EXPANSION JOINT

SCALE 3" = 1'-0

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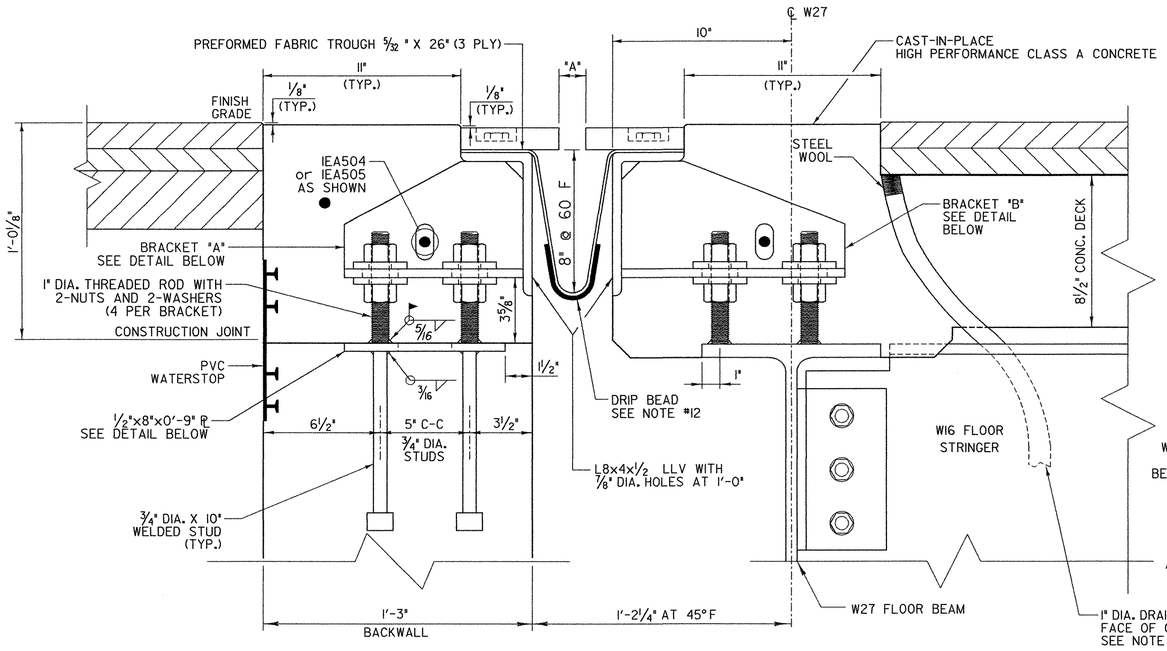
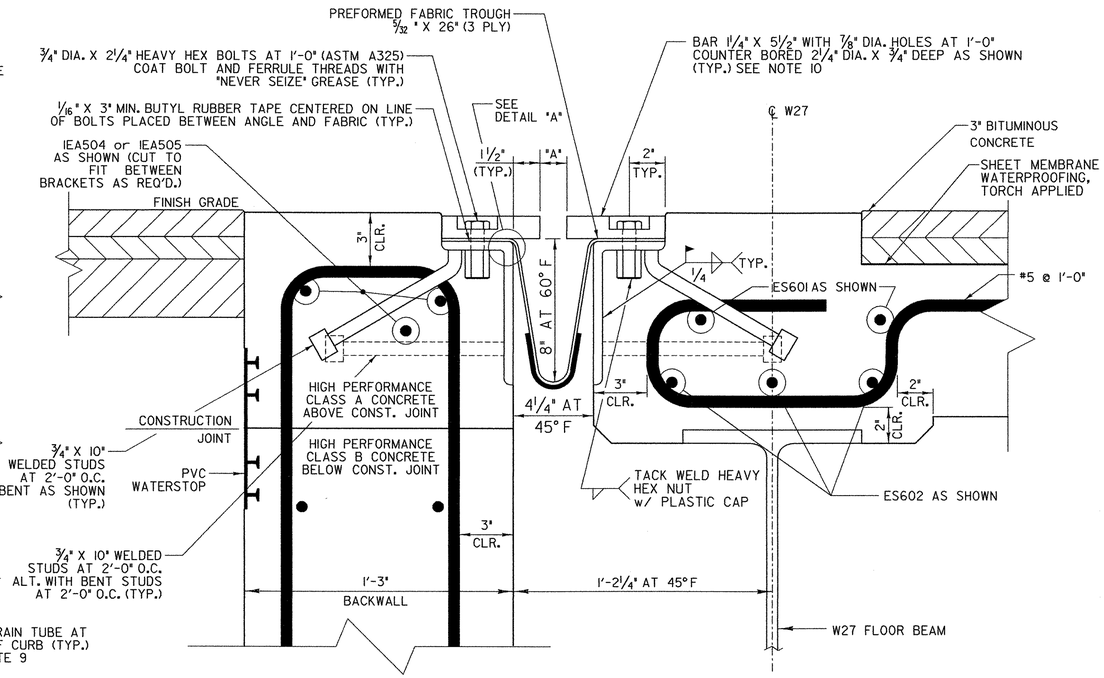
PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-expjt1.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
EXPANSION JOINT PLAN	SHEET 28 OF 41



TYPICAL SECTION AT BRACKETS

SCALE 3" = 1'-0

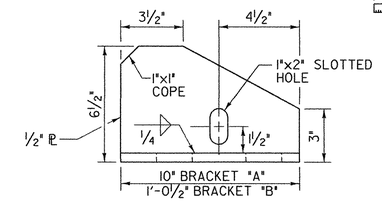


TYPICAL SECTION BETWEEN BRACKETS

SCALE 3" = 1'-0

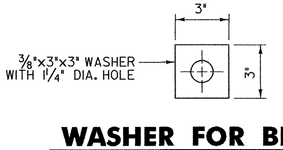
TEMP	"A" DIST.
0° F	1 11/16"
15° F	1 1/2"
30° F	1 3/8"
45° F	1 1/4"
60° F	1 1/16"
75° F	15/16"
90° F	13/16"
105° F	5/8"
120° F	1/2"

"A" IS THE SETTING DISTANCE WHEN DEAD LOADS ARE IN PLACE.



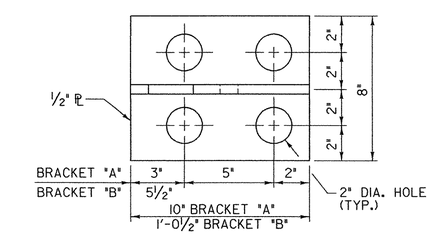
BRACKET "A" AND "B" ELEVATION

SCALE 3" = 1'-0



WASHER FOR BRACKET

SCALE 3" = 1'-0



BRACKET "A' AND "B" PLAN

SCALE 3" = 1'-0

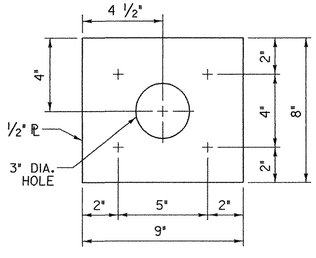
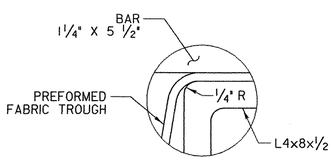


PLATE PLAN

SCALE 3" = 1'-0

1. DETAILS ON THIS SHEET ARE FOR ITEM 516.11, "BRIDGE EXPANSION JOINT, VERMONT".
2. THE PREFORMED FABRIC MATERIAL SHALL BE CONTINUOUS AND INSTALLED ONLY AFTER THE BRIDGE DECK IS COMPLETED. THE PREFORMED FABRIC MATERIAL SHALL CONFORM TO SUBSECTION 707.07.
3. BUTYL RUBBER TAPE SHALL CONFORM TO SUBSECTION 707.12.
4. THE FINAL FINISH OF THE EXPANSION DEVICE SHALL BE COVERED DURING THE PLACING OF BRIDGE DECK CONCRETE.
5. ALL STEEL COMPONENTS SHALL BE AASHTO M 270M/M 270 GRADE 36 GALVANIZED OR METALIZED AS PER SUBSECTION 506.15, UNLESS OTHERWISE SPECIFIED. THREADED RODS SHALL CONFORM TO ASTM A307, GRADE C. THE NUTS FOR THE THREADED RODS SHALL BE ASTM A563.
6. THE ITEM 516.11, "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. THE 8"x4"x½" ANGLES SHALL BE FURNISHED AS ONE CONTINUOUS PIECE. THE 1¼" X 5 ½" BARS EACH SIDE OF THE JOINT SHALL BE PROVIDED IN FOUR EQUAL LENGTHS.
8. 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 516.11 "BRIDGE EXPANSION JOINT, VERMONT".
9. A 1" DIAMETER PLASTIC DRAIN TUBE (PER STD. SPEC. 740.01) SHALL BE INSTALLED AS SHOWN AT THE FACE OF CURB. THE UPPER END IS TO BE PLUGGED WITH STEEL WOOL AND THE LOWER END IS TO EXTEND BELOW THE BOTTOM OF THE W27 BEAM. THE DRAIN TUBES SHALL BE FASTENED TO THE BEAMS AND STRINGERS USING A METHOD APPROVED BY THE ENGINEER.
10. FILL COUNTER BORED HOLES WITH HOT POURED JOINT SEALER AFTER BOLT INSTALLATION. PAYMENT FOR THE WORK SHALL BE INCIDENTAL TO ITEM 516.11.
11. PAYMENT FOR WATERSTOP SHALL BE INCIDENTAL TO CONTRACT ITEM 501.34.
12. A DRIP BEAD OF ¼" 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 DOWNSPOUT END OF THE TROUGH.
13. FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATION
14. THE EXPANSION JOINT SHALL BE SHOP ASSEMBLED AND SHIPPED AS ONE UNIT.

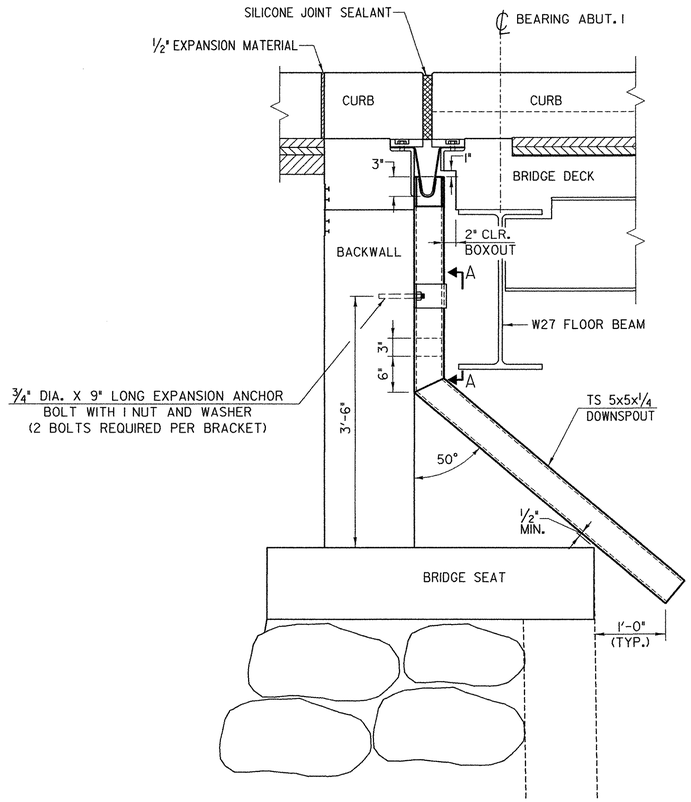


DETAIL "A"

NOT TO SCALE

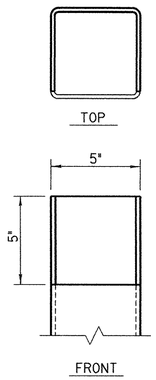
Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-expjt2.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: SEB
DESIGNED BY: SEB	CHECKED BY: MJC
EXPANSION JOINT DETAILS	SHEET 29 OF 41



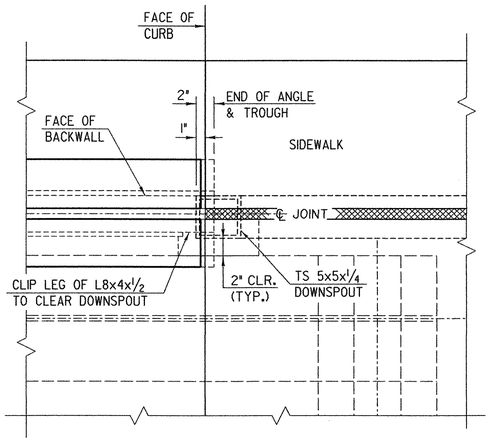
DOWNSPOUT ELEVATION

SCALE 1" = 1'-0



DOWNSPOUT CUTOUT FOR TROUGH

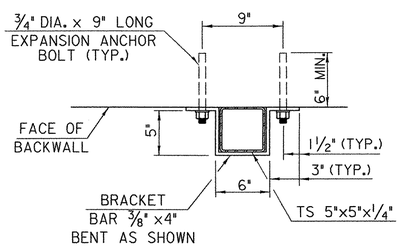
SCALE 3" = 1'-0



BOTTOM OF DECK TO BE BOXED OUT AS SHOWN TO ALLOW DOWNSPOUT TO COME UP UNDERNEATH THE DRAIN TROUGH.

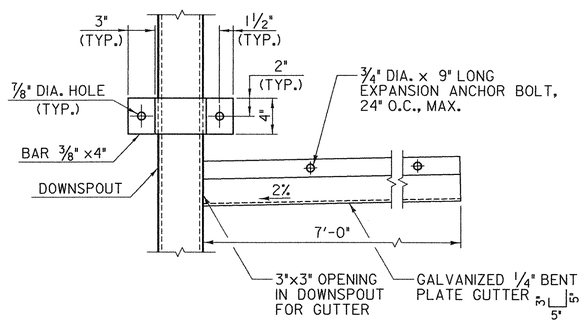
PLAN VIEW OF DOWNSPOUT

SCALE 1½" = 1'-0



DETAILS FOR ATTACHING DOWNSPOUT TO ABUTMENT

SCALE 1½" = 1'-0



SECTION A–A

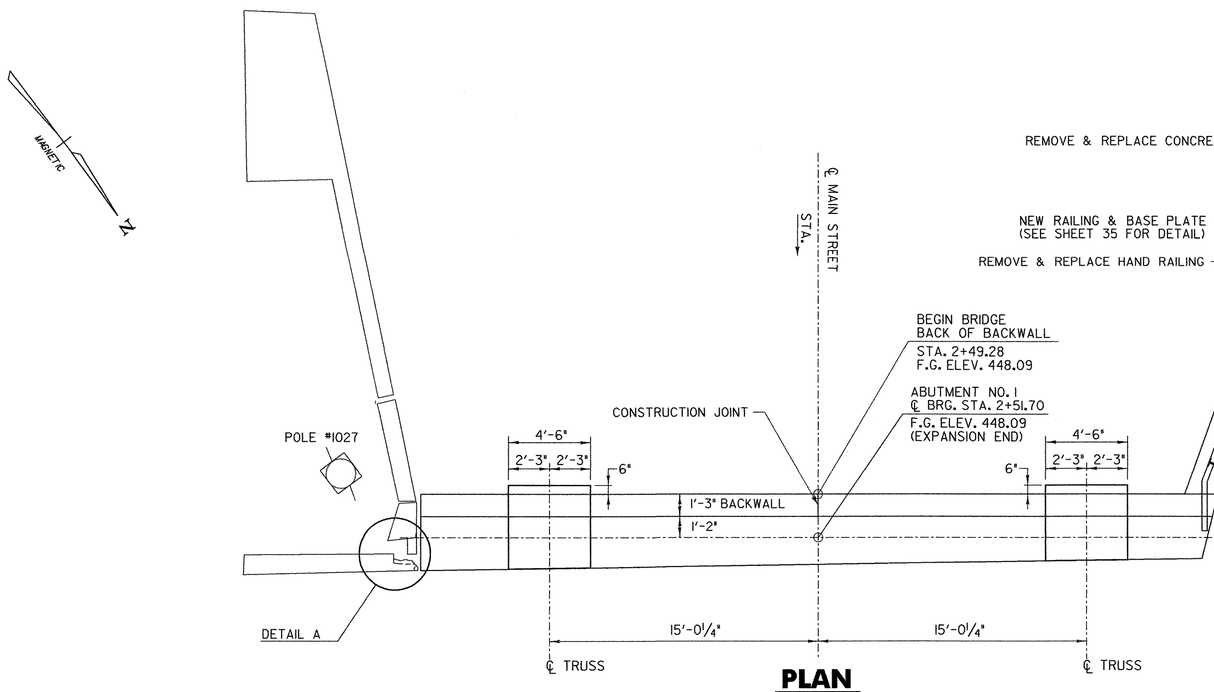
SCALE 1½" = 1'-0

DOWNSPOUT NOTES

1. HOLLOW STRUCTURAL STEEL TUBING SHALL CONFORM TO SUBSECTION 714.11.
2. ALL PLATES, BARS, AND ANGLES SHALL CONFORM TO SUBSECTION 714.03.
3. DOWNSPOUT SHALL BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 506.15, PART (a).
4. ALL BOLTS AND RELATED HARDWARE SHALL CONFORM TO SUBSECTION 714.04 AND SHALL BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 506.15, PART (a).
5. ANY PLACE WHERE THE GALVANIZING HAS BEEN REMOVED FROM THE DOWNSPOUT EITHER BY CUTTING, BURNING, WELDING, PLACING, OR ANY OTHER MEANS, SHALL BE REPAIRED PER SECTION 513.
6. DOWNSPOUT AND ALL ANCHOR BOLTS WITH RELATED HARDWARE SHALL BE PAID FOR UNDER THE ITEM 506.60, "STRUCTURAL STEEL".

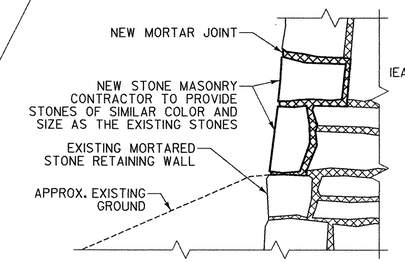
Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-dspout.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
DOWNSPOUT DETAILS	SHEET 30 OF 41



PLAN

SCALE 1/4" = 1'-0



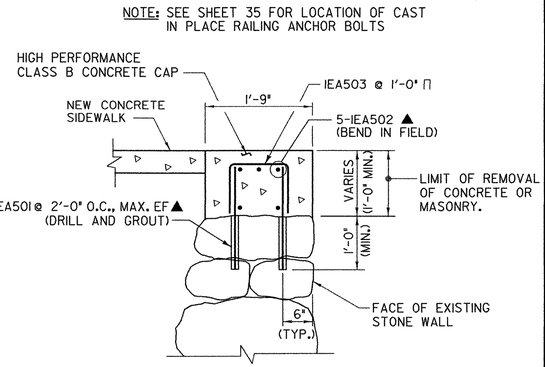
NOTES: 1. REMOVE ALL LOOSE STONES AND MORTAR.

2. PAYMENT FOR STONE MASONRY SHALL BE UNDER CONTRACT ITEM 602.25.

TYPICAL SECTION OF STONE MASONRY FACING

NOT TO SCALE

NOTE: SEE SHEET 35 FOR LOCATION OF CAST IN PLACE RAILING ANCHOR BOLTS

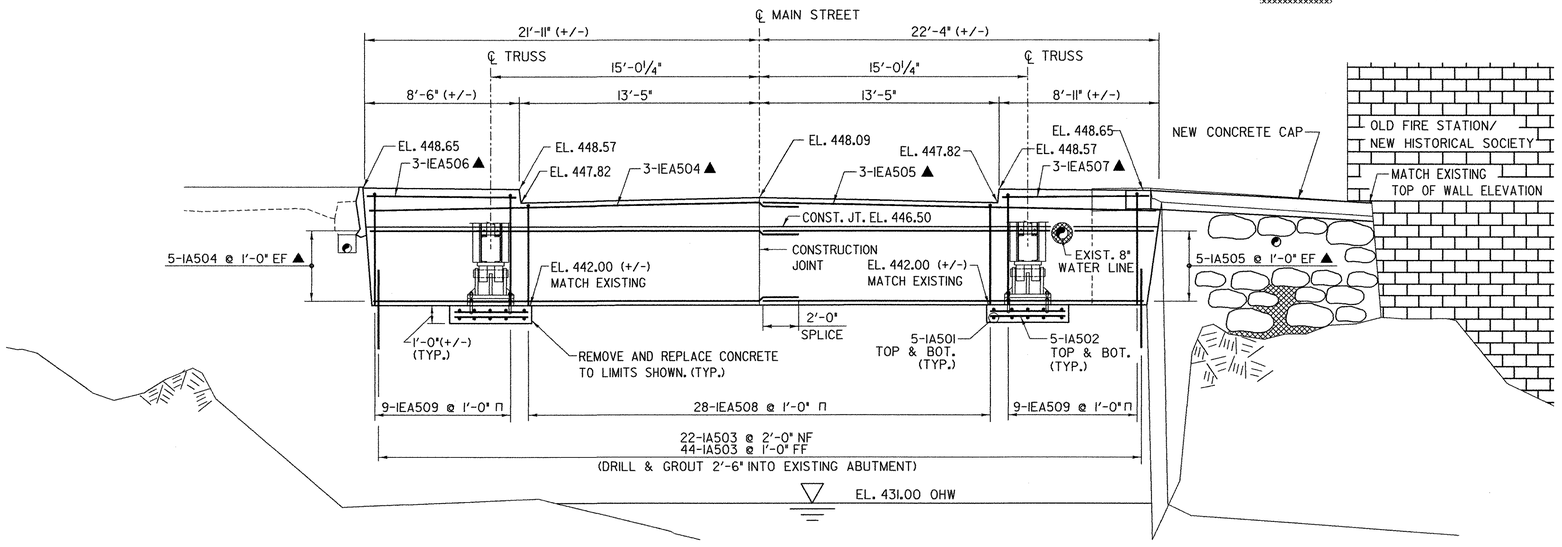


SECTION A-A

SCALE 3/4" = 1'-0

LEGEND FOR CONCRETE REPAIR

▨ - ITEM 602.25, "STONE MASONRY FACING"

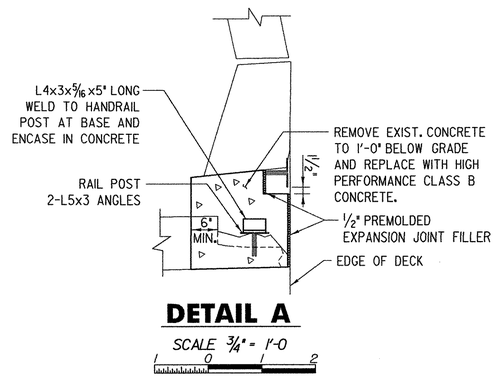


ELEVATION

SCALE 1/4" = 1'-0

NOTE:

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



DETAIL A

SCALE 3/4" = 1'-0

NOTES:

1. SEE SHEET 33 FOR ABUTMENT SECTIONS.

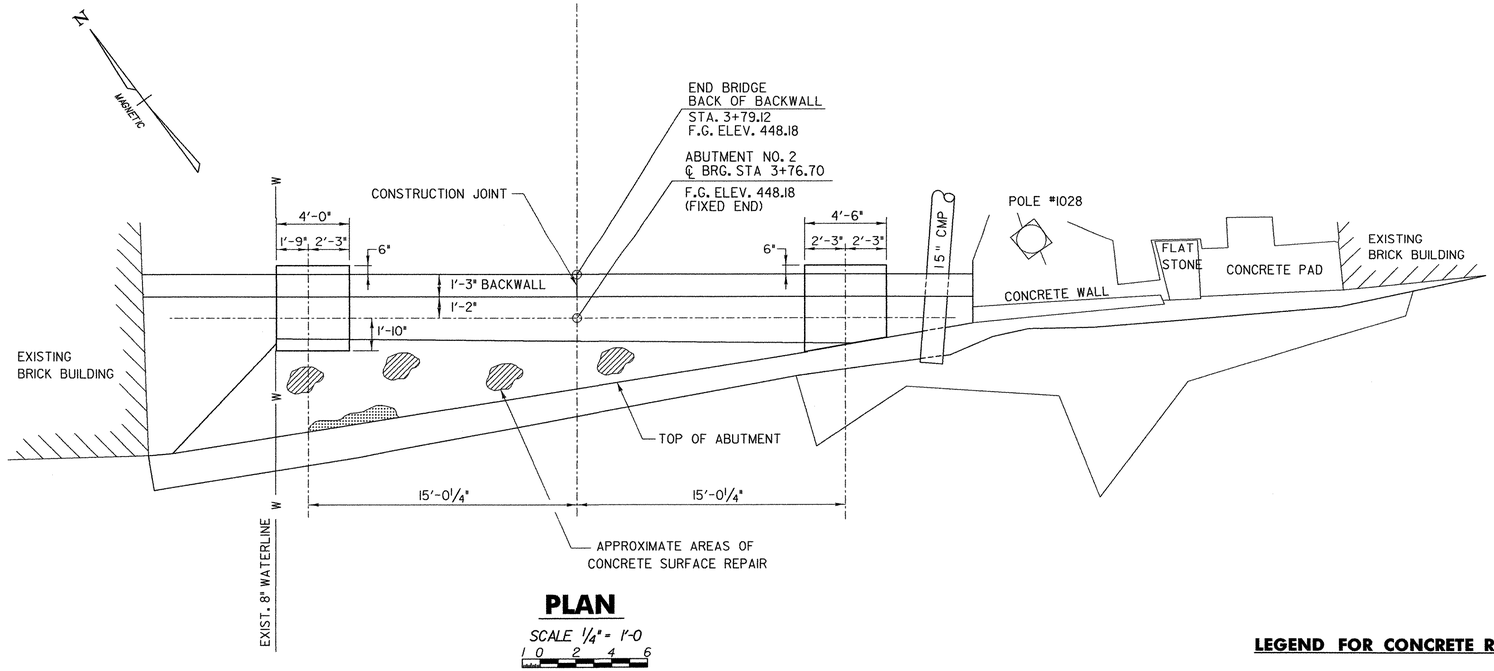
2. AREAS OF CONCRETE SURFACE REPAIR ON EXISTING ABUTMENTS TO BE DETERMINED IN THE FIELD BY THE ENGINEER AND PAID FOR UNDER ITEM 580.13 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS I OR 580.14 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II.

Stantec

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

FILE NAME: ...\Design\rich-abut1.dgn
PROJECT LEADER: MJC
DESIGNED BY: SEB
PLOT DATE: 12/18/2007
DRAWN BY: AET
CHECKED BY: MJC

ABUTMENT NO. 1 PLAN & ELEVATION



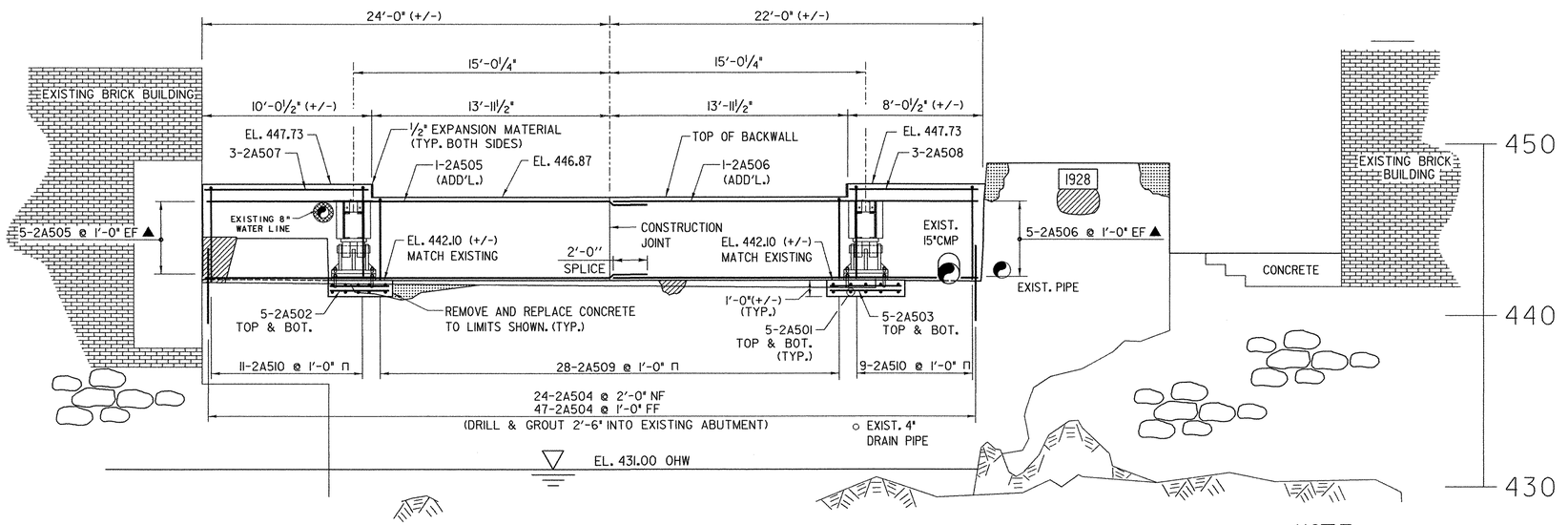
PLAN

SCALE 1/4" = 1'-0

1 0 2 4 6

LEGEND FOR CONCRETE REPAIR

- ITEM 580.13, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS I"
- ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II"



ELEVATION

SCALE 1/4" = 1'-0

1 0 2 4 6

NOTES:

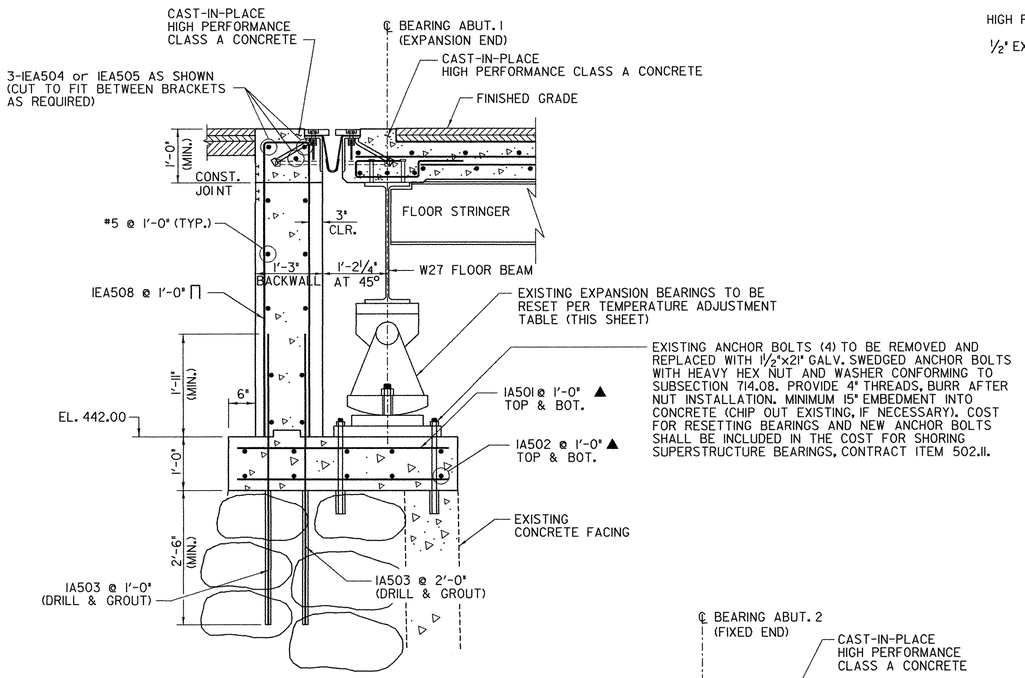
1. SEE SHEET 33 FOR ABUTMENT SECTIONS.
2. AREAS OF CONCRETE SURFACE REPAIR ON EXISTING ABUTMENTS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

NOTE:

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

Stantec

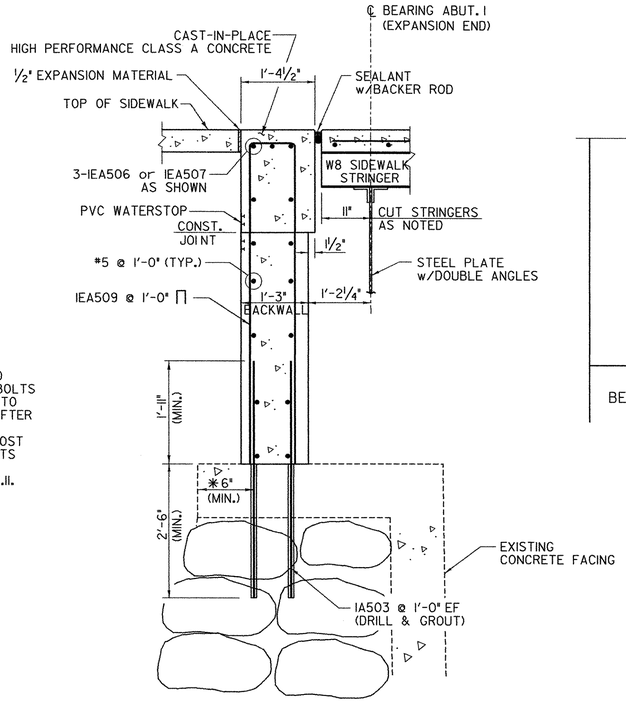
PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-abut2.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
ABUTMENT NO. 2 PLAN & ELEVATION	SHEET 32 OF 41



NOTE: BOTTOM CHORD AT TRUSS NOT SHOWN FOR CLARITY.

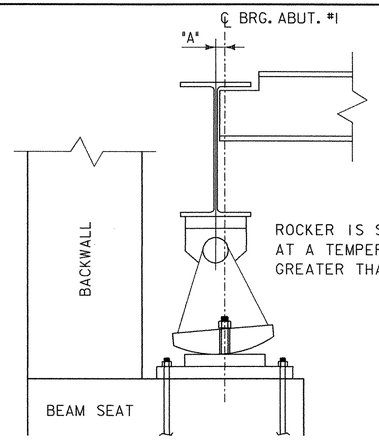
ABUTMENT NO.1 SECTION

SCALE ¾" = 1'-0



SECTION THRU SIDEWALK AT ABUTMENT NO. 1

SCALE ¾" = 1'-0



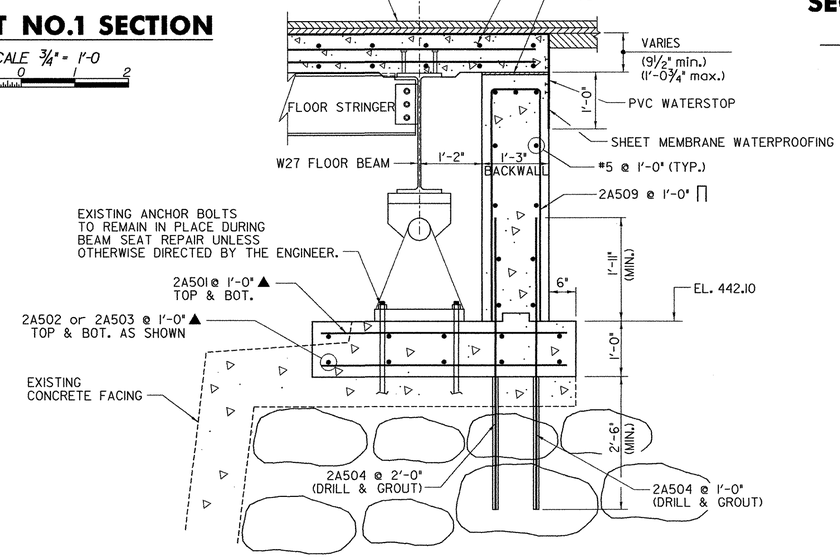
ROCKER IS SHOWN AT A TEMPERATURE GREATER THAN 45°F.

TEMPERATURE ADJUSTMENT TABLE FOR ROCKER

ABUTMENT NO. 1	
TEMP.	DIM. "A"
0° F	-7/16"
15° F	-5/16"
30° F	-1/8"
45° F	0"
60° F	1/8"
75° F	5/16"
90° F	7/16"
105° F	9/16"

EXISTING ROCKER ABUT. #1

NOT TO SCALE

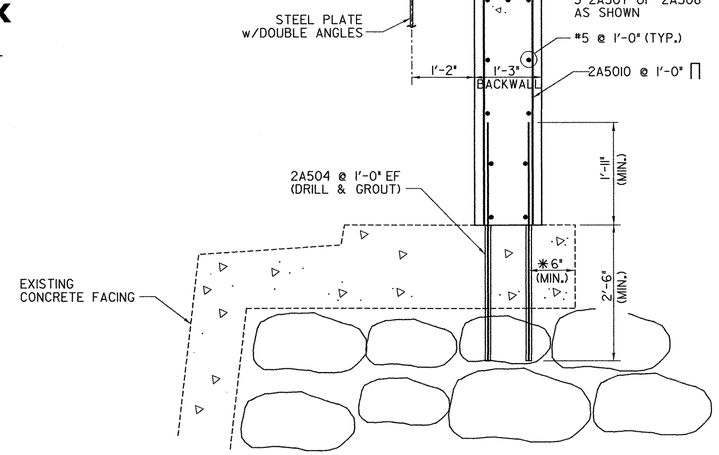


NOTE: NOTIFY ENGINEER IF WIDTH OF EXISTING BEAM SEAT IS LESS THAN SHOWN.

ABUTMENT NO.2 SECTION

SCALE ¾" = 1'-0

✳ - CONTRACTOR TO VERIFY THAT A MINIMUM EDGE DISTANCE OF 6" IS PROVIDED.



SECTION THRU SIDEWALK AT ABUTMENT NO. 2

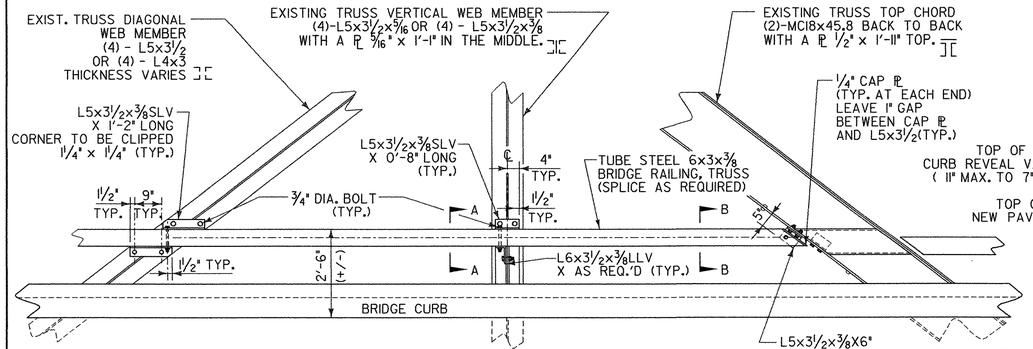
SCALE ¾" = 1'-0

NOTE:

NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

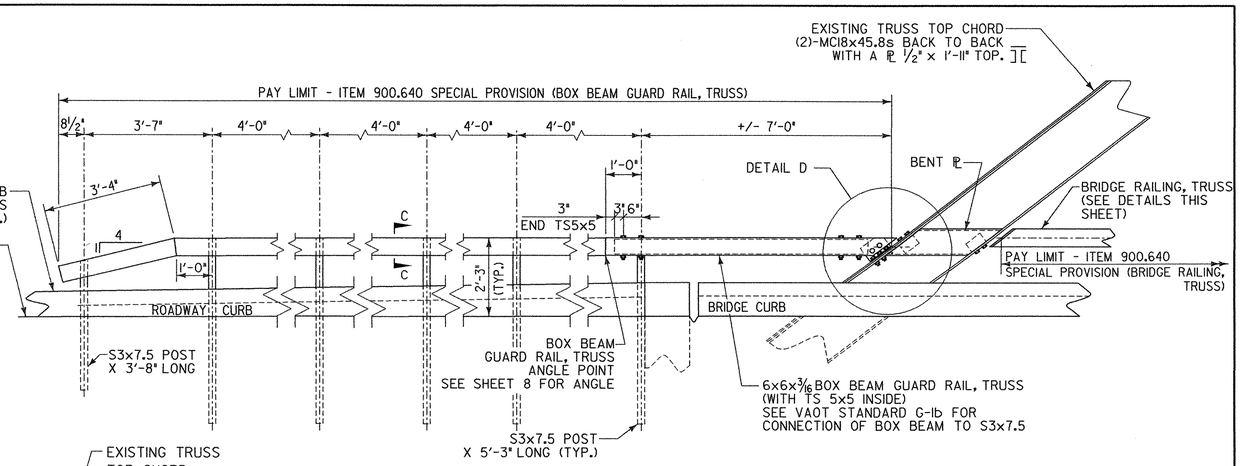
Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-abutsects.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: AET
DESIGNED BY: SEB	CHECKED BY: MJC
ABUTMENT SECTIONS	SHEET 33 OF 41



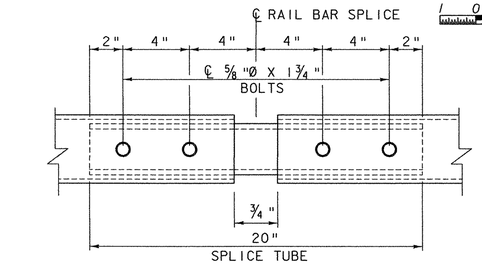
TYPICAL BRIDGE RAIL ELEVATION

SCALE ½" = 1'-0



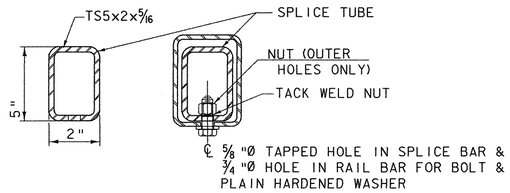
GUARD RAIL APPROACH ELEVATION AT SE & SW CORNER

SCALE ½" = 1'-0



BRIDGE RAIL BAR SPLICE DETAIL

[BOTTOM VIEW]
NOT TO SCALE

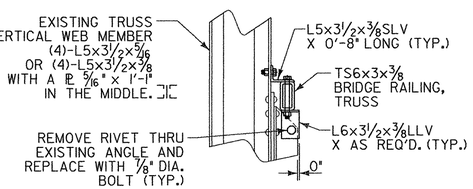


BRIDGE RAIL BAR SPLICE SECTION

NOT TO SCALE

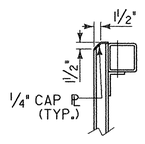
BRIDGE RAIL AND APPROACH RAIL NOTES

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. ALL BRIDGE RAIL CONNECTION HARDWARE SHALL BE INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (BRIDGE RAILING, TRUSS).
3. TUBING SHALL MEET THE REQUIREMENTS OF SUBSECTION 732.03. ALL OTHER SHAPES AND PLATES SHALL BE AASHTO M 270M/M 270 GRADE 36. BOLTS SHALL CONFORM TO NOTE 22 OF THE PROJECT NOTES.
4. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
5. SECTIONS OF BRIDGE RAIL SHALL BE ATTACHED TO A MINIMUM OF TWO (2) TRUSS MEMBERS.
6. ALL PARTS SHALL BE PAINTED ACCORDING TO NOTES 26 AND 27 OF THE PROJECT NOTES.
7. ANY BENDING OF BRIDGE RAIL SHALL BE BY SHOP PROCEDURE ONLY.



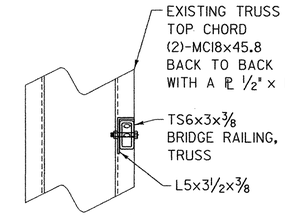
SECTION A–A

SCALE ¾" = 1'-0



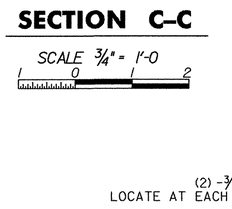
SECTION C–C

SCALE ¾" = 1'-0



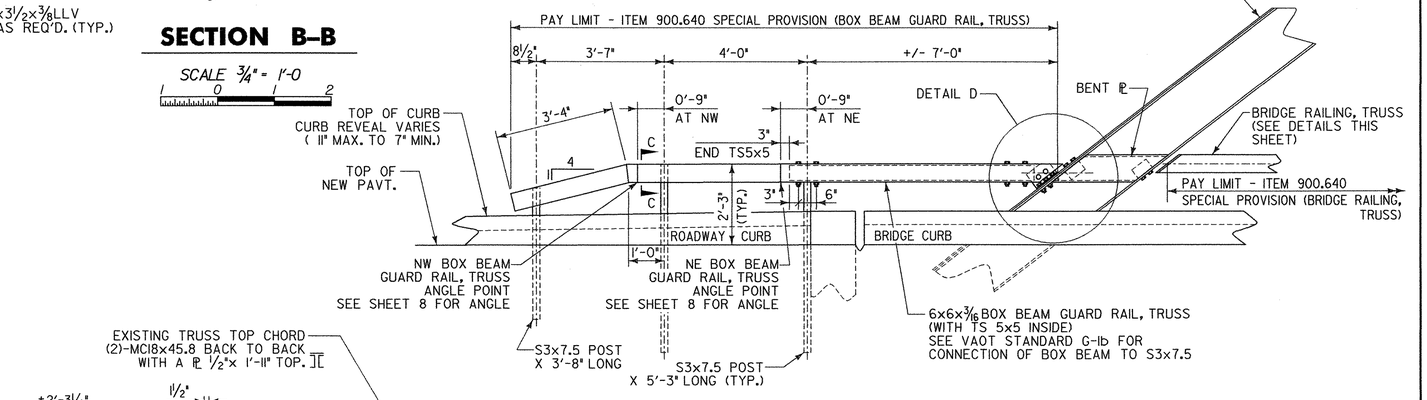
SECTION B–B

SCALE ¾" = 1'-0



DETAIL D

SCALE 1" = 1'-0



GUARD RAIL APPROACH ELEVATION AT NW & NE CORNERS

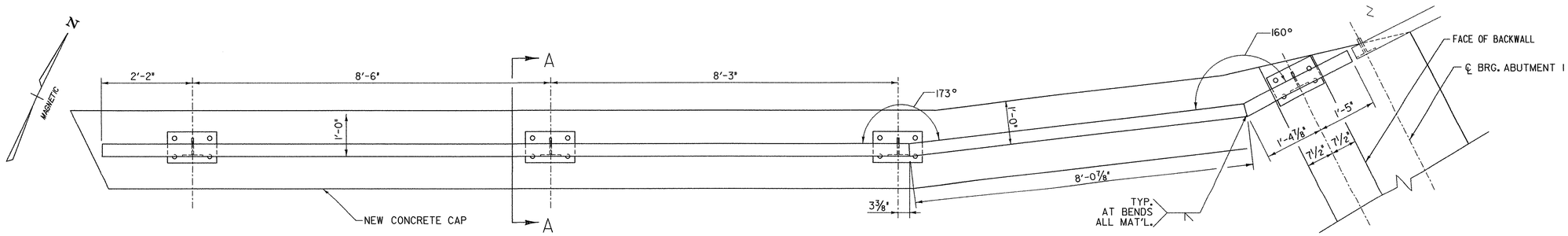
SCALE ½" = 1'-0

NOTE:

SLV = SHORT LEG VERTICAL
LLV = LONG LEG VERTICAL

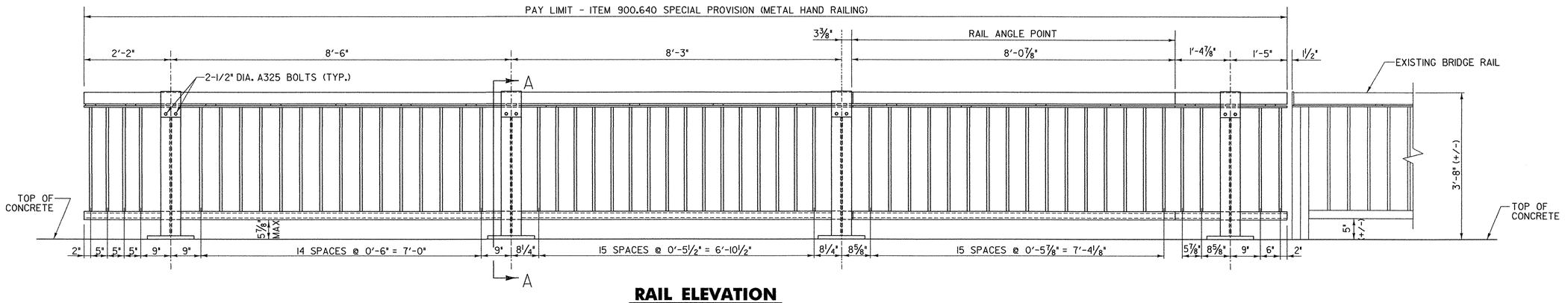
Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Design\rich-brraildets.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: SEB
DESIGNED BY: SEB	CHECKED BY: MJC
BRIDGE RAIL DETAILS	SHEET 34 OF 41



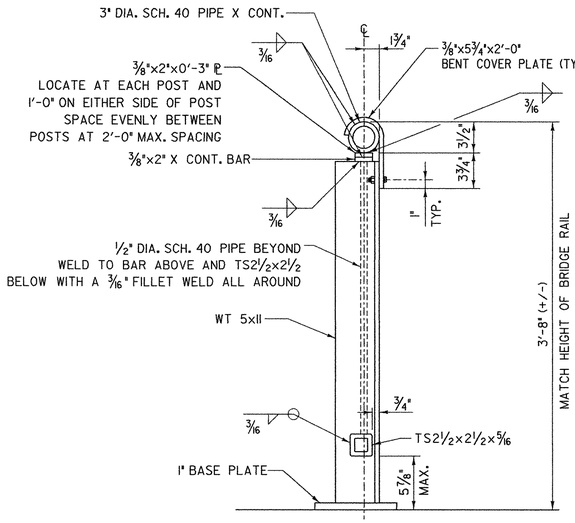
RAIL POST LAYOUT – SOUTHWEST WINGWALL

SCALE 3/4" = 1'-0



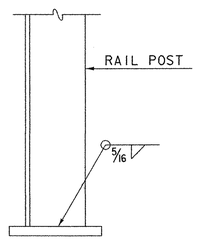
RAIL ELEVATION

SCALE 3/4" = 1'-0



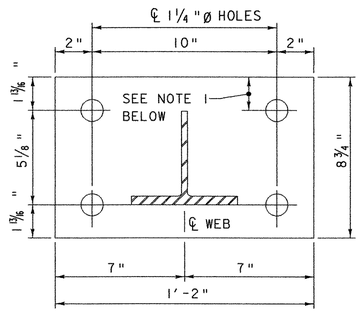
SECTION A–A

SCALE 1 1/2" = 1'-0



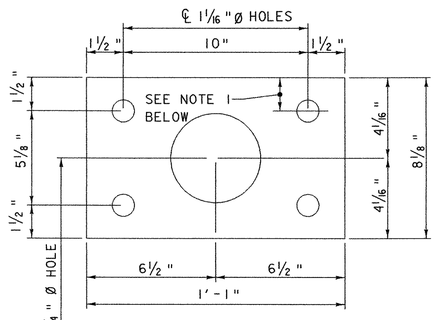
BASE WELD DETAIL

NOT TO SCALE



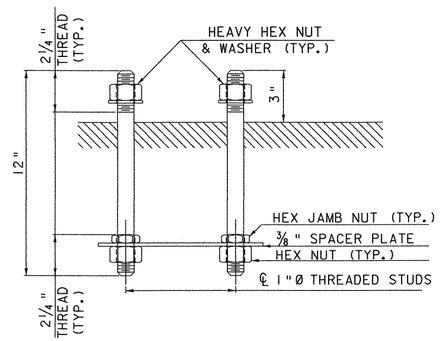
POST & BASE PLATE

NOT TO SCALE



SPACER PLATE

NOT TO SCALE



RAIL POST ANCHORAGE

NOT TO SCALE

HAND RAIL NOTES:

1. BASE ℄ CLOSEST TO BRIDGE SHALL HAVE UPPER RIGHT HOLE LOCATED 3 1/8" DOWN INSTEAD OF 1 15/16". 2" DIMENSION FROM THE SIDE SHALL REMAIN THE SAME.
2. HAND RAIL TO RECEIVE SAME PAINT SYSTEM AS BRIDGE.
3. ALL STEEL FOR RAILING ASSEMBLY SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 36 UNLESS OTHERWISE NOTED. STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B, SCHEDULE 40. STRUCTURAL TUBING SHALL MEET THE REQUIREMENTS OF NOTE 20 ON THE PROJECT NOTES.
4. ANCHOR STUDS SHALL MEET THE REQUIREMENTS OF ASTM A449.

Stantec

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

FILE NAME: ...\Design\rich-handrail.dgn
PROJECT LEADER: MJC
DESIGNED BY: SEB
PLOT DATE: 12/18/2007
DRAWN BY: JTS
CHECKED BY: MJC
RAILING REPLACEMENT DETAILS
SHEET 35 OF 41

N

MAGNETIC

STA. 4+27.17
END APPROACH

STA. 4+04.87
END PROJECT

STA. 3+79.12
END BRIDGE

DURABLE 6 INCH WHITE LINE
STA. 2+00 TO 2+49 LT (NO PARKING ZONE)

DURABLE 4" YELLOW LINE

DURABLE 4" WHITE LINE

PAINTED CURB
STA. 2+12.69 TO 2+49.28, LT.
STA. 2+19.80 TO 2+49.28, RT.
STA. 3+79.12 TO 4+16.80, RT.
STA. 3+79.12 TO 4+21.05, RT.

EXISTING
STEEL TRUSS

DURABLE 4 INCH YELLOW LINE
STA. 2+00 TO STA. 4+18, LT. & RT.

DURABLE 4 INCH WHITE LINE
STA. 2+00 TO STA. 4+21, RT.
STA. 2+00 TO STA. 4+17, LT.

10'-0"
(TYP.)

DURABLE 6" WHITE LINE

STA. 2+49.28
BEGIN BRIDGE

STA. 2+23.53
BEGIN PROJECT

DURABLE CROSSWALK MARKING
STA. 4+22 LT. & RT.

RIVER STREET

TOWN ST.
ONE WAY

EXIST. R.O.W.

TO ABERCORN, QUEBEC, CANADA

PROVINCE STREET

"THE CROSSING"
RESTURANT
PAVED PARKING LOT

NEW CROSSWALK
MARKING
TO REMAIN
AFTER PROJECT

EASTERN AVENUE

"MAYHEWS CORNER
STORE & DELI"
GRAVEL PARKING
LOT

SIDEWALK

MAIN STREET

DURABLE 4" YELLOW LINE

DURABLE 4" WHITE LINE

TEMP. R.O.W.

GUY WIRE
GUY

POWELL STREET

MISSISQUOI RIVER

"MUNICIPAL GRAVEL
PARKING LOT"

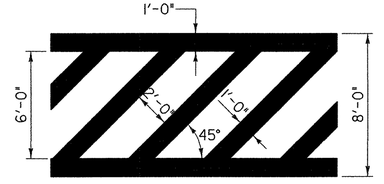
UNION STREET

CORLISS HEIGHTS

DETOUR STA. 101+77.61, 9.14' LT. =
MAINLINE STA. 0+00.00, 0.00' RT.

DURABLE 4 INCH WHITE LINE
STA. 101+67, RT. TO STA. 102+52, LT.

DURABLE 4 INCH YELLOW LINE
STA. 101+43, LT. & RT. TO STA. 102+51, LT. (MAIN STREET)
RIVER STREET
PROVINCE STREET



DIAGONAL CROSSWALK DETAIL
AT STA. 4+22 LT. & RT.
NOT TO SCALE

0 30 60
SCALE

Stantec

PROJECT NAME: RICHFORD	
PROJECT NUMBER: BHF 0302 (3) S	
FILE NAME: ...\Design\rich-pavemks.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY: JTS
DESIGNED BY: SEB	CHECKED BY: MJC
PAVEMENT MARKINGS PLAN	SHEET 36 OF 41

STATE OF VERMONT
AGENCY OF TRANSPORTATION

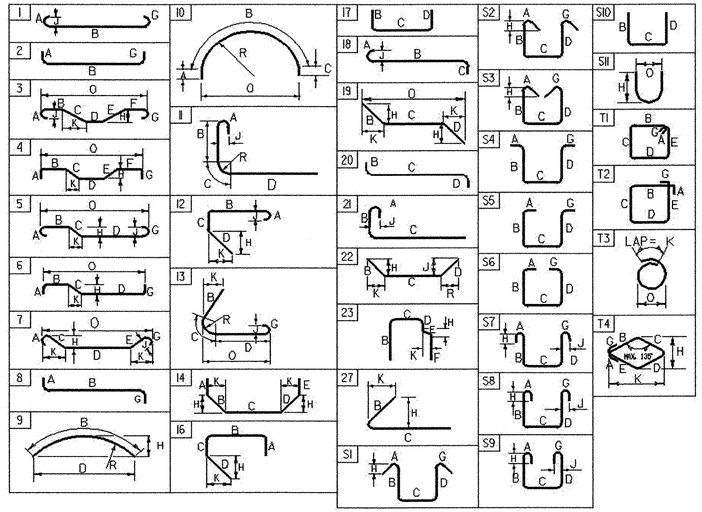
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	DECK																
♦ ♦	259	5	8'- 3"	ES501	STR												
	258	5	3'- 0"	ES502	8	0'- 10"	1'- 4"					0'- 10"					
♦	192	5	33'- 8"	ES503	STR												
	28	5	3'- 9"	ES504	S5	0'- 10"	0'- 6"	1'- 1"	0'- 6"			0'- 10"					
	172	6	28'- 9"	ES601	1	0'- 8"	27'- 5"					0'- 8"	0'- 4½"				
♦	172	6	27'- 5"	ES602	STR												
	ABUTMENT NO. 1																
♦ ♦	21	5	5'- 0"	1A501	STR												
	20	5	4'- 2"	1A502	STR												
	66	5	5'- 6"	1A503	STR												
♦	10	5	24'- 6"	1A504	STR												
♦	10	5	23'- 0"	1A505	STR												
♦	58	5	2'- 0"	1EA501	STR												
♦	5	5	28'- 6"	1EA502	STR												
	29	5	2'- 9"	1EA503	17		0'- 9"	1'- 3"	0'- 9"								
♦	3	5	24'- 6"	1EA504	STR												
♦	3	5	23'- 0"	1EA505	STR												
♦ ♦	4	5	9'- 1"	1EA506	STR												
♦	3	5	9'- 7"	1EA507	STR												
	28	5	11'- 4"	1EA508	17		5'- 3"	0'- 10"	5'- 3"								
	18	5	13'- 2"	1EA509	17		6'- 2"	0'- 10"	6'- 2"								
	ABUTMENT NO. 2																
♦ ♦	21	5	5'- 0"	2A501	STR												
	10	5	3'- 8"	2A502	STR												
	10	5	4'- 2"	2A503	STR												
	71	5	5'- 6"	2A504	STR												
♦	11	5	26'- 0"	2A505	STR												
♦	11	5	22'- 0"	2A506	STR												
♦	3	5	10'- 0"	2A507	STR												
♦	3	5	8'- 0"	2A508	STR												
	28	5	9'- 2"	2A509	17		4'- 2"	0'- 10"	4'- 2"								
	20	5	11'- 6"	2A510	17		5'- 4"	0'- 10"	5'- 4"								

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O

~ NOTES ~

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ♦ DENOTES BARS TO BE CUT IN FIELD.
9. ♦ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
10. ② DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. "E" IN 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	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

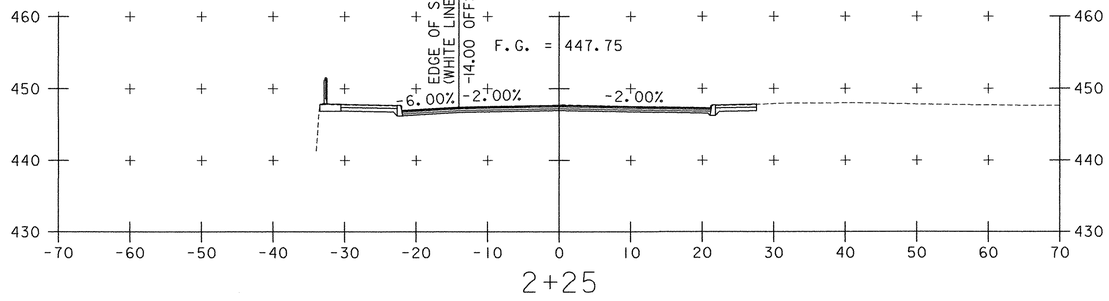
PROJECT NAME: **RICHFORD**
PROJECT NUMBER: **BHF 0302 (3) S**

FILE NAME: **rich-reinf.xls**
PROJECT LEADER: **MJC**
DESIGNED BY: **SEB**
REINFORCING SCHEDULE

PLOT DATE: **9/26/2007**
DRAWN BY: **AET**
CHECKED BY: **MJC**
SHEET **37** OF **41**

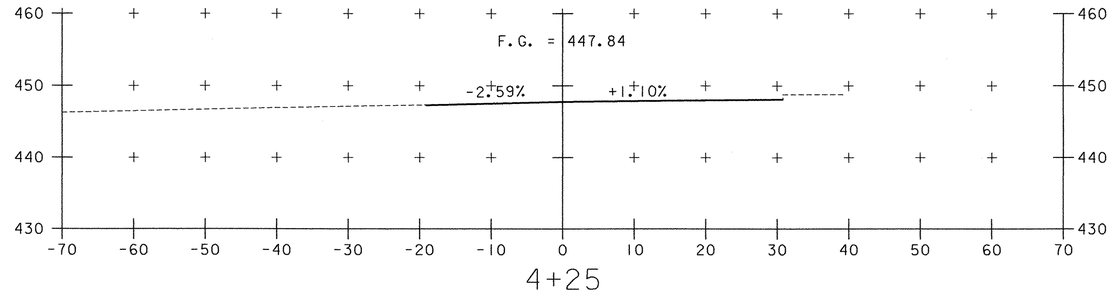
2+49.28
BEGIN BRIDGE

2+23.53
BEGIN PROJECT



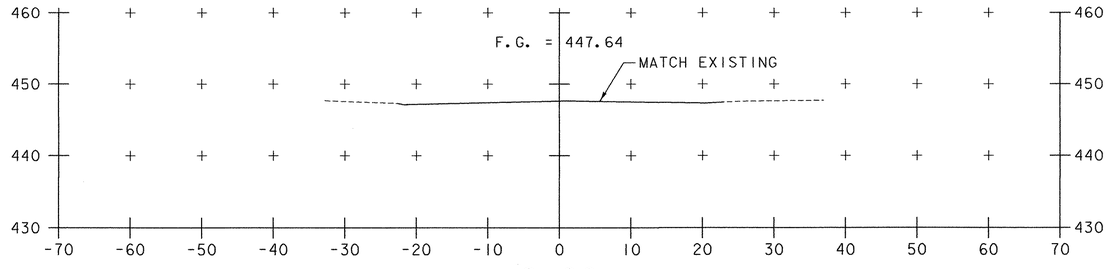
2+25

4+27.17
END APPROACH
MATCH EXISTING



4+25

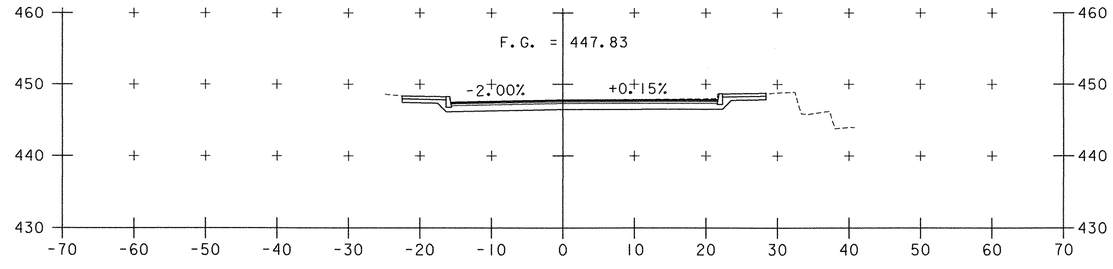
2+00
BEGIN APPROACH



2+00

4+04.87
END PROJECT

3+79.12
END BRIDGE



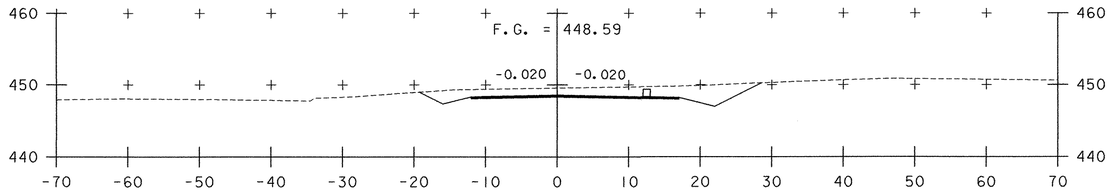
4+00

SCALE 1" = 10'-0
10 0 10

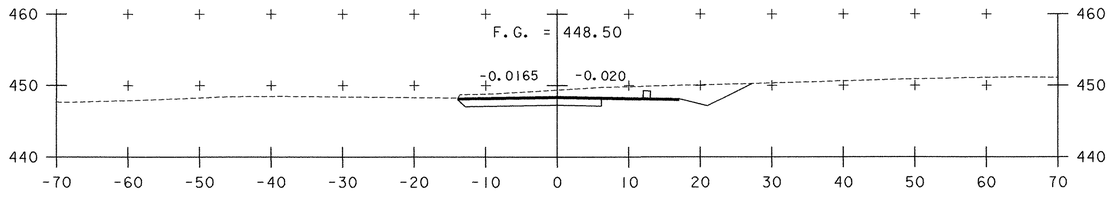
Stantec

PROJECT NAME: RICHFORD
PROJECT NUMBER: BHF 0302 (3) S

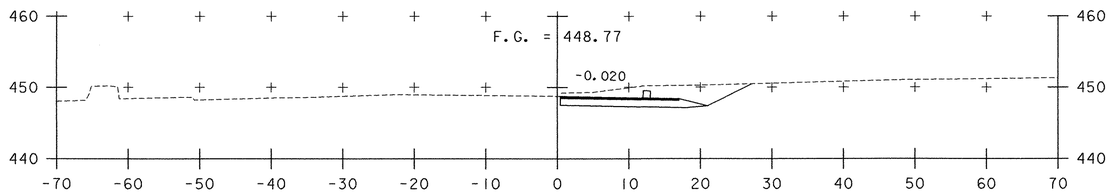
FILE NAME: ...\Structures\Design\rich-xsl.dgn PLOT DATE: 12/18/2007
PROJECT LEADER: MJC DRAWN BY:
DESIGNED BY: SEB CHECKED BY: MJC
ROADWAY CROSS SECTIONS SHEET 38 OF 41



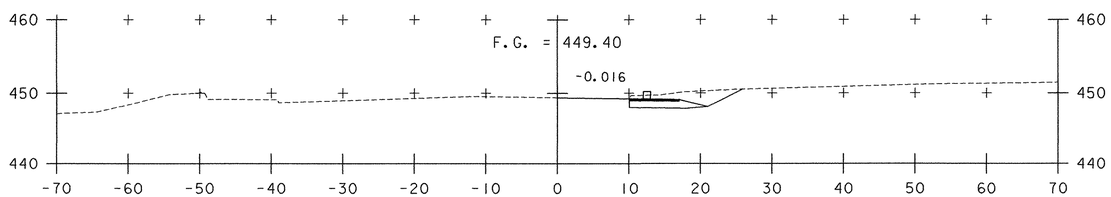
102+75



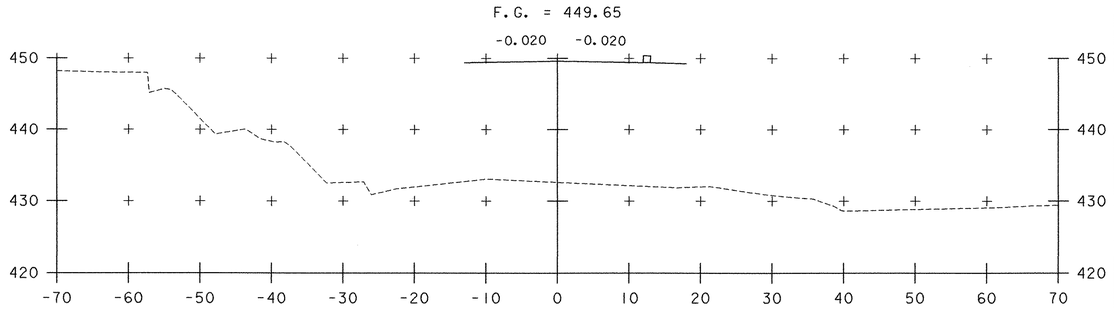
102+50



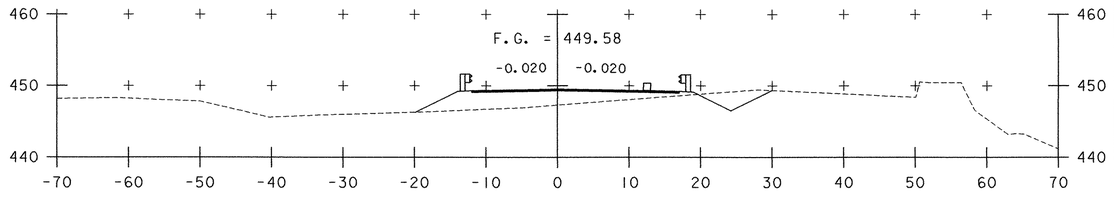
102+25



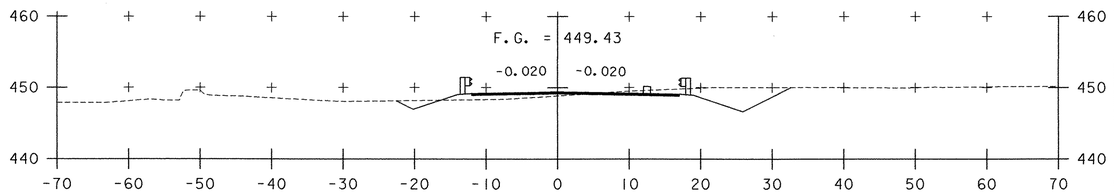
102+00



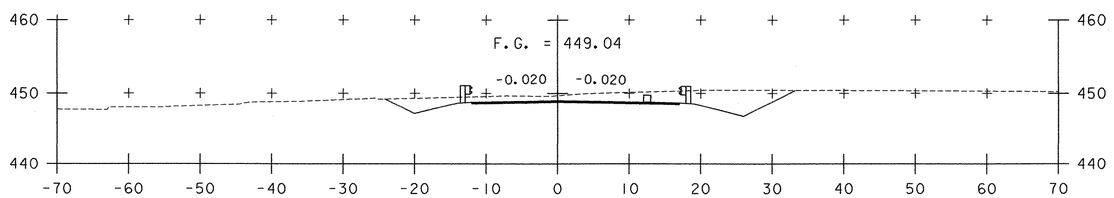
103+75



103+50



103+25

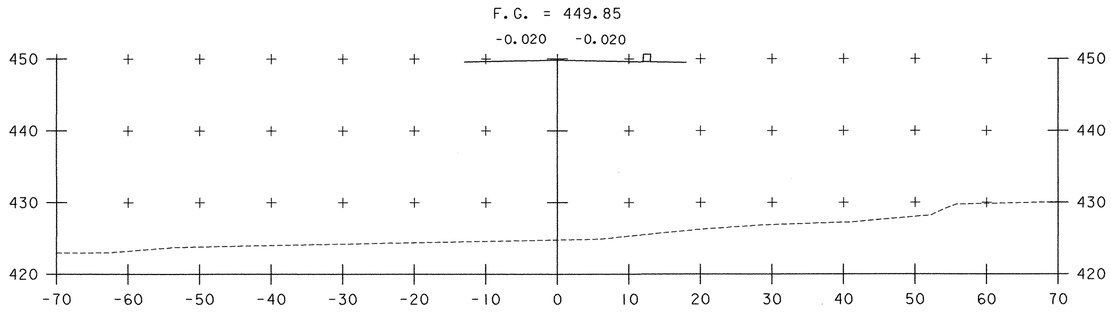


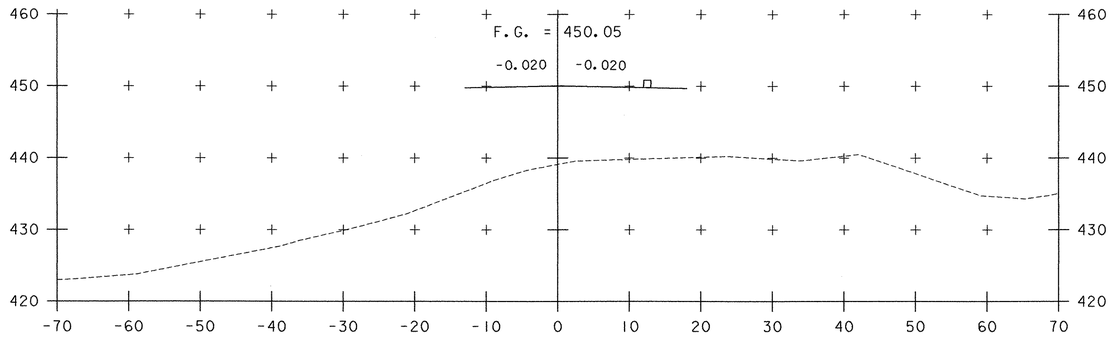
103+00

STA. 102+00 TO STA. 103+75

Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Structures\Design\rich-xsl.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY:
DESIGNED BY: SEB	CHECKED BY: MJC
DETOUR CROSS SECTIONS - 1	SHEET 39 OF 41





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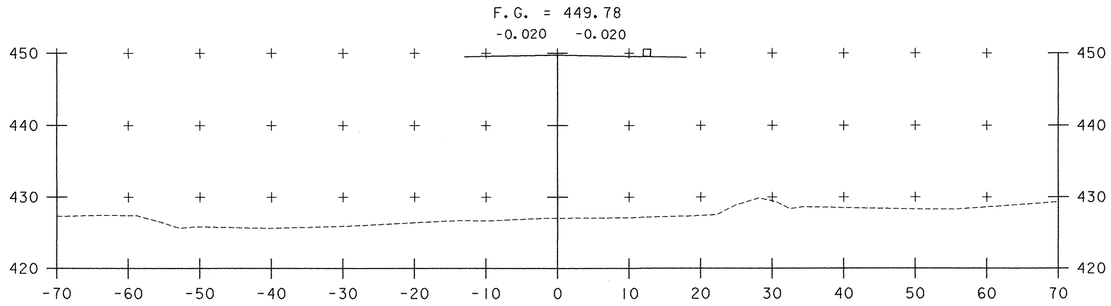

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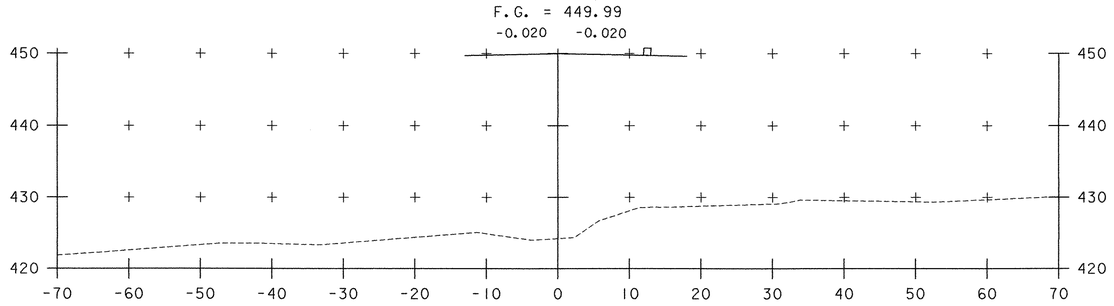
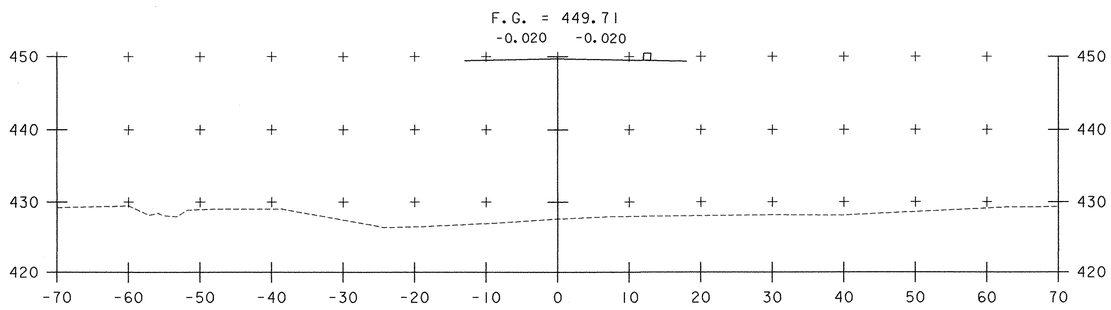
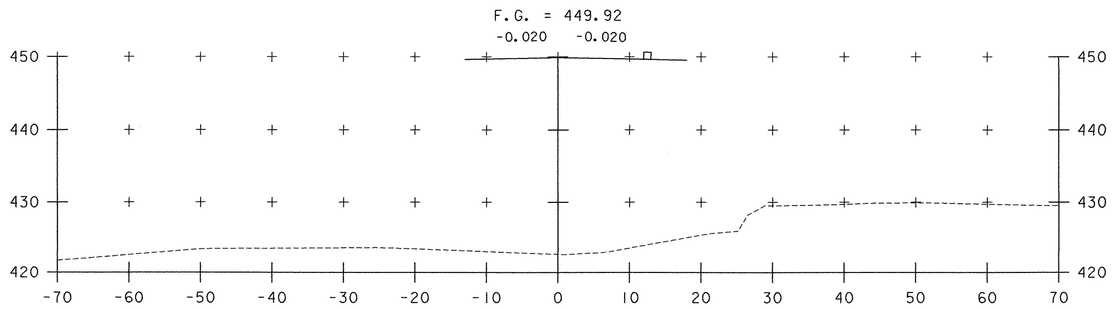


104+25

105+00





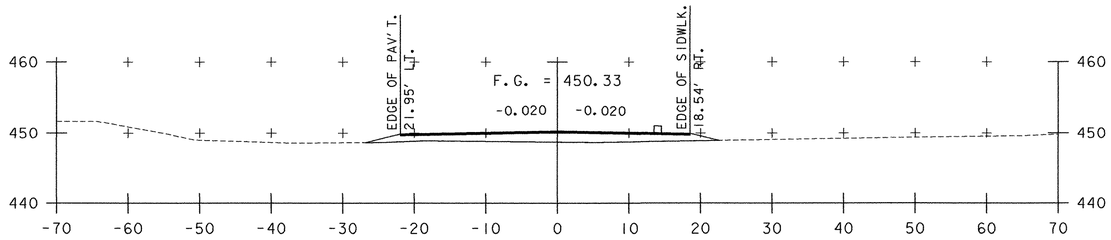
104+00

104+75

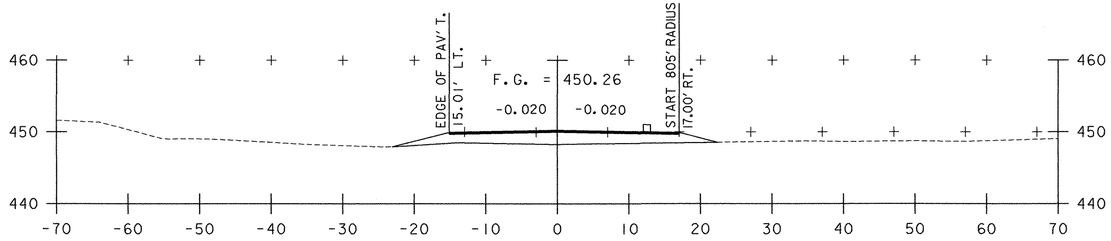
STA. 104+00 TO STA. 105+25

Stantec

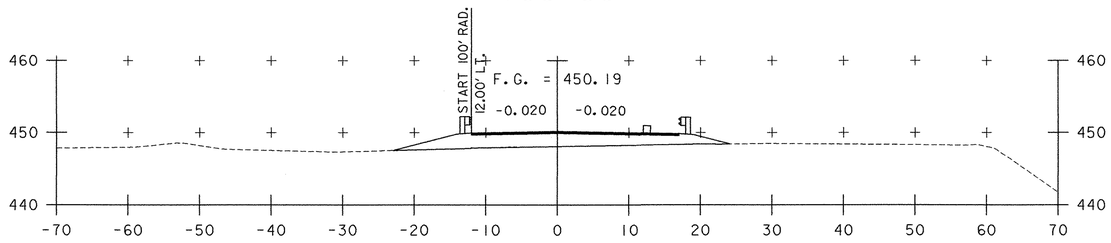
PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Structures\Design\rich-xsl.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY:
DESIGNED BY: SEB	CHECKED BY: MJC
DETOUR CROSS SECTIONS - 2	SHEET 40 OF 41



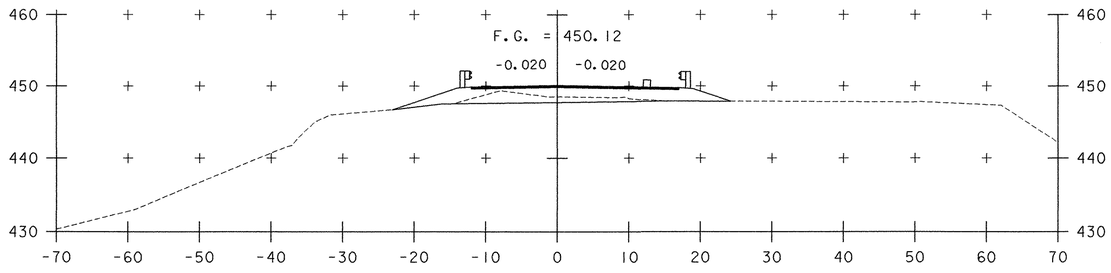
106+25



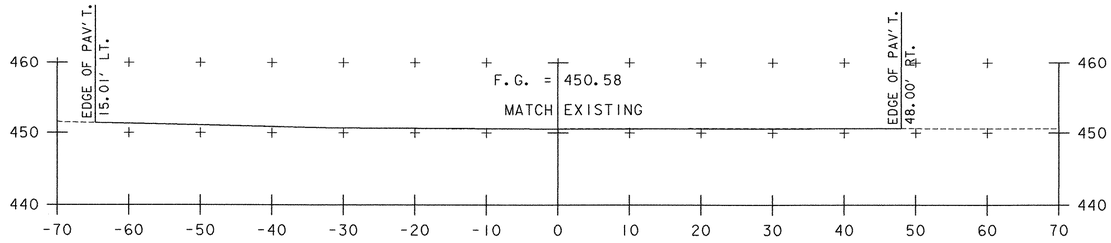
106+00



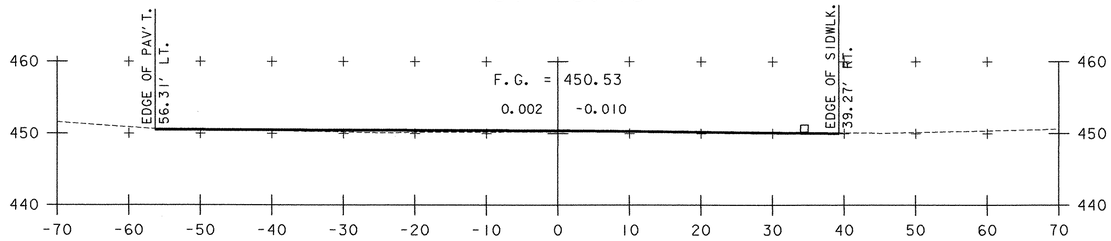
105+75



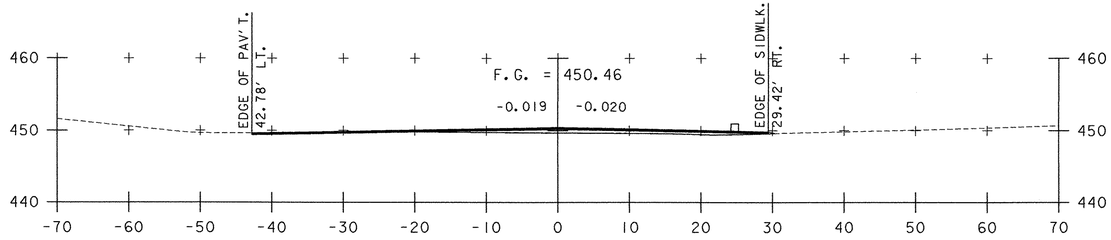
105+50



107+18.49



107+00



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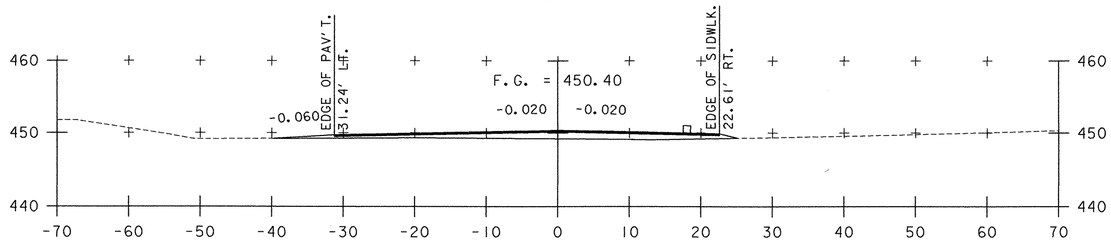
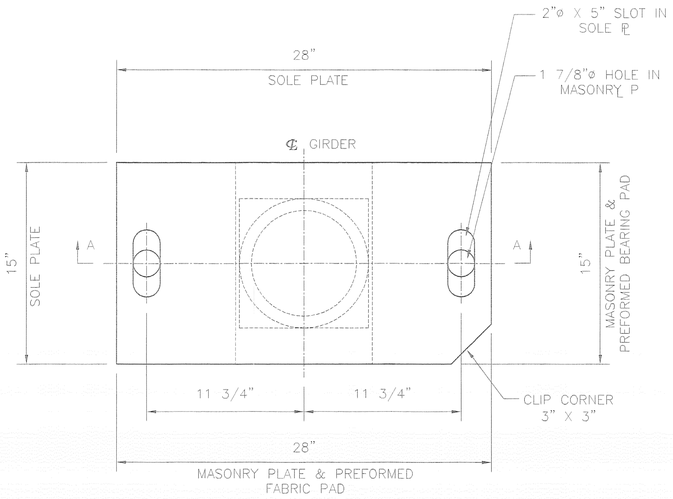


106+50

STA. 105+50 TO STA. 107+18.49

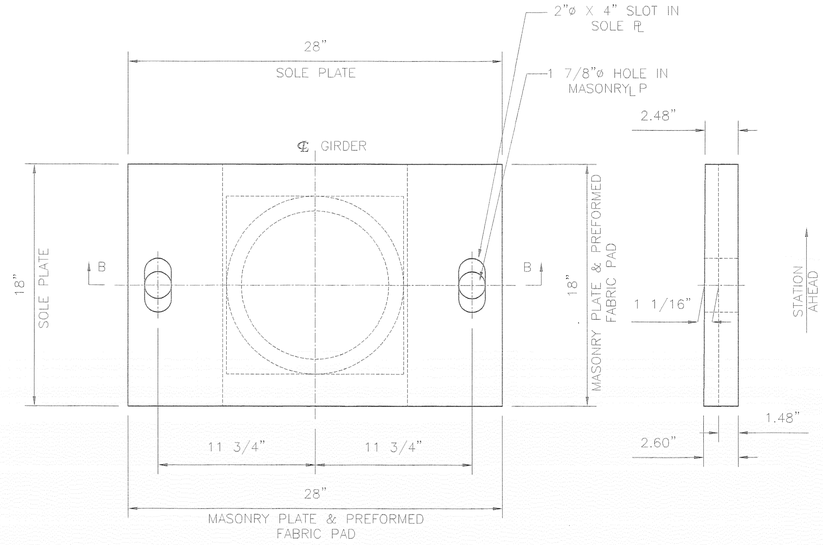
Stantec

PROJECT NAME:	RICHFORD
PROJECT NUMBER:	BHF 0302 (3) S
FILE NAME: ...\Structures\Design\rich-xsl.dgn	PLOT DATE: 12/18/2007
PROJECT LEADER: MJC	DRAWN BY:
DESIGNED BY: SEB	CHECKED BY: MJC
DETOUR CROSS SECTIONS – 3	SHEET 41 OF 41



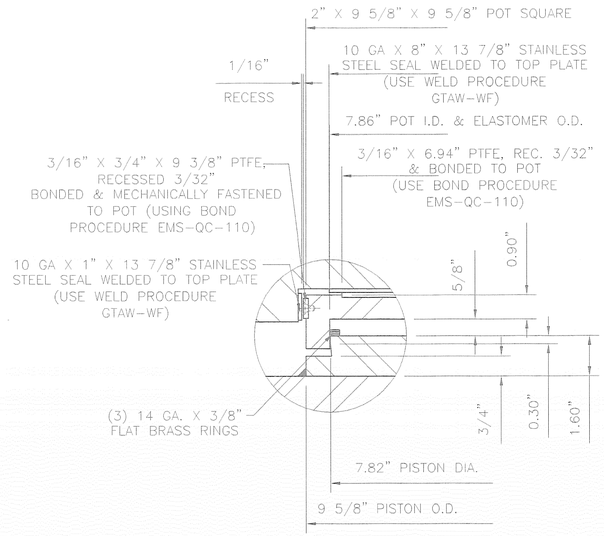
PLAN

TOWARDS BACKWALL

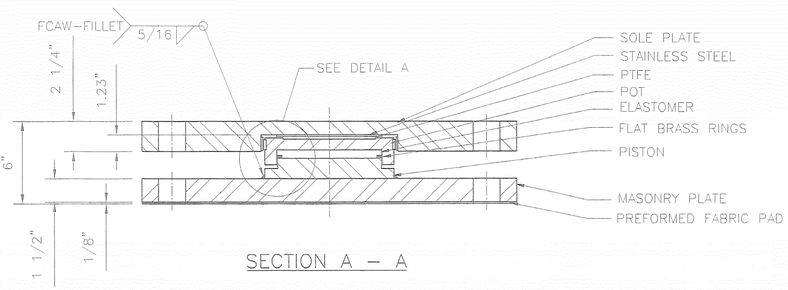


PLAN

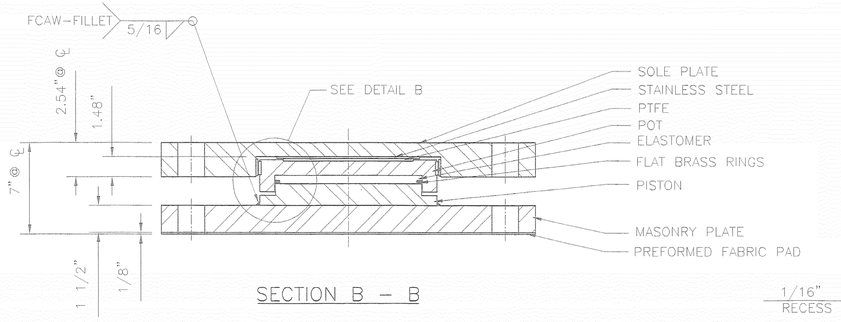
SIDE ELEVATION



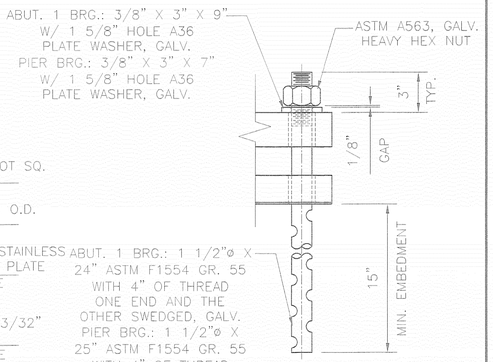
DETAIL A
N.T.S.



SECTION A – A



SECTION B – B



ANCHOR BOLT DETAIL

COSMEC GUIDED EXPANSION POT BEARING

QUANTITY: 2
LOCATION: ABUTMENT 1, GIRDERS 2 & 3
VERTICAL LOAD CAPACITY: 170 KIPS
TRANSVERSE LOAD CAPACITY: 34 KIPS
LONGITUDINAL LOAD CAPACITY: N/A
MOVEMENT CAPACITY: 2 1/2"
ROTATION CAPACITY: .020 RADIANS

COSMEC GUIDED EXPANSION POT BEARING

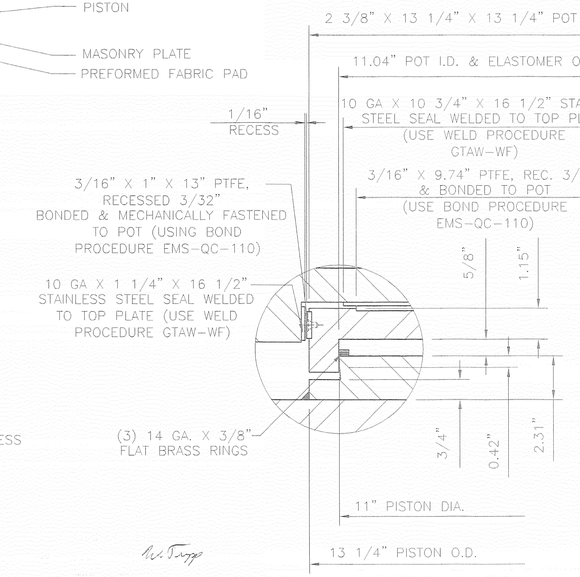
QUANTITY: 2
LOCATION: PIER, GIRDERS 2 & 3
VERTICAL LOAD CAPACITY: 335 KIPS
TRANSVERSE LOAD CAPACITY: 67 KIPS
LONGITUDINAL LOAD CAPACITY: N/A
MOVEMENT CAPACITY: 1 1/2"
ROTATION CAPACITY: .015 RADIANS

BEARING NOTES

1. ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
2. BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL BANDED, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE.
3. LOCATION OF FABRICATION PLANT – 70 SOUTH STREET WALPOLE, MA 02081
4. COSMEC, INC. REPRESENTATIVE – MR. MATT McANDREWS (508) 668-6600
5. BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
6. BEARINGS MUST NOT BE DISASSEMBLED
7. PROTECT PTFE & S.S. SURFACES FROM DIRT, WELD SPATTER, & ANY OTHER FOREIGN SUBSTANCES.

MATERIALS

STEEL – ASTM A709 GRADE 36, ZINC METALLIZED
STAINLESS STEEL – ASTM A240 TYPE 304, WITH 10 RMS FINISH OR LESS
PREFORMED FABRIC PAD – AASHTO DIV. II SPEC. 18.4.9.1
ANCHOR BOLTS – SEE ANCHOR BOLT DETAIL
PTFE – ASTM D.4894 VIRGIN UNFILLED
ELASTOMER – AASHTO SHORE A DUROMETER 50 ± 5 DUROMETER
BRASS SEALING RINGS – ASTM B.36 HALF HARD



DETAIL B
N.T.S.

REV.		BY	DATE	CK'D	DATE

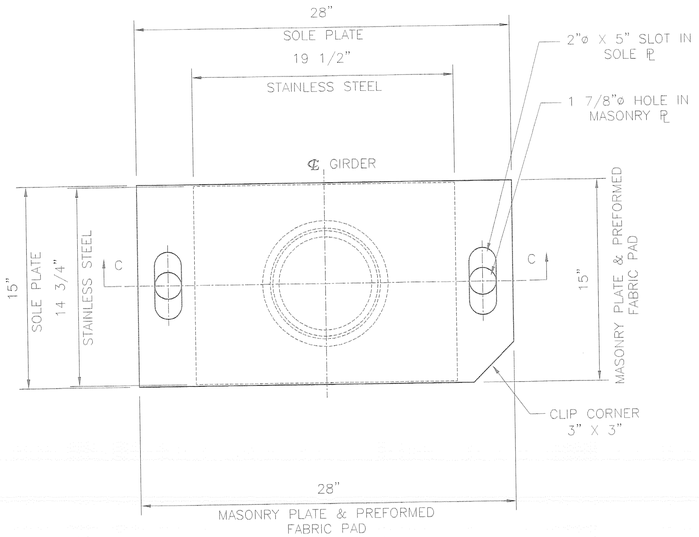
VERMONT
AGENCY OF TRANSPORTATION
HUNTINGTON
PROJECT BRO 1445(29)
EAST STREET (T.H.#4) OVER HUNTINGTON RIVER
BRIDGE NO. 42

COSMEC, INC. — 70 SOUTH STREET WALPOLE, MA. 02081

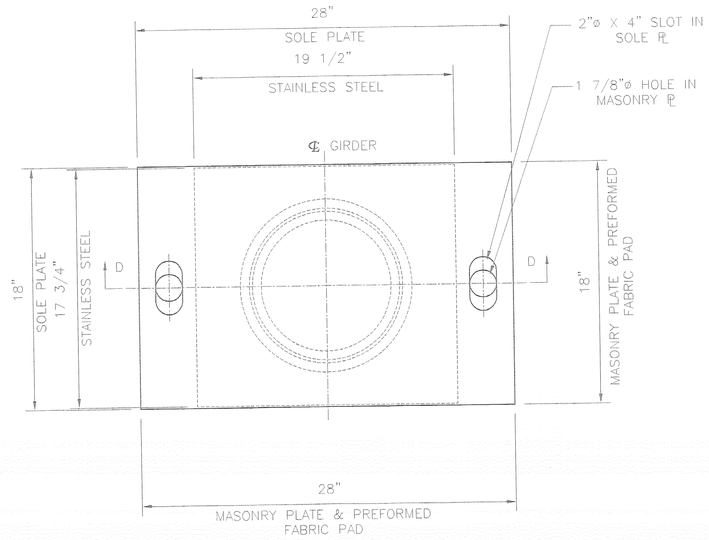
SCALE: 3/16"=1"	DRAWN BY: MRR	CHECKED BY: MCM
DATE:	DATE: 11/16/06	DATE: 12/8/06

COSMEC POT BEARINGS

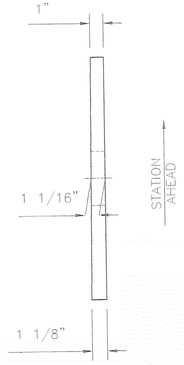
CUSTOMER	S.O. NUMBER	DRAWING NUMBER	REV.
PARENT CONSTRUCTION INC.	60630	5057	



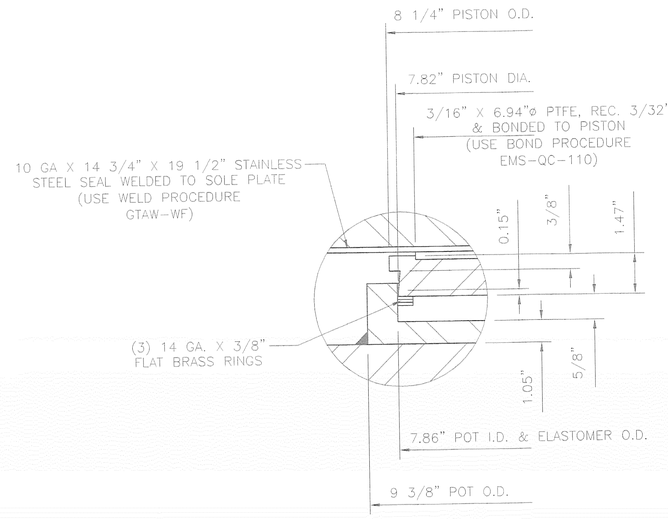
PLAN



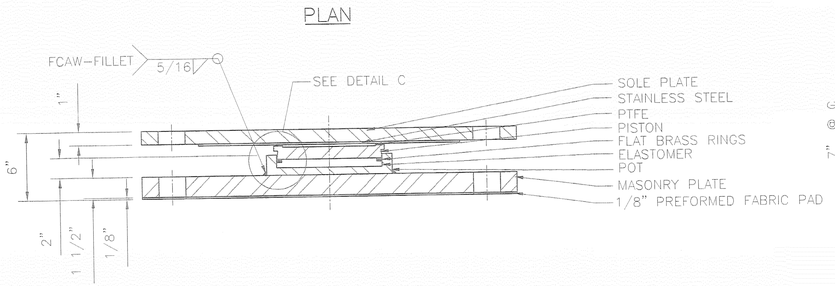
PLAN



SIDE ELEVATION



DETAIL C
N.T.S.



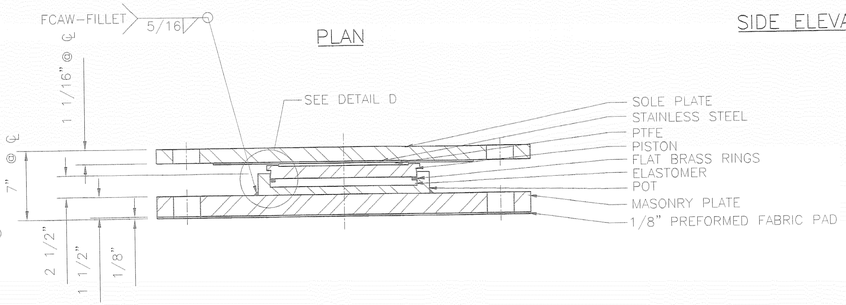
SECTION C – C

COSMEC NON-GUIDED EXPANSION POT BEARING

QUANTITY: 2
LOCATION: ABUTMENT 1, GIRDERS 1 & 4
VERTICAL LOAD CAPACITY: 170 KIPS
TRANSVERSE LOAD CAPACITY: N/A
LONGITUDINAL LOAD CAPACITY: N/A
MOVEMENT CAPACITY: 2 1/2"
ROTATION CAPACITY: .020 RADIANS

BEARING NOTES

1. ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
2. BEARINGS ARE TO BE SHIPPED AS COMPLETE UNITS, STEEL BANDED, AND SHALL BE WRAPPED TO PROTECT FROM MOISTURE AND DIRT DURING TRANSIT AND STORAGE.
3. LOCATION OF FABRICATION PLANT – 70 SOUTH STREET WALPOLE, MA 02081
4. COSMEC, INC. REPRESENTATIVE – MR. MATT McANDREWS (508) 668-6600
5. BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
6. BEARINGS MUST NOT BE DISASSEMBLED
7. PROTECT PTFE & S.S. SURFACES FROM DIRT, WELD SPATTER, & ANY OTHER FOREIGN SUBSTANCES.



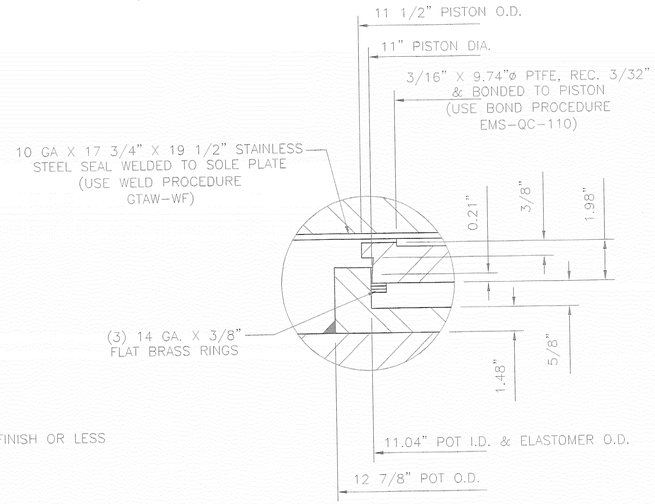
SECTION D – D

COSMEC NON-GUIDED EXPANSION POT BEARING

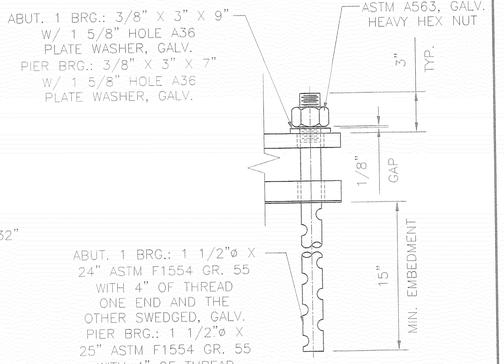
QUANTITY: 2
LOCATION: PIER, GIRDERS 1 & 4
VERTICAL LOAD CAPACITY: 335 KIPS
TRANSVERSE LOAD CAPACITY: N/A
LONGITUDINAL LOAD CAPACITY: N/A
MOVEMENT CAPACITY: 1 1/2"
ROTATION CAPACITY: .015 RADIANS

MATERIALS

STEEL – ASTM A709 GRADE 36, ZINC METALLIZED
STAINLESS STEEL – ASTM A240 TYPE 304, WITH 20 RMS FINISH OR LESS
PREFORMED FABRIC PAD – AASHTO DIV. II SPEC. 18.4.9.1
ANCHOR BOLTS – SEE ANCHOR BOLT DETAIL
PTFE – ASTM D.4894 VIRGIN UNFILLED
ELASTOMER – AASHTO SHORE A DUROMETER 50 ± 5 DUROMETER
BRASS SEALING RINGS – ASTM B.36 HALF HARD



DETAIL D
N.T.S.



ANCHOR BOLT DETAIL

VERMONT
AGENCY OF TRANSPORTATION
HUNTINGTON
PROJECT BRO 1445(29)
EAST STREET (T.H.#4) OVER HUNTINGTON RIVER
BRIDGE NO. 42

COSMEC, INC. — 70 SOUTH STREET WALPOLE, MA. 02081

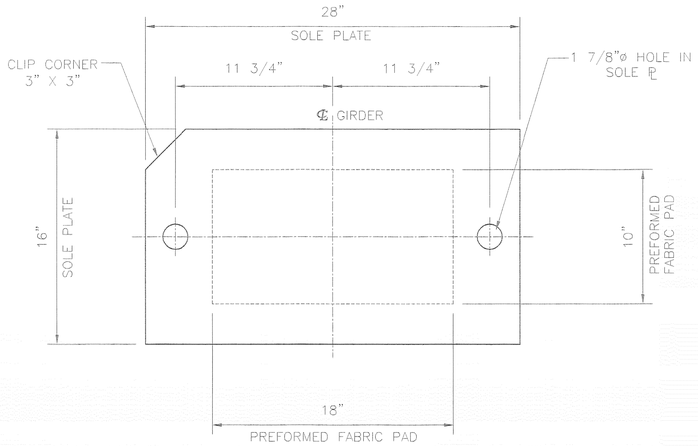
SCALE: 3/16"=1"	DRAWN BY: MRR	CHECKED BY: MCM
DATE:	DATE: 11/16/06	DATE: 12/8/06

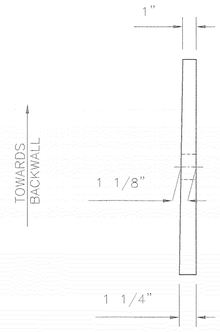
COSMEC POT BEARINGS

CUSTOMER	S.O. NUMBER	DRAWING NUMBER	REV.
PARENT CONSTRUCTION INC.	60630	5058	

REV.		BY	DATE	CK'D	DATE

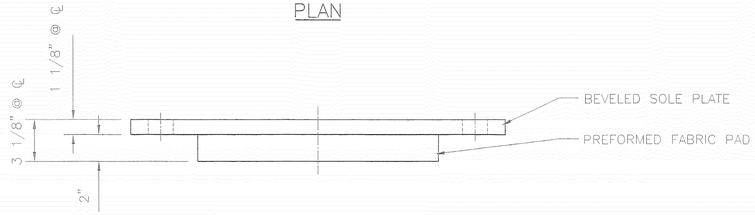
12/27/06



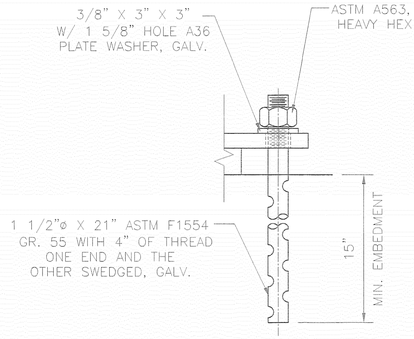


SIDE ELEVATION

PLAN



FRONT ELEVATION



COSMEC FIXED FABRIC PAD BEARING

QUANTITY: 4
LOCATION: ABUTMENT 2, GIRDERS 1-4
VERTICAL LOAD CAPACITY: 150 KIPS
TRANSVERSE LOAD CAPACITY: 15 KIPS
LONGITUDINAL LOAD CAPACITY: 15 KIPS
MOVEMENT CAPACITY: 0"
ROTATION CAPACITY: .016 RADIANS

BEARING NOTES

1. ALL MATERIALS USED IN THE FABRICATION OF THESE BEARINGS SHALL BE MADE IN THE U.S.A.
2. BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
3. LOCATION OF FABRICATION PLANT – 70 SOUTH STREET WALPOLE, MA 02081
4. COSMEC, INC. REPRESENTATIVE – MR. MATT McANDREWS (508) 668-6600

MATERIALS

STEEL – ASTM A709 GRADE 36, ZINC METALLIZED
PREFORMED FABRIC PAD – AASHTO DIV. II SPEC. 18.4.9.1
ANCHOR BOLTS – SEE ANCHOR BOLT DETAIL

R. Snyder
R. Snyder 12/27/06

REV.		BY	DATE	CK'D	DATE

VERMONT
AGENCY OF TRANSPORTATION
HUNTINGTON
PROJECT BRO 1445(29)
EAST STREET (T.H.#4) OVER
HUNTINGTON RIVER
BRIDGE NO. 42

COSMEC, INC. — 70 SOUTH STREET WALPOLE, MA. 02081

SCALE: 3/16"=1"	DRAWN BY: MRR	CHECKED BY: MCM
DATE:	DATE: 11/16/06	DATE: 12/8/06

COSMEC FABRIC PAD BEARING

CUSTOMER	S.O. NUMBER	DRAWING NUMBER	REV.
PARENT CONSTRUCTION INC.	60630	5059	

VERMONT

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

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

DATE: December 27, 2006

Cosmec, Inc.
70 South Street
Walpole, MA 02081

Project Name: Huntington **Project #: BRO 1445(29)**

Structure Identification: East Street Over Huntington River
The following bearing device details [Item # 531.10, Name: Bearing Device Assembly] for the above project (Vendor's Job # 60630) transmitted with a letter from Parent Construction, Inc. dated 12/11/06 have been reviewed and are being returned herewith.

Plan Sheets Number 5057, 5058, and 5059, Welding Procedures FCAW-FILLET, GTAW-WF, and Bonding Procedure EMS-QC-110 **are approved.** If any changes are made to any of these sheets, please submit white prints for our use in record plans for this project. Otherwise, our file copy will become the record set.

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

Sincerely,

Warren Tripp

Warren Tripp

Attachments
cc: [ ] Resident Engineer Dale Norton, w/prints
[ ] Shop Inspector Jeff Clark, w/prints
[ ] Contractor Parent Construction, Inc., w/prints
[ ] Construction Division – letter only
[ ] Materials & Research Section (C&IA Unit) – letter only
[ ] Files (Structures & Central)

VTrans Working to Get You There

VERMONT
AGENCY OF TRANSPORTATION
HUNTINGTON
PROJECT BRO 1445(29)

COSMEC INC.

WELDING PROCEDURE SPECIFICATION

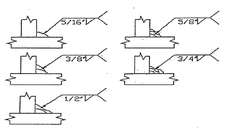
SPECIFICATIONS AND CODE: AASHTO--AWS D1.5
MATERIAL SPECIFICATION ASTM A709 GR 50W, GR 50, GR 36
WELDING PROCESS---------- FCAW-G
MANUAL OR MACHINE------- SEMI-AUTOMATIC
POSITION OF WELDING----- 1F & 2F
FILLER METAL SPECIFICATION AWS 5.20 CLASSIFICATION: E71T
MANUFACTURER: LINCOLN ELECTRIC TRADENAME: E71T OUTERSHIELD
FLUX------ INTERNAL
SHIELDING GAS---------- CO2 FLOW RATE 45 CFH
SINGLE OR MULTIPLE PAS S MULTIPLE
SINGLE OR MULTIPLE ARC SINGLE
WELDING CURRENT---------- DC
POLARITY : REVERSE (EP)
WELDING PROGRESSION----------
ROOT TREATMENT---------- CLEANED & PREPARED BRIGHT METAL
PREHEAT AND INTERPASS TEMPERATURE---------- SEE BELOW
POSTHEAT TEMPERATURE N/A
HEAT IMPUT MIN.---------- MAX.----

WELDING PROCEDURE

PASS NO.	ELECTRODE SIZE	WELDING CURRENT AMPERES	VOLTS	TRAVEL SPEED	JOINT DETAIL
ALL	0.045	190-230	27-29	8-9	

PREHEAT TEMPS.

THICKNESS	TEMP.
UP TO 3/4"	50 DEG. F
OVER 3/4" TO 1 1/2"	70 DEG. F
OVER 1 1/2" TO 2 1/2"	150 DEG. F
OVER 2 1/2"	225 DEG. F
INTERPASS TEMP:	400 DEG. F



THIS PROCEURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP, PASS SIZE, ETC.
WITHIN THE LIMITATION OF VARIABLES GIVEN IN SECTION 5.

PROCEDURE NO. FCAW-FILLET
SUPPORTING PQR: FCAW-1.0-05
REVISION NO.

CONTRACTOR: COSMEC INC.
AUTHORIZED BY: DONALD VOSE

AWS QC 1 DONALD E VOSE 01100951 CWI

DATE:---- 1/31/2005

VTRANS
RECEIVED
DEC 18 2006
JWC
12-18-06

VERMONT
AGENCY OF TRANSPORTATION
HUNTINGTON
PROJECT BRO 1445(29)

COSMEC INC.

WELDING PROCEDURE SPECIFICATION

SPECIFICATIONS AND CODE: D1.6
MATERIAL SPECIFICATION ASTM A240 TYPE 304 TO ASTM A709 GR 50W
WELDING PROCESS---------- GTAW
MANUAL OR MACHINE------- MANUAL
POSITION OF WELDING----- 1F & 2F
FILLER METAL SPECIFICATION ER309L CLASSIFICATION: A5.9
MANUFACTURER: HARRIS WELCO TRADENAME:
FLUX-------- INTERNAL
SHIELDING GAS:---------- ARGON FLOW RATE 45 CFH
SINGLE OR MULTIPLE PAS S SINGLE
SINGLE OR MULTIPLE ARC SINGLE
WELDING CURRENT>--------- DC
POLARITY: REVERSE (EN)
WELDING PROGRESSION----------
ROOT TREATMENT---------- CLEANED & PREPARED BRIGHT METAL
PREHEAT AND INTERPASS TEMPERATURE---------- SEE BELOW
POSTHEAT TEMPERATURE N/A
HEAT IMPUT MIN.---------- MAX.----

WELDING PROCEDURE

PASS NO.	ELECTRODE SIZE	WELDING CURRENT AMPERES	VOLTS	TRAVEL SPEED	JOINT DETAIL
ALL	3/32"	130--155 16 GA THRU 10 GA BM THICKNESS	14-17	6.75--8.5	LAP JOINT

PREHEAT TEMPS. ***PREHEAT UNTIL NO MOSITURE PRESENT

THICKNESS	TEMP.
UP TO 3/4"	100 DEG.
OVER 3/4" TO 1 1/2"	100 DEG.
OVER 1 1/2" TO 2 1/2"	100 DEG.
OVER 2 1/2"	100 DEG.

THIS PROCEURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP, PASS SIZE, ETC.
WITHIN THE LIMITATION OF VARIABLES GIVEN IN SECTION 5.
SUPPORTING PQR: GTAW-WF-05
PROCEDURE NO. GTAW-WF CONTRACTOR: COSMEC INC.
AUTHORIZED BY: DONALD VOSE
REVISION NO. 1 CWI#:01100651 Donald Vose

DATE:--- 2/1/2005

AWS QC 1 DONALD E VOSE 01100651 CWI

VTRANS
JWC
12-18-06

VERMONT
AGENCY OF TRANSPORTATION
WINDSOR
PROJECT BRO 1445(29)

EMS-QC-110

VTRANS

COSMEC, INC.
70 SOUTH STREET
WALPOLE, MA 02081
PH# 508-668-6600
FAX# 508-660-1022

JWC

12-18-06

ENGINEERING AND MANUFACTURING STANDARD
PTFE FACING AND STEEL
OR PREFORMED FABRIC SUBSTRATE
SURFACE PREPARATION AND ADHESIVE PROCEDURE

The PTFE facing shall be prepared for bonding to a substrate material by chemically etching the face to be bonded using the sodium ammonia process.

The mating surface of the substrate shall be prepared for bonding using a three-step process as follows:

1. preliminary degrease using methyl ethyl ketone.
2. mechanically roughen to approx. 125 RMS and thoroughly brush and clean for final degreasing.
3. final degrease using methyl ethyl ketone

The PTFE and substrate mating surfaces shall be clean and dry with final degreasing performed within 30 minutes of bonding. Adhesive shall consist of a two-part epoxy adhesive system conforming to Military Specification MMM-A-134

The adhesive shall be applied to the full area of the contact surface in an even manner so as to establish a glue line not less than .002 inch nor more than .010 inch thick. Surfaces being bonded are to be assembled immediately with open assembly time not to exceed 20 minutes.

The PTFE material shall be greater in width and length than the substrate material by at least ½ inch when bonded. The PTFE shall be applied with contact starting at one edge and with contact progressing across entire bonded surface to eliminate air entrapment. The PTFE is to be in full contact with the steel or preformed fabric substrate. Curing of the bond shall be done under pressure of approx. 2-100 psi for 10-12 hours at approx. 70°F or other schedules as established by the manufacturer of the adhesive.

The PTFE shall be carefully trimmed to the same size as the substrate after bond curing and all bonds shall be visually inspected for bond retention.

Gleason, Carl

From: Tripp, Warren
Sent: Monday, May 05, 2008 12:44 PM
To: Gleason, Carl
Subject: FW: Intermediate Stay Plates on Richford

As noted at the end of the following e-mail, will you please confirm or correct the number of stay plates needed, based on the number on the existing trusses? As soon as we are in agreement, I will forward the information to Casco Bay so that the shop drawings can be revised. Thanks.

-----Original Message-----
From: Burbank, Scott [mailto:scott.burbank@stantec.com]
Sent: Thursday, May 01, 2008 4:14 PM
To: Tripp, Warren
Cc: mchenette@stantec.com
Subject: Intermediate Stay Plates on Richford

Warren,

I have review the steel shop drawings concerning the missing stay plates and have found the following:

Piece Marks T11, T12, T81, and T82 (Left & Right) - Add an additional intermediate stay plate top and bottom between the top end stay plate and the first intermediate plate stay plates (top & bottom) at 10'-0". Add an additional stay plate top and bottom between the intermediate stay plate located at 19'-4 1/2" and the splice. Please note that this missing intermediate stay plate is located at a clear distance of 6'-9" from the intermediate stay plate located 1'-2 1/4" from the truss joint. These dimensions are shown on the Truss Bottom Chord Elevation, located on sheet 24 of the contract drawings.

Piece Marks T31, T32, T61 and T62 (Left & Right) - Add an additional intermediate stay plate top and bottom between the intermediate stay plate located at 26'-1" (please verify this location, it is greater than 3.125 feet from the stay plate at 22'-4 1/8") and the splice. This missing intermediate stay plate is also located 6'-9" from the intermediate stay plate between the splice and the joint.

Piece marks T51 and T52 have the correct number of intermediate stay plates.

Adding these stay plates will provide three top and four bottom intermediate stay plates in bays 1 and 8. There will now be four intermediate stay plates top and bottom in bays 2 and 7. And four intermediate stay plates in bays 4 and 5. Bays 3 and 6 will still have 5 intermediate stay plates as shown on the shop drawings.

Warren could you please ask the resident to verify if the number of intermediate stay plates on the existing trusses matches the numbers above.

If you or the resident engineer of any comments or questions please call or email me.

Sincerely

Scott Burbank, P.E.
Project Engineer
Stantec
Ph: (802) 864-0223 Ext. 137
Fx: (802) 864-0165
scott.burbank@stantec.com
stantec.com

VERMONT

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

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

April 24, 2008

Casco Bay Steel Structures, Inc.
75 Spring Hill Road
Saco, ME 04072

Project Name: Richford **Project #: BHF 0302(3)S**

Structure Identification: TH #2, BR. #41 over Missisquoi River

The following Structural Steel details [Item # 506.50, Structural Steel, Rolled Beam] for the above project (Vendor's Job # 361) transmitted with your letter dated 4/17/08 have been reviewed and are being returned herewith.

Sheets E1, S1, S2, S3, S4, and S5 **are approved.** Upon submitting extended weights for our approval, please submit one set of white prints for our use in the record plans for this project.

You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. That notice must be received and acknowledged at least seven days prior to that date, as per Specification 506.03. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Warren Tripp

Warren Tripp, Project Manager

Attachments

cc: [X] Resident Engineer Carl Gleason, w/prints
[X] Shop Inspector Jeff Clark, w/prints
[X] Contractor Blow & Cote, Inc., w/prints
[X] Construction Divison – letter only
[X] Materials & Research Section (C&IA Unit) – letter only
[X] Files (Structures & Central)

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VERMONT

State of Vermont
PDD/Structures Design Section
National Life Building – Drawer 33
Montpelier, VT 05633-5001
www.aot.state.vt.us

Agency of Transportation

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

April 21, 2008

Casco Bay Steel Structures, Inc.
75 Spring Hill Road
Saco, Me 04072

Project Name: Richford Project #: BHF 0302(3)S
Structure Identification: TH #2, BR #41 over Missisquoi River

The following shop drawings and welding procedures for the above project (Vendor's Job # 361) transmitted with your letter dated March 28, 2008, have been reviewed and are being returned herewith:

Item 506.60, Structural Steel, Sheets M 1 and M 2. These sheets are **"approved as noted".** Upon submitting extended weights for our approval, please make appropriate changes as indicated on these "as noted" drawings and submit one set of white prints for our use in the record plans for this project.

Item 516.11, Bridge Expansion Joint, Vermont, Sheet J 1. This sheet is **"approved as noted".** Upon receipt of this "as noted" drawing, please make appropriate changes and submit one white print for our use in the record plans for this project.

Welding procedures. Sheets #1 SW, 104, 101, 105, and 401 are **"approved".**

You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. That notice must be received and acknowledged at least seven days prior to that date, as per Specification 506.03. Jeff may be contacted by phone at (802) 828-0044 or email at jeff.clark@state.vt.us. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Warren Tripp

Warren Tripp, Project Manager

Attachments
cc: [X] Resident Engineer: Carl Gleason w/prints
[X] Shop Inspector: Jeff Clark w/prints
[X] Contractor: Blow & Cote, Inc. w/prints
[X] Construction Divison – letter only
[X] Materials & Research Section (C&IA Unit) – letter only
[X] Files

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Vermont Agency of Transportation

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

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

WELDING PROCEDURE SPECIFICATION

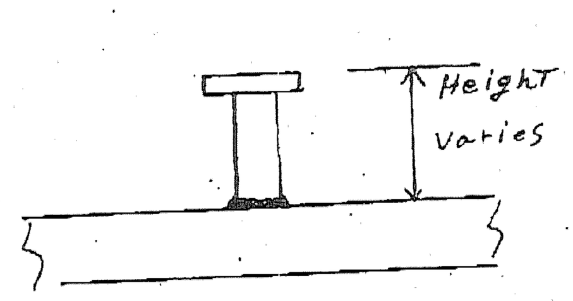
Material specification ASTM-A709/A709M - Gr36-50-50W (250-345-345W) (S.W.)
Welding process STUD Welder
Manual or machine Machine
Position of welding FlaT
Filler metal specification NA
Filler metal classification NA
Flux NA Flow rate NA
Shielding gas NA
Single or multiple pass single
Single or multiple 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
Postheat temperature NA
Heat Input Min NA Max NA

VTRANS RECEIVED CK'D BY ___ OK'D BY JWC APR 08 2008 RESUBMIT ___ APPROVED ✓ BY [signature] DATE 4/19/08

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

Pass no.	~~Electrode size~~ Stud size	Welding current: Amperes	~~Volts~~ Weld Time	Travel speed	AWS D1-1 Joint detail AWS D1-5
	1/2	350 650	.35±		
	5/8	350 650	.35±	NA	
	3/4	550 750	.40±		
	7/8	650 850	.1.0±		



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. #I S.W.
Revision no. ___
Form III-2

Contractor Casco Bay STeel
Authorized By [signature]
Date May 3-1999

[Stamp: AWS QC 1 PAUL E. [illegible] CWI]

Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

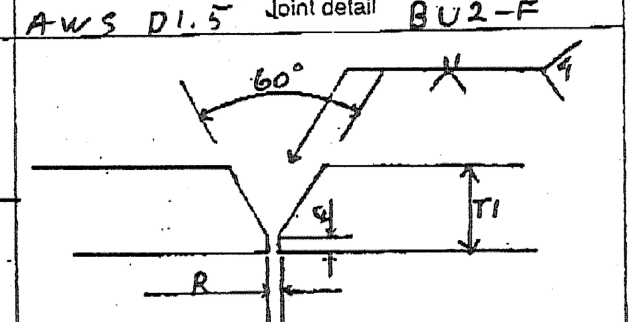
Phone: (207) 772-2533 Fax: (207) 772-0580

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
Electrode stick out 3/4 ±1/4
Single or multiple pass Both
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 (19 - 10°C) +3/4 To 1 1/2 - 70°F (+19 To 38 - 20°C)
Postheat temperature NA
Heat Input Min NA Max NA

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed	AWS D1.5 Joint detail BU2-F
	1/16	280 ±28	25 ±1.7	11 ±1.1	
	1.6	280 ±28	25 ±1.7	280 ±28	T1 - Unlimited f - 0 To 1/8 / 0 To 3.2 mm R - 0 To 1/8 / 0 To 3.2 mm 1 - Grind as required

TRANS
RECEIVED
CK'D BY ____ OK'D BY JAC
APR 08 2008
SUBMIT ____ APPROVED ✓
DATE 4/17/08

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

132

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

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

WELDING PROCEDURE SPECIFICATION

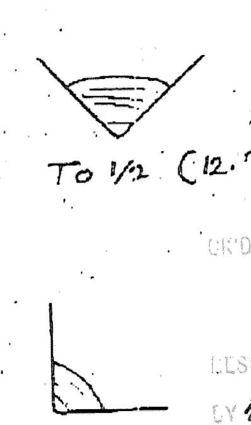
Material specification ASTM A709/A709M-Grade 36(250) 50(345) 50W(345W)
Welding process Flux Cored Arc welding (FCAW)
Manual or machine Semi AUTO
Position of welding Flat (1F) HoriZonTal (2F)
Filler metal specification AWS A5.20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40CFH ±5
Single or multiple pass Single and Multiple - ElecTrode ExTension 5/8 ±1/4 (15.87 ±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

RIchFord, VT
Br NO. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

(METRIC)

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed	Joint detail: Fillet — AWS D1-5
	1/16	275 247.5 To 302.5	28.8 26.8 To 30.8	11.6 10.4 To 12.8	1F To 1/2 (12.7)
	1.6	(METRIC) 275 247.5 To 302.5	28.8 26.8 To 30.8	294.6 264.2 To 325.12	2F To 3/8 (9.5)



VTRANS

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

Procedure no. 101
Revision no.
Form III-2

Contractor Casco Bay Steel
Authorized By [signature]
Date 3/23/08

Casco Bay Steel Structures, Inc.
5 Industry Road
South Portland, Maine 04106
Phone: (207) 772-2533
Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

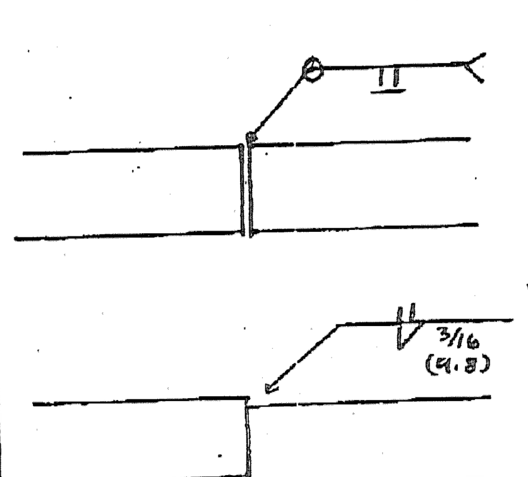
Material specification A36 - A572 - A588 . (ASTM 709 Gr36-50-50W
Welding process Flux Cored Arc welding (FCAW)
Manual or machine Semi - AUTO
Position of welding Flat
Filler metal specification AWS 5.20
Filler metal classification E71T-1
Flux NA
Shielding gas 75% AR 25% CO2 Flow rate 40 ± 5
Electrode STICK OUT 3/4 ± 1/4
Single or multiple pass Single
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 - 50F (19 - 10C) + 3/4 To 1 1/2 - 70F (+19 To 38 - 20C)
Postheat temperature NA
Heat Input Min NA Max NA

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

AWS D1-5

Joint detail: Square groove ~~Fillet~~ / BUTT

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed	Joint detail
	1/16	280 ±28	25 ±1.7	17 IPM ± 1.7	
	1.6	280 ±28 ✓TRANS	25 ±1.7 JWC ✓	432 ± 43.2	

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.

Contractor Casco BAY Steel
Authorized By [signature]

Casco Bay Steel Structures, Inc.
5 Industry Road
South Portland, Maine 04106
Fax: (207) 772-0580

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 Gr 36-50-50W (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 Flow rate NA
Shielding gas 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) 50F(10C) 3/4(19) To 1 1/2(38) 70F(20C) 1 1/2(38) To 2 1/2(63.5) 150F(65C) over 2 1/2(63.5) 225F(110C)
Postheat temperature NA
Heat Input Min NA Max NA

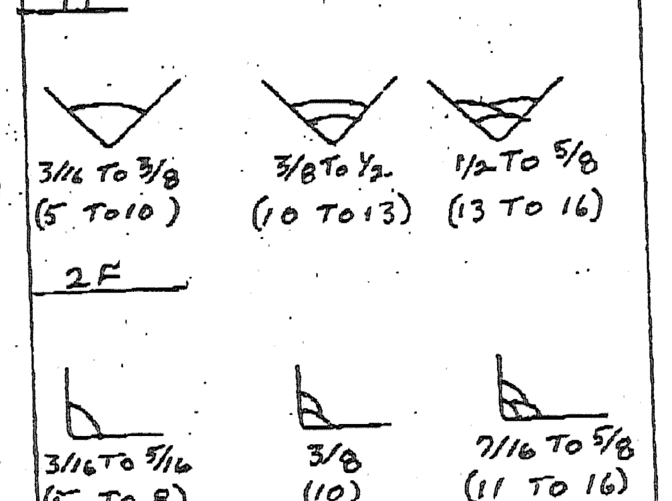
VTRANS RECEIVED CK'D BY JLK APR 08 2008 APPROVED BY WBO DATE 4/17/08

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

(meTric)

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed	Joint detail: AWS D1.5 FilleT
AS REQ.	7018			AS REQ	
	1/8 (3.2)	70-170	22-26		
	5/32 (3.9)	120-225	22-26		
	3/16 (4.8)	170-300	24-27		
	8018				
	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)	170-270	22-26		
	3/16 (4.8)	210-330	24-27		



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

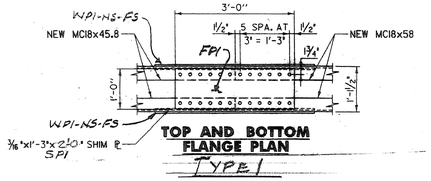
Procedure no. 401
Revision no.

AWS QC 1 PAUL E. GOODALE [illegible] CWI

Contractor Casco Bay STeel
Authorized By Paul E. Goodale
Date 3/2/00

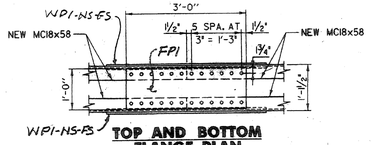
Form III-2

JOB NO.	DRG. NO.
361	E1



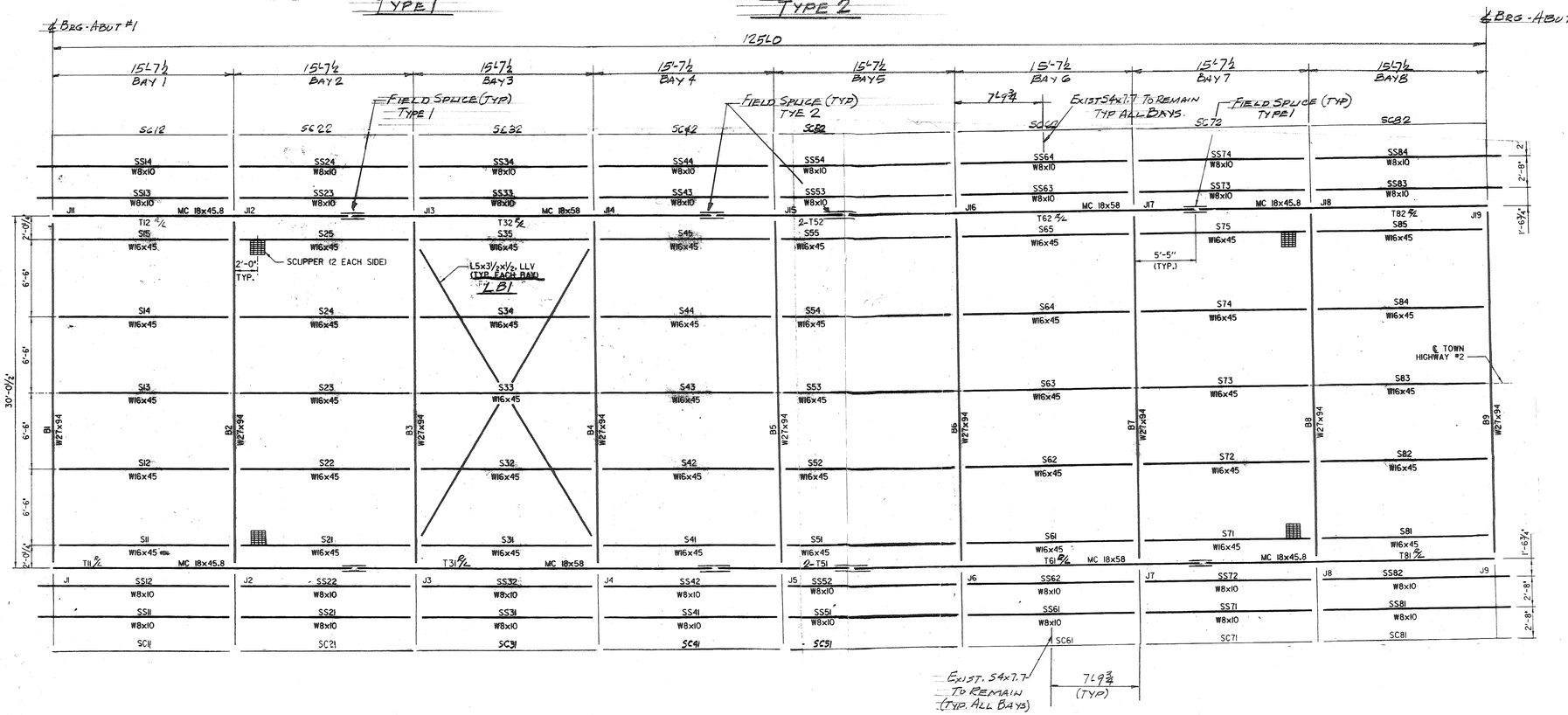
TOP AND BOTTOM FLANGE PLAN

TYPE 1



TOP AND BOTTOM FLANGE PLAN

TYPE 2



FRAMING PLAN

LEGEND
- J = JOINT
- S = FLOOR STRINGER (NEW W16x45)
- B = BEAM (NEW W27x94)
- T = TRUSS BOTTOM CHORD (SEE PLAN)
- SS = SIDEWALK STRINGER (NEW W8x10)
- SC = EXISTING SIDEWALK CHANNEL (C7)
- ——— = NEW FRAMING MEMBER
- ——— = EXISTING FRAMING MEMBER TO BE RETAINED

Per Blow & Cote, Inc., all circled dimensions have been verified and they have released to fabricate using these dimensions. If all verification of existing holes for W27 and existing plates and angles can be verified prior to fabrication Casco Bay Steel Structures will shop drill. If not, Blow & Cote will field drill these holes.

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
NO EXCEPTION TAKEN ✓
REVISE AS NOTED
RESUBMISSION NOT REQ'D
REVISE AS NOTED
RESUBMISSION
REJECTED
DATE 4/23/08
SIGNATURE Michael Charette
REVIEW BY IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMITY WITH DESIGN CONTRACT. RESPONSIBLE FOR DIMENSIONS, FABRICATION AND CONSTRUCTION METHODS, COORDINATION OF SUB-TRADES, DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/19/08									
	OUT FOR APPROVAL	9/17/08									
	ISSUED TO SHOP										
	FIELD & OFFICE										
1	APP'L COMMENTS	4/17/08									

PROJECT NO. BHF.0302(3) S STATE PROJECT NO.

MATERIAL: | ELECTRODES: | HOLES: | SHOP BOLTS:

SURFACE PREP. & PAINT:

DESCRIPTION: FRAMING PLAN

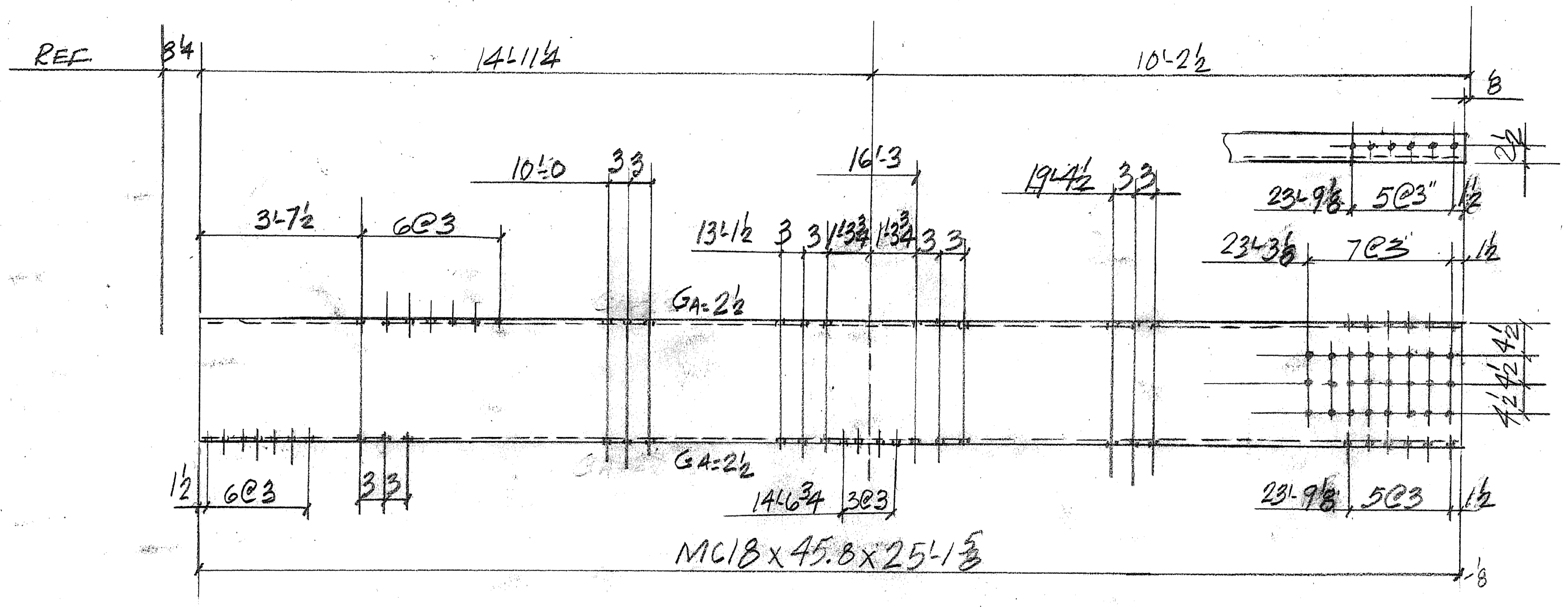
JOB: IMPROVEMENTS BRIDGE No. 41 ON TH NO. 2 RICHFORD, VT.

CUSTOMER: BLOW & COTE INC.

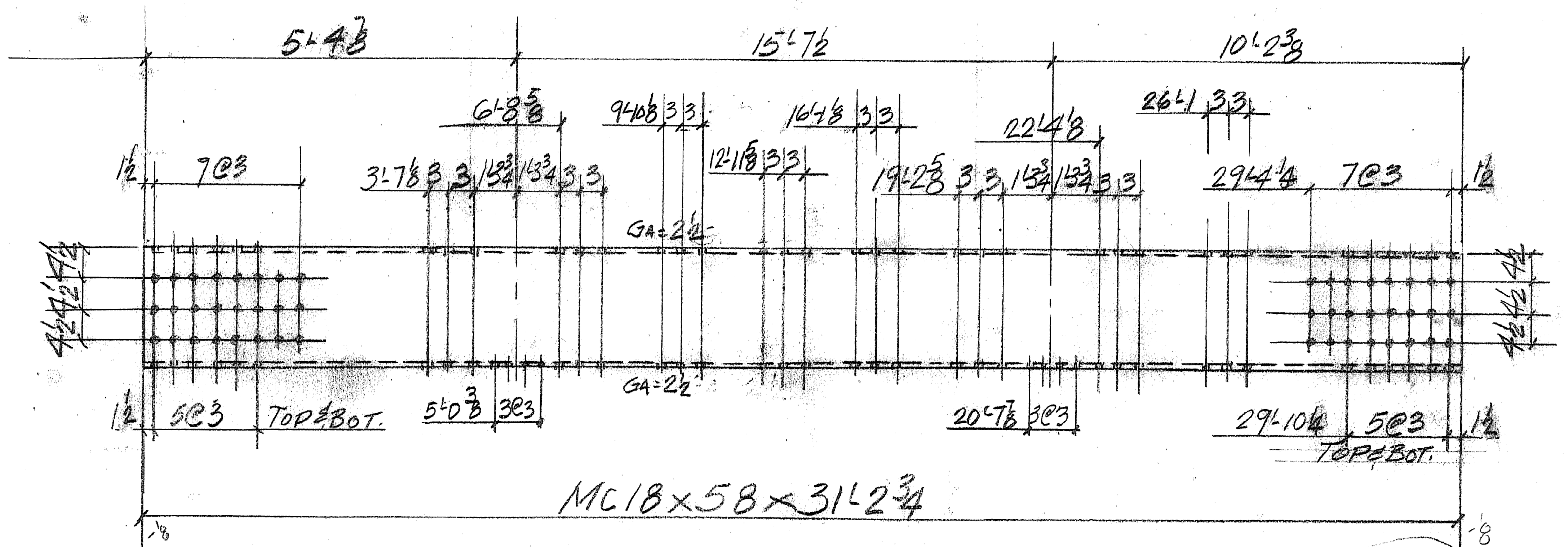
	DRAWN BY	DATE
	JPF	3-08
	CHKD BY	
	CR	
	APPROV BY	
	Q.A.	
JOB NO.	361	DRG. NO. E1
		REV. 1

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

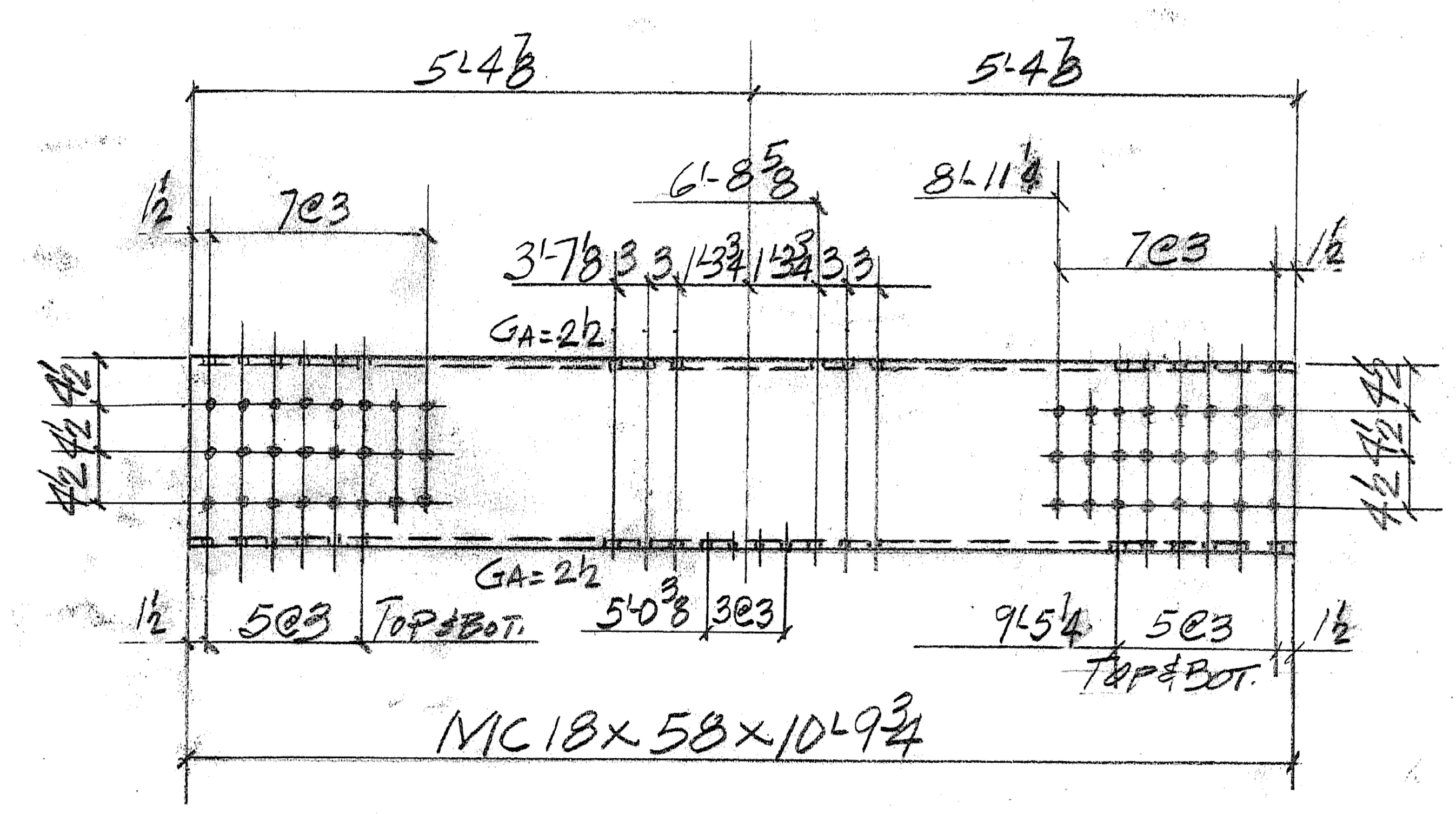
1" = 1'-0"



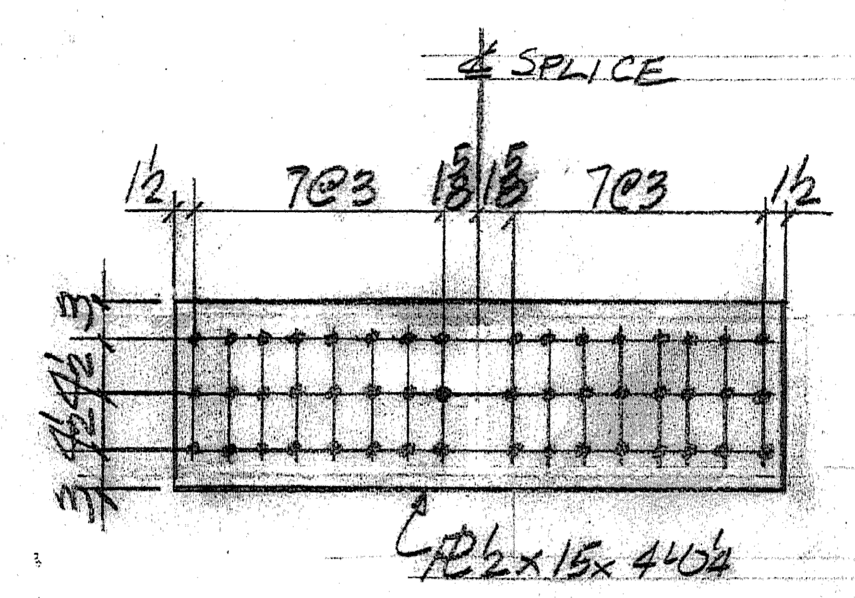
T11R-T12R-T81R-T82R-MAKE ONE EACH-AS SHOWN
T11L-T12L-T81L-T82L-MAKE ONE EACH-OPP. HAND.



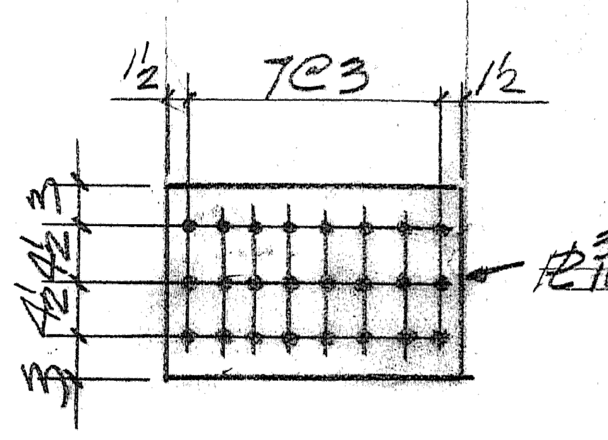
T31R-T32R-T61R-T62R-MAKE ONE EACH-AS SHOWN.
T31L-T32L-T61L-T62L-MAKE ONE EACH-OPP. HAND.



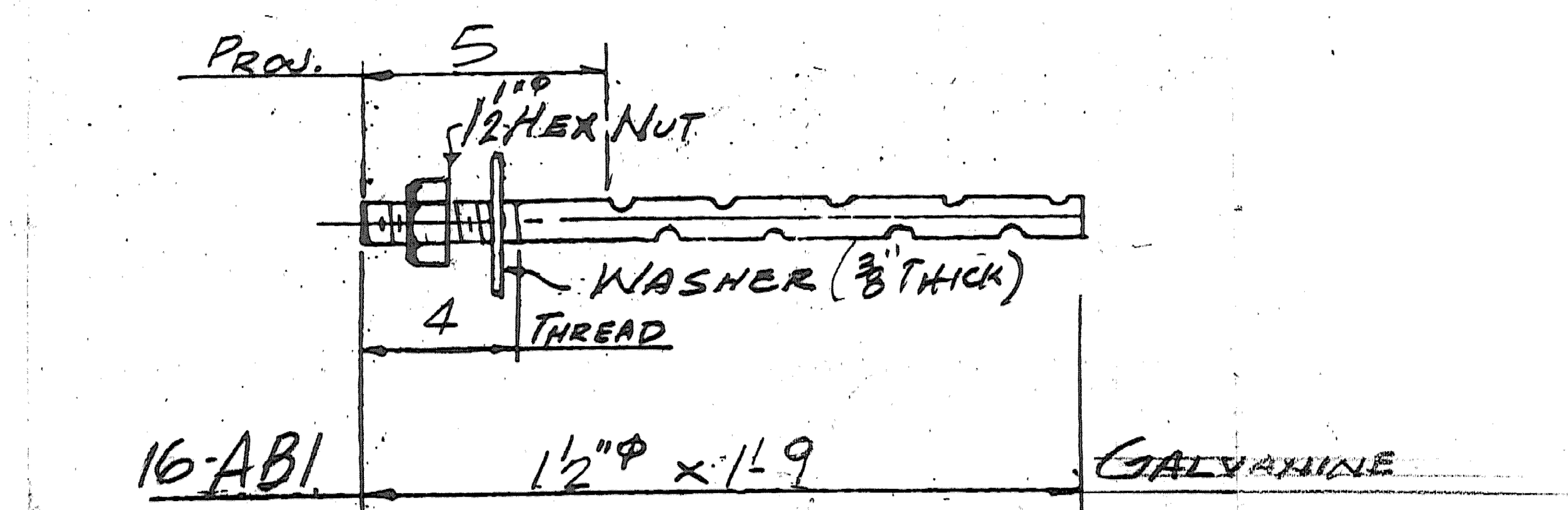
T51-2 REQ'D.
T52-2 REQ'D.



WEB SPLICE PLS.
WP1-32-REQ'D.

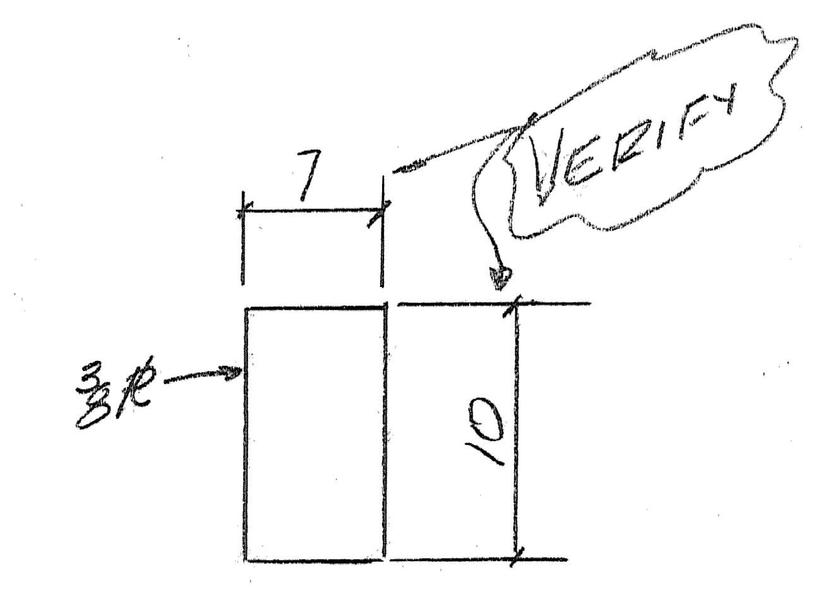


WEB SHIM PL @ MC45.8
SP1-8-REQ'D.

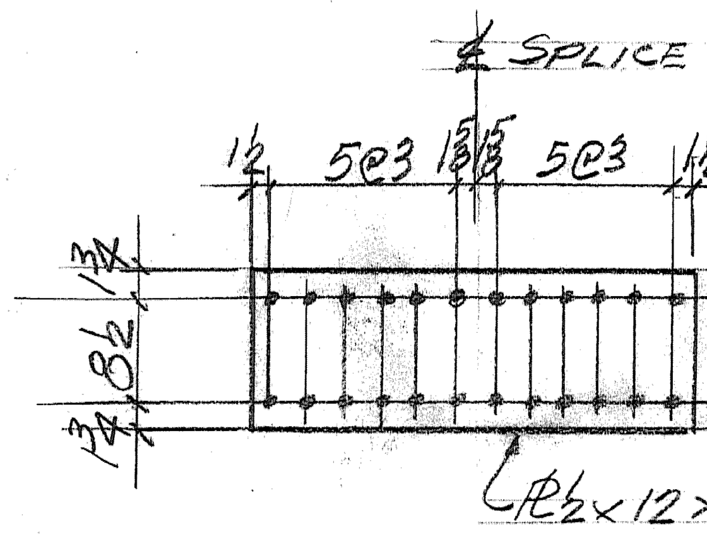


16-AB1

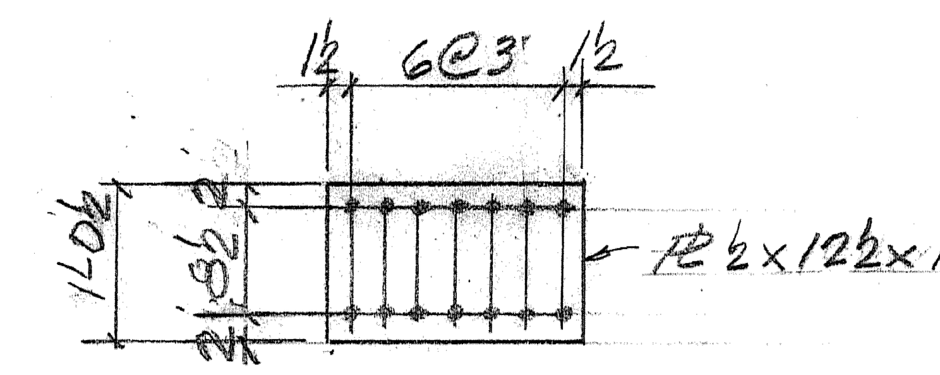
PER SUBSECTION 714.08
PAY ITEM 502.11



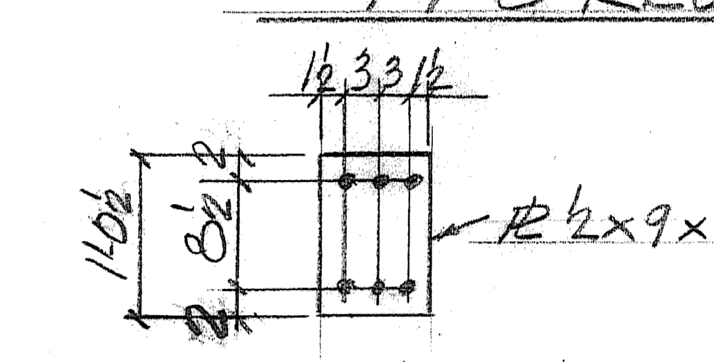
PATCHING PL. (NO PAINT)
PP1-8-REQ'D.
PAY ITEM 506.60



TOP & BOTT. FLG. SPLICE PLS.
FP1-16-REQ'D.



END STAY PLATES
P1-8-REQ'D.



INTERMEDIATE STAY PLATES
P2-48-REQ'D.

SHOP BILL

JOB NO. 361 — DRG. NO. S1

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	MC18x45.8	25	1 5/8		T11R		
		1	↓	25	1 5/8		T12R		
		1		25	1 5/8		T81R		
		1		25	1 5/8		T82R		
		1		25	1 5/8		T11L		
		1		25	1 5/8		T12L		
		1		25	1 5/8		T81L		
		1	MC18x45.8	25	1 5/8		T82L		
		1	MC18x58	31	2 3/4		T31R		
		1	↓	31	2 3/4		T32R		
		1		31	2 3/4		T61R		
		1		31	2 3/4		T62R		
		1		31	2 3/4		T31L		
		1		31	2 3/4		T32L		
		1		31	2 3/4		T61L		
		1		31	2 3/4		T62L		
		2		10	9 3/4		T51		
		2	MC18x58	10	9 3/4		T52		
		32	PL 1/2x15	4	0 1/4		WP1		
		8	PL 3/16x15	2	0		SP1		
		16	PL 1/2x12	3	0 1/4		FP1		
		8	PL 1/2x12 1/2	1	9		P1		
		48	PL 1/2x9	1	0 1/2		P2		
			FIELD BOLTS (A325-GALV.)						
WEB SPLICE		768	7/8"Φ BOLTS		3			W/NEW	
FLG. SPLICE & STAY PLS. BOT. FLG. CONN PL @ BEAMS		928	DO		2 3/4			W/NEW & BEV. W.	
END JOINTS		48	7/8"Φ BOLTS		3 1/4			W/NEW	
END JOINTS		216	DO		2 3/4			DO	
ALL OTHER JOINTS		168	DO		3			DO	
ALL OTHER JOINTS		528	DO		2 1/2			DO	
		16	1 1/2"Φ ROD	1	9		AB1	SWEDGED PAY ITEM 502.11	
			16 1 1/2"Φ HEAVY HEX NUTS			SHOP			
			16 1 1/2"Φ x 3/8" PL. WASH			SHOP			
		8	PL 3/8x7		10		PP1	PAY ITEM 506.60	
			PAY ITEM 506.50-UNLESS NOTED.						

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
NO EXCEPTION TAKEN ✓
REVISE AS NOTED RESUBMISSION NOT REQUIRED
REVISE AS NOTED RESUBMISSION
REJECTED
DATE 4/22/08
SIGNATURE Michael Cleavitt
REVIEW BY S... IS FOR THE LIMITED PURPOSE OF ASCERTAINING ... CONFORMITY WITH DESIGN CONTRACT ... RESPONSIBLE FOR DIMENSIONS, FABRICATION, CONSTRUCTION METHODS, COORDINATION OF SUBTRADES, DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

Per Blow & Cote, Inc., all circled dimensions have been verified and they have released to fabricate using these dimensions. If all verification of existing holes for W27 and existing plates and angles can be verified prior to fabrication Casco Bay Steel Structures will shop drill. If not, Blow & Cote will field drill these holes.

OUT FOR APPROVAL	3/19/08										
OUT FOR APPROVAL	4/17/08										
ISSUED TO SHOP											
FIELD & OFFICE											
1 ADDED STAY PLS.	4-16-08										
REV. REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER	

PROJECT NO. BHF-0302(3)S — STATE PROJECT NO.

MATERIAL: A36/A709 M270-GR50 — ELECTRODES: — — HOLES: 15/16"Φ — SHOP BOLTS: —

SURFACE PREP. & PAINT: SHERWIN WILLIAMS-COROTHANE I GALVAPAC ONE PACK ZINC PRIMER 3.5 TO 4 MILS DFT

DESCRIPTION: BOTTOM CHORD ITEMS

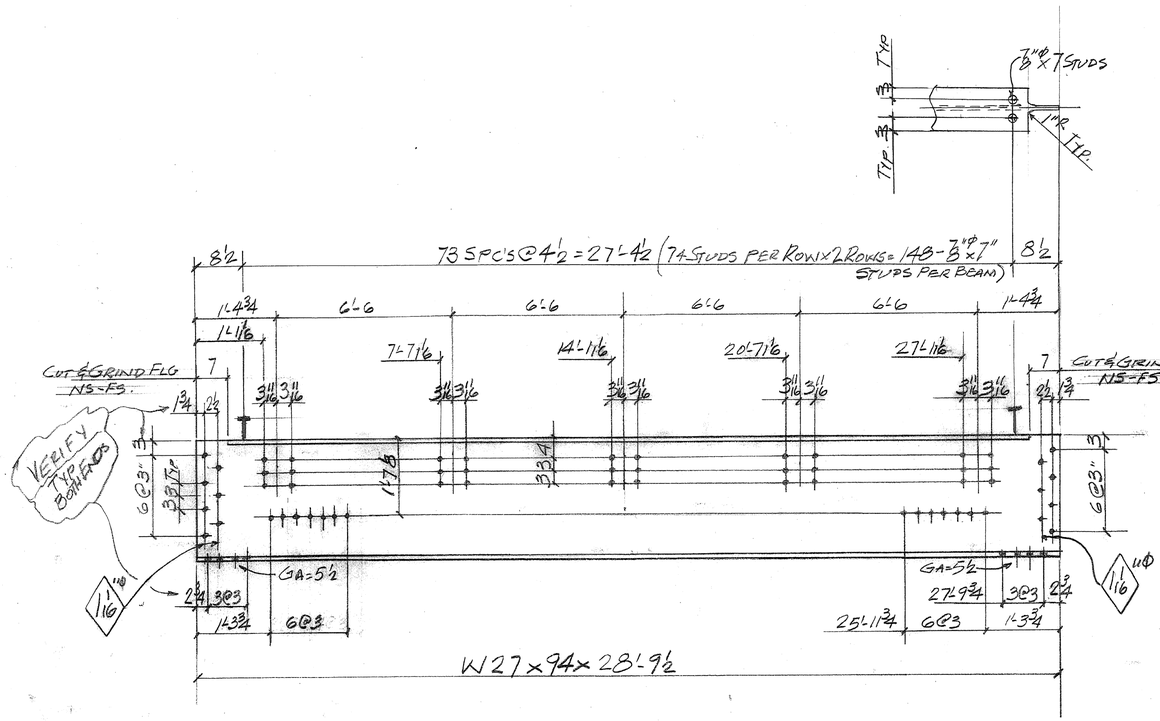
JOB: IMPROVEMENTS BRIDGE NO. 41 ON TH NO. 2 RICHFORD, VT.

DRAWN BY	DATE
JPF	2-08
CHKD BY	
APPROV BY	
Q.A.	

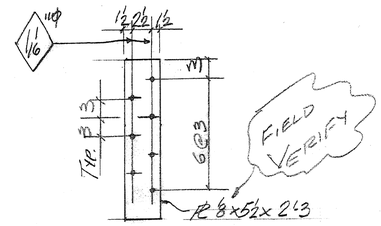
CUSTOMER: BLOW & COTE INC.

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

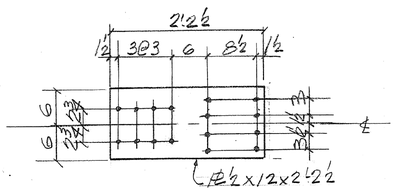
JOB NO. 361 — DRG. NO. S1 — REV. △



BEAMS B1-B2-B3-B4-B5-B6-B7-B8-B9
MAKE ONE OF EACH



WEB SHIM
SP2-18-REQ'D.



BOTTOM FLG. CONN. PL
BC1-18-REQ'D.

ABM INFO		SHOP BILL					JOB NO. 361	DRG. NO. S2
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	W27x94	28	9½		B1		
		1		28	9½		B2		
		1		28	9½		B3		
		1		28	9½		B4		
		1		28	9½		B5		
		1		28	9½		B6		
		1		28	9½		B7		
		1		28	9½		B8		
		1	W27x94	28	9½		B9		
		18	PL ½x12	2	2½		BC1		
		18	PL ½x5½	2	3		SP2		
			FIELD BOLTS (A325TC-GALV.)						
		126	⅞" ø BOLTS		3			W/NEW.	
		144	DO		23½			DO	
		1332	⅞" ø SHEAR CONN.		7	SHOP			

PAY ITEM 506.30

OUT FOR APPROVAL	3/19/08										
OUT FOR APPROVAL	4/17/08										
ISSUED TO SHOP											
FIELD & OFFICE											
1	ADDED STUDS	4-15-08	JPF								
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-0302(3)S STATE PROJECT NO.

MATERIAL: AASHTO M270-Gr50 | ELECTRODES: — | HOLES: 15/16"ø | SHOP BOLTS: —

SURFACE PREP. & PAINT:

SHERWIN WILLIAMS-COROTHANE I GALVAPAC ONE PACK ZINC PRIMER 3.5 TO 4 MILS DFT

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
NO EXCEPTION TAKEN ✓
REVISE AS NOTED
RESUBMISSION NOT REQ'D
REVISE AS NOTED
RESUBMISSION
REJECTED
DATE 4/23/08
SIGNATURE Michael Chenti
REVIEW BY: PURPOSE OF ASCERTAINING CONFORMITY WITH DESIGN. CONTRACT. RESPONSIBLE FOR DIMENSIONS. FABRICATION. CONSTRUCTION METHODS. COORDINATION OF SUB-TRADES. DETAIL DESIGN OF COMPONENTS AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

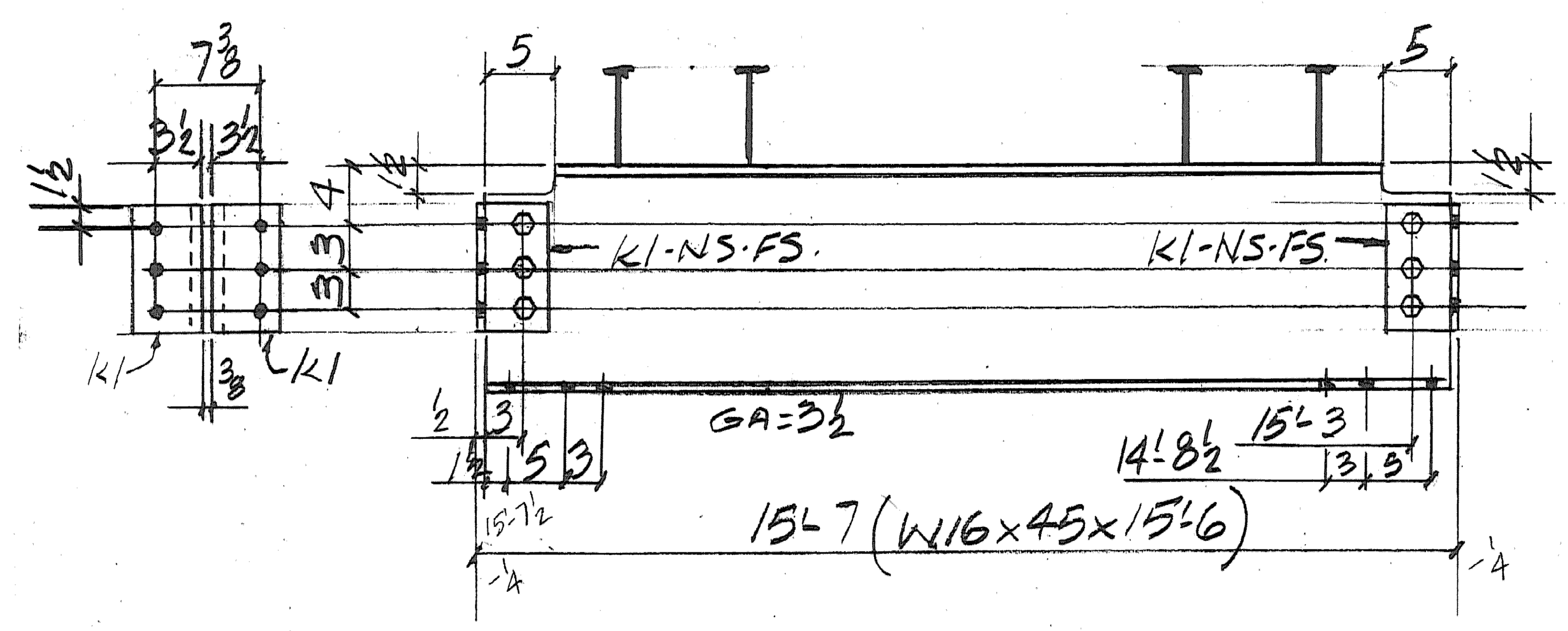
Per Blow & Cote, Inc., all circled dimensions have been verified and they have released to fabricate using these dimensions. If all verification of existing holes for W27 and existing plates and angles can be verified prior to fabrication Casco Bay Steel Structures will shop drill. If not, Blow & Cote will field drill these holes.

DESCRIPTION: BEAM DETAILS	DRAWN BY	DATE
JOB: IMPROVEMENTS BRIDGE No.41 ON TH No.2 RICHFORD, VT.	JPF	3-08
	CHKD BY	
	APPROV BY	
	Q.A.	
CUSTOMER: BLOW & COTE INC.		

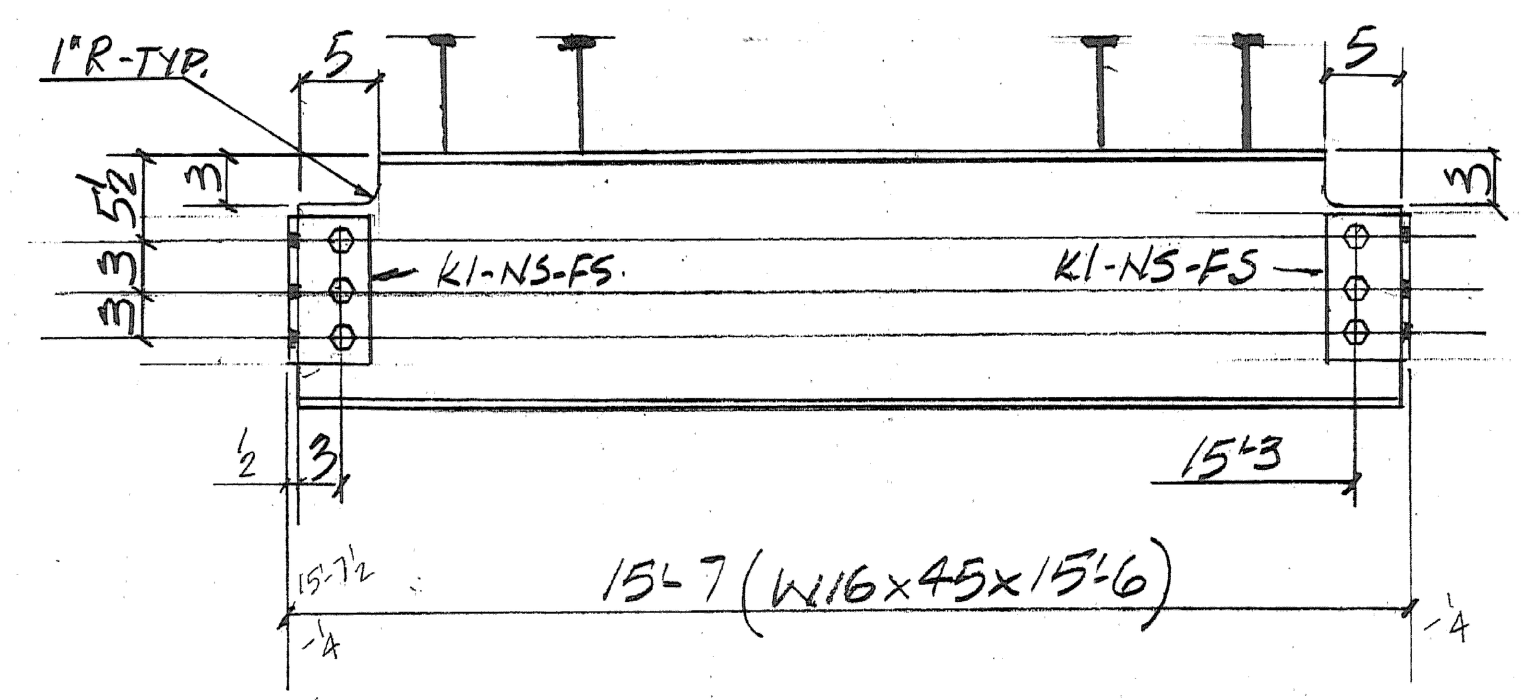
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
361	S2
	REV. △

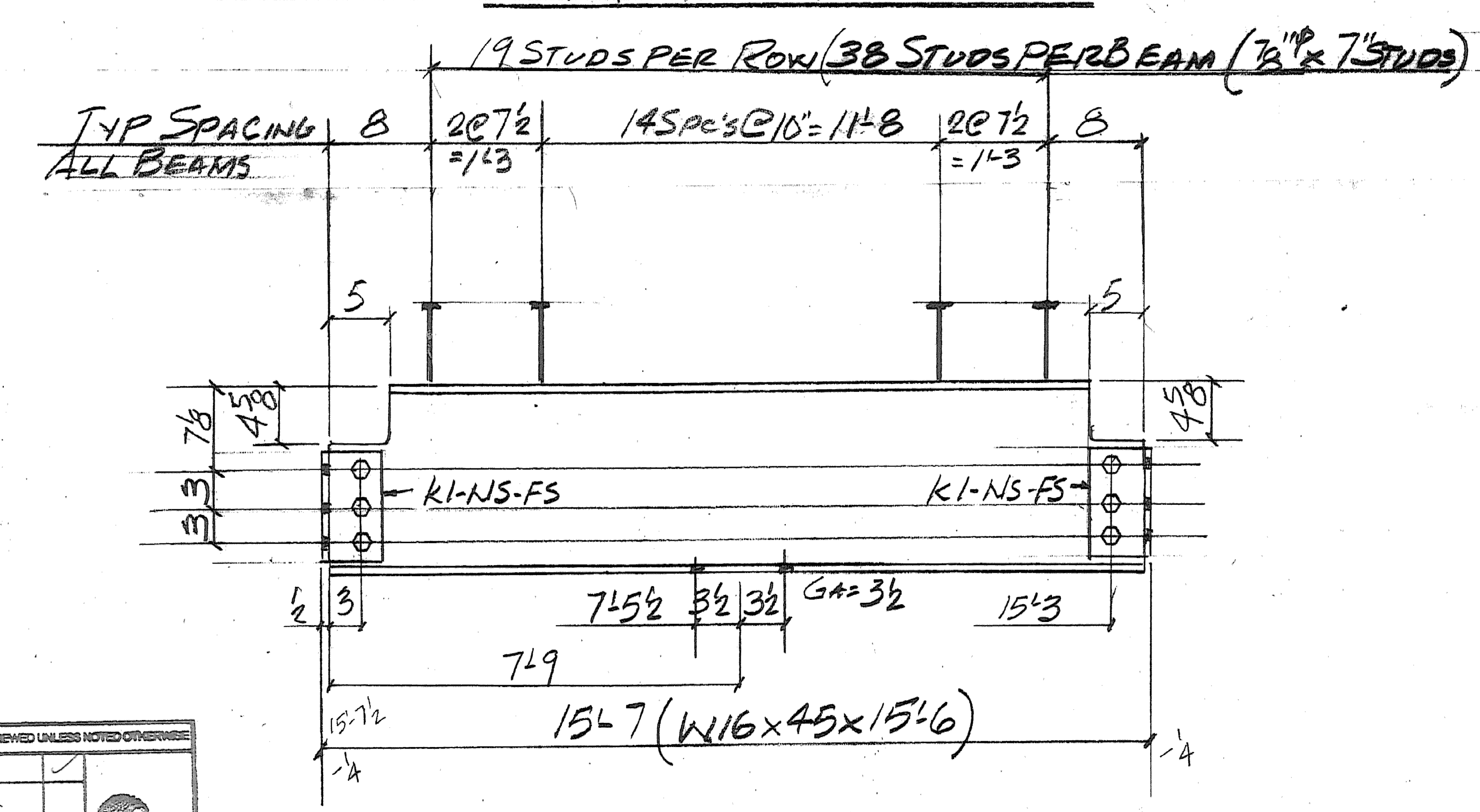
1" = 1'-0



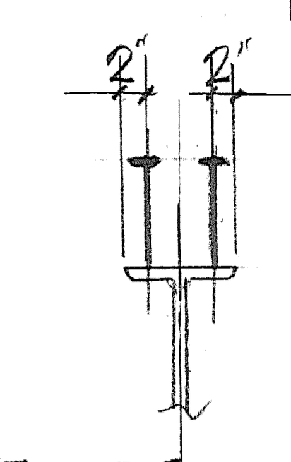
STRINGERS - S11 - S21 - S31 - S41 - S51 - S61 - S71 - S81
S15 - S25 - S35 - S45 - S55 - S65 - S75 - S85
MAKE ONE OF EACH



STRINGERS - S12 - S22 - S32 - S42 - S52 - S62 - S72 - S82
S14 - S24 - S34 - S44 - S54 - S64 - S74 - S84
MAKE ONE OF EACH



STRINGERS - S13 - S23 - S33 - S43 - S53 - S63 - S73 - S83
MAKE ONE OF EACH



TYP @ SHEAR CONN.

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
NO EXCEPTION TAKEN ✓
REVISE AS NOTED RESUBMISSION NOT REQUIRED
REVISE AS NOTED RESUBMISSION R
REJECTED
Stantec
DATE 4/23/08
SIGNATURE Michael [illegible]
REVIEW BY S... PURPOSE OF ASCERTAINING ... RMITY WITH DESIGN. CONTRAC... ONSIBLE FOR DIMENSIONS, FABRICA... CONSTRUCTION METHODS, COORDINATION OF SUB-TRADES, DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

Per Blow & Cote, Inc., all circled dimensions have been verified and they have released to fabricate using these dimensions. If all verification of existing holes for W27 and existing plates and angles can be verified prior to fabrication Casco Bay Steel Structures will shop drill. If not, Blow & Cote will field drill these holes.

SHOP BILL

JOB NO. 361 | DRG. NO. S3

ABM INFO PAGE	ABM INFO LINE	NO.		DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1		W16x45	15	6		S11		
								S21		
								S31		
								S41		
								S51		
								S61		
								S71		
								S81		
								S15		
								S25		
								S35		
								S45		
								S55		
								S65		
								S75		
								S85		
								S12		
								S22		
								S32		
								S42		
								S52		
								S62		
								S72		
								S82		
								S14		
								S24		
								S34		
								S44		
								S54		
								S64		
								S74		
								S84		
								S13		
								S23		
								S33		
								S43		
								S53		
								S63		
								S73		
		1		W16x45	15	6		S83		
			1520	7/8"⌀ SHEAR CONN		7	SHOP			
			160	L5x5x3/8		9	K1			
			240	7/8"⌀ A325-TC BOLTS		2 1/2	SHOP		W/ NUT & WASH GALV.	
		FIELD	BOLTS	(A325-TC-GALV.)						
		210		7/8"⌀ BOLTS			2 3/4		W/ N & W.	
		60		DO			2 1/4		DO	
		128		DO			2 1/2		DO	
		64		DO			2 3/4		DO	
		PAY	ITEM	506.50						

Field bolt uses (left of the table):
2-SIDED CONN. TO BEAMS
CONN. TO BEAMS B1 & B9
BOT. FLG. TO BRACING PL
BOT. FLG. TO BRACING PL & L

OUT FOR APPROVAL	3/19/08										
OUT FOR APPROVAL	4/17/08										
ISSUED TO SHOP											
FIELD & OFFICE											
1	ADDED STUDS	4-15-08	JPF								
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-0302(3) S | STATE PROJECT NO.

MATERIAL: AASHTO M270-GR50 | ELECTRODES: — | HOLES: 15/16"⌀ | SHOP BOLTS: 7/8"⌀ A325

SURFACE PREP. & PAINT: TYP. I-GALV.
SHERWIN WILLIAMS - COROTHANE / GALVAPAC
ONE PACK ZINC PRIMER 3.5 TO 4 MILS DFT

DESCRIPTION: STRINGER DETAILS

JOB:
IMPROVEMENTS
BRIDGE NO. 41 ON TH NO. 2
RICHFORD, VT.

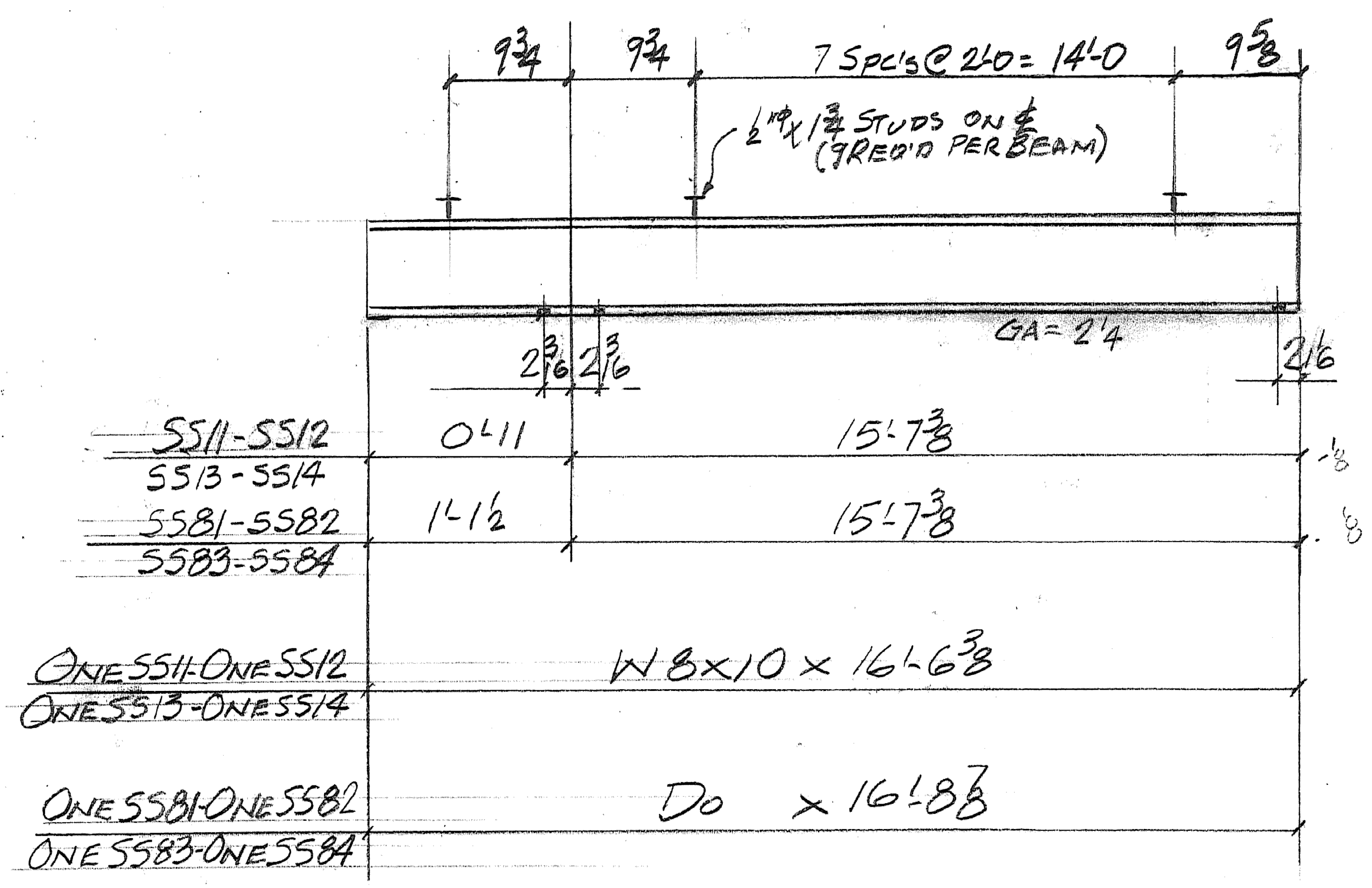
DRAWN BY	DATE
JPF	3-08
CHKD BY	
APPROV BY	
Q.A.	

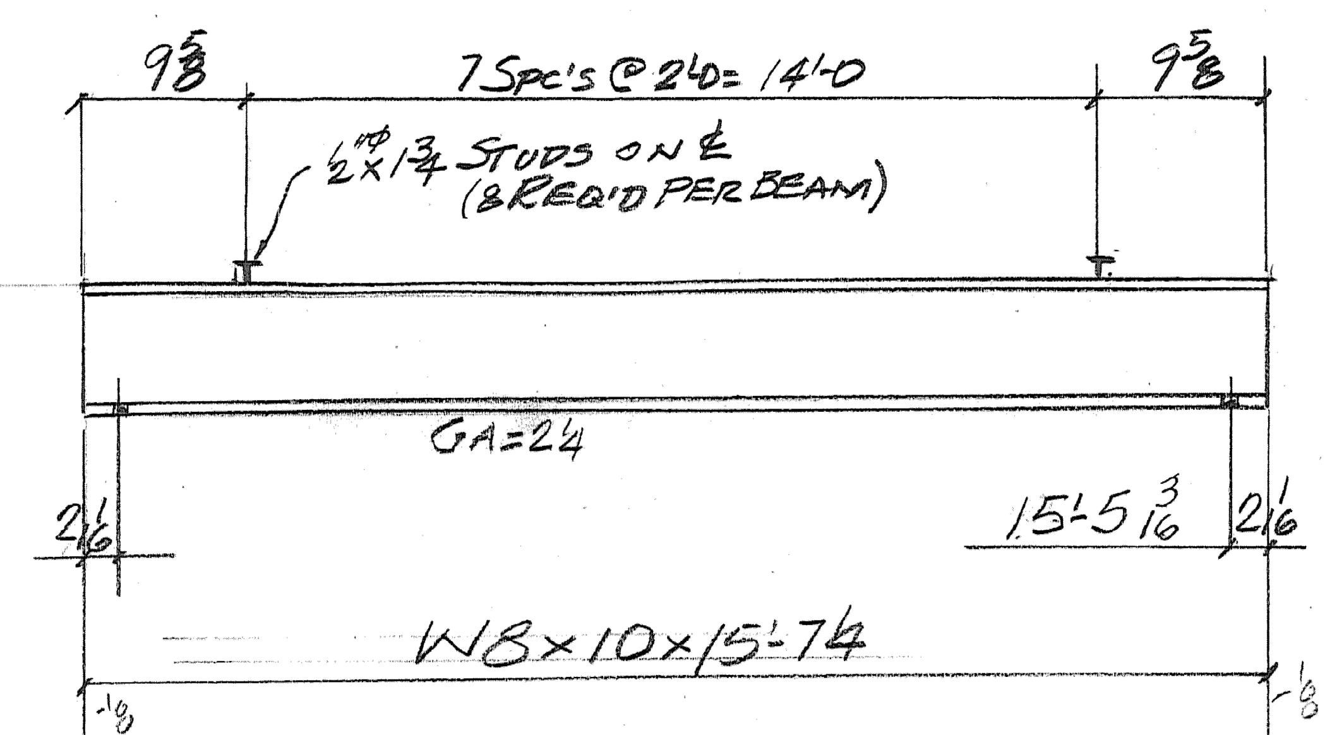
CUSTOMER: BLOW & COTE INC.

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

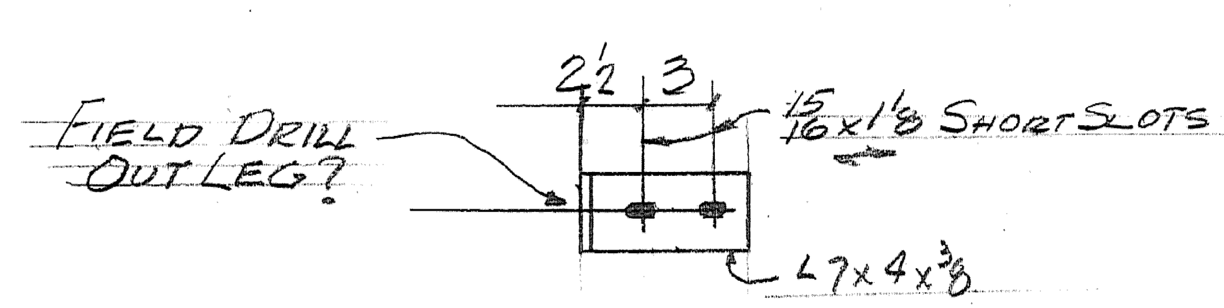
JOB NO.	DRG. NO.
361	S3
	REV. △

1" = 1'-0





Sidewalk Stringers - SS21 - SS22 - SS23 - SS24
SS31 - SS32 - SS33 - SS34
SS41 - SS42 - SS43 - SS44
SS51 - SS52 - SS53 - SS54
SS61 - SS62 - SS63 - SS64
SS71 - SS72 - SS73 - SS74



SK1 - 16 - Req'd

G.C. to Verify All Hole Locations

Shop drawings are reviewed unless noted otherwise
No exception taken ✓
Revise as noted
Resubmission not required
Revise as noted
Resubmission required
Rejected
Date 4/23/08
Signature

Per Blow & Cote, Inc., all circled dimensions have been verified and they have released to fabricate using these dimensions. If all verification of existing holes for W27 and existing plates and angles can be verified prior to fabrication Casco Bay Steel Structures will shop drill. If not, Blow & Cote will field drill these holes.

SHOP BILL

JOB NO. 361 — DRG. NO. S4

ABM INFO PAGE	ABM INFO LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	W8x10	16	6 3/8		SS11		
		1	Do	16	6 3/8		SS12		
		1	Do	16	6 3/8		SS13		
		1	Do	16	6 3/8		SS14		
		1	W8x10	16	8 7/8		SS81		
		1	Do	16	8 7/8		SS82		
		1	Do	16	8 7/8		SS83		
		1	Do	16	8 7/8		SS84		
		1	W8x10	15	7 1/4		SS21		
							SS22		
							SS23		
							SS24		
							SS31		
							SS32		
							SS33		
							SS34		
							SS41		
							SS42		
							SS43		
							SS44		
							SS51		
							SS52		
							SS53		
							SS54		
							SS61		
							SS62		
							SS63		
							SS64		
							SS71		
							SS72		
							SS73		
		1	W8x10	15	7 1/4		SS74		
		16	∠7x4x3/8		3		SK1		
		144	3/4"φ A325-TC-Bolts		1 3/4		Field	W/New. Galv.	
		264	½"φ Shear Conn.		1 3/4	Shop			
			Pay Item 506.50						

OUT FOR APPROVAL		3/19/08										
OUT FOR APPROVAL		4/17/08										
ISSUED TO SHOP												
FIELD & OFFICE												
1	Added Studs	4-15-08	JPF									
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER	

PROJECT NO. BHF-0302(3)S — STATE PROJECT NO.

MATERIAL: AASHTO M270-GR50 — ELECTRODES: — — HOLES: 13/16"φ U.N. — SHOP BOLTS: —

SURFACE PREP. & PAINT:
Sherwin Williams - Corothane I Galvapac
One Pack Zinc Primer 3.5 to 4 mils DFT

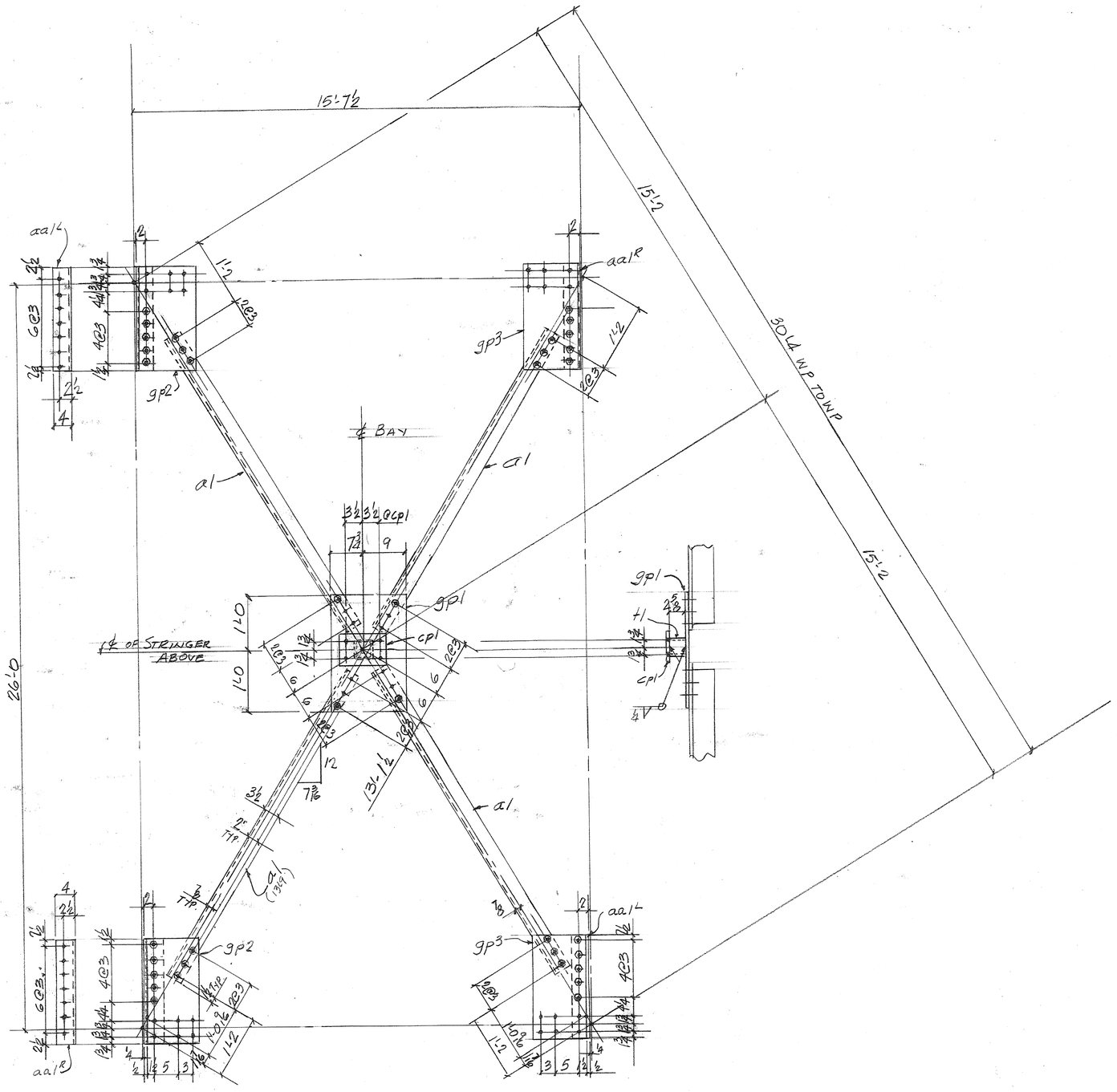
DESCRIPTION: Sidewalk Stringers

JOB:	DRAWN BY	DATE
Improvements Bridge No. 41 on TH No. 2 Richford, VT.	JPF	3-08
	CHKD BY	
	APPROV BY	
	Q.A.	

CUSTOMER: Blow & Cote Inc.

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

JOB NO.	DRG. NO.
361	S4
	REV. △



ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		8	BRACING	30	0±		LBI		—
		32	L5x3½x½	13	9	a1			
		8	PL½x16¾	2	0	gp1			
		16	PL½x12	1	11	gp2			
		16	Do	1	11	gp3			
		16	L4x3½x⅜	1	11	aa1R			
		16	Do	1	11	aa1L			
		8	PL½x7		10	cp1			
		8	TS4x4x⅜		25⅝	±1			
		288	¾"ø A325-TC-BOLTS		2½	SHOP		W/NEW GALV.	
			FIELD BOLTS (A325-TC-GALV.)						
		124	¾" BOLTS		2½			W/NEW.	
		98	Do		3			Do	

CONN. TO BRANDS & PT
L BRACING TO GUSSET
CONN. TO POT. STRINGER
2 STUDS CONN. TO BEAMS

PAY ITEM 506.50

Per Blow & Cote, Inc., all circled dimensions have been verified and they have released to fabricate using these dimensions. If all verification of existing holes for W27 and existing plates and angles can be verified prior to fabrication Casco Bay Steel Structures will shop drill. If not, Blow & Cote will field drill these holes.

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
NO EXCEPTION TAKEN ✓
REVISE AS NOTED
RESUBMISSION NOT REQUIRED
REVISE AS NOTED
RESUBMISSION
REJECTED
Stantec
DATE 4/23/08
SIGNATURE Michael Clement
REVIEW BY S... SOLE PURPOSE OF ASCERTAINING ... CONFORMITY WITH DESIGN CONTRACT ... RESPONSIBLE FOR DIMENSIONS, FABRICATI... CONSTRUCTION METHODS, COORDINATION OF SUB-TRADES, DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/19/08									
	OUT FOR APPROVAL	4/17/08									
	ISSUED TO SHOP										
	FIELD & OFFICE										
△	AM'L COMMENTS	4/17/08									

PROJECT NO. BHF-0302(3)S — STATE PROJECT NO.

MATERIAL: AASHTO M270-Gr50 — ELECTRODES: SEE PROC — HOLES: 13/16 H/P — SHOP BOLTS: ¾ A325 TC-GALV.

SURFACE PREP. & PAINT:
SHERWIN WILLIAMS - CORDTHANE I GALVAPAC ONE PACK ZINC PRIMER 3.5 TO 4 MILS DFT

DESCRIPTION: LATERAL BRACING

JOB: IMPROVEMENTS BRIDGE No. 41 ON TH No. 2 RICHFORD, VT.

CUSTOMER: BLOW & COTE INC.

	DRAWN BY	DATE
	JPF	3-08
	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.
361	55
	REV. △

Casco Bay Steel Structures, Inc.

75 Spring Hill Road
Saco, Maine 04072

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

WELDING PROCEDURE SPECIFICATION

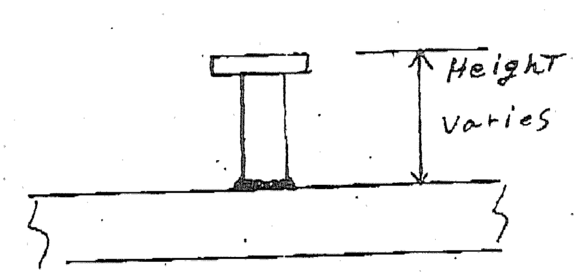
Material specification ASTM-A709/A709M-Gr36-50-50W (250-345-345W) (S.W)
Welding process STUD welder
Manual or machine Machine
Position of welding FlaT
Filler metal specification NA
Filler metal classification NA
Flux NA
Shielding gas NA Flow rate NA
Single or multiple pass Single
Single or multiple arc 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
Postheat temperature NA
Heat Input Min NA Max NA

√ TRANS
RECEIVED
CK'D BY OK'D BY JLC
APR 18 2008
T.L.SUBMIT APPROVED √
BY [signature] DATE 4/17/08

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

Pass no.	~~Electrode size~~ Stud size	Welding current Amperes	~~Volts~~ Weld Time	Travel speed	AWS D1-1 Joint detail AWS D1-5
	1/2	350 650	.35±		
	5/8	350 650	.35±	NA	
	3/4	550 750	.40±		
	7/8	650 850	1.0±		



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 [signature]
Date May 3-1999

AWS QC 1 PAUL E. GOODALE 95100031 CWI

Casco Bay Steel Structures, Inc.

5 Industry Road
South Portland, Maine 04106

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

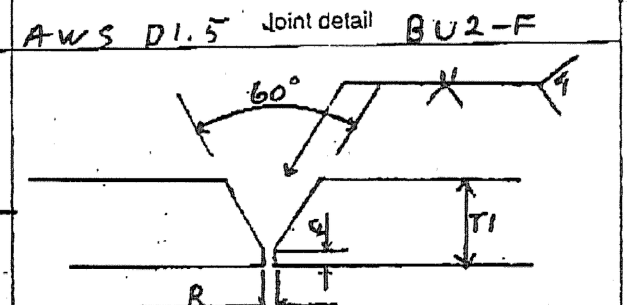
WELDING PROCEDURE SPECIFICATION

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% CO_2 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)
Postheat temperature NA
Heat Input Min NA Max NA

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed	AWS D1.5 Joint detail BU2-F
	1/16	280 ±28	25 ±1.7	11 ±1.1	
	1.6	280 ±28	25 ±1.7	280 ±28	T1 - UNlimited f - 0 To 1/8 / 0 To 3.2mm R - 0 To 1/8 / 0 To 3.2mm 1-Grind as required



VTRANS RECEIVED OK'D BY ___ OK'D BY JLC APR 08 2008 RESUBMIT ___ APPROVED ✓ WBTrapp DATE 4/10/08

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

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

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

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 Fleet (F) Horizontal (H)
Filler metal specification AWS A5.20
Filler metal classification E71T-1
Flux N/A
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
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"(38) To 2 1/2 (63) = 150°(65°)
- over 2 1/2 (63) = 225°(110°)
Postheat temperature N/A
Heat Input Min N/A Max N/A

RICH Ford, VT
BRNC, 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE (METRIC)

Pass no.	Electrode size	Welding current Amperes	Welding current Volts	Travel speed	Joint detail AWS D1-5 F111GT
	1/16	205 247.5 To 302.5	28.8 26.8 To 30.8	11.6 10.4 To 12.8	1F To 1/2 (12.7)
		(METRIC)			
	1.6	205 247.5 To 302.5	28.8 26.8 To 30.8	294.6 264.2 To 325.12	2F To 3/8 (9.5)

VTRANS RECEIVED APP 08 2008 CKD BY JWC PERMIT APPROVED DATE 4/7/08

This procedure may vary due to fabrication sequence, lit-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 BI-2

Contractor Casco Bay Steel
Authorized By Del E. Goodale
Date 3/23/08

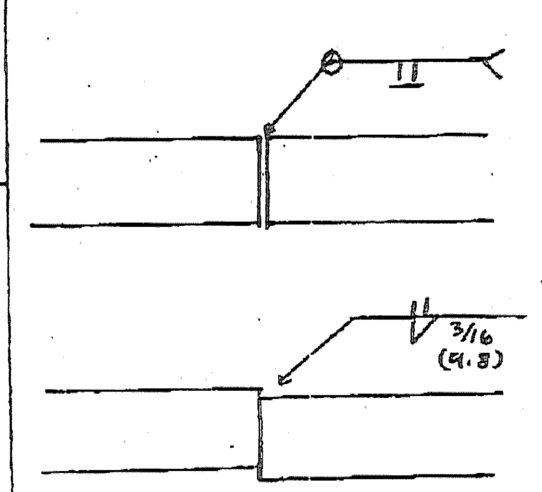
Casco Bay Steel Structures, Inc.
5 Industry Road
South Portland, Maine 04106
Phone: (207) 772-2533
Fax: (207) 772-0580

WELDING PROCEDURE SPECIFICATION

Material specification A36 - A572 - A588 . (ASTM 709 Gr36-50-50W
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 ± 5
Electrode STICK OUT 3/4 ± 1/4
Single or multiple pass Single
Single or multiple arc Single
Welding current Direct current
Polarity Reverse Electrode Positive
Welding progression see Detail
Root treatment Meet A.W.S. weld From one side only
Preheat and interpass temperature 0 To 3/4 - 50F (19 - 10C) + 3/4 To 1 1/2 - 70F (+19 To 38 - 20C)
Postheat temperature NA
Heat Input Min NA Max NA

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)5
CBSS 361

WELDING PROCEDURE

Pass no.	Electrode size	Welding current: Amperes	Welding current: Volts	Travel speed	AWS D1-5 Square groove — Joint detail: ~~Fillet~~ / Butt
	1/16	280 ±28	25 ±1.7	17 IPM ± 1.7	
	1.6	280 ±28	25 ±1.7	432 ± 43.2	

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. ____

Contractor Casco Bay Steel
Authorized By [signature]

Casco Bay Steel Structures, Inc.
5 Industry Road
South Portland, Maine 04106
Fax: (207) 772-0580

hone: (207) 772-2555

WELDING PROCEDURE SPECIFICATION

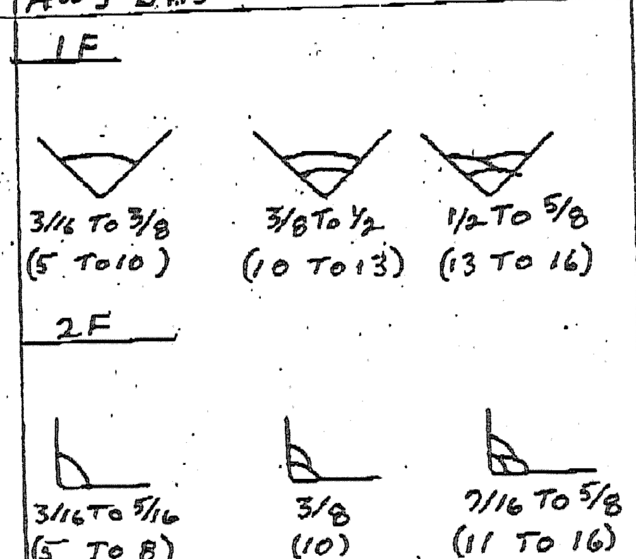
Material specification ASTM 709-Gr 36-50-50W (250-345-345W)
Welding process Shielded Metal Arc welding (SMAW)
Manual or machine Manual
Position of welding Flat (1F), Horizontal (2F)
Filler metal specification ANSI/AWS A5.1 - A5.5
Filler metal classification E7018 - 8018 C1/C3 - 7028
Flux NA
Shielding 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

Rich Ford, VT
Br No. 41 - Proj No. BHF-0302(3)S
CBSS 361

WELDING PROCEDURE

(metric)

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



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

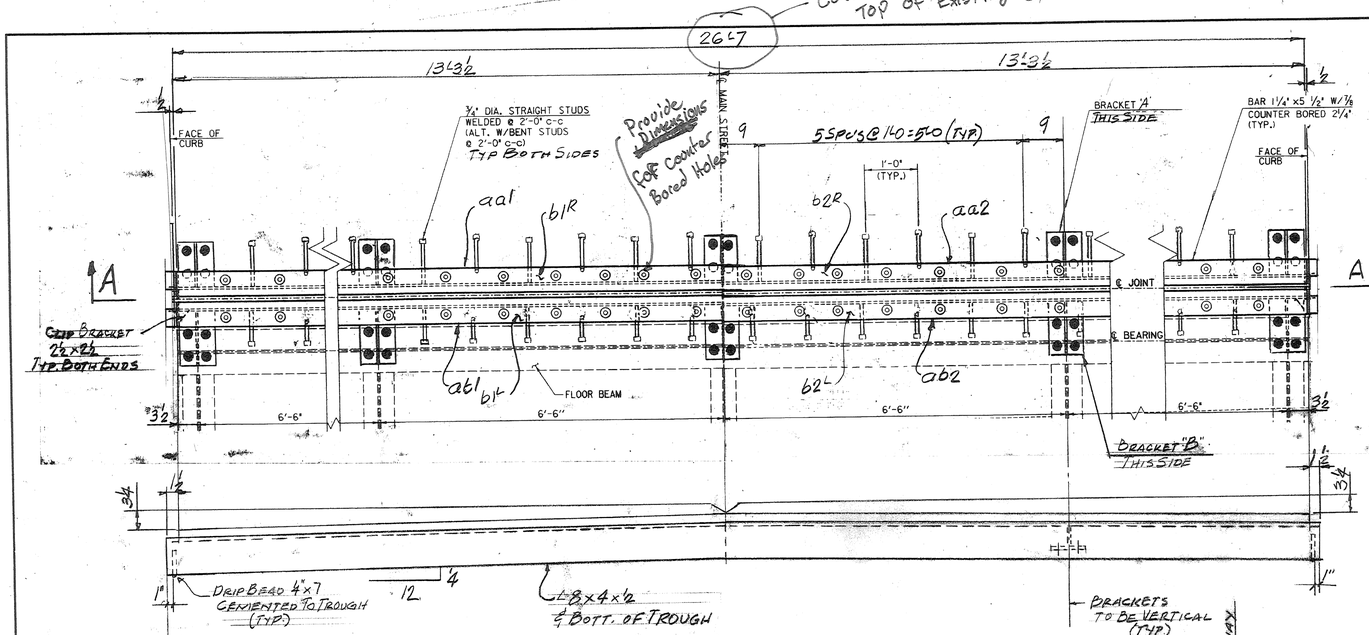
Procedure no. 401
Revision no.
Form III-2

AWS QC 1 PAUL E. GOODALE 88100001 CWI

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

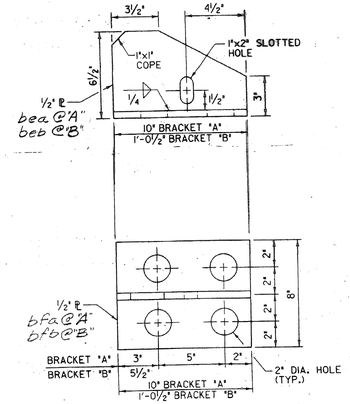
VTRANS RECEIVED
CK'D BY ____ OK'D BY JWC
APR 0 8 2008
RESUBMIT ____ APPROVED ✓
BY WBTrapp DATE 4/17/08

Contractor is Field Verify width Between Top of Existing CURBS

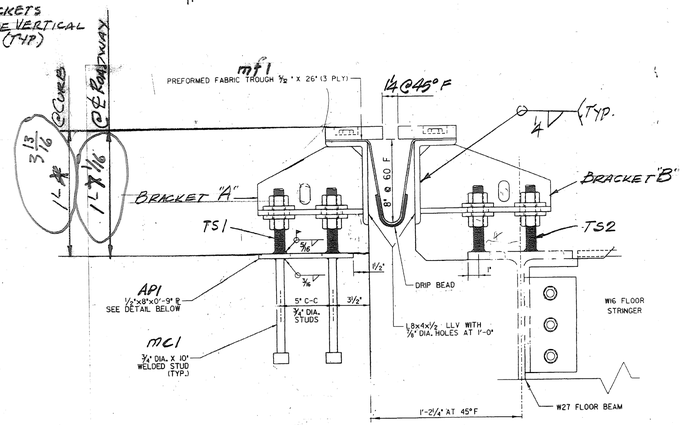


A-A

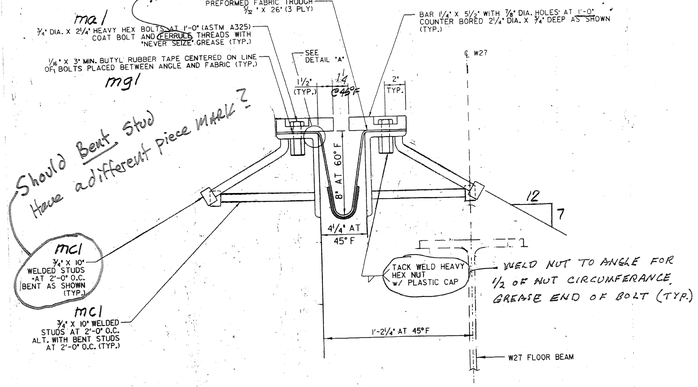
EJI - ONE REQ'D (@ ABUT. #1)



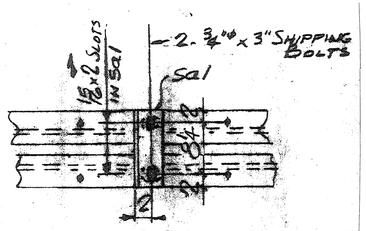
BRACKET "A" AND "B"



TYPICAL SECTION AT BRACKETS



TYPICAL SECTION BETWEEN BRACKETS



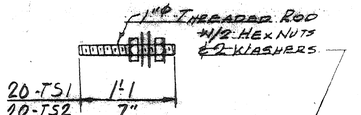
SHIPPING DEVICE SPACED 5'0" @c. MAX.

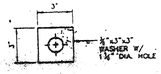
SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE	
NO EXCEPTION TAKEN	
REVISE AS NOTED RESUBMISSION NOT REQUIRED	✓
REVISE AS NOTED RESUBMISSION REQUIRED	
REJECTED	

DATE 4/17/08

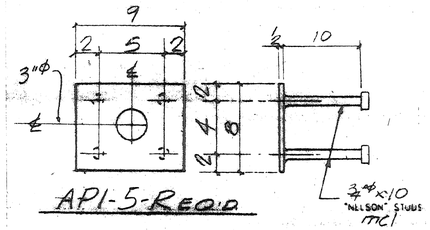
SIGNATURE Scott Burdick

REVIEW BY STANTEC IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMITY WITH DESIGN. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, FABRICATION AND CONSTRUCTION METHODS. COORDINATION OF SUB-TRADES. DETAIL DESIGN OF COMPONENTS AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

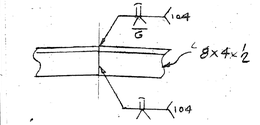




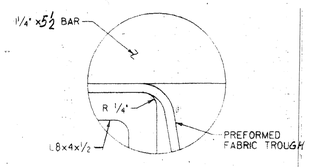
WASHER FOR BRACKET W1



API-5-REQ'D



WELDING DETAIL



DETAIL "A"

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JOINT	26	10±		EJ1		—
		1	L 8x4x½	13	5	aa1			
		1	Do	13	5	ab1			
		1	Do	13	5	aa2			
		1	Do	13	5	ab2			
		2	BAR 5½x¼	13	3½	b1R/L		FURNISH 4 EQUAL LENGTHS	
		2	Do	13	3½	b2R/L		Do	
		5	PL ½x6		10	bea			
		5	Do	1	0½	beb			
		5	PL ½x8		10	bfa			
		5	Do	1	0½	bfb			
		56	¾"ϕ HEX BOLTS		2½	mc1		W/HEAVY HEX NUT & PLASTIC CAPS	
		48	¾"ϕ ANC STUDS		10	mc1			
		1	PREFORMED FABRIC 5/32x26	27	0±	mf1		3 PLY PER SUBSECT. 707.07	
		2	BUTYL RUBBER TAPE ⅛x3	27	0±	mg1		PER SUBSECT. 701.12	
	20		1"ϕ THREADED RODS	1	1		TS1	A307	
	20		Do		7		TS2	A307	
	80		1"ϕ HEX NUTS				FIELD		
	80		PL ⅜x3		3		W1	PL WASH	
	5		PL ½x8		9		AP1		
		20	¾"ϕ ANC STUDS		10	mc1			
		6	L 4x4x½	1	04	sa1			
		12	¾"ϕ BOLTS		3		SHOP		

PAY ITEM: 516.11

JOB NO. 351 DRG. NO. J1

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/28/08									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. BHF-0302(3)S STATE PROJECT NO.

MATERIAL: AASHTO M270 Gr 36 ELECTRODES: SEE PROC HOLES: AS NOTED. SHOP BOLTS: ¾"ϕ A325 GALV.

SURFACE PREP. & PAINT:

GALVANIZE PER SUBSECT. 506.15

DESCRIPTION: EXP. JOINT - ABUT. #1

JOB:

IMPROVEMENTS
BRIDGE No. 41 ON TH No. 2
RICHFORD, VT.

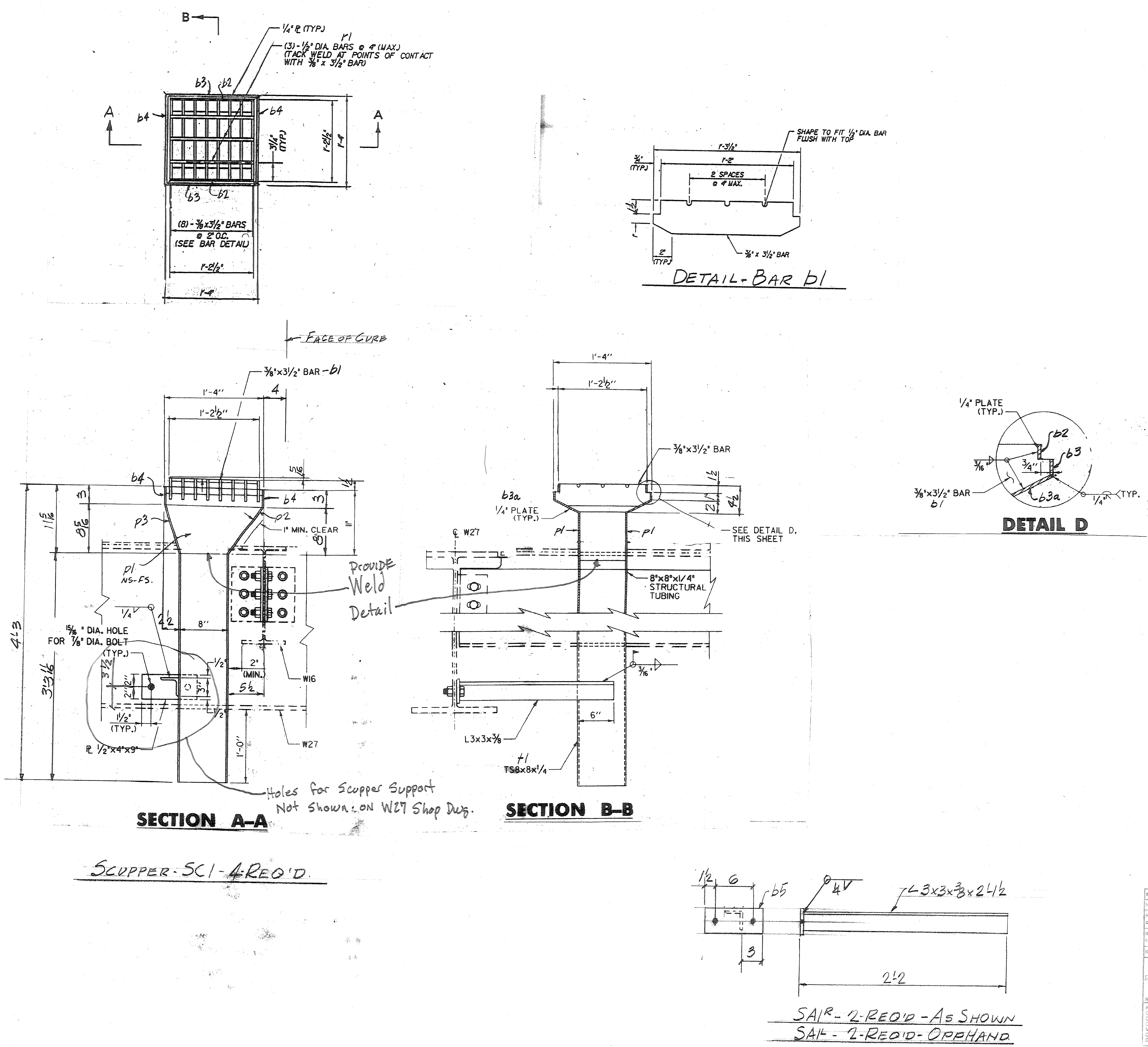
	DRAWN BY	DATE
	JPF	3-08
CHKD BY	CR	
APPROV BY		
Q.A.		

CUSTOMER: BLOW & COTE INC.

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

JOB NO.	DRG. NO.
361	J1
	REV. △

1" = 1'-0"



SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE

Stantec

DATE 4/17/08

SHOP BILL

JOB NO. 351 | DRG. NO. M1

PAGE	LINE	NO.		DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		4		SCUPPERS	4	3		SC1		—
			4	TS 8x8x1/4	3	3 1/16	t1		PER SUBSECT 714.11	
			32	BAR 3 1/2 x 3/8	1	3 1/2	b1			
			8	BAR 1 1/2 x 1/4	1	2 1/2	b2			
			8	BAR 1" x 1/4	1	4	b3			
			8	BAR 4 1/2 x 1/4	1	4	b3a			
			8	BAR 3 x 1/4	1	3 1/2	b4			
			12	1/2"Φ BAR	1	2 1/2	r1			
			8	PL 1/4 x 8 5/16	1	3 1/2	p1			
			4	PL 1/4 x 7 1/2		9 1/16	p2			
			4	PL 1/4 x 7 1/2		8 1/16	p3			
		2		L3x3x3/8	2	1 1/2		SA1R		
		2		DO	2	1 1/2		SA1L		
			4	BAR 4 x 1/2		9	b5			
		8		7/8"Φ A325 TC BOLTS GALV.		2 1/2		FIELD	W/NEW.	

PAY ITEM: 506.60

OUT FOR APPROVAL	3/28/08									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-0302(3)S STATE PROJECT NO.

MATERIAL: AASHTO M270-GR36 | ELECTRODES: SEE PROC | HOLES: 15/16"Φ | SHOP BOLTS: —

SURFACE PREP. & PAINT: GALVANIZE PER SUBSECT. 506.15, PART (a)

DESCRIPTION: SCUPPERS

JOB: IMPROVEMENTS BRIDGE NO. 41 ON TH NO. 2 RICHFORD, VT.

CUSTOMER: BLOW & COTE INC.

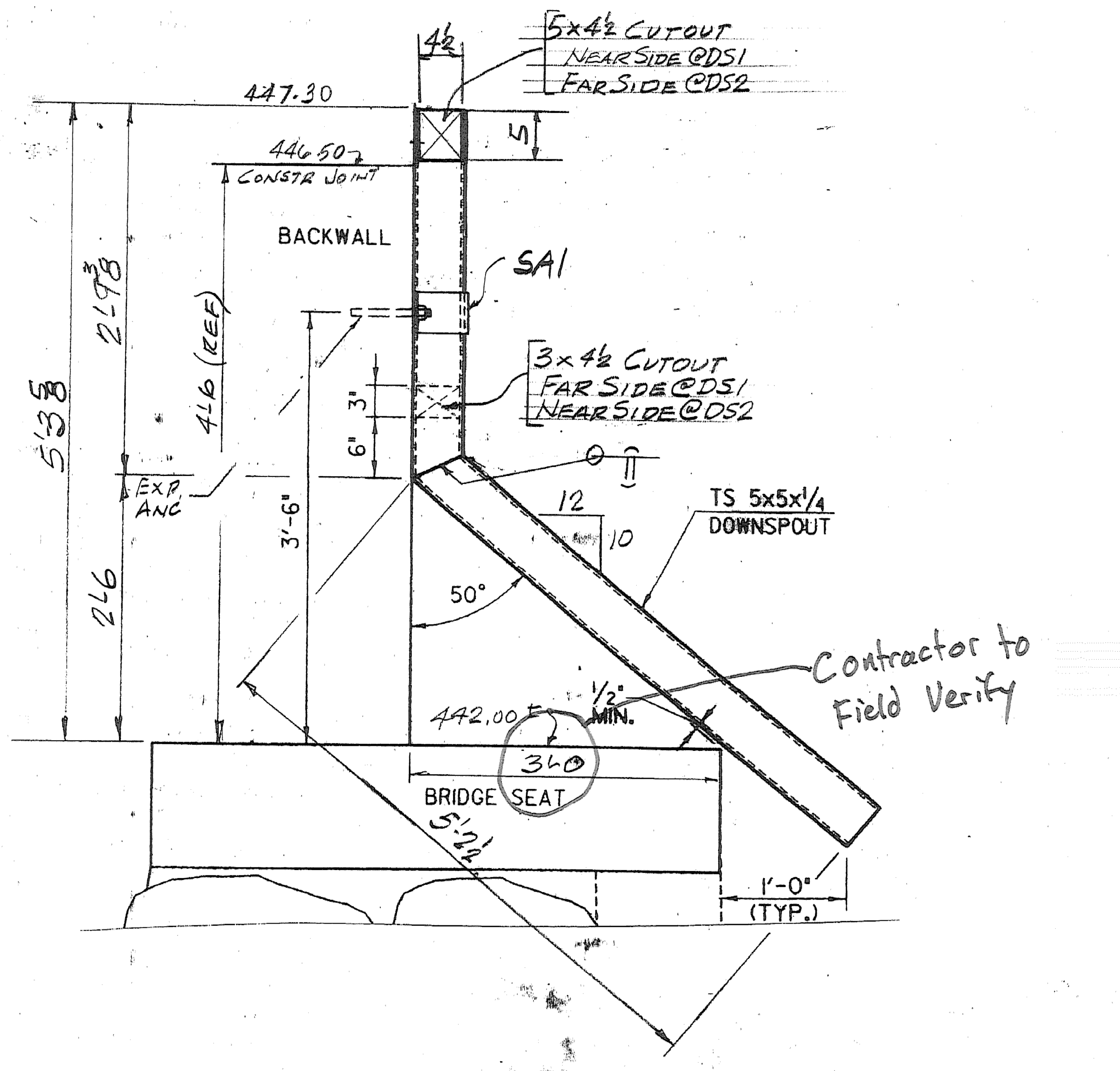
DRAWN BY: JPF | DATE: 3-08
CHKD BY: CR
APPROV BY:
Q.A.

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

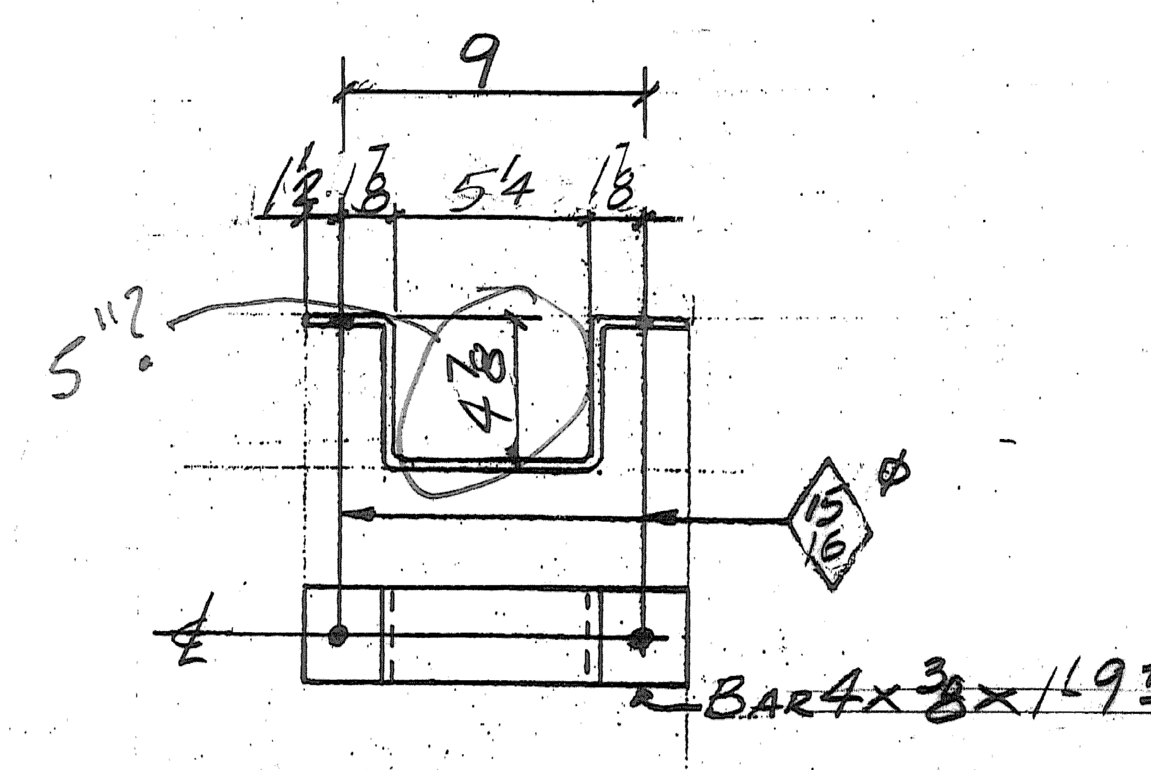
JOB NO. 361 | DRG. NO. M1 | REV. △

1" = 1'-0

ABM INFO	SHOP BILL							JOB NO. 351	DRG. NO. M2
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	DOWNSPOUT	8	0±		DS1		
		1	DO	8	0±		DS2		
			2 TS5x5x¼	8	0	+1		PER SUBSECT 714.11	
		2	BAR 4x⅜	1	9±		SA1	BEND	
		2	PL ¼x~~12~~ (13)	7	0		G1	BEND	
		12	¾"Φ EXP. BOLTS		9		FIELD	W/N&W.	
		PAY ITEM: 506.60							

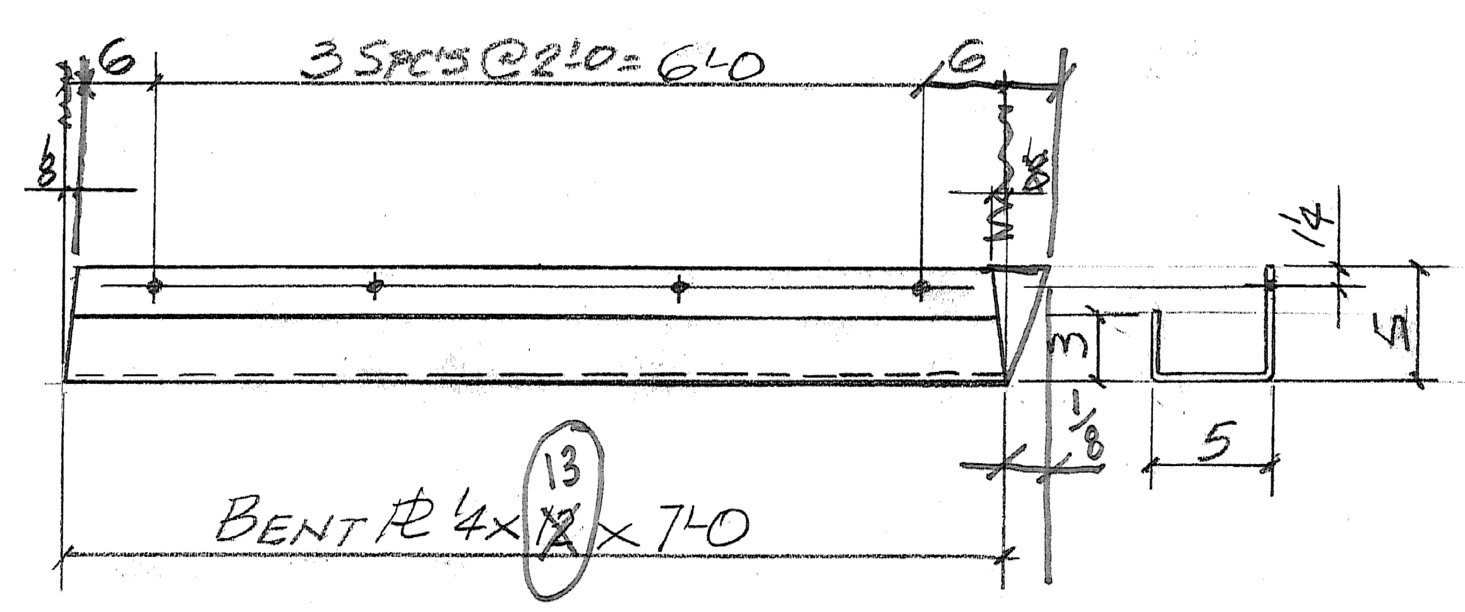


DS1-ONE REQ'D (@NORTH END-ABUT.#1)
DS2-ONE REQ'D (@SOUTH END ABUT #1)



SA1-2-REQ'D

INCLUDE
4-¾"Φx9" EXP. BOLTS



GUTTER-G1-2-REQ'D.

INCLUDE
8-¾"Φx9 EXP. BOLTS

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
NO EXCEPTION TAKEN
REVISE AS NOTED RESUBMISSION NOT REQUIRED ✓
REVISE AS NOTED RESUBMISSION REQUIRED
REJECTED
Stantec
DATE 4/17/08
SIGNATURE [signature]
REVIEW BY STANTEC IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMITY WITH DESIGN. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, FABRICATION AND CONSTRUCTION METHODS, COORDINATION OF SUB-TRADES, DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS

OUT FOR APPROVAL		3/28/08									
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. BHF-0302(3)S STATE PROJECT NO.
MATERIAL: AASHTO M270-Gr36 ELECTRODES: SEE PROC. HOLES: 15/16"Φ SHOP BOLTS: —
SURFACE PREP. & PAINT:
GALVANIZE PER SUBSECT. 506.15-PART (a)

DESCRIPTION: DOWNSPOUTS — DRAWN BY: JPF — DATE: 3-08
JOB:
IMPROVEMENTS
BRIDGE NO.41 ON TH NO.2
RICHFORD, VT.
CHKD BY: CR
APPROV BY:
Q.A.
CUSTOMER: BLOW & COTE INC.

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

JOB NO. 361 — DRG. NO. M2 — REV. △

1" = 1'-0

VERMONT

State of Vermont *Agency of Transportation*
PDD/Structures Design Section
National Life Building – Drawer 33 [phone] 802-828-2621
Montpelier, VT 05633-5001 [fax] 802-828-3566
www.aot.state.vt.us [tty] 800-253-0191

DATE: October 17, 2008

Highway Safety Corp.
239 Commerce Street
P. O. Box 358
Glastonbury, CT 06033

Project Name: Richford **Project #: BHF 0302(3)S**

Structure Identification: TH #2, Br. #41 over Missisquoi River

The following bridge railing details [Item # 900.640, Special Provision (Box Beam Guard Rail, Truss) and Item # 900.640, Special Provision (Bridge Railing, Truss)] for the above project (Vendor's Job No 1660) transmitted to us with a letter from F. R. Lafayette dated October 15, 2008 have been reviewed and are being returned herewith.

Sheets 1 through 4 of 4 **are approved or approved "as noted".** Upon receipt of these drawings please make appropriate changes and submit white prints for our use in the record plans for this project.

Copies of the previously approved Welding Procedures W-1658A, W 1658B, and W 1660A are enclosed.

You must provide notice to our fabrication inspector, Jeff Clark, as to the date fabrication represented by these drawings will begin. That notice must be received and acknowledged at least seven days prior to that date, as per Specification 506.03. Jeff may be contacted by phone at (802)828-0044 or email at jeff.clark@state.vt.us. Any material fabricated prior to the notification date is subject to rejection without further cause.

Sincerely,

Warren Tripp

Attachments
cc: [X] Resident Engineer Carl Gleason w/prints
[X] Shop Inspector Jeff Clark w/prints
[X] Contractor: Blow & Cote, Inc. w/prints
[X] Subcontractor: F. R. Lafayette, Inc. w/prints
[X] Construction Divison – letter only
[X] Materials & Research Section (C&IA Unit) – letter only
[X] Wayne Symonds
[X] Files

VERMONT

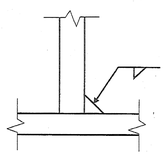
Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification: **ASTM A36, A572 gr 50, A709 Gr 36, ASTM A709 Gr 50, A500 gr B**
Welding process: **Gas Metal Arc Welding (GMAW)**
Manual, semi-automatic, or automatic: **Semi-Automatic**
Position of welding: **Horizontal (2F)**
Filler metal specification: **AWS A5.18**
Filler metal classification: **ER70S-3**
Electrode and manufacturer: **Lincoln Electric Lincoln Weld L-50**
Flux and manufacturer: **N/A**
Shielding gas: **85% Argon / 15% CO2** Flow rate: **19-27 L / min**
Single or multiple pass: **Single**
Single or multiple arc: **Single**
Welding current: **DC**
Polarity: **Reverse**
Welding progression: **Stringers**
Root treatment: **None**
Preheat and interpass temperature: **Base Metal up to 3/4" (50ºF) ; over 3/4-1 1/2" (70ºF)**
Postheat treatment: **None**
Electrode extension: **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
1/8"	1	0.045"	300 A ± 30	29 V ± 2	28 ipm ± 2	TYPICAL ALL FILLET WELDS 
3/16"	1	0.045"	300 A ± 30	29 V ± 2	28 ipm ± 2	
5/16"	1	0.062"	275 A ± 25	25 V ± 2	8-10 ipm	

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

WPS no. **W-1658A**
Revision no. **0**
Supporting PQR no. **Pre-qualified**
Project Name **Richford, VT**

Fabricator: **Highway Safety Corporation**
Authorized by: Paul Radice
Date: **7/29/08**
Project Number **BHF 0302(3)S**

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification: ASTM A500 Gr B

Welding process: Gas Metal Arc Welding (GMAW)

Manual, semi-automatic, or automatic: Semi-Automatic

Position of welding: Horizontal (2F)

Filler metal specification: AWS A5.18

Filler metal classification: ER70S-3

Electrode and manufacturer: Lincoln Electric Lincoln Weld L-50

Flux and manufacturer: N/A

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

Single or multiple pass: Single

Single or multiple arc: Single

Welding current: DC

Polarity: Reverse

Welding progression: Stringers

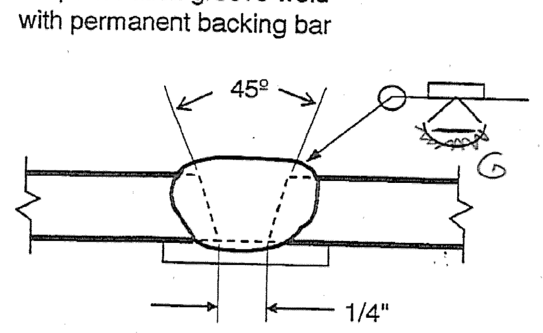
Root treatment: None

Preheat and interpass temperature: Base Metal up to 3/4" (50ºF) ; over 3/4-1 1/2" (70ºF)

Postheat treatment: None

Electrode extension: 3/4" ± 1/4"

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters: Amperes	Welding parameters: Volts	Travel speed	Joint detail
	1	0.045"	300 A ± 30	29 V ± 2	14 ipm ± 2	full penetration groove weld with permanent backing bar 

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

WPS no. W-1658B

Revision no. 0

Supporting PQR no. Pre-qualified

Project Name Richford, VT

Fabricator: Highway Safety Corporation

Authorized by: Paul Radice

Date: 7/29/08

Project Number BHF 0302(3)S

Highway Safety Corporation

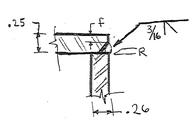
Glastonbury, CT

Welding Procedure Specification

Material specification **ASTM A36, A709 Gr 36**
Welding process **Gas Metal Arc Welding (GMAW)**
Manual, semi-automatic, or automatic **Semi-Automatic**
Position of welding **Horizontal**
Filler metal specification **AWS A5.18**
Filler metal classification **ER70S-3**
Electrode and manufacturer **Lincoln Electric Lincoln Weld L-50**
Flux and manufacturer **N/A**
Shielding gas **85% Argon / 15% CO2** Flow rate **19-27 L / min**
Single or multiple pass **Single**
Single or multiple arc **Single**
Welding current **DC**
Polarity **Reverse**
Welding progression **Stringers**
Root treatment **None**
Preheat and interpass temperature **Base Metal up to 3/4" (50ºF) ; over 3/4-1 1/2" (70ºF)**
Postheat treatment **None**
Electrode extension **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
3/16"	**1**	**0.045"**	**300 A ± 30**	**29 V ± 2**	**28 ipm ± 2**	BTC - PH - GF

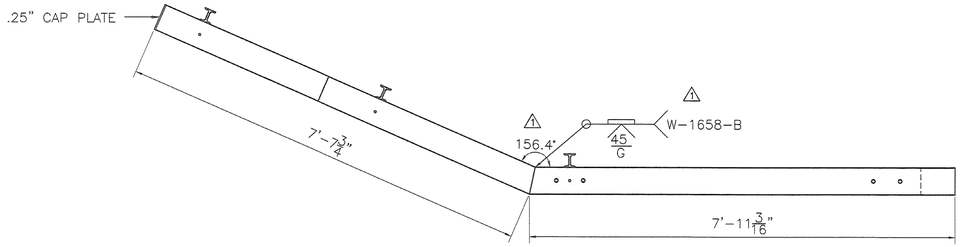


R = 0 +1/8 -1/16
f = 1/8 ± 1/16

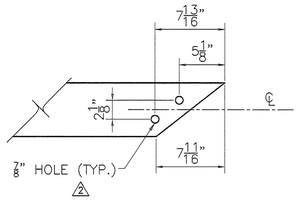
This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1 and D1.5

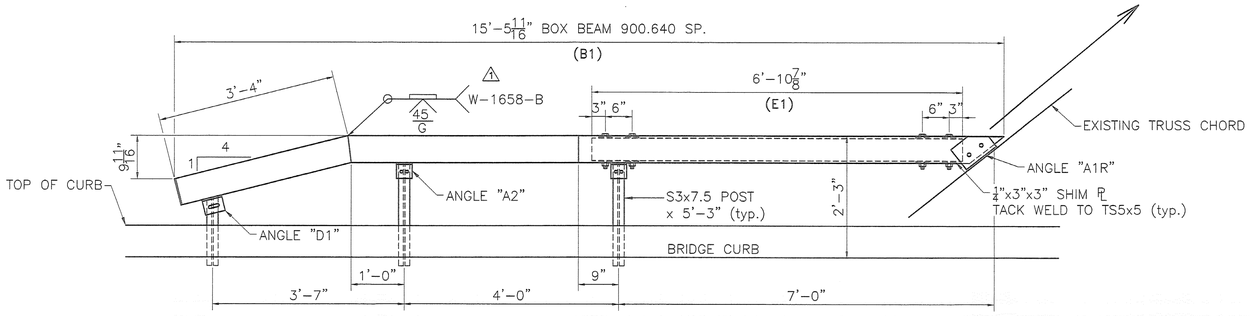
WPS no. **W-1660A**
Revision no. **0**
Supporting PQR no. **Pre-qualified**
Project Name **Richford, VT**

Fabricator **Highway Safety Corporation**
Authorized by Paul Radice
Date **9/9/08**
Project Number **BHF 0302(3)S**

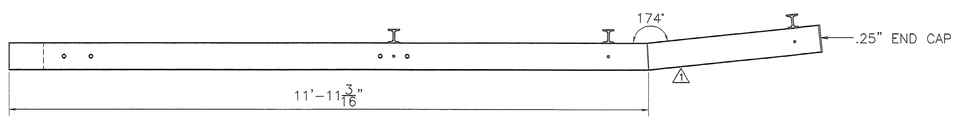


PLAN

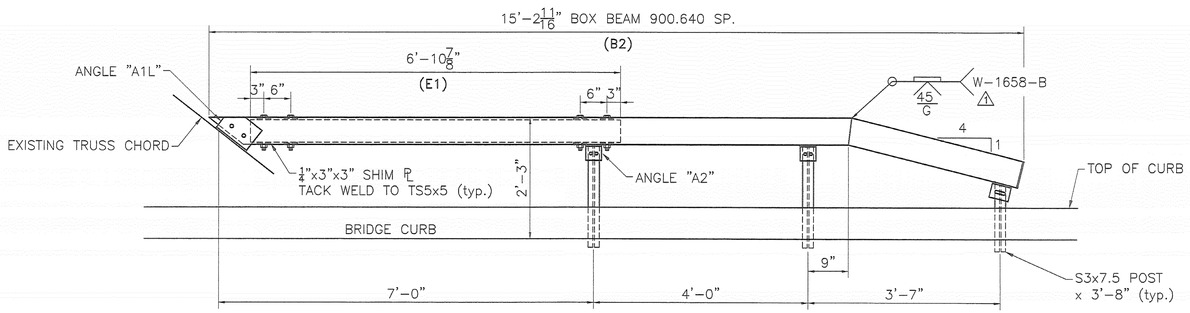




NE CORNER



PLAN



NW CORNER

BILL OF MATERIAL

Mk.	Qty.	Description	Size/Shape	length/qty. per unit	Material
	4	DRIVEN POST	S3x7.5	5'-3"	M270 Gr. 36
	2	DRIVEN POST	S3x7.5	3'-8"	M270 Gr. 36
A1R	1	CONNECTION ANGLE	L6x6x.375	8.5"	M270 Gr. 36
A1L	1	CONNECTION ANGLE	L6x6x.375	8.5"	M270 Gr. 36
A2	4	SHELF ANGLE	L5x3.5x.375	3.5"	M270 Gr. 36
D1	2	END ANGLE	L5x3.5x.375	4.5"	M270 Gr. 36
	2	WELDED END CAP	5.688x.25	5.688	M270 Gr. 36
	6	BENT CAP PLATE	.25"x2.5"	3"	M270 Gr. 36
B1	1	ANGLED BOX BEAM	TS 6x6x.187	15'-5.687"	A500 Gr. B
B2	1	ANGLED BOX BEAM	TS 6x6x.187	15'-2.687"	A500 Gr. B
E1	2	BOX BEAM	TS 5x5x.25	6'-10.875"	A500 Gr. B
2	12	HEX BOLT W/HEX NUT & 2 WASHERS	.75" DIA.	7.5"	A325
2	2	HEX BOLT W/HEX NUT & 2 WASHERS	.75" DIA.	8"	A307
2	4	HEX BOLT W/HEX NUT & 2 WASHERS	.375" DIA.	7.5"	A307
2	4	HEX BOLT W/HEX NUT & WASHER	.875" DIA.	3"	A325
2	6	HEX BOLT W/HEX NUT	.50" DIA.	1.5"	A307
	16	SHIM PLATE	.25"x3"	3"	A36

REVISIONS

No.	Remarks	Date
0	Initial submittal	9-16-08
1	Per engineer's comments	10-6-08
2	As built changes	10-15-08

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

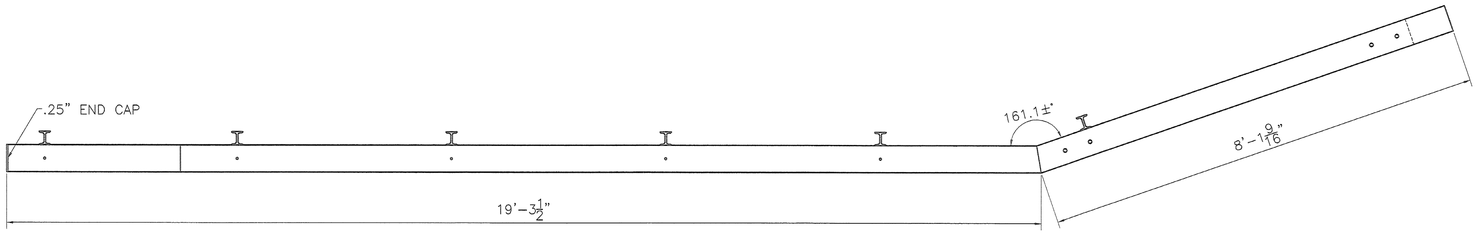
RAILING REPLACEMENT
ITEM 900.640 SPECIAL PROVISION
RICHFORD, VERMONT
PROJECT NO. BHF 0302 (3) S

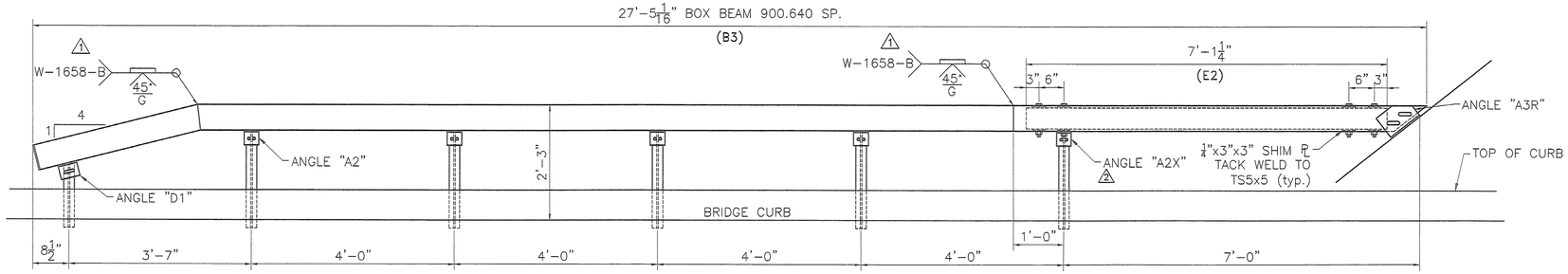
GENERAL CONTRACTOR

SUB CONTRACTOR
F.R. LAFAYETTE

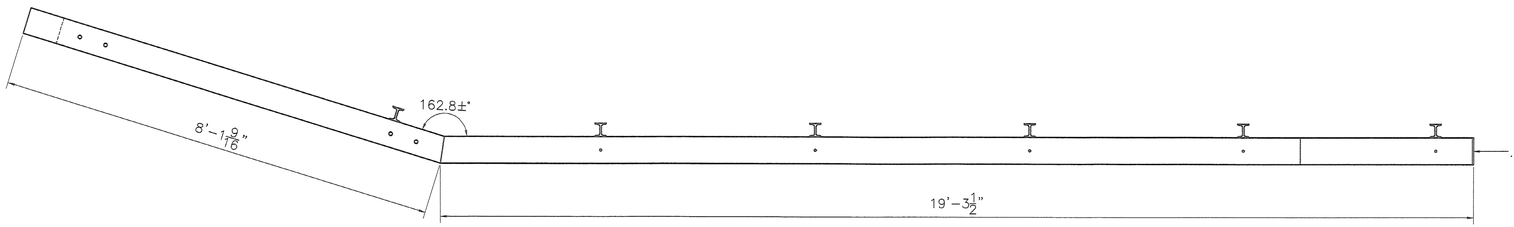
DRAWN MHM
CHECKED P Radice
DATE 7/30/08
SCALE N.T.S.
HSC REFERENCE NO. 1660
SIZE D REVISION 2
SHEET NO. 1 of 4

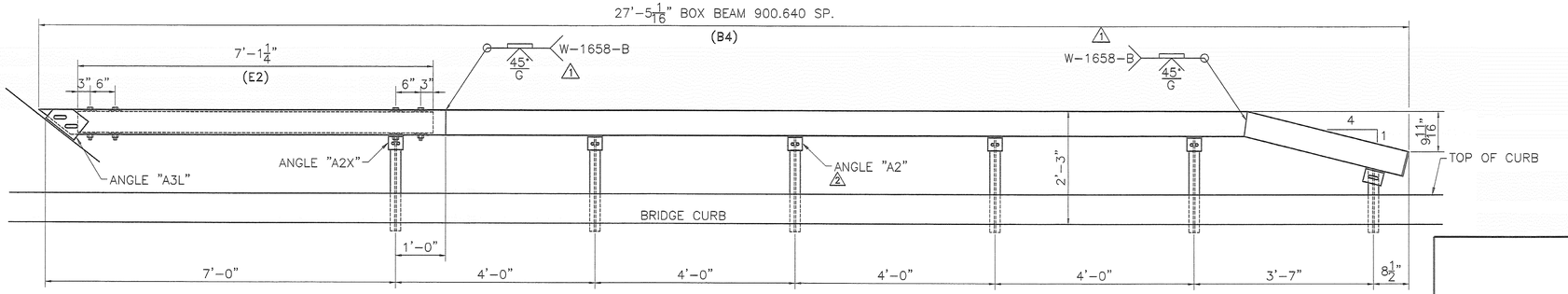
BILL OF MATERIAL					
Mk.	Qty.	Description	Size/Shape	length/qty. per unit	Material
	10	DRIVEN POST	S7x7.5	5'-3"	M270 Gr. 36
	2	DRIVEN POST	S7x7.5	3'-8"	M270 Gr. 36
A2	8	SHELF ANGLE	L5x3.5x.375	3.5"	M270 Gr. 36
A2X	2	SHELF ANGLE	L5x3.5x.375	3.5"	M270 Gr. 36
A3R	1	SLOTTED CONNECTION ANGLE	L6x6x.375	8.5"	M270 Gr. 36
A3L	1	SLOTTED CONNECTION ANGLE	L6x6x.375	8.5"	M270 Gr. 36
D1	2	END ANGLE	L5x3.5x.375	4.5"	M270 Gr. 36
	2	END CAP	5.688x.25	5.688	M270 Gr. 36
	12	BENT CAP PLATE	.25"x2.5"	3"	M270 Gr. 36
B3	1	ANGLED BOX BEAM	TS 6x6x.187	27'-5.063"	A500 Gr. B
B4	1	ANGLED BOX BEAM	TS 6x6x.187	27'-5.063"	A500 Gr. B
E2	2	BOX BEAM	TS 5x5x.25	7'-1.25"	A500 Gr. B
2	12	HEX BOLT W/HEX NUT & 2 WASHERS	.75" DIA.	7.5"	A325
2	2	HEX BOLT W/HEX NUT & 2 WASHERS	.75" DIA.	8"	A307
2	8	HEX BOLT W/HEX NUT & 2 WASHERS	.375" DIA.	7.5"	A307
2	4	HEX BOLT W/HEX NUT & WASHER	.875" DIA.	3"	A325
2	12	HEX BOLT W/HEX NUT	.50" DIA.	1.5"	A307
	16	SHIM PLATE	.25"x3"	3"	A36





SW CORNER





SE CORNER

REVISIONS		
No.	Remarks	Date
0	Initial submittal	9-16-08
1	Per engineer's comments	10-6-08
2	As built changes	10-15-08

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

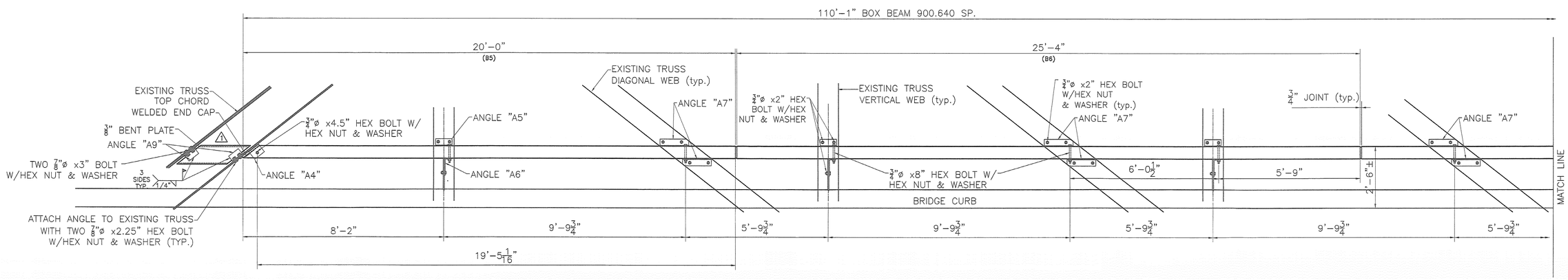
RAILING REPLACEMENT
ITEM 900.640 SPECIAL PROVISION
RICHFORD, VERMONT
PROJECT NO. BHF 0302 (3) S

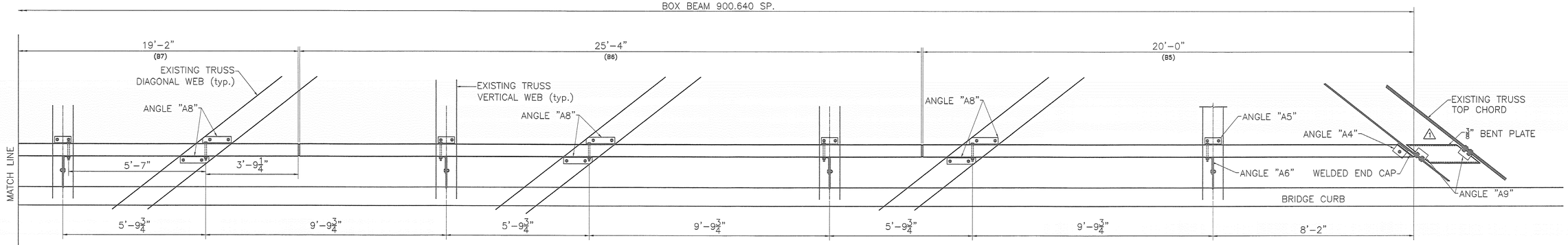
GENERAL CONTRACTOR

SUB CONTRACTOR
F.R. LAFAYETTE

DRAWN	MHM
CHECKED	P Radice
DATE	7/30/08
SCALE	N.T.S.
HSC REFERENCE NO.	1660
SIZE	D
REVISION	2
SHEET NO.	2 of 4

BILL OF MATERIAL					
Mk.	Qty.	Description	Size/Shape	length/qty. per unit	Material
A4	4	CONNECTION ANGLE	L5x3.5x.375	6"	M270 Gr. 36
A5	14	CONNECTION ANGLE	L5x3.5x.375	8"	M270 Gr. 36
2 A6	14	CONNECTION ANGLE	L5x3.5x.375	4"	M270 Gr. 36
A7	12	CONNECTION ANGLE	L5x3.5x.375	14"	M270 Gr. 36
A8	12	CONNECTION ANGLE	L5x3.5x.375	14"	M270 Gr. 36
A9	8	CONNECTION ANGLE	L3.5x3.5x.375	6"	M270 Gr. 36
	4	BENT PLATE	9"x.375"	24.375"	M270 Gr. 36
B5	4	END TUBE W/WELDED CAP	TS 6x3x.375"	20'-0"	A500 Gr. B
2 B6	4	TUBE	TS 6x3x.375"	25'-4"	A500 Gr. B
B7	2	TUBE	TS 6x3x.375"	19'-2"	A500 Gr. B
	8	SPLICE TUBE W/2 WELDED NUTS	TS 5x2x.313"	1'-8"	A500 Gr. B
	32	SPLICE HEX BOLT W/WASHER	.625" DIA.	1.75"	A307
	4	HEX BOLT W/HEX NUT & WASHER	.75" DIA.	4.5	A307
	26	HEX BOLT W/HEX NUT & WASHER	.75" DIA.	9"	A307
	98	HEX BOLT W/HEX NUT & WASHER	.75" DIA.	2"	A307
2	8	HEX BOLT W/HEX NUT & WASHER	.875" DIA.	2.25"	A325
	8	HEX BOLT W/HEX NUT & WASHER	.875" DIA.	3"	A325





NOTES:

1. BOX BEAM SHALL BE SHOP PAINTED IN ACCORDANCE WITH VT DOT SEC. 513 COLOR 14062.
2. ALL WORK AND MATERIAL SHALL CONFORM TO SECTION 525.
3. ALL BRIDGE RAIL CONNECTION HARDWARE SHALL BE INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (BRIDGE RAILING, TRUSS).
4. TUBING SHALL MEET THE REQUIREMENTS OF SUBSECTION 732.03. ALL OTHER SHAPES AND PLATES SHALL BE AASHTO M 270M/M 270 GRADE 36.
5. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO 1/16" RADIUS AND BE FREE OF BURRS.
6. SECTIONS OF BRIDGE RAIL SHALL BE ATTACHED TO A MINIMUM OF TWO (2) TRUSS MEMBERS.
7. ANY BENDING OF BRIDGE RAIL SHALL BE BY SHOP PROCEDURE ONLY.
8. ALL HOLES FOR CONNECTING ANGLES TO BRIDGE TUBES WILL BE SHOP DRILLED.

WEST RAIL ELEVATION
EAST ELEVATION SIMILAR

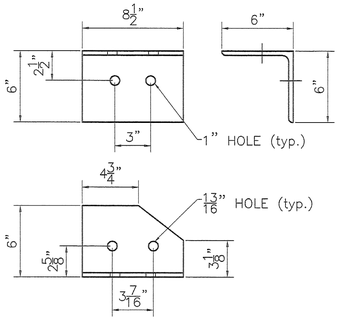
REVISIONS		
No.	Remarks	Date
0	Initial submittal	9-16-08
1	Per engineer's comments	10-6-08
2	As built changes	10-15-08

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

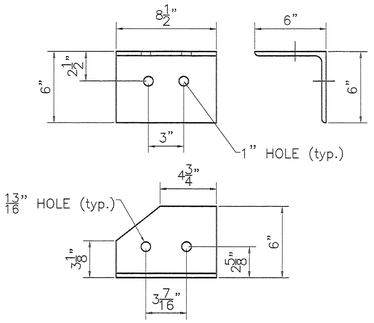
RAILING REPLACEMENT
ITEM 900.640 SPECIAL PROVISION
RICHFORD, VERMONT
PROJECT NO. BHF 0302 (3) S

GENERAL CONTRACTOR
SUB CONTRACTOR F.R. LAFAYETTE

DRAWN MHM
CHECKED P Radice
DATE 7/30/08
SCALE N.T.S.
HSC REFERENCE NO. 1660
SIZE D REVISION 2
SHEET NO. 3 of 4



∠ 6x6x⅜"–"A1R"



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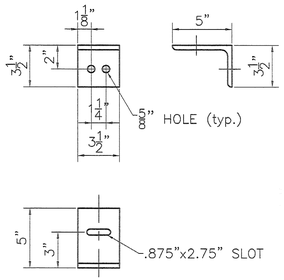

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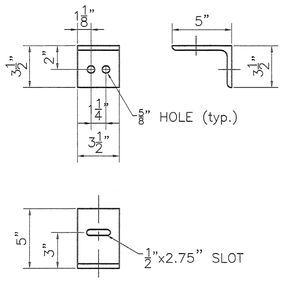

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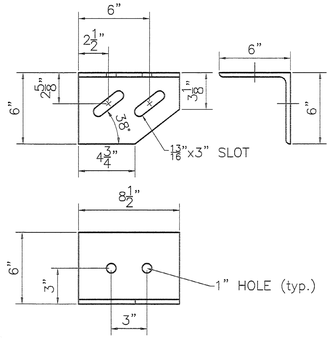

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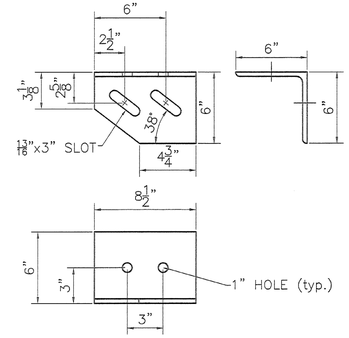

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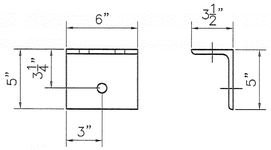

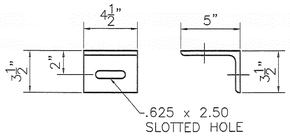

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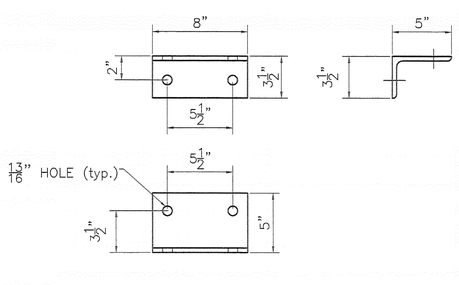
∠ 5x3 ½"x⅜"–"D1"



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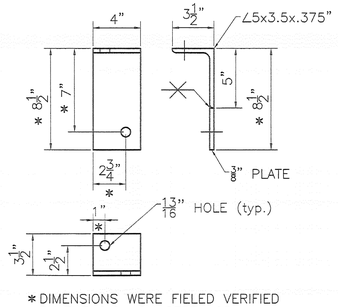
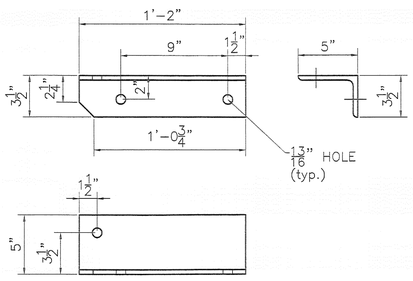


*DIMENSIONS WERE FIELED VERIFIED BY THE G.C., ON SEPT., 08

∠ 5x3 ½"x⅜"–"A6"



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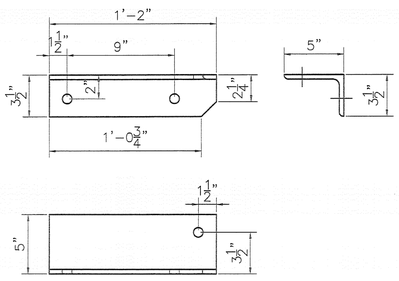
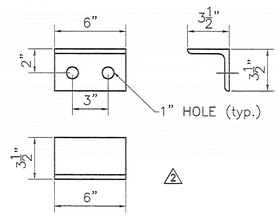
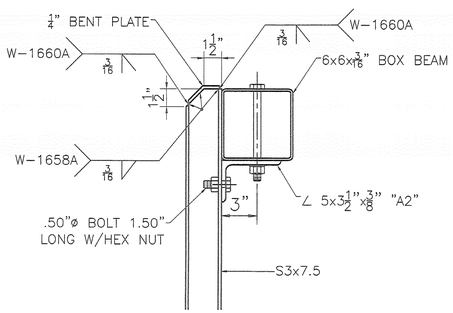


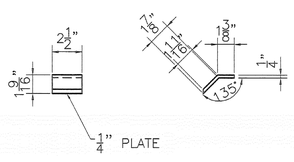
∠ 5x3 ½"x⅜"–"A8"



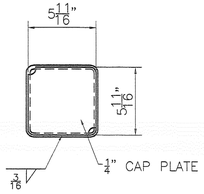
∠ 3 ½"x3 ½"x⅜"–"A9"



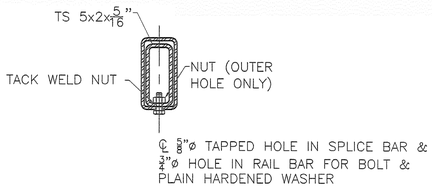
POST SECTION



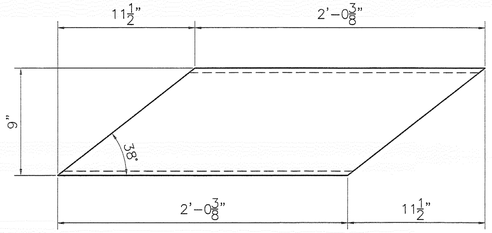
BENT CAP DETAIL



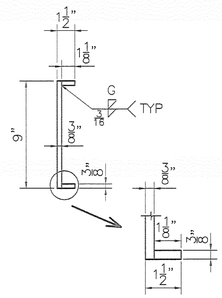
CAP PLATE

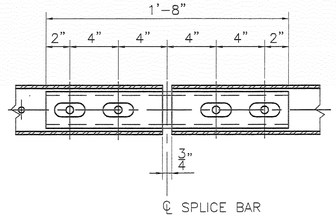


RAIL SPLICE SECTION



BENT PLATE





℄ SPLICE BAR

BRIDGE RAIL BAR SPLICE DETAIL

REVISIONS		
No.	Remarks	Date
0	Initial submittal	9–16–08
1	Per engineer's comments	10–6–08
2	As built changes	10–15–08

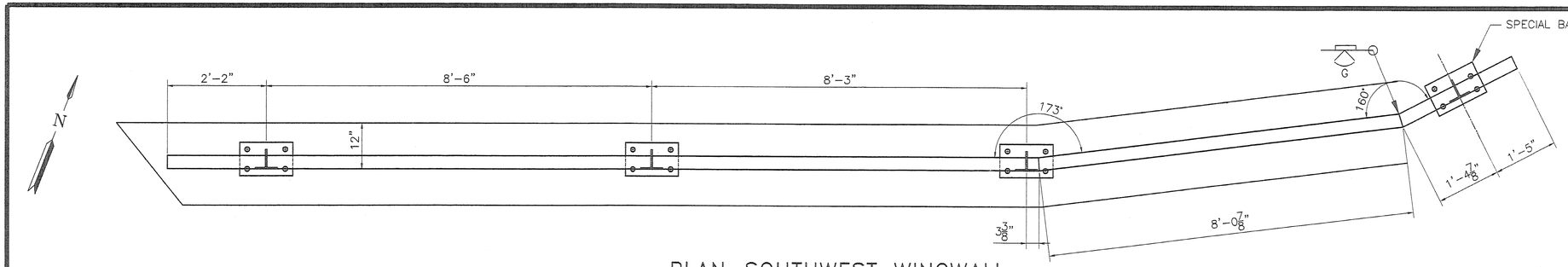
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

RAILING REPLACEMENT
RICHFORD, VERMONT
PROJECT NO. BHF 0302 (3) S

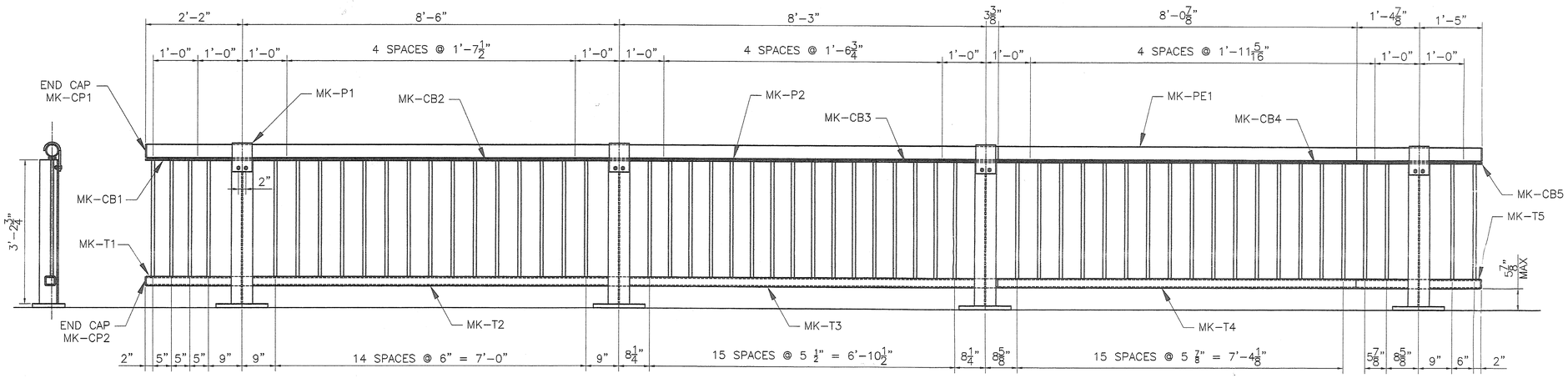
GENERAL CONTRACTOR

SUB CONTRACTOR
F.R. LAFAYETTE

DRAWN	MHM
CHECKED	P Radice
DATE	7/30/08
SCALE	N.T.S.
HSC REFERENCE NO.	1660
SIZE	D
REVISION	2
SHEET NO.	4 of 4

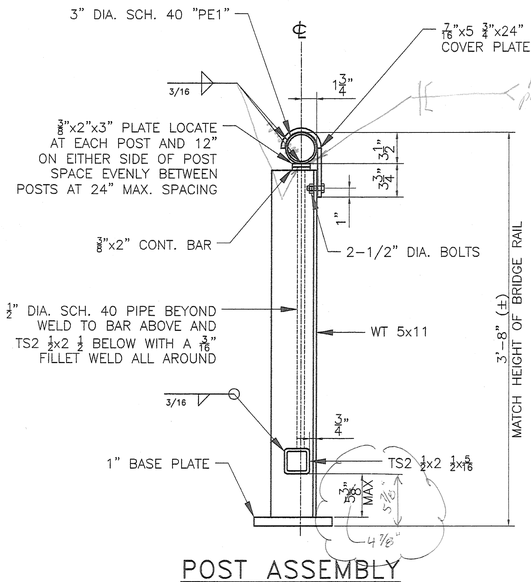


PLAN–SOUTHWEST WINGWALL

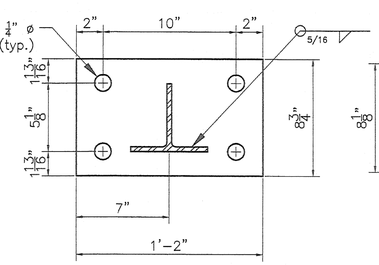


RAIL ELEVATION

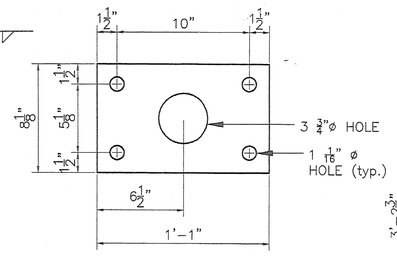
RAIL POST ANCHORAGE



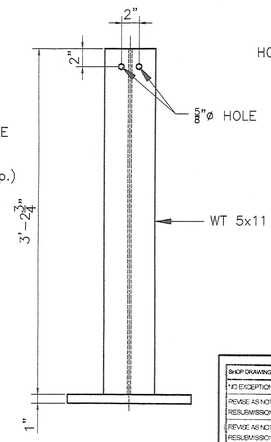
POST ASSEMBLY



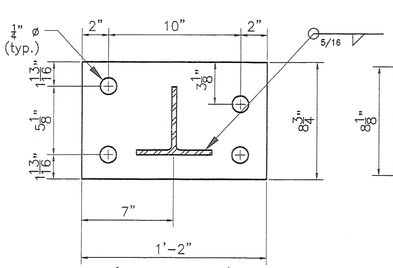
POST & BASE PLATE



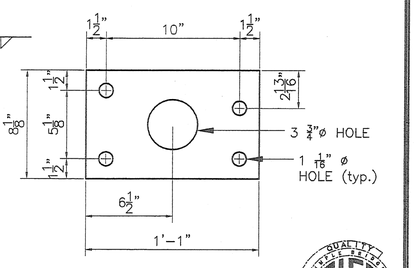
SPACER PLATE



POST DETAIL



(SPECIAL) POST & BASE PLATE



(SPECIAL) SPACER PLATE

Need paint system and surface prep details. This paint system shall be the same as applied to the overall structure.

NOTES:
1. HAND RAIL TO SHALL BE SHOP PAINTED IN ACCORDANCE WITH VT DOT SEC. 513, COLOR GREEN #14062.

2. ALL STEEL FROM RAILING ASSEMBLY SHALL CONFORM TO AASHTO M 270M/M 270 GRADE 36 UNLESS OTHERWISE NOTED. STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B, SCHEDULE 40. STRUCTURAL TUBING SHALL SHALL CONFORM TO SUBSECTIONS 714.11 OR 732.03.

3. ANCHOR STUDS SHALL MEET THE REQUIREMENTS OF ASTM A449.

4. GRIND ALL SHARP CORNERS TO MIN. 1/16" RADIUS.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	

BILL OF MATERIAL					
Mk.	Qty.	Description	Size/Shape	Length/Qty. per	Material
	3	BRIDGE RAIL PED POST 3'-3 3/4" OAH W/ BASE PLATE			
	3	POST UPRIGHT	WT 5x11	3'-2 3/4"	M270 Gr. 36
	3	POST BASE PLATE	1" x 8 3/4"	1'-2"	M270 Gr. 36
	1	BRIDGE RAIL PED POST 3'-3 3/4" OAH W/ BASE PLATE			
	1	POST UPRIGHT	WT 5x11	3'-2 3/4"	M270 Gr. 36
	1	POST BASE PLATE	1" x 8 3/4"	1'-2"	M270 Gr. 36
	3	ANCHOR PLATE	3/8" x 8 1/4"	1'-1"	A36
	1	ANCHOR PLATE	3/8" x 8 1/4"	1'-1"	A36
PE1	1	UPPER PIPE SCH. 40	3.5" O.D.	30'-1 1/8"	A53 Gr. B
PE2	55	VERTICAL PIPE SCH. 40	0.840" O.D.	2'-7 3/8"	A53 Gr. B
T1	1	LOWER RAIL	TS 2.5x2.5x5/16	2'-1 13/16"	A500 Gr. B
T2	1	LOWER RAIL	TS 2.5x2.5x5/16	8'-5 5/8"	A500 Gr. B
T3	1	LOWER RAIL	TS 2.5x2.5x5/16	8'-2 5/8"	A500 Gr. B
T4	1	LOWER RAIL	TS 2.5x2.5x5/16	9'-6 1/16"	A500 Gr. B
T5	1	LOWER RAIL	TS 2.5x2.5x5/16	1'-4 13/16"	A500 Gr. B
P1	4	BENT COVER PLATE	7/16"x5 3/4"	2'-0"	M270 Gr. 36
P2	18	PLATE	3/8"x2"	3"	M270 Gr. 36
CB1	1	CONTINUOUS BAR	3/8"x2"	2'-1 13/16"	M270 Gr. 36
CB2	1	CONTINUOUS BAR	3/8"x2"	8'-5 5/8"	M270 Gr. 36
CB3	1	CONTINUOUS BAR	3/8"x2"	8'-2 5/8"	M270 Gr. 36
CB4	1	CONTINUOUS BAR	3/8"x2"	9'-6 1/16"	M270 Gr. 36
CB5	1	CONTINUOUS BAR	3/8"x2"	1'-4 13/16"	M270 Gr. 36
	16	ANCHOR BOLTS	1" DIA.	12"	A449
	32	HEX NUT	1" DIA.	– – –	A563DH
	16	JAMB NUT	1" DIA.	– – –	A563DH
	16	WASHER	1" DIA.	– – –	F436
	8	HEX BOLT	1/2" DIA.	1.5"	A325
	8	HEX NUT	1/2" DIA.	– – –	A563DH
	2	PIPE END CAP	3.313"ø	1/4"	A36
	2	END CAP	2.25"x2.25"	1/4"	A36

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
- NO EXCEPTION TAKEN
- REVISE AS NOTED / RESUBMISSION NOT REQUIRED ✓
- REVISE AS NOTED / RESUBMISSION REQUIRED
- REJECTED

Stantec

DATE 8/12/08

SIGNATURE Michael Clements

REVIEW BY STANTEC IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMITY WITH DESIGN. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, FABRICATION AND CONSTRUCTION METHODS. COORDINATION OF SUB-TRADES. DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

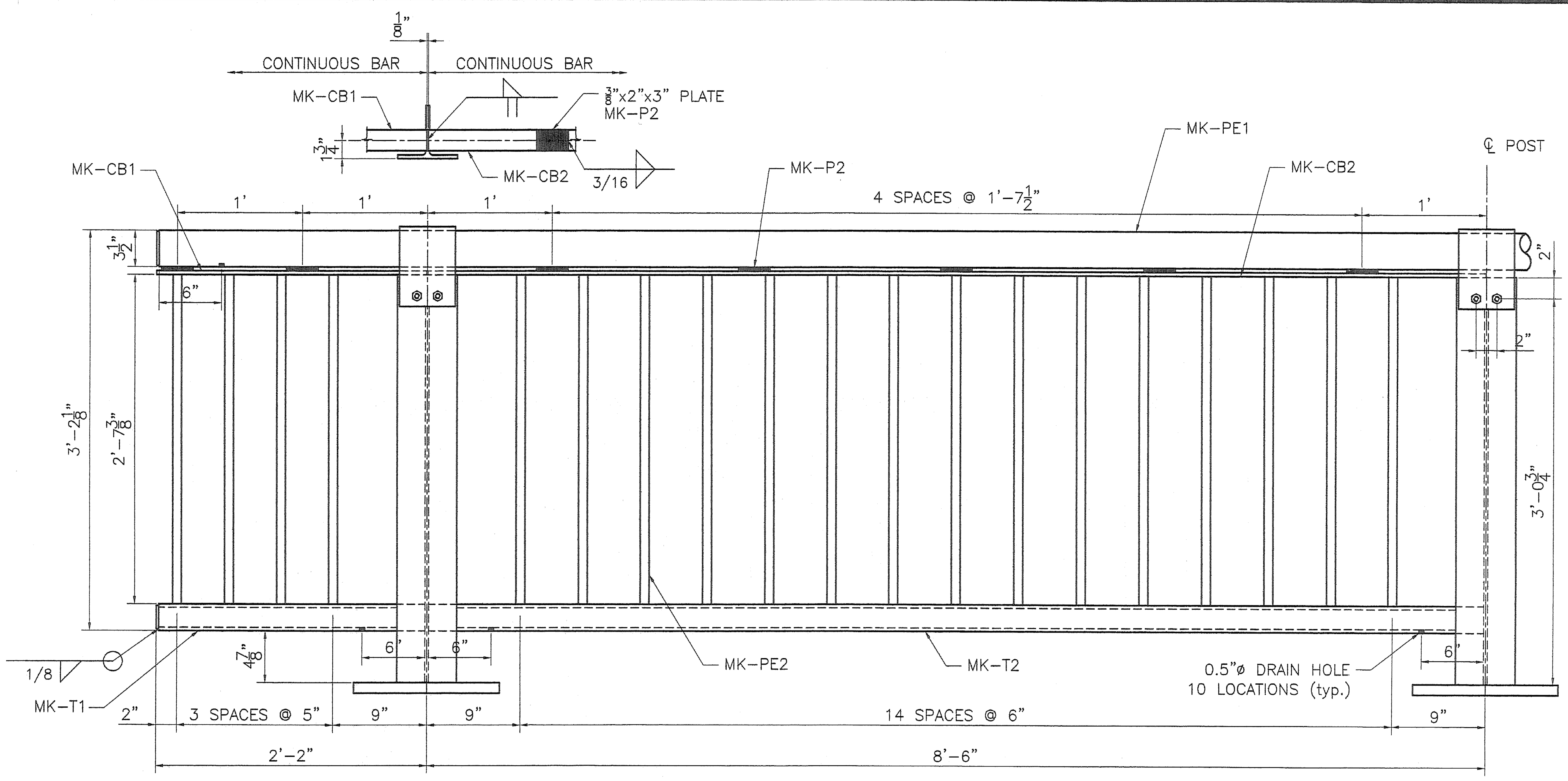
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

RAILING REPLACEMENT
RICHFORD, VERMONT
PROJECT NO. BHF 0302 (3) S

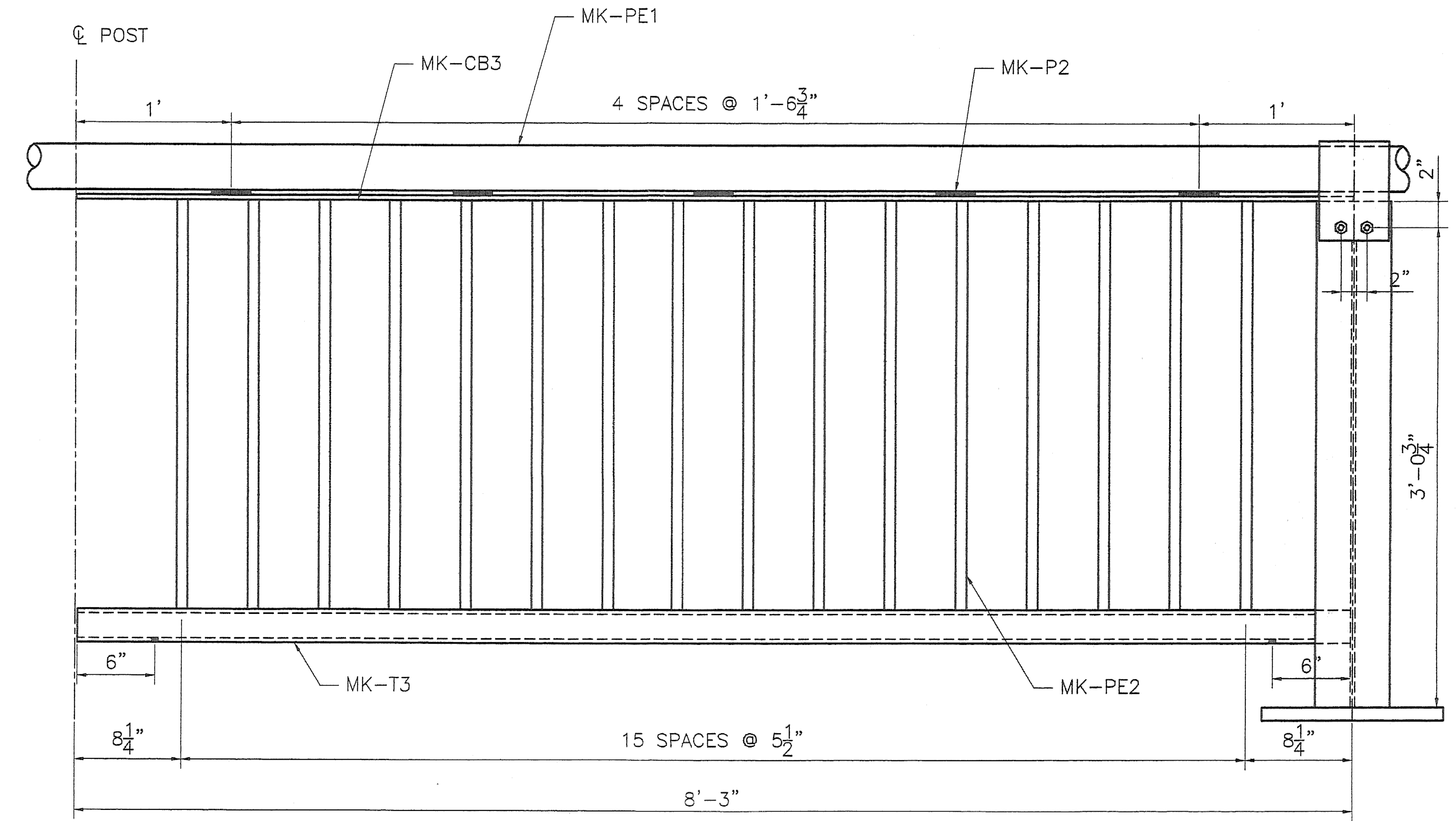
GENERAL CONTRACTOR

SUB CONTRACTOR
F.R. LAFAYETTE

DRAWN	MHM
CHECKED	P Radtke
DATE	7/22/08
SCALE	N.T.S.
HSC REFERENCE NO.	1658
SIZE	D
REVISION	0
SHEET NO.	1 of 2



PCS1



PCS2

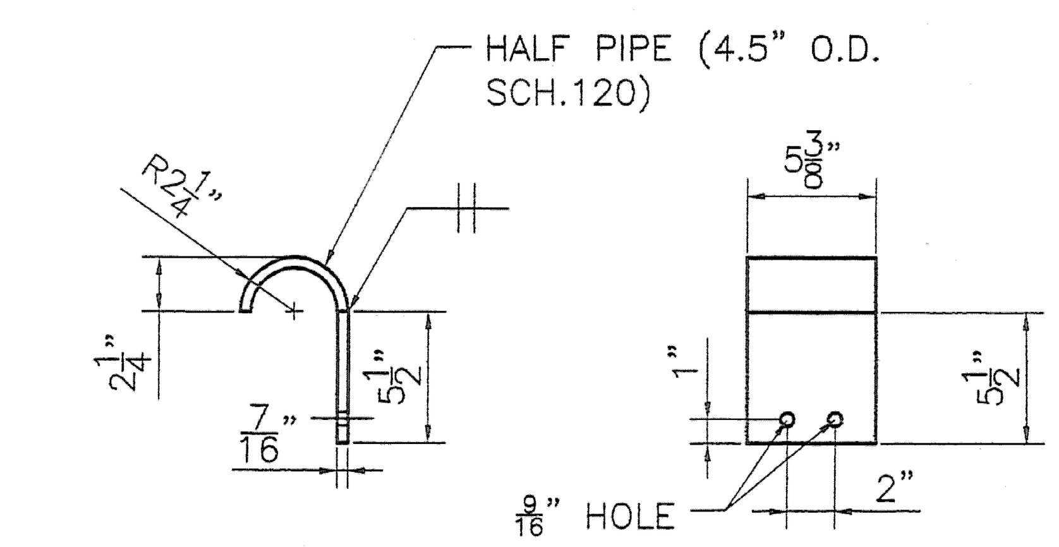
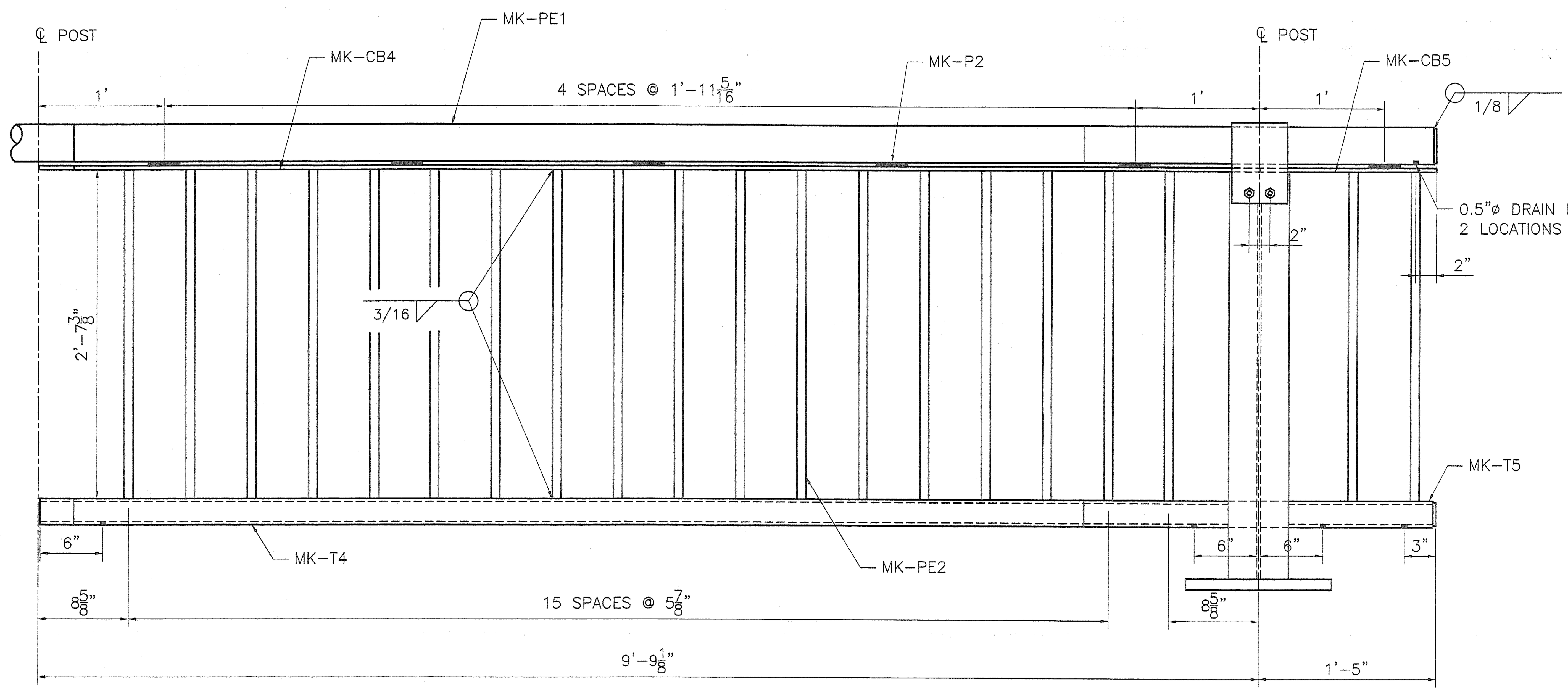
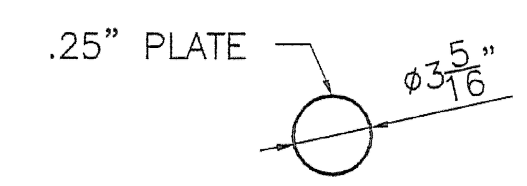


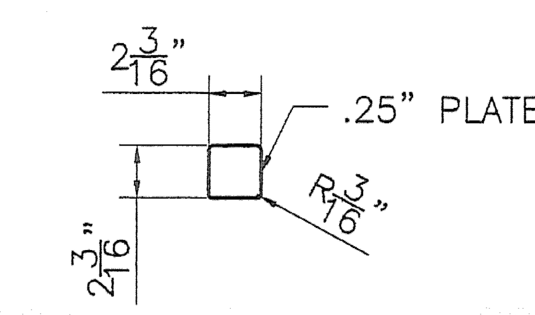
PLATE "P1"



PCS3



CAP "CP1"



CAP "CP2"

REVISIONS		
No.	Remarks	Date
0	Initial submittal	

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE	
NO EXCEPTION TAKEN	✓
REVISE AS NOTED RESUBMISSION NOT REQUIRED	
REVISE AS NOTED RESUBMISSION REQUIRED	
REJECTED	

Stantec

DATE 8/12/08

SIGNATURE Michael Chenitt

REVIEW BY STANTEC IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMITY WITH DESIGN. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, FABRICATION AND CONSTRUCTION METHODS, COORDINATION OF SUB-TRADES, DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

RAILING REPLACEMENT

RICHFORD, VERMONT

PROJECT NO. BHF 0302 (3) S

DRAWN	MHM
CHECKED	P Radice
DATE	7/22/08
SCALE	N.T.S.
HSC REFERENCE NO.	1658
SIZE	D
REVISION	0
SHEET NO.	2 of 2

GENERAL CONTRACTOR

SUB CONTRACTOR F.R. LAFAYETTE