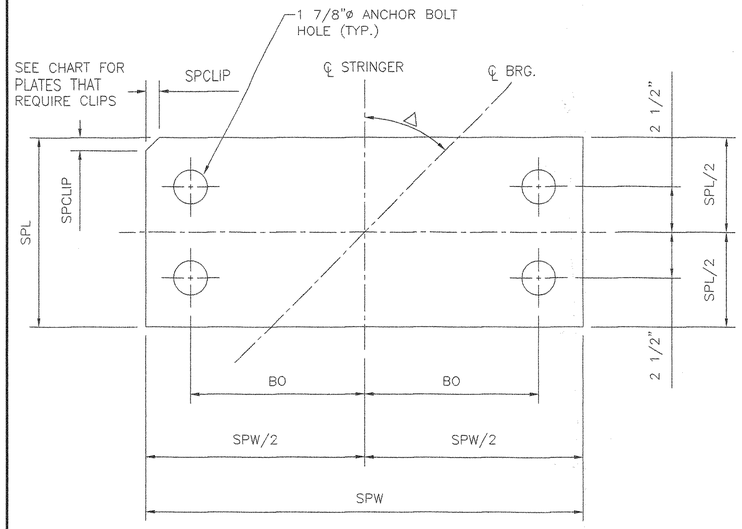
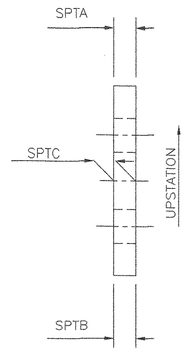
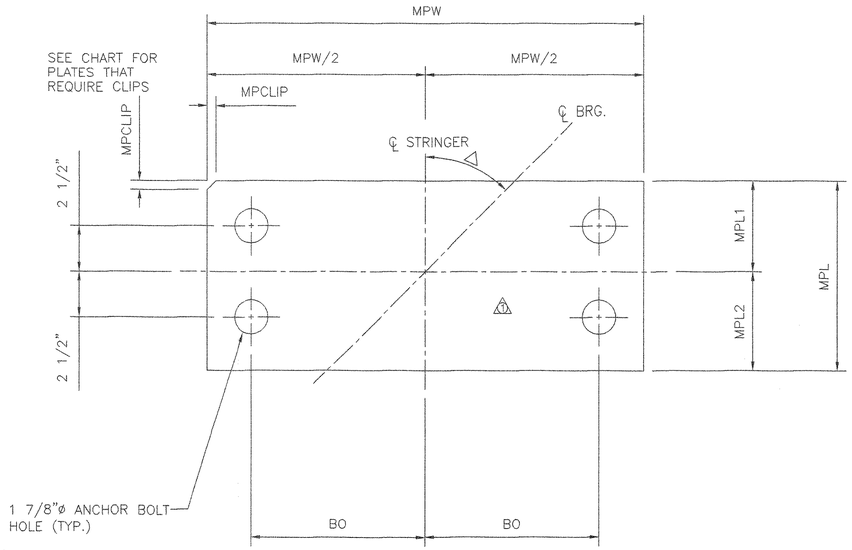


SOLE PLATE PLAN

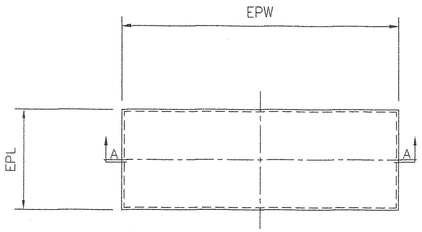


SOLE PLATE ELEVATION

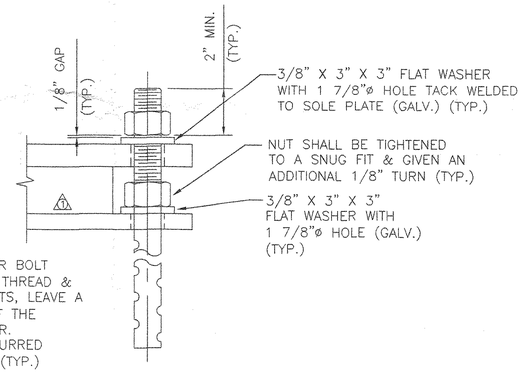
SEE CHART FOR BEVEL AND PLATE THICKNESS



MASONRY PLATE PLAN

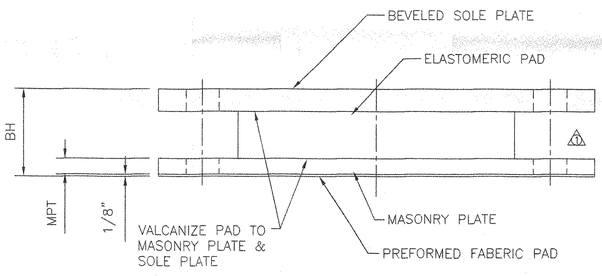


ELASTOMERIC PAD PLAN



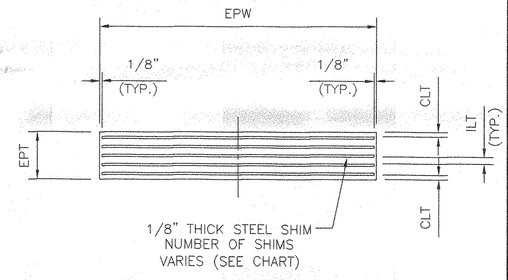
ANCHOR BOLT DETAIL

NEW 1 1/2"ø X BL SWEDGED ANCHOR BOLT (AASHTO M270 GRADE 36) WITH 11" OF THREAD & 2 HEAVY HEX NUTS. WHEN TIGHTENING NUTS, LEAVE A 1/8" GAP BETWEEN THE BOTTOM OF THE NUT & THE TOP OF THE WASHER. ANCHOR BOLT THREADS SHALL BE BURRED TO PREVENT REMOVAL OF THE NUT (TYP.) (ALL GALV.)



ELEVATION OF BEARING

FIXED ELASTOMERIC BEARING



SECTION A–A

△1

QUANTITY	BEARING HEIGHT (BH) @ ℄	BRIDGE NO.	SUB-STRUCTURE NO.	△ ASKEW ANGLE	DIRECTION OF SKEW	FIXED BEARING TYPE	SOLE PLATE						MASONRY PLATE						ANCHOR BOLT	
							LENGTH (SPL)	WIDTH (SPW)	SPTA (UPSTATION)	SPTB (DOWNSTATION)	SPTC @ ℄	CORNER CLIP (SPCLIP)	LENGTH MPL1	LENGTH MPL2	LENGTH MPL	WIDTH (MPW)	THICKNESS (MPT)	CORNER CLIP (MPCLIP)	OFFSET (BO)	LENGTH (BL)
	ABUTMENT BEARINGS																			
5	4 3/4"	43N	ABUT. 1	44°,42',11"	AHEAD	RIGHT	AA	10 1/2"	24 1/2"	1"	1 1/4"	1 1/8"	3/4"	5"	5 1/2"	10 1/2"	24 1/2"	7/8"	1/2"	9 3/4"	23"
5	4 15/16"	43S	ABUT. 2	45°,05',18"	AHEAD	RIGHT	BB	10"	22"	3/4"	1 1/8"	15/16"	------	5 3/4"	7 1/4"	13"	22"	3/4"	------	8 1/2"	23"
5	5 1/16"	48N	ABUT. 1	66°,34',38"	AHEAD	LEFT	CC	13"	27 1/2"	7/8"	3/4"	13/16"	------	5"	6 1/2"	11 1/2"	27 1/2"	1"	------	11 1/4"	23"
5	5"	48S	ABUT. 2	62°,21',09"	AHEAD	LEFT	CC	10"	27 1/2"	3/4"	3/4"	3/4"	------	5"	6 1/2"	11 1/2"	27 1/2"	1"	------	11 1/4"	23"
5	5.03"	50N	ABUT. 1	44°,11',07"	AHEAD	RIGHT	AA	11"	26"	1 5/16"	1"	1.16"	1 3/4"	5"	5 1/2"	10 1/2"	26"	1 1/8"	1 1/4"	10 1/2"	23"
5	5"	50S	ABUT. 2	45°,44',11"	AHEAD	RIGHT	AA	10"	26"	1 1/4"	1"	1 1/8"	1 1/4"	5"	5 1/2"	10 1/2"	26"	1 1/8"	1 1/4"	10 1/2"	23"

	STEEL REINFORCED ELASTOMERIC BEARING PAD									
	QUANTITY	TEST PAD	FIXED BEARING TYPE	LENGTH (EPL)	WIDTH (EPW)	THICKNESS (EPT)	COVER LAYER THICKNESS (CLT)	INTERNAL LAYER THICKNESS (ILT)	NUMBER OF INTERNAL ELASTOMERIC LAYERS	NUMBER OF INTERNAL STEEL SHIMS
△1	15	2	AA	5 1/2"	15 1/2"	2 5/8"	1/4"	3/8"	4	5
△1	5	1	BB	9"	13"	3 1/8"	1/4"	1/2"	4	5
△1	10	1	CC	7 1/2"	18 1/2"	3 1/8"	1/4"	1/2"	4	5

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: Peter W. Sz
DATE: 3/26/01

STATE OF VERMONT
AGENCY OF TRANSPORTATION

HIGHWAY NUMBER I-89
TOWN OF MIDDLESEX-BOLTON
PROJECT # IM-089-2(26)

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

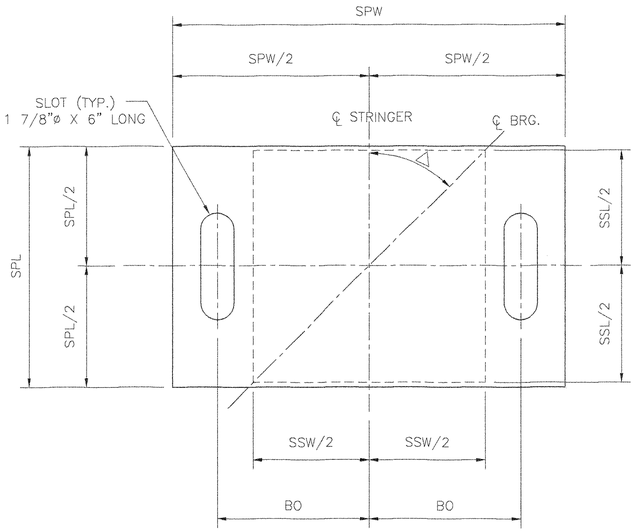
SCALE:	DRAWN BY:	CHECKED BY:
1/4"=1"	R.F.C. 11-6-00	MCM 11-22-00

COSMEC ELASTOMERIC BEARINGS

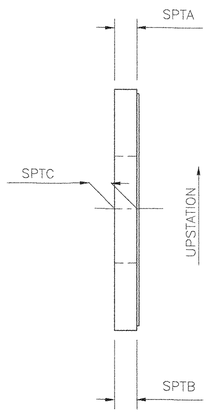
CUSTOMER	S.O. NUMBER	DRAWING NUMBER	REV.
WINTERSET INC.	59184	3392	1

REV.		BY:	DATE	CK'D BY:	DATE
1	TEST PADS AND TOOK OUT KEEPER PLATES & VALCANIZE PAD	RFC	1/31/01		

3/0 BB

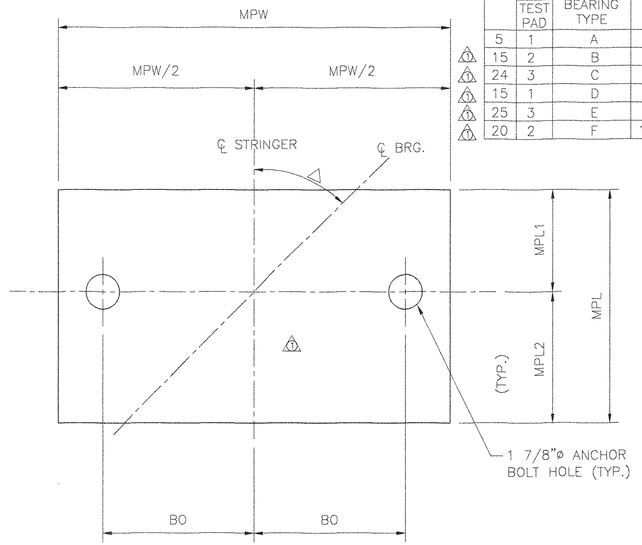


SOLE PLATE PLAN



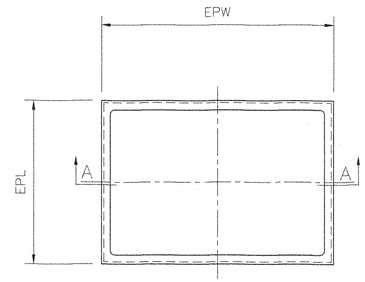
SOLE PLATE ELEVATION

SEE CHART FOR BEVEL AND PLATE THICKNESS

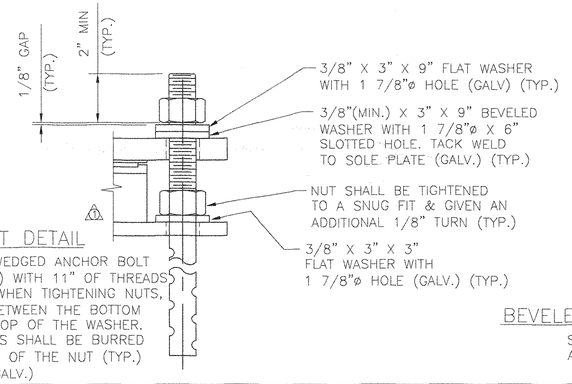


MASONRY PLATE PLAN

STEEL REINFORCED ELASTOMERIC BEARING PAD WITH PTFE SURFACE									
QUANTITY	TEST PAD	EXPANSION BEARING TYPE	LENGTH (EPL)	WIDTH (EPW)	THICKNESS (EPT)	COVER LAYER THICKNESS (CLT)	INTERNAL LAYER THICKNESS (ILT)	NUMBER OF INTERNAL ELASTOMERIC LAYERS	NUMBER OF INTERNAL STEEL SHIMS
5	1	A	9"	13"	2 3/4"	1/4"	1/2"	4	4
△1 15	2	B	6 1/2"	17"	3 3/4"	1/4"	3/8"	7	7
△1 24	3	C	7 1/2"	18 1/2"	2 3/4"	1/4"	1/2"	4	4
△1 15	1	D	10"	14"	2 3/4"	1/4"	1/2"	4	4
△1 25	3	E	9"	18 1/2"	2 3/4"	1/4"	1/2"	4	4
△1 20	2	F	11 1/2"	18 1/2"	2 1/2"	1/4"	5/8"	3	3

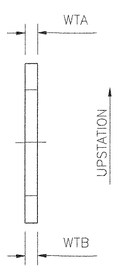


ELASTOMERIC PAD PLAN



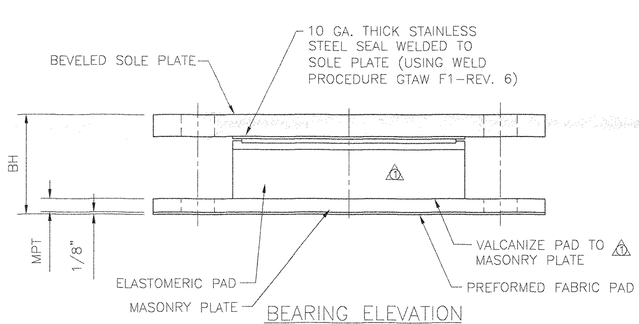
ANCHOR BOLT DETAIL

NEW 1 1/2"ø X BL SWEDGED ANCHOR BOLT (AASHTO M270 GRADE 36) WITH 11" OF THREADS & 2 HEAVY HEX NUTS. WHEN TIGHTENING NUTS, LEAVE A 1/8" GAP BETWEEN THE BOTTOM OF THE NUT & THE TOP OF THE WASHER. ANCHOR BOLT THREADS SHALL BE BURRED TO PREVENT REMOVAL OF THE NUT (TYP.)
(ALL GALV.)



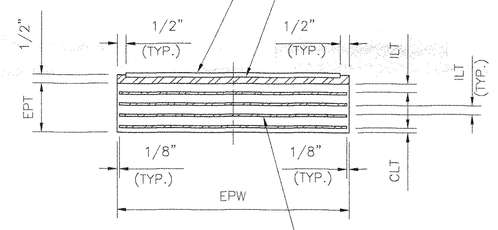
BEVELED WASHER ELEVATION

SEE CHART FOR BEVEL AND PLATE THICKNESS



BEARING ELEVATION

△1 EXPANSION ELASTOMERIC BEARING



SECTION A-A

QUANTITY	BEARING HEIGHT (BH) @ ℄	BRIDGE NO.	SUB-STRUCTURE NO.	△ ASKEW ANGLE	DIRECTION OF SKEW	EXPANSION BEARING TYPE	SOLE PLATE LENGTH (SPL)	SOLE PLATE WIDTH (SPW)	SOLE PLATE SPTA (UPSTATION)	SOLE PLATE SPTB (DOWNSTATION)	SOLE PLATE SPTC @ ℄	STAINLESS STEEL LENGTH (SSL)	STAINLESS STEEL WIDTH (SSW)	MASONRY PLATE LENGTH MPL1	MASONRY PLATE LENGTH MPL2	MASONRY PLATE LENGTH MPL	MASONRY PLATE WIDTH (MPW)	MASONRY PLATE THICKNESS (MPT)	ANCHOR BOLT OFFSET (BO)	ANCHOR BOLT LENGTH (BL)	BEVELED WASHER THICKNESS WTA (UPSTATION)	BEVELED WASHER THICKNESS WTB (DOWNSTATION)
ABUTMENT BEARINGS																						
5	5 3/8"	43N	ABUT. 2	45°,07',37"	AHEAD RIGHT	A	13 1/2"	22"	3/4"	1 1/4"	1"	13"	13"	5 3/4"	7 1/4"	13"	22"	3/4"	8 1/2"	24"	11/16"	3/8"
5	6.59"	43S	ABUT. 1	44°,35',15"	AHEAD RIGHT	B	12"	26"	1"	1 3/16"	1.09"	11 1/2"	17"	4 1/2"	6"	10 1/2"	26"	7/8"	10 1/2"	25"	1/2"	3/8"
5	5 3/8"	48N	ABUT. 2	62°,40',28"	AHEAD LEFT	C	12 1/2"	27 1/2"	3/4"	3/4"	3/4"	12"	18 1/2"	5"	6 1/2"	11 1/2"	27 1/2"	1"	11 1/4"	24"	3/8"	3/8"
5	5 7/16"	48S	ABUT. 1	66°,20',14"	AHEAD LEFT	C	13"	27 1/2"	7/8"	3/4"	13/16"	12 1/2"	18 1/2"	5"	6 1/2"	11 1/2"	27 1/2"	1"	11 1/4"	24"	3/8"	3/8"
7	5 3/8"	49N	ABUT. 2	90°,00',00"	--------	C	10 1/2"	27 1/2"	3/4"	3/4"	3/4"	10"	18 1/2"	5"	6 1/2"	11 1/2"	27 1/2"	1"	11 1/4"	24"	3/8"	3/8"
7	5 3/8"	49S	ABUT. 2	90°,00',00"	--------	C	10 1/2"	27 1/2"	3/4"	3/4"	3/4"	10"	18 1/2"	5"	6 1/2"	11 1/2"	27 1/2"	1"	11 1/4"	24"	3/8"	3/8"
5	6 5/8"	50N	ABUT. 2	46°,29',48"	AHEAD RIGHT	B	13"	26"	1 1/4"	1"	1 1/8"	12 1/2"	17"	4 1/2"	6"	10 1/2"	26"	7/8"	10 1/2"	25"	3/8"	9/16"
5	6.72"	50S	ABUT. 1	43°,31',43"	AHEAD RIGHT	B	12 1/2"	26"	1 7/16"	1"	1.22"	12"	17"	4 1/2"	6"	10 1/2"	26"	7/8"	10 1/2"	25"	3/8"	11/16"
PIER BEARINGS																						
5	5 11/16"	43N	PIER 1	44°,50',07"	AHEAD RIGHT	D	12 1/2"	23"	3/4"	1 1/8"	15/16"	12"	14"	6 1/4"	7 3/4"	14"	23"	1 1/8"	9"	24"	5/8"	3/8"
5	5 11/16"	43N	PIER 2	45°,01',13"	AHEAD RIGHT	D	13"	23"	3/4"	1 1/8"	15/16"	12 1/2"	14"	6 1/4"	7 3/4"	14"	23"	1 1/8"	9"	24"	5/8"	3/8"
5	5.79"	43S	PIER 1	44°,46',15"	AHEAD RIGHT	E	13 1/2"	27 1/2"	3/4"	1 1/16"	.91"	13"	18 1/2"	5 3/4"	7 1/4"	13"	27 1/2"	1 1/4"	11 1/4"	24"	9/16"	3/8"
5	5 11/16"	43S	PIER 2	44°,58',53"	AHEAD RIGHT	D	13 1/2"	23"	3/4"	1 1/8"	15/16"	13"	14"	6 1/4"	7 3/4"	14"	23"	1 1/8"	9"	24"	5/8"	3/8"
5	5 1/8"	48N	PIER 1	65°,16',48"	AHEAD LEFT	F	14 1/2"	27 1/2"	3/4"	3/4"	3/4"	14"	18 1/2"	7"	8 1/2"	15 1/2"	27 1/2"	1"	11 1/4"	23"	3/8"	3/8"
5	5 1/8"	48N	PIER 2	63°,58',14"	AHEAD LEFT	F	15 1/2"	27 1/2"	3/4"	3/4"	3/4"	15"	18 1/2"	7"	8 1/2"	15 1/2"	27 1/2"	1"	11 1/4"	23"	3/8"	3/8"
5	5 1/8"	48S	PIER 1	65°,00',45"	AHEAD LEFT	F	15 1/2"	27 1/2"	3/4"	3/4"	3/4"	15"	18 1/2"	7"	8 1/2"	15 1/2"	27 1/2"	1"	11 1/4"	23"	3/8"	3/8"
5	5 1/8"	48S	PIER 2	63°,58',14"	AHEAD LEFT	F	14 1/2"	27 1/2"	3/4"	3/4"	3/4"	14"	18 1/2"	7"	8 1/2"	15 1/2"	27 1/2"	1"	11 1/4"	23"	3/8"	3/8"
5	5.79"	50N	PIER 1	44°,50',40"	AHEAD RIGHT	E	13"	27 1/2"	1 1/16"	3/4"	.91"	12 1/2"	18 1/2"	5 3/4"	7 1/4"	13"	27 1/2"	1 1/4"	11 1/4"	24"	3/8"	9/16"
5	5.79"	50N	PIER 2	45°,48',12"	AHEAD RIGHT	E	13"	27 1/2"	1 1/16"	3/4"	.91"	12 1/2"	18 1/2"	5 3/4"	7 1/4"	13"	27 1/2"	1 1/4"	11 1/4"	24"	3/8"	9/16"
5	5 13/16"	50S	PIER 1	44°,11',11"	AHEAD RIGHT	E	12 1/2"	27 1/2"	1 1/8"	3/4"	15/16"	12"	18 1/2"	5 3/4"	7 1/4"	13"	27 1/2"	1 1/4"	11 1/4"	24"	3/8"	5/8"
5	5 13/16"	50S	PIER 2	45°,05',50"	AHEAD RIGHT	E	12 1/2"	27 1/2"	1 1/8"	3/4"	15/16"	12"	18 1/2"	5 3/4"	7 1/4"	13"	27 1/2"	1 1/4"	11 1/4"	24"	3/8"	5/8"

△1

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and othsr data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incidant thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pat W. S-E
DATE: 2/26/01

REV.		BY:	DATE	CK'D BY:	DATE
1	TEST PADS, REMOVE KEEPER PLATES & VALCANIZE PAD TO MASONRY PLATE	RFC	1/31/01		

STATE OF VERMONT
AGENCY OF TRANSPORTATION

HIGHWAY NUMBER I-89
TOWN OF MIDDLESEX-BOLTON
PROJECT # IM-089-2(26)

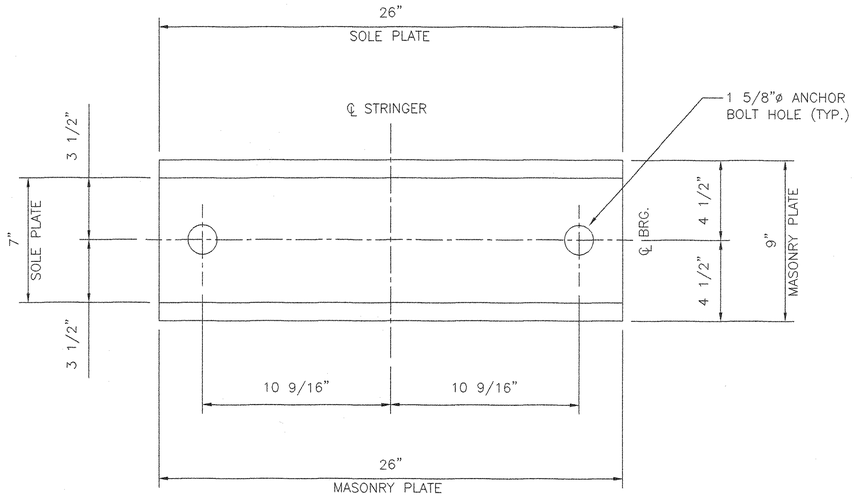
COSMEC, INC.
70 SOUTH STREET
WALPOLE, MA. 02081

SCALE: 1/4"=1"	DRAWN BY: R.F.C.	CHECKED BY: MCM
	DATE: 11-6-00	DATE 11-27-00

COSMEC ELASTOMERIC BEARINGS

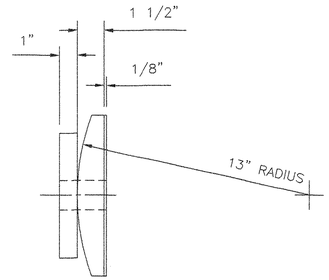
CUSTOMER	S.O. NUMBER	DRAWING NUMBER	REV.
WINTERSET INC.	59184	3393	1

311 BB

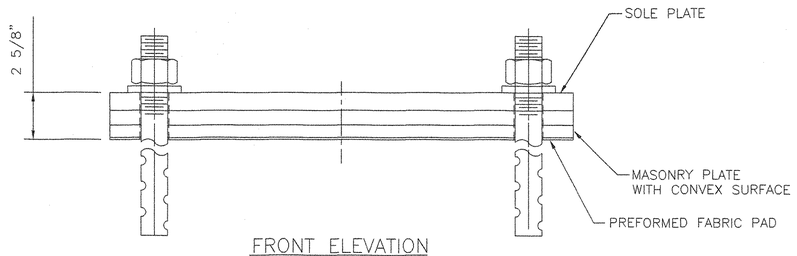


PLAN

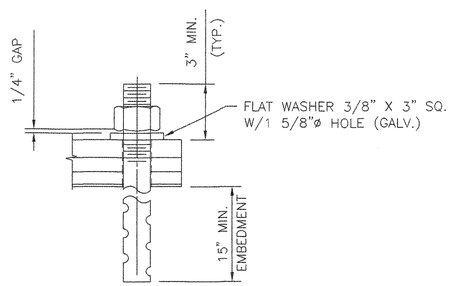
RADIAL BEARING
QUANTITY: 4
LOCATION: BRIDGE 49N & 49S
ABUT. 1 STRINGER S1 & S7



SIDE ELEVATION



FRONT ELEVATION



ANCHOR BOLT DETAIL

1 1/4"ø SWEDGED ANCHOR BOLT
WITH 5" OF THREAD (AASHTO M270 GRADE 36)
WITH 1 HEAVY HEX NUT (TYP.) LEAVE A 1/4"
GAP BETWEEN THE BOTTOM OF THE NUT AND
THE TOP OF THE WASHER. ANCHOR BOLT THREADS
SHALL BE BURRED TO PREVENT REMOVAL OF
THE NUT. (TYP.)

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. WILLIAM BURHOE (508) 668–6600
5. AT NO TIME MAY ANY BEARINGS BE DISASSEMBLED WITHOUT AUTHORIZATION FROM COSMEC, INC.
6. BEARINGS SHALL BE STORED IN A CLEAN, DRY, LEVEL UPRIGHT POSITION.
7. FOR SETTING DETAIL SEE SHEET 24 OF 307 ON CONTRACT DRAWINGS.

MATERIALS

STEEL – AASHTO M270 GRADE 50 ZINC METALIZED AND SEALED WITH AN APPROVED SEALANT.

⚠1 STAINLESS STEEL – ASTM A.240 TYPE 304, #8 MIRROR FINISH

STAINLESS STEEL BACKING PLATE– ASTM A.240 TYPE 304

PREFORMED FABRIC PAD – AASHTO DIV. II SPEC. 18.4.10.1

PTFE – ASTM D1457 (UNFILLED)

⚠1 ELASTOMER– 60 DUROMETER NATURAL RUBBER GRADE 4
THE AVERAGE SHEAR MODULUS (G) SHALL BE 150 P.S.I., WITH AN ALLOWABLE RANGE OF 127.5 TO 172.5 P.S.I.

KEEPER PLATE BOLTS– AASHTO M164 TYPE 1

ANCHOR BOLTS, NUTS & WASHERS – SEE DETAIL

ALL BEARINGS DEVICES SHALL BE METALIZED AS PER SUBSECTIONS 531.04(b) OR 506.15(C) & (b). BEARINGS SHALL BE SEALED WITH AN APPROVED SEALER AS SPECIFIED IN STANDARD SPEC. SUBSECTION 506.15(b). AREAS OF METALIZING DAMAGED BY FIELD WELDING OR HANDLING SHALL BE PAINTED WITH AN APPROVED SEALANT IN ACCORDANCE WITH STANDARD SPEC. SUBSECTION 708.02(d).

⚠1 PRIOR TO GALVANIZING OR METALIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BR GROUND TO A 1/16" RADIUS.

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Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Sec
DATE: 2/26/01

REV.		BY:	DATE	CK'D BY:	DATE
1	MATERIALS	RFC	1/31/01		

STATE OF VERMONT
AGENCY OF TRANSPORTATION

HIGHWAY NUMBER I–89
TOWN OF MIDDLESEX–BOLTON
PROJECT # IM–089–2(26)

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

SCALE:	DRAWN BY:	CHECKED BY:
1/4"=1"	R.F.C.	MCM
	DATE: 11–6–00	DATE 11–27–00

COSMEC RADIAL BEARINGS

CUSTOMER	S.O. NUMBER	DRAWING NUMBER	REV.
WINTERSET INC.	59184	3394	1

312 BR

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

1). ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990 WITH LATEST REVISIONS AND THE SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS

1). AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (A.A.S.H.T.O) STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1996 EDITION WITH LATEST REVISIONS.

MATERIAL SPECIFICATIONS

1). UNLESS NOTED, ALL STEEL TO BE AASHTO M270 GRADE 50 (ASTM A709-50W).

2). HIGH STRENGTH BOLTS: AASHTO M164 (ASTM A325) 7/8" DIA.
TYPE 3 BOLTS SHALL BE USED FOR UNPAINTED CONNECTIONS.
TYPE 1 BOLTS SHALL BE USED FOR PAINTED CONNECTIONS.

3). ALL MAIN MEMBERS SUBJECT TO TENSION AND REVERSAL OF STRESS SHALL BE CHARPY V NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS. DRAWINGS SHALL CALL OUT "H2-3" FOR EACH APPLICABLE ITEM IN THE BILLS OF MATERIAL.

4). "BUY AMERICA" PROVISIONS OF VERMONT SPEC. 107.22. AS MODIFIED IN SPECIAL PROVISIONS ITEM 51 (DATED 2-8-93)

FABRICATION

1). ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN). HOLES NOTED "DA" SHALL BE DRILLED DURING ASSEMBLY WITH PARTS ASSEMBLED.

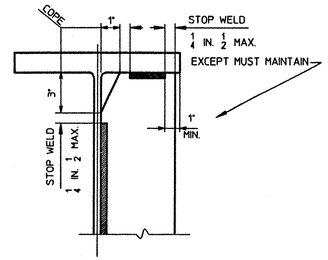
2). STUDS ARE FURNISHED AND FIELD APPLIED BY OTHERS.

WELDING

1). THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-96 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.

2). WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.

3). NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.



DETAIL "WS1"

CLEANING:

1). ALL STEEL SHALL BR BLAST CLEANED AS PER SSPC SP-10 PER SPEC. 506.14(a)
2). 1/16" RADIUS ON ALL EDGES OF PAINTED SURFACES.

PAINTING

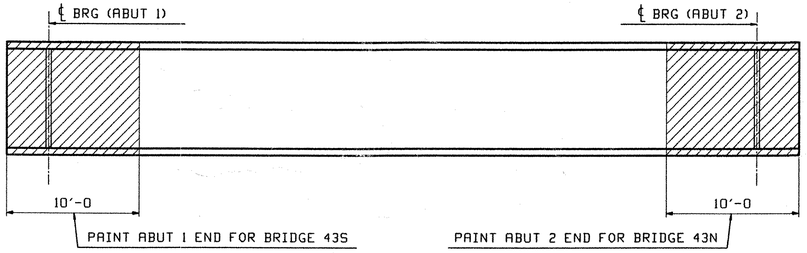
1). ALL STEEL COMPONENTS WITHIN 10'-0 OF END OF GIRDERS AS SHOWN IN SKETCH "P1" SHALL BE COATED WITH THE PROTECTIVE SYSTEM ACCORDING TO SECTION 513 OF THE SPECIFICATION. THE PAINT COLOR SHALL BE BROWN. PAINT SYSTEM MUST BE SYSTEM LISTED ON THE QUALIFIED PRODUCT LIST SECTION 513.02 BROWN COLOR CHIP #20059.

FIELD CONNECTIONS

1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" (22mm) DIAMETER HIGH STRENGTH A-325 BOLTS, INSTALLED PER 506.19(c) AND SPECIAL PROVISIONS.

2). BOLTS SHALL HAVE HEAVY HEX NUT, HEX HEAD, & ONE FLAT WASHER EACH (WASHER TO BE PLACED UNDER TURNED ELEMENT).

3). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.



PAINT SKETCH "P1"

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☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Scott
DATE: 3/26/01

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

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2201				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

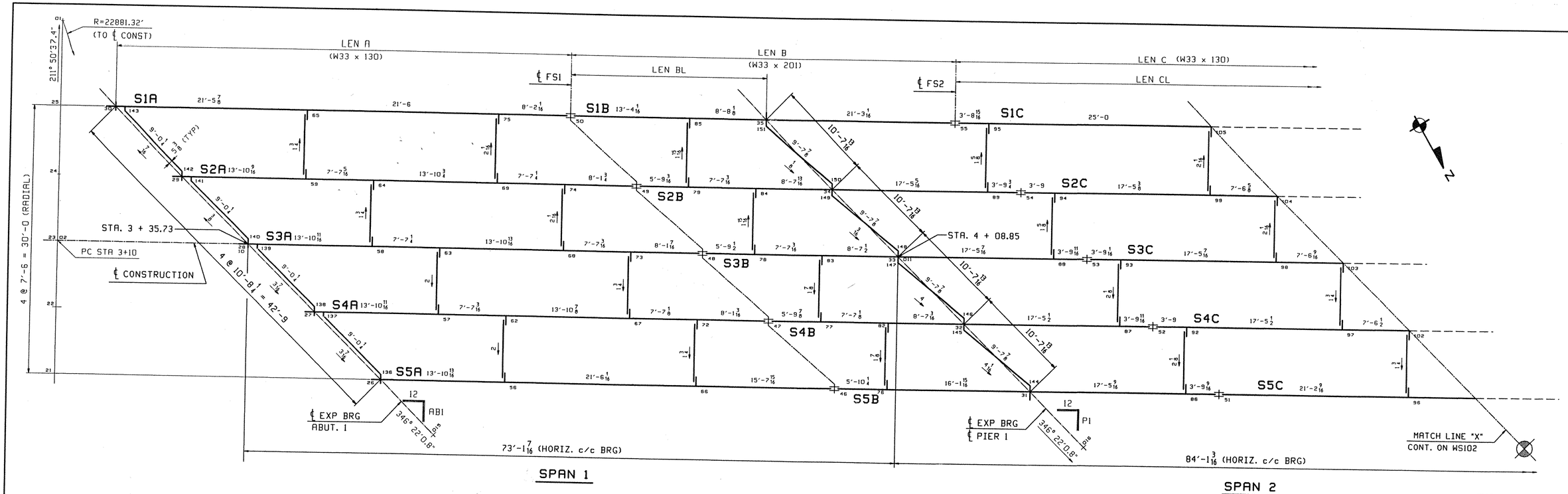
DESCRIPTION: GENERAL NOTES	DRAWN BY	DATE
JOB: BRIDGE NO. 43S & 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	01/13
	CHKD BY	
	WMJ	01/15
TENSOR 2106-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
116-43S	GN1
	REV. △

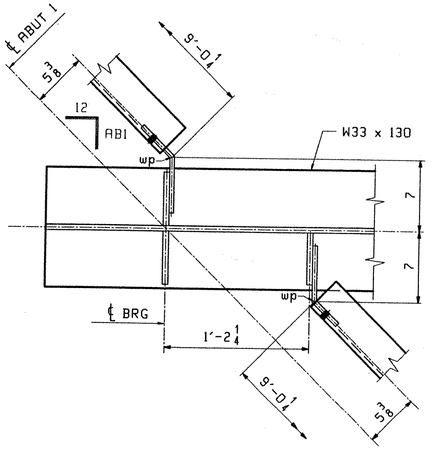
~~43NBS~~ ~~315S43NBS~~
315 SS 43 NBS

ML Wed Jan 17 13:46:54 EST 2001 /users/jobs/2106-S/GN1.1 Rev0

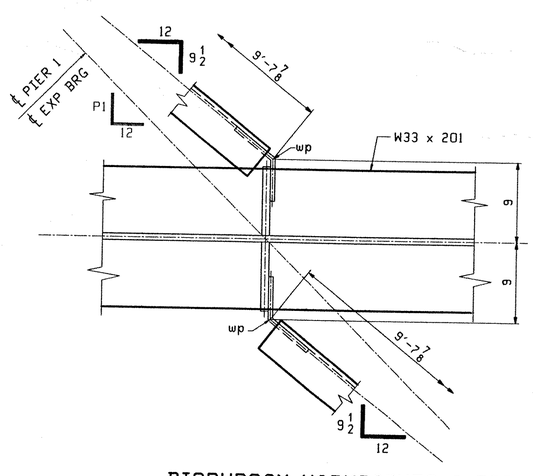


CALCULATION PLAN

Line	DEVELOPED LENGTHS ALONG BTM OF STRINGER					GRADE		BEVELS	
	LEN A	LEN BL	LEN B	LEN CL	LEN C	ABUT 1	Pier 1	AB1	P1
1	51'-1 15/16	22'-0 3/16	43'-3 5/16	62'-11	105'-8 9/16	-.0153	-.0218	11 13/16	11 7/8
2	51'-1 5/8	22'-0 3/16	43'-3 5/16	62'-10 11/16	105'-8 1/16	-.0157	-.0224	11 13/16	11 7/8
3	51'-1 3/8	22'-0 3/16	43'-3 5/16	62'-10 3/8	105'-7 9/16	-.0160	-.0228	11 13/16	11 7/8
4	51'-1 1/16	22'-0 3/16	43'-3 5/16	62'-10	105'-7 1/8	-.0164	-.0231	11 13/16	11 15/16
5	51'-0 13/16	22'-0 3/16	43'-3 5/16	62'-9 3/4	105'-6 5/8	-.0167	-.0238	11 7/8	11 15/16



DIAPHRAGM WORKPOINTS @ ABUT 1



DIAPHRAGM WORKPOINTS @ PIER 1

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES

1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF STRINGER WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF STRINGERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 200.
7. FOR LAYOUTS SEE DWG TD101.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 1/8.
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ OF BENT PLATE.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pete W. Stec
DATE: 3/20/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

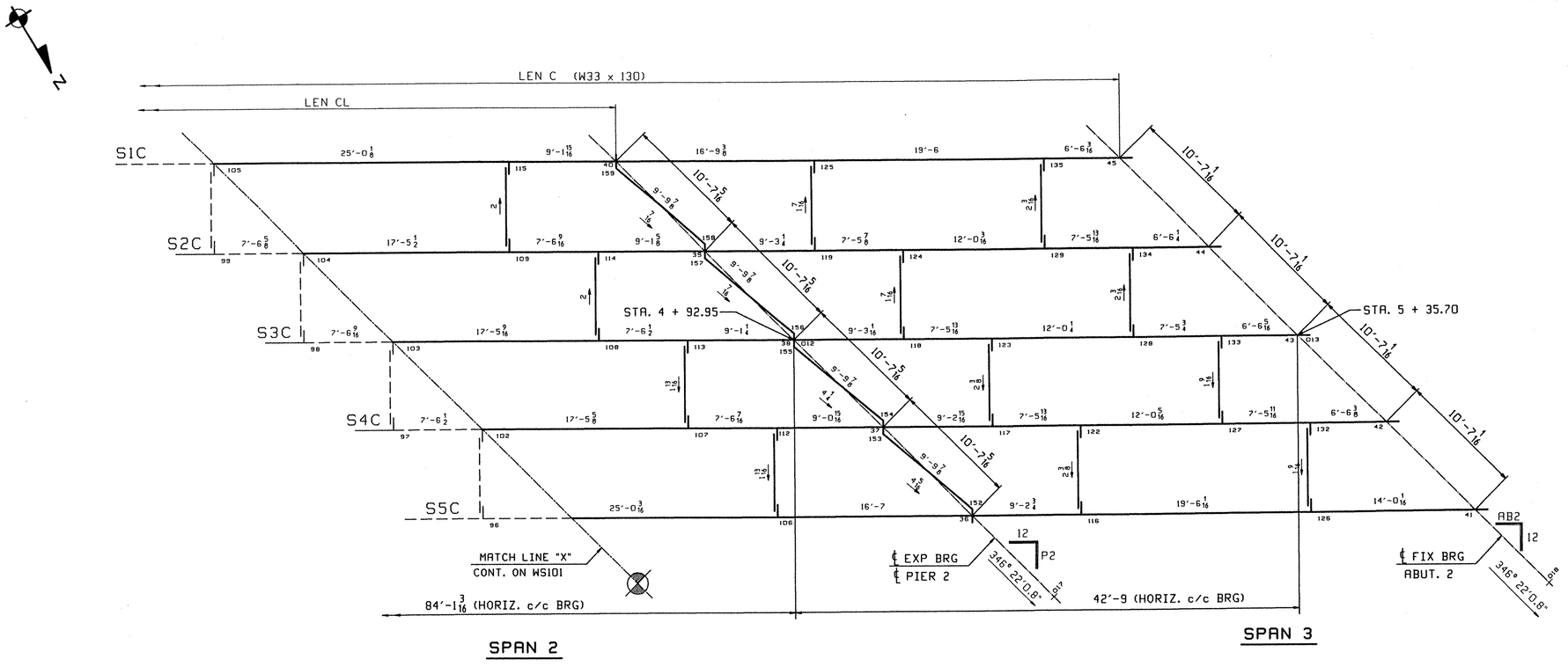
DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 43S, I-89 SB OVER U.S. ROUTE 2, I-89 IMPROVEMENTS, TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	01/11
	CHKD BY	
	WMJ	01/15
TENSOR 2106-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
116-43S	WS101
	REV. △

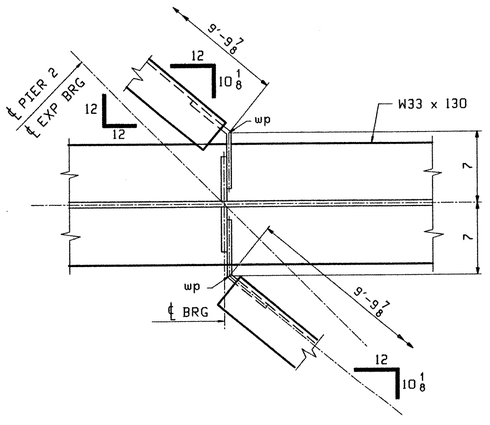
316 SB 435

WL Mon Jan 22 14:20:51 EST 2001 /users/jobs/2106-S/WS101 : Rev0



CALCULATION PLAN

	DEV LEN ALONG BTM OF STRINGER		GRADE		BEVELS	
Line	LEN CL	LEN C	Pier 2	ABUT 2	P2	AB2
1	62'-11	105'-8 9/16	-.0242	-.0363	12	12
2	62'-10 11/16	105'-8 1/16	-.0255	-.0365	12	12
3	62'-10 3/8	105'-7 9/16	-.0255	-.0369	12	11 15/16
4	62'-10	105'-7 1/8	-.0262	-.0372	12	11 15/16
5	62'-9 3/4	105'-6 5/8	-.0267	-.0391	12	11 15/16



DIAPHRAGM WORKPOINTS @ PIER 2

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF STRINGER WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF STRINGERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 200.
7. FOR LAYOUTS SEE DWG TD101.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 1/8.
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ OF BENT PLATE.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: [signature]
DATE: 3/20/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

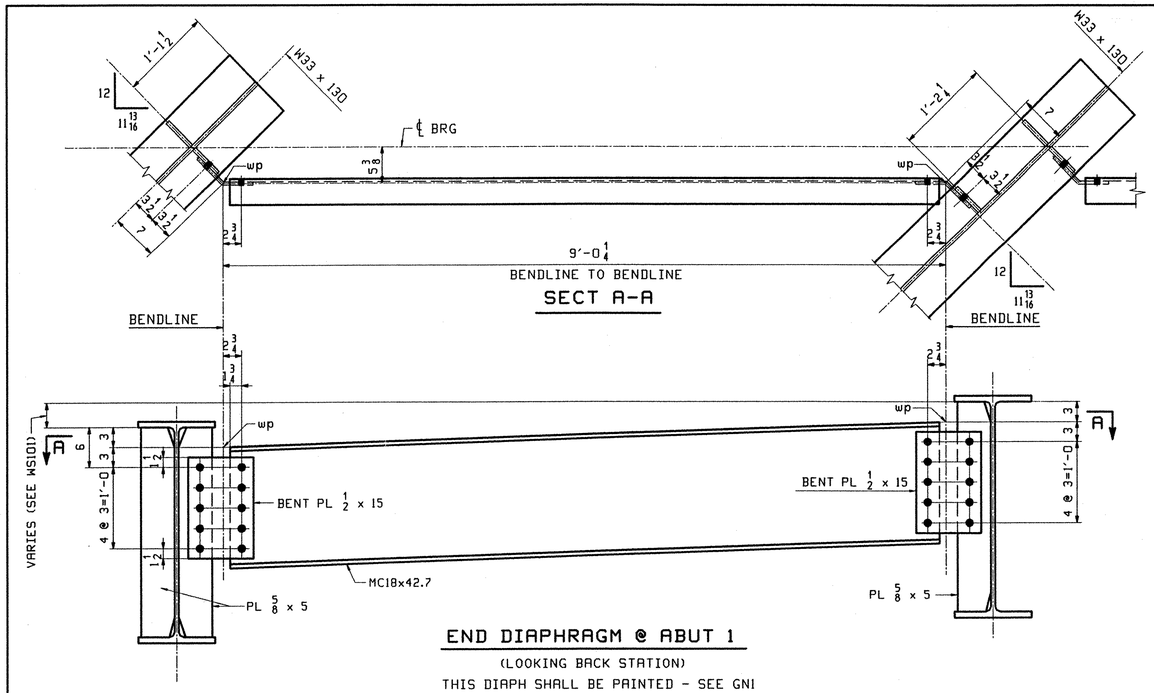
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

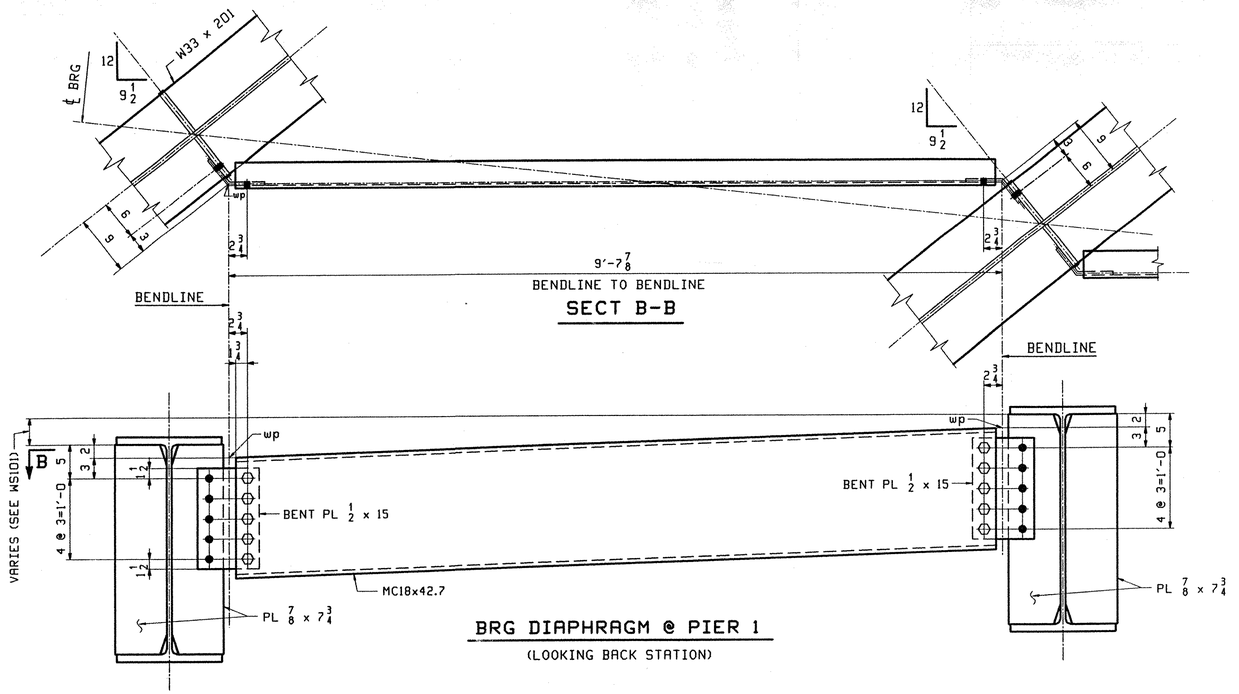
DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 43S I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	01/12
	CHKD BY	
	WMJ	01/15
	APPROV BY	
TENSOR 2106-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

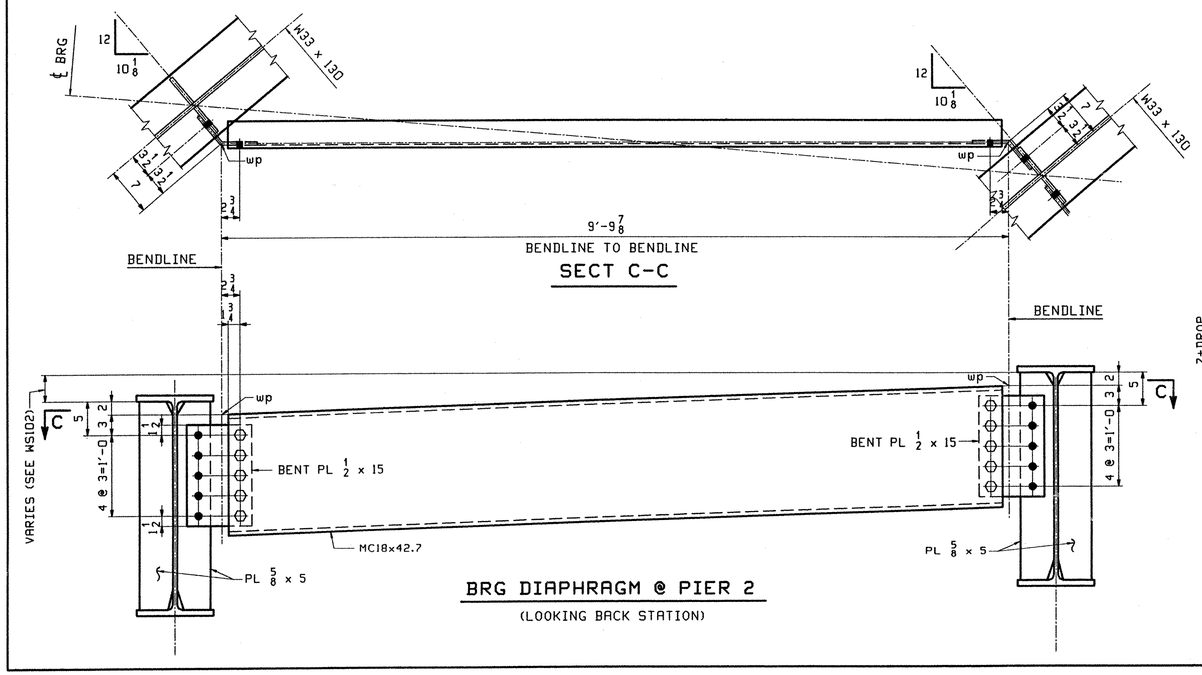
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

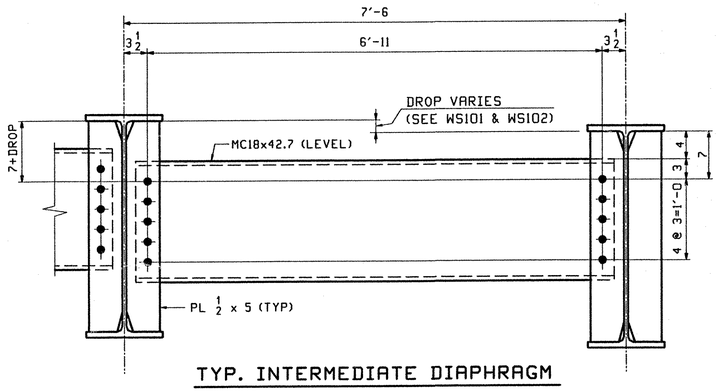
JOB NO.	DRG. NO.
116-43S	WS102
	REV. △

WL Tue Jan 23 17:06:43 EST 2001 /users/jobs/2106-S/ws102 | Rev0









TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 3/20/01

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BENDING LINES ARE TAKEN @ C/L PLATE.

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

SCALE: 1/8" = 1'-0

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-22-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

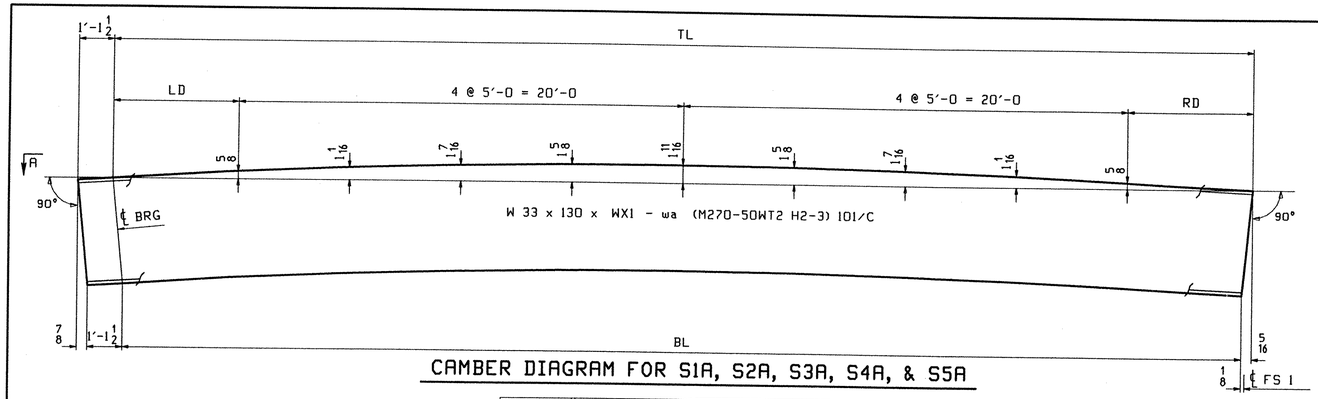
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: DIAPHRAGM LAYOUTS	DRAWN BY	DATE
JOB: BRIDGE NO. 435	WL	01/13
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	WMJ	01/15
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

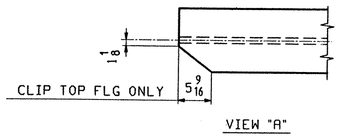
JOB NO.	DRG. NO.
116-435	TD101
	REV. △

WL Tue Jan 23 09:38:23 EST 2001 /users/jobs/2106-5/TD101 : Rev0

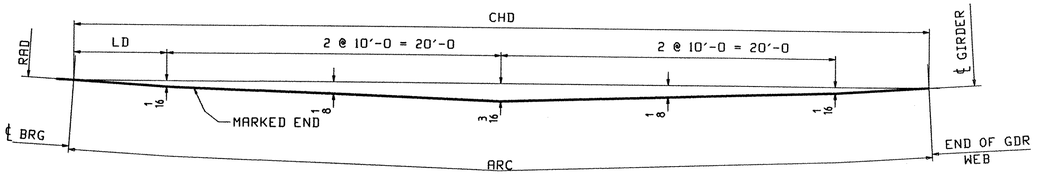


CAMBER DIAGRAM FOR S1A, S2A, S3A, S4A, & S5A

MARK	TL	BL	WX1	LD	RD
S1A	51'-3	51'-1 13/16	52'-4 1/2	5'-7 1/2	5'-7 1/2
S2A	51'-2 11/16	51'-1 1/2	52'-4 3/16	5'-7 3/8	5'-7 5/16
S3A	51'-2 7/16	51'-1 1/4	52'-3 15/16	5'-7 1/4	5'-7 3/16
S4A	51'-2 1/8	51'-0 15/16	52'-3 5/8	5'-7 1/8	5'-7
S5A	51'-1 7/8	51'-0 11/16	52'-3 3/8	5'-7	5'-6 7/8



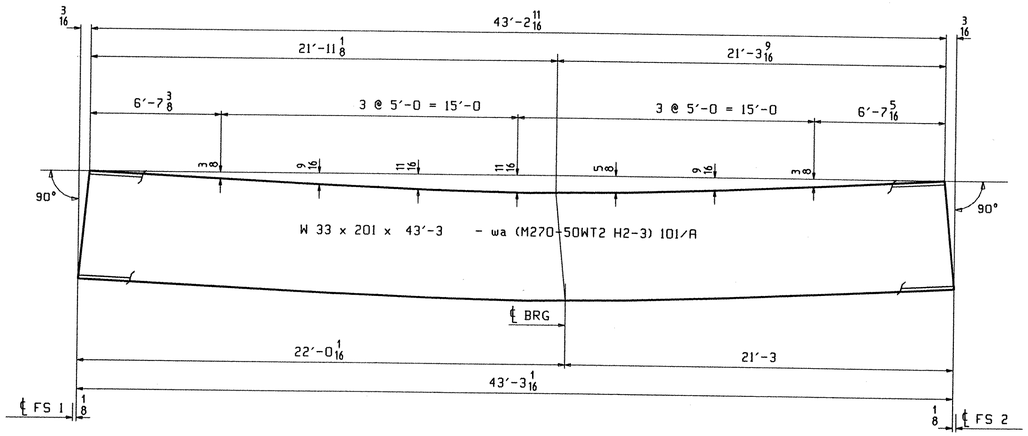
VIEW "A"



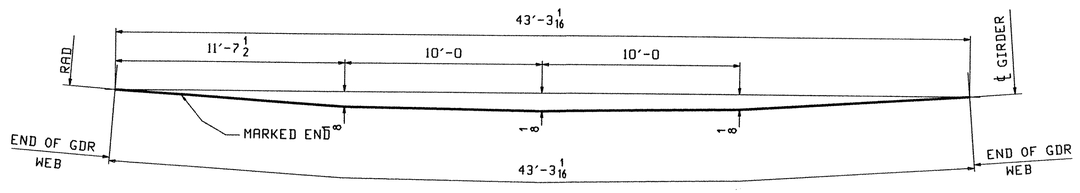
HORIZONTAL SWEEP DIAGRAM

DIMENSIONS ALONG BTM OF STRINGER

MARK	ARC	CHD	RAD	LD
S1A	51'-1 13/16	51'-1 13/16	22866.320	5'-6 7/8
S2A	51'-1 1/2	51'-1 1/2	22873.820	5'-6 3/4
S3A	51'-1 1/4	51'-1 1/4	22881.320	5'-6 5/8
S4A	51'-0 15/16	51'-0 15/16	22888.820	5'-6 1/2
S5A	51'-0 11/16	51'-0 11/16	22896.320	5'-6 5/16



CAMBER DIAGRAM FOR S1B, S2B, S3B, S4B, & S5B



HORIZONTAL SWEEP DIAGRAM

DIMENSIONS ALONG BTM OF STRINGER

MARK	RAD
S1B	22866.320
S2B	22873.820
S3B	22881.320
S4B	22888.820
S5B	22896.320

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Sic
DATE: 3/20/01

NOTES:
1. FOR GENERAL NOTES SEE DWG GN1.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2.2.01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

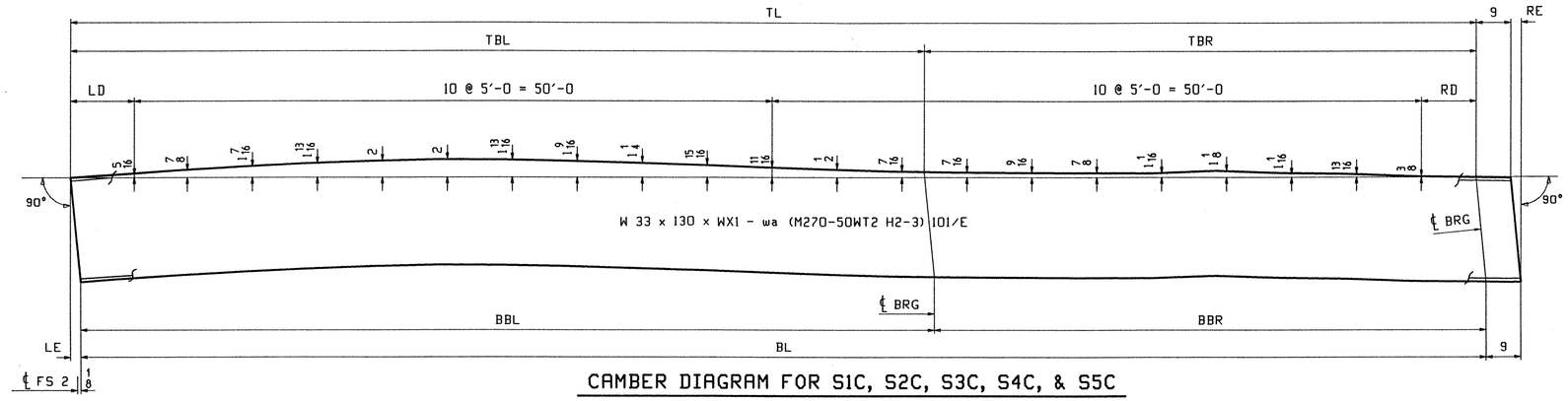
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER DIAGRAMS	DRAWN BY	DATE
JOB: BRIDGE NO. 435	VWJ	01/11
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	WMJ	01/15
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

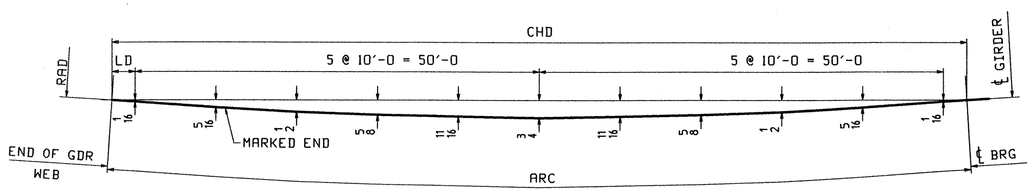
JOB NO.	DRG. NO.
116-435	C101
	REV. △

WED JAN 24 10:01:45 EST 2001 /users/jobs/2106-S/C101 : Rev0



CAMBER DIAGRAM FOR S1C, S2C, S3C, S4C, & S5C

MARK	TL	BL	LE	RE	WX1	TBL	TBR	BBL	BBR	LD	RD
S1C	105'-7 7/8	105'-8 7/16	5/16	7/8	106'-5 3/4	62'-10 3/8	42'-9 1/2	62'-10 7/8	42'-9 9/16	2'-10	2'-9 7/8
S2C	105'-7 3/8	105'-7 15/16	5/16	7/8	106'-5 1/4	62'-10 1/16	42'-9 5/16	62'-10 9/16	42'-9 3/8	2'-9 3/4	2'-9 5/8
S3C	105'-6 7/8	105'-7 7/16	5/16	7/8	106'-4 3/4	62'-9 3/4	42'-9 1/8	62'-10 1/4	42'-9 3/16	2'-9 3/8	2'-9 1/2
S4C	105'-6 3/8	105'-7	5/16	15/16	106'-4 5/16	62'-9 3/8	42'-9	62'-9 7/8	42'-9 1/8	2'-9 1/4	2'-9 1/8
S5C	105'-5 15/16	105'-6 1/2	5/16	7/8	106'-3 13/16	62'-9 1/16	42'-8 7/8	62'-9 5/8	42'-8 7/8	2'-9	2'-8 15/16



HORIZONTAL SWEEP DIAGRAM

DIMENSIONS ALONG BTM OF STRINGER

MARK	ARC	CHD	RAD	LD
S1C	105'-8 7/16	105'-8 7/16	22866.320	2'-10 3/16
S2C	105'-7 15/16	105'-7 15/16	22873.820	2'-9 15/16
S3C	105'-7 7/16	105'-7 7/16	22881.320	2'-9 11/16
S4C	105'-7	105'-7	22888.820	2'-9 1/2
S5C	105'-6 1/2	105'-6 1/2	22896.320	2'-9 3/16

NOTES:

1. FOR GENERAL NOTES SEE DWG GN1.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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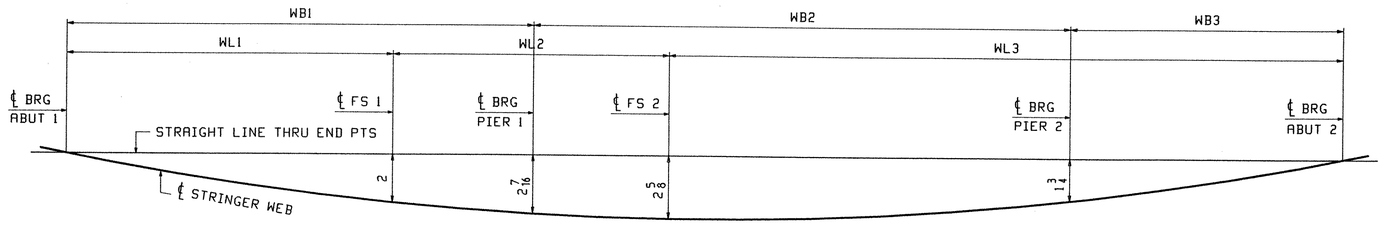
BY: Pat W. Gatti
DATE: 3/28/01

DESCRIPTION: CAMBER DIAGRAMS	DRAWN BY	DATE
JOB: BRIDGE NO. 435 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	VWJ	01/11
	CHKD BY	
	WMJ	01/15
TENSOR 2106-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

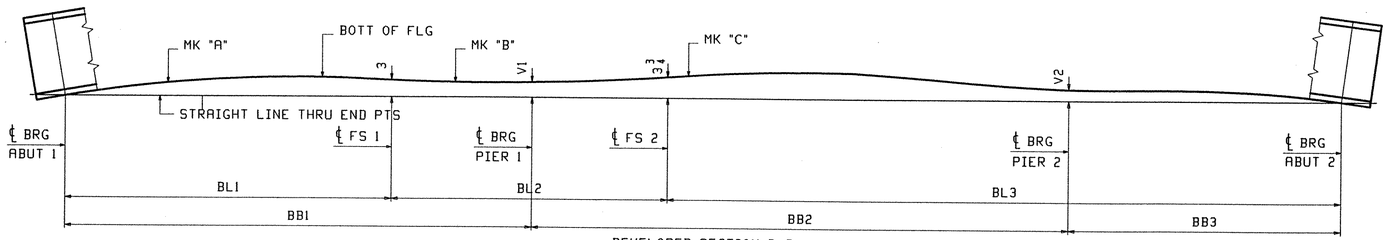
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
116-435	C102
	REV. △

ML Mon Jan 29 14:39:57 EST 2001 /users/pbar/2106-S/C102 : Rev1



PLAN VIEW STRINGER @ BOTT OF BOTT FLG



DEVELOPED SECTION A-A
DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	WL3	WB1	WB2	WB3	BL1	BL2	BL3	V1	V2	BB1	BB2	BB3
1	51'-1 15/16"	43'-3 1/4"	105'-8 9/16"	73'-2 1/16"	84'-2 1/8"	42'-9 9/16"	51'-1 15/16"	43'-3 1/4"	105'-8 9/16"	2 3/4"	2"	73'-2 1/16"	84'-2 1/8"	42'-9 9/16"
2	51'-1 11/16"	43'-3 1/4"	105'-8 1/16"	73'-1 13/16"	84'-1 13/16"	42'-9 3/8"	51'-1 11/16"	43'-3 1/4"	105'-8 1/16"	2 11/16"	2"	73'-1 13/16"	84'-1 13/16"	42'-9 3/8"
3	51'-1 3/8"	43'-3 1/4"	105'-7 5/8"	73'-1 1/2"	84'-1 1/2"	42'-9 1/4"	51'-1 3/8"	43'-3 1/4"	105'-7 5/8"	2 11/16"	2"	73'-1 1/2"	84'-1 1/2"	42'-9 1/4"
4	51'-1 1/16"	43'-3 5/16"	105'-7 1/8"	73'-1 1/4"	84'-1 3/16"	42'-9 1/16"	51'-1 1/16"	43'-3 1/4"	105'-7 1/8"	2 11/16"	2"	73'-1 3/16"	84'-1 3/16"	42'-9 1/16"
5	51'-0 13/16"	43'-3 1/4"	105'-6 5/8"	73'-0 15/16"	84'-0 7/8"	42'-8 7/8"	51'-0 13/16"	43'-3 1/4"	105'-6 5/8"	2 11/16"	1 15/16"	73'-0 15/16"	84'-0 7/8"	42'-8 7/8"

LINE	"A"	"B"	"C"
1	S1A	S1B	S1C
2	S2A	S2B	S2C
3	S3A	S3B	S3C
4	S4A	S4B	S4C
5	S5A	S5B	S5C

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Sell
DATE: 3/20/01

NOTES
FOR GENERAL NOTES SEE DWG GN1
ALL DIMENSIONS GIVEN AT BOTT OF STRINGER FLG (UN).

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-20-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

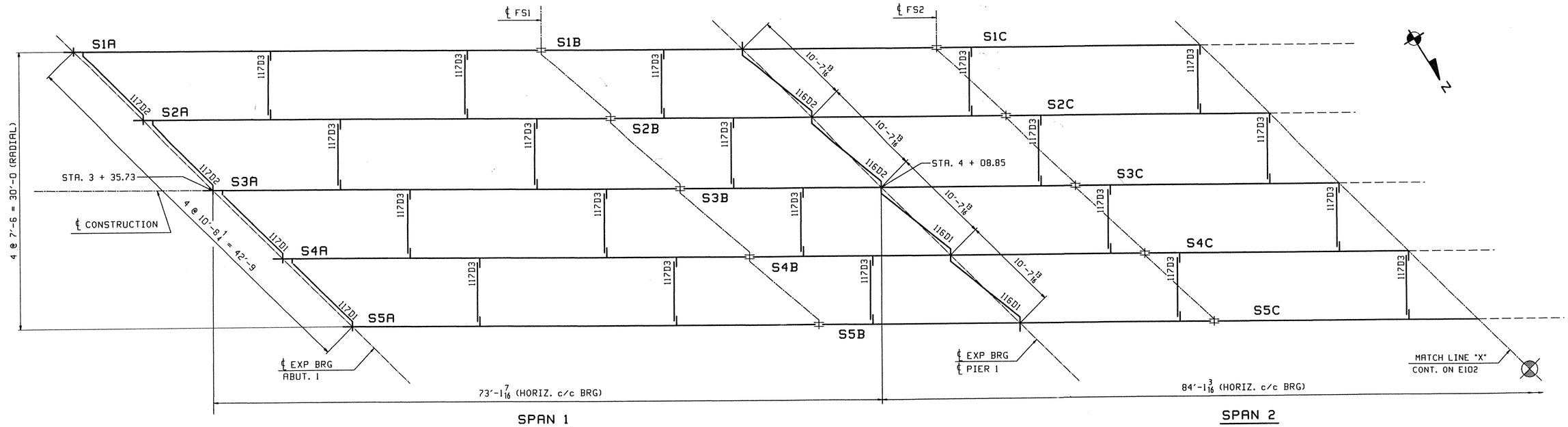
MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W U.N.		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	SHOP ASSEMBLY	DRAWN BY	DATE
JOB:	BRIDGE NO. 435 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	01/25
		CHKD BY	
		TRM	01/28
		APPROV BY	
TENSOR 2106-S		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

CASCO BAY STEEL STRUCTURES, INC.		JOB NO.	DRG. NO.
75 SPRING HILL ROAD	SACO, MAINE 04072	116-43S	SA101
PHONE (207) 282-7360	FAX. (207) 282-1179		REV. △

Thu Feb 1 08:49:21 EST 2001 /users/jobs/2106-S/SA101.dgn



FRAMING PLAN

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 3/20/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-2-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: FRAMING PLAN

JOB: BRIDGE NO. 435
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	01/25
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	
JOB NO.	DRG. NO.
116-435	E101
	REV. △

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

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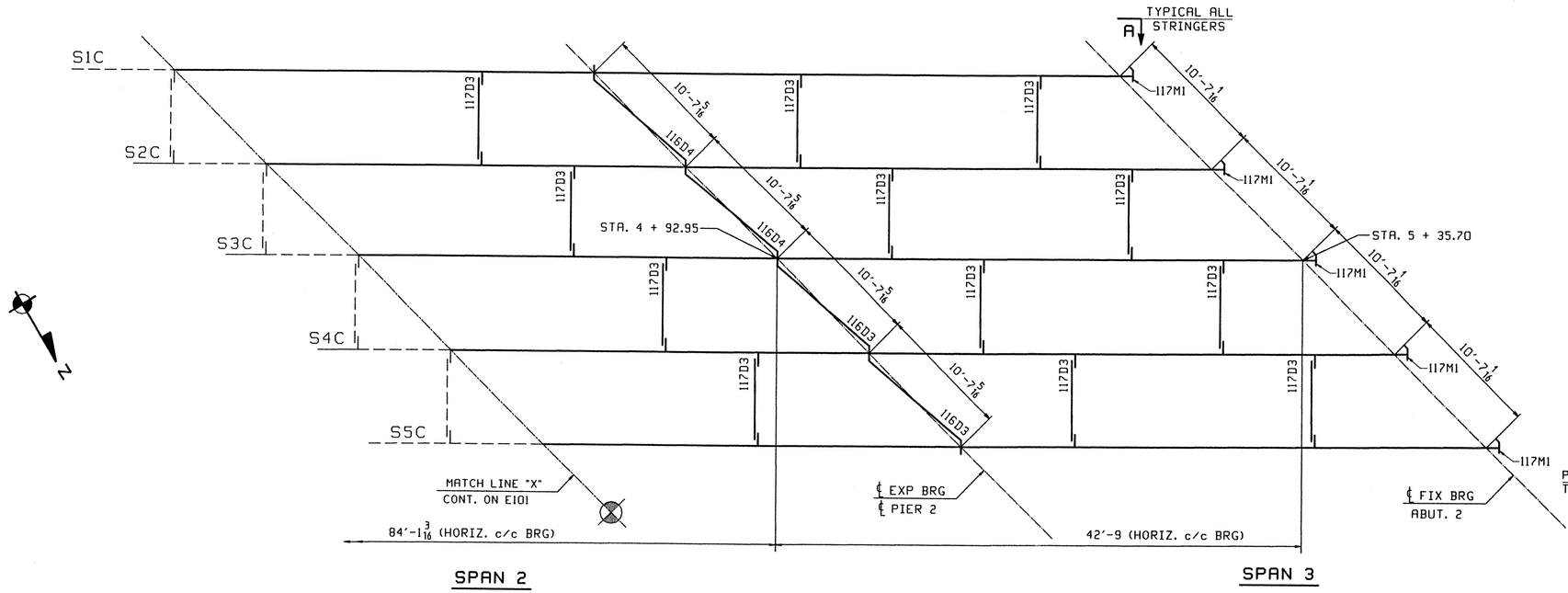
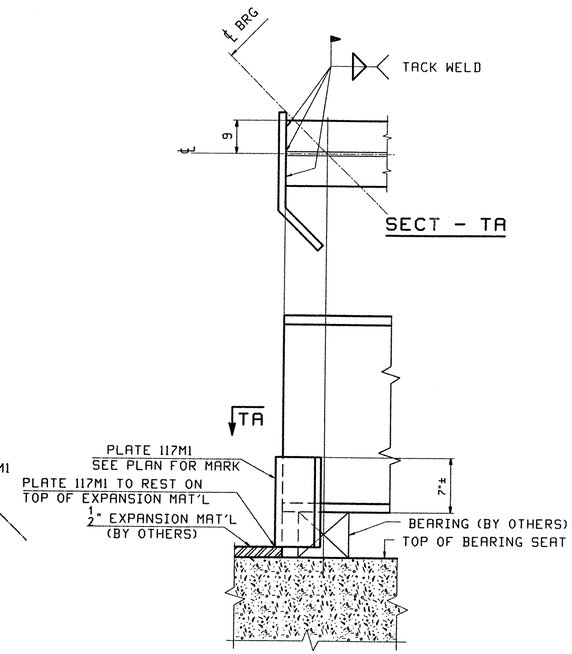


FRAMING PLAN



VIEW - A
(ROTATED)

FIELD BOLT LIST							A325 Type 3 BOLTS							
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS / CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
1														FIELD SPLICES 1&2
2	480	7/8	4	24	20	2 1/2	3/4	1 1/8	5/8				1	TOP & BTM FLG SPLICE
3	480	7/8	3	48	10	1 11/16	1/2	11/16	1/2				1	WEB SPLICE
4														
5														INT. DIAPHRAGMS
6	320	7/8	2 1/4	5	64	15/16	1/2	7/16					1	WEB TO CONN PL
7														
8														BRG DIAPHRAGMS - ABUT 1
9	40	7/8	2 1/2	5	8	1 1/8	1/2	5/8					1	GUSSET TO CONN PL
10	40	7/8	2 1/4	5	8	15/16	1/2	7/16					1	GUSSET TO WEB
11														
12														BRG DIAPHRAGMS - PIER 1
13	40	7/8	3 1/4	5	8	1 3/8	1/2	7/8					1	GUSSET TO CONN PL
14														
15														BRG DIAPHRAGMS - PIER 2
16	40	7/8	2 1/2	5	8	1 1/8	1/2	5/8					1	GUSSET TO CONN PL

WASHER CODES

1: 1 Hard Flat Washer

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W U.N.		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
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TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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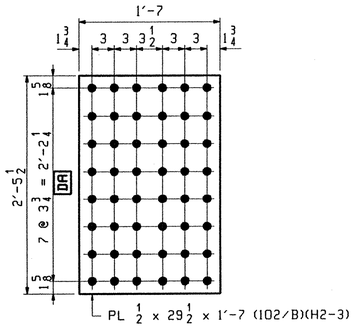
BY: PKW, Sr
DATE: 3/20/01

DESCRIPTION: FRAMING PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 435 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	01/25
	CHKD BY	
	TRM	01/27
TENSOR 2106-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

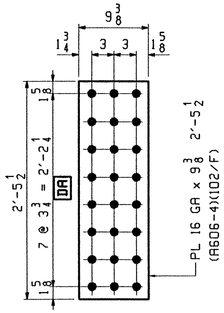
JOB NO.	DRG. NO.
116-435	E102
	REV. △

PHG Mon Jan 29 14:26:56 EST 2001 /users/jobs/2106-S/E102 1 Rev0

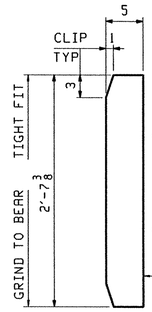


D.O.R.

20 ~ x11a

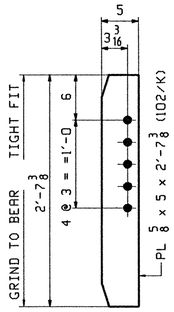


20 ~ x11d



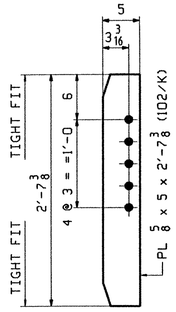
8 ~ x11g

BRG STIFF @ ABUT & PIER 2



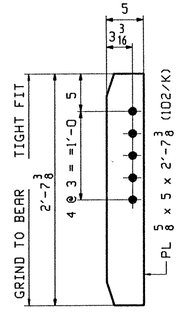
4 ~ x11h

BRG STIFF @ ABUT



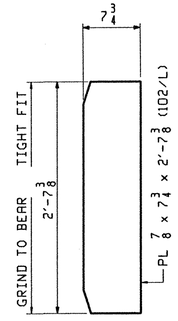
4 ~ x11k

ABUT CONN STIFF



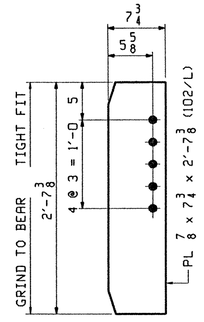
8 ~ x11m

BRG STIFF @ PIER 2



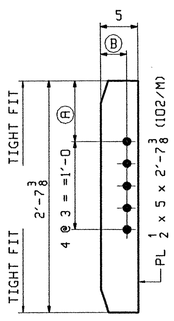
2 ~ x11n

BRG STIFF @ PIER 1



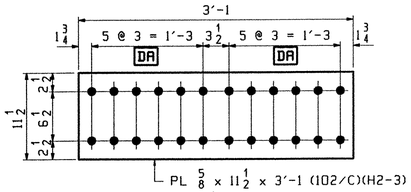
8 ~ x11p

BRG STIFF @ PIER 1



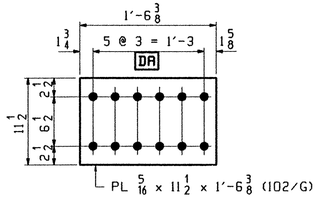
INT CONN STIFF

MARK	REQ'D	Ⓐ	Ⓑ
x11s	26	7	3 3/16
x11ab	4	8 1/2	3 3/16
x11ac	12	8 7/8	3 3/16
x11ad	8	9 1/8	3 3/16
x11af	2	9 3/8	3 3/16
x11ag	6	7	3 1/8
x11ah	4	8 7/8	3 1/8
x11ak	2	8 1/2	3 1/8

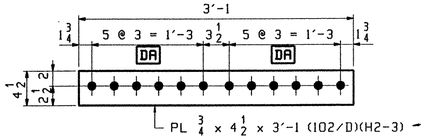


D.O.R.

20 ~ x11b



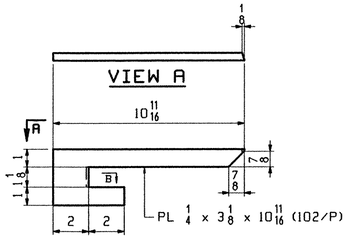
20 ~ x11f



D.O.R.

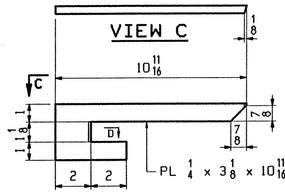
40 ~ x11c

ENGR VERIFY WIDTH OF PL REDUCED TO CLEAR "K" OF W33 THICKNESS INCREASED TO ¾" TO MAINTAIN NET SECTION



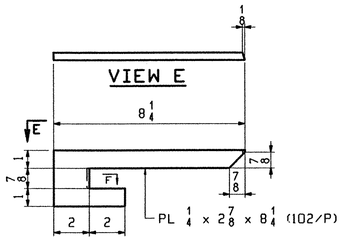
1 ~ x11t

DRIP PL



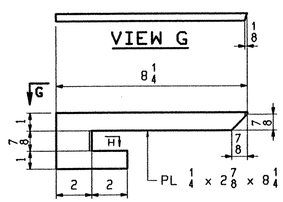
1 ~ x11v

DRIP PL



2 ~ x11w

DRIP PL



2 ~ x11aa

DRIP PL

NOTES:

FOR GENERAL NOTES SEE GN1

H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

D.O.R. DENOTES DIRECTION OF MILL ROLLING

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Peter W. Smith
DATE: 3/20/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W U.N.		15/16 ø (UN)	7/8 ø (UN)

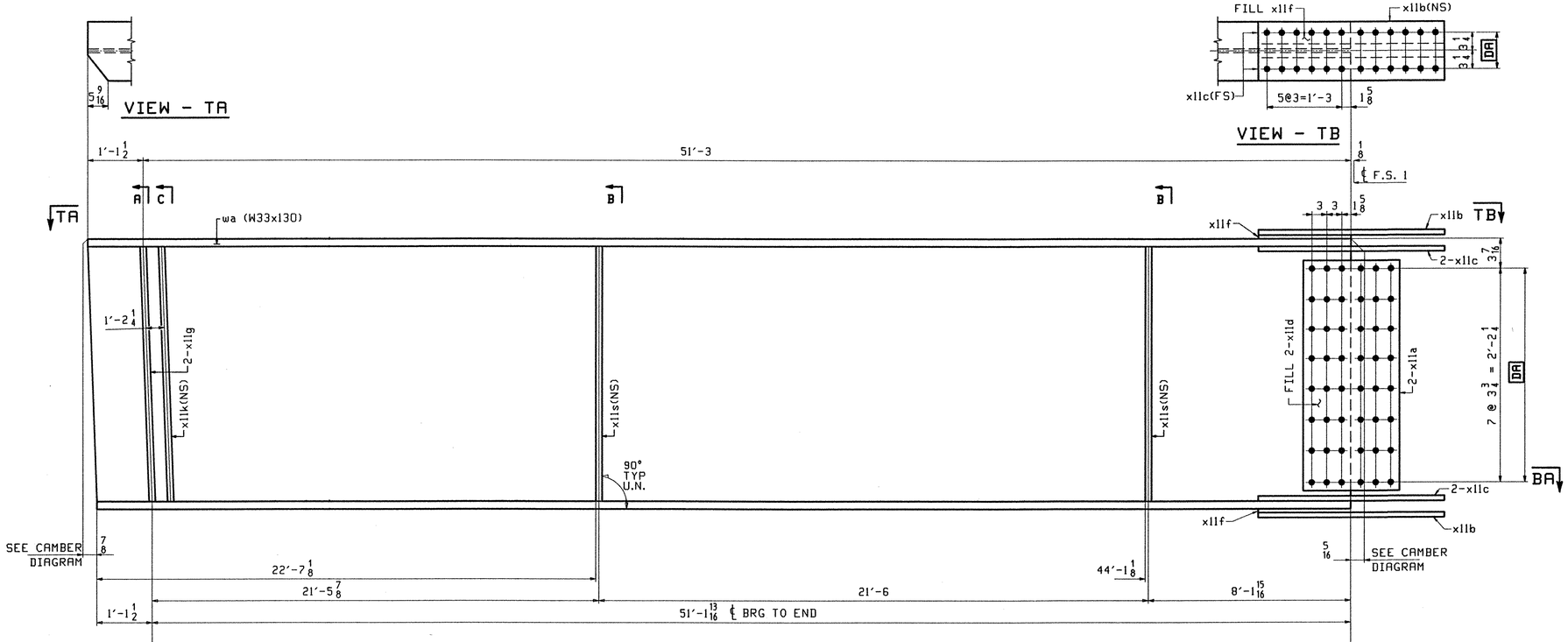
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	STRINGER STANDARDS	DRAWN BY	DATE
JOB:	BRIDGE NO. 435 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	01/22
		CHKD BY	
		TRM	01/26
		APPROV BY	
TENSOR 2106-S		SUPERVISOR	W. J. GATTI
PROJ NO.	I-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

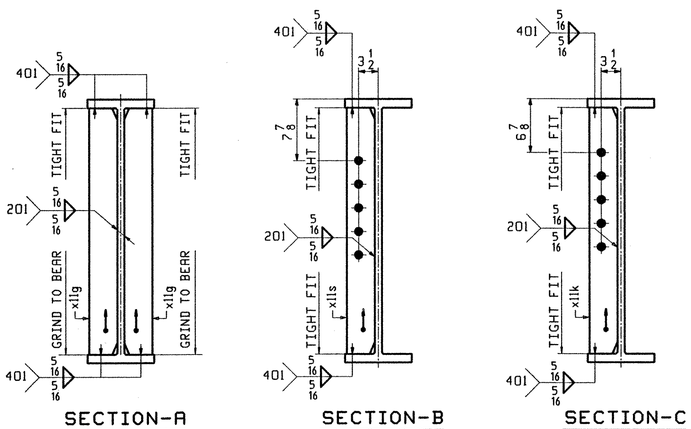
JOB NO.	DRG. NO.
116-435	X11
	REV. △

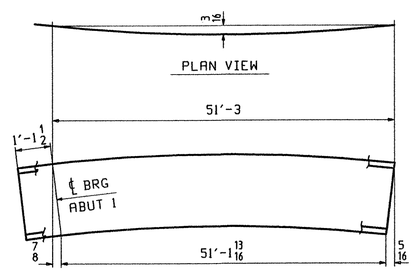
PHG Mon Jan 29 14:58:02 EST 2001 /users/jobs/2106-S/x11.9 Rev0



ONE - STRINGER - S1A

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.





DEV. CAMBER DIAGRAM
SEE SHT. C101

ABM INFO PAGE	LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S1A	1		STRINGER				7435	
101	C		1	wa	W 33x130	52	4 1/2	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 1/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	K		2	x11g	PL 5/8x5	2	7 3/8			
102	K		1	x11k	PL 5/8x5	2	7 3/8			
102	M		2	x11s	PL 1/2x5	2	7 3/8			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. S-T
DATE: 3/20/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-2-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W U.N.		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

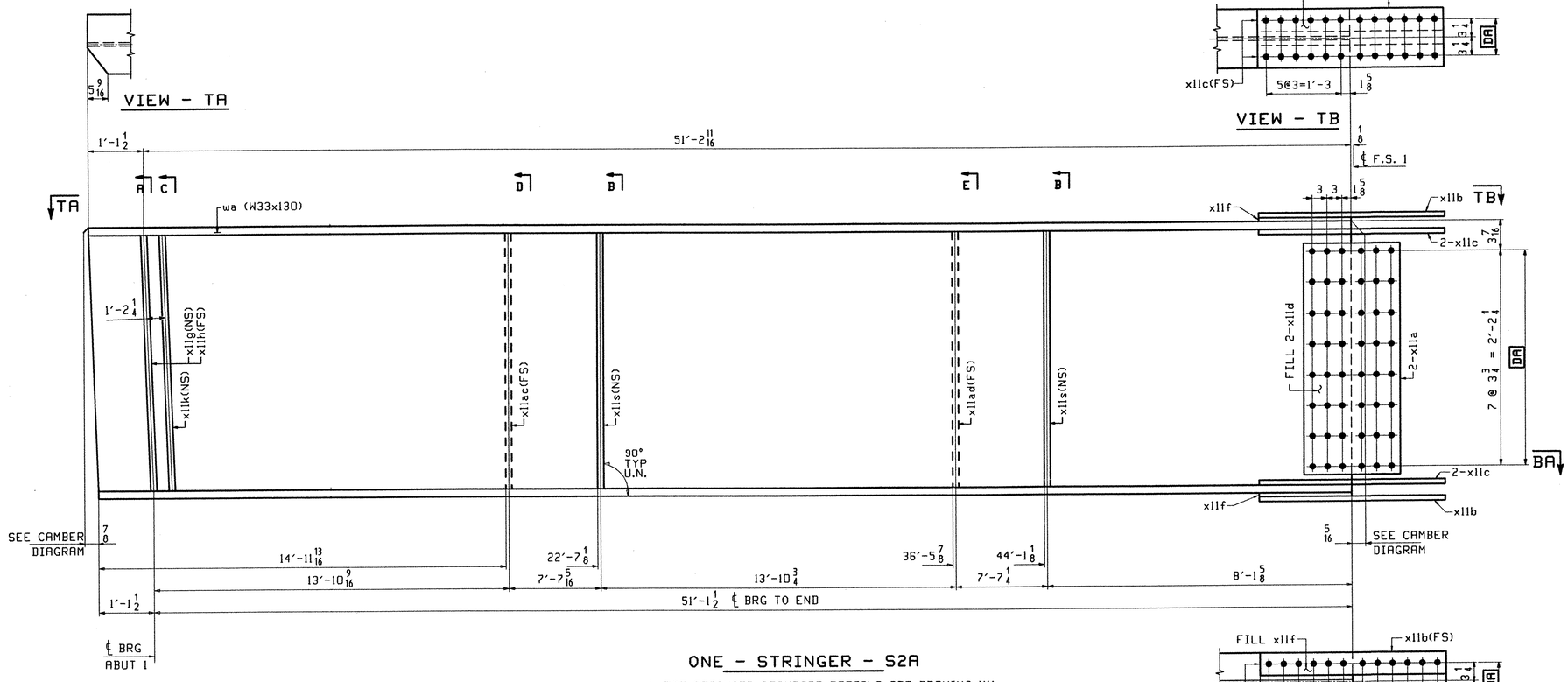
DESCRIPTION: STRINGER - S1A	DRAWN BY	DATE
JOB: BRIDGE NO. 43S I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	01/22
	CHKD BY	
	TRM	01/27
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2106-S

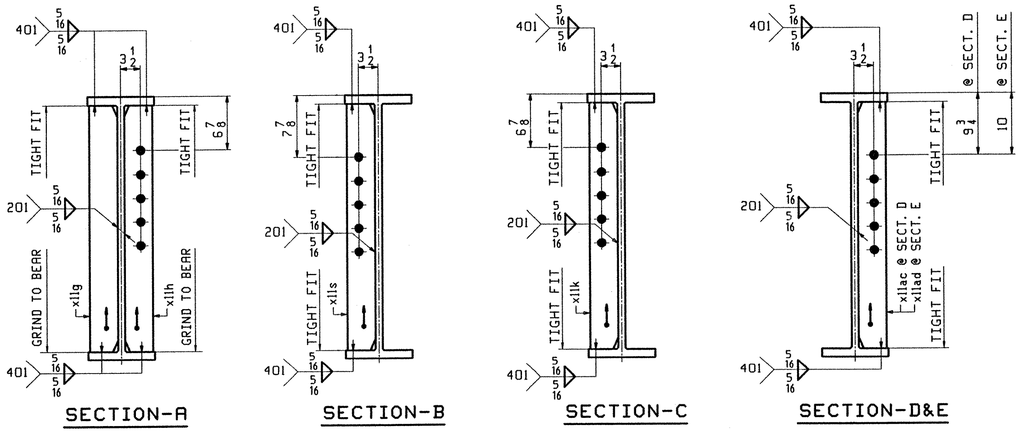
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

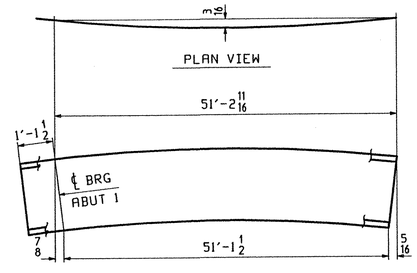
JOB NO.	DRG. NO.
116-43S	101
	REV. △

Wed Jan 31 17:41:05 EST 2001 /users/jake/2106-S/101 - Rev0



1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.





ABM INFO		SHIP	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
PAGE	LINE	MARK								
		S2A	1		STRINGER				7476	
101	C		1	wa	W 33x130	52	4 3/16	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	K		1	x11g	PL 5/8x5	2	7 3/8			
102	K		1	x11h	PL 5/8x5	2	7 3/8			
102	K		1	x11k	PL 5/8x5	2	7 3/8			
102	M		1	x11ac	PL 1/2x5	2	7 3/8			
102	M		2	x11s	PL 1/2x5	2	7 3/8			
102	M		1	x11ad	PL 1/2x5	2	7 3/8			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Gatti
DATE: 3/26/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2.2.01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W U.N.		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S2A

JOB: BRIDGE NO. 4335
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

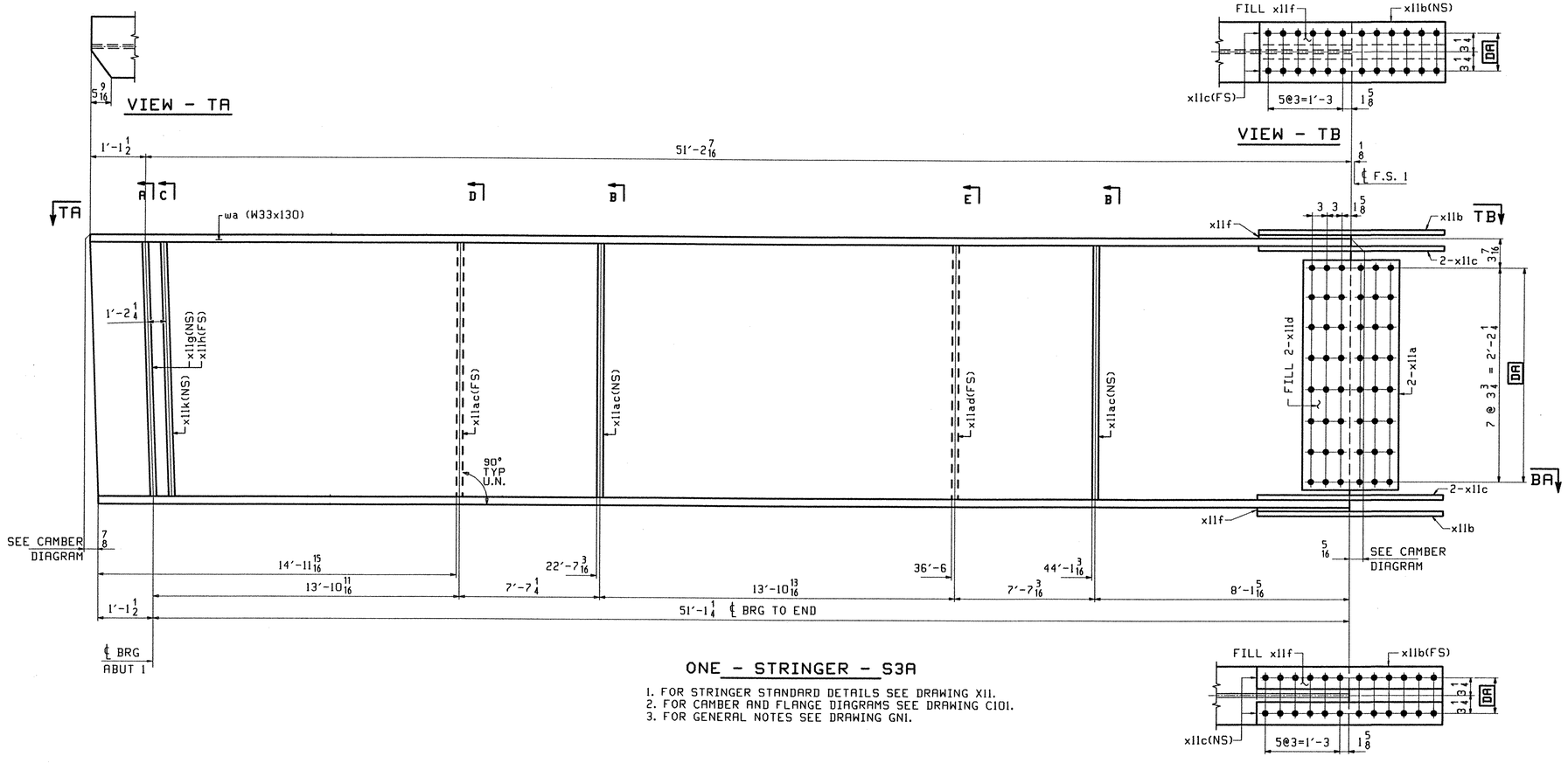
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	01/23
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

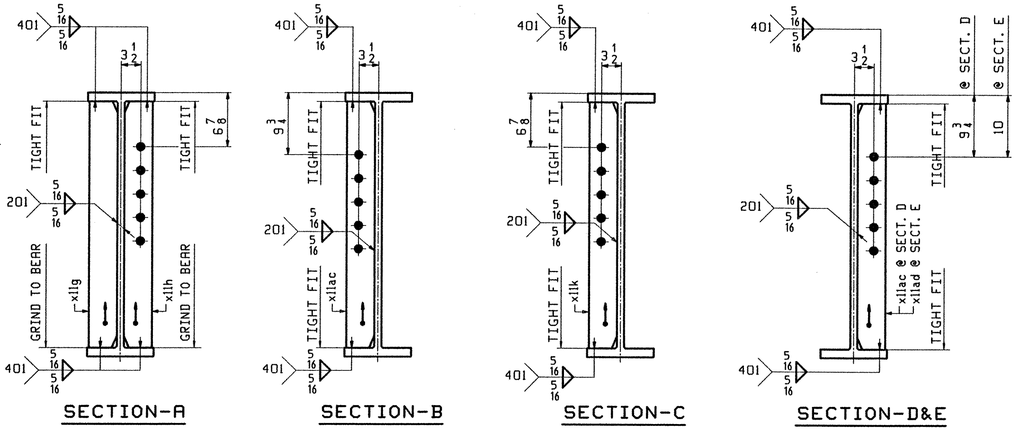
JOB NO.	DRG. NO.
116-43S	102
	REV. △

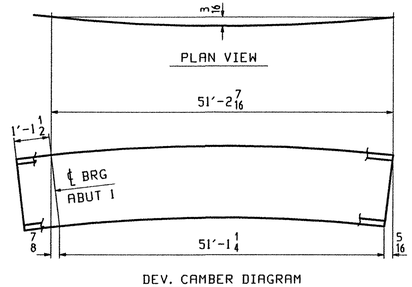
ML Wed Jan 31 17:43:10 EST 2001 /users/jobs/2106-S/102.1 Rev0



ONE - STRINGER - S3A

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.





ABM INFO		SHIP	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S3A	1		STRINGER				7473	
101	C		1	wa	W 33x130	52	3 15/16	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	K		1	x11g	PL 5/8x5	2	7 3/8			
102	K		1	x11h	PL 5/8x5	2	7 3/8			
102	K		1	x11k	PL 5/8x5	2	7 3/8			
102	M		3	x11ac	PL 1/2x5	2	7 3/8			
102	M		1	x11ad	PL 1/2x5	2	7 3/8			

JOB NO. | DRAWING NO. 103 | REV.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: [signature]
DATE: 3/22/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-2-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S3A

JOB: BRIDGE NO. 43S
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

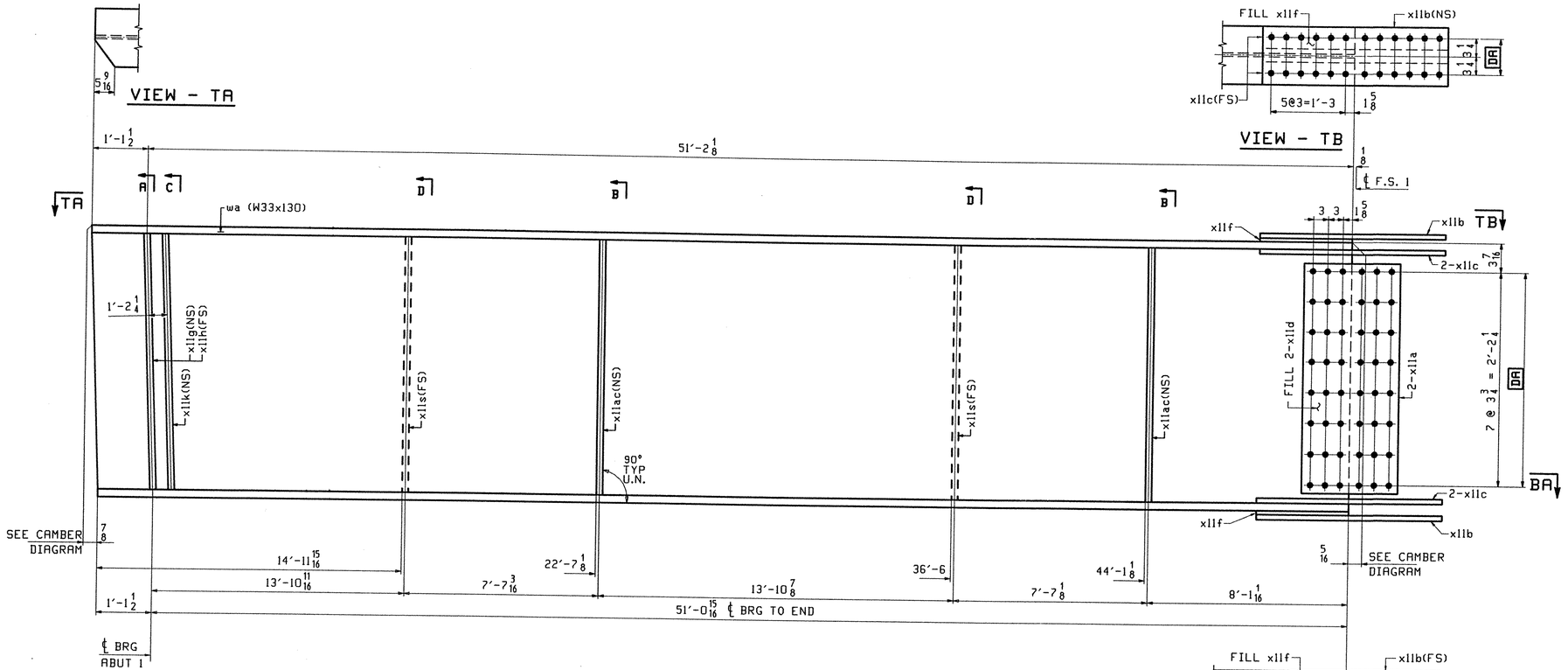
DRAWN BY	PHG 01/23
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	H. J. GATTI
Q.A.	

PROJ NO. IM-089-2(26)
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

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

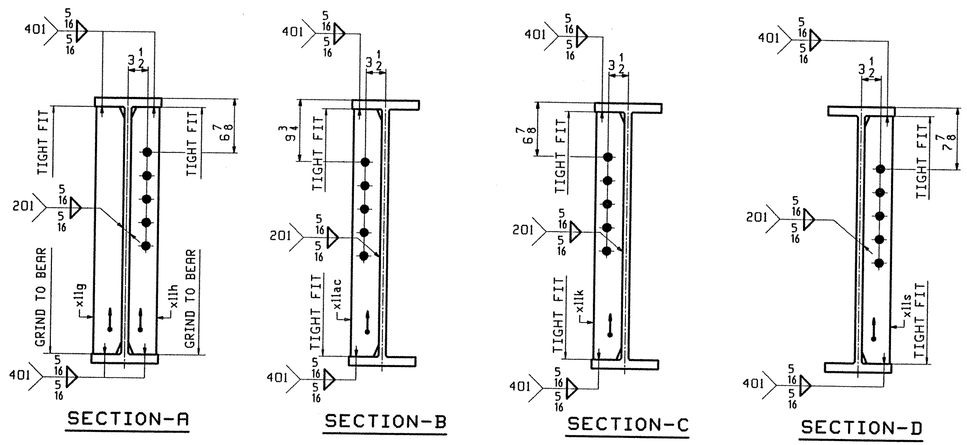
JOB NO. 116-43S | DRG. NO. 103 | REV. △

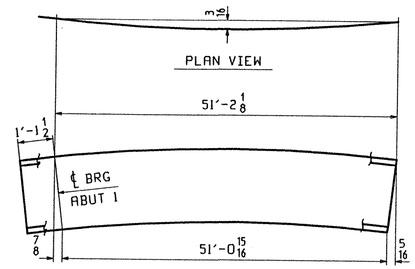
Wed Jan 31 17:45:59 EST 2001 /users/jake/2106-S/103 - Rev0



ONE - STRINGER - S4A

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.





DEV. CAMBER DIAGRAM
SEE SHT. C101

ABM INFO		SHIP	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
PAGE	LINE	MARK								
		S4A	1		STRINGER				7470	
101	C		1	wa	W 33x130	52	3 5/8	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	K		1	x11g	PL 5/8x5	2	7 3/8			
102	K		1	x11h	PL 5/8x5	2	7 3/8			
102	K		1	x11k	PL 5/8x5	2	7 3/8			
102	M		2	x11s	PL 1/2x5	2	7 3/8			
102	M		2	x11ac	PL 1/2x5	2	7 3/8			

BILL OF MATERIAL

JOB NO.

DRAWING NO. 104

REV.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Smith
DATE: 3/20/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-2-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S4A

JOB: BRIDGE NO. 435
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

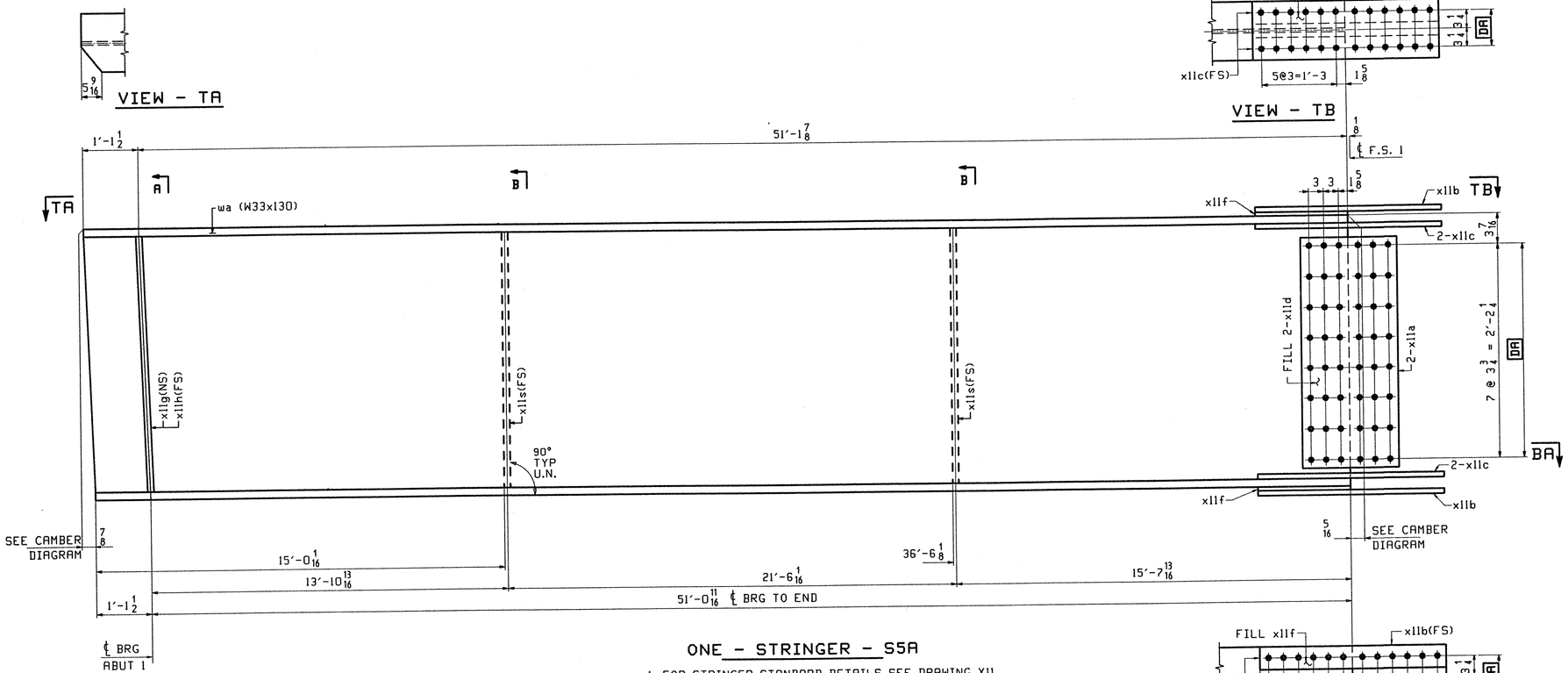
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	01/23
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
116-435	104
	REV. △

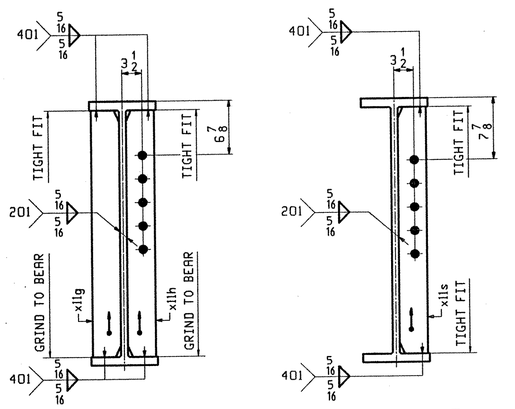
Wed Jan 31 17:39:57 EST 2001 /users/pw/2106-S/104 : Rev0



ONE - STRINGER - S5A

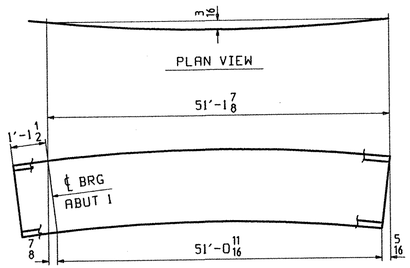
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.

SECTION - BA



SECTION-A

SECTION-B



DEV. CAMBER DIAGRAM
SEE SHT. C101

ABM INFO		SHIP	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
PAGE	LINE	MARK								
		S5A	1		STRINGER				7395	
101	C		1	wa	W 33x130	52	3 3/8	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	K		1	x11g	PL 5/8x5	2	7 3/8			
102	K		1	x11h	PL 5/8x5	2	7 3/8			
102	M		2	x11s	PL 1/2x5	2	7 3/8			

BILL OF MATERIAL

JOB NO.

DRAWING NO. 105

REV.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Gatti
DATE: 3/26/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2.2.01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PRINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S5A

JOB: BRIDGE NO. 43S
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2105-S

PROJ NO. IM-089-2(26)

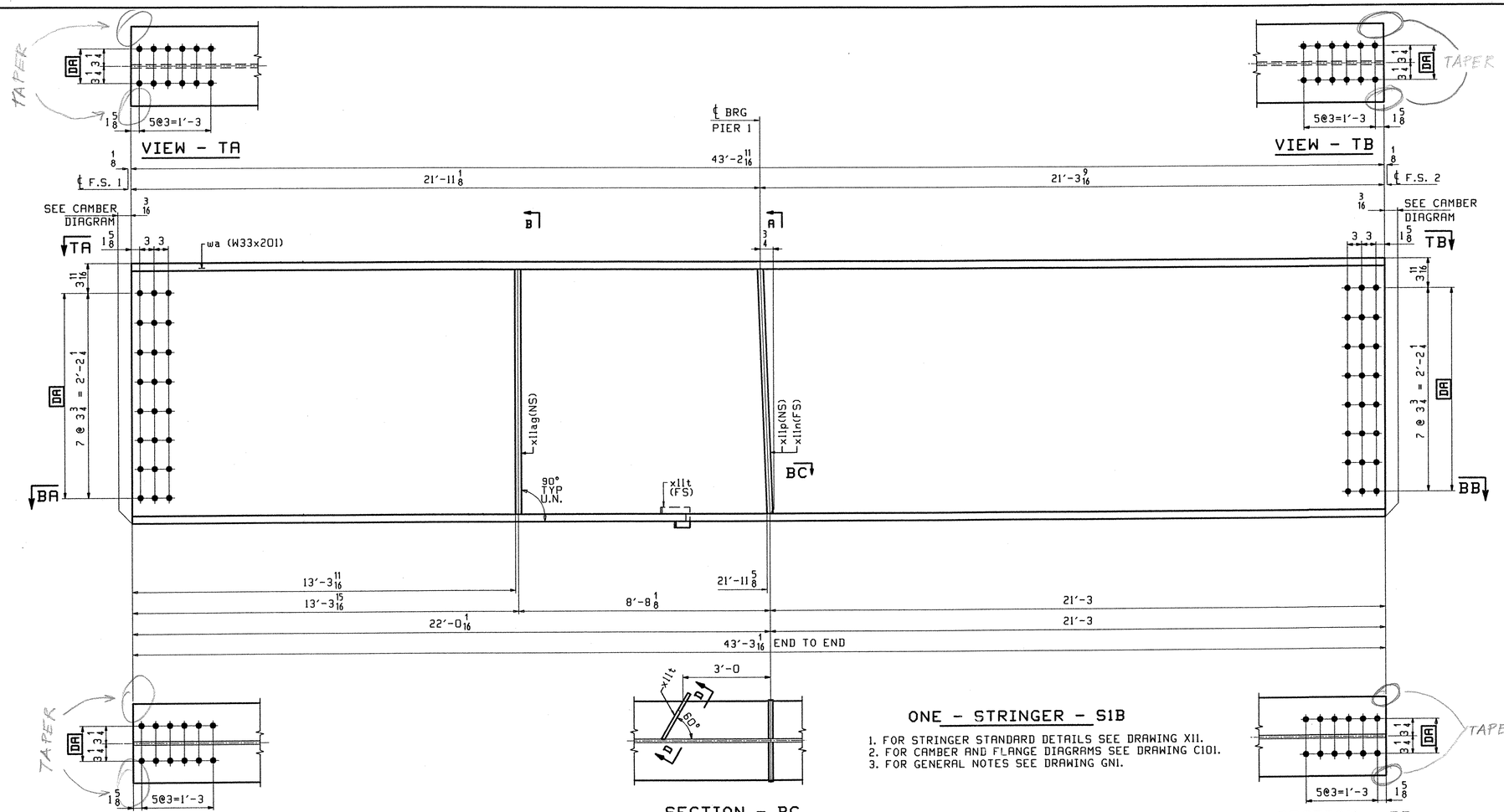
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	01/23
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

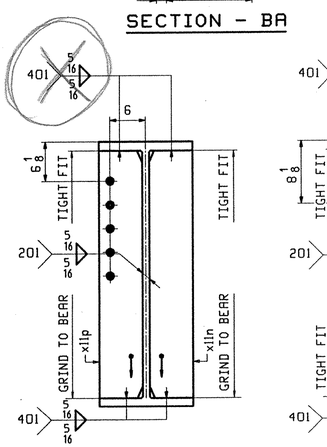
JOB NO. 116-43S
DRG. NO. 105
REV. △

Wed Jan 31 17:44:26 EST 2001 /users/jobs/2105-S/105 : RevD

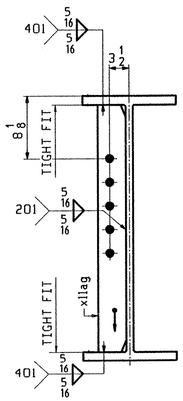


ONE - STRINGER - S1B

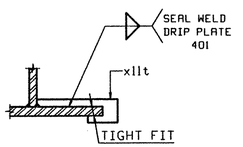
1. FOR STRINGER STANDARD DETAILS SEE DRAWING XII.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.



SECTION-A



SECTION-B

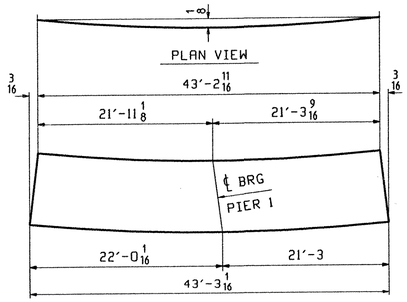


SECTION-D

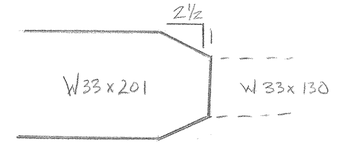
SECTION - BA

SECTION - BC

SECTION - BB



DEV. CAMBER DIAGRAM
SEE SHT. C101



TAPER DETAIL (TYP.)

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									106		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		SIB	1		STRINGER				8840		
101	A		1	wa	W 33x201	43	3 1/16	(M270-50WT2) (#2-3)			
102	M		1	xllag	PL 1/2x5	2	7 3/8				
102	L		1	xllp	PL 7/8x7 3/4	2	7 3/8				
102	L		1	xlln	PL 7/8x7 3/4	2	7 3/8				
102	P		1	xllt	PL 1/4x3 3/8	0	10 11/16				

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-2-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W

ELECTRODES:

HOLES: 15/16 ø (UN)

SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S1B

JOB: BRIDGE NO. 435
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
TENSOR 2106-S

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

	DRAWN BY	DATE
	PHG	01/23
	CHKD BY	
	TRM	01/27
	APPROV BY	
	SUPERVISOR	W. J. GATTI
	Q.A.	

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

JOB NO. 116-435 | DRG. NO. 106 | REV. △

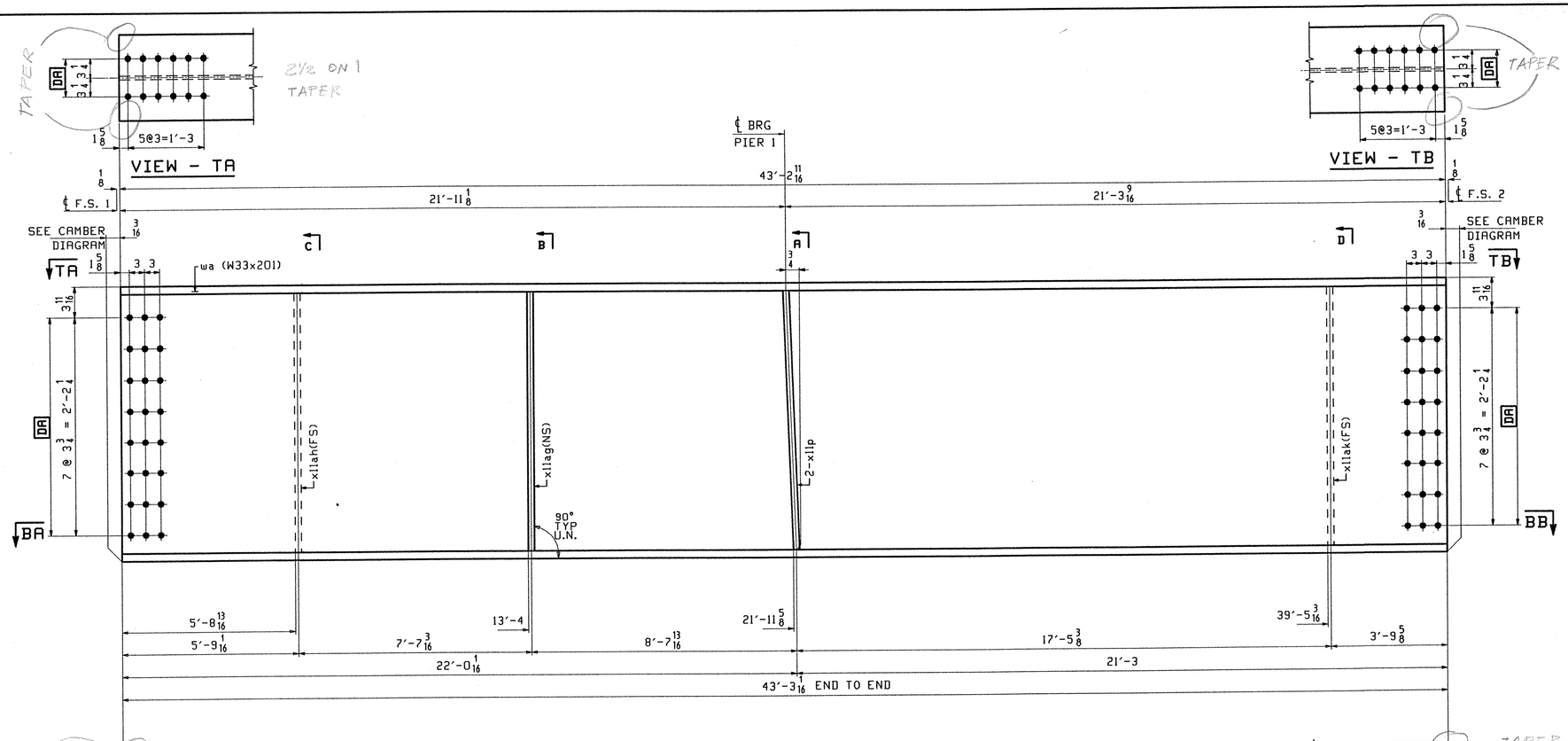
TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

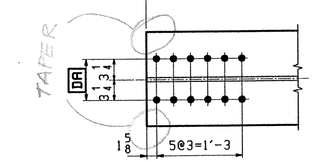
BY: Pat W. Sut
DATE: 3/20/01

PHG Mon Jan 29 16:09:18 EST 2001 /users/pms/2106-S/GS1 : Rev0

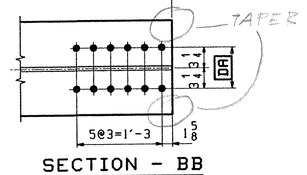


ONE - STRINGER - S2B

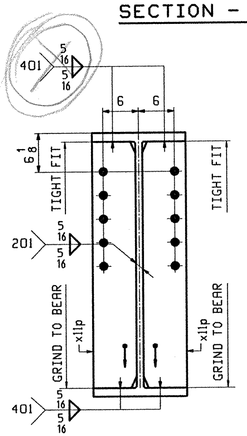
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.



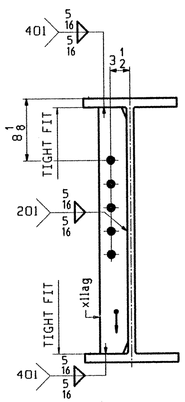
SECTION - BA



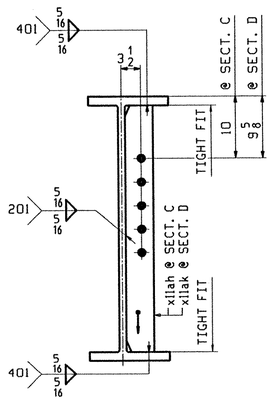
SECTION - BB



SECTION-A



SECTION-B



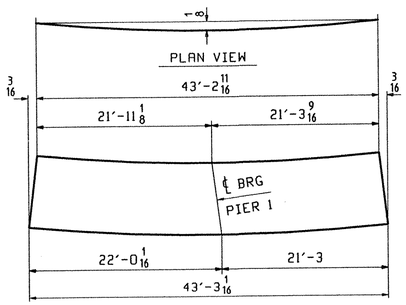
SECTION-C&D

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Peter W. Sutton
DATE: 3/26/01



DEV. CAMBER DIAGRAM
SEE SHT. C101

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									107	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S2B	1		STRINGER				8882	
101	A		1	wa	W 33x201	43	3 1/16	(M270-50W12) (#2-3)		
102	M		1	xllah	PL 1/2x5	2	7 3/8			
102	M		1	xllag	PL 1/2x5	2	7 3/8			
102	L		2	xllp	PL 7/8x7 3/4	2	7 3/8			
102	M		1	xllak	PL 1/2x5	2	7 3/8			

SEE TAPER DETAIL DRG. NO. 106

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-8-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S2B

JOB: BRIDGE NO. 43S
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

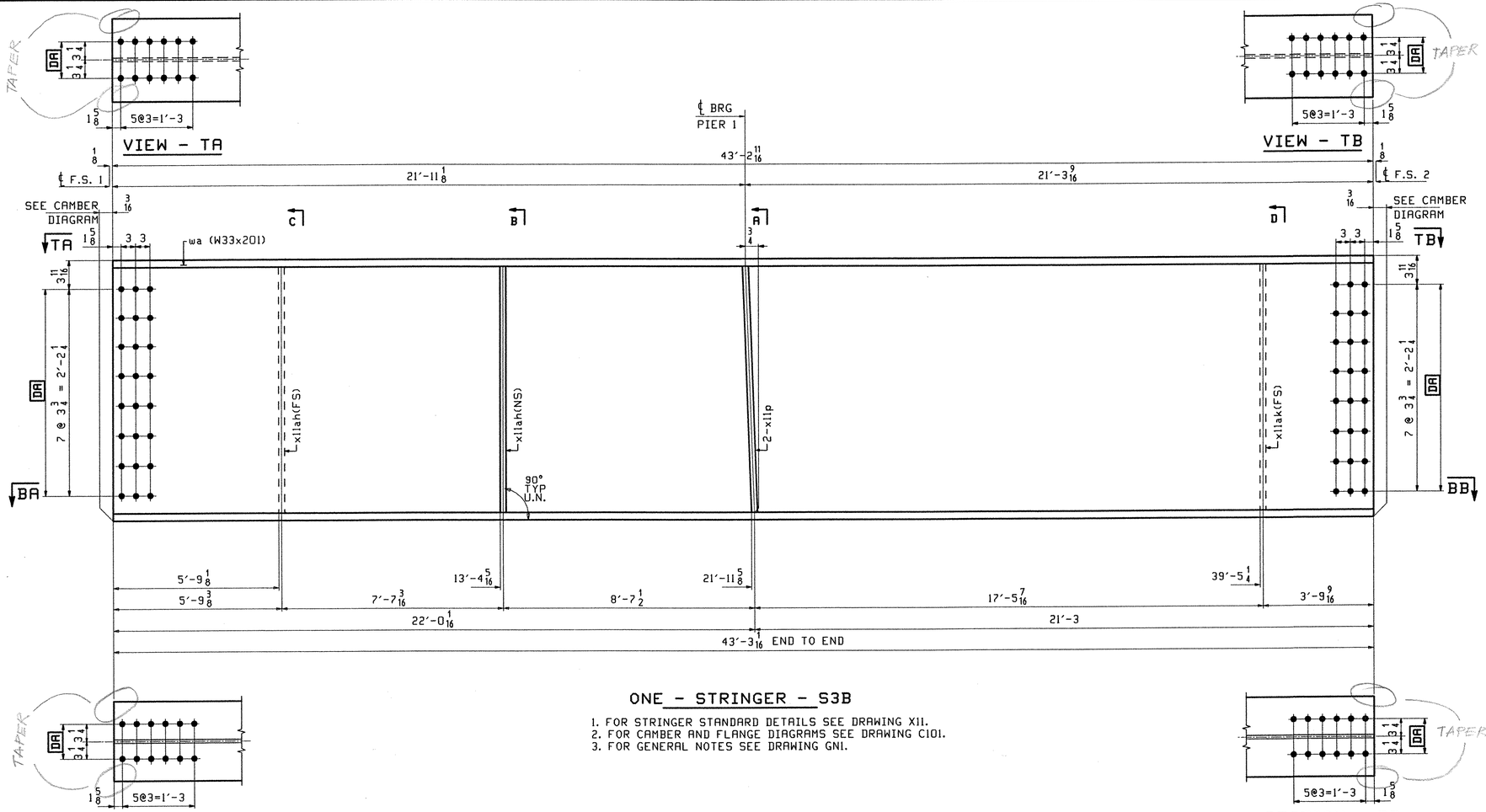
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	PHG	DATE	01/23
CHKD BY			
TRM			01/27
APPROV BY			
SUPERVISOR	W. J. GATTI		
Q.A.			

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

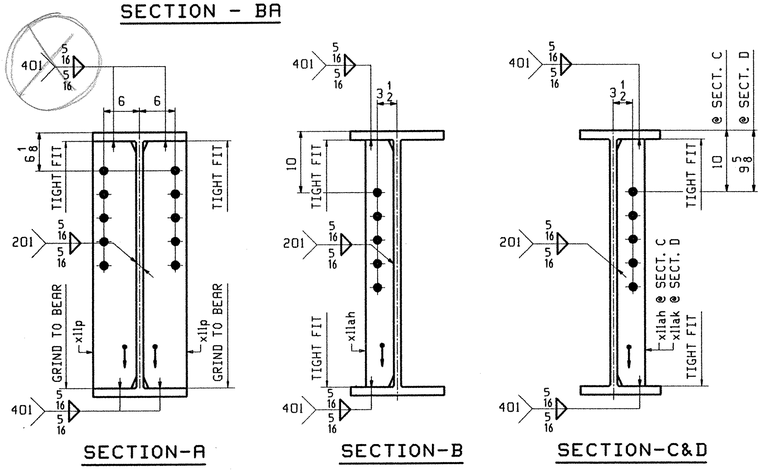
JOB NO. 116-43S
DRG. NO. 107
REV. △

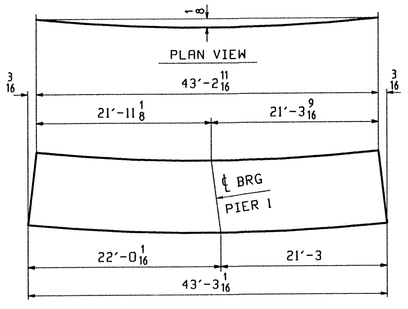
PHG Mon Jan 29 10:18:24 EST 2001 c:\work\jobs\2106-S\107 : Rev0



ONE - STRINGER - S3B

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.





DEV. CAMBER DIAGRAM

SEE SHT. C101

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs. Included details: Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. St. C
DATE: 3/20/21

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									108	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S3B	1		STRINGER				8882	
101	A		1	wa	W 33x201	43	3 1/16	(M270-50WT2) (H2-3)		
102	M		2	x11ah	PL 1/2x5	2	7 3/8			
102	L		2	x11p	PL 7/8x7 3/4	2	7 3/8			
102	M		1	x11ak	PL 1/2x5	2	7 3/8			

SEE TAPER DETAIL DRG. NO. 106

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-21									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

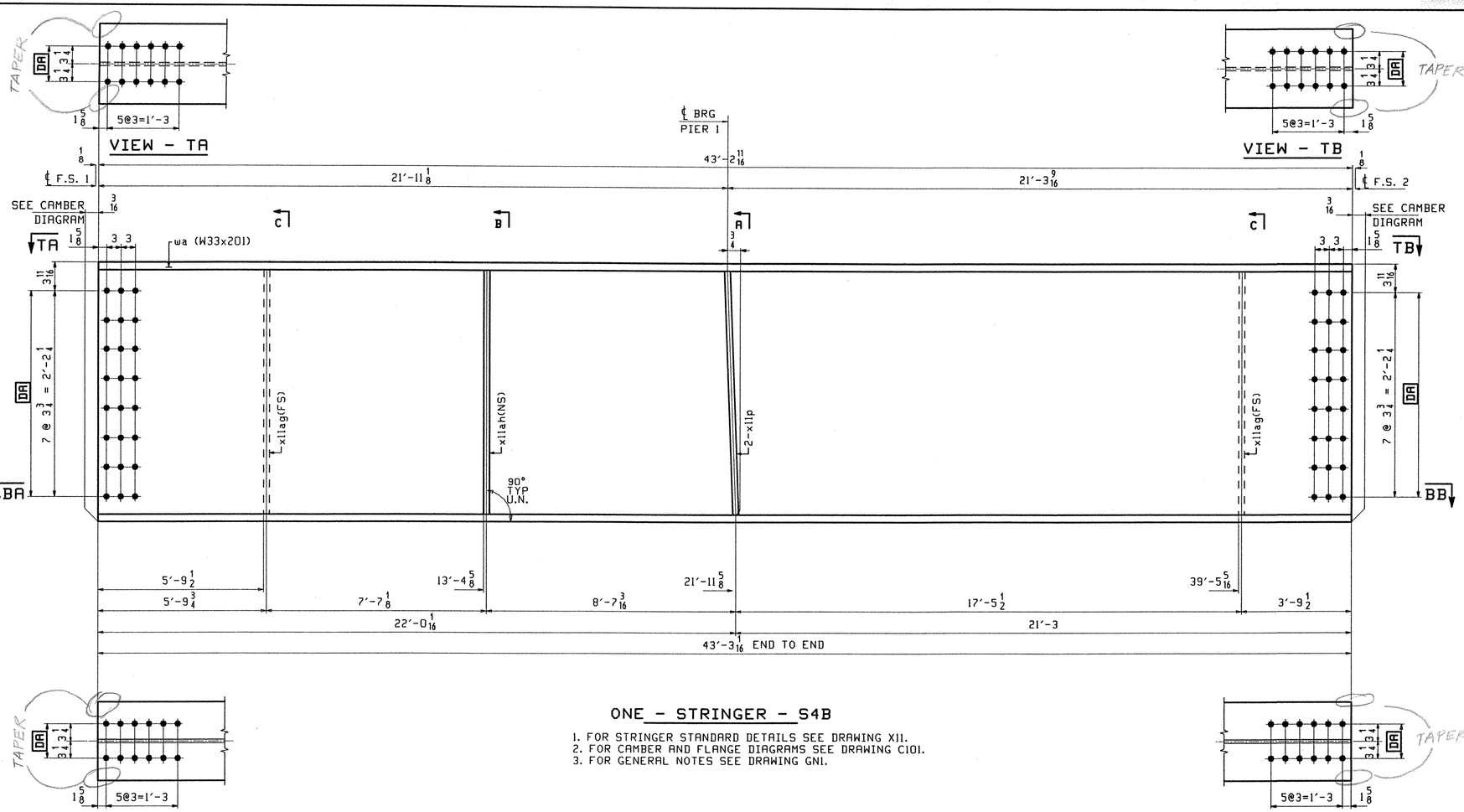
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	STRINGER - S3B	DRAWN BY	DATE
JOB:	BRIDGE NO. 43S	PHG	01/23
	I-89 SB OVER U.S. ROUTE 2	CHKD BY	
	I-89 IMPROVEMENTS	TRM	01/27
	TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-S		SUPERVISOR	M. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

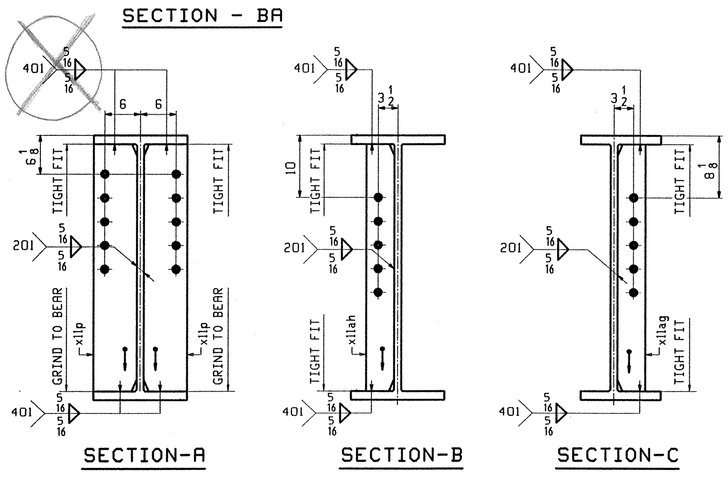
JOB NO.	DRG. NO.
116-43S	108
	REV. △

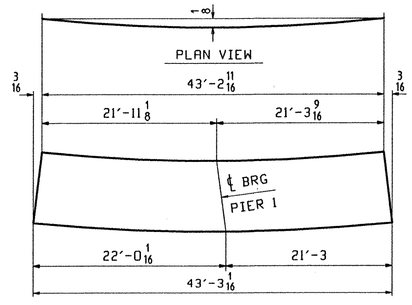
PHG Mon Jan 25 16:24:18 EST 2021 /users/jobs/2106-S/108 - Rev2



ONE - STRINGER - S4B

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.





DEV. CAMBER DIAGRAM

SEE SHT. C101

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: PE W. S. T
DATE: 3/20/01

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									109	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S4B	1		STRINGER				8082	
101	A		1	wa	W 33x201	43	3 1/16	(M270-50WT2) (W2-3)		
102	M		2	xllag	PL 1/2x5	2	7 3/8			
102	M		1	xllah	PL 1/2x5	2	7 3/8			
102	L		2	xllp	PL 7/8x7 3/4	2	7 7/8			

SEE TAPER DETAIL DRG. NO. 106

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PRINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S4B

JOB: BRIDGE NO. 435
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

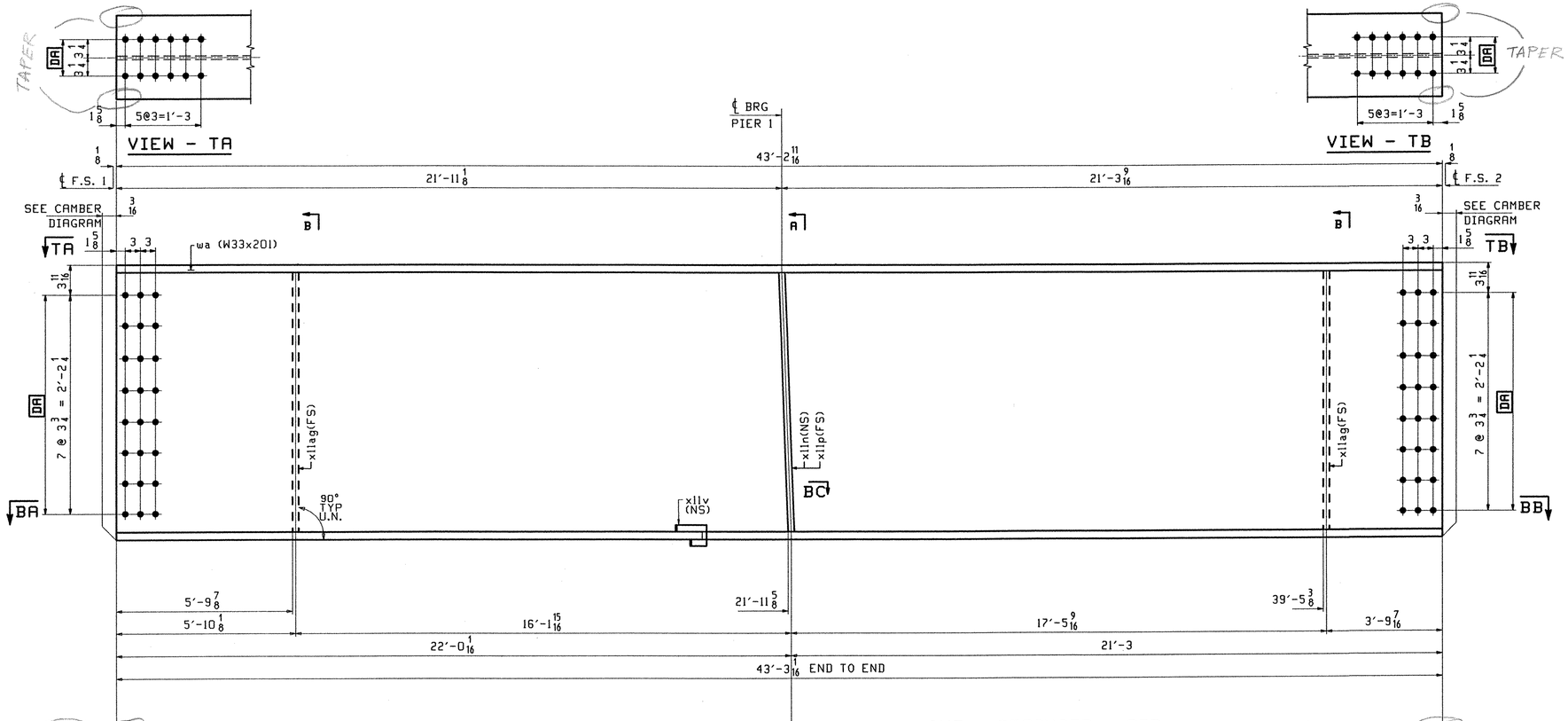
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

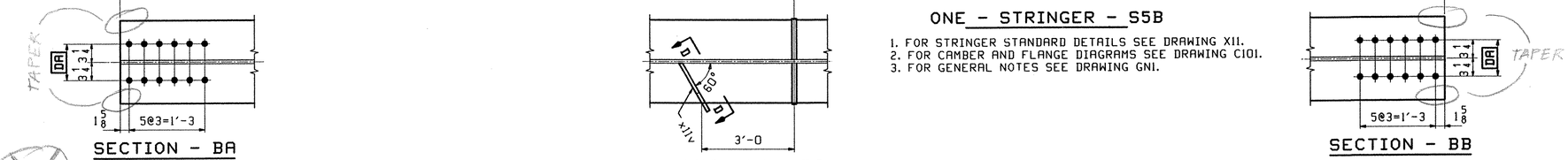
DRAWN BY	DATE
PHG	01/23
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

JOB NO.	DRG. NO.
116-435	109
	REV. △

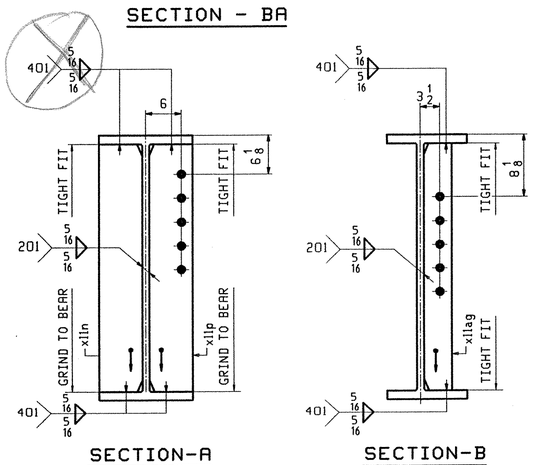
PHG Mon Jan 29 15:20:50 EST 2001 /users/pwx/2106-S/109 : Rev=0

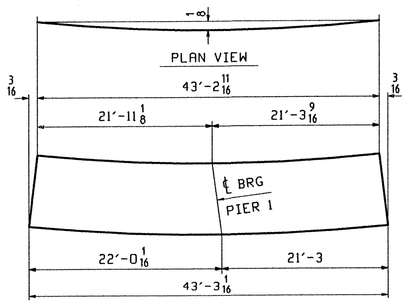




ONE - STRINGER - S5B

1. FOR STRINGER STANDARD DETAILS SEE DRAWING XII.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C101.
3. FOR GENERAL NOTES SEE DRAWING GN1.





DEV. CAMBER DIAGRAM

SEE SHT. C101

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: P.E. W. S.T.
DATE: 3/20/01

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									110	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S5B	1		STRINGER				8862	
101	A		1	wa	W 33x201	43	3 1/16	(M270-50WT2) (M2-3)		
102	M		2	x11ag	PL 1/2x5	2	7 3/8			
102	L		1	x11n	PL 7/8x7 3/4	2	7 3/8			
102	L		1	x11p	PL 7/8x7 3/4	2	7 3/8			
102	P		1	x11v	PL 1/4x3 1/8	0	10 11/16			

FOR TAPER DETAIL DRG. NO. 106

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

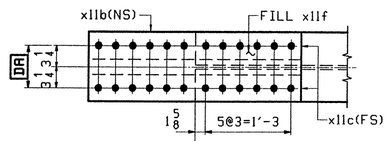
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	STRINGER - S5B	DRAWN BY	DATE
JOB:	BRIDGE NO. 43S	PHG	01/23
	I-89 SB OVER U.S. ROUTE 2	CHKD BY	
	I-89 IMPROVEMENTS	TRM	01/27
	TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-S		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

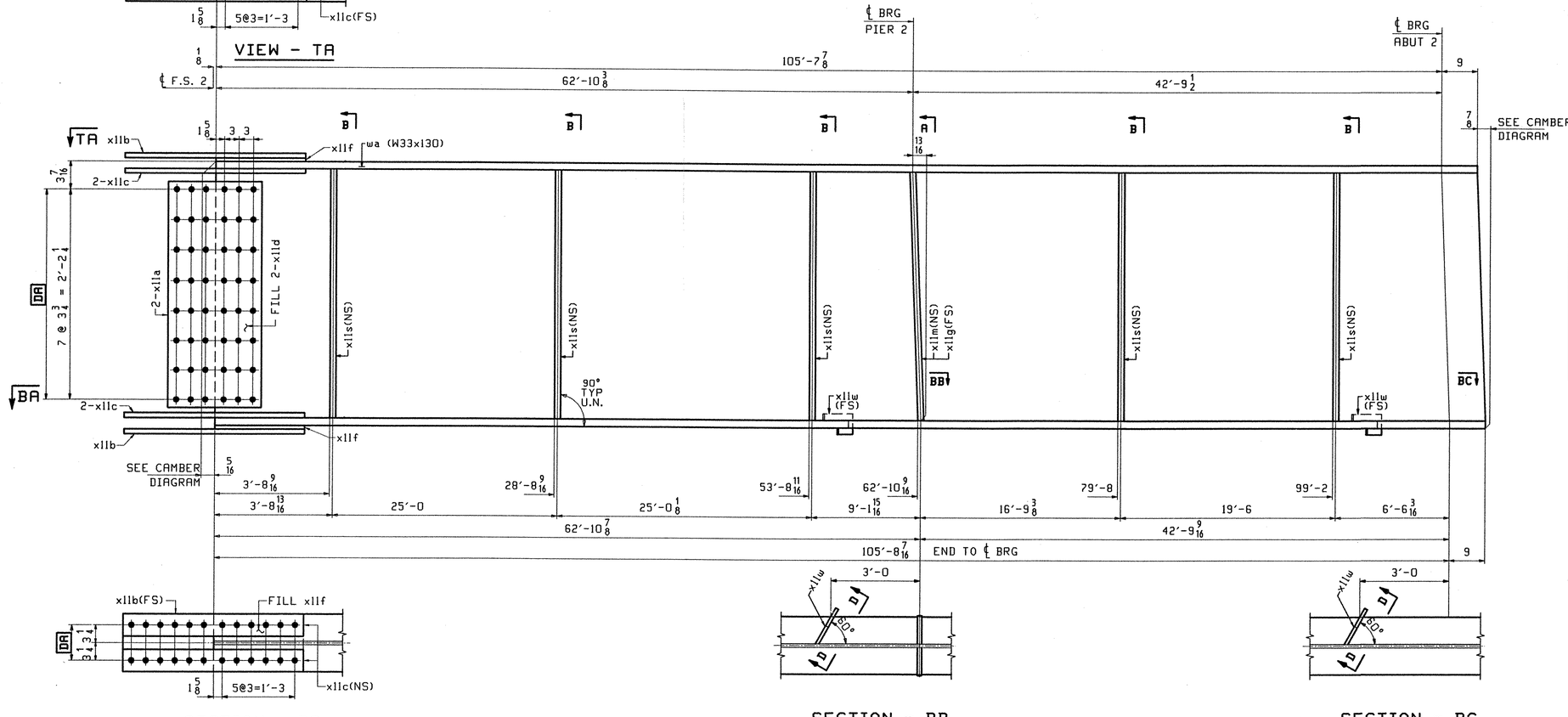
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
116-43S	110
	REV. △

PHG Mon Jan 29 16:36:25 EST 2001 /users/pkw/2106-S/110.1 Rev0



VIEW - TA



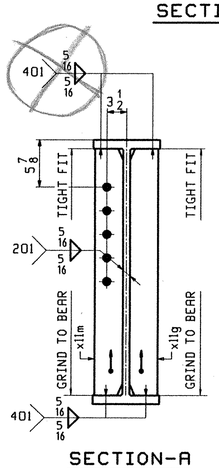
SECTION - BA

SECTION - BB

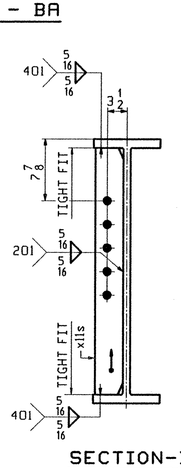
SECTION - BC

ONE - STRINGER - S1C

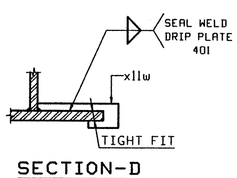
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C102.
3. FOR GENERAL NOTES SEE DRAWING GN1.



SECTION-A



SECTION-B



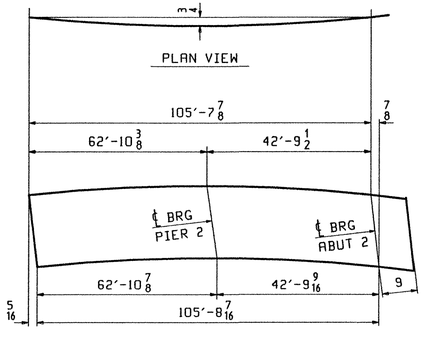
SECTION-D

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. S. T
DATE: 3/20/01



DEV. CAMBER DIAGRAM

SEE CHT. C102

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									111	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		SIC	1		STRINGER				14511	
101	E		1	wa	W 33x130	106	5 3/4	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	M		5	x11s	PL 1/2x5	2	7 3/8			
102	K		1	x11m	PL 5/8x5	2	7 3/8			
102	K		1	x11g	PL 5/8x5	2	7 3/8			
102	P		2	x11w	PL 1/4x2 7/8	0	8 1/4			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W U.N.		15/16 ø (UN)	7/8 ø (UN)

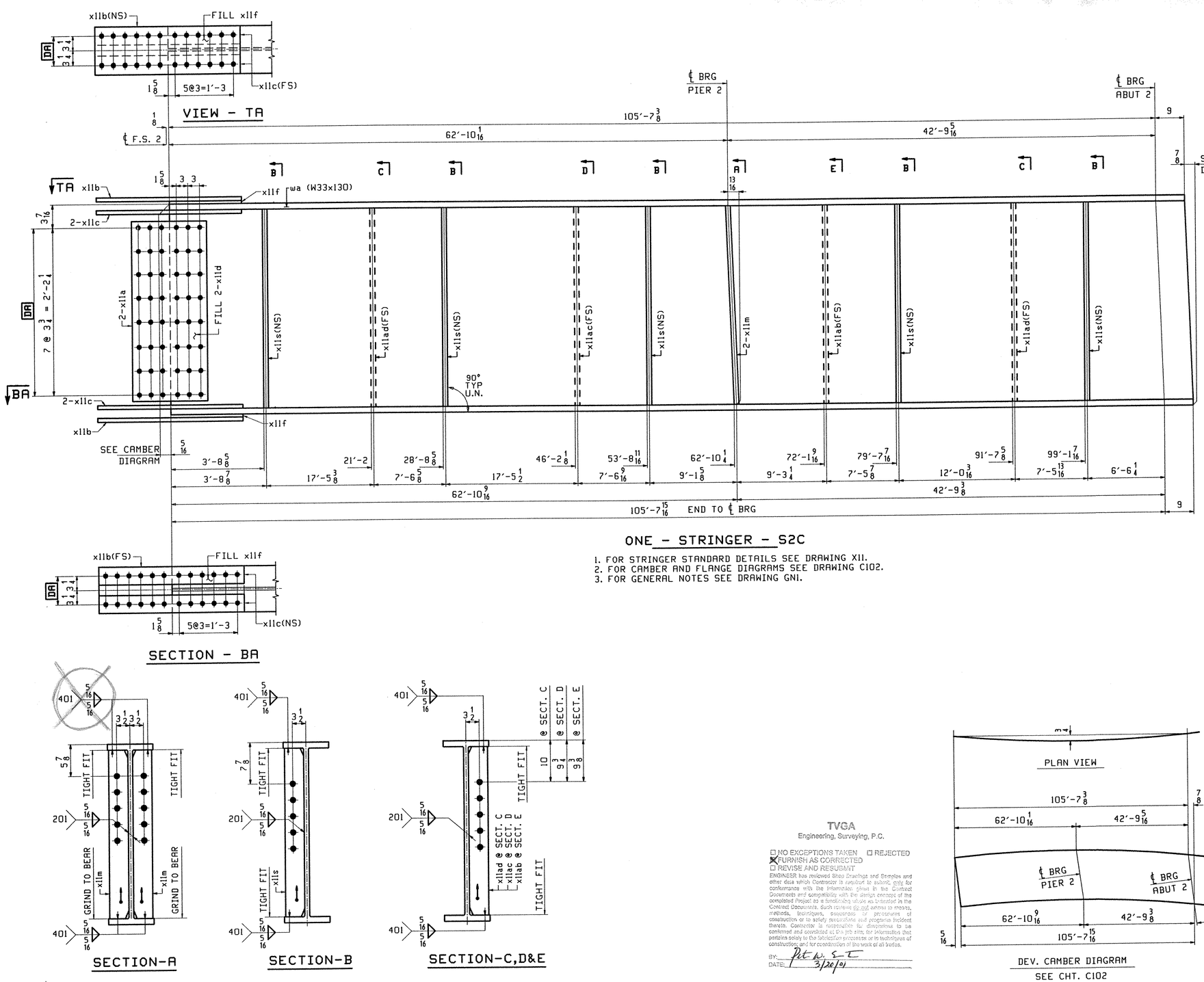
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S1C	DRAWN BY	DATE
JOB: BRIDGE NO. 43S	PHG	01/23
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	01/27
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
116-43S	111
	REV. △

PHG Mon Jan 29 16:45:10 EST 2001 /users/jobs/2106-S/111.t Rev0



ONE - STRINGER - S2C

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C102.
3. FOR GENERAL NOTES SEE DRAWING GN1.

SECTION - BA

SECTION-A SECTION-B SECTION-C,D&E

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pat W. Gatti
DATE: 3/20/01

DEV. CAMBER DIAGRAM
SEE CHT. C102

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									112	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S2C	1		STRINGER				14591	
101	E		1	wa	W 33x130	106	5 1/4	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 3/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	M		5	x11s	PL 1/2x5	2	7 3/8			
102	M		2	x11ad	PL 1/2x5	2	7 3/8			
102	M		1	x11ac	PL 1/2x5	2	7 3/8			
102	K		2	x11m	PL 5/8x5	2	7 3/8			
102	M		1	x11ab	PL 1/2x5	2	7 3/8			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-2-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S2C

JOB: BRIDGE NO. 435
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

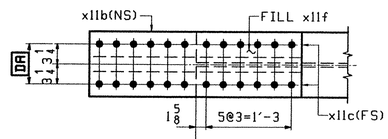
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	01/24
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	H. J. GATTI
Q.A.	

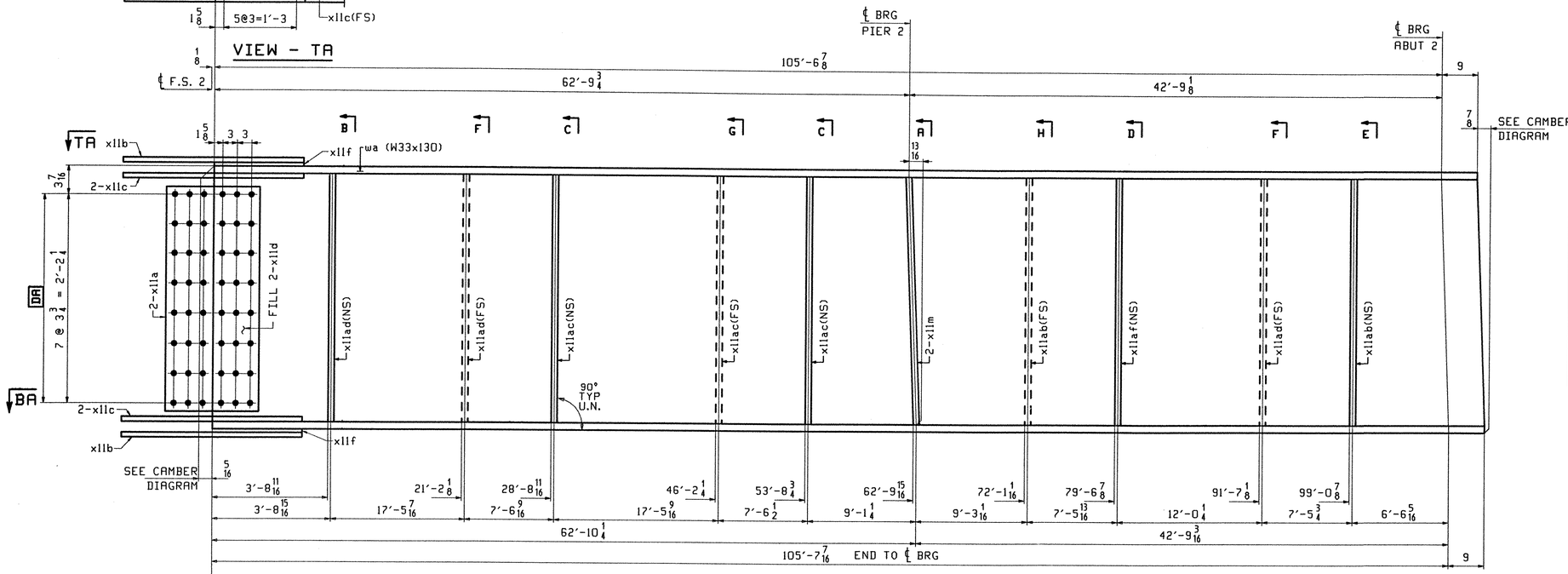
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

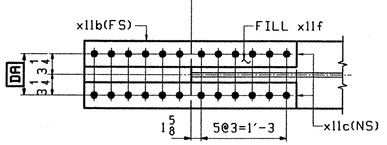
JOB NO.	DRG. NO.
116-435	112
	REV. △

PHG Mon Jan 29 15:48:23 EST 2001 /users/jobs/2106-S/112 : Rev0

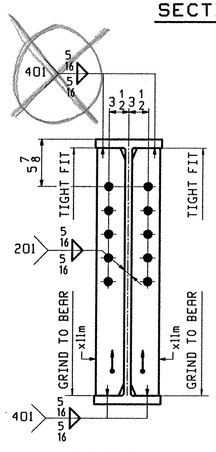


VIEW - TA

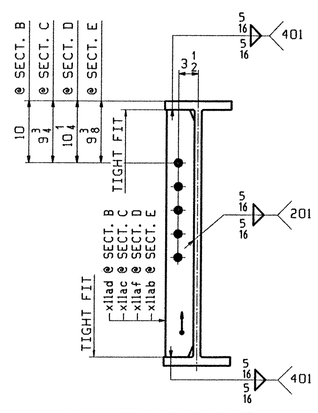




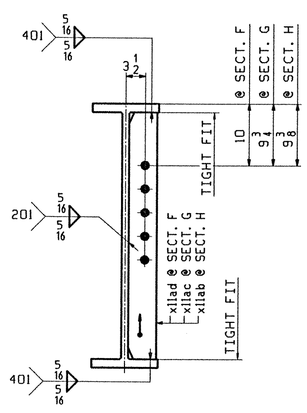
SECTION - BA



SECTION-A



SECTION-B,C,D&E



SECTION-F,G&H

ONE - STRINGER - S3C

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C102.
3. FOR GENERAL NOTES SEE DRAWING GN1.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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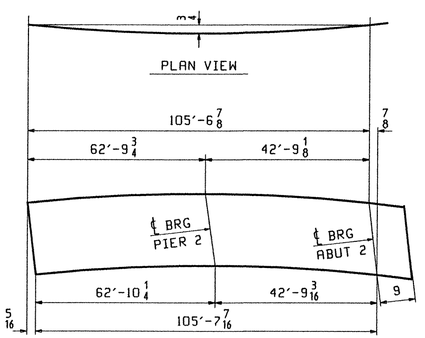
BY: Pat W. Scott
DATE: 3/26/01



DEV. CAMBER DIAGRAM
SEE CHT. C102

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S3C	1		STRINGER				14585	
101	E		1	wa	W 33x130	106	4 3/4	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 1/4x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	6 3/8	FILL		
102	M		3	x11ad	PL 1/2x5	2	7 3/8			
102	M		3	x11ac	PL 1/2x5	2	7 3/8			
102	K		2	x11m	PL 5/8x5	2	7 3/8			
102	M		2	x11ab	PL 1/2x5	2	7 3/8			
102	M		1	x11af	PL 1/2x5	2	7 3/8			

BILL OF MATERIAL

JOB NO.

DRAWING NO. 113

REV.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-8-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S3C

JOB: BRIDGE NO. 435
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

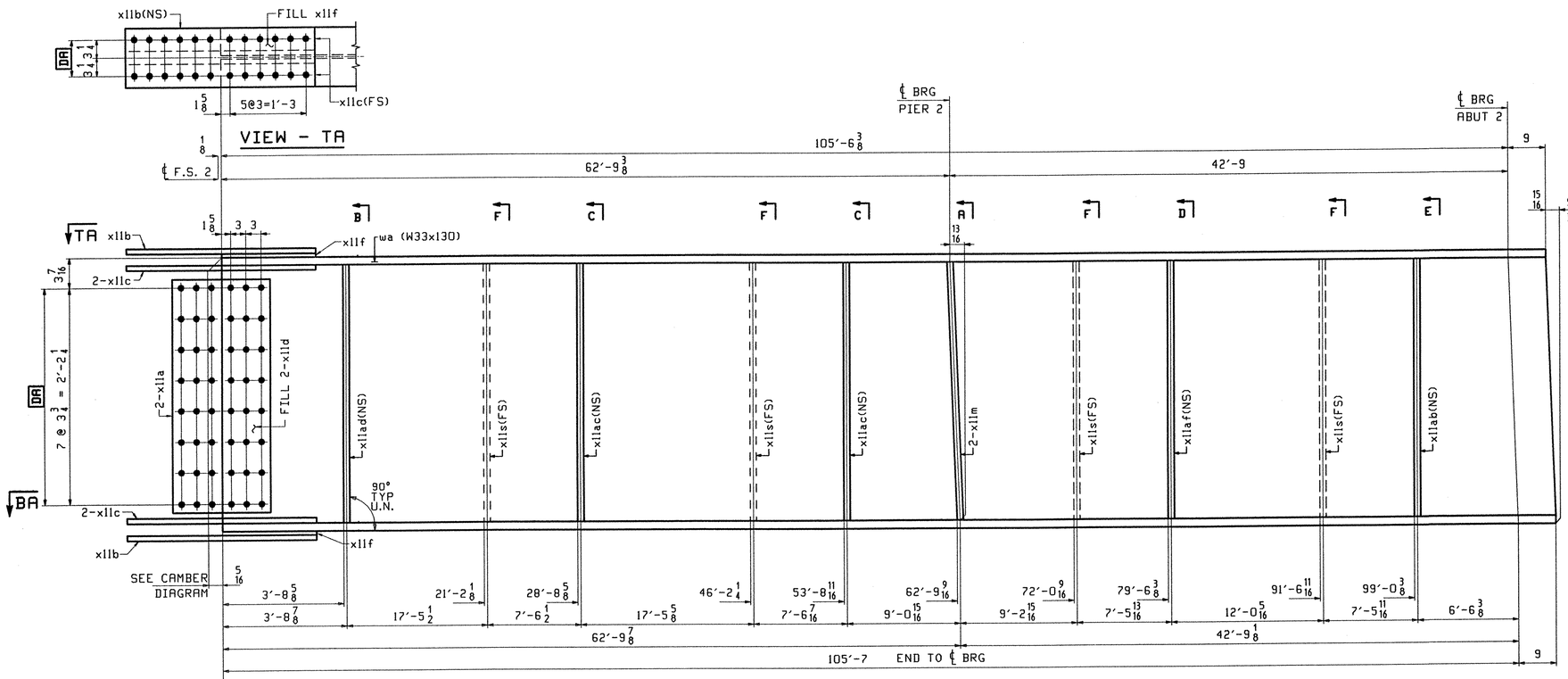
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

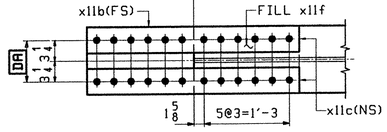
DRAWN BY	DATE
PHG	01/24
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

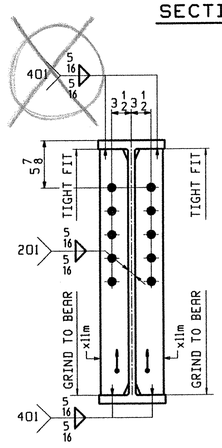
JOB NO.	DRG. NO.
116-435	113
	REV. △

PHG Mon Jan 29 17:00:00 EST 2001 /users/pam/2106-S/113 : Rev0

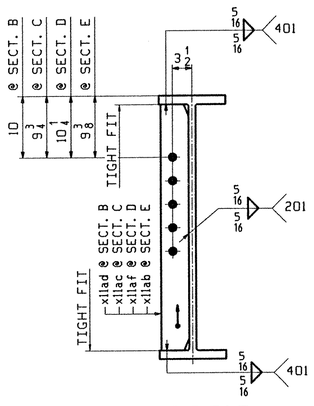




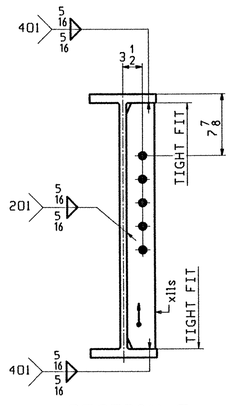
SECTION - BA



SECTION-A



SECTION-B,C,D&E



SECTION-F

ONE - STRINGER - S4C

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X11.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C102.
3. FOR GENERAL NOTES SEE DRAWING GN1.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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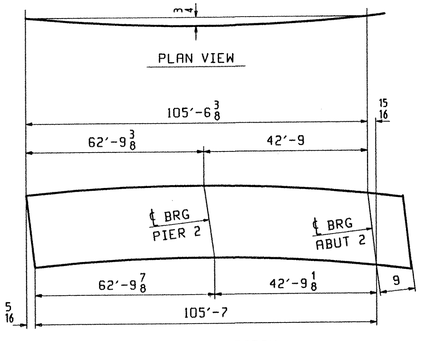
BY: Pat W. Gatti
DATE: 3/20/01



DEV. CAMBER DIAGRAM
SEE CHT. C102

ABM INFO PAGE	LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S4C	1		STRINGER				14581	
101	E		1	wa	W 33x130	106	4 5/16	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2 x 29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8 x 11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/4 x 4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 15/16 x 11 1/2	1	6 3/8	FILL		
102	M		1	x11ad	PL 1/2 x 5	2	7 3/8			
102	M		4	x11s	PL 1/2 x 5	2	7 3/8			
102	M		2	x11ac	PL 1/2 x 5	2	7 3/8			
102	K		2	x11m	PL 5/8 x 5	2	7 3/8			
102	M		1	x11af	PL 1/2 x 5	2	7 3/8			
102	M		1	x11ab	PL 1/2 x 5	2	7 3/8			

BILL OF MATERIAL

JOB NO.

DRAWING NO. 114

REV.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	02-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S4C

JOB: BRIDGE NO. 43S
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2105-S

PROJ NO. IM-089-2(26)

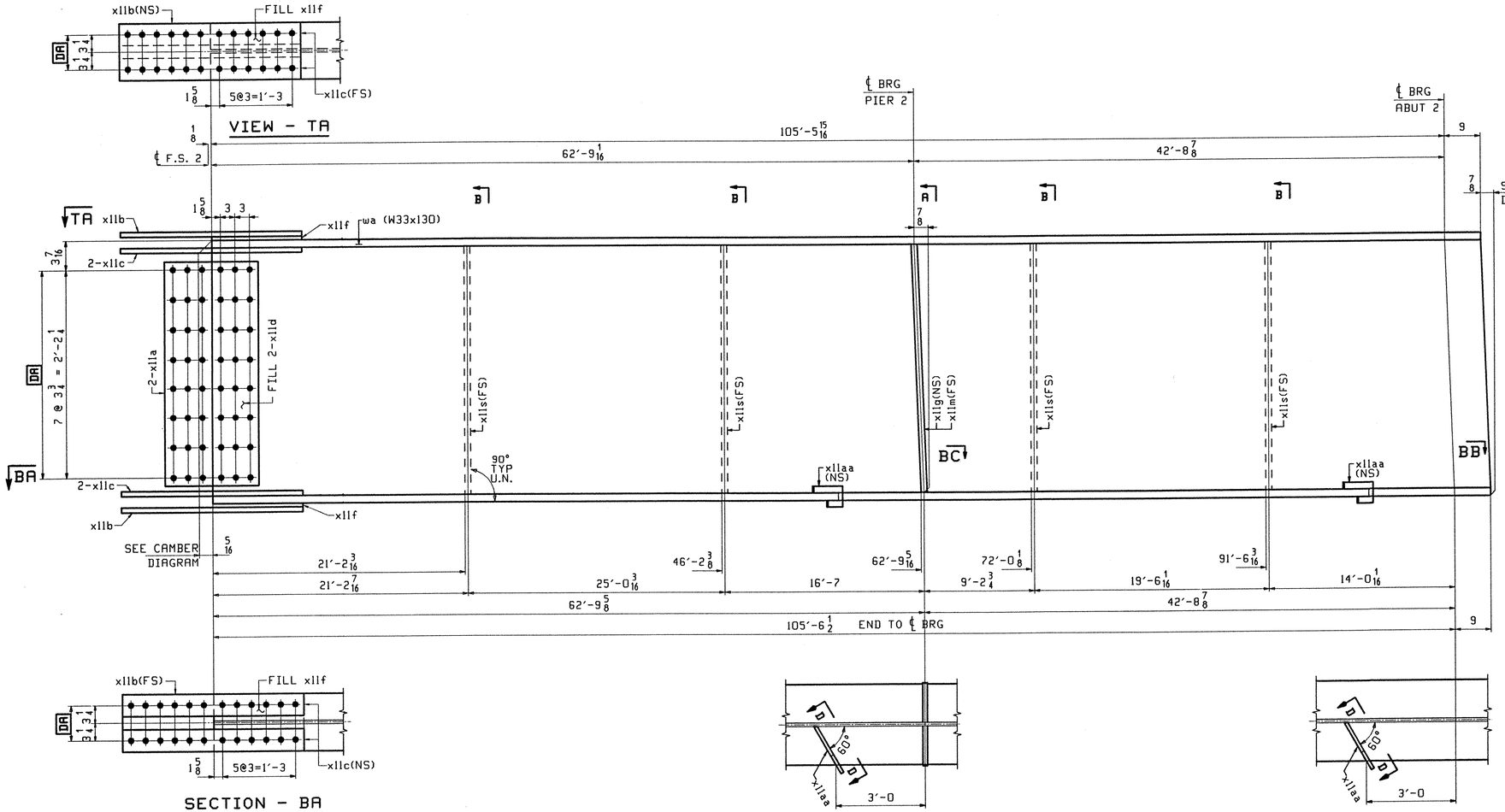
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	01/24
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

JOB NO. 116-43S
DRG. NO. 114
REV. △

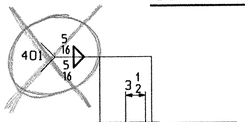
PHG Mon Jan 29 17:18:07 EST 2001 /users/pkw/2105-S/114.dwg



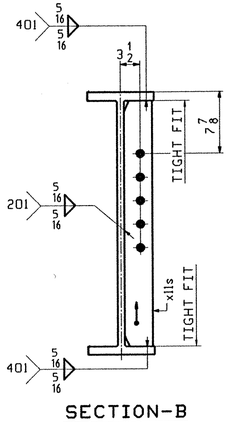
SECTION - BA

SECTION - BC

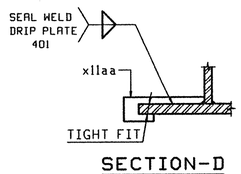
SECTION - BB



SECTION-A



SECTION-B



SECTION-D

ONE - STRINGER - S5C

1. FOR STRINGER STANDARD DETAILS SEE DRAWING XII.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C102.
3. FOR GENERAL NOTES SEE DRAWING GNI.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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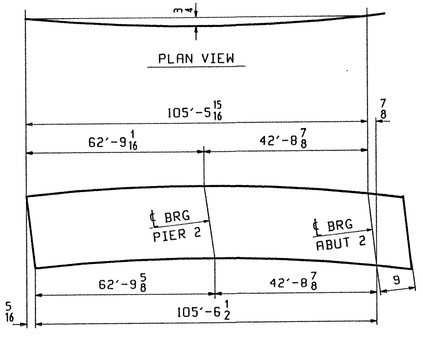
BY: Pat W. Scott
DATE: 3/20/01



DEV. CAMBER DIAGRAM
SEE CHT. C102

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S5C	1		STRINGER				14467	
101	E		1	wa	W 33x130	106	3 13/16	(M270-50WT2) (H2-3)		
102	B		2	x11a	PL 1/2x29 1/2	1	7	(M270-50WT2) (H2-3)		
102	F		2	x11d	PL 16GA x 9 3/8	2	5 1/2	(A606-4) FILL		
102	C		2	x11b	PL 5/8x11 1/2	3	1	(M270-50WT2) (H2-3)		
102	D		4	x11c	PL 3/8x4 1/2	3	1	(M270-50WT2) (H2-3)		
102	G		2	x11f	PL 5/16x11 1/2	1	5 3/8	FILL		
102	M		4	x11s	PL 1/2x5	2	7 3/8			
102	K		1	x11g	PL 5/8x5	2	7 3/8			
102	K		1	x11m	PL 5/8x5	2	7 3/8			
102	P		2	x11aa	PL 1/4x2 7/8	0	8 1/4			

BILL OF MATERIAL

JOB NO.

DRAWING NO. 115

REV.

OUT FOR APPROVAL	2-2-01
OUT FOR APPROVAL	
ISSUED TO SHOP	
FIELD & OFFICE	

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

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GNI)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S5C

JOB: BRIDGE NO. 43S
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

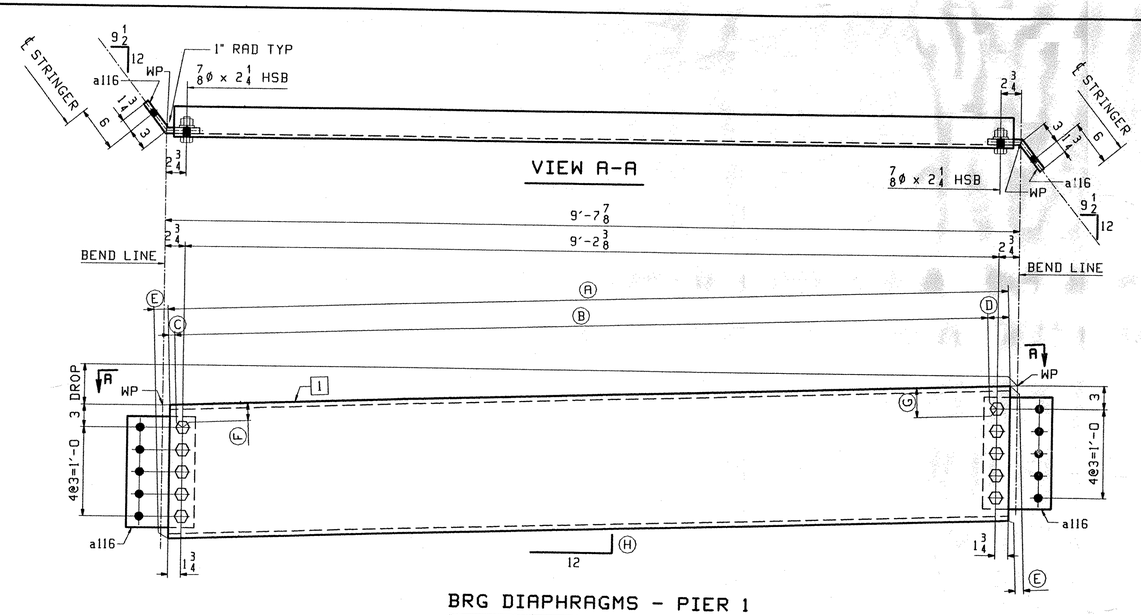
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	01/24
CHKD BY	
TRM	01/27
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

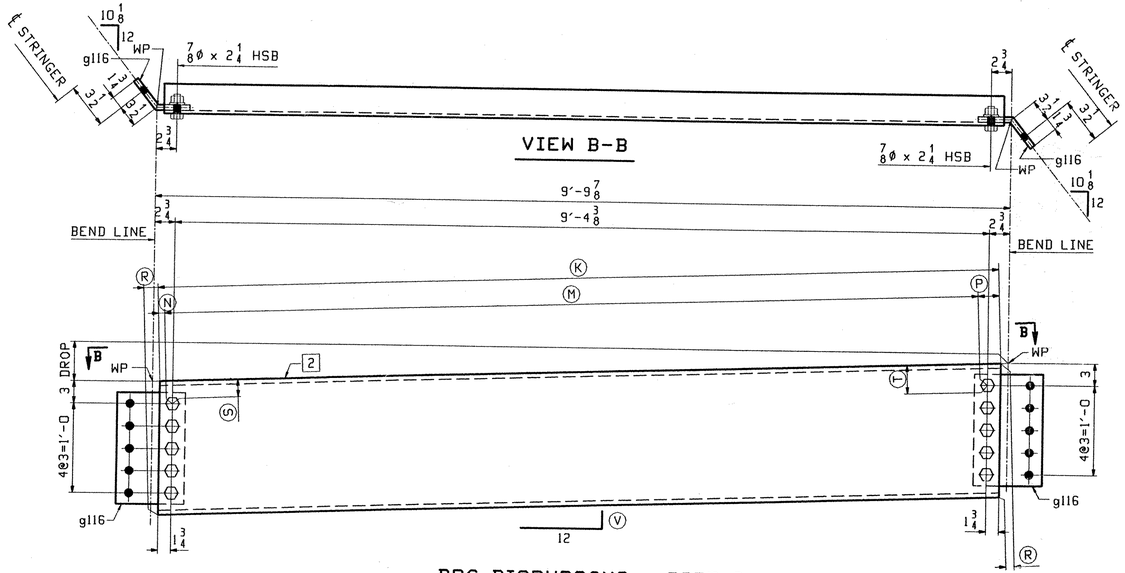
JOB NO.	DRG. NO.
116-43S	115
	REV. △

ML Thu Feb 1 08:43:05 EST 2001 /users/jobs/2106-S/115 | RevD



BRG DIAPHRAGMS - PIER 1

MARK	REQ'D	DROP	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	I
116D1	2	4	9'-5 15/16	9'-2 7/16	1 5/8	1 7/8	5/8	3 1/8	2 7/8	7/16	b116
116D2	2	1/8	9'-5 7/8	9'-2 3/8	1 3/4	1 3/4	0	3	3	0	c116



BRG DIAPHRAGMS - PIER 2

MARK	REQ'D	DROP	Ⓚ	Ⓜ	Ⓝ	Ⓟ	Ⓡ	Ⓢ	Ⓣ	Ⓥ	2
116D3	2	4 1/4	9'-7 15/16	9'-4 7/16	1 5/8	1 7/8	5/8	3 1/8	2 7/8	7/16	d116
116D4	2	7/16	9'-7 7/8	9'-4 3/8	1 3/4	1 3/4	1/16	3	3	1/16	f116

BILL OF MATERIAL

JOB NO. | DRAWING NO. 116 | REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		116D1	2		BRG DIAPHRAGMS				451	
103	D		2	b116	MC 18x42.7	9	6 9/16			
103	E		4	a116	PL 1/2x15	0	9 1/4	BENT		
104	C		20		7/8 ø HSB	0	2 1/4	(A325-3)		
104	H		20		7/8 ø HSW			(F436H)		
		116D2	2		BRG DIAPHRAGMS				449	
103	D		2	c116	MC 18x42.7	9	5 7/8			
103	E		4	a116	PL 1/2x15	0	9 1/4	BENT		
104	C		20		7/8 ø HSB	0	2 1/4	(A325-3)		
104	H		20		7/8 ø HSW			(F436H)		
		116D3	2		BRG DIAPHRAGMS				460	
103	D		2	d116	MC 18x42.7	9	8 9/16			
103	E		4	g116	PL 1/2x15	0	9 3/4	BENT		
104	C		20		7/8 ø HSB	0	2 1/4	(A325-3)		
104	H		20		7/8 ø HSW			(F436H)		
		116D4	2		BRG DIAPHRAGMS				458	
103	D		2	f116	MC 18x42.7	9	7 15/16			
103	E		4	g116	PL 1/2x15	0	9 3/4	BENT		
104	C		20		7/8 ø HSB	0	2 1/4	(A325-3)		
104	H		20		7/8 ø HSW			(F436H)		

NOTE:
BEND LINES & WP'S ARE @ ℄ OF BENT ℄'S.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-2-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W U.N.
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: BRG. DIAPHRAGMS

JOB: BRIDGE NO. 43S
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-S

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

	DRAWN BY	DATE
	PHG	01/24
	CHKD BY	
	TRM	01/28
	APPROV BY	
	SUPERVISOR	W. J. GATTI
	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.
116-43S	116
	REV. △

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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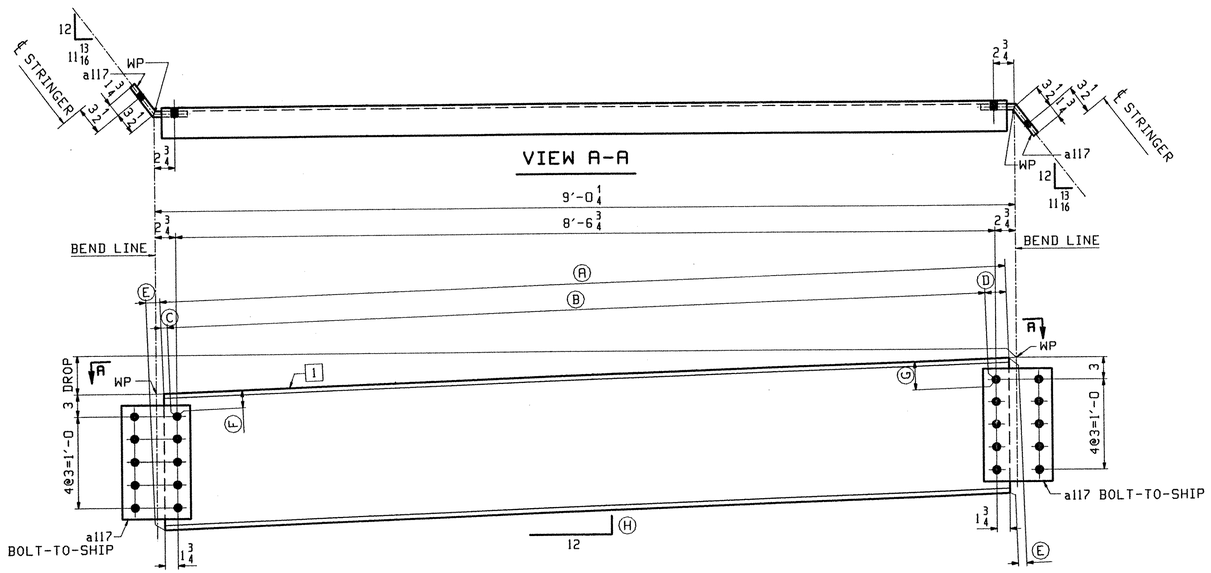
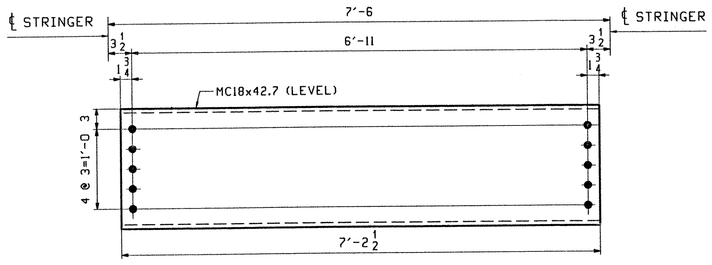
BY: P.K. W. S.T.
DATE: 3/20/01

PHG Tue Jan 30 06:48:43 EST 2001 /users/jobs/2106-S/116.dgn

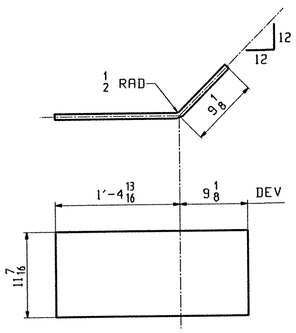


BRG DIAPHRAGMS - ABUT 1 (PAINTED)

MARK	REQ'D	DROP	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	1
117D1	2	3 7/16	8'-10 5/16	8'-6 13/16	1 5/8	1 7/8	9/16	3 1/16	2 15/16	3/8	b117
117D2	2	7/16	8'-10 1/4	8'-6 3/4	1 3/4	1 3/4	1/16	3	3	1/16	c117



32 ~ INT. DIAPHRAGMS ~ 117D3



5 ~ END PLATES ~ 117M1

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		117D1	2		BRG DIAPHRAGMS				422	
103	C		2	b117	MC 18x42.7	8	10 7/8			
103	E		4	a117	PL 1/2x15	0	9 3/4	BENT		
		117D2	2		BRG DIAPHRAGMS				420	
103	C		2	c117	MC 18x42.7	8	10 5/16			
103	E		4	a117	PL 1/2x15	0	9 3/4	BENT		
103	B	117D3	32		MC 18x42.7	7	2 1/2		308	
					END PLATES					
103	H	117M1	5		PL 1/4x11 7/16	2	1 15/16	BENT	21	
					FIELD BOLTS				590	
								2% ADDED + 3 FOR TES		
105	C		370		7/8 ø HSB	0	2 1/4	(A325-3)		
105	D		85		7/8 ø HSB	0	2 1/2	(A325-3)		
105	E		44		7/8 ø HSB	0	2 3/4	(A325-3)		
105	F		493		7/8 ø HSB	0	3	(A325-3)		
105	H		493		7/8 ø HSB	0	4	(A325-3)		
105	L		1485		7/8 ø HSW			(F436W)		

NOTE:
BEND LINES & WP'S ARE @ ℄ OF BENT P'S.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W U.N.		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: DIAPHRAGMS	DRAWN BY	DATE
JOB: BRIDGE NO. 435	PHG	01/25
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	01/28
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-5	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
116-435	117
	REV. △

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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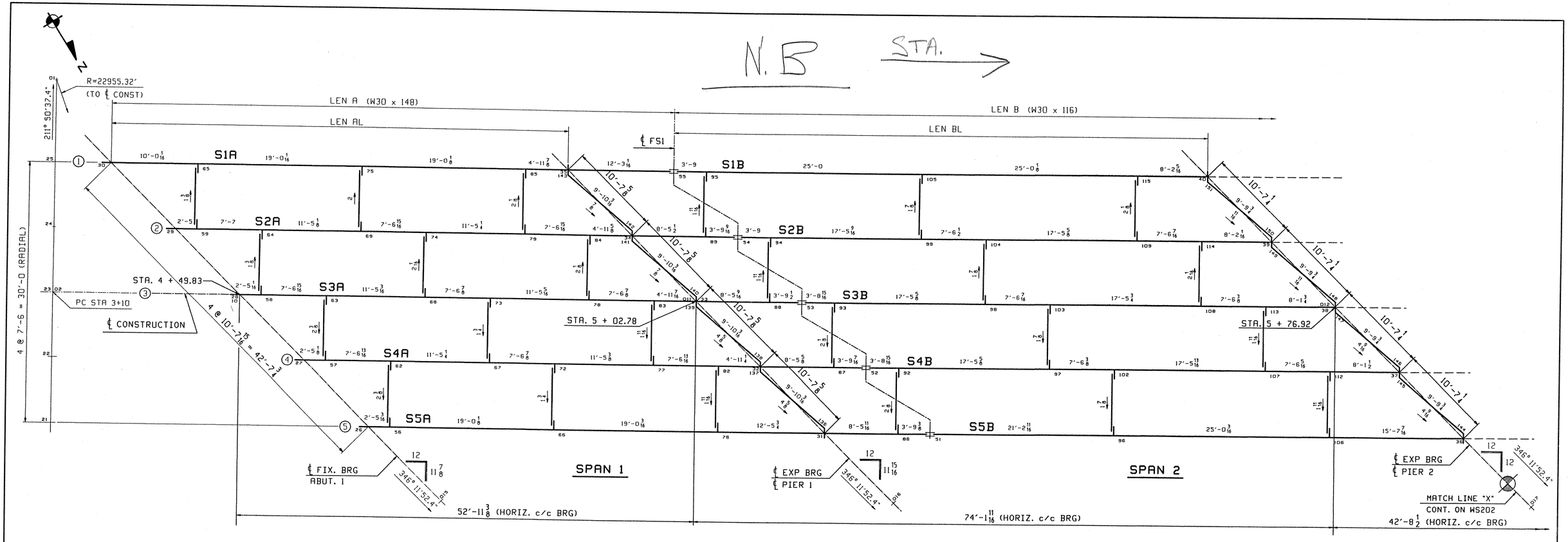
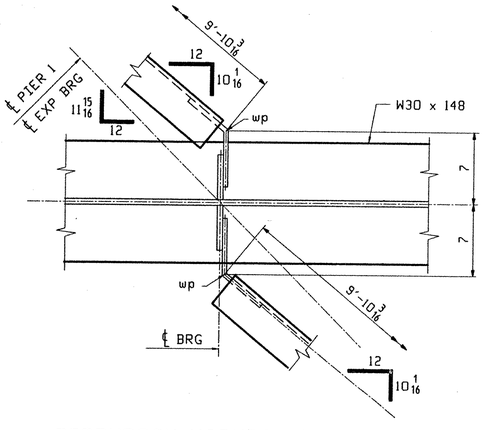
BY: RENS
DATE: 3/26/01

ML Thu Feb 1 08:43:00 EST 2001 /users/pw/2106-5/117 : RevD

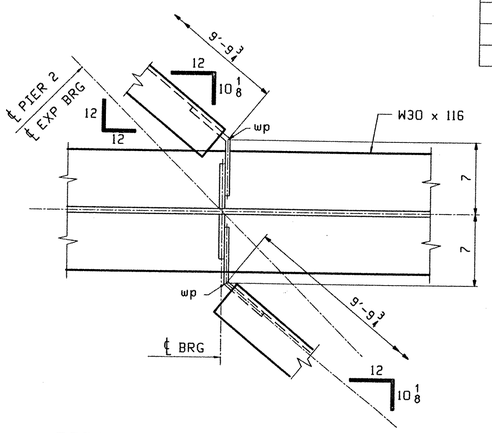


CALCULATION PLAN FOR 43N

	DEVELOPED LENGTHS ALONG BTM OF STRINGER				GRADE		
Line	LEN AL	LEN A	LEN BL	LEN B	ABUT 1	Pier 1	Pier 2
1	53'-0 1/8	65'-3 3/16	61'-11 7/16	104'-8 9/16	-.0222	-.0299	-.0284
2	52'-11 7/8	65'-2 15/16	61'-11 3/16	104'-8 1/8	-.0224	-.0298	-.0289
3	52'-11 11/16	65'-2 3/4	61'-10 7/8	104'-7 11/16	-.0224	-.0298	-.0289
4	52'-11 1/2	65'-2 9/16	61'-10 9/16	104'-7 3/16	-.0224	-.0298	-.0289
5	52'-11 1/4	65'-2 5/16	61'-10 5/16	104'-6 3/4	-.0224	-.0298	-.0285



DIAPHRAGM WORKPOINTS @ PIER 1



DIAPHRAGM WORKPOINTS @ PIER 2

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES

1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF STRINGER WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF STRINGERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 200.
7. FOR LAYOUTS SEE DWG TD201.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 1/8.
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ OF BENT PLATE.

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-04-2021

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3501									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

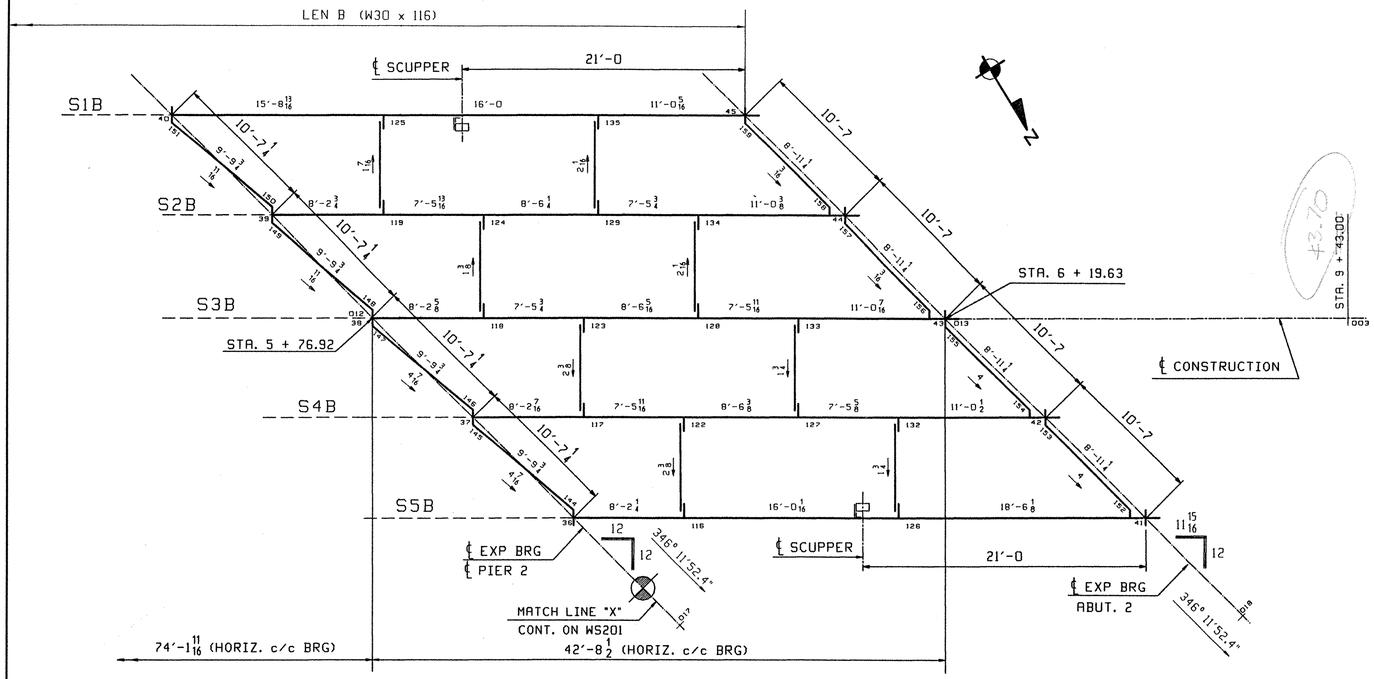
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 43N	WL	01/22
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	JAK	1/23
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-N	SUPERVISOR	H. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

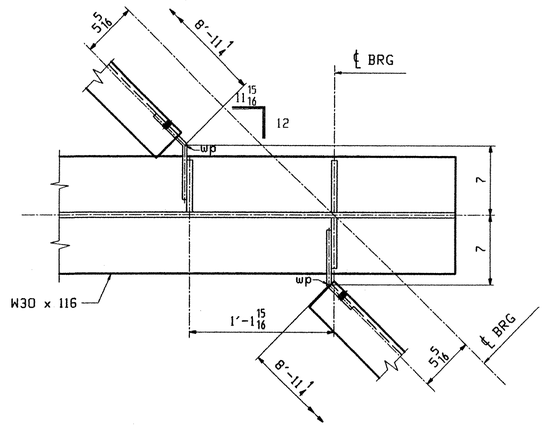
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
117-43N	WS201
	REV. △

Wed Jan 26, 2022 07:54 EST 2201
J:\work\jobs\2106-N\WS201.dwg
JAK



SPAN 3



DIAPHRAGM WORKPOINTS @ ABUT 2

CALCULATION PLAN FOR 43N

	DEV ALONG BTM OF STRINGER		GRADE	
Line	LEN BL	LEN B	Pier 2	ABUT 2
1	61'-11 7/16	104'-8 9/16	-.0284	-.0388
2	61'-11 3/16	104'-8 1/8	-.0289	-.0380
3	61'-10 7/8	104'-7 11/16	-.0289	-.0380
4	61'-10 9/16	104'-7 3/16	-.0289	-.0380
5	61'-10 5/16	104'-6 3/4	-.0285	-.0410

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: _____
DATE: 11-06-2001

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF STRINGER WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF STRINGERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 200.
7. FOR LAYOUTS SEE DWG TD201.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 1/8.
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ OF BENT PLATE.

OUT FOR APPROVAL	3-501									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

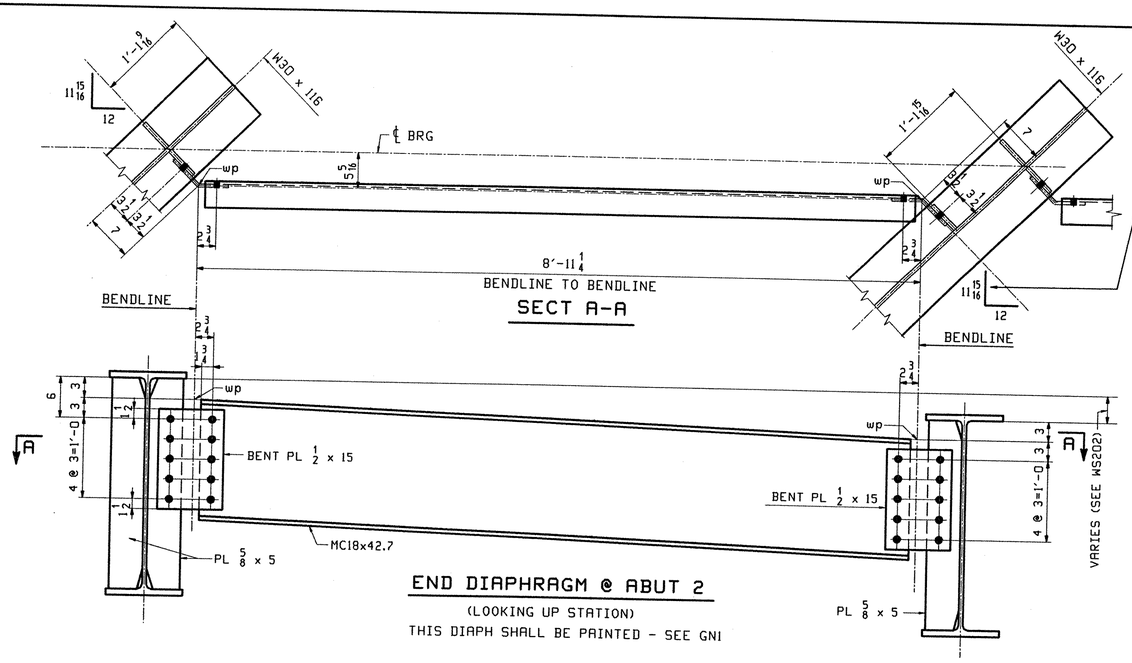
DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	01/22
	CHKD BY	
	JAK	01/24
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2106-N

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

JOB NO.	DRG. NO.
117-43N	WS202
	REV. △

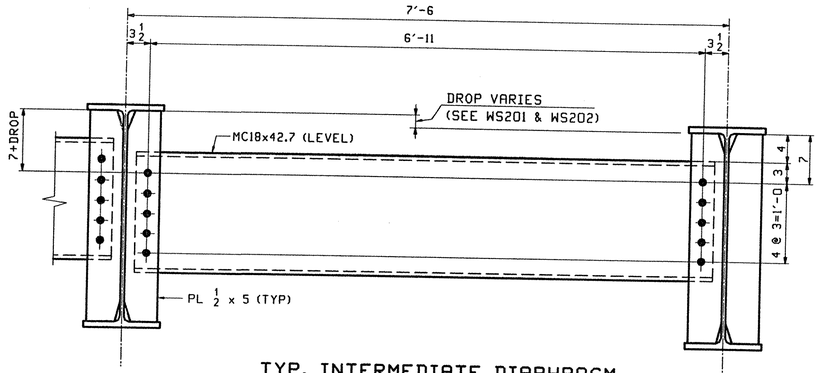
Wed Jan 24 10:30:07 EST 2001 /users/jdan/2106-N/WS202 Rev3



END DIAPHRAGM @ ABUT 2

(LOOKING UP STATION)

THIS DIAPH SHALL BE PAINTED - SEE GNI

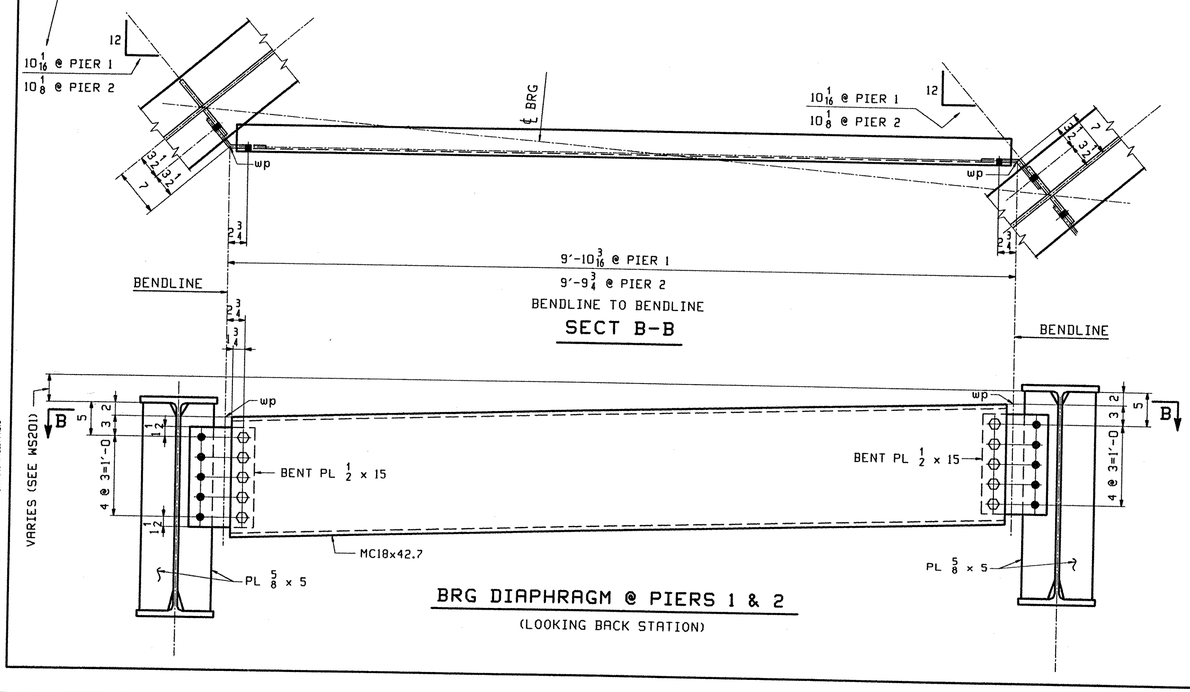


TYP. INTERMEDIATE DIAPHRAGM

(LOOKING BACK STATION)

DETAILER NOTE: USE BEVEL 12:12 ON DETAIL DRAWING

DETAILER NOTE: COMBINE BEVELS @ 10 1/8 ON DETAIL DRAWING



BRG DIAPHRAGM @ PIERS 1 & 2

(LOOKING BACK STATION)

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BENDING LINES ARE TAKEN @ C/L PLATE.

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

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

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GNI)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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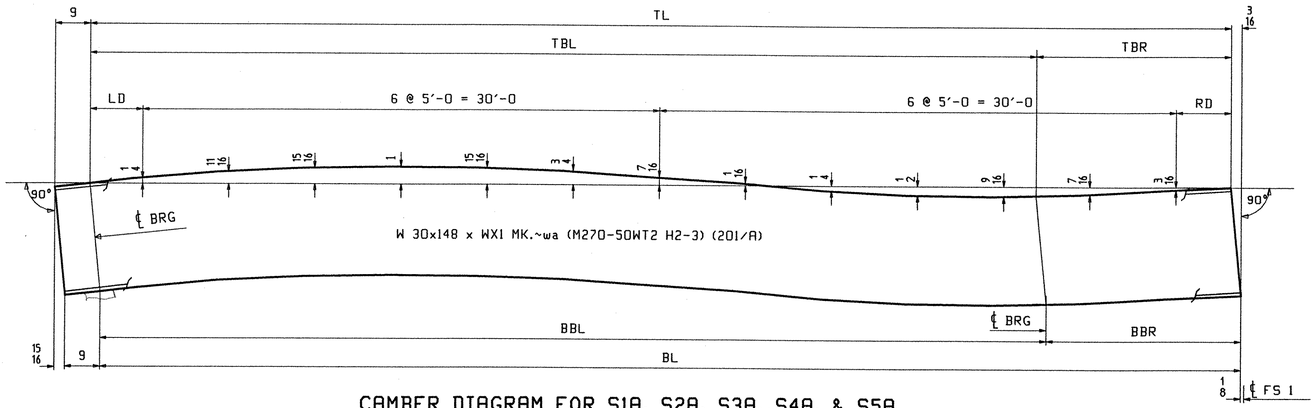
BY: _____
DATE: 11-06-2001

DESCRIPTION: DIAPHRAGM LAYOUTS	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	01/23
	CHKD BY	
	JAK	01/24
TENSOR 2106-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

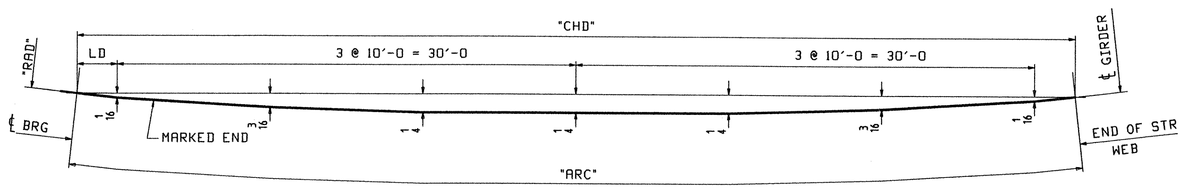
JOB NO.	DRG. NO.
117-43N	TD201
	REV. △

JAK Wed Jan 24, 11:14:23 EST 2001 J:\work\jobs\2106-N\TD201.dwg



CAMBER DIAGRAM FOR S1A, S2A, S3A, S4A, & S5A

MARK	TL	BL	WX1	TBL	TBR	BBL	BBR	LD	RD
S1A	65'-3 13/16	65'-3 1/16	66'-1	53'-0 1/8	12'-3 11/16	53'-0 1/8	12'-2 15/16	2'-7 7/8	2'-7 15/16
S2A	65'-3 9/16	65'-2 13/16	66'-0 3/4	52'-11 7/8	12'-3 11/16	52'-11 7/8	12'-2 15/16	2'-7 3/4	2'-7 13/16
S3A	65'-3 3/8	65'-2 5/8	66'-0 9/16	52'-11 11/16	12'-3 11/16	52'-11 11/16	12'-2 15/16	2'-7 3/4	2'-7 5/8
S4A	65'-3 3/16	65'-2 7/16	66'-0 3/8	52'-11 1/2	12'-3 11/16	52'-11 1/2	12'-2 15/16	2'-7 5/8	2'-7 9/16
S5A	65'-2 15/16	65'-2 3/16	66'-0 1/8	52'-11 1/4	12'-3 11/16	52'-11 1/4	12'-2 15/16	2'-7 1/2	2'-7 7/16



HORIZONTAL SWEEP DIAGRAM

DIMENSIONS ALONG BTM OF STRINGER

MARK	"ARC"	"CHD"	"RAD"	"LD"
S1A	65'-3 1/16	65'-3 1/16	22940.320	2'-7 1/2
S2A	65'-2 13/16	65'-2 13/16	22947.820	2'-7 3/8
S3A	65'-2 5/8	65'-2 5/8	22955.320	2'-7 5/16
S4A	65'-2 7/16	65'-2 7/16	22962.820	2'-7 3/16
S5A	65'-2 3/16	65'-2 3/16	22970.320	2'-7 1/16

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2001

NOTES:
1. FOR GENERAL NOTES SEE DWG GN1.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

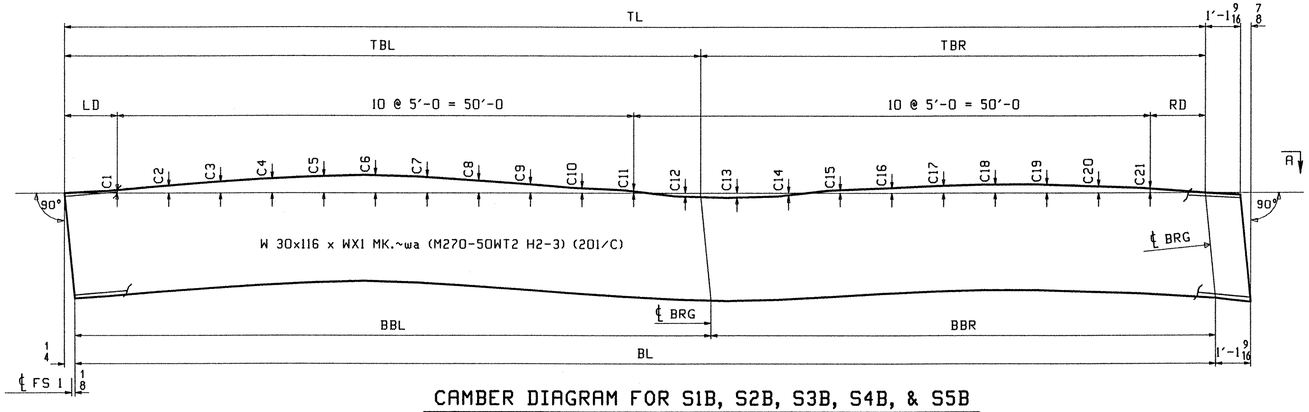
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

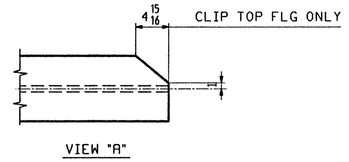
DESCRIPTION: CAMBER DIAGRAMS	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	01/22
	CHKD BY	
	JAK	01/23
	APPROV BY	
TENSOR 2106-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
117-43N	C201
	REV. △

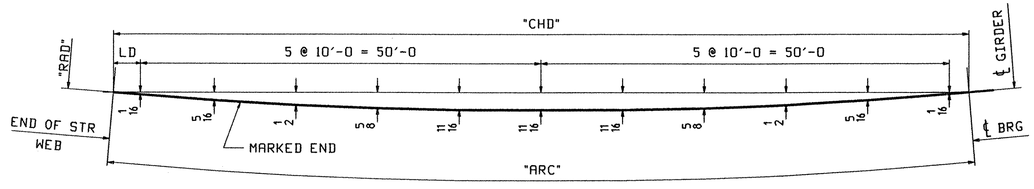
WL Tue Jan 23 17:09:49 EST 2001 /users/jake/2106-N/C201 : Rev0





CAMBER DIAGRAM FOR S1B, S2B, S3B, S4B, & S5B

MARK	TL	BL	WX1	TBL	TBR	BBL	BBR	LD	RD	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21
S1B	104'-7 13/16	104'-8 7/16	105'-10 1/4	61'-10 3/4	42'-9 1/16	61'-11 5/16	42'-9 1/8	2'-3 7/8	2'-3 15/16	1/4	11/16	1 1/8	1 7/16	1 11/16	1 7/8	1 11/16	1 3/8	15/16	9/16	3/16	1/8	5/16	1/8	1/8	1/2	3/4	7/8	7/8	11/16	5/16
S2B	104'-7 3/8	104'-8	105'-9 13/16	61'-10 1/2	42'-8 7/8	61'-11 1/16	42'-8 15/16	2'-3 3/4	2'-3 5/8	1/4	3/4	1 3/16	1 9/16	1 13/16	1 7/8	1 3/4	1 7/16	1	5/8	3/16	1/8	5/16	1/4	0	1/2	13/16	15/16	7/8	11/16	1/4
S3B	104'-6 15/16	104'-7 9/16	105'-9 3/8	61'-10 3/16	42'-8 3/4	61'-10 3/4	42'-8 13/16	2'-3 1/2	2'-3 7/16	1/4	3/4	1 3/16	1 9/16	1 13/16	1 7/8	1 3/4	1 7/16	1	5/8	3/16	1/8	5/16	1/4	0	1/2	13/16	15/16	7/8	11/16	1/4
S4B	104'-6 7/16	104'-7 1/16	105'-8 7/8	61'-9 7/8	42'-8 9/16	61'-10 7/16	42'-8 5/8	2'-3 1/4	2'-3 3/16	1/4	3/4	1 3/16	1 9/16	1 13/16	1 7/8	1 3/4	1 7/16	1	5/8	3/16	1/8	5/16	1/4	0	1/2	13/16	15/16	7/8	11/16	1/4
S5B	104'-6	104'-6 5/8	105'-8 7/16	61'-9 5/8	42'-8 3/8	61'-10 3/16	42'-8 7/16	2'-3	2'-3	3/16	11/16	1 1/8	1 9/16	1 13/16	1 3/4	1 9/16	1 5/16	15/16	5/8	3/16	1/8	5/16	3/16	0	3/8	11/16	1	1 1/16	15/16	3/8



HORIZONTAL SWEEP DIAGRAM

DIMENSIONS ALONG BTM OF STRINGER

MARK	"ARC"	"CHD"	"RAD"	"LD"
S1B	104'-8 7/16	104'-8 7/16	22940.320	2'-4 3/16
S2B	104'-8	104'-8	22947.820	2'-4
S3B	104'-7 9/16	104'-7 9/16	22955.320	2'-3 3/4
S4B	104'-7 1/16	104'-7 1/16	22962.820	2'-3 1/2
S5B	104'-6 5/8	104'-6 5/8	22970.320	2'-3 5/16

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2020

NOTES:
1. FOR GENERAL NOTES SEE DWG GN1.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-21									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER DIAGRAMS

JOB: BRIDGE NO. 43N
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-N

PROJ NO. IM-089-2(26)

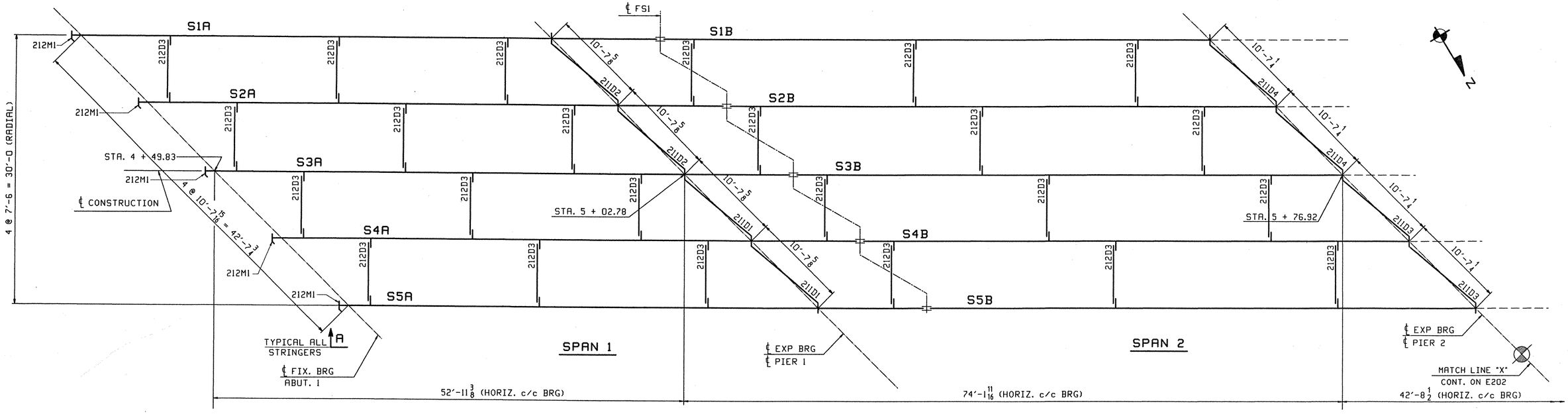
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
WL	01/22
CHKD BY	
JAK	01/23
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

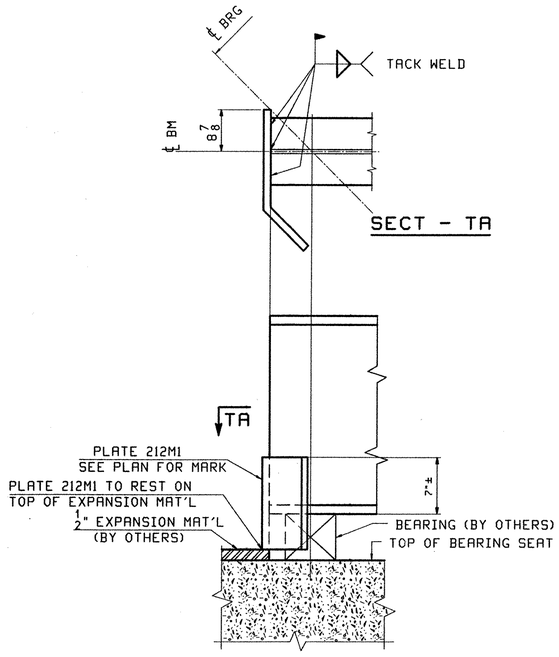
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
117-43N	C202
	REV. △

JAK Wed Jan 26 10:29:53 EST 2022 I:\acad\jobs\2106-N\C202.dwg



FRAMING PLAN



VIEW - A

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-5-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

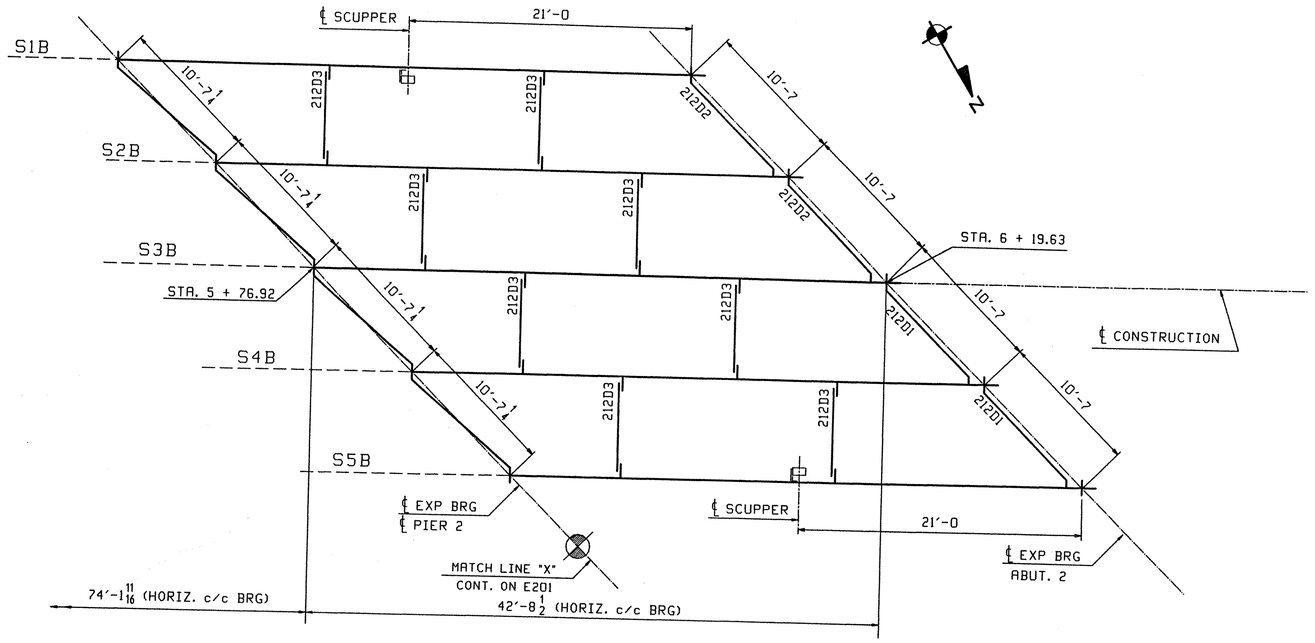
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: FRAMING PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT TENSOR 2106-N	PHG	02/16
	CHKD BY	
	TRM	02/21
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
117-43N	E201
	REV. △

PHG Tue Feb 27 07:40:01 EST 2001 /users/jobs/2106-N/E201.r Rev:0



SPAN 3

FIELD BOLT LIST						A325 Type 3 BOLTS								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
1														FIELD SPLICE 1
2	200	7/8	4	20	10	2 9/16	3/4	3 1/16	5/8				1	TOP & BTM FLG SPLICE
3	240	7/8	3	48	5	1 5/8	1/2	5/8	1/2				1	WEB SPLICE
4														
5														INT. DIAPHRAGMS
6	320	7/8	2 1/4	5	64	15/16	1/2	7/16					1	WEB TO CONN PL
7														
8														BRG DIAPHRAGMS - ABUT 2
9	40	7/8	2 1/2	5	8	1 1/8	1/2	5/8					1	GUSSET TO CONN PL
10	40	7/8	2 1/4	5	8	15/16	1/2	7/16					1	GUSSET TO WEB
11														
12														BRG DIAPHRAGMS - PIER 1&2
13	80	7/8	2 1/2	5	16	1 1/8	1/2	5/8					1	GUSSET TO CONN PL

WASHER CODES

1: 1 Hard Flat Washer

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 11-06-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-5-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: FRAMING PLAN

JOB: BRIDGE NO. 43N
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2105-N

PROJ NO. IM-089-2(26)

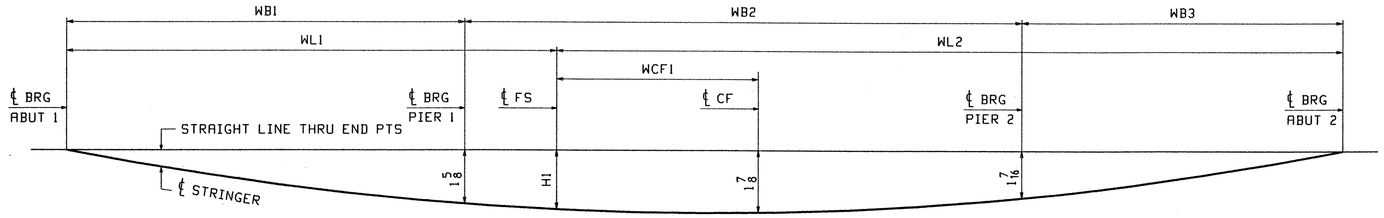
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

	DRAWN BY	DATE
	PHG	02/16
	CHKD BY	
	TRM	02/21
	APPROV BY	
	SUPERVISOR	W. J. GATTI
	Q.A.	

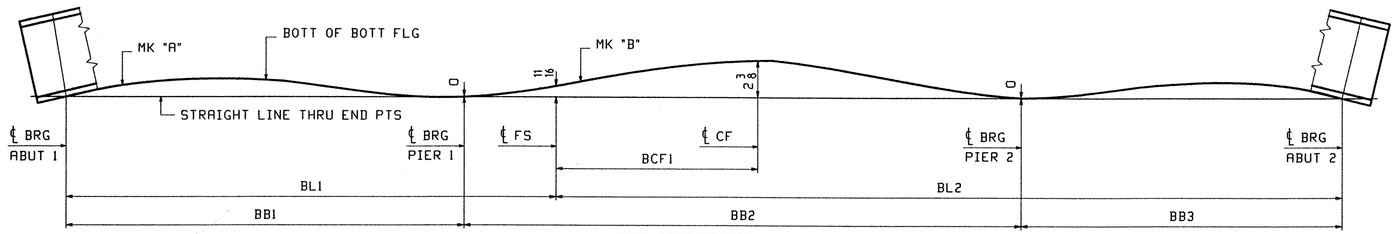
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
117-43N	E202
	REV. △

PHG Tue Feb 27 07:48:24 EST 2001 /users/jobs/2105-N/E202 : Rev3



PLAN VIEW GIRDER @ BOTT OF WEB



DEVELOPED SECTION A-A

DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	H1	WB1	WB2	WB3	WCF1	BL1	BL2	BB1	BB2	BB3	BCF1
1	65′-3 3/16	104′-8 5/8	1 13/16	53′-0 1/8	74′-2 9/16	42′-9 1/8	28′-9	65′-3 3/16	104′-8 5/8	53′-0 1/8	74′-2 9/16	42′-9 1/8	28′-9
2	65′-3	104′-8 1/8	1 13/16	52′-11 7/8	74′-2 5/16	42′-8 15/16	28′-9	65′-3	104′-8 1/8	52′-11 7/8	74′-2 5/16	42′-8 15/16	28′-9
3	65′-2 3/4	104′-7 11/16	1 13/16	52′-11 11/16	74′-2	42′-8 3/4	28′-9	65′-2 3/4	104′-7 11/16	52′-11 11/16	74′-2	42′-8 3/4	28′-9
4	65′-2 9/16	104′-7 3/16	1 3/4	52′-11 7/16	74′-1 11/16	42′-8 5/8	28′-9	65′-2 9/16	104′-7 3/16	52′-11 7/16	74′-1 11/16	42′-8 5/8	28′-9
5	65′-2 5/16	104′-6 3/4	1 3/4	52′-11 1/4	74′-1 7/16	42′-8 3/8	21′-2 11/16	65′-2 5/16	104′-6 3/4	52′-11 1/4	74′-1 7/16	42′-8 3/8	21′-2 11/16

LINE	"A"	"B"
1	S1A	S1B
2	S2A	S2B
3	S3A	S3B
4	S4A	S4B
5	S5A	S5B

NOTES

FOR GENERAL NOTES SEE DWG GN1

ALL DIMENSIONS GIVEN AT BOTT OF STRINGER FLG (UN)

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ∅ (UN)	7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10′-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2001

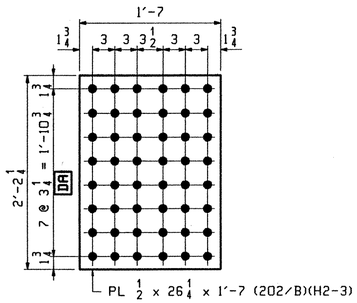
DESCRIPTION: SHOP ASSEMBLY	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/16
	CHKD BY	
	TRM	02/21
	APPROV BY	
TENSOR 2106-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

CASCO BAY STEEL STRUCTURES, INC.

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

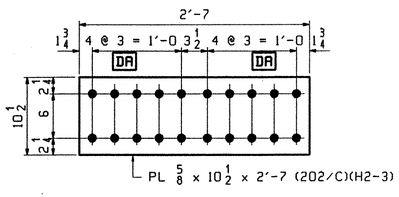
JOB NO.	DRG. NO.
117-43N	SA201
	REV. △

PHG Tue Feb 27 09:40:04 EST 2001 /users/pkw/2106-N/SA201.r Rev0



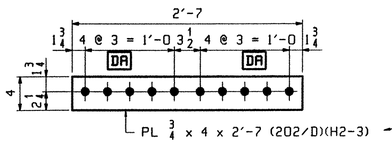
D.O.R.

10 ~ x21a



D.O.R.

10 ~ x21b

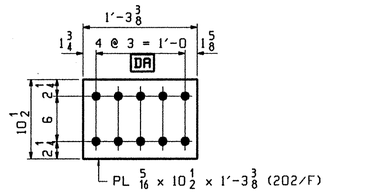


D.O.R.

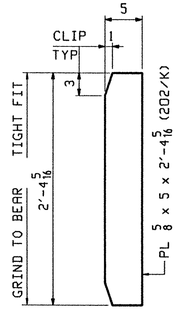
20 ~ x21c

ENGR VERIFY
WIDTH OF PL REDUCED
TO CLEAR "K" OF W30
THICKNESS INCREASED
TO 3/4" TO MAINTAIN
NET SECTION

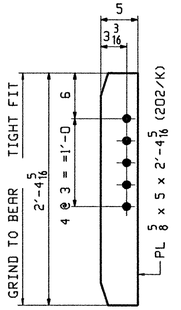
DK



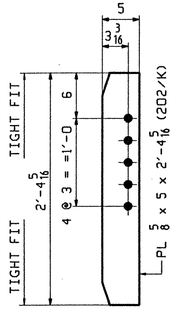
10 ~ x21d



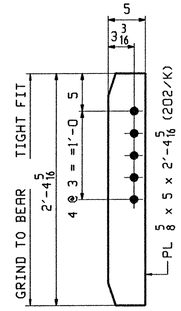
10 ~ x21g
BRG STIFF



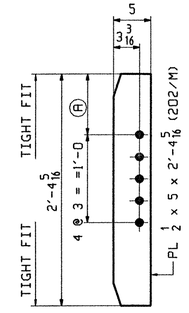
4 ~ x21h
BRG STIFF @ ABUT



4 ~ x21k
ABUT CONN STIFF

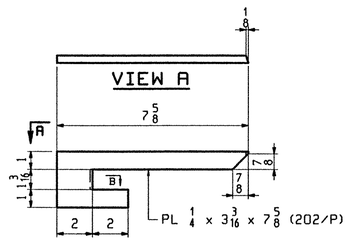


16 ~ x21m
BRG STIFF @ PIER 1&2

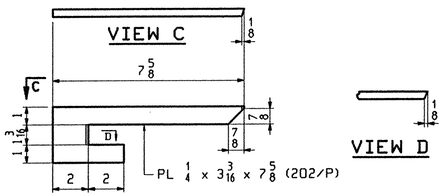


INT CONN STIFF

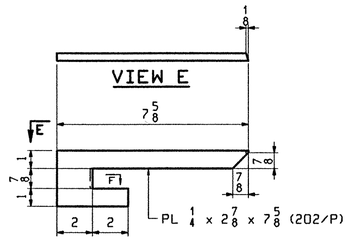
MARK	REQ'D	Ⓐ
x21n	32	7
x21p	4	8 3/8
x21s	14	8 3/4
x21t	10	9 1/16
x21v	4	9 3/8



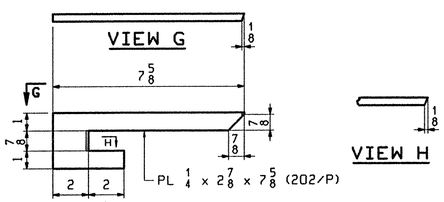
1 ~ x21w
DRIP PL



1 ~ x21y
DRIP PL



2 ~ x21aa
DRIP PL



2 ~ x21ab
DRIP PL

TVGA
Engineering, Surveying, P.C.

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2001

NOTES:
FOR GENERAL NOTES SEE GNI
H2-3 DENOTES MATERIAL SUBJECT TO
CHARPY V-NOTCH TESTING.
D.O.R. DENOTES DIRECTION OF MILL ROLLING

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3501									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 Ø (UN)	7/8 Ø (UN)

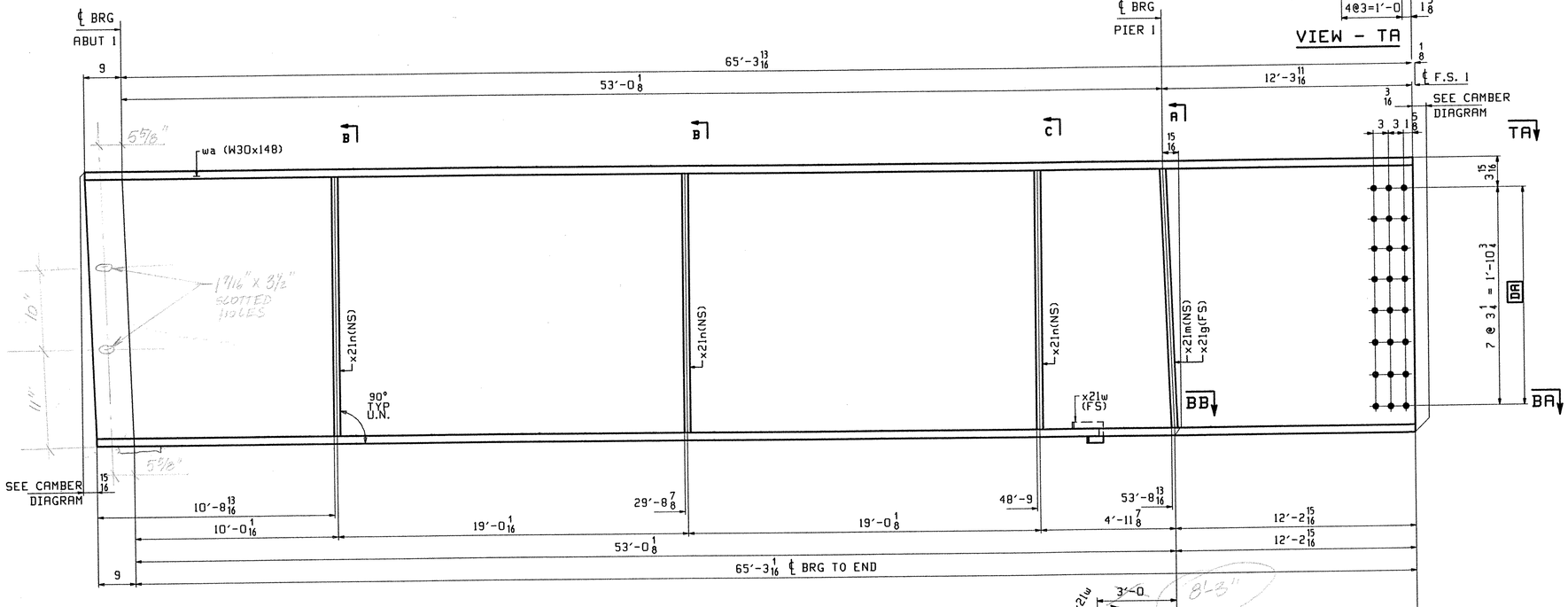
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GNI)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER STANDARDS	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/09
	CHKD BY	
	TRM	02/21
	APPROV BY	
TENSOR 2105-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

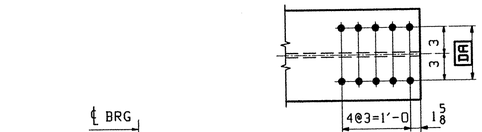
JOB NO.	DRG. NO.
117-43N	X21
	REV. △

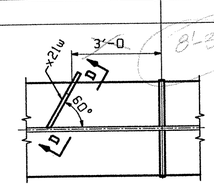
PHG Tue Feb 27 08:05:23 EST 2001 /users/jobs/2105-N/X21 1 Rev0



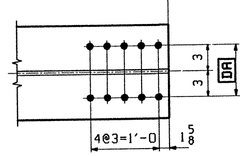
ONE - STRINGER - S1A

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C201.
3. FOR GENERAL NOTES SEE DRAWING GN1.

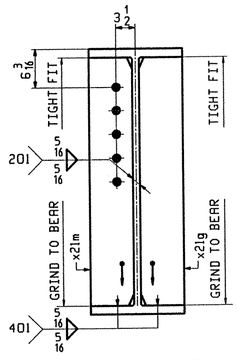




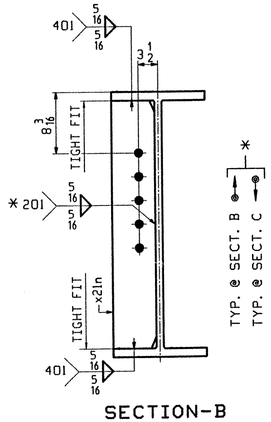
SECTION - BB



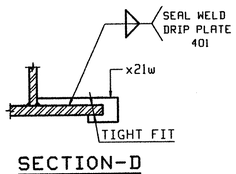
SECTION - BA



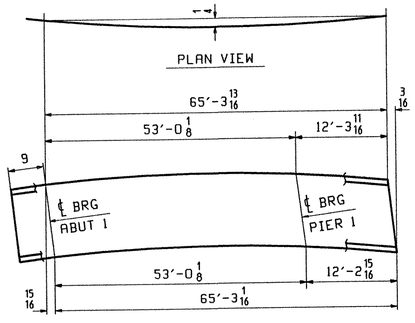
SECTION-A



SECTION-B
SECTION-C



SECTION-D



DEV. CAMBER DIAGRAM
SEE SHT. C201

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
						LENGTH			201		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES	
		SIA	1		STRINGER				9892		
201	A		1	wa	W 30x148	66	1	(M270-50WT2) (H2-3)			
202	M		3	x21n	PL 1/2x5	2	4 5/16				
202	K		1	x21m	PL 3/8x5	2	4 5/16				
202	K		1	x21g	PL 5/8x5	2	4 5/16				
202	P		1	x21w	PL 1/4x3 3/16	0	7 5/8				

TVGA
Engineering, Surveying, P.C.

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☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2001

OUT FOR APPROVAL	3-5-01										
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S1A

JOB: BRIDGE NO. 43N
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-N

PROJ NO. IM-089-2(26)

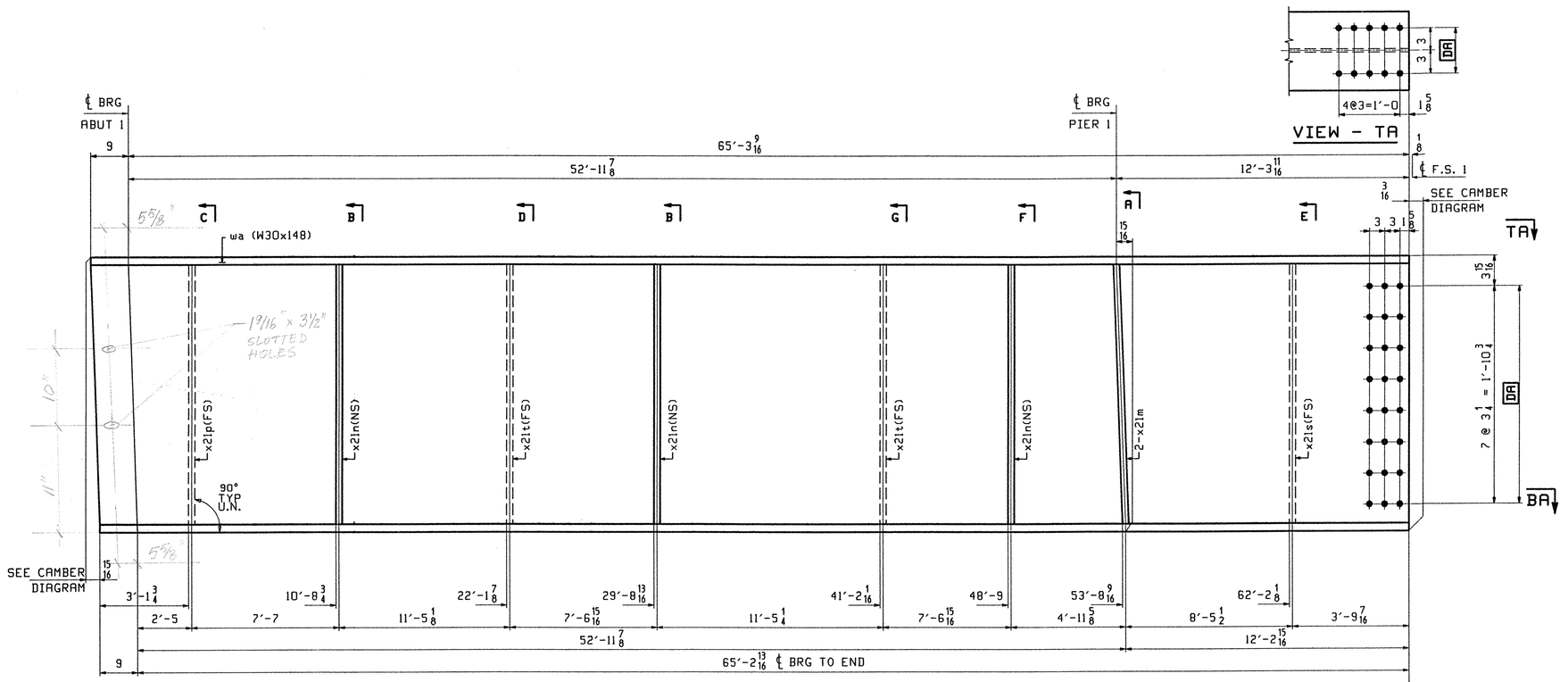
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/09
CHKD BY	
TRM	02/21
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

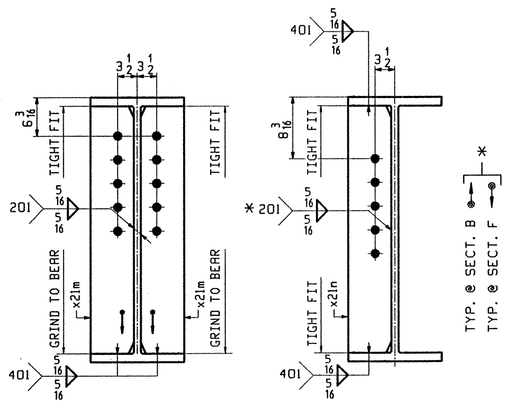
JOB NO.	DRG. NO.
117-43N	201
	REV. △

PHG Tue Feb 27 08:07:08 EST 2001 /users/jobs/2106-N/201.1 Rev0



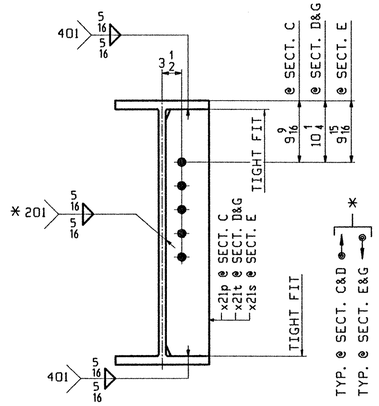
ONE - STRINGER - S2A

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C201.
3. FOR GENERAL NOTES SEE DRAWING GN1.

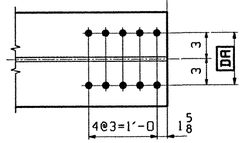


SECTION-A

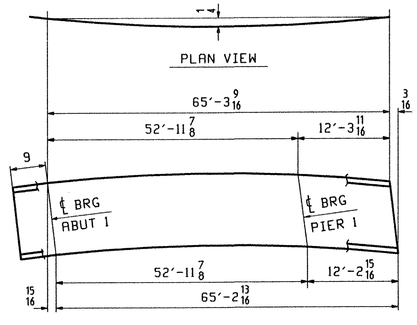
SECTION-B&F



SECTION-C,D,E&G



SECTION - BA



DEV. CAMBER DIAGRAM

SEE SHT. C201

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									202	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S2A	1		STRINGER				9968	
201	A		1	wa	W 30x148	66	0 3/4	(M270-50WT2) (H2-3)		
202	M		1	x21p	PL 1/2x5	2	4 5/16			
202	M		3	x21n	PL 1/2x5	2	4 5/16			
202	M		2	x21t	PL 1/2x5	2	4 5/16			
202	K		2	x21m	PL 5/8x5	2	4 5/16			
202	M		1	x21s	PL 1/2x5	2	4 5/16			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 11-04-2021

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ∅ (UN)	7/8 ∅ (UN)

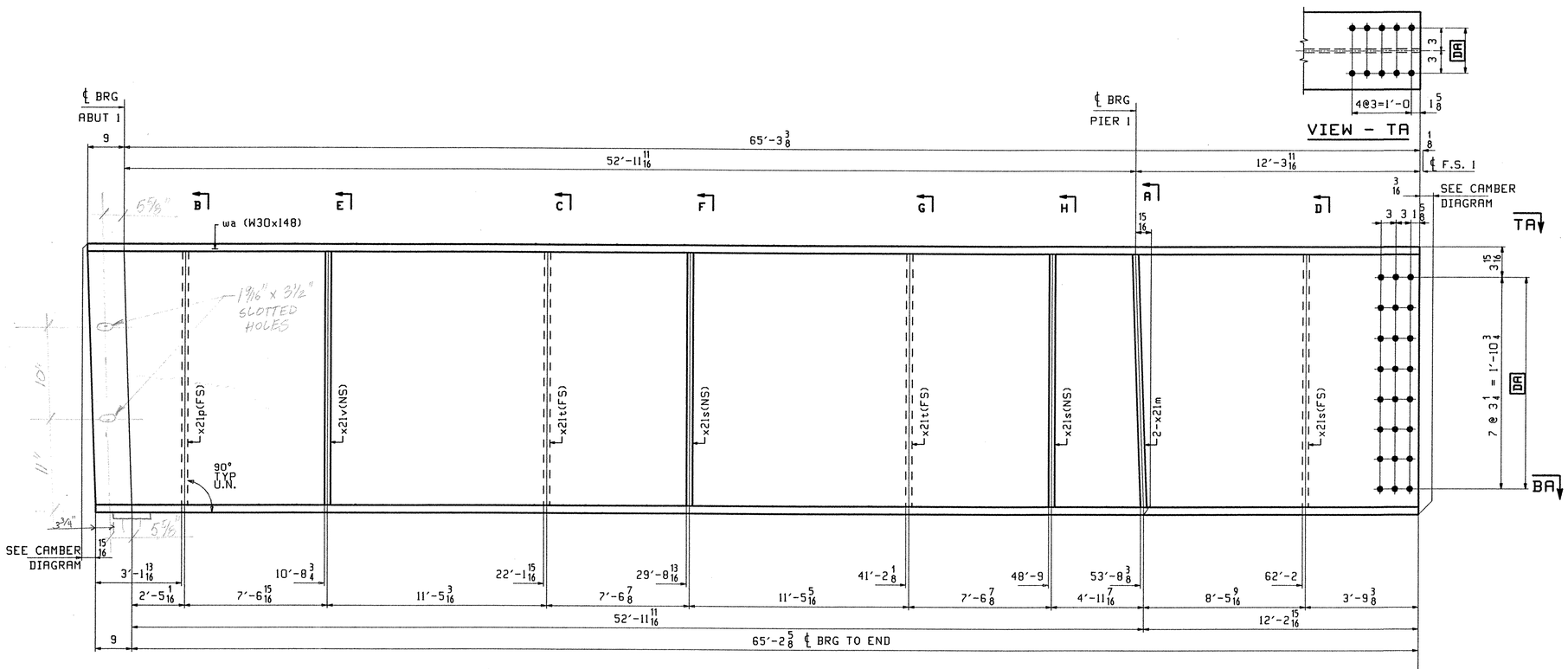
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S2A	DRAWN BY	DATE
JOB: BRIDGE NO. 43N	PHG	02/09
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	02/21
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

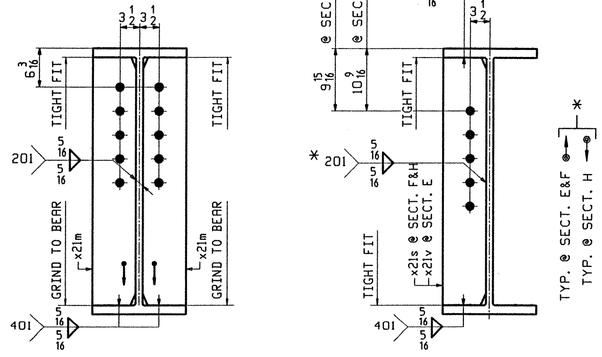
JOB NO.	DRG. NO.
117-43N	202
	REV. △

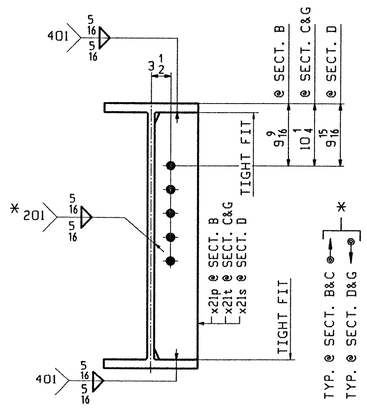
PHG Tue Feb 27 09:08:14 EST 2001 /users/jobs/2106-N/202 : Rev0

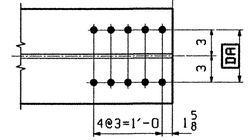


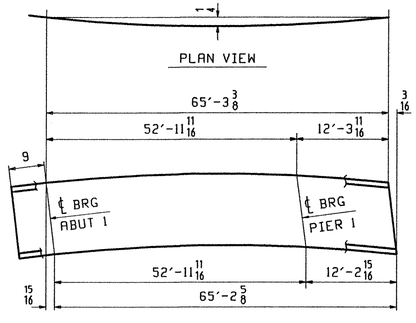
ONE - STRINGER - S3A

1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C201.
3. FOR GENERAL NOTES SEE DRAWING GN1.









ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									203		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		S3A	1		STRINGER				9966		
201	A		1	wa	W 30x148	66	0 9/16	(M270-50WT2) (H2-3)			
202	M		1	x21p	PL 1/2x5	2	4 5/16				
202	M		1	x21v	PL 1/2x5	2	4 5/16				
202	M		2	x21t	PL 1/2x5	2	4 5/16				
202	M		3	x21s	PL 1/2x5	2	4 5/16				
202	K		2	x21m	PL 5/8x5	2	4 5/16				

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: WAB
DATE: 11-26-2004

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-5-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S3A
JOB: BRIDGE NO. 43N
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
PROJ NO. IM-089-2(26)
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

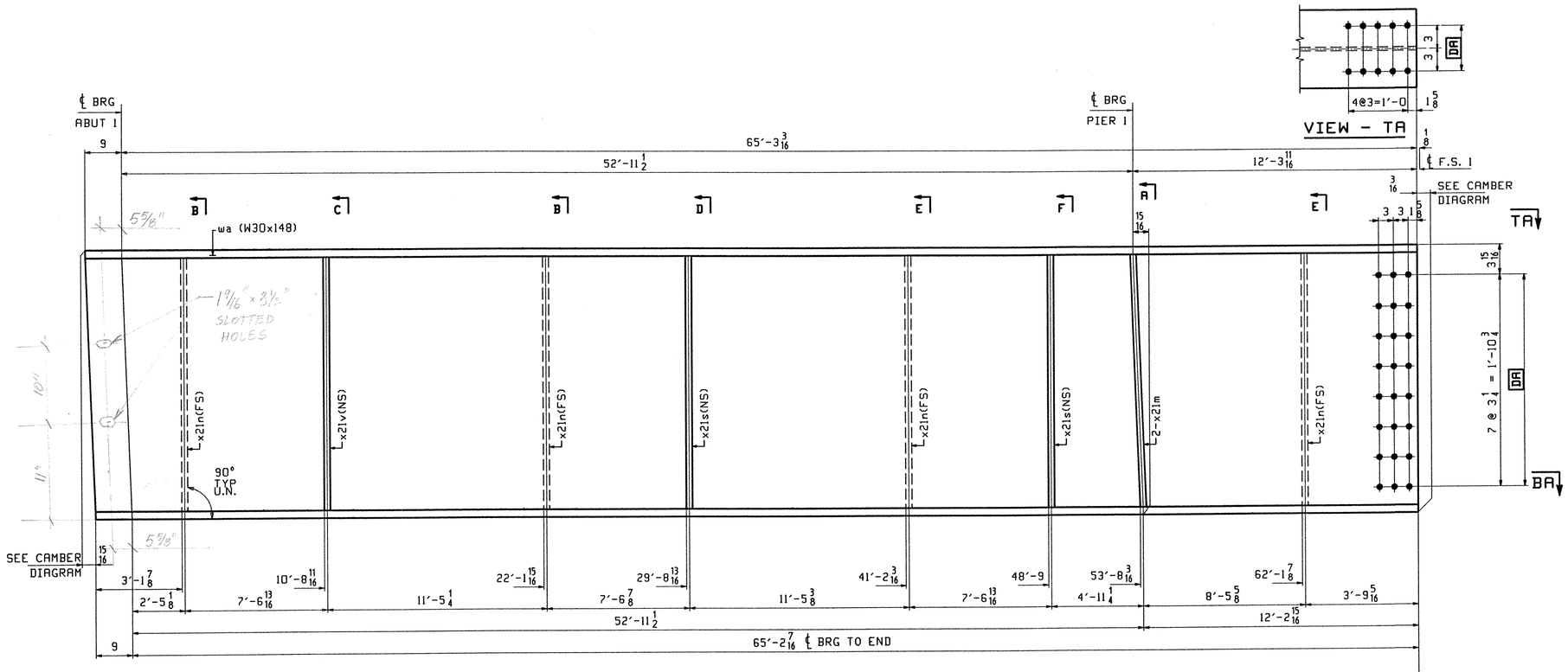
DRAWN BY	DATE
PHG	02/10
CHKD BY	
TRM	02/21
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

TENSOR 2106-N

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

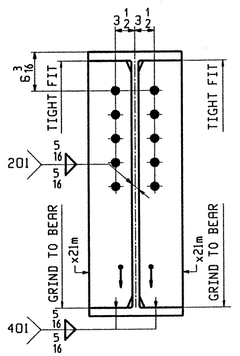
JOB NO.	DRG. NO.
117-43N	203
	REV. △

PHG Tue Feb 27 08:08:23 EST 2001 /users/pbw/2106-N/203.t Rev0

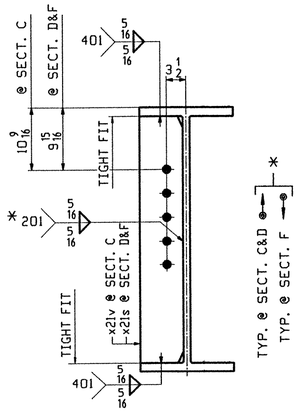


ONE - STRINGER - S4A

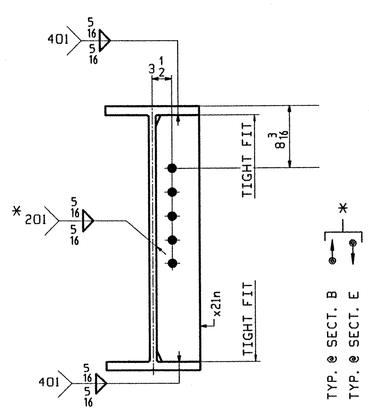
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C201.
3. FOR GENERAL NOTES SEE DRAWING GN1.



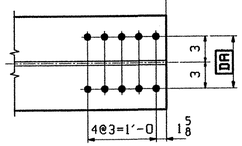
SECTION-A



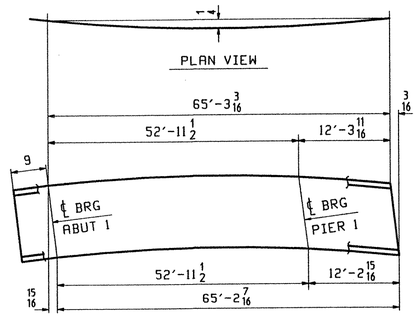
SECTION-C,D&F



SECTION-B&E



SECTION - BA



DEV. CAMBER DIAGRAM
SEE SHT. C201

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									204		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		S4A	1		STRINGER				9963		
201	A		1	wa	W 30x148	66	0 3/8	(M270-50WT2) (H2-3)			
202	M		4	x21n	PL 1/2x5	2	4 5/16				
202	M		1	x21v	PL 1/2x5	2	4 5/16				
202	M		2	x21s	PL 1/2x5	2	4 5/16				
202	K		2	x21m	PL 5/8x5	2	4 5/16				

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 11-06-2001

OUT FOR APPROVAL	35-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 Ø (UN)	7/8 Ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	STRINGER - S4A	DRAWN BY	DATE
JOB:	BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/10
		CHKD BY	
		PHG	02/21
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

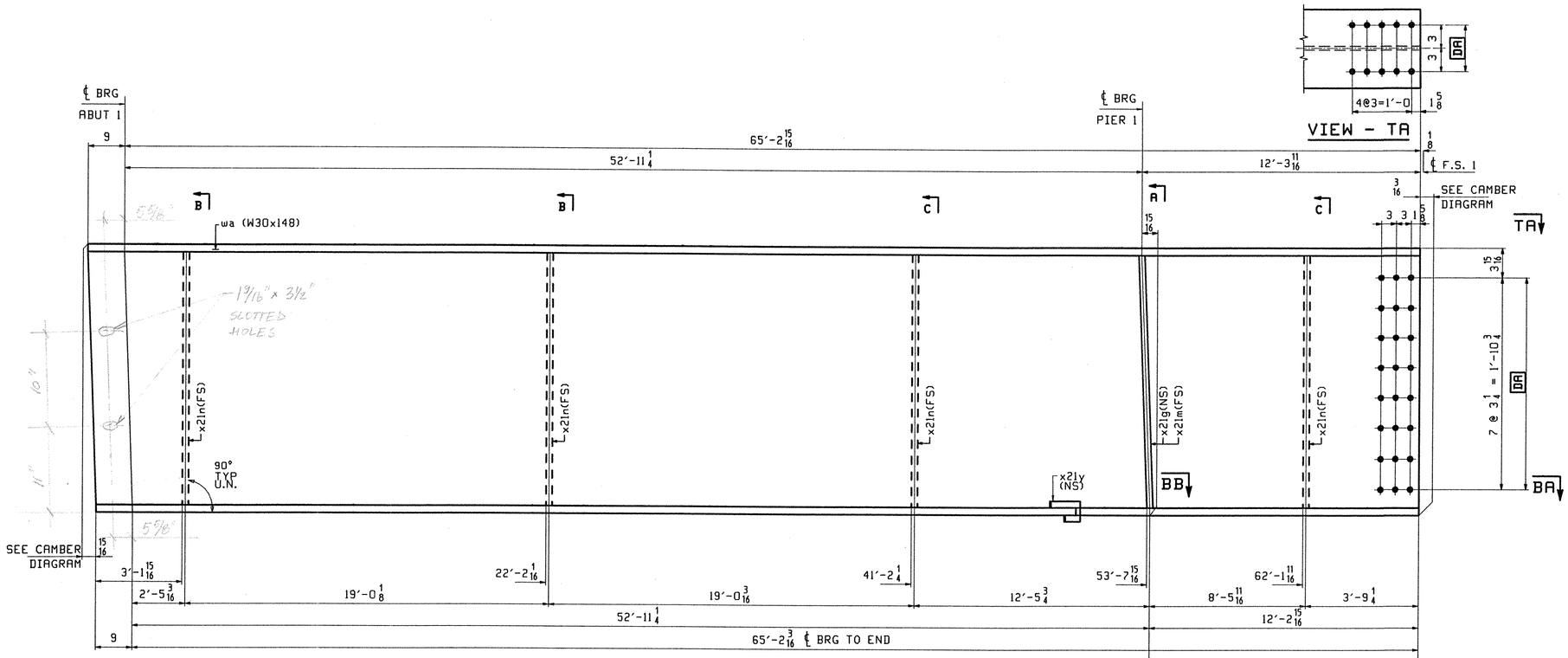
TENSOR 2105-N

CASCO BAY STEEL STRUCTURES, INC.

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

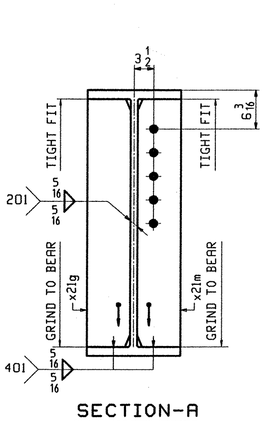
JOB NO.	DRG. NO.
117-43N	204
	REV. △

PHG Tue Feb 27 08:58:54 EST 2001 J:\work\jobs\2105-n\201 • Rev0

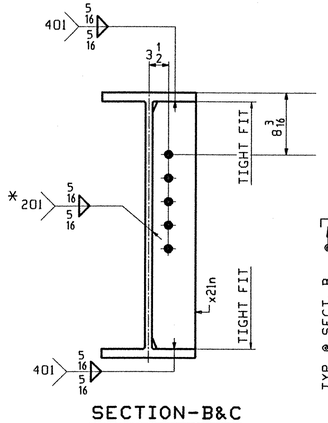


ONE - STRINGER - S5A

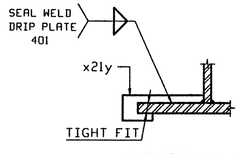
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C201.
3. FOR GENERAL NOTES SEE DRAWING GN1.



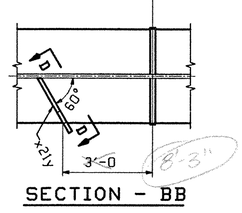
SECTION-A



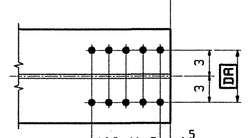
SECTION-B&C



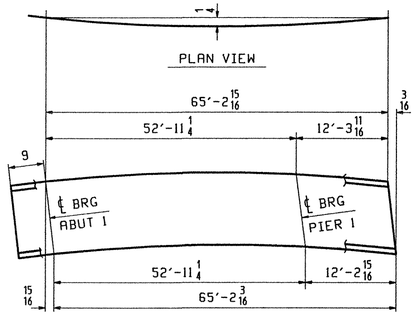
SECTION-D



SECTION - BB



SECTION - BA



DEV. CAMBER DIAGRAM

SEE SHT. C201

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									205		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		S5A	1		STRINGER				9902		
201	A		1	wa	W 30x148	66	0 1/8	(M270-50WT2) (H2-3)			
202	M		4	x21n	PL 1/2x5	2	4 5/16				
202	K		1	x21g	PL 5/8x5	2	4 5/16				
202	K		1	x21m	PL 5/8x5	2	4 5/16				
202	P		1	x21y	PL 1/4x3 3/16	0	7 5/8				

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2021

OUT FOR APPROVAL	5-5 01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

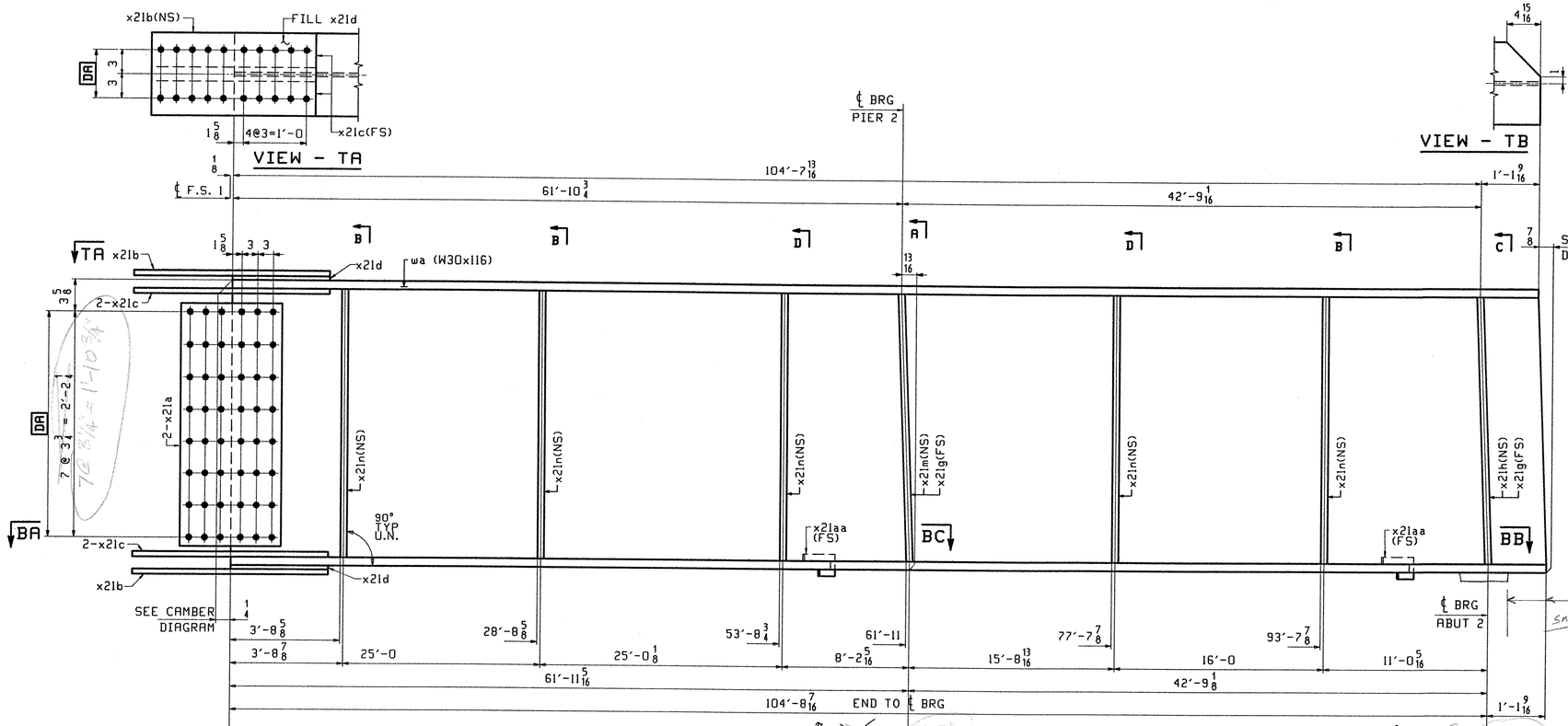
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S5A	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/10
	CHKD BY	
	TRM	02/21
	APPROV BY	
TENSOR 2105-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
117-43N	205
	REV. △

PHG Tue Feb 23 08:23:49 EST 2021 /users/jake-2105-n/205.1 Rev0



ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		SIB	1		STRINGER				12074	
201	C		1	wa	W 30x116	105	10 1/4	(M270-50WT2) (H2-3)		
202	B		2	x21a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
202	C		2	x21b	PL 5/8x10 1/2	2	7	(M270-50WT2) (H2-3)		
202	D		4	x21c	PL 3/4x4	2	7	(M270-50WT2) (H2-3)		
202	F		2	x21d	PL 5/16x10 1/2	1	3 3/8	FILL		
202	M		5	x21n	PL 1/2x5	2	4 5/16			
202	K		1	x21m	PL 5/8x5	2	4 5/16			
202	K		2	x21g	PL 5/8x5	2	4 5/16			
202	K		1	x21h	PL 5/8x5	2	4 5/16			
202	P		2	x21aa	PL 1/4x2 7/8	0	7 5/8			

BILL OF MATERIAL

JOB NO.

DRAWING NO. 206

REV.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3501									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ∅ (UN)	7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S1B

JOB: BRIDGE NO. 43N
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/10
CHKD BY	
TRM	02/21
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
117-43N	206
	REV. △

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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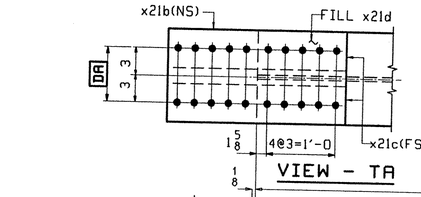
BY: _____
DATE: 11-06-2020

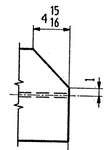
12 35/16
6 12/16
6 13/16

13 1/2 = 6 3/4

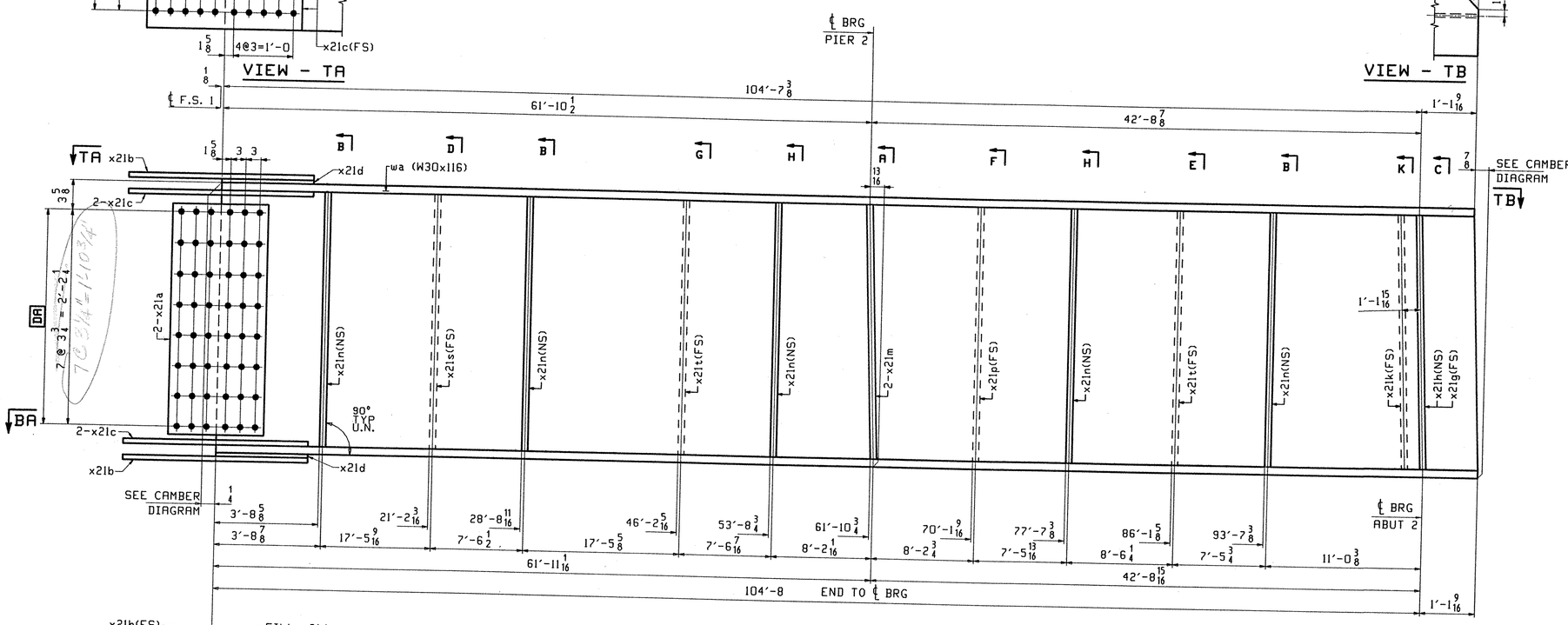
PHG Tue Feb 27 08:44:22 EST 2021 //www-r/jobs/2106-N/206 : Rx=0

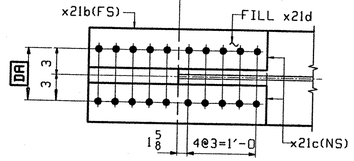


VIEW - TA



VIEW - TB

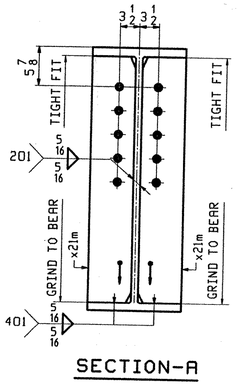




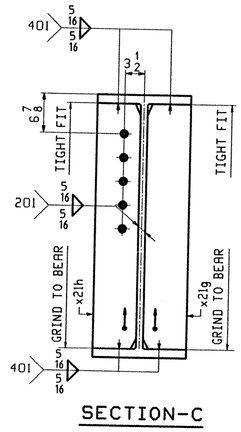
SECTION - BA

ONE - STRINGER - S2B

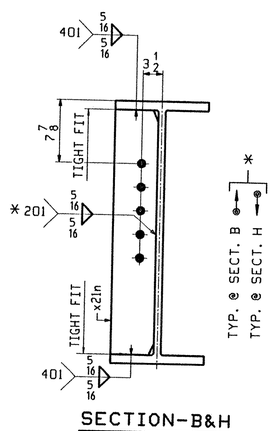
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C202.
3. FOR GENERAL NOTES SEE DRAWING GN1.



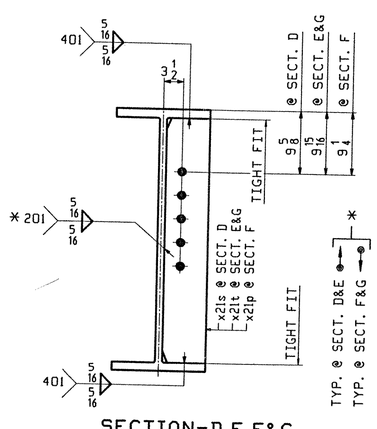
SECTION-A



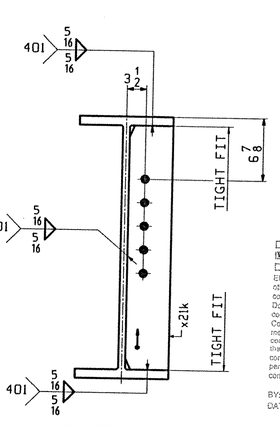
SECTION-C



SECTION-B&H



SECTION-D,E,F&G



SECTION-K

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 11-06-2020

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									207	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S2B	1		STRINGER				12972	
201	C		1	wa	W 30x116	105	9 13/16	(M270-50WT2) (H2-3)		
202	B		2	x21a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
202	C		2	x21b	PL 5/8x10 1/2	2	7	(M270-50WT2) (H2-3)		
202	D		4	x21c	PL 3/4x4	2	7	(M270-50WT2) (H2-3)		
202	F		2	x21d	PL 5/16x10 1/2	1	3 3/8	FILL		
202	M		5	x21n	PL 1/2x5	2	4 5/16			
202	M		1	x21s	PL 1/2x5	2	4 5/16			
202	M		2	x21t	PL 1/2x5	2	4 5/16			
202	M		1	x21p	PL 1/2x5	2	4 5/16			
202	K		1	x21h	PL 5/8x5	2	4 5/16			
202	K		1	x21g	PL 5/8x5	2	4 5/16			
202	K		1	x21k	PL 5/8x5	2	4 5/16			
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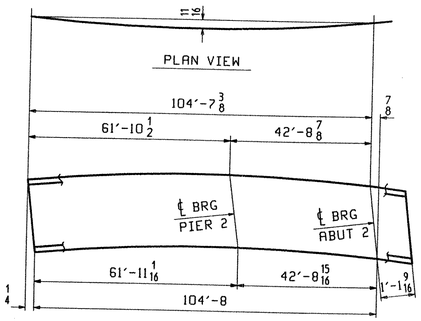


DEV. CAMBER DIAGRAM
SEE SHT. C202

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-5-0				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S2B

JOB: BRIDGE NO. 43N
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

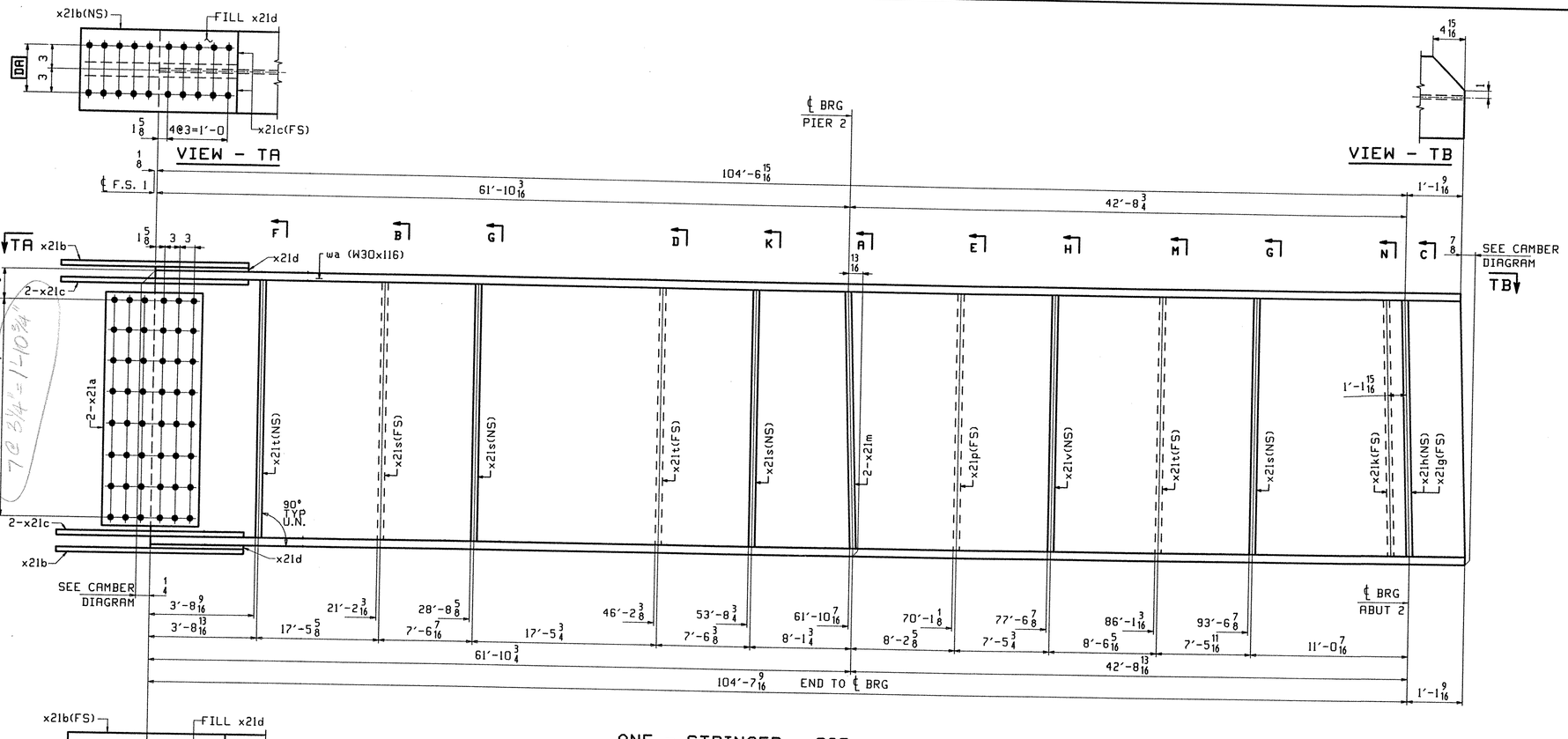
DRAWN BY	DATE
PHG	02/10
CHKD BY	
TRM	02/21
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

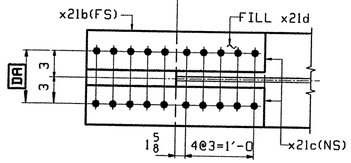
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
117-43N	207
	REV. △

TENSOR 2105-N

PHG Tue Feb 23 09:55:51 EST 2021 /users/jobs/2105-N/207 : Rev0

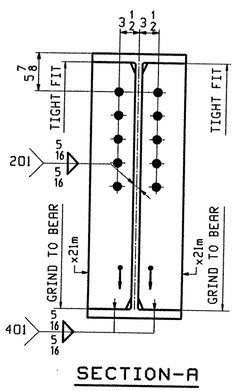




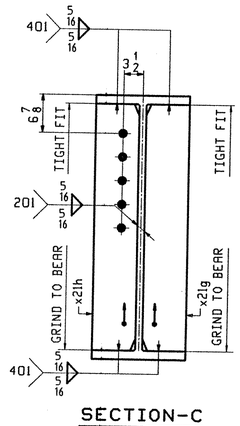
SECTION - BA

ONE - STRINGER - S3B

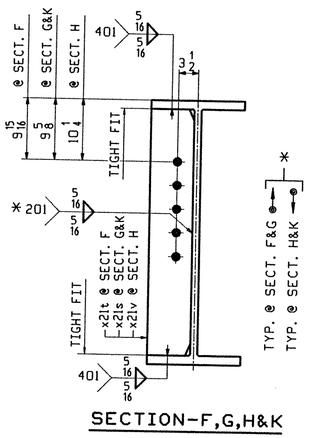
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C202.
3. FOR GENERAL NOTES SEE DRAWING GN1.



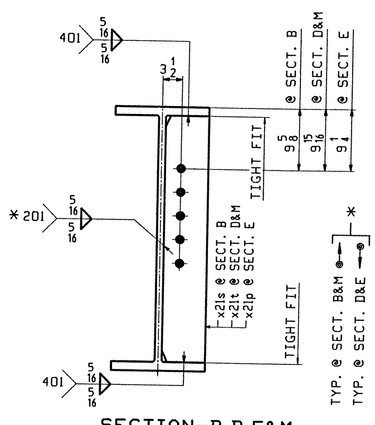
SECTION-A



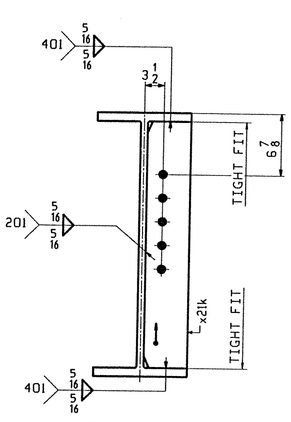
SECTION-C



SECTION-F,G,H&K



SECTION-B,D,E&M



SECTION-N

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 11-06-2001

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	208 WT	PROCUREMENT NOTES	
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201	C		1	wa	W 30x116	105	9 3/8	(M270-50WT2) (H2-3)			
202	B		2	x21a	PL 1/2x26 3/4	1	7	(M270-50WT2) (H2-3)			
202	C		2	x21b	PL 5/8x10 1/2	2	7	(M270-50WT2) (H2-3)			
202	D		4	x21c	PL 3/4x4	2	7	(M270-50WT2) (H2-3)			
202	F		2	x21d	PL 5/16x10 1/2	1	3 3/8	FILL			
202	M		3	x21t	PL 1/2x5	2	4 5/16				
202	M		4	x21s	PL 1/2x5	2	4 5/16				
202	K		2	x21m	PL 5/8x5	2	4 5/16				
202	M		1	x21p	PL 1/2x5	2	4 5/16				
202	M		1	x21v	PL 1/2x5	2	4 5/16				
202	K		1	x21h	PL 5/8x5	2	4 5/16				
202	K		1	x21g	PL 5/8x5	2	4 5/16				
202	K		1	x21k	PL 5/8x5	2	4 5/16				

DEV. CAMBER DIAGRAM
SEE SHT. C202

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S3B

JOB: BRIDGE NO. 43N
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-N

PROJ NO. IM-089-2(26)

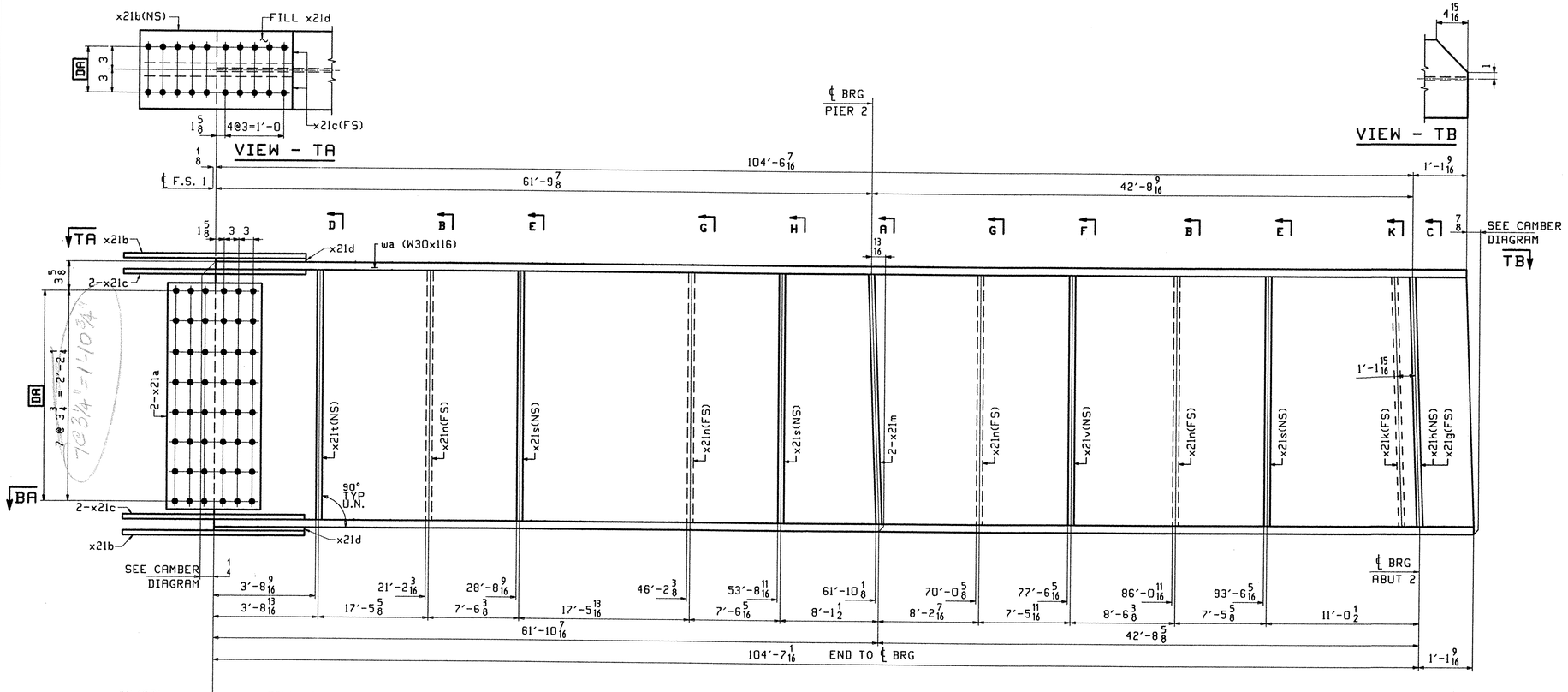
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

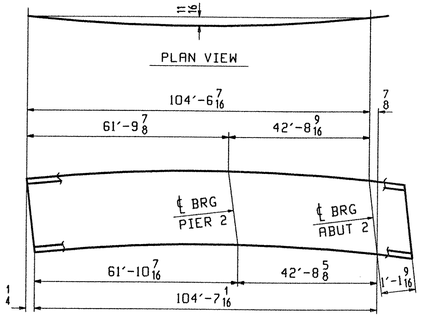
DRAWN BY	DATE
PHG	02/14
CHKD BY	
TRM	02/21
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

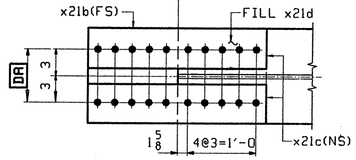
JOB NO.	DRG. NO.
117-43N	208
	REV. △

PHG Tue Feb 27 09:53:34 EST 2001 /users/jobs/2106-N/208 : Rev0





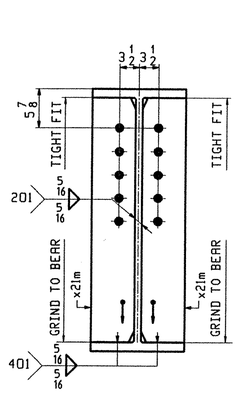
DEV. CAMBER DIAGRAM
SEE SHT. C202



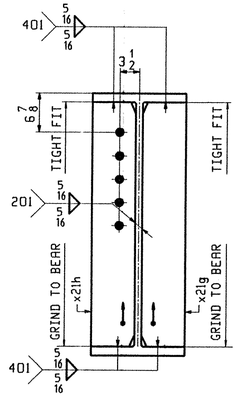
SECTION - BA

ONE - STRINGER - S4B

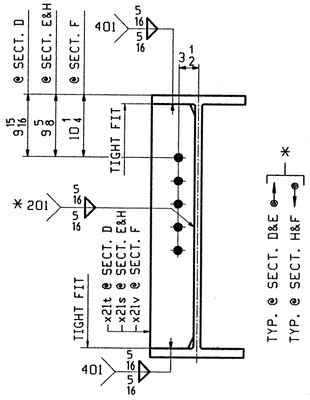
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C202.
3. FOR GENERAL NOTES SEE DRAWING GN1.



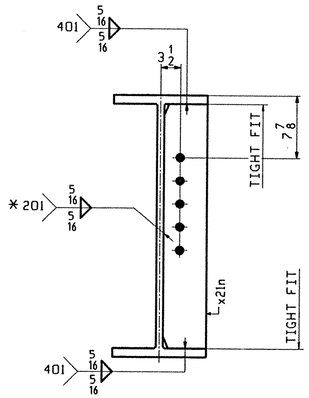
SECTION-A



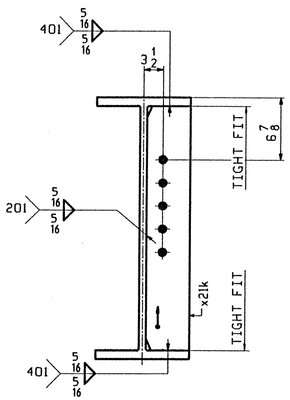
SECTION-C



SECTION-D,E,F&H



SECTION-B&G



SECTION-K

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2001

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									209	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S4B	1		STRINGER				12963	
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202	B		2	x21a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
202	C		2	x21b	PL 5/8x10 1/2	2	7	(M270-50WT2) (H2-3)		
202	D		4	x21c	PL 3/4x4	2	7	(M270-50WT2) (H2-3)		
202	F		2	x21d	PL 5/16x10 1/2	1	3 3/8	FILL		
202	M		1	x21t	PL 1/2x5	2	4 5/16			
202	M		4	x21n	PL 1/2x5	2	4 5/16			
202	M		3	x21s	PL 1/2x5	2	4 5/16			
202	K		2	x21m	PL 5/8x5	2	4 5/16			
202	M		1	x21v	PL 1/2x5	2	4 5/16			
202	K		1	x21h	PL 5/8x5	2	4 5/16			
202	K		1	x21g	PL 5/8x5	2	4 5/16			
202	K		1	x21k	PL 5/8x5	2	4 5/16			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

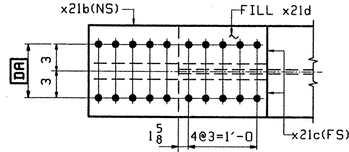
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S4B	DRAWN BY	DATE
JOB: BRIDGE NO. 43N	PHG	02/14
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	02/21
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

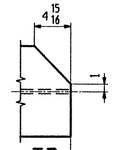
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
117-43N	209
	REV. △

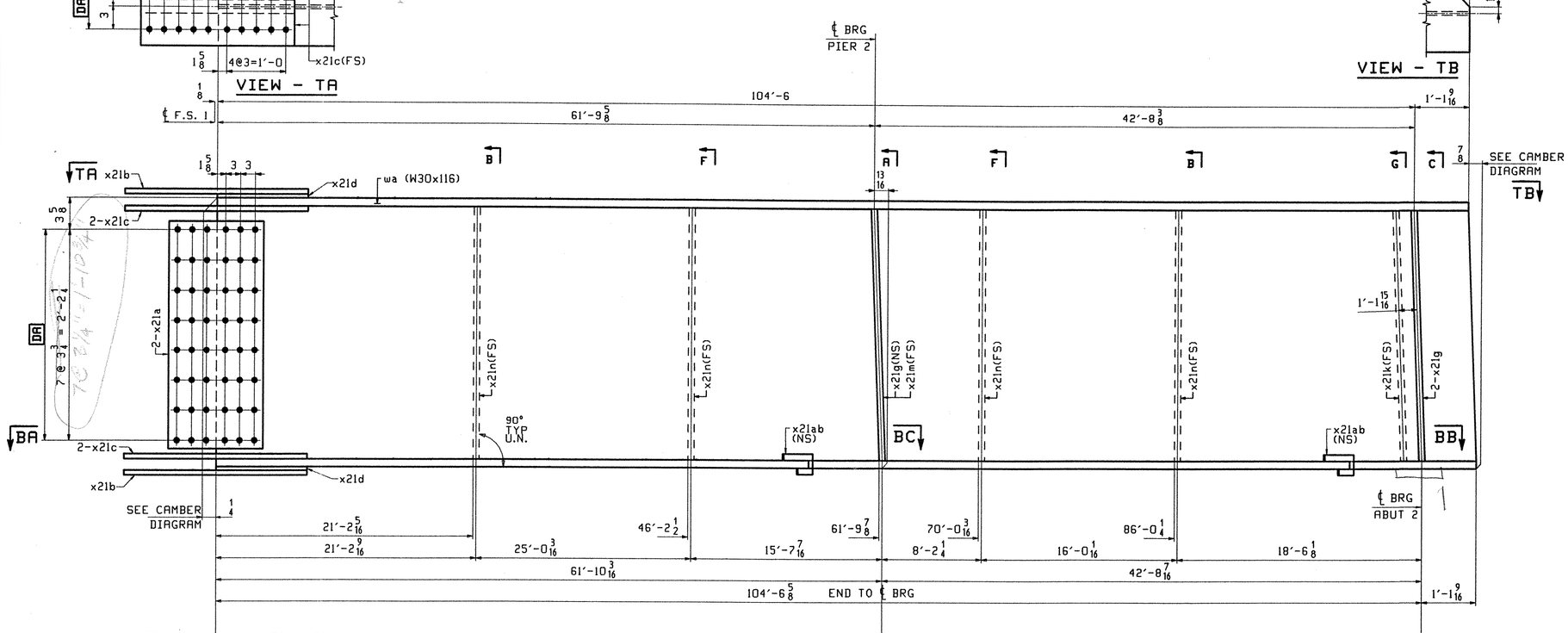
PHG Tue Feb 27 09:09:58 EST 2001 /users/jobs/2106-N/209.dwg Rev0

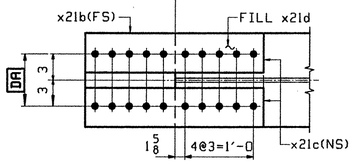


VIEW - TA

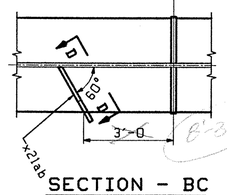


VIEW - TB

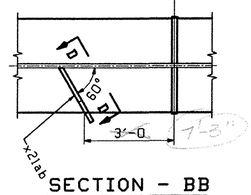




SECTION - BA



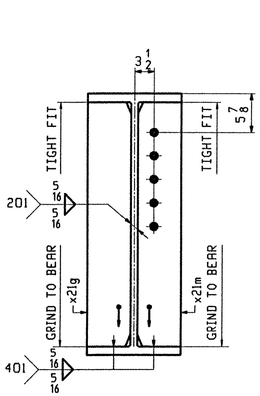
SECTION - BC



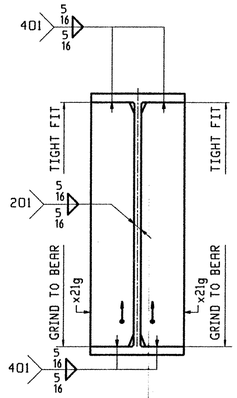
SECTION - BB

ONE - STRINGER - S5B

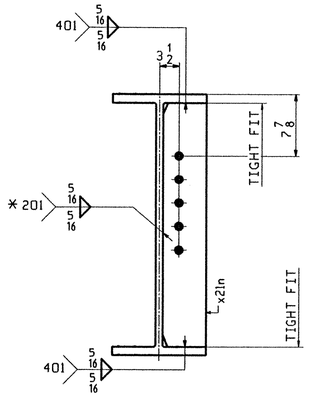
1. FOR STRINGER STANDARD DETAILS SEE DRAWING X21.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C202.
3. FOR GENERAL NOTES SEE DRAWING GN1.



SECTION-A

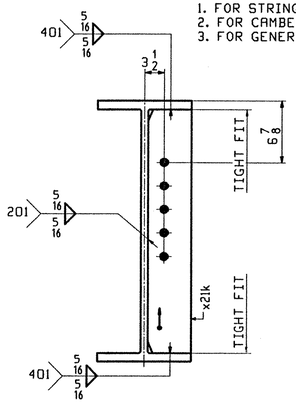


SECTION-C

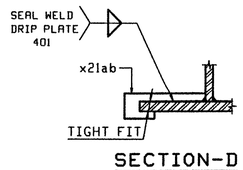


SECTION-B&F

TYP. @ SECT. B
TYP. @ SECT. F



SECTION-G



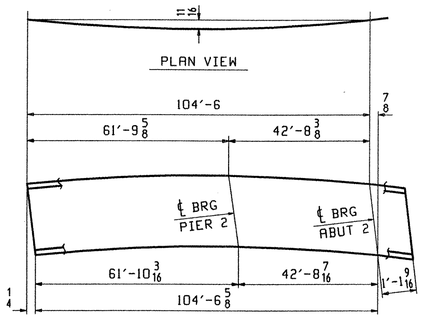
SECTION-D

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: _____
DATE: 11-04-2021

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									210	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		S5B	1		STRINGER				12861	
201	C		1	wa	W 30x116	105	8 7/16	(M270-50WT2) (H2-3)		
202	B		2	x21a	PL 1/2 x 26 1/4	1	7	(M270-50WT2) (H2-3)		
202	C		2	x21b	PL 3/8 x 10 1/2	2	7	(M270-50WT2) (H2-3)		
202	D		4	x21c	PL 3/4 x 4	2	7	(M270-50WT2) (H2-3)		
202	F		2	x21d	PL 5/16 x 10 1/2	1	3 3/8	FILL		
202	M		4	x21n	PL 1/2 x 5	2	4 5/16			
202	K		3	x21g	PL 5/8 x 5	2	4 5/16			
202	K		1	x21m	PL 5/8 x 5	2	4 5/16			
202	K		1	x21k	PL 5/8 x 5	2	4 5/16			
202	P		2	x21ab	PL 1/4 x 2 7/8	0	7 7/8			



DEV. CAMBER DIAGRAM
SEE SHT. C202

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-21									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

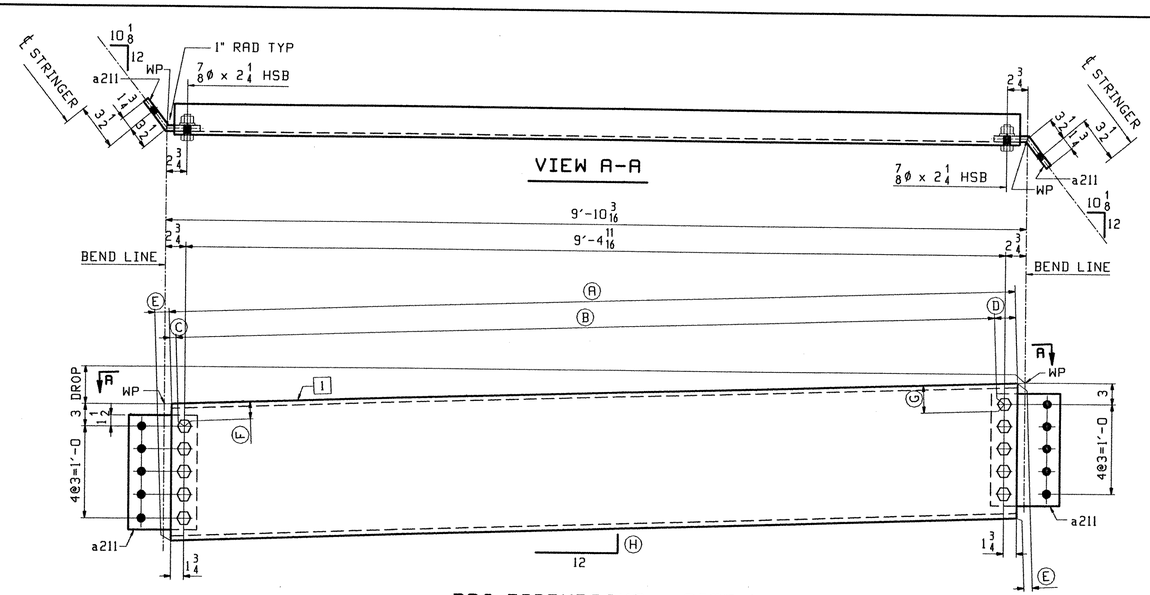
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: STRINGER - S5B	DRAWN BY	DATE
JOB: BRIDGE NO. 43N	PHG	02/14
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	02/21
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2106-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

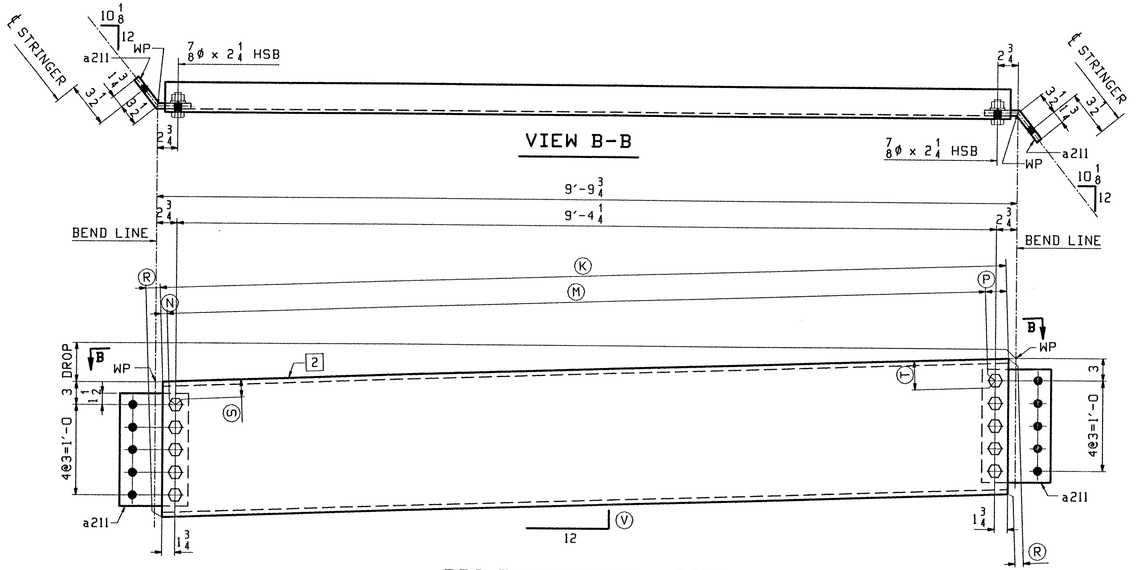
JOB NO.	DRG. NO.
117-43N	210
	REV. △

Tue Feb 23 17:07:23 EST 2021 /users/pas/2106-N/210.1 Rev0



BRG DIAPHRAGMS - PIER 1

MARK	REQ'D	DROP	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	I
211D1	2	4 5/8	9'-8 1/4	9'-4 3/4	1 5/8	1 7/8	11/16	3 1/8	2 7/8	1/2	b211
211D2	2	7/8	9'-8 3/16	9'-4 11/16	1 3/4	1 3/4	1/8	3	3	1/16	c211



BRG DIAPHRAGMS - PIER 2

MARK	REQ'D	DROP	Ⓚ	Ⓜ	Ⓝ	Ⓟ	Ⓡ	Ⓢ	Ⓣ	Ⓥ	2
211D3	2	4 9/16	9'-7 13/16	9'-4 5/16	1 5/8	1 7/8	11/16	3 1/8	2 7/8	7/16	d211
211D4	2	11/16	9'-7 3/4	9'-4 1/4	1 3/4	1 3/4	1/8	3	3	1/16	f211

NOTE:
BEND LINES & WP'S ARE @ ℄
OF BENT P'S.

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 11-6-2001

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
									211		
		211D1	2		BRG DIAPHRAGMS				462		
203	D		2	b211	MC 18x42.7	9	8 15/16				
203	E		4	a211	PL 1/2x15	0	9 3/4	BENT			
204	C		20		7/8 ø HSB	0	2 1/4	(A325-3)			
204	H		20		7/8 ø HSW			(F436W)			
		211D2	2		BRG DIAPHRAGMS				459		
203	D		2	c211	MC 18x42.7	9	8 5/16				
203	E		4	a211	PL 1/2x15	0	9 3/4	BENT			
204	C		20		7/8 ø HSB	0	2 1/4	(A325-3)			
204	H		20		7/8 ø HSW			(F436W)			
		211D3	2		BRG DIAPHRAGMS				460		
203	D		2	d211	MC 18x42.7	9	8 1/2				
203	E		4	a211	PL 1/2x15	0	9 3/4	BENT			
204	C		20		7/8 ø HSB	0	2 1/4	(A325-3)			
204	H		20		7/8 ø HSW			(F436W)			
		211D4	2		BRG DIAPHRAGMS				458		
203	D		2	f211	MC 18x42.7	9	7 7/8				
203	E		4	a211	PL 1/2x15	0	9 3/4	BENT			
204	C		20		7/8 ø HSB	0	2 1/4	(A325-3)			
204	H		20		7/8 ø HSW			(F436W)			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

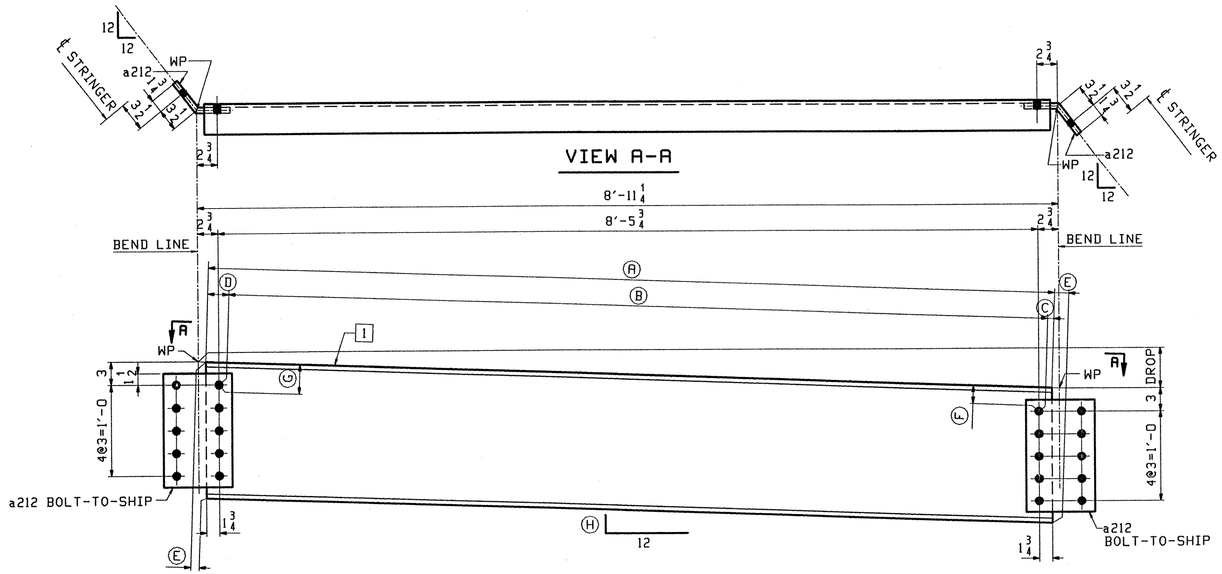
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PRINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: BRG. DIAPHRAGMS	DRAWN BY	DATE
JOB: BRIDGE NO. 43N	PHG	02/14
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	02/21
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 210S-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

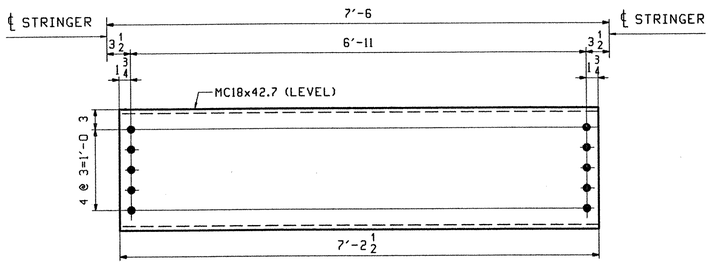
JOB NO.	DRG. NO.
117-43N	211
	REV. △

RHG Tue Feb 27 09:39:17 EST 2001 /users/jobs/2026-N/211.dgn

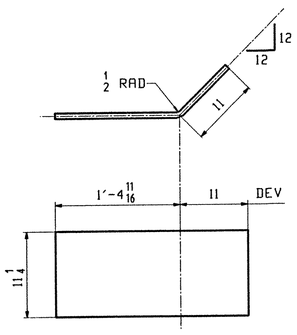


BRG DIAPHRAGMS - ABUT 2 (PAINTED)

MARK	REQ'D	DROP	Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ	Ⓗ	I
212D1	2	4	8'-9 5/16	8'-5 13/16	1 7/8	1 5/8	11/16	3 1/8	2 7/8	7/16	b212
212D2	2	3/16	8'-9 1/4	8'-5 3/4	1 3/4	1 3/4	1/16	3	3	0	c212



32 ~ INT. DIAPHRAGMS ~ 212D3



5 ~ END PLATES ~ 212M1

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		212D1	2		BRG DIAPHRAGMS				419	
203	C		2	b212	MC 18x42.7	8	10			
203	E		4	a212	PL 1/2x15	0	9 3/4	BENT		
		212D2	2		BRG DIAPHRAGMS				416	
203	C		2	c212	MC 18x42.7	8	9 5/16			
203	E		4	a212	PL 1/2x15	0	9 3/4	BENT		
203	B	212D3	32		MC 18x42.7	7	2 1/2		308	
					END PLATES					
203	G	212M1	5		PL 1/4x11 1/4	2	3 11/16	BENT	22	
		1	1		FIELD BOLTS				377	
								2% ADDED +3 FOR TEST		
205	C		370		7/8 ø HSB	0	2 1/4	(A325-3)		
205	D		125		7/8 ø HSB	0	2 1/2	(A325-3)		
205	F		247		7/8 ø HSB	0	3	(A325-3)		
205	H		207		7/8 ø HSB	0	4	(A325-3)		
205	L		949		7/8 ø HSW			(F436W)		

NOTE:
BEND LINES & WP'S ARE @ ℄
OF BENT ℙ'S.

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 11-06-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

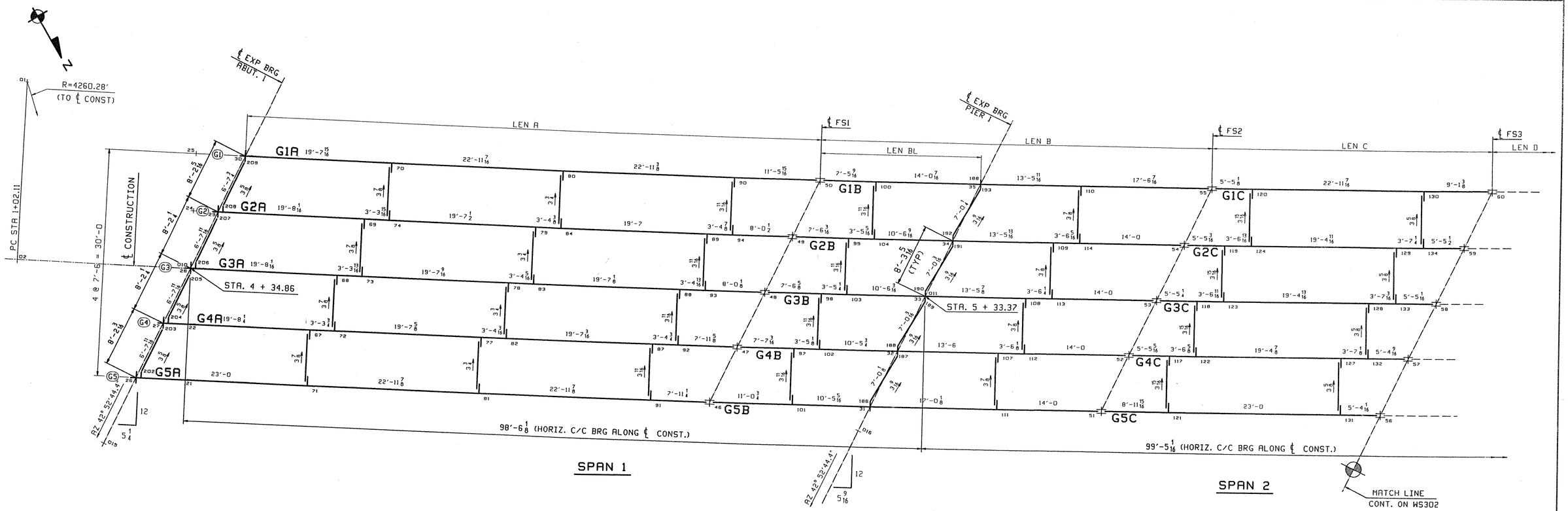
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: DIAPHRAGMS	DRAWN BY	DATE
JOB: BRIDGE NO. 43N I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/16
	CHKD BY	
	TRM	02/21
TENSOR 2105-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
117-43N	212
	REV. △

PHG Tue Feb 27 09:49:47 CST 2001 /users/phg/2105-N/212 | Rev0



CALCULATION PLAN

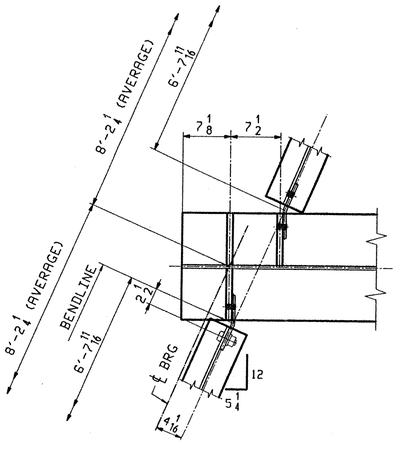
	DEVELOPED LENGTHS ALONG BTM OF WEB				GRADE	
Line	LEN A	LEN BL	LEN B	LEN C	ABUT 1	Pier 1
1	77'-0 11/16	21'-6	52'-6 1/8	37'-5 15/16	.0103	.0052
2	77'-0 1/4	21'-6 1/16	52'-6 3/16	37'-5 7/16	.0101	.0053
3	76'-11 13/16	21'-6 1/16	52'-6 3/16	37'-5	.0101	.0053
4	76'-11 3/8	21'-6 1/16	52'-6 3/16	37'-4 1/2	.0101	.0053
5	76'-11	21'-6 1/16	52'-6 3/16	37'-4	.0104	.0052

TVGA
Engineering, Surveying, P.C.

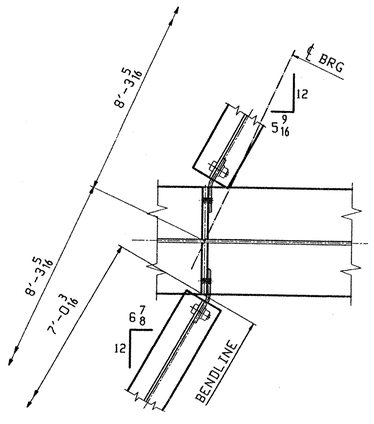
☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: _____
DATE: 4/9/01



DIAPHRAGM WORKPOINTS @ ABUT 1



DIAPHRAGM WORKPOINTS @ PIER 1

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF WEB WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF STRINGERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 200.
7. FOR LAYOUTS SEE DWG TD301.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 3/16.
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ OF BENT PLATE.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-13-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

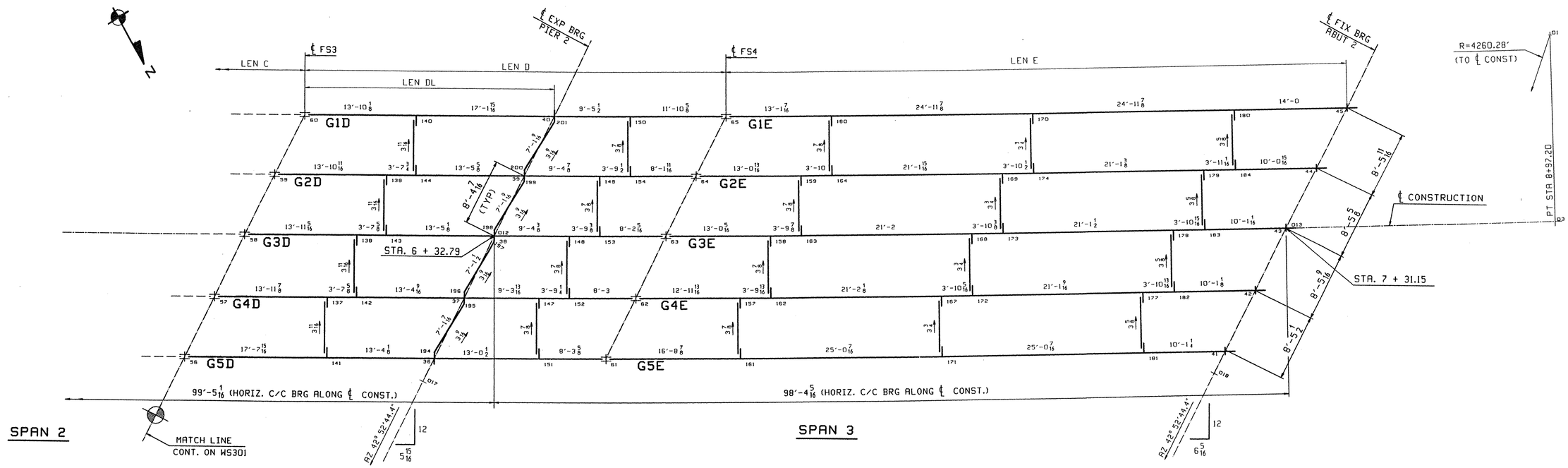
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	02/20
	CHKD BY	
	JAK	02/22
	APPROV BY	
TENSOR 2107-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

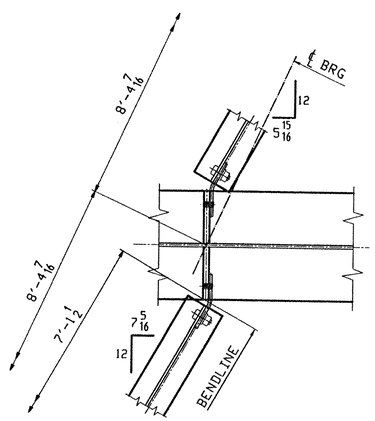
JOB NO.	DRG. NO.
118-48S	WS301
	REV. △

ML Thu Feb 22 16:20:18 EST 2001 /users/jake/2107-S/48301 • Rev0



CALCULATION PLAN

Line	DEVELOPED LENGTHS ALONG BTM OF WEB			GRADE	
	LEN DL	LEN D	LEN E	Pier 2	ABUT 2
1	31'-0 1/16	52'-4 3/16	77'-1 3/16	.0053	.0001
2	31'-0 1/16	52'-4 1/8	77'-0 5/8	.0052	-.0001
3	31'-0 1/16	52'-4 1/8	77'-0 1/16	.0052	-.0001
4	31'-0 1/16	52'-4 1/8	76'-11 9/16	.0052	-.0001
5	31'-0 1/16	52'-4 3/16	76'-11	.0053	.0000



DIAPHRAGM WORKPOINTS @ PIER 2

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Shop Drawing review does not relate to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Peter W. Gatti
DATE: 4/9/01

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF WEB WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF STRINGERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 200.
7. FOR LAYOUTS SEE DWG TD301.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 1/8.
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ OF BENT PLATE.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/30/1									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

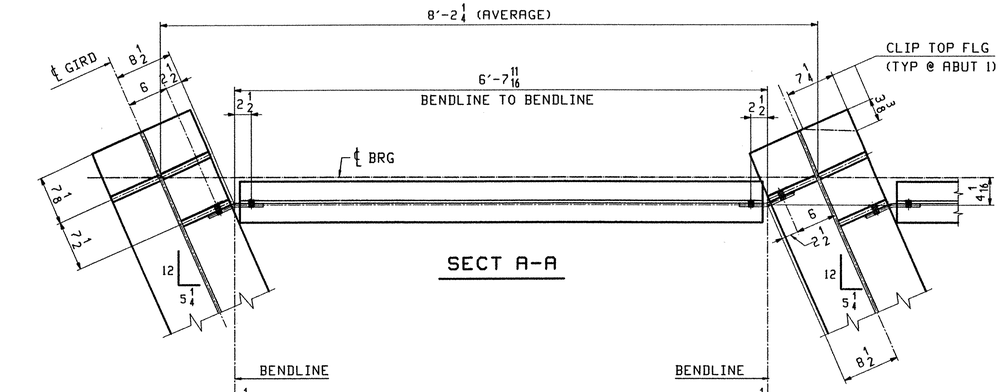
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	02/20
	CHKD BY	
	JAK	02/22
TENSOR 2107-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
118-48S	WS302
	REV. △

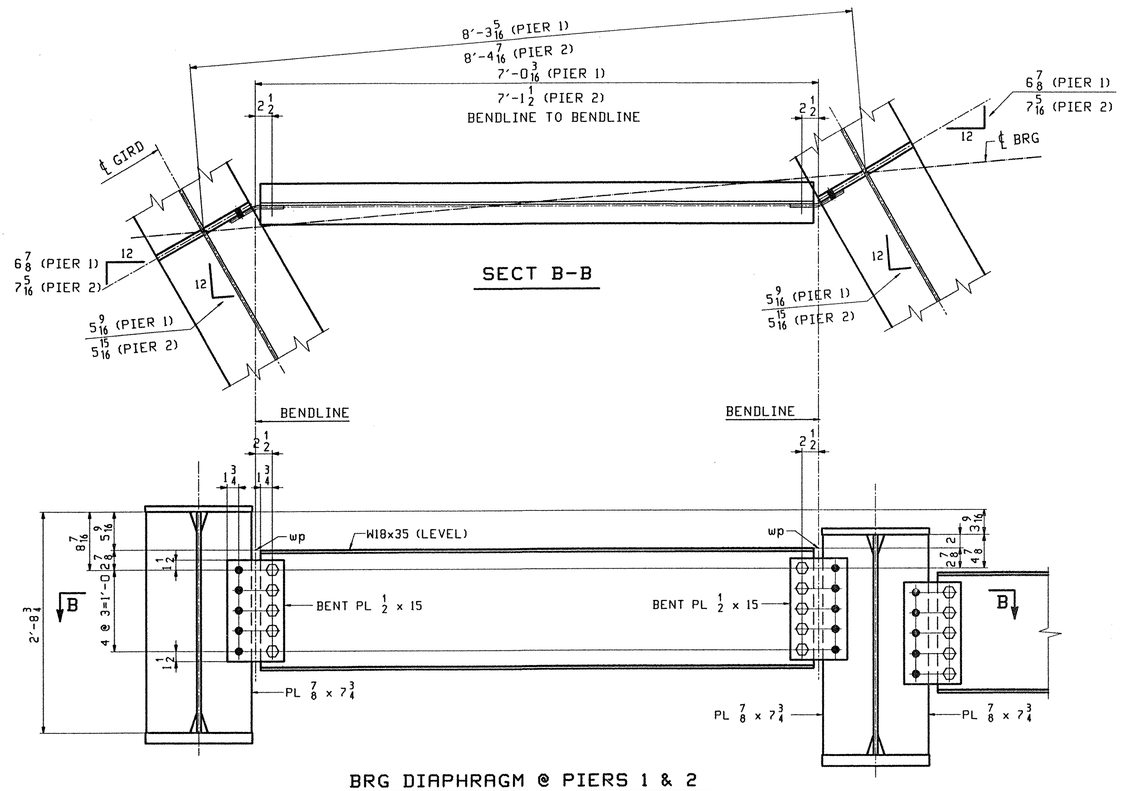
WL Thu Feb 22 16:38:18 EST 2001 /users/jak/2107-S/WS302 | Rev:0



END DIAPHRAGM @ ABUT 1

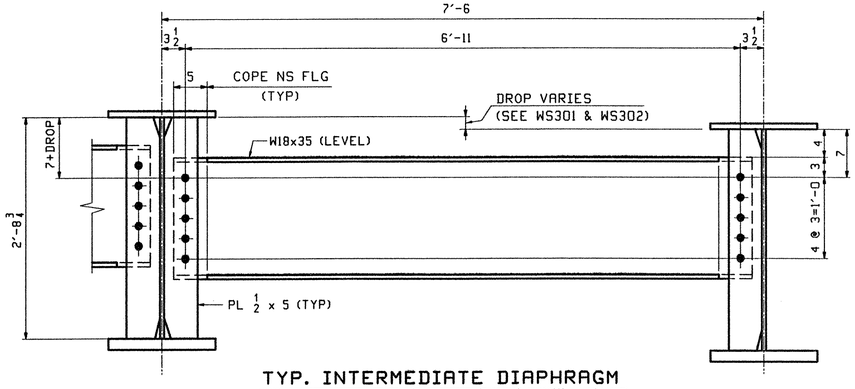
(LOOKING BACK STATION)

THIS DIAPH SHALL BE PAINTED - SEE GN301



BRG DIAPHRAGM @ PIERS 1 & 2

(LOOKING BACK STATION)



TYP. INTERMEDIATE DIAPHRAGM

(LOOKING BACK STATION)
(NTS)

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Gatti
DATE: 4/9/01

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BEND LINES ARE TAKEN @ C/L PLATE.

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

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

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/30/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: LAYOUTS	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	WL	02/20
	CHKD BY	
	JAK	02/22
TENSOR 2107-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

CASCO BAY STEEL STRUCTURES, INC.	JOB NO.	DRG. NO.
75 SPRING HILL ROAD SACO, MAINE 04072	118-48S	TD301
PHONE (207) 282-7360 FAX. (207) 282-1179		REV. △

Thu Mar 1 17:29:04 EST 2001 /users/jak/2107-S/TD301.r RevA
WL

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

1). ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990 WITH LATEST REVISIONS AND THE SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS

1). AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (A.A.S.H.T.O) STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1996 EDITION WITH LATEST REVISIONS.

MATERIAL SPECIFICATIONS

1). UNLESS NOTED, ALL STEEL TO BE AASHTO M270 GRADE 50W (ASTM A709-50W).

2). HIGH STRENGTH BOLTS: AASHTO M164 (ASTM A325) 7/8" DIA.
TYPE 3 BOLTS SHALL BE USED FOR UNPAINTED CONNECTIONS.
TYPE 1 (GALV.) BOLTS SHALL BE USED FOR PAINTED CONNECTIONS.

3). ALL MAIN MEMBERS SUBJECT TO TENSION AND REVERSAL OF STRESS SHALL BE CHARPY V NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS. DRAWINGS SHALL CALL OUT "H2-3" FOR EACH APPLICABLE ITEM IN THE BILLS OF MATERIAL.

4). "BUY AMERICA" PROVISIONS OF VERMONT SPEC. 107.22. AS MODIFIED IN SPECIAL PROVISIONS ITEM 51 (DATED 2-8-93)

FABRICATION

1). ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN). HOLES NOTED "DA" SHALL BE DRILLED DURING ASSEMBLY WITH PARTS ASSEMBLED.

2). STUDS ARE FURNISHED AND FIELD APPLIED BY OTHERS.

WELDING

1). THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-96 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.

2). WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.

3). NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.

CLEANING:

1). ALL STEEL SHALL BR BLAST CLEANED AS PER SSPC SP-10 PER SPEC. 506.14(a)
2). $\frac{1}{16}$" RADIUS ON ALL EDGES OF PAINTED SURFACES.

PAINTING

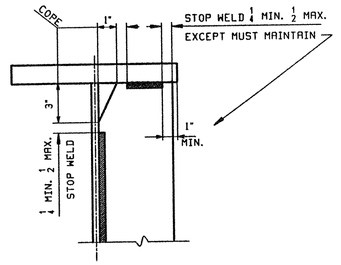
1). ALL STEEL COMPONENTS WITHIN 10'-0 OF END OF GIRDERS AS SHOWN IN SKETCH "P1" SHALL BE COATED WITH THE PROTECTIVE SYSTEM ACCORDING TO SECTION 513 OF THE SPECIFICATION. THE PAINT COLOR SHALL BE BROWN. PAINT SYSTEM MUST BE SYSTEM LISTED ON THE QUALIFIED PRODUCT LIST SECTION 513.02 BROWN COLOR CHIP #20059.

FIELD CONNECTIONS

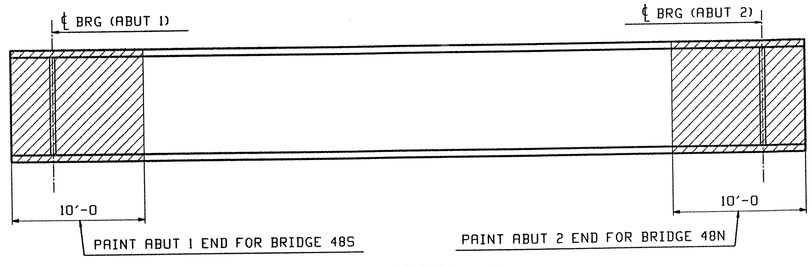
1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" (22mm) DIAMETER HIGH STRENGTH A-325 BOLTS, INSTALLED PER 506.19(c) AND SPECIAL PROVISIONS.

2). BOLTS SHALL HAVE HEAVY HEX NUT, HEX HEAD, & ONE FLAT WASHER EACH (WASHER TO BE PLACED UNDER TURNED ELEMENT).

3). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.



DETAIL "WS1"



PAINT SKETCH "P1"

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

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/30/1									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GENERAL NOTES (BRIDGE 48S & 48N)

JOB: BRIDGE NO. 48S & 48N
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
WL	02/21
CHKD BY	
JAK	02/22
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

JOB NO.	DRG. NO.
118-48S 119-48N	GN301
	REV. △

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

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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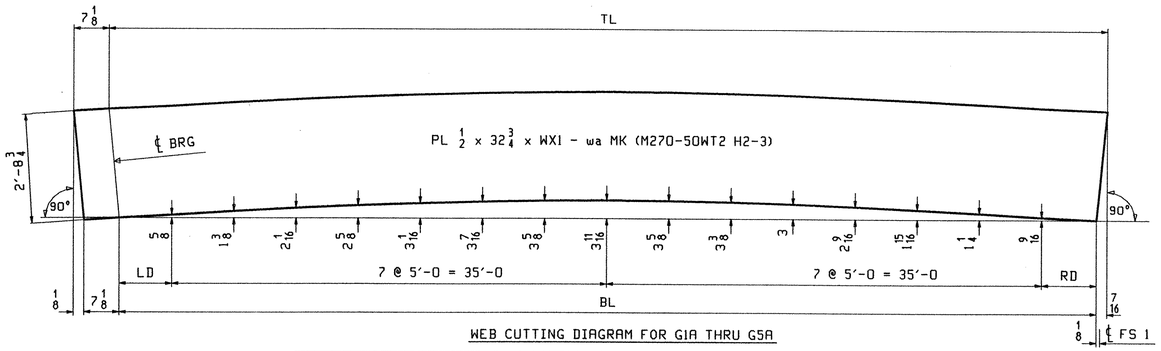
BY: [signature] DATE: 4/9/01

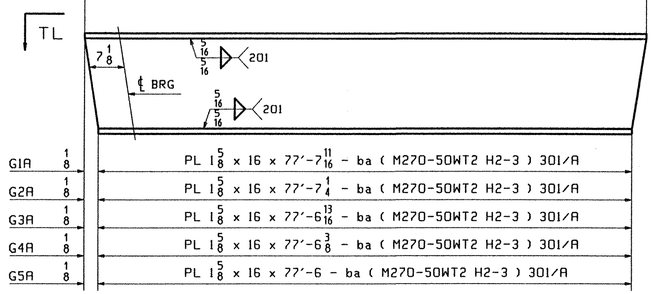
WL Thu Feb 22 16:21:45 EST 2001 /users/jak/2107-S/GN301.dgn



WEB CUTTING DIAGRAM FOR G1A THRU G5A

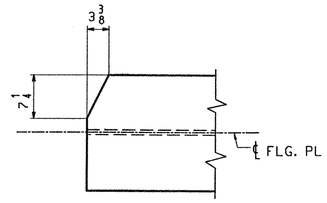
MARK	TL	BL	WX1	LD	RD	WEB MK	PG/LINE
G1A	77'-1 1/8	77'-0 9/16	77'-8 1/4	3'-6 1/4	3'-6 5/16	wa	301/ N
G2A	77'-0 11/16	77'-0 1/8	77'-7 13/16	3'-6	3'-6 1/8	wa	301/ Q
G3A	77'-0 1/4	76'-11 11/16	77'-7 3/8	3'-5 7/8	3'-5 13/16	wa	301/ Q
G4A	76'-11 13/16	76'-11 1/4	77'-6 15/16	3'-5 5/8	3'-5 5/8	wa	301/ Q
G5A	76'-11 7/16	76'-10 7/8	77'-6 9/16	3'-5 1/2	3'-5 3/8	wa	301/ Q

G1A	PL 7/8 x 16 x 77'-8 1/4 - ta (M270-50WT2 H2-3) 301/G
G2A	PL 7/8 x 16 x 77'-7 13/16 - ta (M270-50WT2 H2-3) 301/J
G3A	PL 7/8 x 16 x 77'-7 3/8 - ta (M270-50WT2 H2-3) 301/J
G4A	PL 7/8 x 16 x 77'-6 15/16 - ta (M270-50WT2 H2-3) 301/J
G5A	PL 7/8 x 16 x 77'-6 9/16 - ta (M270-50WT2 H2-3) 301/J



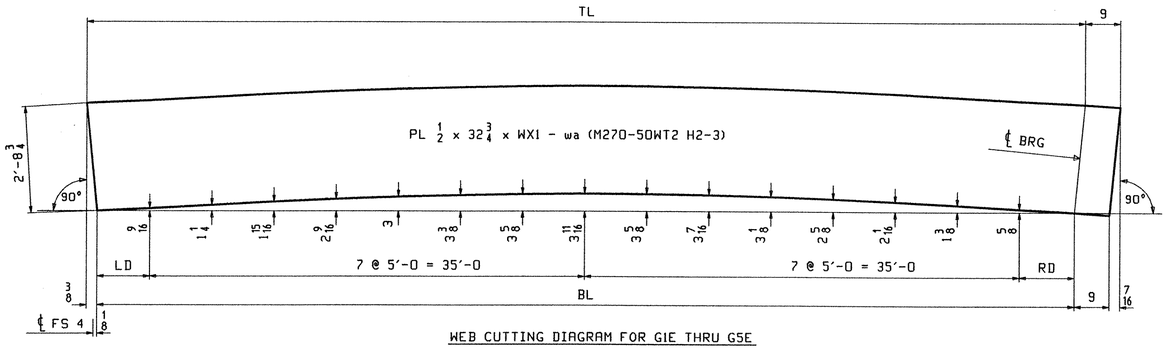
G1A 1/8	PL 1 5/8 x 16 x 77'-7 11/16 - ba (M270-50WT2 H2-3) 301/A
G2A 1/8	PL 1 5/8 x 16 x 77'-7 1/4 - ba (M270-50WT2 H2-3) 301/A
G3A 1/8	PL 1 5/8 x 16 x 77'-6 13/16 - ba (M270-50WT2 H2-3) 301/A
G4A 1/8	PL 1 5/8 x 16 x 77'-6 3/8 - ba (M270-50WT2 H2-3) 301/A
G5A 1/8	PL 1 5/8 x 16 x 77'-6 - ba (M270-50WT2 H2-3) 301/A

FLANGE DIAGRAM FOR G1A THRU G5A



VIEW TL

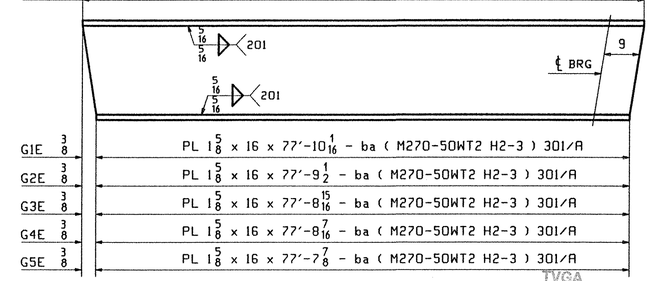
(TOP FLG.ONLY / ABUT.1 ONLY)



WEB CUTTING DIAGRAM FOR G1E THRU G5E

MARK	TL	BL	WX1	LD	RD	WEB MK	PG/LINE
G1E	77'-1 7/8	77'-1 1/16	77'-10 7/8	3'-6 1/2	3'-6 9/16	wa	301/ N
G2E	77'-1 5/16	77'-0 1/2	77'-10 5/16	3'-6 1/4	3'-6 1/4	wa	301/ N
G3E	77'-0 3/4	76'-11 15/16	77'-9 3/4	3'-6	3'-5 15/16	wa	301/ N
G4E	77'-0 1/4	76'-11 7/16	77'-9 1/4	3'-5 3/4	3'-5 11/16	wa	301/ N
G5E	76'-11 11/16	76'-10 7/8	77'-8 11/16	3'-5 1/2	3'-5 3/8	wa	301/ N

G1E	PL 7/8 x 16 x 77'-10 7/8 - ta (M270-50WT2 H2-3) 301/G
G2E	PL 7/8 x 16 x 77'-10 5/16 - ta (M270-50WT2 H2-3) 301/G
G3E	PL 7/8 x 16 x 77'-9 3/4 - ta (M270-50WT2 H2-3) 301/G
G4E	PL 7/8 x 16 x 77'-9 1/4 - ta (M270-50WT2 H2-3) 301/G
G5E	PL 7/8 x 16 x 77'-8 11/16 - ta (M270-50WT2 H2-3) 301/G



G1E 3/8	PL 1 5/8 x 16 x 77'-10 1/16 - ba (M270-50WT2 H2-3) 301/A
G2E 3/8	PL 1 5/8 x 16 x 77'-9 1/2 - ba (M270-50WT2 H2-3) 301/A
G3E 3/8	PL 1 5/8 x 16 x 77'-8 15/16 - ba (M270-50WT2 H2-3) 301/A
G4E 3/8	PL 1 5/8 x 16 x 77'-8 7/16 - ba (M270-50WT2 H2-3) 301/A
G5E 3/8	PL 1 5/8 x 16 x 77'-7 7/8 - ba (M270-50WT2 H2-3) 301/A

FLANGE DIAGRAM FOR G1E THRU G5E

TVGA Engineering, Surveying, P.C.

NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: Pete W. Tuttle
DATE: 4/9/01

SEE SHT. GN301 FOR GENERAL NOTES.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL 3/13/01										
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

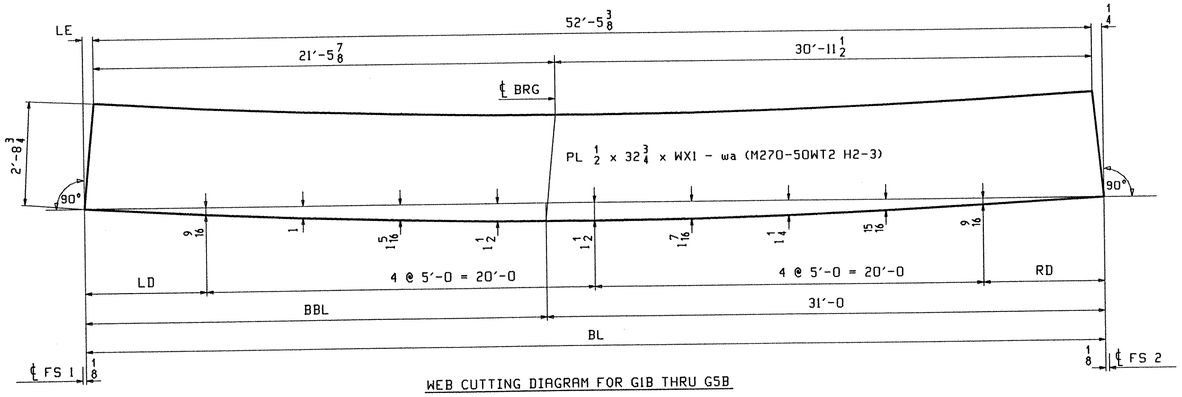
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	CAMBER & FLANGE DIAGRAMS	DRAWN BY	DATE
JOB:	BRIDGE NO. 48S	AB	02/20
	I-89 SB OVER LITTLE RIVER	CHKD BY	
	I-89 IMPROVEMENTS	JAK	02/22
	TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2107-S		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

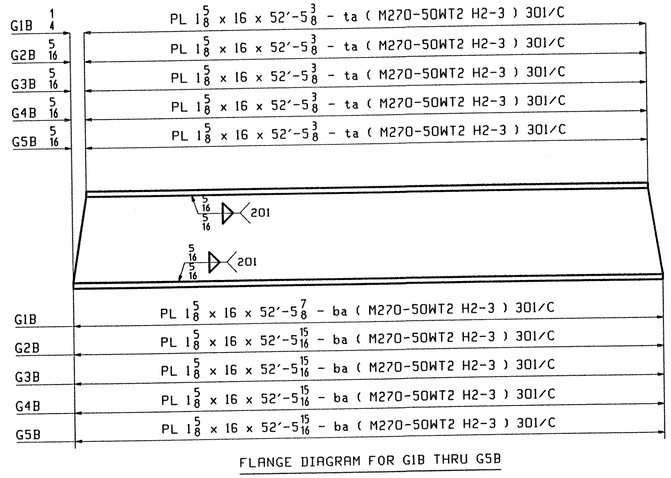
JOB NO.	DRG. NO.
118-48S	C301
	REV. △

JRK Tue Feb 27 16:07:03 EST 2001 /users/jobs/2107-S/C301 - Rev0

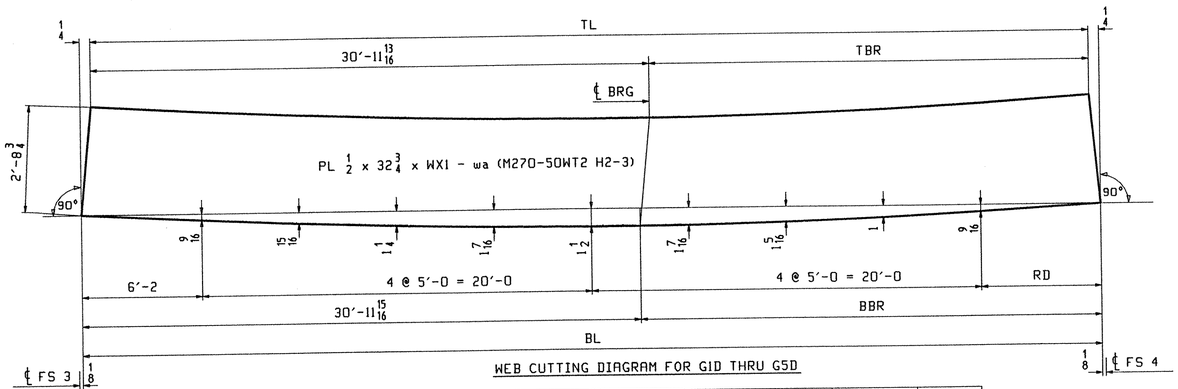


WEB CUTTING DIAGRAM FOR G1B THRU G5B

MARK	BL	LE	WX1	BBL	LD	RD	WEB MK	PG/LINE
G1B	52′-5 7/8	1/4	52′-5 7/8	21′-5 7/8	6′-2 7/8	6′-3	wa	301/ S
G2B	52′-5 15/16	5/16	52′-5 15/16	21′-5 15/16	6′-3	6′-2 15/16	wa	301/ S
G3B	52′-5 15/16	5/16	52′-5 15/16	21′-5 15/16	6′-3	6′-2 15/16	wa	301/ S
G4B	52′-5 15/16	5/16	52′-5 15/16	21′-5 15/16	6′-3	6′-2 15/16	wa	301/ S
G5B	52′-5 15/16	5/16	52′-5 15/16	21′-5 15/16	6′-3	6′-2 15/16	wa	301/ S

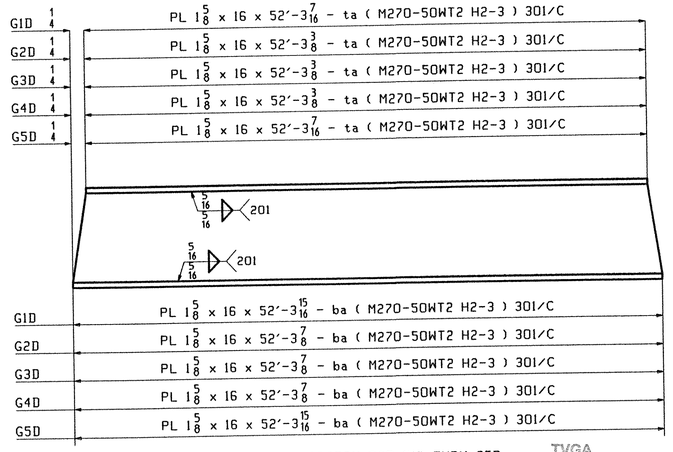


FLANGE DIAGRAM FOR G1B THRU G5B



WEB CUTTING DIAGRAM FOR G1D THRU G5D

MARK	TL	BL	WX1	TBR	BBR	RD	WEB MK	PG/LINE
G1D	52′-3 7/16	52′-3 15/16	52′-3 15/16	21′-3 5/8	21′-4	6′-1 15/16	wa	301/ S
G2D	52′-3 3/8	52′-3 7/8	52′-3 7/8	21′-3 9/16	21′-3 15/16	6′-1 7/8	wa	301/ S
G3D	52′-3 3/8	52′-3 7/8	52′-3 7/8	21′-3 9/16	21′-3 15/16	6′-1 7/8	wa	301/ S
G4D	52′-3 3/8	52′-3 7/8	52′-3 7/8	21′-3 9/16	21′-3 15/16	6′-1 7/8	wa	301/ S
G5D	52′-3 7/16	52′-3 15/16	52′-3 15/16	21′-3 5/8	21′-4	6′-1 15/16	wa	301/ S



FLANGE DIAGRAM FOR G1D THRU G5D

TVGA Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Peter W. Smith
DATE: 4/9/01

SEE SHT. GN301 FOR GENERAL NOTES.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL 3/30/01					
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10′-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER & FLANGE DIAGRAMS

JOB: BRIDGE NO. 485
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-5

PROJ NO. IM-089-2(26)

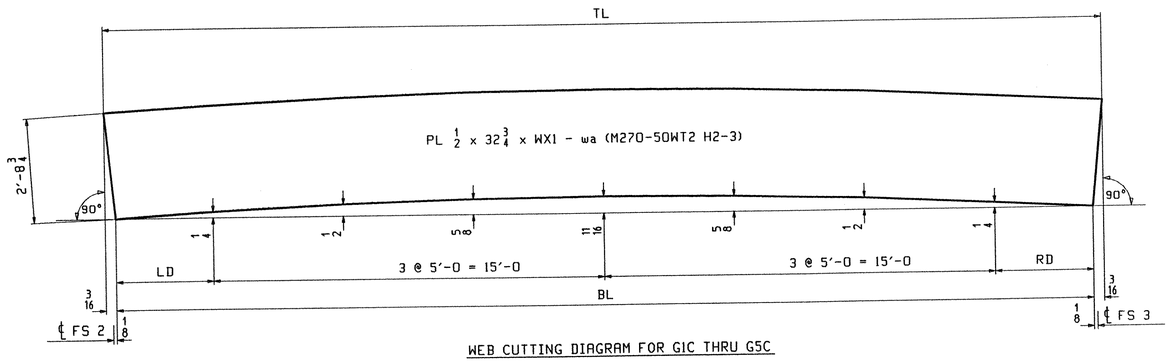
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
AB	02/20
CHKD BY	
JAK	02/22
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

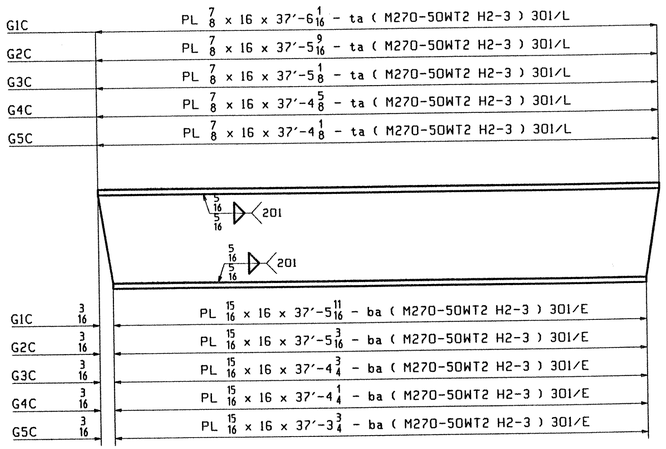
JOB NO.	DRG. NO.
118-485	C302
	REV. △

AB Fri Feb 23 08:41:41 EST 2001 /users/jake/2107-5/C302 : Rev0



WEB CUTTING DIAGRAM FOR G1C THRU G5C

MARK	TL	BL	WX1	LD	RD	WEB MK	PG/LINE
G1C	37'-6 1/16	37'-5 11/16	37'-6 1/16	3'-8 7/8	3'-8 13/16	wa	301/ U
G2C	37'-5 9/16	37'-5 3/16	37'-5 9/16	3'-8 5/8	3'-8 9/16	wa	301/ U
G3C	37'-5 1/8	37'-4 3/4	37'-5 1/8	3'-8 3/8	3'-8 3/8	wa	301/ U
G4C	37'-4 5/8	37'-4 1/4	37'-4 5/8	3'-8 1/8	3'-8 1/8	wa	301/ U
G5C	37'-4 1/8	37'-3 3/4	37'-4 1/8	3'-7 7/8	3'-7 7/8	wa	301/ U



FLANGE DIAGRAM FOR G1C THRU G5C

SEE SHT. GN301 FOR GENERAL NOTES.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER & FLANGE DIAGRAMS

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
AB	02/20
CHKD BY	
JAK	02/22
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

JOB NO.	DRG. NO.
118-48S	C303
	REV. △

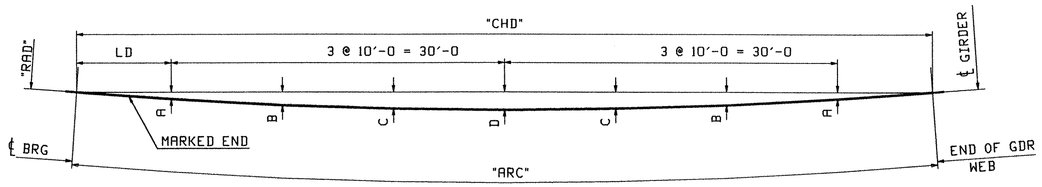
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and either does hereby expressly or reviews to install, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed structure as a functioning unit as indicated in the Contract Documents. Shop drawings are not to be used to indicate the means, methods, techniques, sequences or procedures of construction or to supply information and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

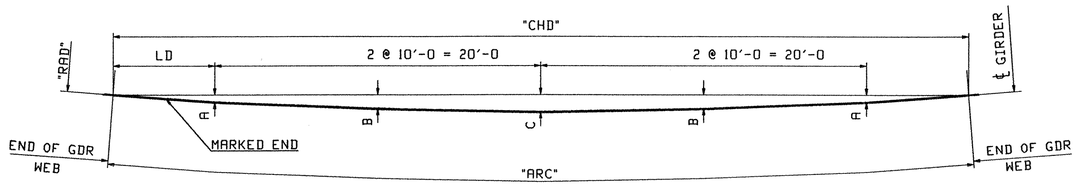
BY: Peter W. Smith
DATE: 4/9/01

Fri Feb 23 09:51:13 EST 2001 /users/jake/2107-S/C303 - Rev0
AB



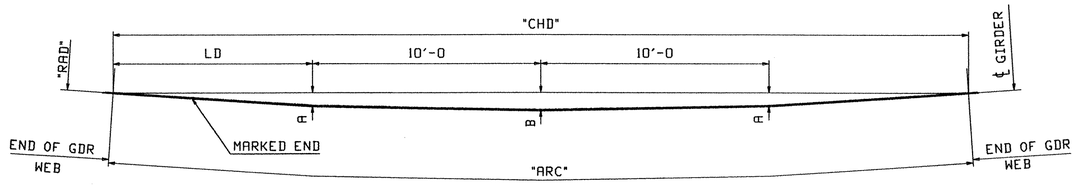
HEAT CURVING DIAGRAM FOR G1A THRU G5A

MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"D"	"LD"
G1A	77'-0 9/16	77'-0 9/16	4245.280	13/16	1 9/16	1 15/16	2 1/8	8'-6 1/4
G2A	77'-0 1/8	77'-0 1/8	4252.780	13/16	1 1/2	1 15/16	2 1/8	8'-6 1/16
G3A	76'-11 11/16	76'-11 11/16	4260.280	13/16	1 1/2	1 15/16	2 1/16	8'-5 13/16
G4A	76'-11 1/4	76'-11 1/4	4267.780	13/16	1 1/2	1 15/16	2 1/16	8'-5 5/8
G5A	76'-10 7/8	76'-10 7/8	4275.280	13/16	1 1/2	1 15/16	2 1/16	8'-5 7/16



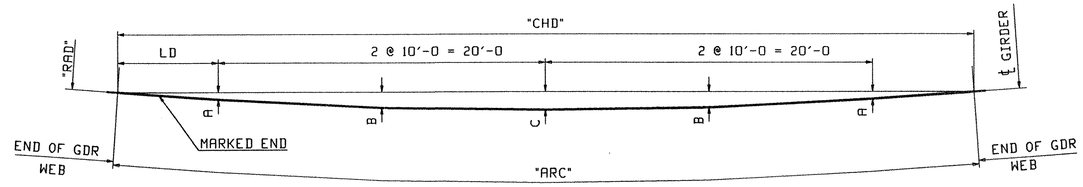
HEAT CURVING DIAGRAM FOR G1B THRU G5B

MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"LD"
G1B	52'-5 7/8	52'-5 7/8	4245.280	7/16	13/16	1	6'-2 15/16
G2B	52'-5 15/16	52'-5 15/16	4252.780	7/16	13/16	1	6'-2 15/16
G3B	52'-5 15/16	52'-5 15/16	4260.280	7/16	13/16	1	6'-2 15/16
G4B	52'-5 15/16	52'-5 15/16	4267.780	7/16	13/16	15/16	6'-2 15/16
G5B	52'-5 15/16	52'-5 15/16	4275.280	3/8	13/16	15/16	6'-2 15/16



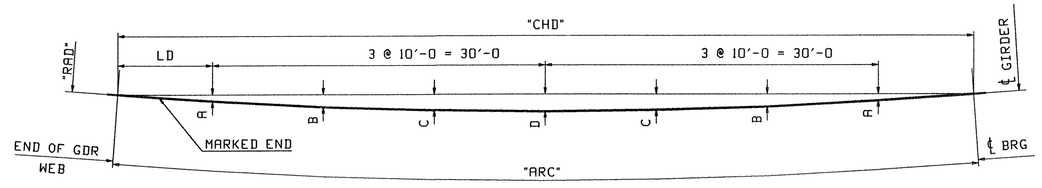
HEAT CURVING DIAGRAM FOR G1C THRU G5C

MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"LD"
G1C	37'-5 11/16	37'-5 11/16	4245.280	3/8	1/2	8'-8 13/16
G2C	37'-5 3/16	37'-5 3/16	4252.780	3/8	1/2	8'-8 9/16
G3C	37'-4 3/4	37'-4 3/4	4260.280	3/8	1/2	8'-8 3/8
G4C	37'-4 1/4	37'-4 1/4	4267.780	3/8	1/2	8'-8 1/8
G5C	37'-3 3/4	37'-3 3/4	4275.280	3/8	1/2	8'-7 7/8



HEAT CURVING DIAGRAM FOR G1D THRU G5D

MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"LD"
G1D	52'-3 15/16	52'-3 15/16	4245.280	3/8	13/16	15/16	6'-1 15/16
G2D	52'-3 7/8	52'-3 7/8	4252.780	3/8	13/16	15/16	6'-1 15/16
G3D	52'-3 7/8	52'-3 7/8	4260.280	3/8	13/16	15/16	6'-1 15/16
G4D	52'-3 7/8	52'-3 7/8	4267.780	3/8	13/16	15/16	6'-1 15/16
G5D	52'-3 15/16	52'-3 15/16	4275.280	3/8	13/16	15/16	6'-1 15/16



HEAT CURVING DIAGRAM FOR G1E THRU G5E

MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"D"	"LD"
G1E	77'-1 1/16	77'-1 1/16	4245.280	13/16	1 9/16	1 15/16	2 1/8	8'-6 1/2
G2E	77'-0 1/2	77'-0 1/2	4252.780	13/16	1 1/2	1 15/16	2 1/8	8'-6 1/4
G3E	76'-11 15/16	76'-11 15/16	4260.280	13/16	1 1/2	1 15/16	2 1/16	8'-5 15/16
G4E	76'-11 7/16	76'-11 7/16	4267.780	13/16	1 1/2	1 15/16	2 1/16	8'-5 11/16
G5E	76'-10 7/8	76'-10 7/8	4275.280	13/16	1 1/2	1 15/16	2 1/16	8'-5 7/16

NOTE:

LONGITUDINAL DIMENSIONS TAKEN ALONG ℄ BOTTOM OF WEB.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 4/5/21

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/5/21									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: HORIZ. CURVING DIAGRAMS

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

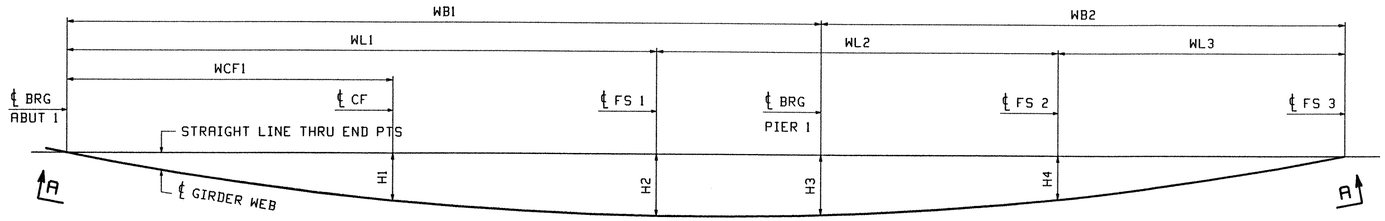
PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

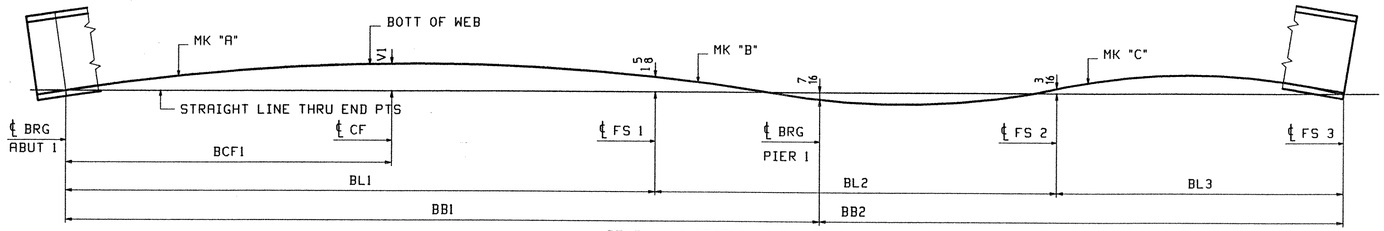
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

DRAWN BY	DATE
AB	02/21
CHKD BY	
JAK	02/22
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	
JOB NO.	DRG. NO.
118-48S	HC301
	REV. △

AB Fri Feb 25 08:05:58 EST 2022 /users/jake/2107-5/HC301.1 Rev0



PLAN VIEW GIRDER @ BOTT OF WEB



DEVELOPED SECTION A-A
DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	WL3	H1	H2	H3	H4	WB1	WB2	WCF1	BL1	BL2	BL3	V1	BB1	BB2	BCF1
1	77'-0 5/8	52'-6 1/8	37'-5 15/16	7 1/2	9 13/16	9 9/16	6 7/8	98'-6 11/16	68'-6	42'-7 5/16	77'-0 11/16	52'-6 1/8	37'-5 15/16	4 9/16	98'-6 11/16	68'-6 1/16	42'-7 3/8
2	77'-0 3/16	52'-6 1/8	37'-5 7/16	7 7/8	9 3/4	9 1/2	6 7/8	98'-6 1/4	68'-5 9/16	45'-11 13/16	77'-0 1/4	52'-6 1/8	37'-5 1/2	4 1/2	98'-6 5/16	68'-5 9/16	45'-11 7/8
3	76'-11 13/16	52'-6 1/8	37'-4 15/16	7 13/16	9 3/4	9 1/2	6 13/16	98'-5 13/16	68'-5 1/16	45'-11 13/16	76'-11 7/8	52'-6 1/8	37'-5	4 1/2	98'-5 7/8	68'-5 1/8	45'-11 7/8
4	76'-11 3/8	52'-6 1/8	37'-4 7/16	7 13/16	9 3/4	9 7/16	6 13/16	98'-5 7/16	68'-4 1/2	45'-11 13/16	76'-11 7/16	52'-6 1/8	37'-4 1/2	4 1/2	98'-5 1/2	68'-4 9/16	45'-11 7/8
5	76'-10 15/16	52'-6 1/8	37'-4	7 13/16	9 11/16	9 7/16	6 13/16	98'-5	68'-4 1/16	45'-11 3/4	76'-11	52'-6 1/8	37'-4 1/16	4 1/2	98'-5 1/16	68'-4 1/8	45'-11 13/16

LINE	"A"	"B"	"C"
1	G1A	G1B	G1C
2	G2A	G2B	G2C
3	G3A	G3B	G3C
4	G4A	G4B	G4C
5	G5A	G5B	G5C

NOTES
FOR GENERAL NOTES SEE DWG GN301
ALL DIMENSIONS GIVEN AT BOTT OF WEB (UN)

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/30/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

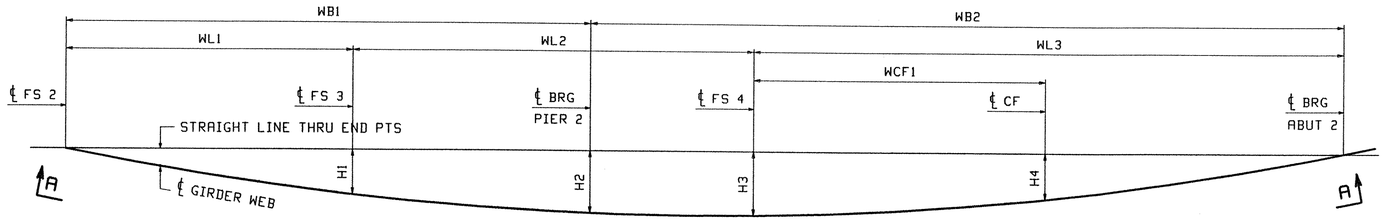
DESCRIPTION: SHOP ASSEMBLY	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/27/01
	CHKD BY	
	ELC	03/8/01
TENSOR 2107-5	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

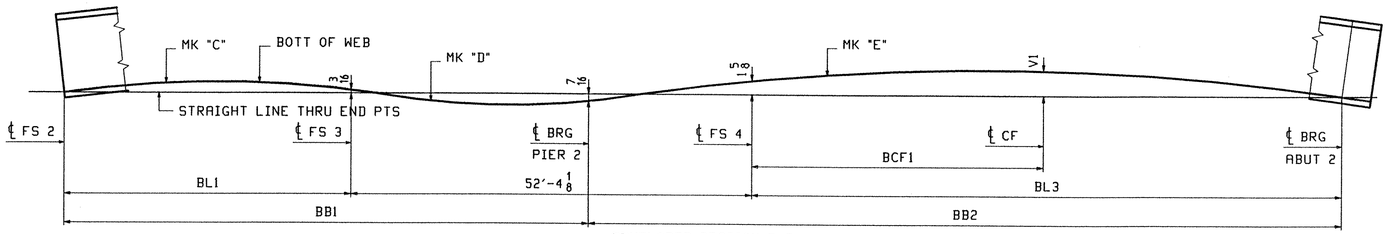
JOB NO.	DRG. NO.
118-48S	SA301
	REV. △

TVGA
Engineering, Surveying, P.C.
X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning unit as shown in the Contract Documents. Such review is not to include means, methods, techniques, sequences or procedures of construction or safety precautions incident thereto. Engineer is not responsible for discrepancies to be considered until examined in the Shop and not for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.
BY: [signature]
DATE: 4/9/01

ELC Fri Mar 9 08:46:12 EST 2001 /users/jobs/2107-5/SA301.1 Rev9



PLAN VIEW GIRDER @ BOTT OF WEB



DEVELOPED SECTION A-A

DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	WL3	H1	H2	H3	H4	WB1	WB2	WCF1	BL1	BL3	V1	BB1	BB2	BCF1
1	37'-5 15/16	52'-4 1/8	77'-1 1/16	6 7/8	9 1/2	9 13/16	7 1/16	68'-6	98'-5 1/8	38'-1 1/4	37'-6	77'-1 1/8	4 1/2	68'-6 1/16	98'-5 3/16	38'-1 1/4
2	37'-5 7/16	52'-4 1/8	77'-0 1/2	6 13/16	9 1/2	9 3/4	6 1/2	68'-5 1/2	98'-4 9/16	41'-11 1/4	37'-5 1/2	77'-0 9/16	4 3/8	68'-5 9/16	98'-4 5/8	41'-11 1/4
3	37'-4 15/16	52'-4 1/8	76'-11 15/16	6 13/16	9 1/2	9 3/4	6 1/2	68'-5	98'-4	41'-10 9/16	37'-5	77'-0 1/16	4 3/8	68'-5 1/16	98'-4 1/8	41'-10 9/16
4	37'-4 7/16	52'-4 3/16	76'-11 7/16	6 13/16	9 7/16	9 11/16	6 1/2	68'-4 9/16	98'-3 1/2	41'-9 15/16	37'-4 1/2	76'-11 9/16	4 3/8	68'-4 9/16	98'-3 5/8	41'-9 15/16
5	37'-4	52'-4 1/8	76'-10 7/8	6 3/4	9 7/16	9 11/16	6 1/2	68'-4 1/16	98'-2 15/16	41'-9 5/16	37'-4 1/16	76'-10 15/16	4 3/8	68'-4 1/8	98'-3	41'-9 5/16

LINE	"C"	"D"	"E"
1	G1C	G1D	G1E
2	G2C	G2D	G2E
3	G3C	G3D	G3E
4	G4C	G4D	G4E
5	G5C	G5D	G5E

NOTES

FOR GENERAL NOTES SEE DWG GN301

ALL DIMENSIONS GIVEN AT BOTT OF WEB (UN)

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other submittals. Review is for conformance to general style for conformance with the design concept of the Contract Documents and information given in such submittals. Review is for receipt of the submittal and does not indicate approval of an item as a complete assembly. Review does not relieve CONTRACTOR of responsibility for errors or omissions in the submittals or for meeting all requirements of the Contract Documents. CONTRACTOR is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or techniques of construction and to the coordination of the work of all trades.

BY: Peter W. Gee
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-13-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

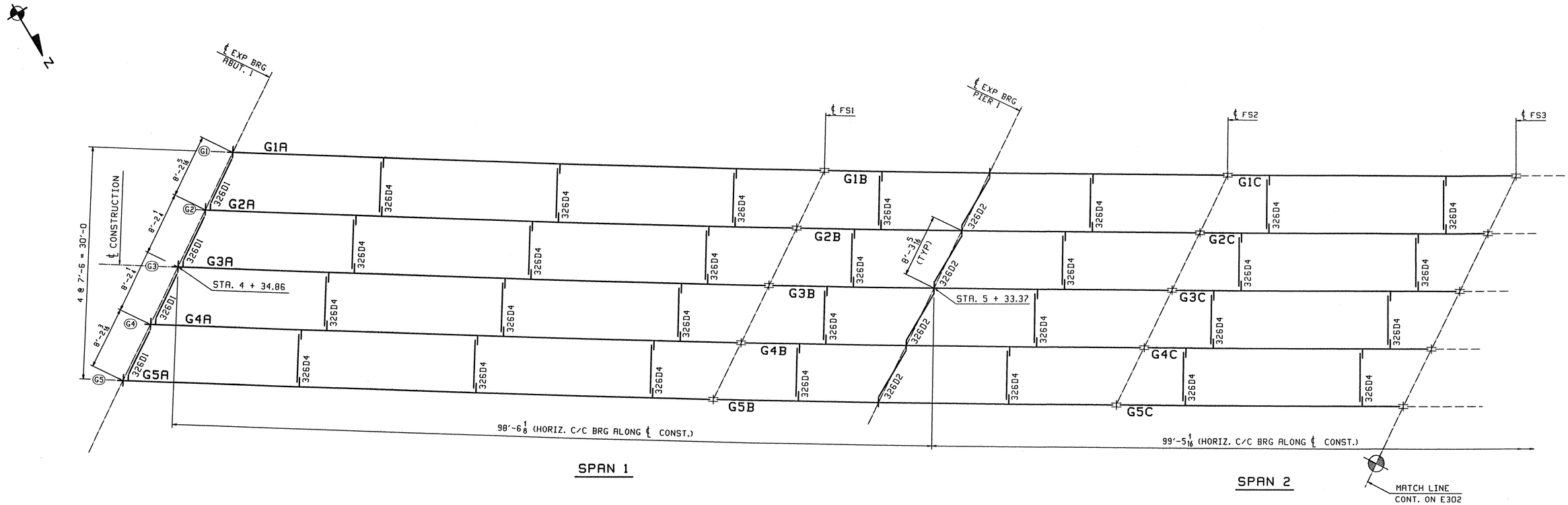
DESCRIPTION: SHOP ASSEMBLY	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/27/01
	CHKD BY	
	ELC	03/8/01
TENSOR 2107-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

CASCO BAY STEEL STRUCTURES, INC.

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

JOB NO.	DRG. NO.
118-48S	SA302
	REV. △

ELC Fri Mar 9 09:46:27 EST 2001 /users/jobs/2107-S/SA302 : Rev0



FRAMING PLAN

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the submitted design as the Contract Documents and generally with the design concept of the completed structure. Review does not indicate acceptance of quantities, dimensions, weights, gages, sizes, or standards of workmanship. Review is not conducted for the purpose of determining the adequacy of fabrication and manufacturing procedures and/or construction means, methods, techniques, sequences or procedures. Review is not conducted for the purpose of determining compliance with laws, codes, and regulations applicable to the performance of the Work. Contractor is responsible for all of the above and assumes all responsibility for compliance with the Contract Documents.

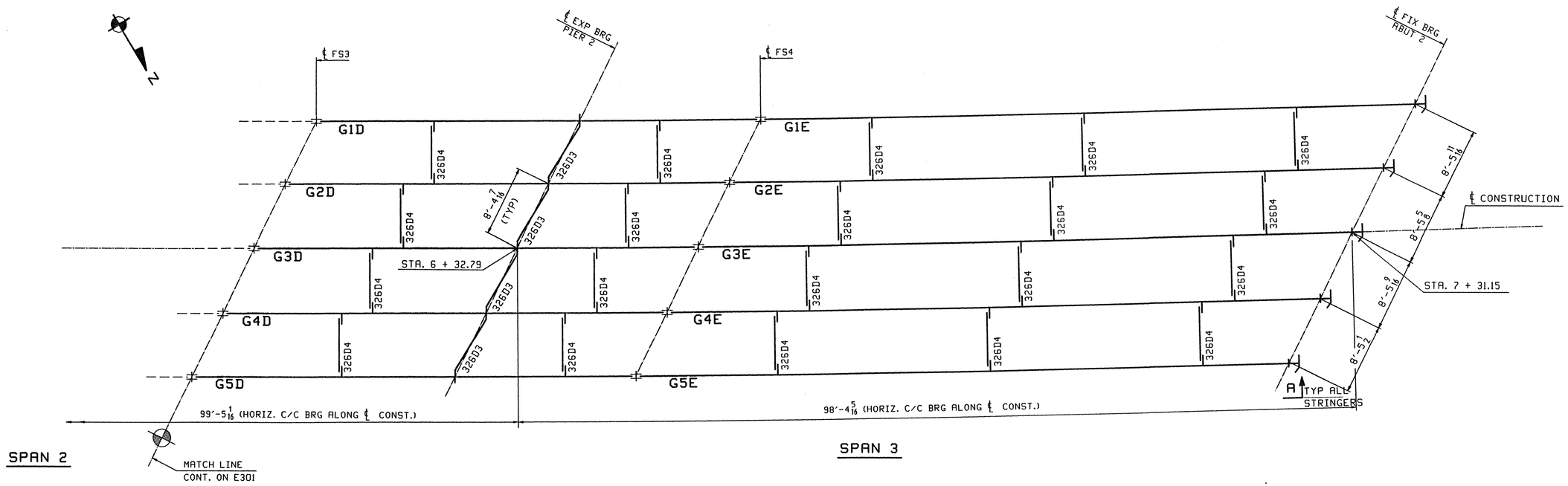
BY: Peter W. Gatti
DATE: 4/9/01

DESCRIPTION:	FRAMING PLAN	DRAWN BY	DATE
JOB:	BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/27/01
		CHKD BY	
		ELC	03/8/01
		APPROV BY	
TENSOR 2107-S		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
118-48S	E301
	REV. △

ELC Fri Mar 9 09:45:44 EST 2001 /users/pw/2107-S/E301.1 Rev0



FRAMING PLAN

FIELD BOLT LIST							A325 Type 3 BOLTS								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED							WASH CODE	PIECES CONNECTED AND REMARKS
1															FIELD SPLICES
2	1600	7/8	4 1/4	40	40	2 7/8	5/8	1 5/8	5/8					1	TOP & BTM FLG SPLICE
3	960	7/8	3	48	20	1 1/2	1/2	1/2	1/2					1	WEB SPLICE
4															
5															INT. DIAPHRAGMS
6	480	7/8	2 1/4	5	96	13/16	5/16	1/2						1	WEB TO CONN PL
7															
8															PIER DIAPHRAGMS
9	80	7/8	2 3/4	5	16	1 3/8	1/2	7/8						1	GUSSET TO CONN PL

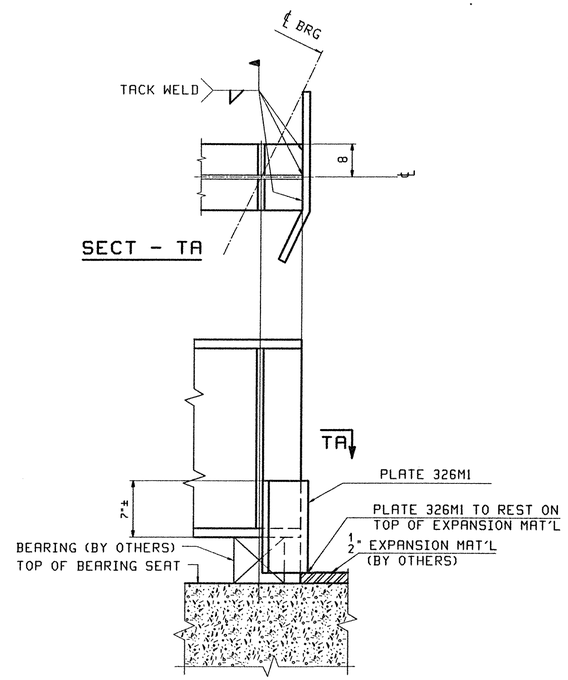
WASHER CODES

1: 1 Hard Flat Washer

FIELD BOLT LIST							A325 Type 1 BOLTS (GALV)								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED							WASH CODE	PIECES CONNECTED AND REMARKS
10															ABUT DIAPHRAGMS
11	40	7/8	2 3/4	5	8	1 3/8	1/2	7/8						1	GUSSET TO CONN PL
12	40	7/8	2 1/4	5	8	13/16	1/2	5/16						1	GUSSET TO WEB

WASHER CODES

1: 1 Hard Flat Washer



TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

Review is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating his work with that of all other trades and performing his work in a safe and satisfactory manner.

By: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

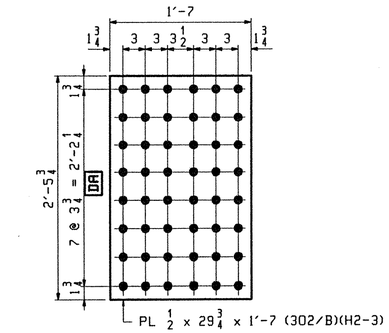
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: FRAMING PLAN & FIELD BOLT LIST	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/27/01
	CHKD BY	
	ELC	03/8/01
TENSOR 2107-S	APPROV BY	
	SUPERVISOR	M. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

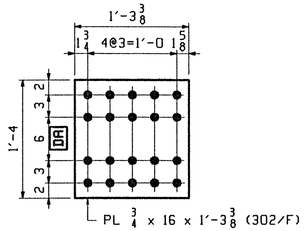
JOB NO.	DRG. NO.
118-48S	E302
	REV. △

ELC Fri Mar 9 09:45:23 EST 2001 /users/jake/2107-S/E302.1 Rev0

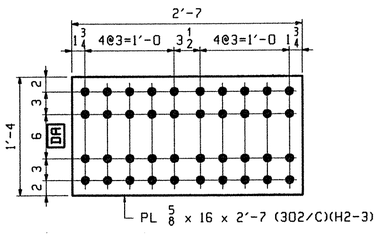


D.O.R.

40 ~ x31a

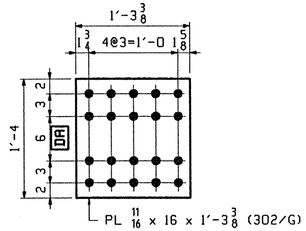


20 ~ x31d

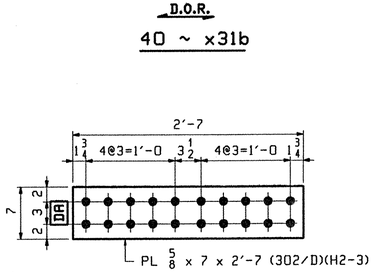


D.O.R.

40 ~ x31b

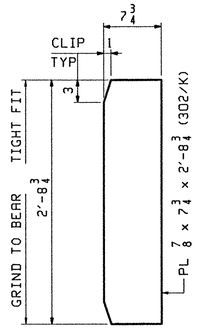


10 ~ x31f



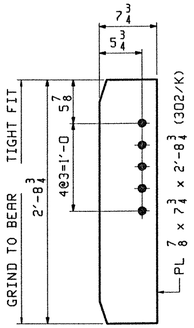
D.O.R.

80 ~ x31c



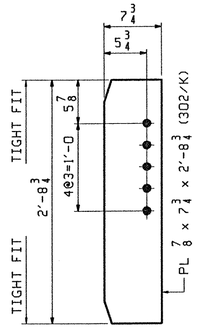
20 ~ x31g

BRG STIFF @ ABUT & PIERS



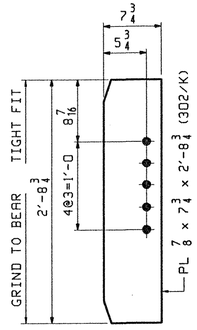
4 ~ x31k

BRG STIFF @ ABUT



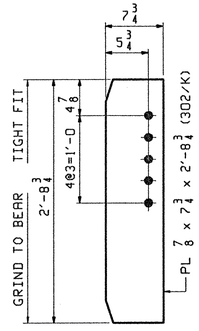
4 ~ x31m

CONN STIFF @ ABUT



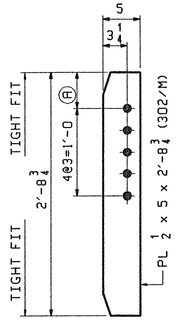
8 ~ x31n

BRG STIFF @ PIERS



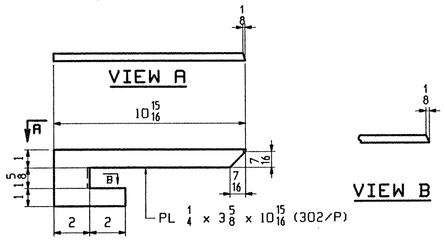
8 ~ x31p

BRG STIFF @ PIERS



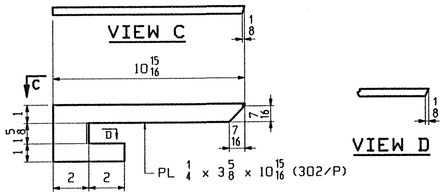
INT. CONN STIFF

MARK	REQ'D	Ⓐ
x31t	48	7
x31v	8	10 5/8
x31w	12	10 11/16
x31y	8	10 3/4
x31aa	16	10 7/8
x31ab	4	10 15/16



3 ~ x31ac

DRIP PL



3 ~ x31ad

DRIP PL

NOTES:

FOR GENERAL NOTES SEE GN301

H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

D.O.R. DENOTES DIRECTION OF MILL ROLLING

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pete W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3/13/01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

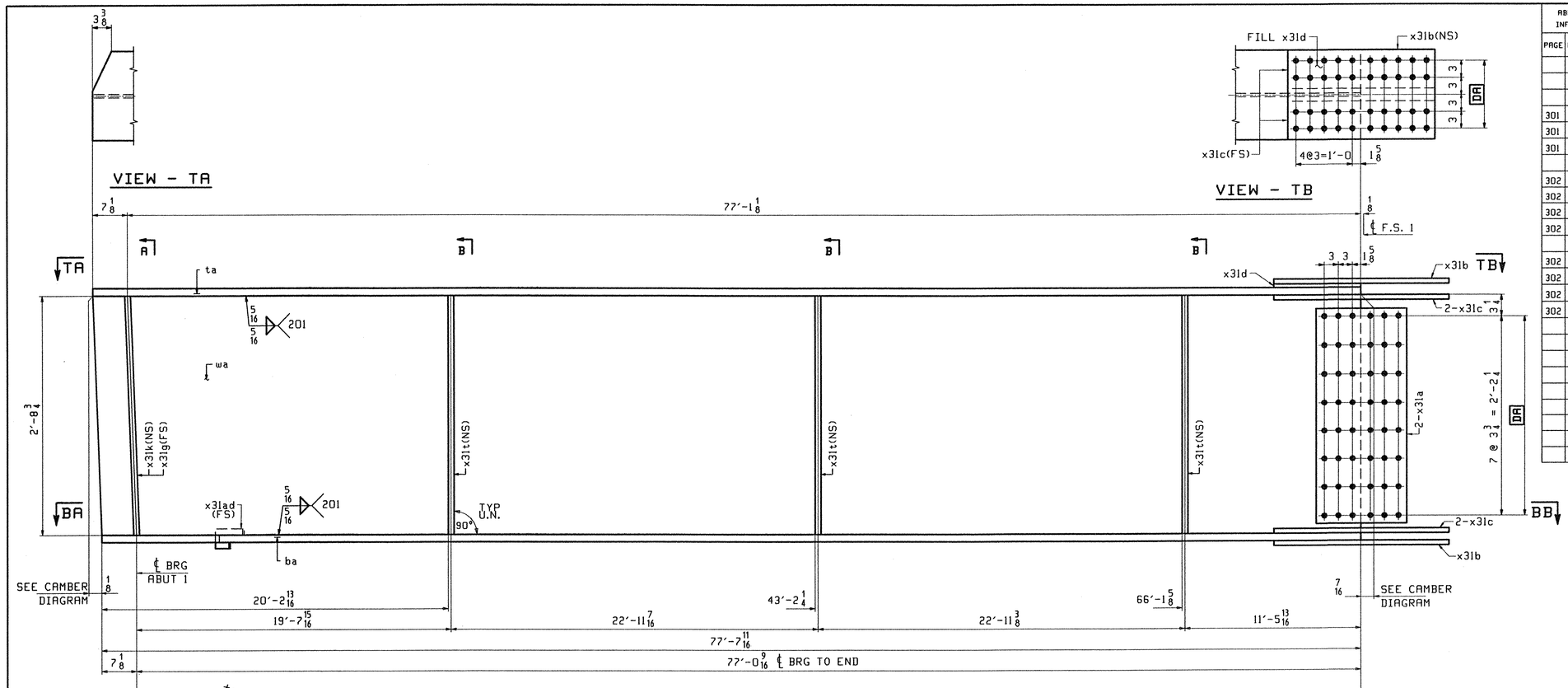
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

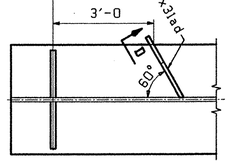
DESCRIPTION:	GIRDER STANDARDS	DRAWN BY	DATE
JOB:	BRIDGE NO. 485 I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/23
		CHKD BY	
		ELC	03/5/01
		APPROV BY	
TENSOR 2107-S		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

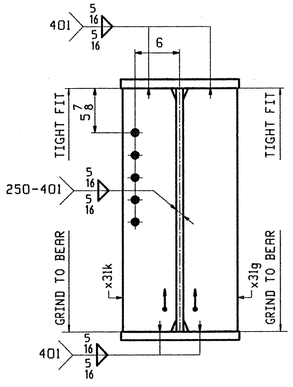
JOB NO.	DRG. NO.
118-48S	X31
	REV. △

ELC Fri Mar 9 08:47:38 EST 2001 /users/jobs/2107-S/X31 : Rev0

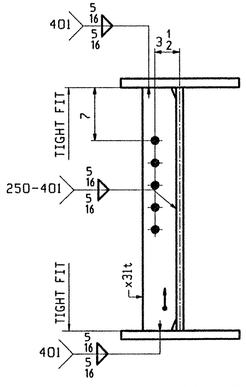




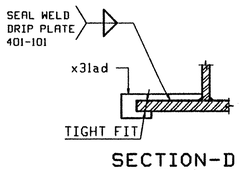
SECTION - BA



SECTION-A



SECTION-B

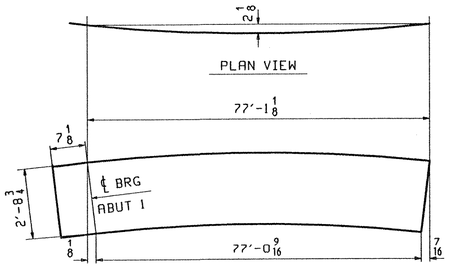


SECTION-D

ONE - GIRDER - G1A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.

SECTION - BB



DEV. CAMBER DIAGRAM
SEE DWG. C301

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									301		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		GIA	1		GIRDER				16127		
301	N		1	wa	PL 1/2 x 36 7/16	77	8 1/4	(M270-50WT2) (H2-3)			
301	G		1	ta	PL 7/8 x 16	77	8 1/4	(M270-50WT2) (H2-3)			
301	A		1	ba	PL 1 5/8 x 16	77	7 11/16	(M270-50WT2) (H2-3)			
302	B		2	x31a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)			
302	C		2	x31b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)			
302	D		4	x31c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)			
302	F		1	x31d	PL 3/4 x 16	1	3 3/8	FILL			
302	K		1	x31k	PL 7/8 x 7 3/4	2	8 3/4				
302	K		1	x31g	PL 7/8 x 7 3/4	2	8 3/4				
302	M		3	x31t	PL 1/2 x 5	2	8 3/4				
302	P		1	x31ad	PL 1/4 x 3 5/8	0	10 15/16				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

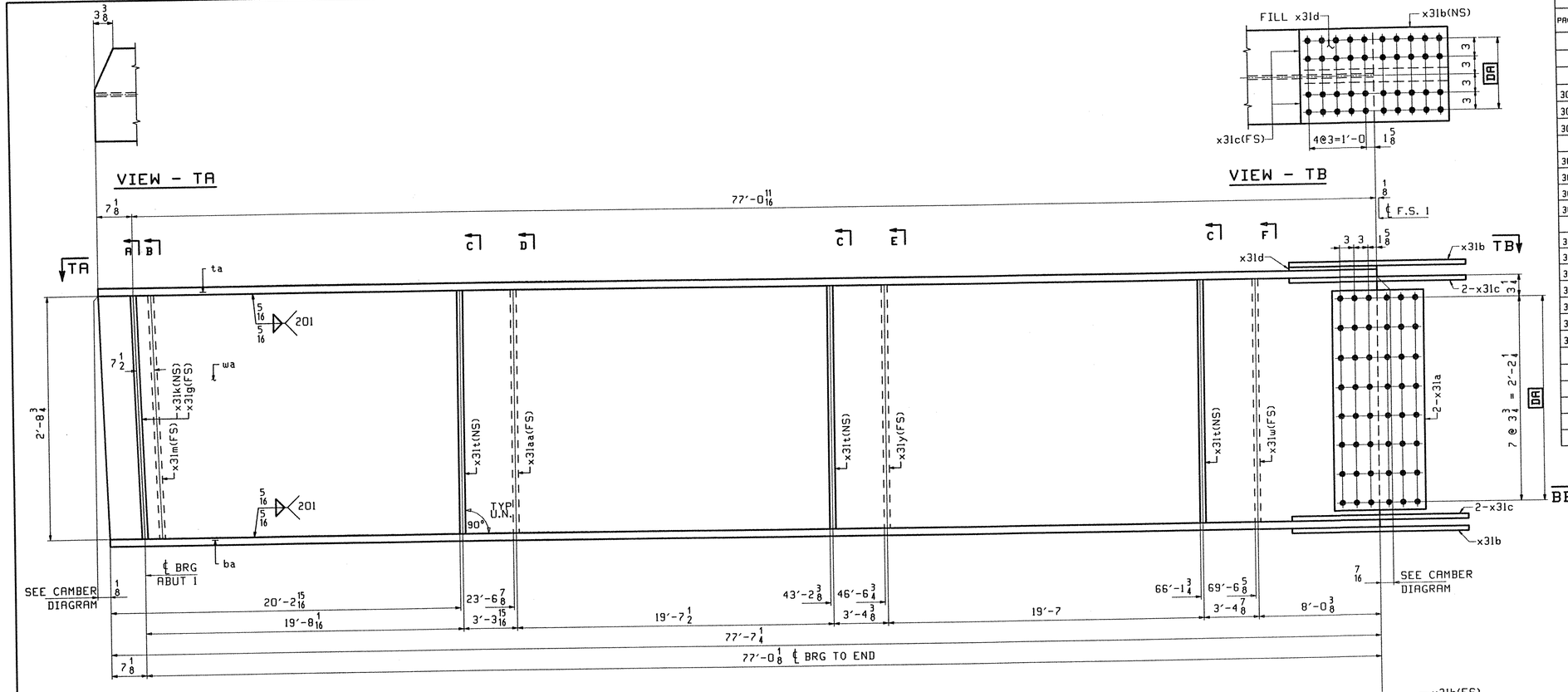
DESCRIPTION: GIRDER - G1A	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/23/01
	CHKD BY	
	ELC	03/5/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-S

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

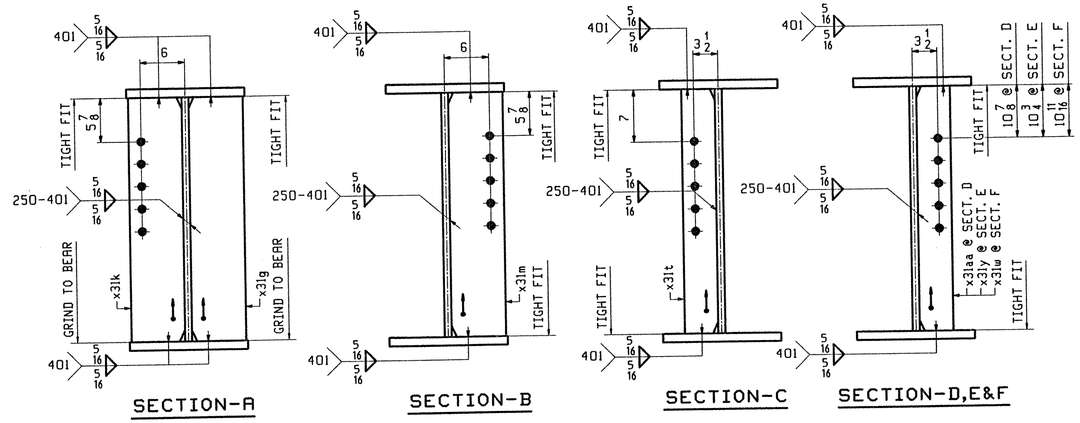
JOB NO.	DRG. NO.
118-48S	301
	REV. △

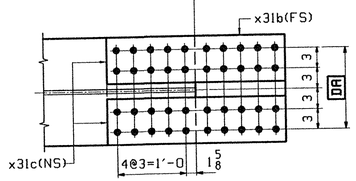
PHG Thu Mar 8 13:50:24 EST 2001 /users/jobs/2107-S/301 | Rev0

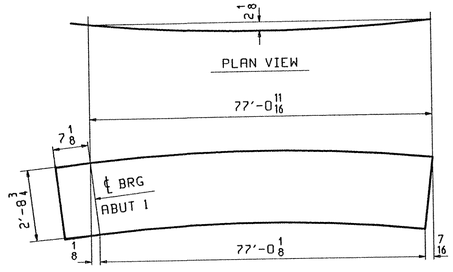


ONE - GIRDER - G2A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.







ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2A	1		GIRDER				16258	
301	Q		1	wa	PL 1/2 x 36 1/2	77	7 13/16	(M270-50W12) (H2-3)		
301	J		1	ta	PL 7/8 x 16	77	7 13/16	(M270-50W12) (H2-3)		
301	A		1	ba	PL 1 5/8 x 16	77	7 1/4	(M270-50W12) (H2-3)		
302	B		2	x31a	PL 1/2 x 29 3/4	1	7	(M270-50W12) (H2-3)		
302	C		2	x31b	PL 5/8 x 16	2	7	(M270-50W12) (H2-3)		
302	D		4	x31c	PL 5/8 x 7	2	7	(M270-50W12) (H2-3)		
302	F		1	x31d	PL 3/4 x 16	1	3 3/8	FILL		
302	K		1	x31k	PL 7/8 x 7 3/4	2	8 3/4			
302	K		1	x31g	PL 7/8 x 7 3/4	2	8 3/4			
302	K		1	x31m	PL 7/8 x 7 3/4	2	8 3/4			
302	M		3	x31t	PL 1/2 x 5	2	8 3/4			
302	M		1	x31aa	PL 1/2 x 5	2	8 3/4			
302	M		1	x31y	PL 1/2 x 5	2	8 3/4			
302	M		1	x31w	PL 1/2 x 5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Peter W. Smith
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-13-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2A

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

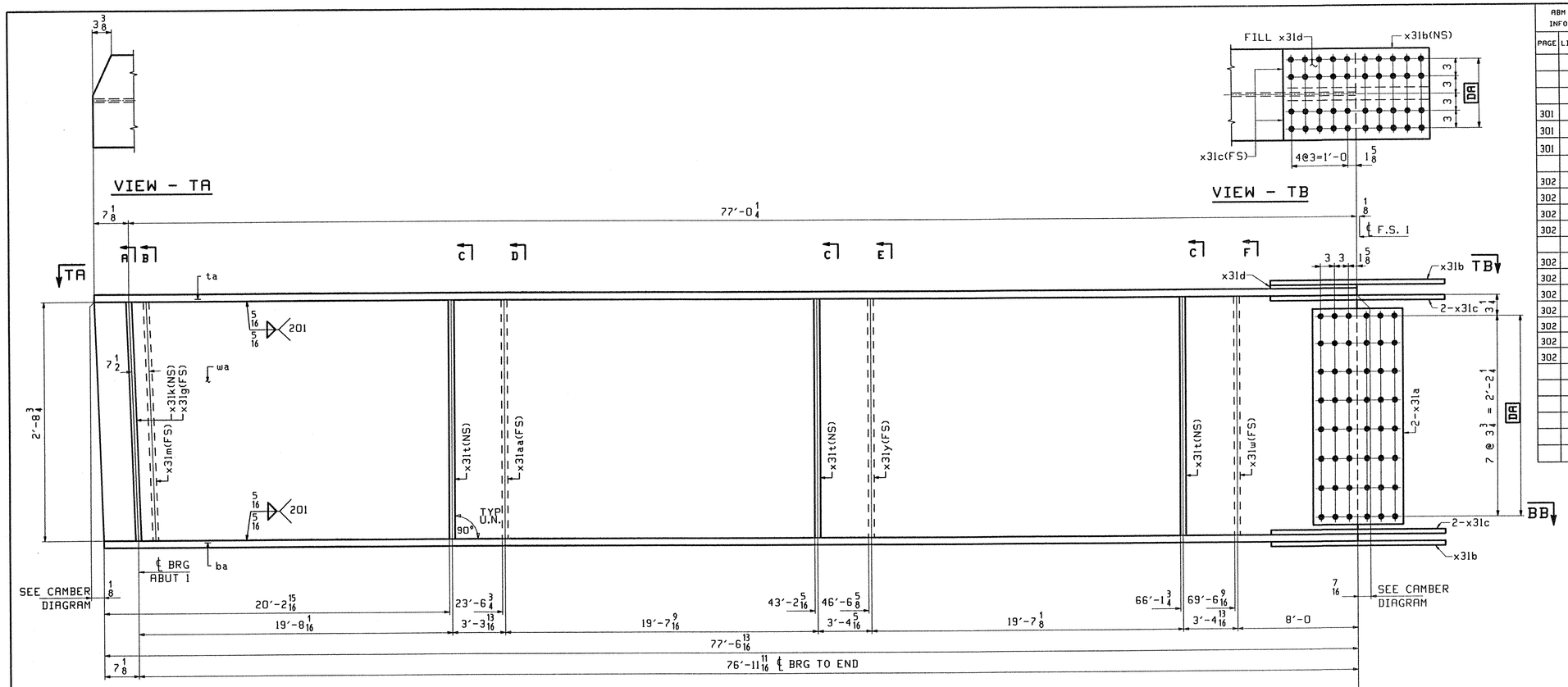
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/23/01
CHKD BY	
ELC	03/6/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

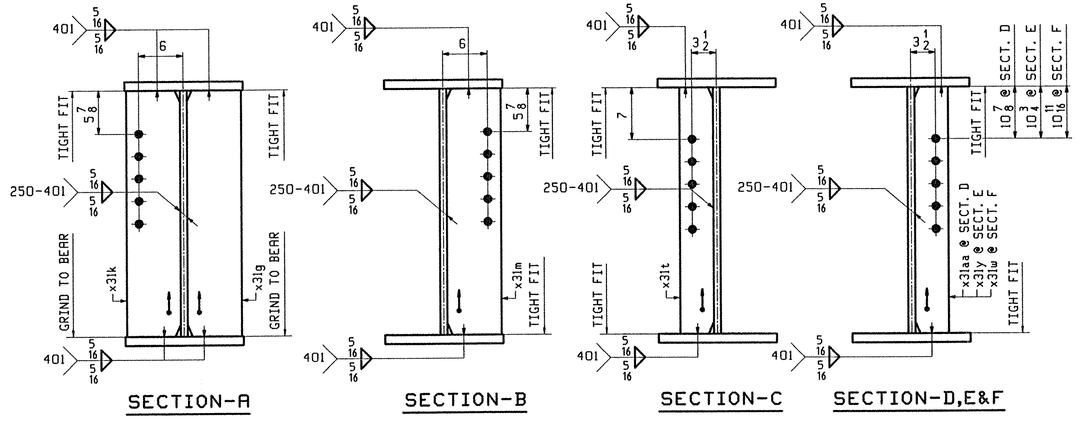
JOB NO.	DRG. NO.
118-48S	302
	REV. △

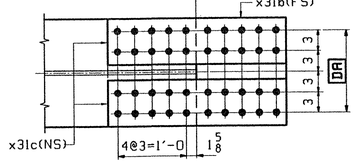
PHG Thu Mar 8 13:55:00 EST 2001 /users/pwin/2107-5/302 : Rev0

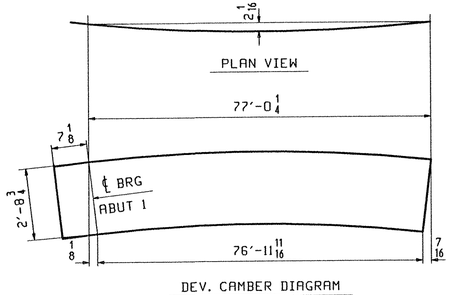


ONE - GIRDER - G3A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.







ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									303		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G3A	1		GIRDER				16250		
301	Q		1	wa	PL 1/2x36 1/2	77	7 3/8	(M270-50WT2) (H2-3)			
301	J		1	ta	PL 7/8x16	77	7 3/8	(M270-50WT2) (H2-3)			
301	A		1	ba	PL 1 5/8x16	77	6 13/16	(M270-50WT2) (H2-3)			
302	B		2	x31a	PL 1/2x29 3/4	1	7	(M270-50WT2) (H2-3)			
302	C		2	x31b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)			
302	D		4	x31c	PL 3/8x7	2	7	(M270-50WT2) (H2-3)			
302	F		1	x31d	PL 3/4x16	1	3 3/8	FILL			
302	K		1	x31k	PL 7/8x7 3/4	2	8 3/4				
302	K		1	x31g	PL 7/8x7 3/4	2	8 3/4				
302	K		1	x31m	PL 7/8x7 3/4	2	8 3/4				
302	M		3	x31t	PL 1/2x5	2	8 3/4				
302	M		1	x31aa	PL 1/2x5	2	8 3/4				
302	M		1	x31y	PL 1/2x5	2	8 3/4				
302	M		1	x31w	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Peter W. Tatt
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3/13/01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3A

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

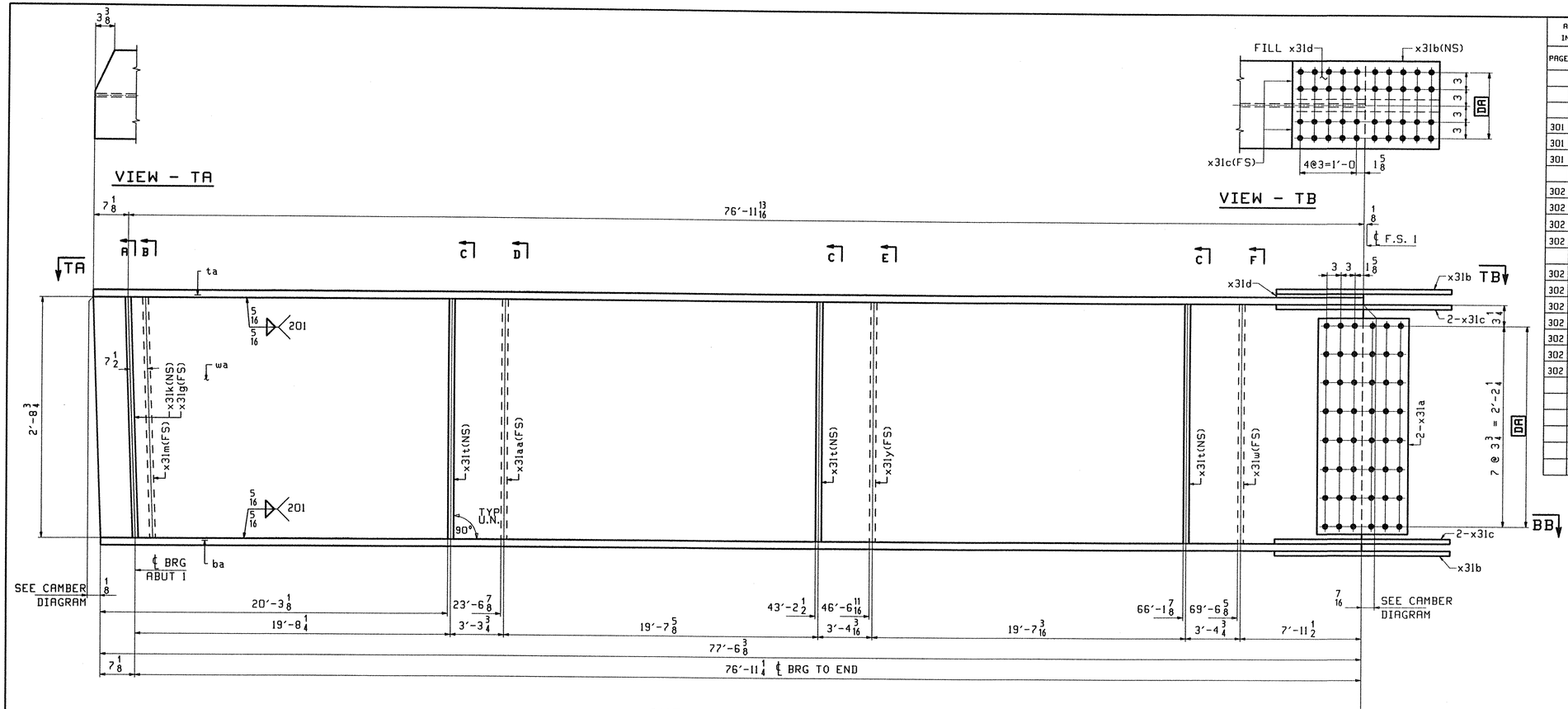
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/23/01
CHKD BY	
ELC	03/6/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

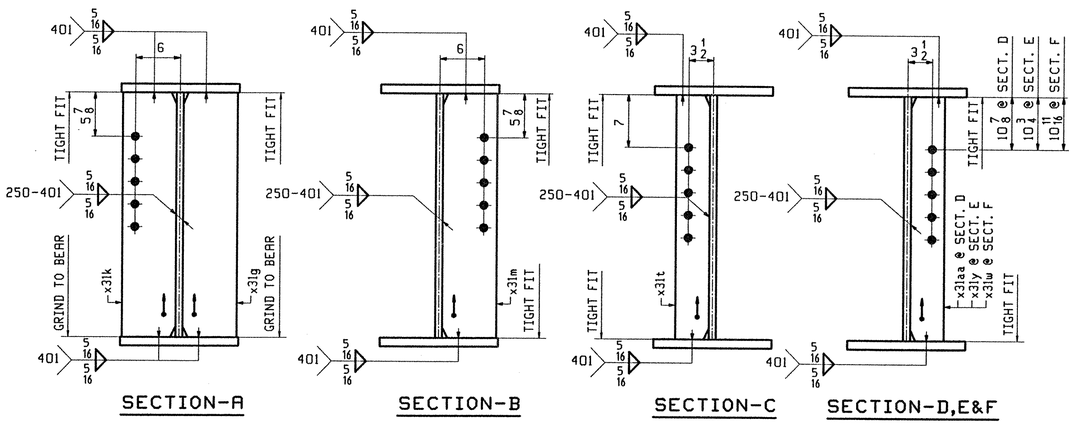
JOB NO.	DRG. NO.
118-48S	303
	REV. △

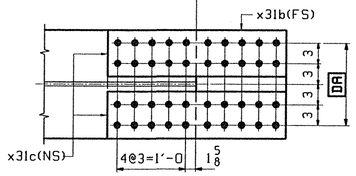
PHG Thu Mar 8 13:27:51 EST 2001 /users/jobs/2107-S/303 : 9x=0

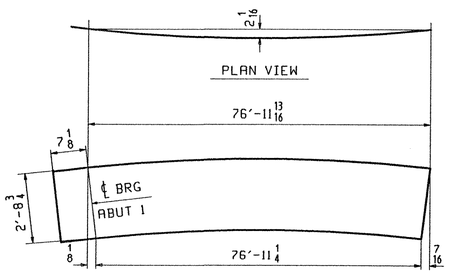


ONE - GIRDER - G4A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.







ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									304	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4A	1		GIRDER				16243	
301	Q		1	wa	PL 1/2 x36 1/2	77	6 15/16	(M270-50WT2) (H2-3)		
301	J		1	ta	PL 5/8 x16	77	6 15/16	(M270-50WT2) (H2-3)		
301	A		1	ba	PL 1 5/8 x16	77	6 3/8	(M270-50WT2) (H2-3)		
302	B		2	x31a	PL 1/2 x29 3/4	1	7	(M270-50WT2) (H2-3)		
302	C		2	x31b	PL 5/8 x16	2	7	(M270-50WT2) (H2-3)		
302	D		4	x31c	PL 5/8 x7	2	7	(M270-50WT2) (H2-3)		
302	F		1	x31d	PL 1/2 x16	1	3 3/8	FILL		
302	K		1	x31k	PL 7/8 x7 3/4	2	8 3/4			
302	K		1	x31g	PL 7/8 x7 3/4	2	8 3/4			
302	K		1	x31m	PL 7/8 x7 3/4	2	8 3/4			
302	M		3	x31t	PL 1/2 x5	2	8 3/4			
302	M		1	x31aa	PL 1/2 x5	2	8 3/4			
302	M		1	x31y	PL 1/2 x5	2	8 3/4			
302	M		1	x31w	PL 1/2 x5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Gatti
DATE: 7/9/01

OUT FOR APPROVAL	3/3-01										
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

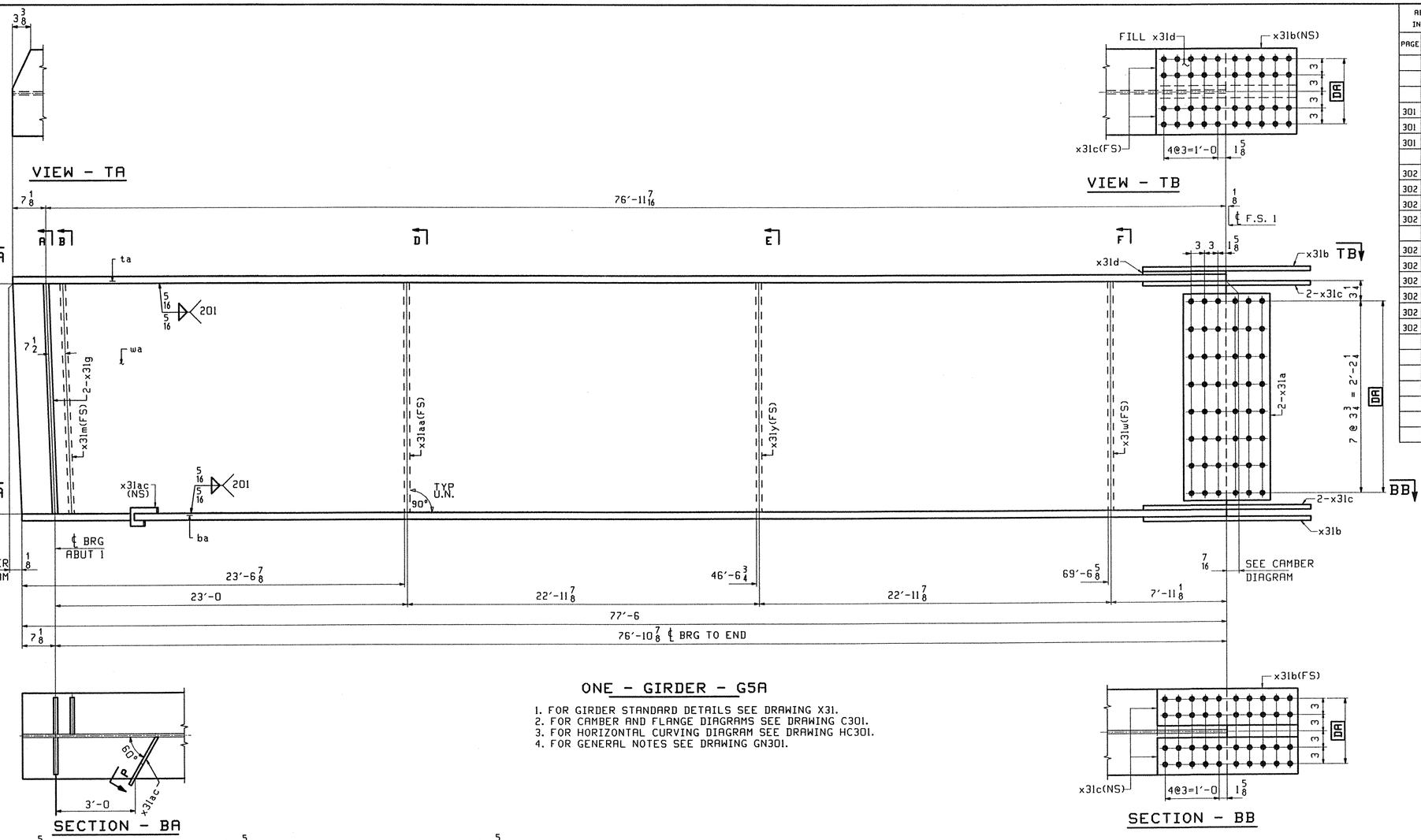
DESCRIPTION: GIRDER - G4A	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/23/01
	CHKD BY	
	ELC	03/6/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-S

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

JOB NO.	DRG. NO.
118-48S	304
	REV. △

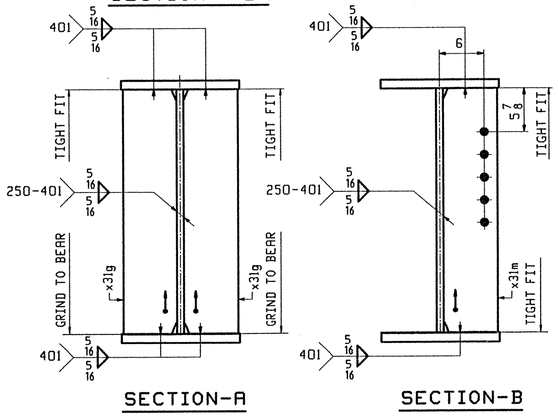
PHG Thu Mar 8 14:05:08 EST 2001 /users/pam/2107-S/304 : Rev3



ONE - GIRDER - G5A

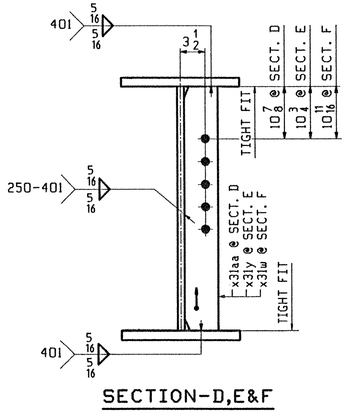
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.

SECTION - BA

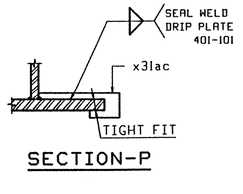


SECTION-A

SECTION-B

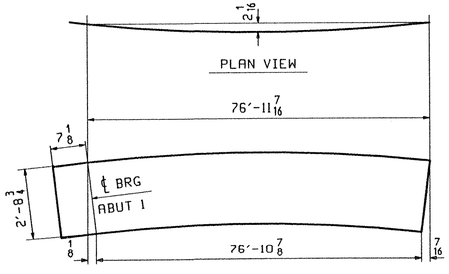


SECTION-D,E&F



SECTION-P

SECTION - BB



DEV. CAMBER DIAGRAM
SEE DWG. C301

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									305		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G5A	1		GIRDER				16162		
301	Q		1	wa	PL 1/2 x36 7/16	77	6 9/16	(M270-50WT2) (H2-3)			
301	J		1	ta	PL 7/8 x16	77	6 9/16	(M270-50WT2) (H2-3)			
301	A		1	ba	PL 1 5/8 x16	77	6	(M270-50WT2) (H2-3)			
302	B		2	x31a	PL 1/2 x29 3/4	1	7	(M270-50WT2) (H2-3)			
302	C		2	x31b	PL 5/8 x16	2	7	(M270-50WT2) (H2-3)			
302	D		4	x31c	PL 5/8 x7	2	7	(M270-50WT2) (H2-3)			
302	F		1	x31d	PL 3/4 x16	1	3 3/8	FILL			
302	K		2	x31g	PL 7/8 x7 3/4	2	8 3/4				
302	K		1	x31m	PL 7/8 x7 3/4	2	8 3/4				
302	M		1	x31aa	PL 1/2 x5	2	8 3/4				
302	M		1	x31y	PL 1/2 x5	2	8 3/4				
302	M		1	x31w	PL 1/2 x5	2	8 3/4				
302	P		1	x31ac	PL 1/4 x3 5/8	0	10 15/16				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pete W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3/30/01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5A

JOB: BRIDGE NO. 485
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
TENSOR 2107-5

PROJ NO. IM-089-2(26)

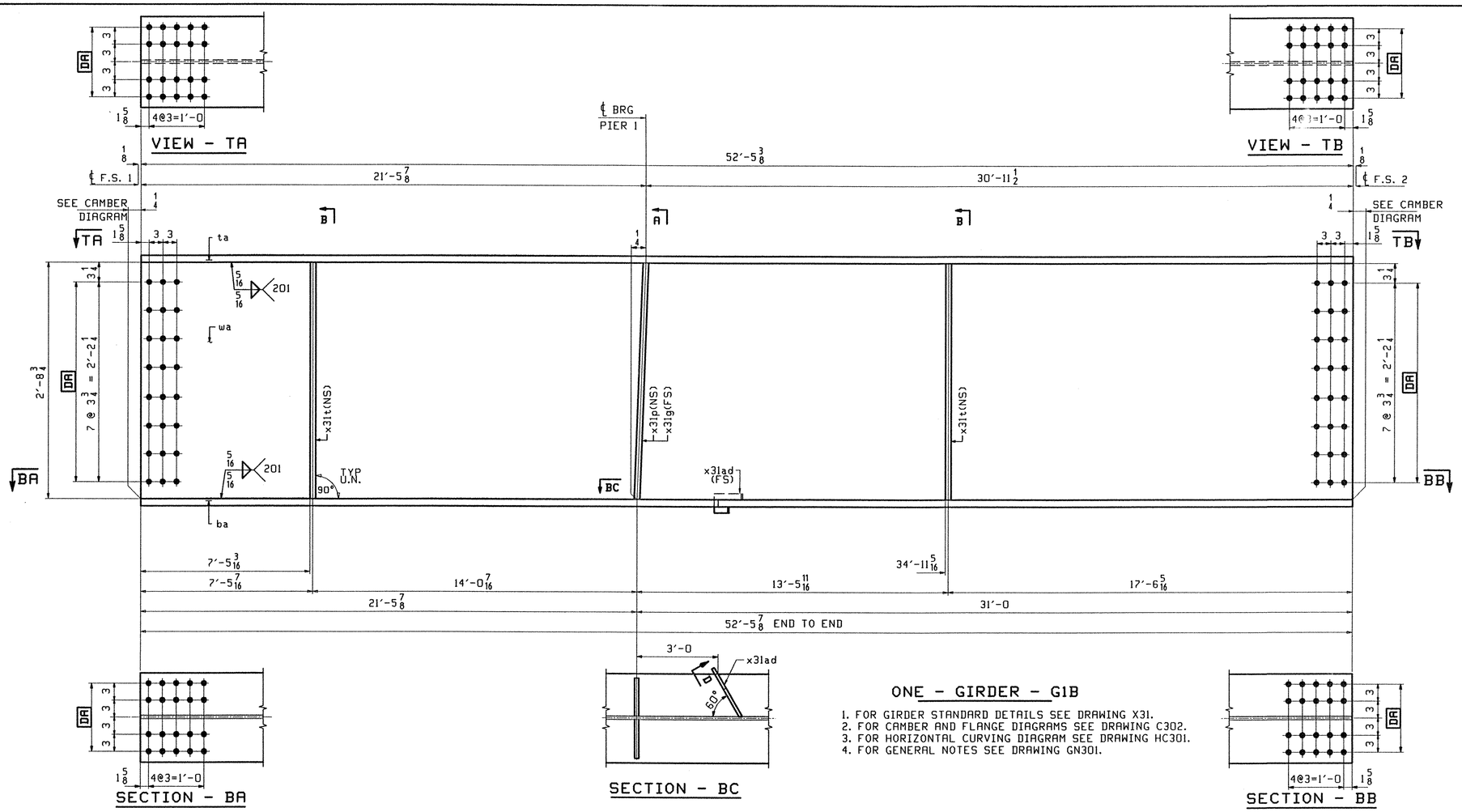
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/23/01
CHKD BY	
ELC	03/6/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

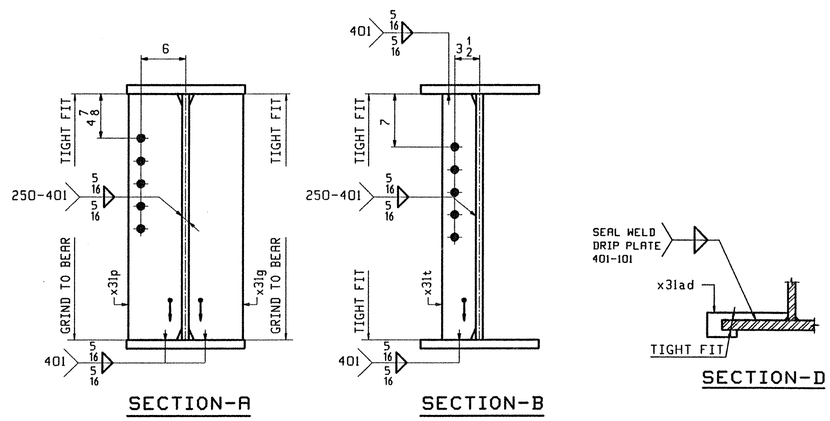
JOB NO.	DRG. NO.
118-485	305
	REV. △

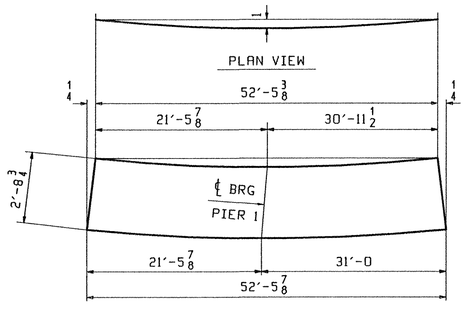
ELC Fri Mar 9 08:46:48 EST 2001 /users/jobs/2107-5/305 : Rev=0



ONE - GIRDER - G1B

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.





DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									306	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		GIB	1		GIRDER				12518	
301	S		1	wa	PL 1/2 x 34 1/4	52	5 7/8	(M270-50W12) (H2-3)		
301	C		1	ta	PL 1 5/8 x16	52	5 3/8	(M270-50W12) (H2-3)		
301	C		1	ba	PL 1 5/8 x16	52	5 7/8	(M270-50W12) (H2-3)		
302	M		2	x3lt	PL 1/2 x5	2	8 3/4			
302	K		1	x3lp	PL 7/8 x7 3/4	2	8 3/4			
302	K		1	x3lg	PL 7/8 x7 3/4	2	8 3/4			
302	P		1	x3lad	PL 1/4 x3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pete W. & L
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/3/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

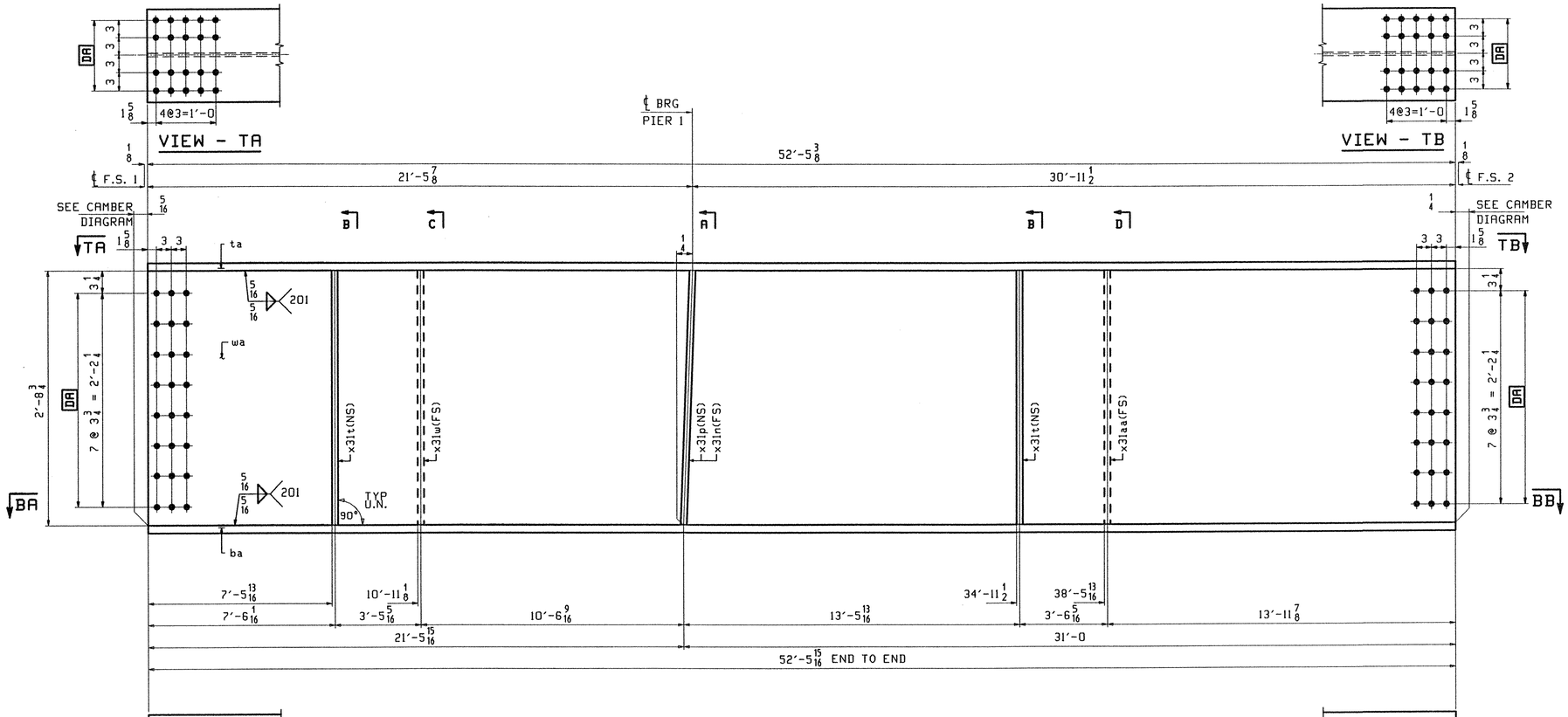
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G1B	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/23/01
	CHKD BY	
	ELC	03/6/01
TENSOR 2107-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

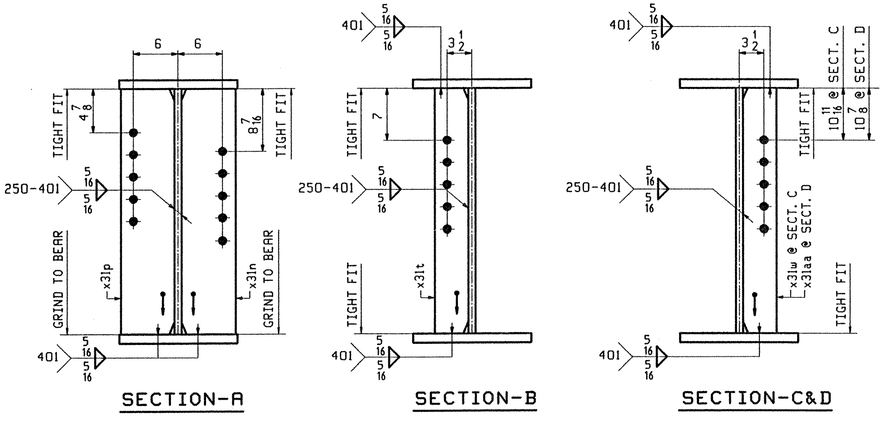
JOB NO.	DRG. NO.
118-48S	306
	REV. △

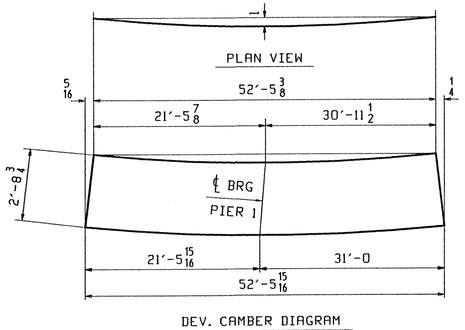
PHG Thu Mar 8 11:54:03 EST 2001 /user/jobs/2107-S/306 : Rev0



ONE - GIRDER - G2B

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.





DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									307	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2B	1		GIRDER				12562	
301	S		1	wa	PL 1/2x34 1/4	52	5 15/16	(M270-50WT2) (H2-3)		
301	C		1	ta	PL 1 5/8x16	52	5 3/8	(M270-50WT2) (H2-3)		
301	C		1	ba	PL 1 5/8x16	52	5 15/16	(M270-50WT2) (H2-3)		
302	M		2	x31t	PL 1/2x5	2	8 3/4			
302	M		1	x31w	PL 1/2x5	2	8 3/4			
302	K		1	x31p	PL 7/8x7 3/4	2	8 3/4			
302	K		1	x31n	PL 7/8x7 3/4	2	8 3/4			
302	M		1	x31aa	PL 1/2x5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning unit as indicated in the Contract Documents. Shop review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Scott
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2B

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
TENSOR 2107-5

PROJ NO. IM-089-2(26)

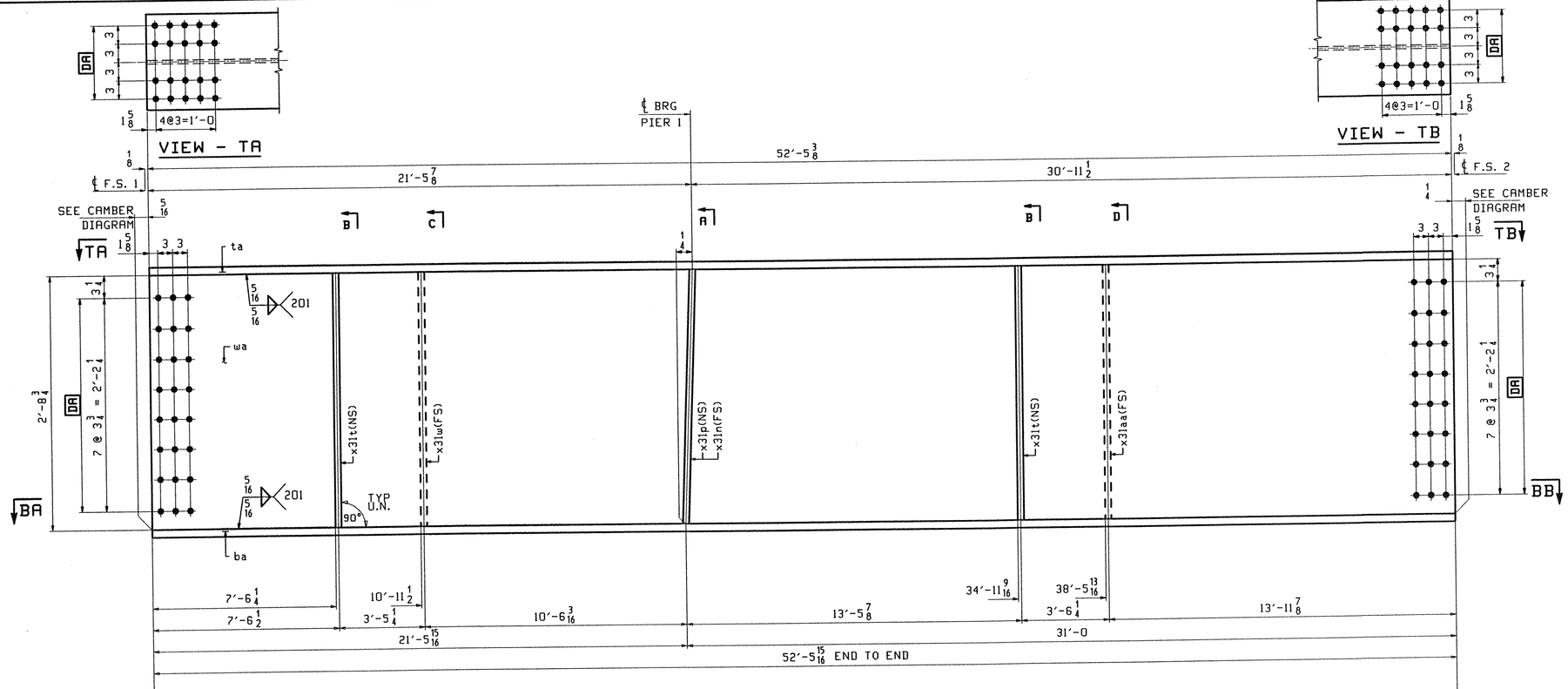
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/23/01
CHKD BY	
ELC	03/6/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

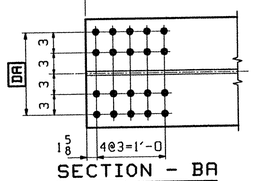
JOB NO.	DRG. NO.
118-48S	307
	REV. △

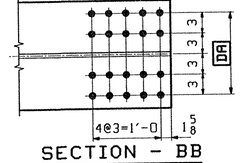
PHG Thu Mar 8 15:10:08 EST 2001 /users/jobs/2107-5/307.1 Rev0

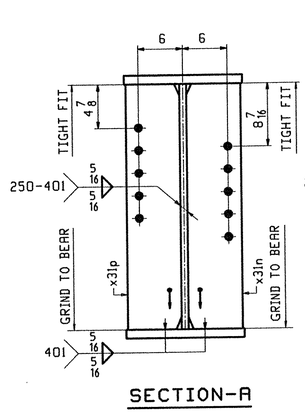


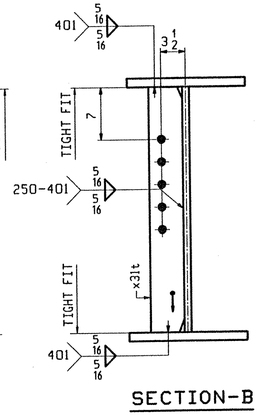
ONE - GIRDER - G3B

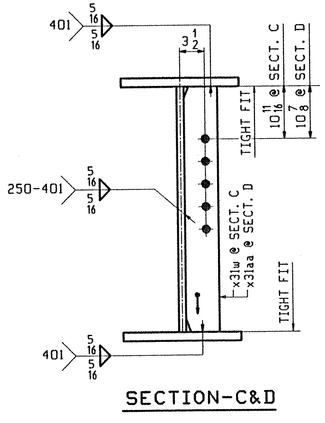
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.

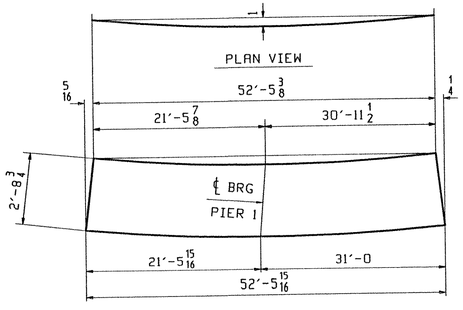












DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
									308	
		G3B	1		GIRDER				12562	
301	S		1	wa	PL 1/2x34 1/4	52	5 15/16	(M270-50WT2) (H2-3)		
301	C		1	ta	PL 1 5/8x16	52	5 3/8	(M270-50WT2) (H2-3)		
301	C		1	ba	PL 1 5/8x16	52	5 15/16	(M270-50WT2) (H2-3)		
302	M		2	x31t	PL 1/2x5	2	8 3/4			
302	M		1	x31w	PL 1/2x5	2	8 3/4			
302	K		1	x31p	PL 7/8x7 3/4	2	8 3/4			
302	K		1	x31n	PL 7/8x7 3/4	2	8 3/4			
302	M		1	x31aa	PL 1/2x5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: Pat W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/30/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3B

JOB: BRIDGE NO. 485
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

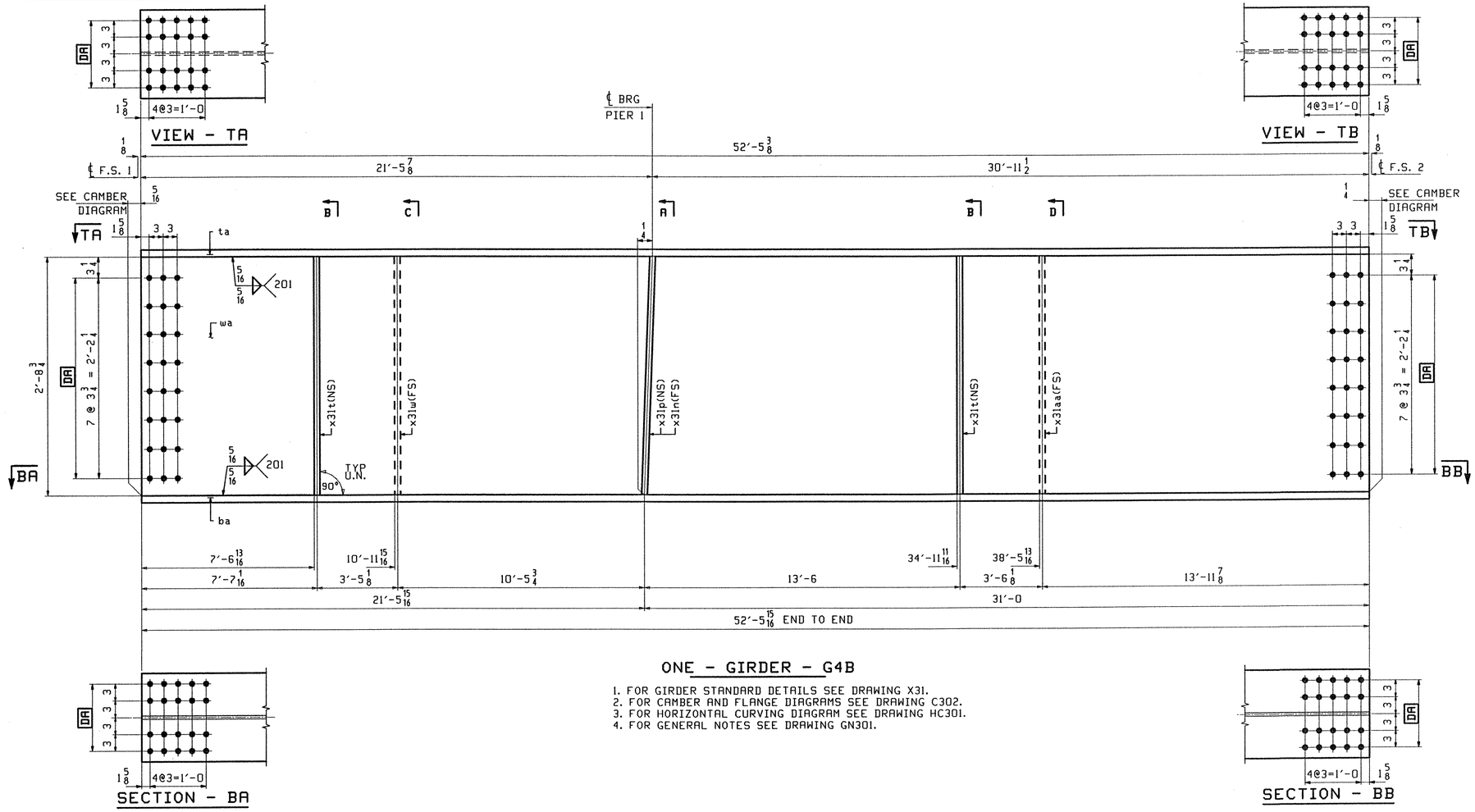
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/24/01
CHKD BY	
ELC	03/6/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

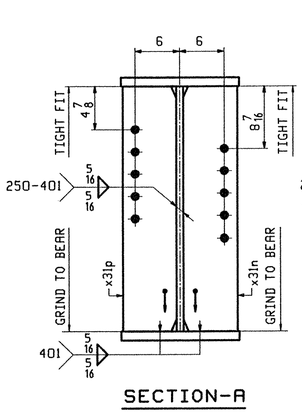
JOB NO.	DRG. NO.
118-485	308
	REV. △

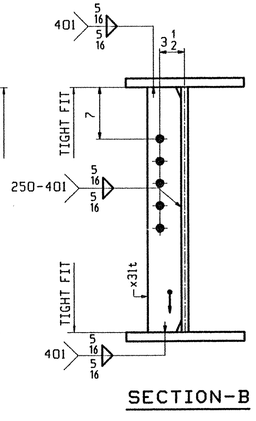
PHG Thu Mar 8 15:05:21 EST 2001 /users/jobs/2107-S/308.1 Rev=0

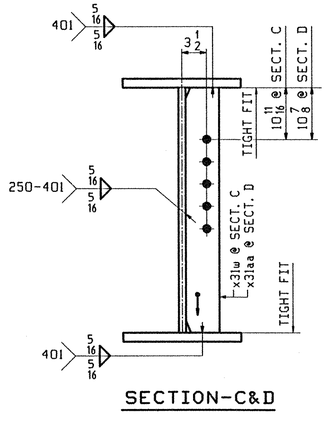


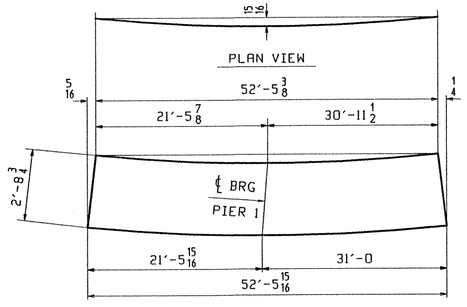
ONE - GIRDER - G4B

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.









DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									309	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4B	1		GIRDER				12562	
301	S		1	wa	PL 1/2x34 1/4	52	5 15/16	(M270-50W T2) (HZ-3)		
301	C		1	ta	PL 1 1/8x16	52	5 3/8	(M270-50W T2) (HZ-3)		
301	C		1	ba	PL 1 1/8x16	52	5 15/16	(M270-50W T2) (HZ-3)		
302	M		2	x31t	PL 1/2x5	2	8 3/4			
302	M		1	x31w	PL 1/2x5	2	8 3/4			
302	K		1	x31p	PL 7/8x7 3/4	2	8 3/4			
302	K		1	x31n	PL 7/8x7 3/4	2	8 3/4			
302	M		1	x31aa	PL 1/2x5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in The Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. LC
DATE: 3/9/01

OUT FOR APPROVAL	3-13-01										
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

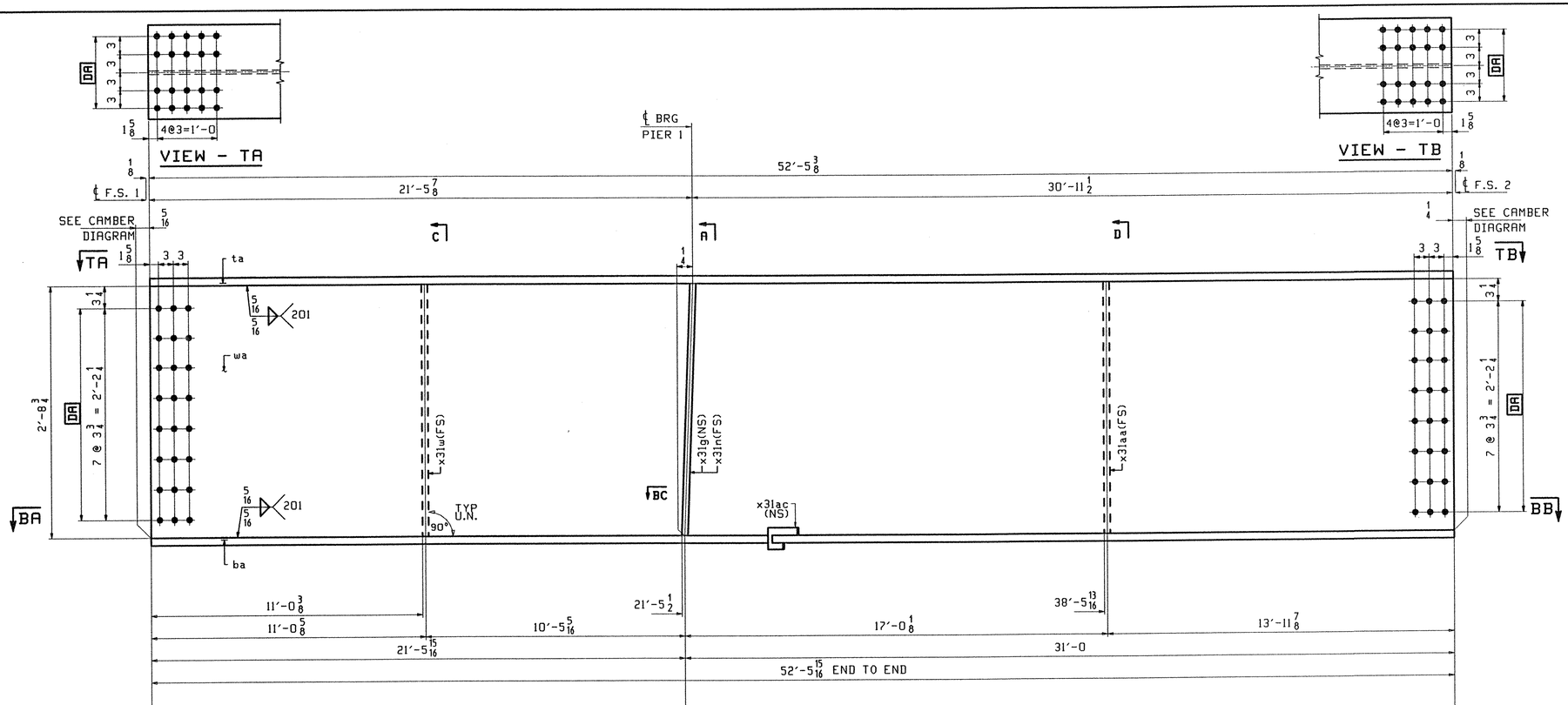
SURFACE PREP. & PAINT:
-STEEL WITHIN 10′-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

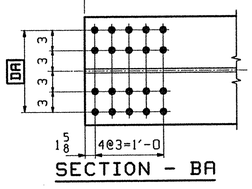
DESCRIPTION: GIRDER - G4B	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
	ELC	03/6/01
	APPROV BY	
TENSOR 2107-5	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

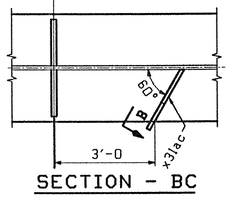
JOB NO.	DRG. NO.
118-48S	309
	REV. △

PWG Thu Mar 8 15:44:40 EST 2001 /users/pwg/2107-5/309.1 Rev0

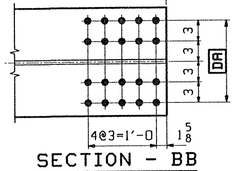




SECTION - BA



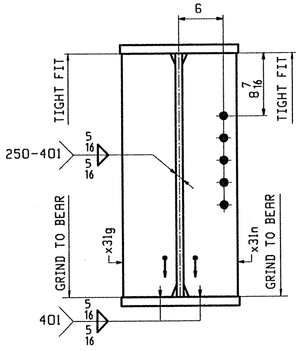
SECTION - BC



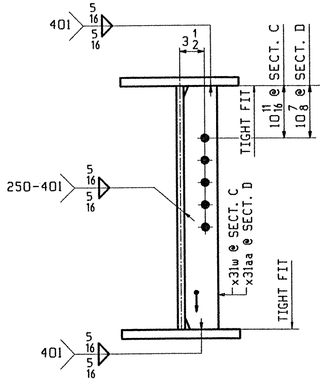
SECTION - BB

ONE - GIRDER - G5B

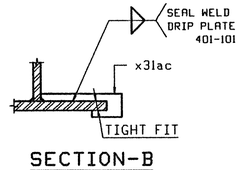
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



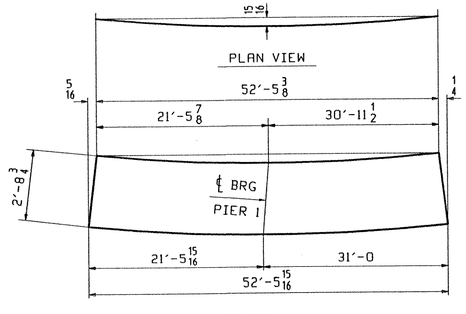
SECTION-A



SECTION-C&D



SECTION-B



DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									310		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G5B	1		GIRDER				12519		
301	S		1	wa	PL 1/2x34 1/4	52	5 15/16	(M270-50WT2) (H2-3)			
301	C		1	ta	PL 1 1/8x16	52	5 3/8	(M270-50WT2) (H2-3)			
301	C		1	ba	PL 1 1/8x16	52	5 15/16	(M270-50WT2) (H2-3)			
302	M		1	x31w	PL 1/2x5	2	8 3/4				
302	K		1	x31g	PL 7/8x7 3/4	2	8 3/4				
302	K		1	x31n	PL 7/8x7 3/4	2	8 3/4				
302	M		1	x31aa	PL 1/2x5	2	8 3/4				
302	P		1	x31ac	PL 1/2x3 5/8	0	10 15/16				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: Pat W. GJ
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

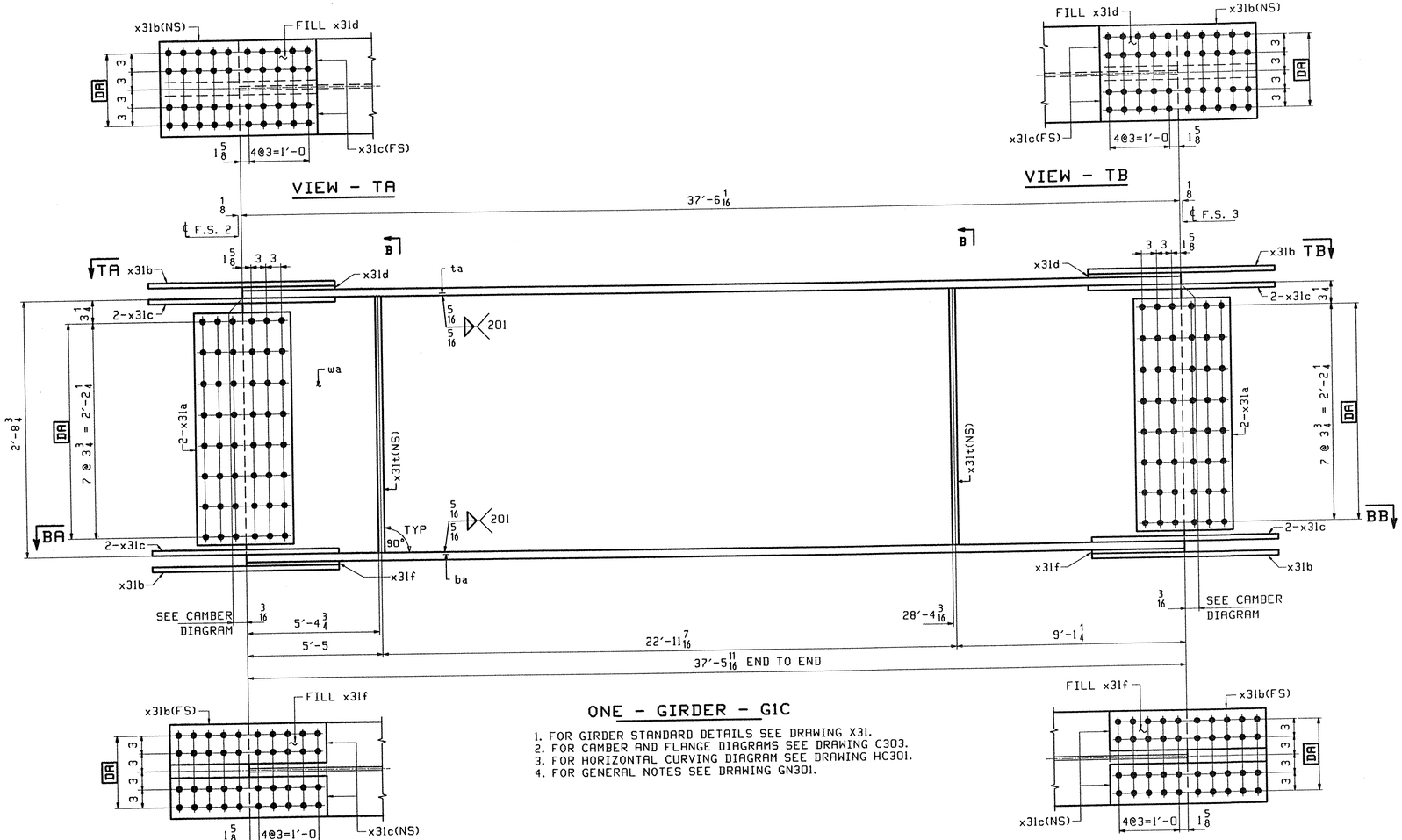
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5B	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
	ELC	03/6/01
	APPROV BY	
TENSOR 2107-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
118-48S	310
	REV. △

ELC Fri Mar 9 08:53:53 EST 2001 /users/jobs/2107-S/310.dgn



ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									311	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		GIC	1		GIRDER				7060	
301	U		1	wa	PL 1/2 x 33 7/16	37	6 1/16	(M270-50W T2) (H2-3)		
301	L		1	ta	PL 5/8 x 16	37	6 1/16	(M270-50W T2) (H2-3)		
301	E		1	ba	PL 13/16 x 16	37	5 11/16	(M270-50W T2) (H2-3)		
302	B		4	x31a	PL 1/2 x 29 3/4	1	7	(M270-50W T2) (H2-3)		
302	C		4	x31b	PL 5/8 x 16	2	7	(M270-50W T2) (H2-3)		
302	D		8	x31c	PL 5/8 x 7	2	7	(M270-50W T2) (H2-3)		
302	F		2	x31d	PL 1/2 x 16	1	3 3/8	FILL		
302	G		2	x31f	PL 11/16 x 16	1	3 3/8	FILL		
302	M		2	x31t	PL 1/2 x 5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pete W. Tuttle
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

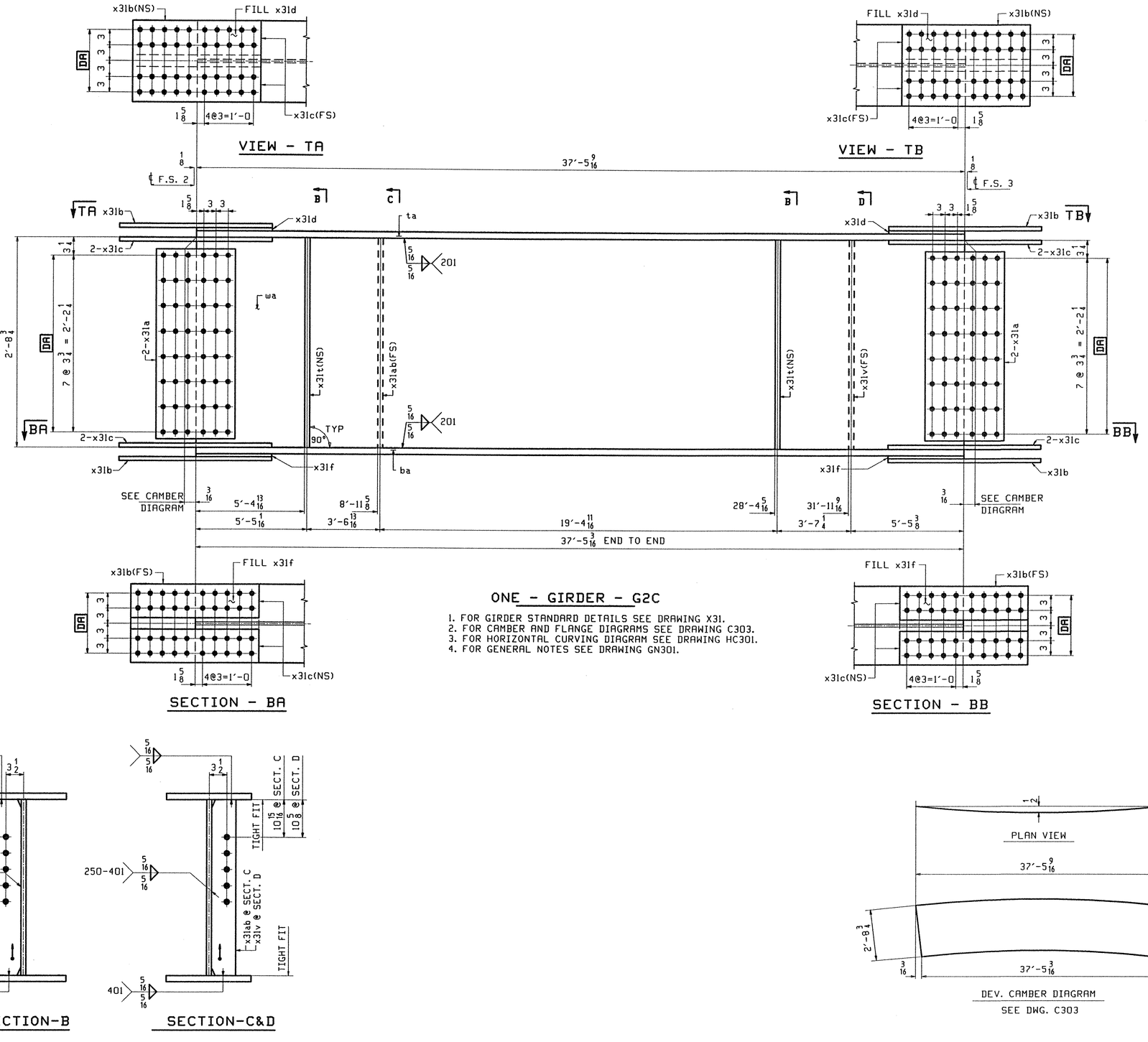
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G1C	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
	ELC	03/6/01
	APPROV BY	
TENSOR 2107-5	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

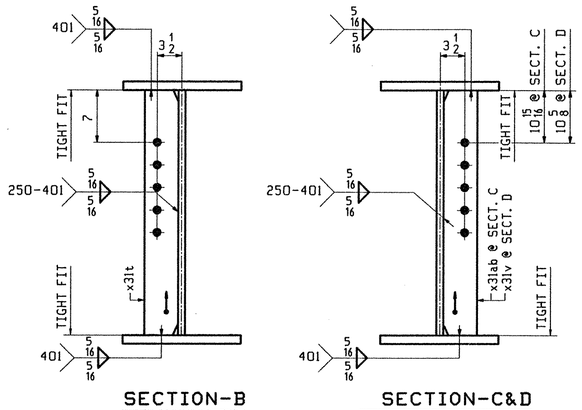
JOB NO.	DRG. NO.
118-48S	311
	REV. △

PHG Thu Mar 8 15:37:47 EST 2001 /users/jobs/2107-5/311 : Rev0



ONE - GIRDER - G2C

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C303.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SEE DWG. C303

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	312 WT	PROCUREMENT NOTES	
		G2C	1		GIRDER				7100		
301	U		1	wa	PL 1/2x33 7/16	37	5 9/16	(M270-50W12) (H2-3)			
301	L		1	ta	PL 7/8x16	37	5 9/16	(M270-50W12) (H2-3)			
301	E		1	ba	PL 15/16x16	37	5 3/16	(M270-50W12) (H2-3)			
302	B		4	x31a	PL 1/2x29 3/4	1	7	(M270-50W12) (H2-3)			
302	C		4	x31b	PL 5/8x16	2	7	(M270-50W12) (H2-3)			
302	D		8	x31c	PL 5/8x7	2	7	(M270-50W12) (H2-3)			
302	F		2	x31d	PL 3/4x16	1	3 3/8	FILL			
302	G		2	x31f	PL 11/16x16	1	3 3/8	FILL			
302	M		2	x31t	PL 1/2x5	2	8 3/4				
302	M		1	x31ab	PL 1/2x5	2	8 3/4				
302	M		1	x31v	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Peter W. Gatti
DATE: 3/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

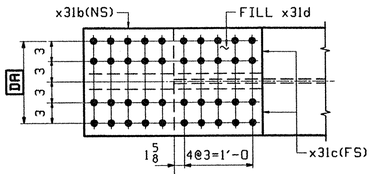
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2C	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
TENSOR 2107-S	ELC	03/6/01
	APPROV BY	
PROJ NO. IM-089-2(26)	SUPERVISOR	W. J. GATTI
	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

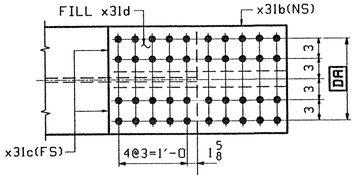
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
118-48S	312
	REV. △

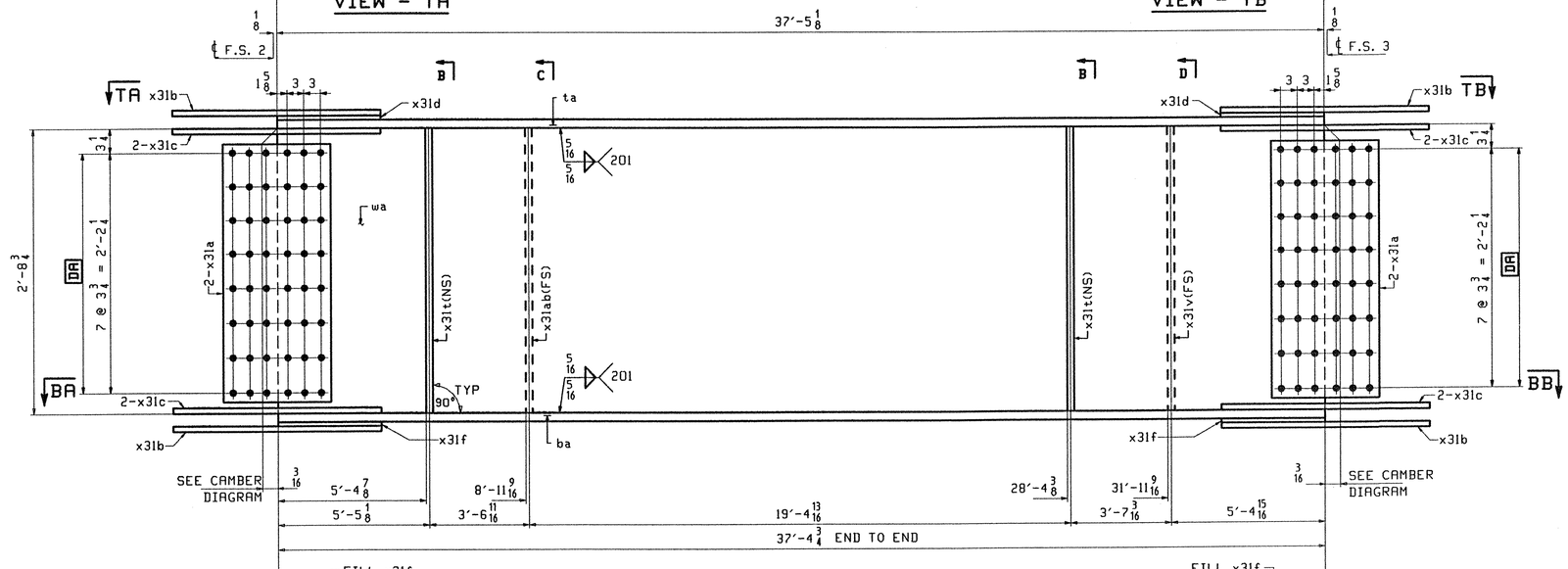
PHG Thu Mar 8 15:49:37 EST 2001 /users/jobs/2107-S/312.1 Rev=0

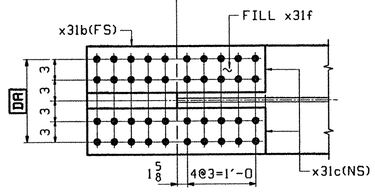


VIEW - TA

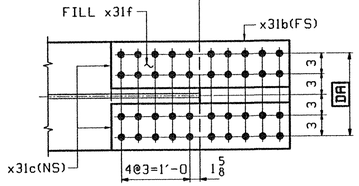


VIEW - TB





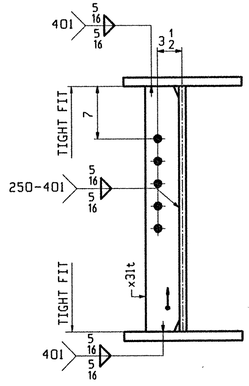
SECTION - BA



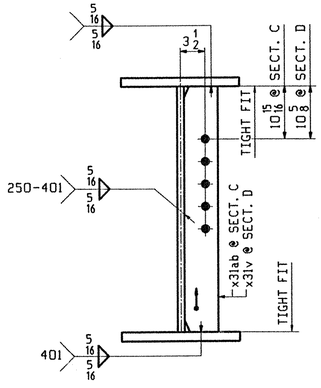
SECTION - BB

ONE - GIRDER - G3C

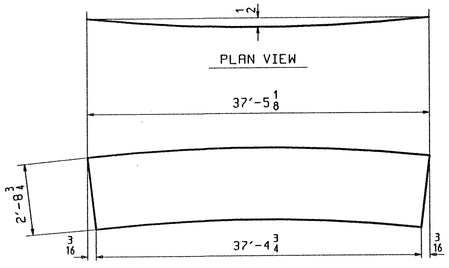
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C303.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SECTION-B



SECTION-C&D



DEV. CAMBER DIAGRAM

SEE DWG. C303

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									313	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3C	1		GIRDER				7094	
301	U		1	wa	PL 1/2 x 33 7/16	37	5 1/8	(M270-50WT2) (H2-3)		
301	L		1	ta	PL 7/8 x 16	37	5 1/8	(M270-50WT2) (H2-3)		
301	E		1	ba	PL 15/16 x 16	37	4 3/4	(M270-50WT2) (H2-3)		
302	B		4	x31a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)		
302	C		4	x31b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)		
302	D		8	x31c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)		
302	F		2	x31d	PL 3/4 x 16	1	3 3/8	FILL		
302	G		2	x31f	PL 11/16 x 16	1	3 3/8	FILL		
302	M		2	x31t	PL 1/2 x 5	2	8 3/4			
302	M		1	x31ab	PL 1/2 x 5	2	8 3/4			
302	M		1	x31v	PL 1/2 x 5	2	8 1/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pete W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/3/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3C

JOB:
BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

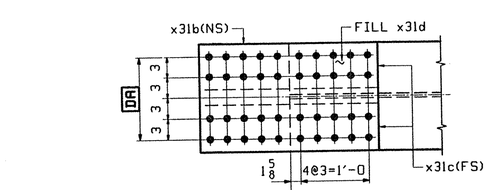
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/24
CHKD BY	
ELC	03/6/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

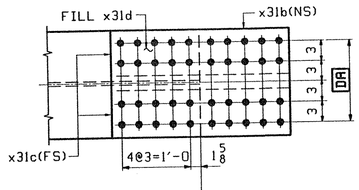
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
118-48S	313
	REV. △

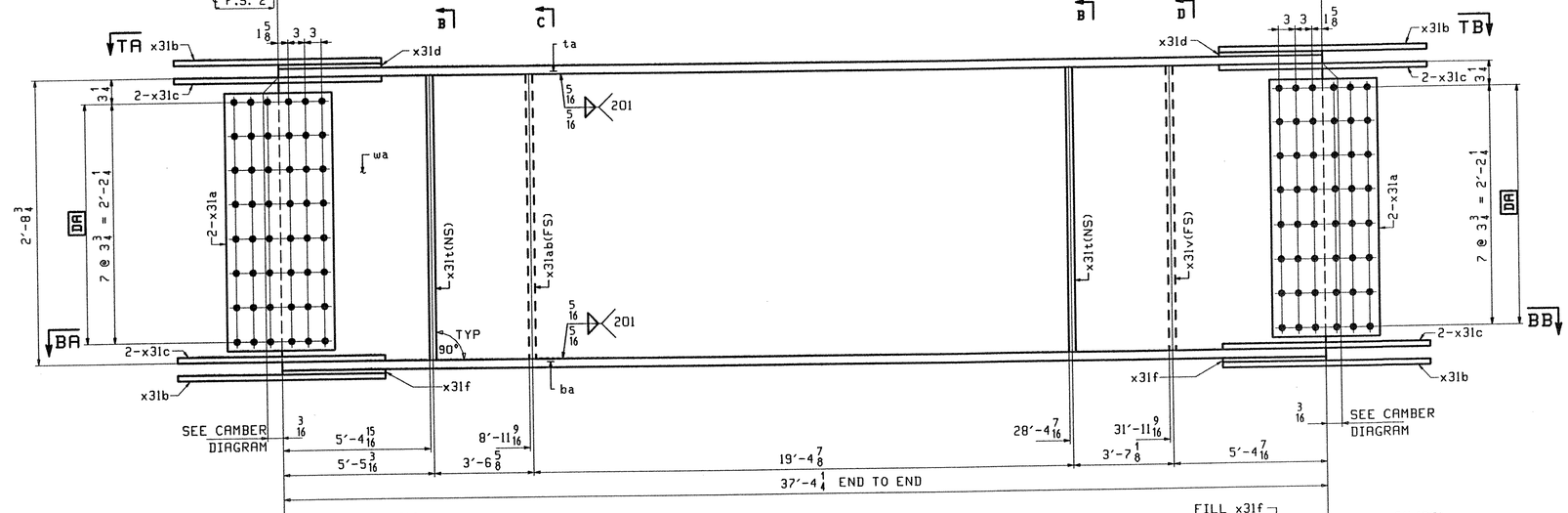
PHG Thu Mar 8 15:45:23 EST 2001 /users/jobs/2107-S/313.fm40

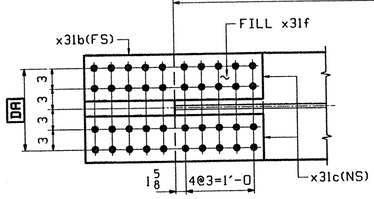


VIEW - TA

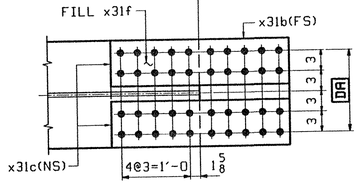


VIEW - TB





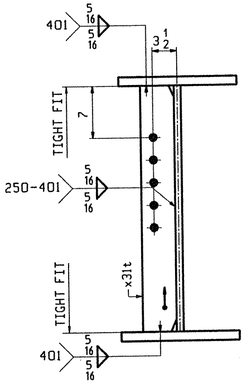
SECTION - BA



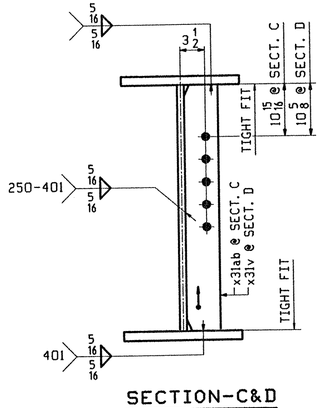
SECTION - BB

ONE - GIRDER - G4C

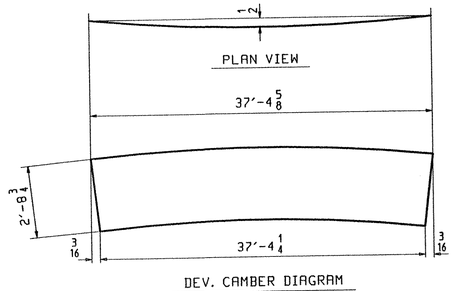
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C303.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SECTION-B



SECTION-C&D



DEV. CAMBER DIAGRAM

SEE DWG. C303

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4C	1		GIRDER				7088	
301	U		1	wa	PL 1/2 x 33 7/16	37	4 5/8	(M270-50W T2) (H2-3)		
301	L		1	ta	PL 7/8 x 16	37	4 5/8	(M270-50W T2) (H2-3)		
301	E		1	ba	PL 15/16 x 16	37	4 1/4	(M270-50W T2) (H2-3)		
302	B		4	x31a	PL 1/2 x 29 3/4	1	7	(M270-50W T2) (H2-3)		
302	C		4	x31b	PL 5/8 x 16	2	7	(M270-50W T2) (H2-3)		
302	D		8	x31c	PL 5/8 x 7	2	7	(M270-50W T2) (H2-3)		
302	F		2	x31d	PL 3/4 x 16	1	3 3/8	FILL		
302	G		2	x31f	PL 11/16 x 16	1	3 3/8	FILL		
302	M		2	x31t	PL 1/2 x 5	2	8 3/4			
302	M		1	x31ab	PL 1/2 x 5	2	8 3/4			
302	M		1	x31v	PL 1/2 x 5	2	8 3/4			

BILL OF MATERIAL

JOB NO.

DRAWING NO. 314

REV.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. S. T.
DATE: 4/9/01

OUT FOR APPROVAL	3-13-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

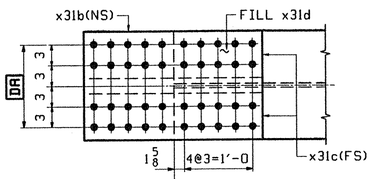
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4C	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
	ELC	03/6/01
	APPROV BY	
TENSOR 2107-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

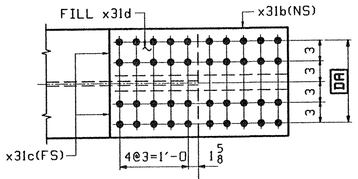
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
118-48S	314
	REV. △

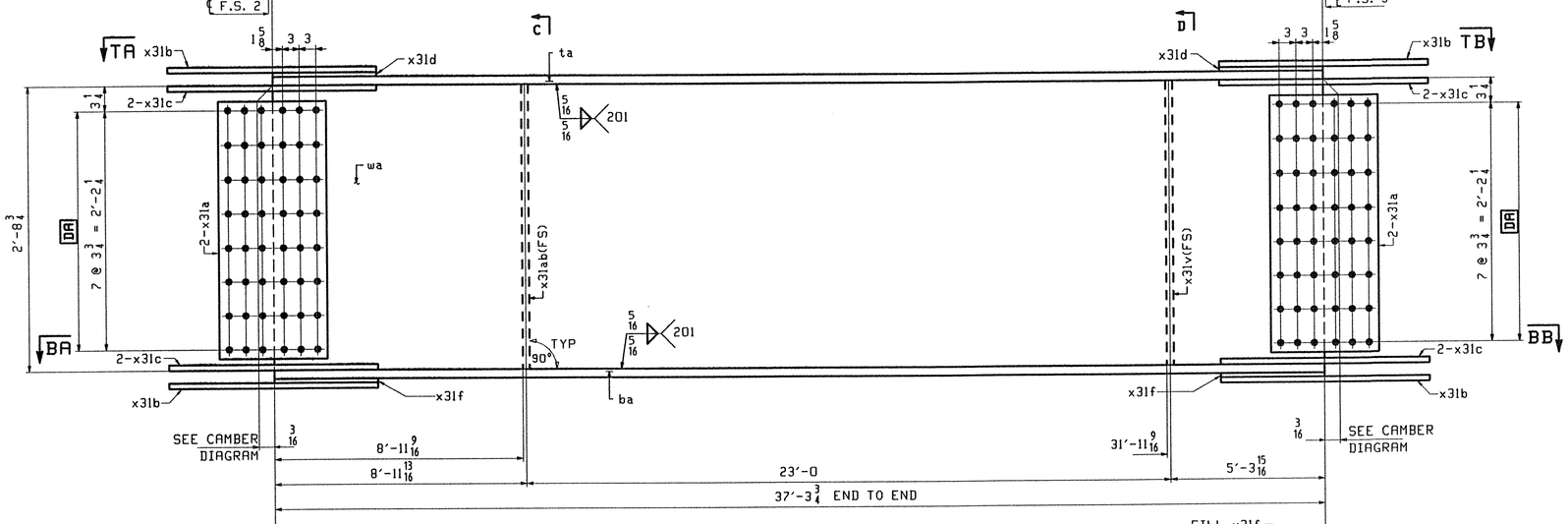
PHG Thu Mar 8 15:53:01 EST 2001 /users/jobs/2107-S/314 : Rev0

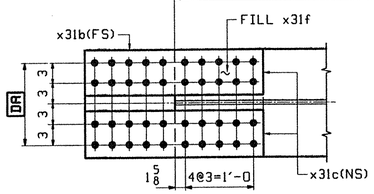


VIEW - TA

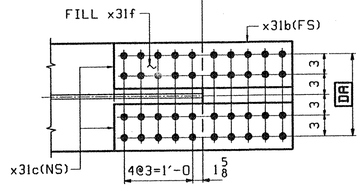


VIEW - TB





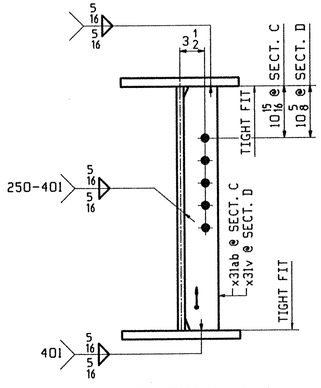
SECTION - BA



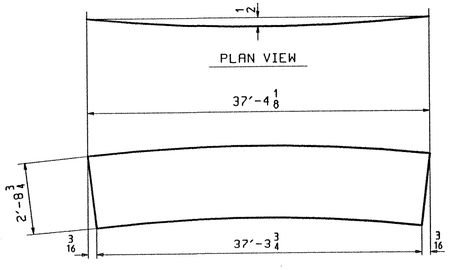
SECTION - BB

ONE - GIRDER - G5C

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C303.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SECTION-C&D



DEV. CAMBER DIAGRAM

SEE DWG. C303

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									315	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5C	1		GIRDER				7035	
301	U		1	wa	PL 1/2 x 33 7/16	37	4 1/8	(M270-50W12) (H2-3)		
301	L		1	ta	PL 7/8 x 16	37	4 1/8	(M270-50W12) (H2-3)		
301	E		1	ba	PL 15/16 x 16	37	3 3/4	(M270-50W12) (H2-3)		
302	B		4	x31a	PL 1/2 x 29 3/4	1	7	(M270-50W12) (H2-3)		
302	C		4	x31b	PL 5/8 x 16	2	7	(M270-50W12) (H2-3)		
302	D		8	x31c	PL 5/8 x 7	2	7	(M270-50W12) (H2-3)		
302	F		2	x31d	PL 3/4 x 16	1	3 3/8	FILL		
302	G		2	x31f	PL 11/16 x 16	1	3 3/8	FILL		
302	M		1	x31ab	PL 1/2 x 5	2	8 3/4			
302	M		1	x31v	PL 1/2 x 5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

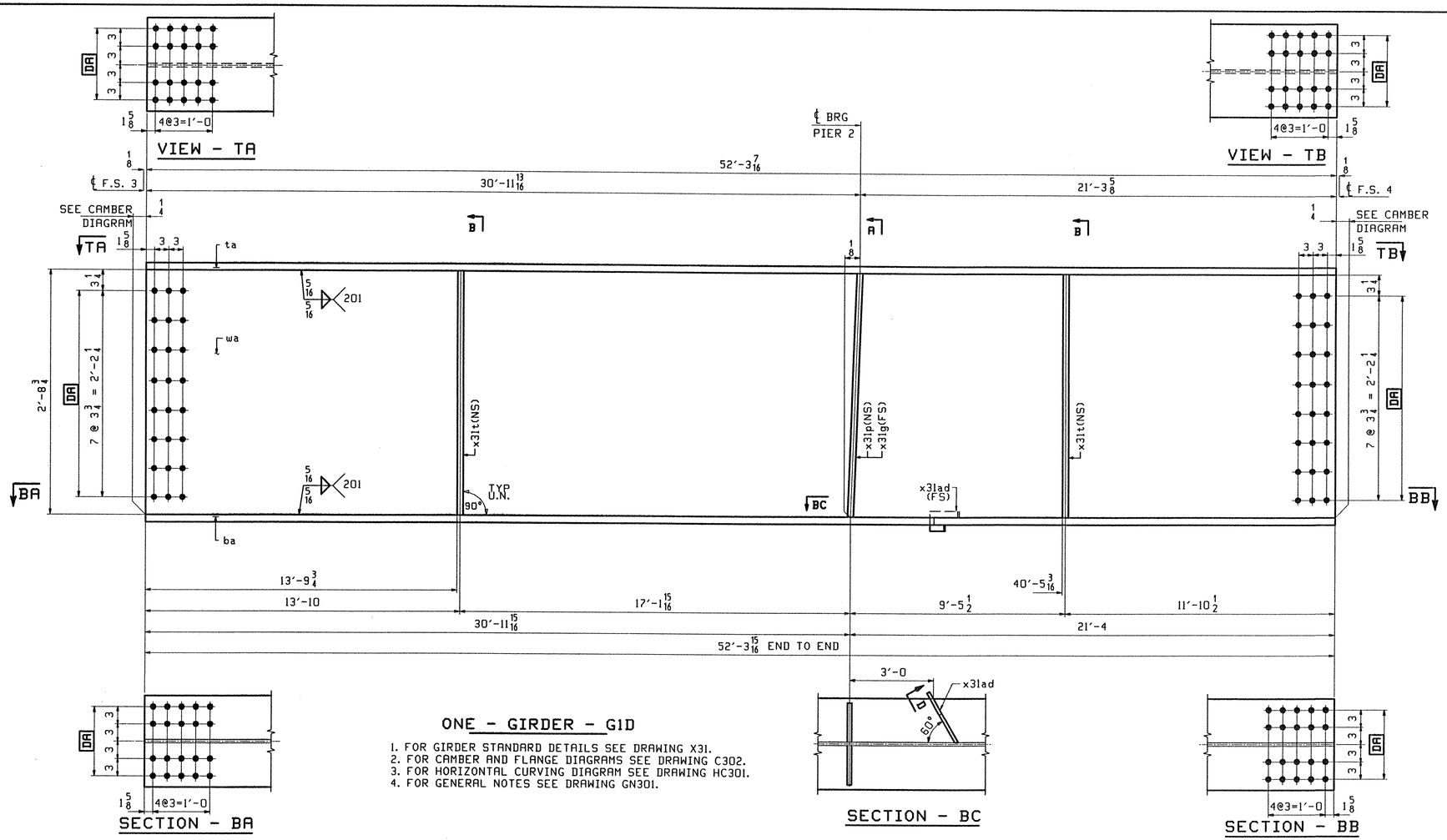
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5C	DRAWN BY	DATE
JOB: BRIDGE NO. 485 I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
	ELC	03/6/01
	APPROV BY	
TENSOR 2107-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

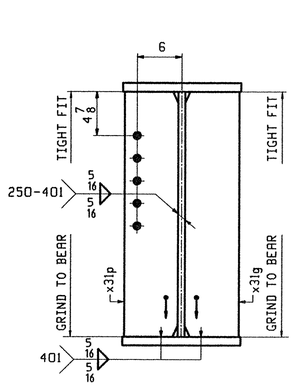
JOB NO.	DRG. NO.
118-485	315
	REV. △

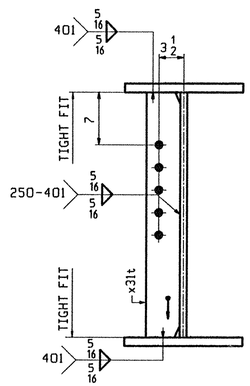
PHG Thu Mar 8 15:55:22 EST 2001 /users/jobs/2107-S/315 : Rev0

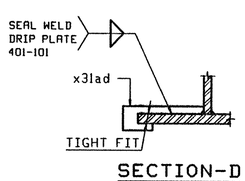


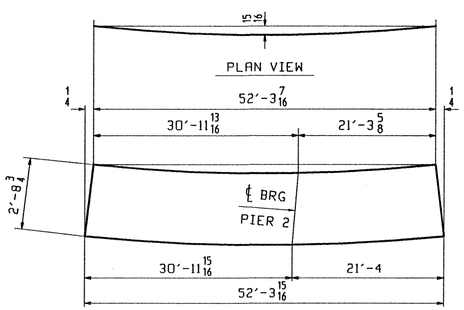
ONE - GIRDER - G1D

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.









DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									316	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		GID	1		GIRDER				12480	
301	S		1	wa	PL 1/2×34 1/4	52	3 15/16	(M270-50WT2) (H2-3)		
301	C		1	ta	PL 1 5/8×16	52	3 7/16	(M270-50WT2) (H2-3)		
301	C		1	ba	PL 1 5/8×16	52	3 15/16	(M270-50WT2) (H2-3)		
302	M		2	x31t	PL 1/2×5	2	8 3/4			
302	K		1	x31p	PL 7/8×7 3/4	2	8 3/4			
302	K		1	x31g	PL 7/8×7 3/4	2	8 3/4			
302	P		1	x31ad	PL 1/4×3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 Ø (UN)	7/8 Ø (UN)

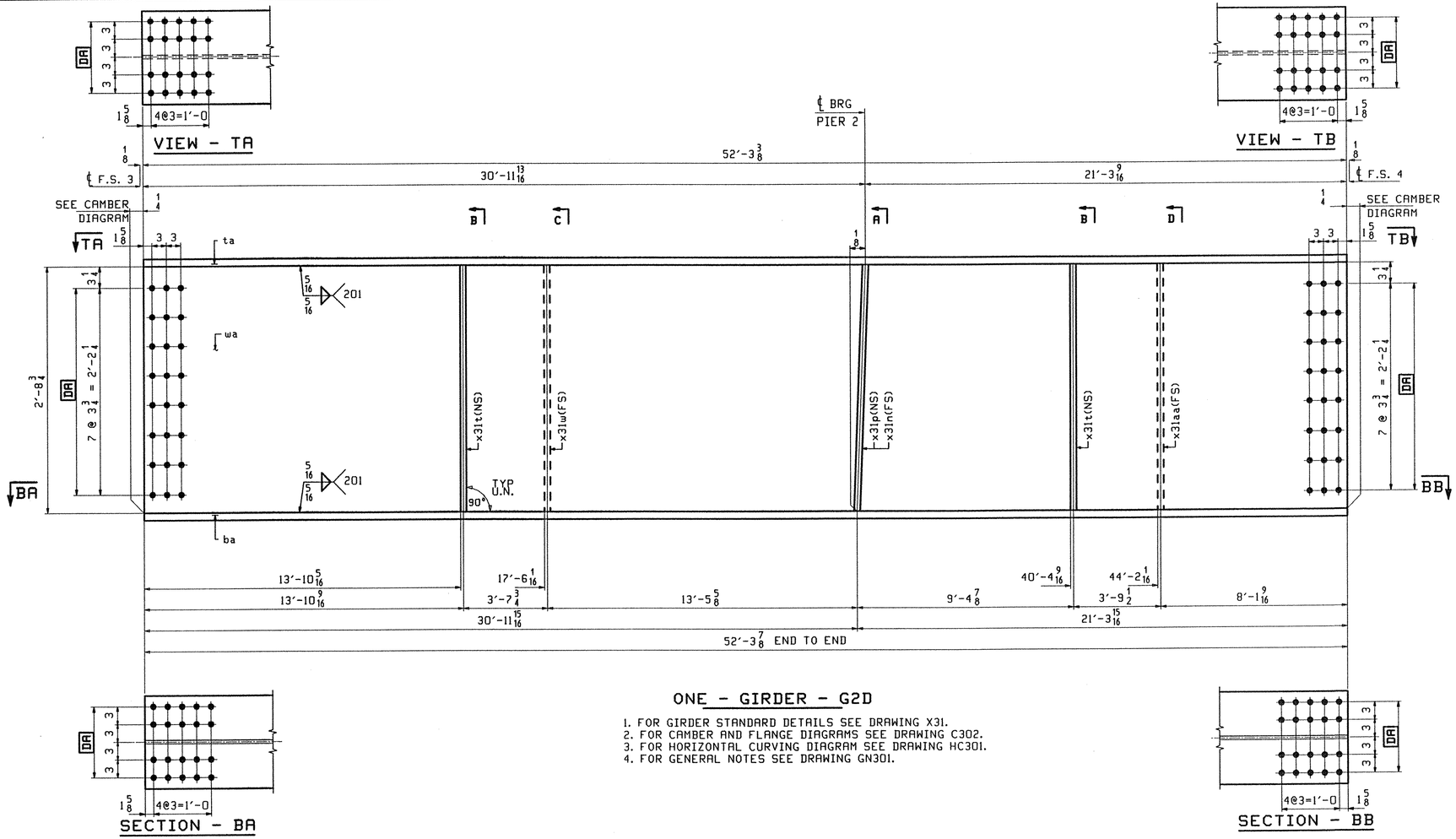
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G1D	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
	ELC	03/7/01
	APPROV BY	
TENSOR 2107-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

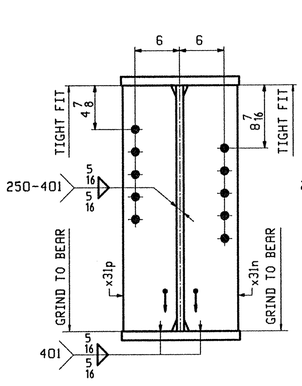
JOB NO.	DRG. NO.
118-48S	316
	REV. △

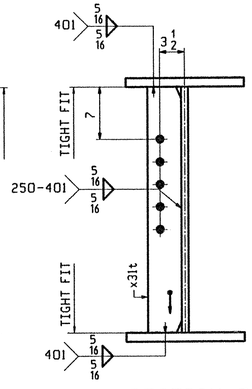
PHG Thu Mar 8 16:03:03 EST 2001 /users/pw/2107-S/316 1 Rev0

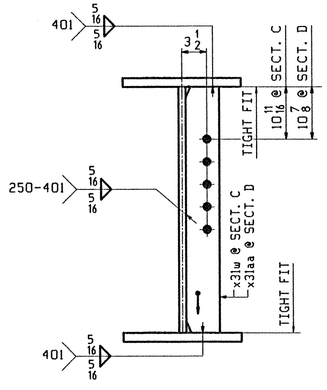


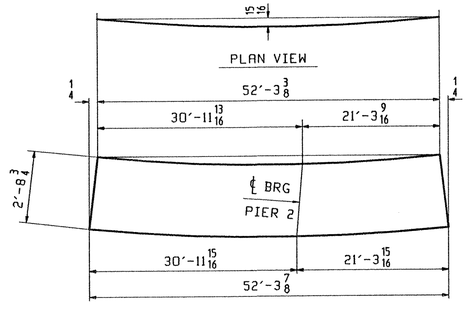
ONE - GIRDER - G2D

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.









DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									317		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G2D	1		GIRDER				12522		
301	S		1	wa	PL 1/2x34 1/4	52	3 7/8	(M270-50W12) (H2-3)			
301	C		1	ta	PL 1 5/8x16	52	3 3/8	(M270-50W12) (H2-3)			
301	C		1	ba	PL 1 5/8x16	52	3 7/8	(M270-50W12) (H2-3)			
302	M		2	x31t	PL 1/2x5	2	8 3/4				
302	M		1	x31w	PL 1/2x5	2	8 1/4				
302	K		1	x31p	PL 1/2x7 3/4	2	8 3/4				
302	K		1	x31n	PL 1/2x7 3/4	2	8 3/4				
302	M		1	x31aa	PL 1/2x5	2	8 1/4				

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Sic
DATE: 3/9/01

OUT FOR APPROVAL	3-13-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

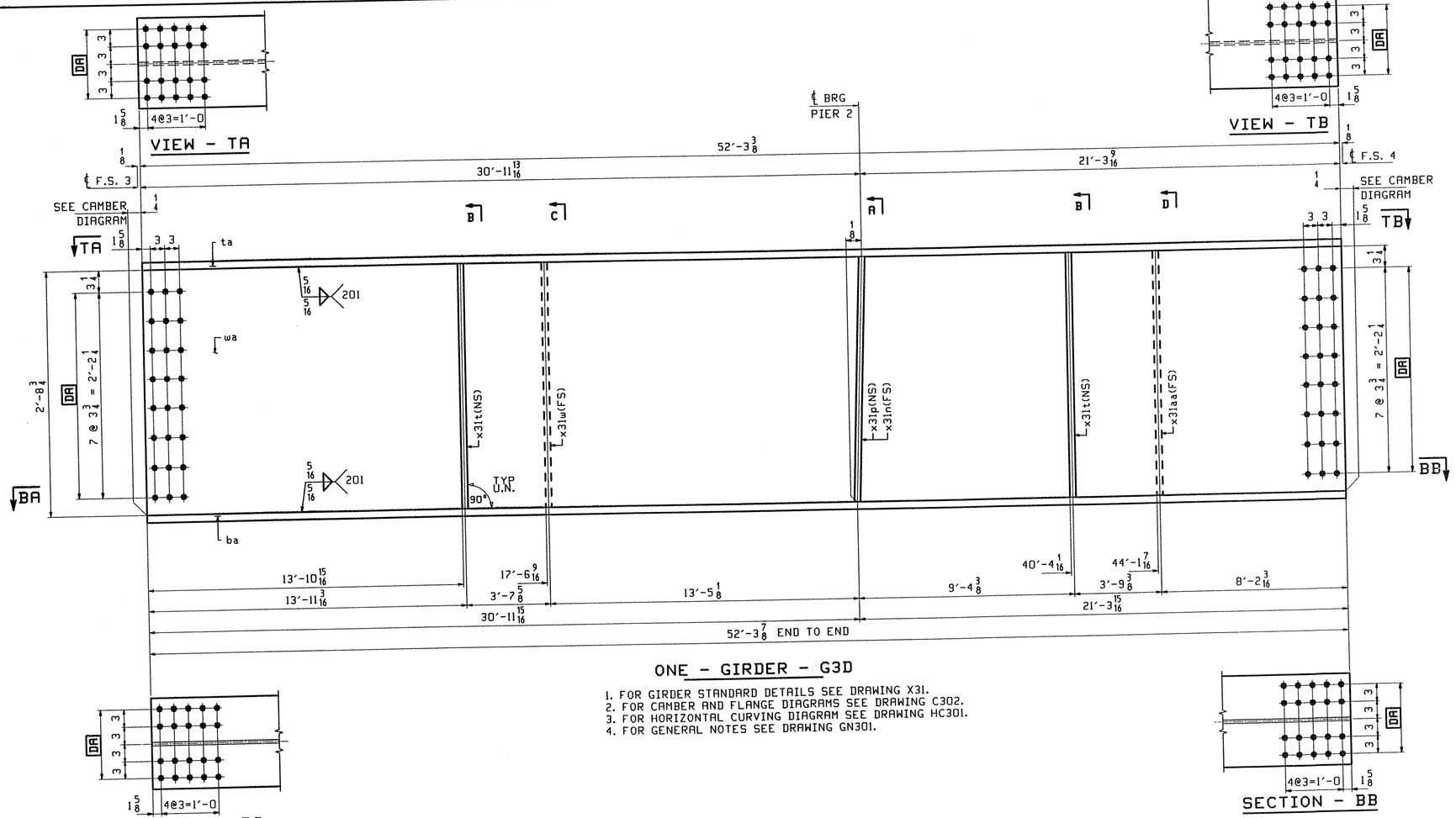
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2D	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/24/01
	CHKD BY	
	ELC	03/7/01
	APPROV BY	
TENSOR 2107-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

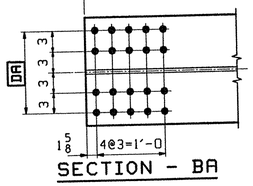
JOB NO.	DRG. NO.
118-48S	317
	REV. △

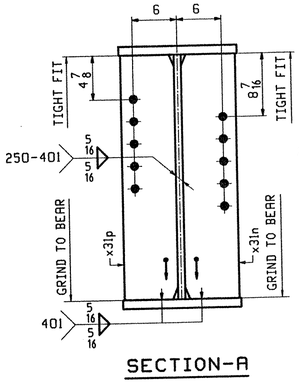
PHG Thu Mar 8 16:03:03 EST 2001 c:\users\phg\2107-S\317 - Rev0

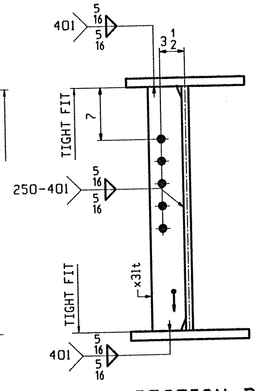


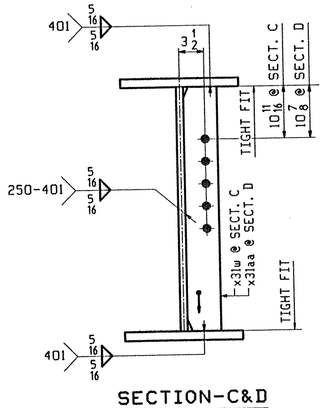
ONE - GIRDER - G3D

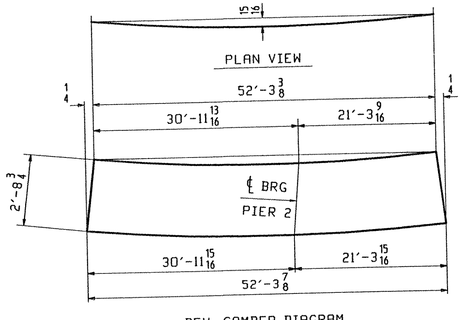
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.











ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3D	1		GIRDER				12522	
301	S		1	wa	PL 1/2x34 1/4	52	3 7/8	(M270-50WT2) (H2-3)		
301	C		1	ta	PL 1 5/8x16	52	3 3/8	(M270-50WT2) (H2-3)		
301	C		1	ba	PL 1 5/8x16	52	3 7/8	(M270-50WT2) (H2-3)		
302	M		2	x31t	PL 1/2x5	2	8 3/4			
302	M		1	x31w	PL 1/2x5	2	8 3/4			
302	K		1	x31p	PL 7/8x7 3/4	2	8 3/4			
302	K		1	x31n	PL 7/8x7 3/4	2	8 3/4			
302	M		1	x31aa	PL 1/2x5	2	8 3/4			

BILL OF MATERIAL

JOB NO. | DRAWING NO. 318 | REV.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3/30/01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3D

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
TENSOR 2107-5

PROJ NO. IM-089-2(26)

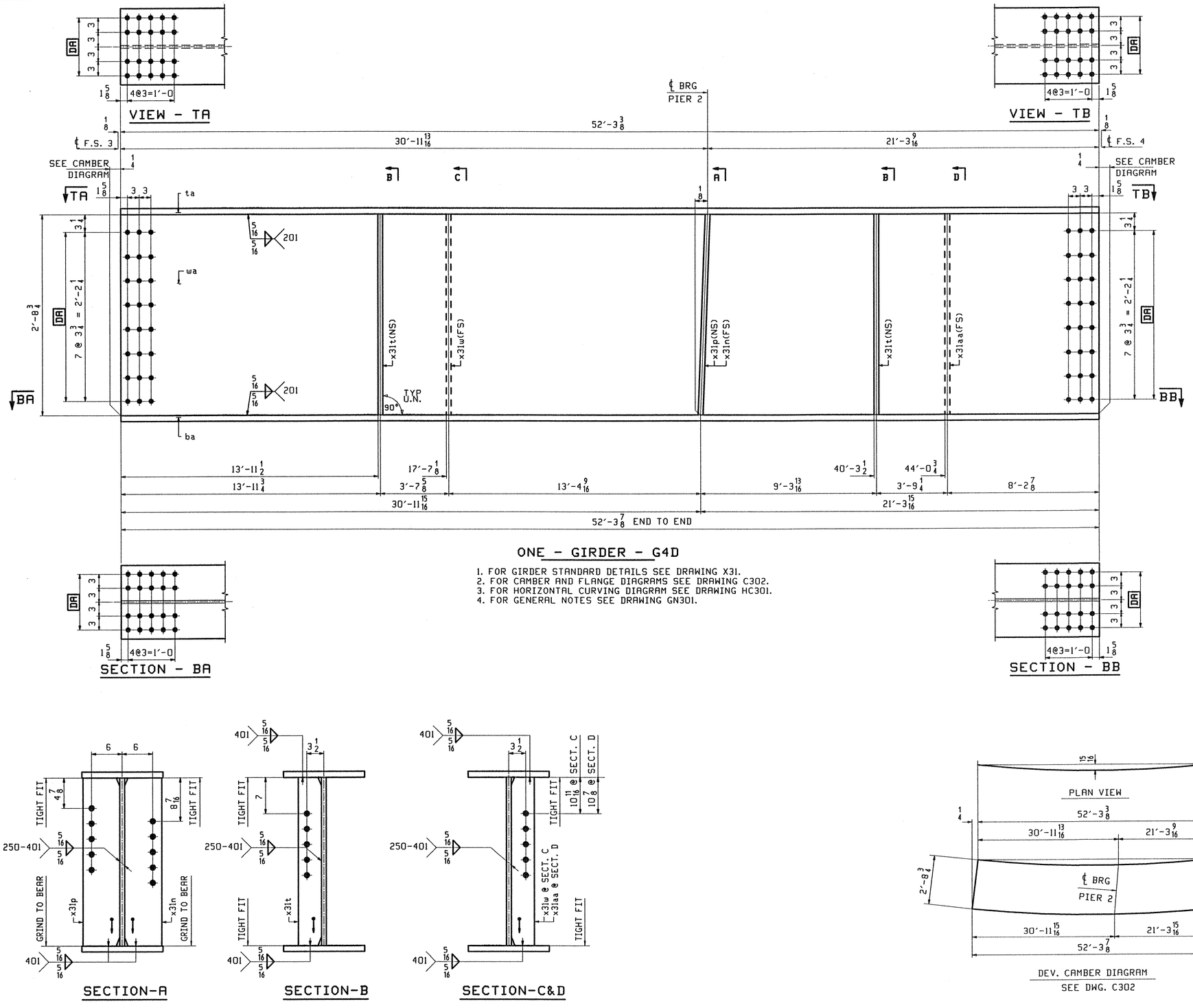
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/26/01
CHKD BY	
ELC	03/7/01
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
118-48S	318
	REV. △

PWG Thu Mar 8 10:11:05 EST 2001 /users/jobs/2107-5/318 Rev0



ONE - GIRDER - G4D

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.

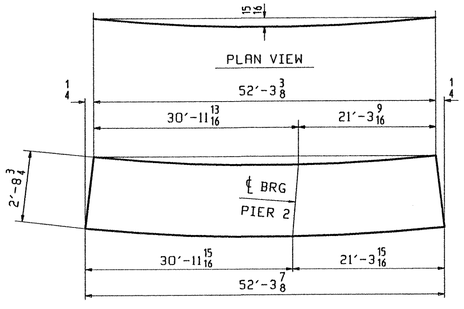
SECTION - BA

SECTION - BB

SECTION-A

SECTION-B

SECTION-C&D



DEV. CAMBER DIAGRAM
SEE DWG. C302

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									319		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G4D	1		GIRDER				12522		
301	S		1	wa	PL 1/2 x 34 1/4	52	3 7/8	(M270-50WT2) (H2-3)			
301	C		1	ta	PL 1 5/8 x 16	52	3 3/8	(M270-50WT2) (H2-3)			
301	C		1	ba	PL 1 5/8 x 16	52	3 7/8	(M270-50WT2) (H2-3)			
302	M		2	x31t	PL 1/2 x 5	2	8 3/4				
302	M		1	x31w	PL 1/2 x 5	2	8 3/4				
302	K		1	x31p	PL 7/8 x 7 3/4	2	8 3/4				
302	K		1	x31n	PL 7/8 x 7 3/4	2	8 3/4				
302	M		1	x31aa	PL 1/2 x 5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3/5/01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4D

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

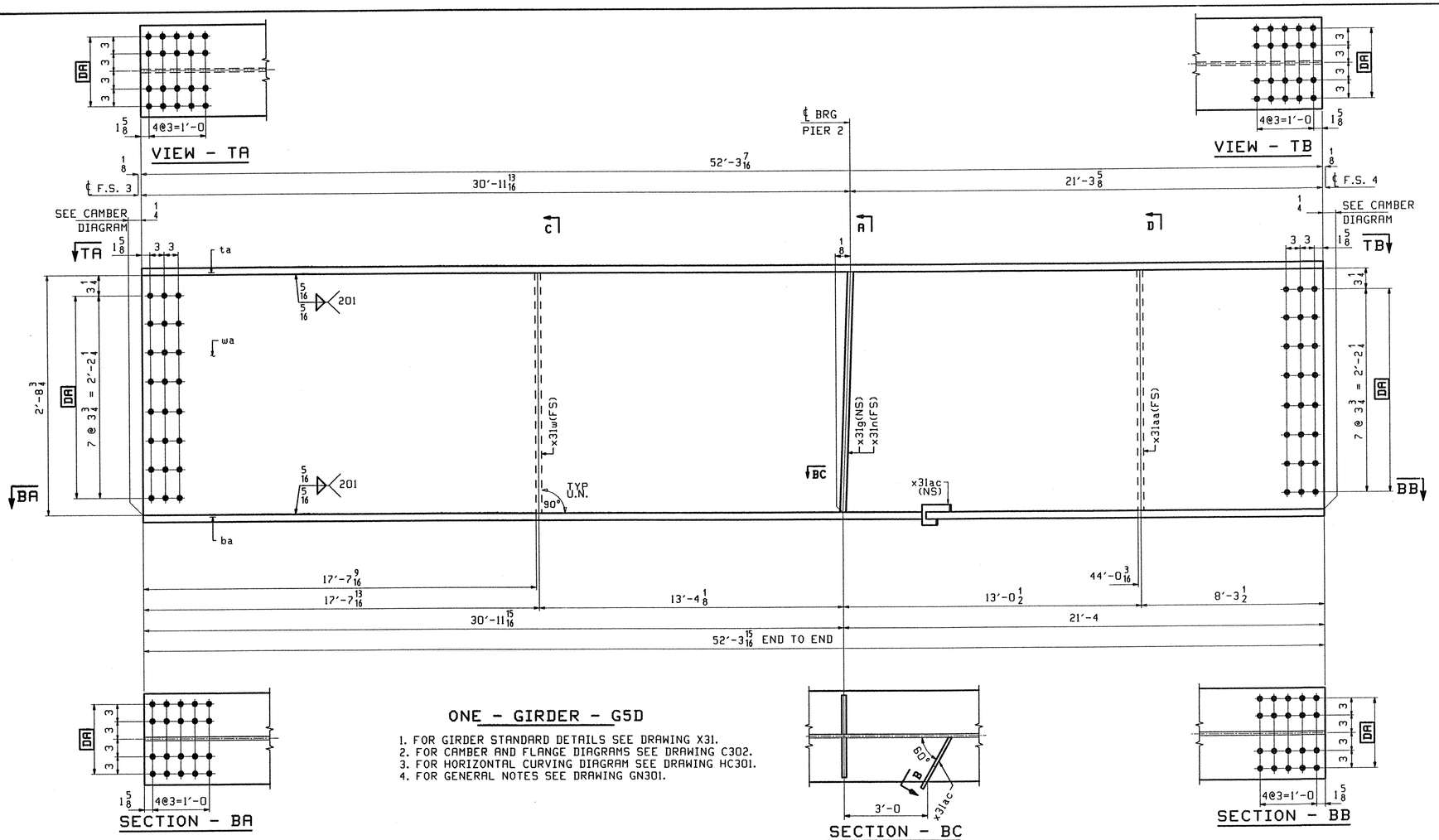
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/26/01
CHKD BY	
ELC	03/7/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

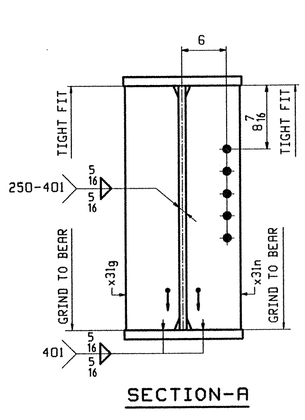
JOB NO.	DRG. NO.
118-48S	319
	REV. △

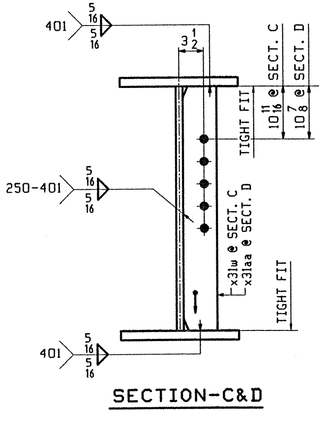
PHG Thu Mar 8 15:12:26 EST 2001 /users/pkw/2107-S/319.1 Rev0

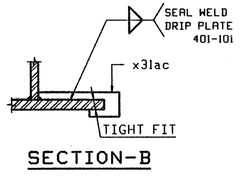


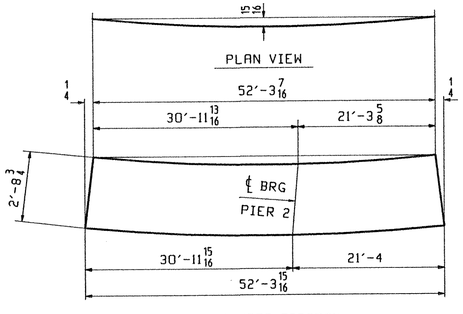
ONE - GIRDER - G5D

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C302.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.









ABM INFO		SHIP	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
PAGE	LINE	MARK								
		G5D	1		GIRDER				12480	
301	S		1	wa	PL 1/2x34 1/4	52	3 15/16	(M270-50W T2) (H2-3)		
301	C		1	ta	PL 1 5/8x16	52	3 7/16	(M270-50W T2) (H2-3)		
301	C		1	ba	PL 1 5/8x16	52	3 15/16	(M270-50W T2) (H2-3)		
302	M		1	x31w	PL 1/2x5	2	8 3/4			
302	K		1	x31g	PL 7/8x7 3/4	2	8 3/4			
302	K		1	x31n	PL 7/8x7 3/4	2	8 3/4			
302	M		1	x31aa	PL 1/2x5	2	8 3/4			
302	P		1	x31ac	PL 1/4x3 5/8	0	10 15/16			

JOB NO. | DRAWING NO. 320 | REV.

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for performance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Set
DATE: 4/9/01

OUT FOR APPROVAL	3-13-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5D

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
TENSOR 2107-S

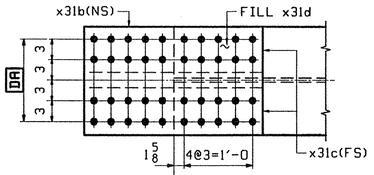
PROJ NO. IM-089-2(26)
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

	DRAWN BY	DATE
	PHG	02/26/01
	CHKD BY	
	ELC	03/7/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
	Q.A.	

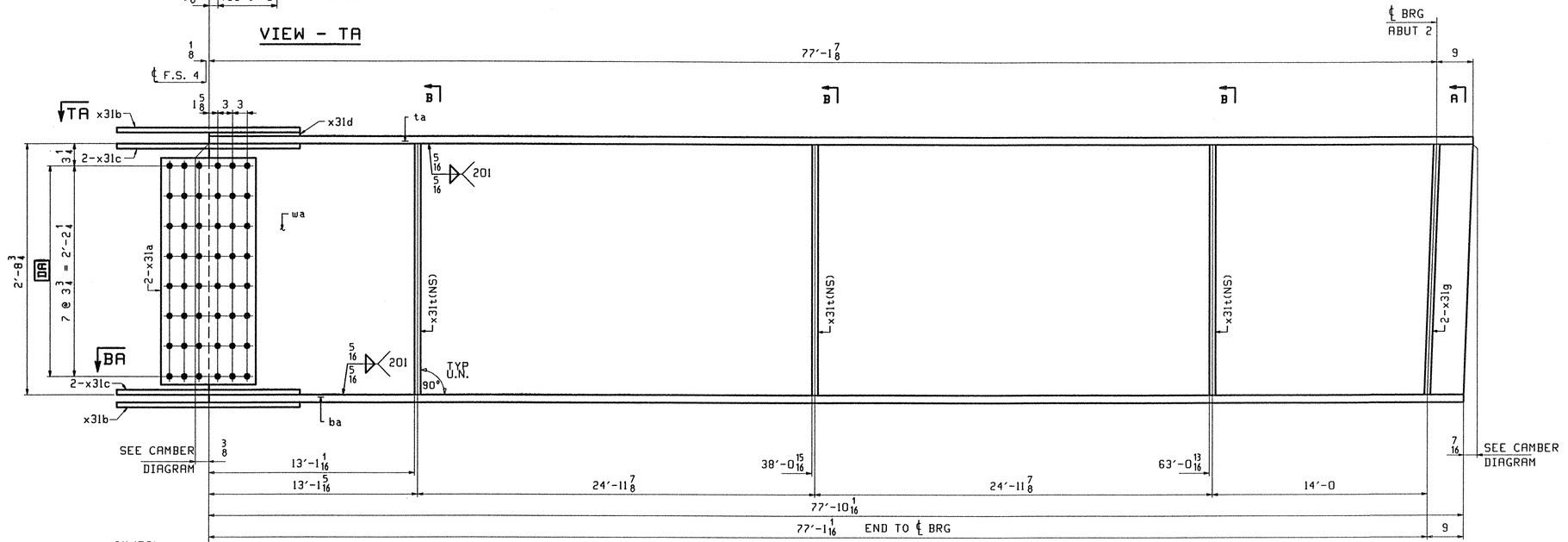
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

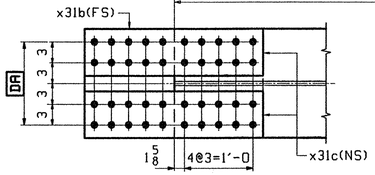
JOB NO.	DRG. NO.
118-48S	320
	REV. △

PHG Thu Mar 8 16:21:00 EST 2001 /users/jobs/2107-S/320.1 6x0



VIEW - TA

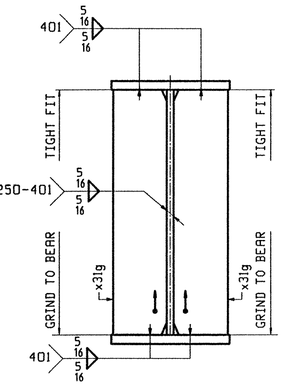




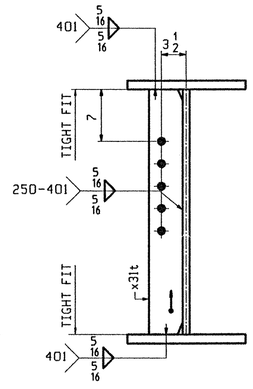
SECTION - BA

ONE - GIRDER - G1E

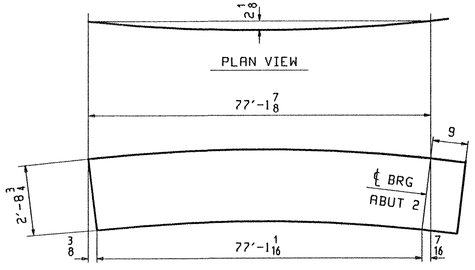
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SECTION-A



SECTION-B



DEV. CAMBER DIAGRAM
SEE DWG. C301

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									321	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		GIE	1		GIRDER				16166	
301	N		1	wa	PL 1/2x36 7/16	77	10 7/8	(M270-50WT2) (H2-3)		
301	G		1	ta	PL 7/8x16	77	10 7/8	(M270-50WT2) (H2-3)		
301	A		1	ba	PL 1 3/8x16	77	10 1/16	(M270-50WT2) (H2-3)		
302	B		2	x31a	PL 1/2x29 3/4	1	7	(M270-50WT2) (H2-3)		
302	C		2	x31b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)		
302	D		4	x31c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
302	F		1	x31d	PL 3/4x16	1	3 3/8	FILL		
302	M		3	x31t	PL 1/2x5	2	8 3/4			
302	K		2	x31g	PL 7/8x7 3/4	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-13-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

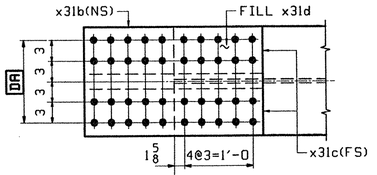
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G1E	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/26/01
	CHKD BY	
	ELC	03/7/01
	APPROV BY	
TENSOR 2107-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

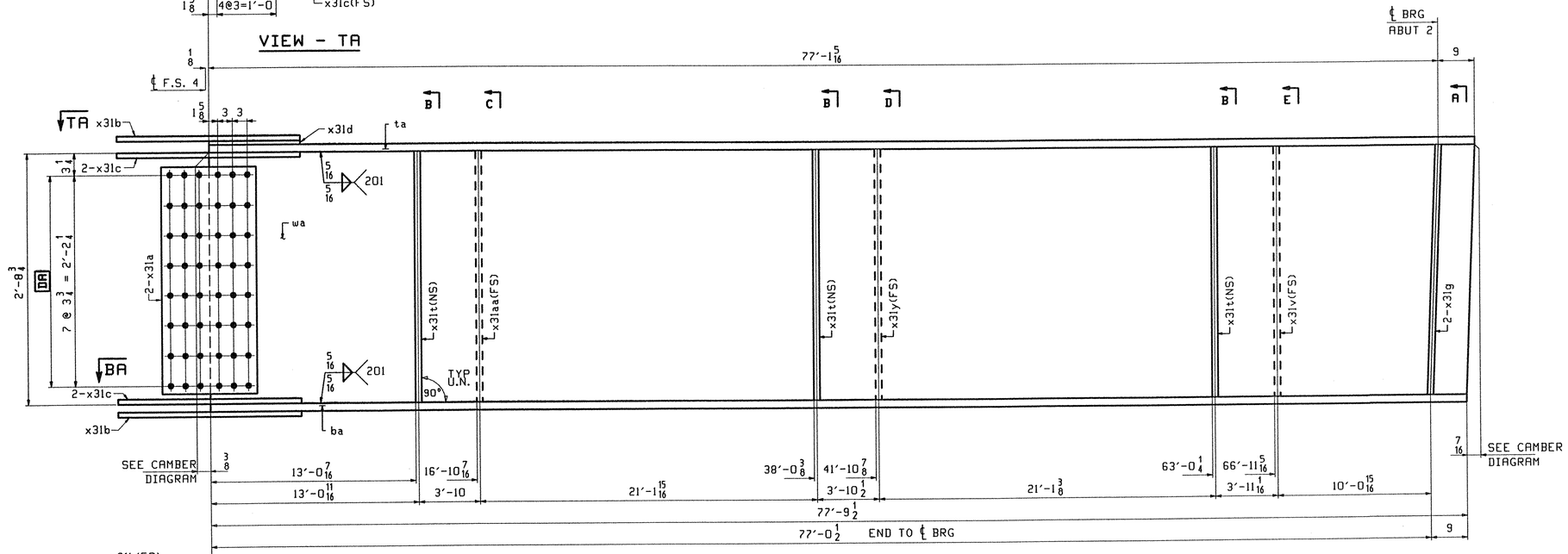
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
118-48S	321
	REV. △

PHG Thu Mar 8 15:45:15 EST 2001 /users/jobs/2107-S/321.dgn Rev0

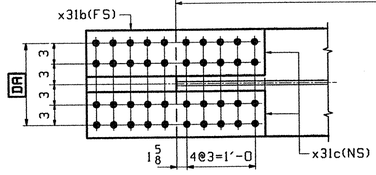


VIEW - TA

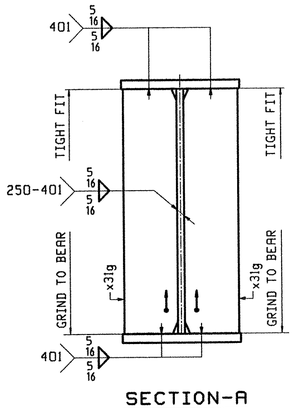


ONE - GIRDER - G2E

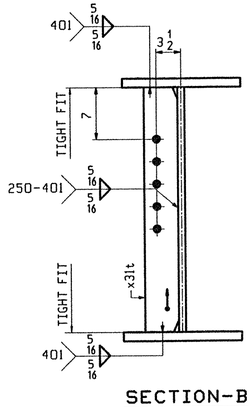
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



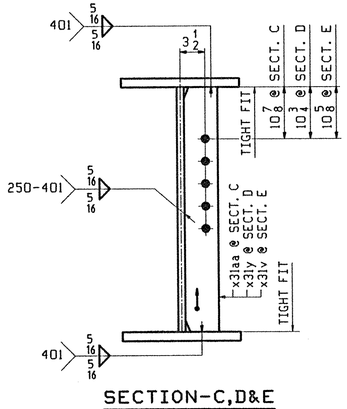
SECTION - BA



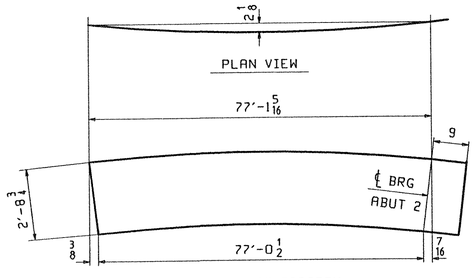
SECTION-A



SECTION-B



SECTION-C,D&E



DEV. CAMBER DIAGRAM
SEE DWG. C301

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									322	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2E	1		GIRDER				16226	
301	N		1	wa	PL 1/2 x 36 7/16	77	10 5/16	(M270-50W T2) (H2-3)		
301	G		1	ta	PL 7/8 x 16	77	10 5/16	(M270-50W T2) (H2-3)		
301	A		1	ba	PL 1 5/8 x 16	77	9 1/2	(M270-50W T2) (H2-3)		
302	B		2	x31a	PL 1/2 x 29 3/4	1	7	(M270-50W T2) (H2-3)		
302	C		2	x31b	PL 5/8 x 16	2	7	(M270-50W T2) (H2-3)		
302	D		4	x31c	PL 5/8 x 7	2	7	(M270-50W T2) (H2-3)		
302	F		1	x31d	PL 3/4 x 16	1	3 3/8	FILL		
302	M		3	x31t	PL 1/2 x 5	2	8 3/4			
302	M		1	x31aa	PL 1/2 x 5	2	8 3/4			
302	M		1	x31y	PL 1/2 x 5	2	8 3/4			
302	M		1	x31v	PL 1/2 x 5	2	8 3/4			
302	K		2	x31g	PL 7/8 x 7 3/4	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. E. T.
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/13/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

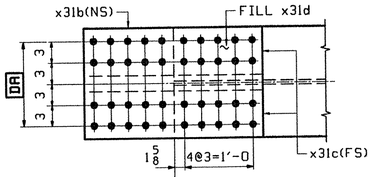
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2E	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/26/01
	CHKD BY	
	ELC	03/7/01
TENSOR 2107-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

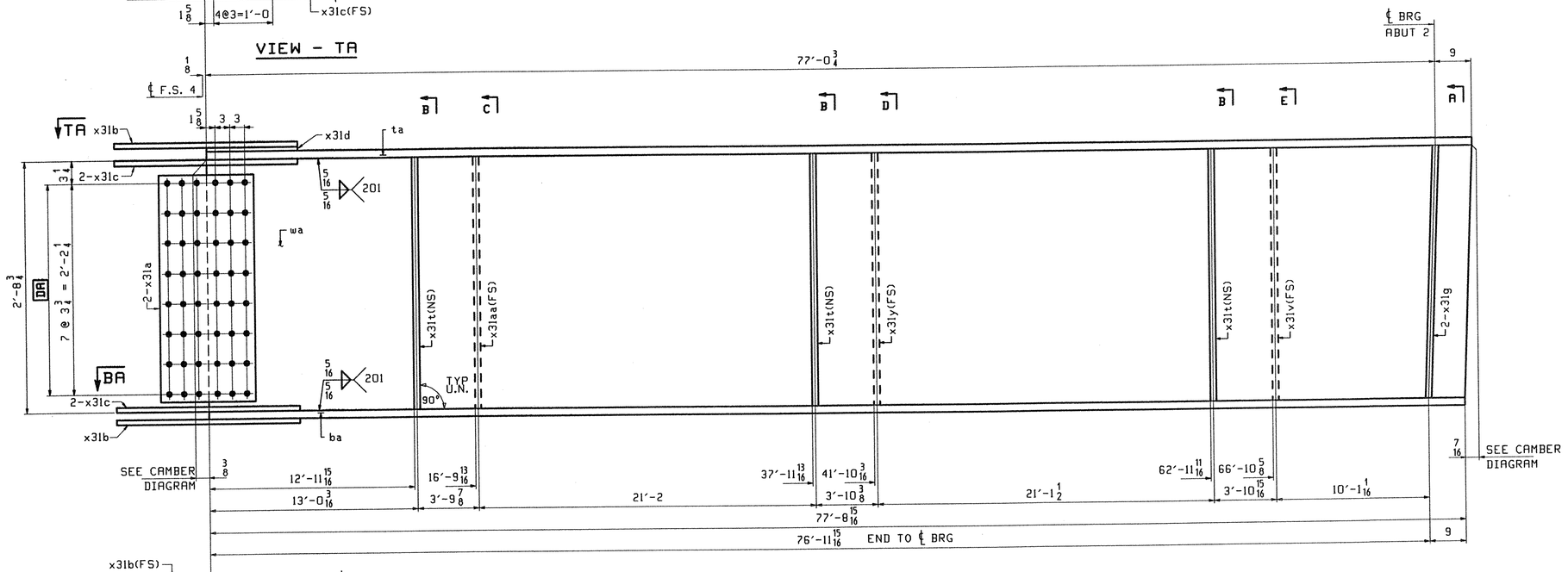
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

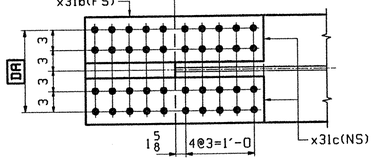
JOB NO.	DRG. NO.
118-48S	322
	REV. △

PHG Thu Mar 8 17:08:43 EST 2001 /users/phg/2107-S/322.1 Rev0



VIEW - TA

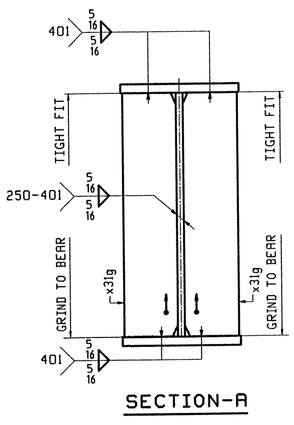




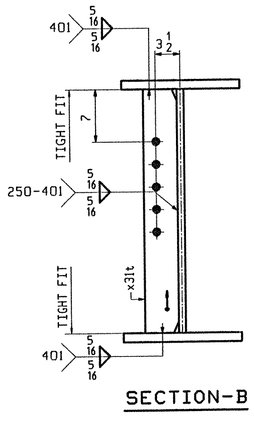
SECTION - BA

ONE - GIRDER - G3E

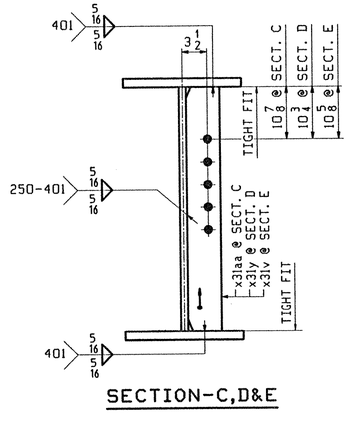
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



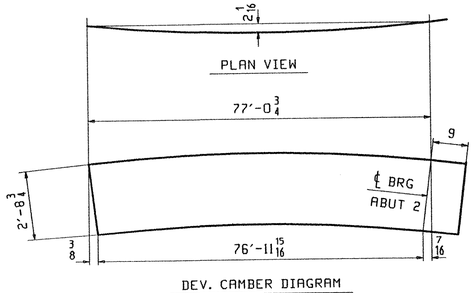
SECTION-A



SECTION-B



SECTION-C,D&E



DEV. CAMBER DIAGRAM
SEE DWG. C301

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
									323		
		G3E	1		GIRDER				16217		
301	N		1	wa	PL 1/2x36 7/16	77	9 3/4	(M270-50WT2) (H2-3)			
301	G		1	ta	PL 7/8x16	77	9 3/4	(M270-50WT2) (H2-3)			
301	A		1	ba	PL 1 5/8x16	77	8 15/16	(M270-50WT2) (H2-3)			
302	B		2	x31a	PL 1/2x29 3/4	1	7	(M270-50WT2) (H2-3)			
302	C		2	x31b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)			
302	D		4	x31c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)			
302	F		1	x31d	PL 3/4x16	1	3 3/8	FILL			
302	M		3	x31t	PL 1/2x5	2	8 3/4				
302	M		1	x31aa	PL 1/2x5	2	8 3/4				
302	M		1	x31y	PL 1/2x5	2	8 3/4				
302	M		1	x31v	PL 1/2x5	2	8 3/4				
302	K		2	x31g	PL 7/8x7 3/4	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: P.E. W. Gatti
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-13-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3E

JOB: BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

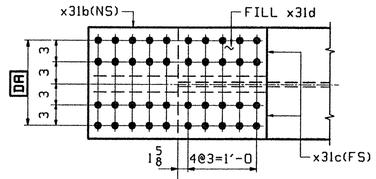
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

	DRAWN BY	DATE
	PHG	02/26/01
	CHKD BY	
	ELC	03/7/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
	Q.A.	

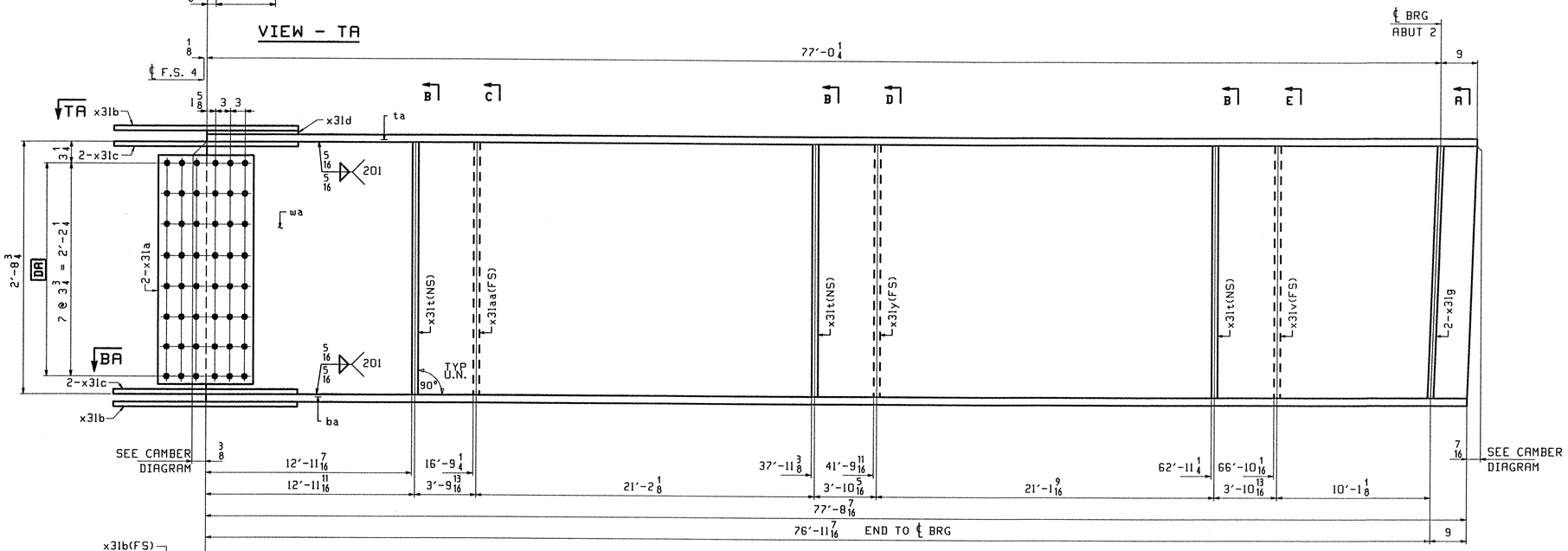
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

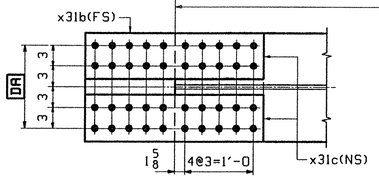
JOB NO.	DRG. NO.
118-48S	323
	REV. △

PHG Thu Mar 8 16:56:10 EST 2001 /users/pkm/2107-S/323.1 RevD



VIEW - TA

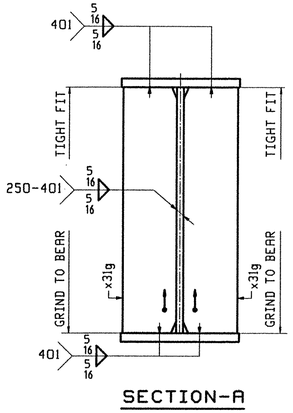




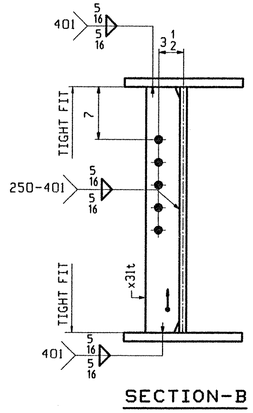
SECTION - BA

ONE - GIRDER - G4E

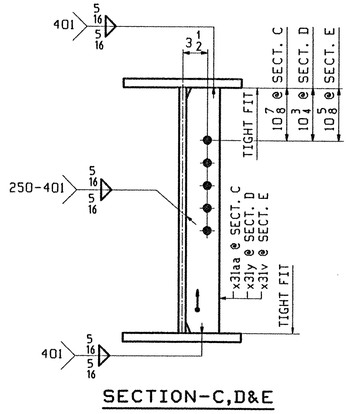
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



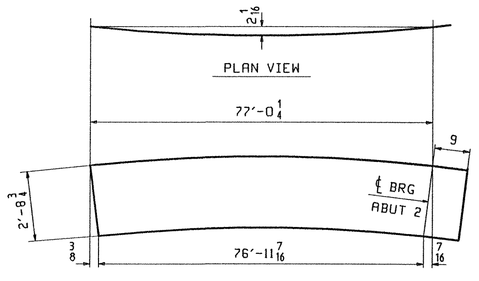
SECTION-A



SECTION-B



SECTION-C,D&E



DEV. CAMBER DIAGRAM
SEE DWG. C301

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4E	1		GIRDER				16208	
301	N		1	wa	PL 1/2x36 7/16	77	9 1/4	(M270-50WT2) (H2-3)		
301	G		1	ta	PL 7/8x16	77	9 1/4	(M270-50WT2) (H2-3)		
301	A		1	ba	PL 1 5/8x16	77	8 9/16	(M270-50WT2) (H2-3)		
302	B		2	x31a	PL 1/2x29 3/4	1	7	(M270-50WT2) (H2-3)		
302	C		2	x31b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)		
302	D		4	x31c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
302	F		1	x31d	PL 3/4x16	1	3 3/8	FILL		
302	M		3	x31t	PL 1/2x5	2	8 3/4			
302	M		1	x31aa	PL 1/2x5	2	8 3/4			
302	M		1	x31y	PL 1/2x5	2	8 3/4			
302	M		1	x31v	PL 1/2x5	2	8 3/4			
302	K		2	x31g	PL 7/8x7 3/4	2	8 3/4			

JOB NO.

DRAWING NO. 324

REV.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for confirmance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pete W. Scott
DATE: 3/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	3-13-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4E

JOB:
BRIDGE NO. 48S
I-89 SB OVER LITTLE RIVER
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2107-S

PROJ NO. IM-089-2(26)

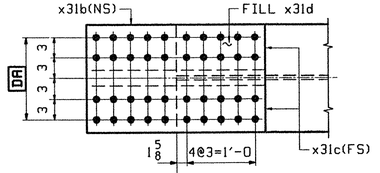
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	02/26/01
CHKD BY	
ELC	03/7/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

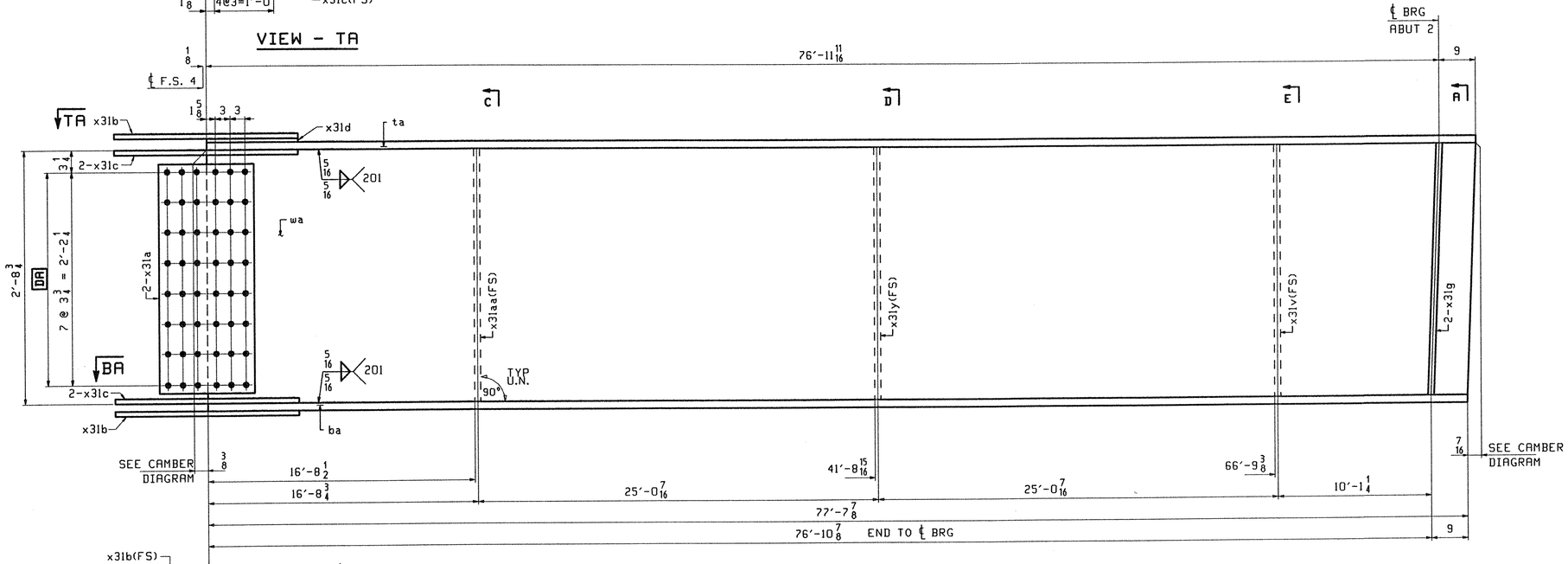
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

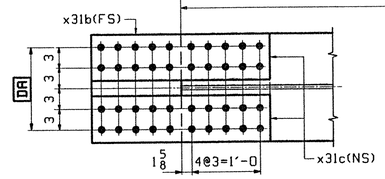
JOB NO.	DRG. NO.
118-48S	324
	REV. △

PHG Thu Mar 8 17:10:40 EST 2001 /users/jobs/2107-S/324.1 Rev0



VIEW - TA

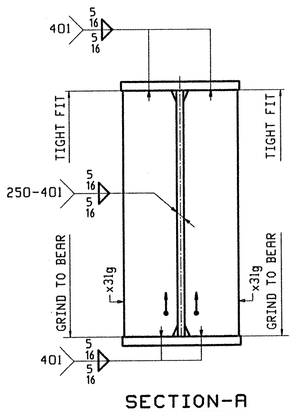




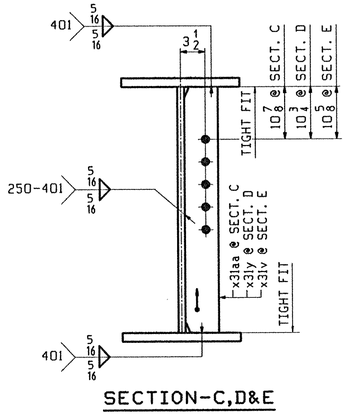
SECTION - BA

ONE - GIRDER - G5E

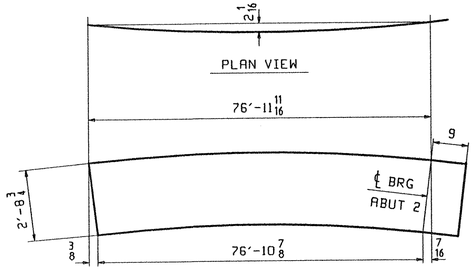
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X31.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C301.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC301.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SECTION-A



SECTION-C,D&E



DEV. CAMBER DIAGRAM
SEE DWG. C301

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									325		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G5E	1		GIRDER				16129		
301	N		1	wa	PL 1/2 x 36 7/16	77	8 11/16	(M270-50WT2) (H2-3)			
301	G		1	ta	PL 7/8 x 16	77	8 11/16	(M270-50WT2) (H2-3)			
301	A		1	ba	PL 1 3/8 x 16	77	7 1/8	(M270-50WT2) (H2-3)			
302	B		2	x31a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)			
302	C		2	x31b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)			
302	D		4	x31c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)			
302	F		1	x31d	PL 3/4 x 16	1	3 3/8	FILL			
302	M		1	x31aa	PL 1/2 x 5	2	8 3/4				
302	M		1	x31y	PL 1/2 x 5	2	8 3/4				
302	M		1	x31v	PL 1/2 x 5	2	8 3/4				
302	K		2	x31g	PL 7/8 x 7 3/4	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3/30/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

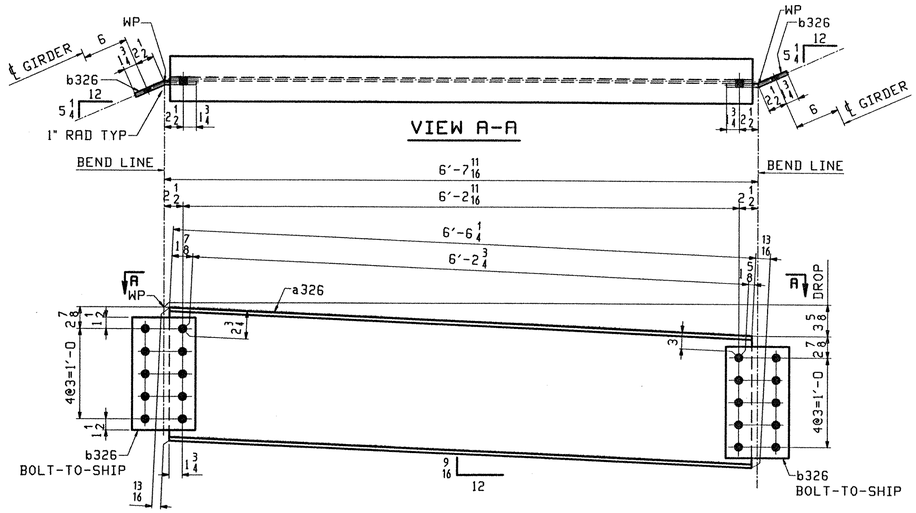
DESCRIPTION:	GIRDER - G5E	DRAWN BY	DATE
JOB:	BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/26/01
		CHKD BY	
		ELC	03/7/01
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-S

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

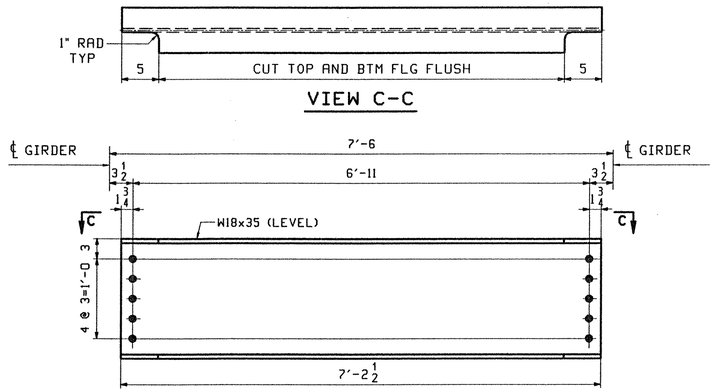
JOB NO.	DRG. NO.
118-48S	325
	REV. △

PHG Thu Mar 8 17:12:51 CST 2001 /users/pbw/2107-S/325 : Rev0

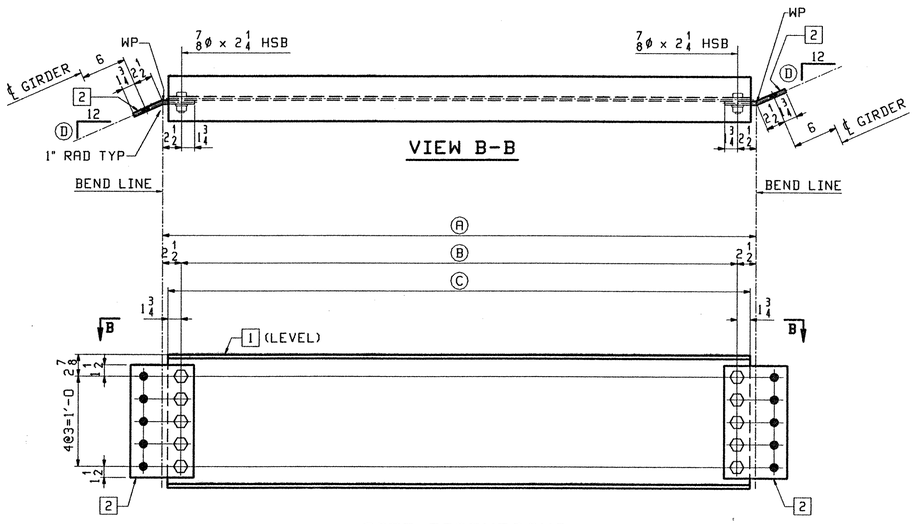


4 ~ ABUT DIAPHRAGMS ~ 326D1

PAINTED SEE GN301

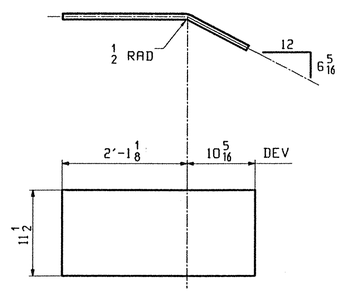


48 ~ INT. DIAPHRAGMS ~ 326D4



PIER DIAPHRAGMS

MARK	REQ'D	Ⓐ	Ⓑ	Ⓒ	Ⓓ	1	2	
326D2	4	7'-0 3/16	6'-7 3/16	6'-10 11/16	6 7/8	c326	d326	PIER 1
326D3	4	7'-1 1/2	6'-8 1/2	7'-0	7 5/16	f326	g326	PIER 2



5 ~ END PLATES ~ 326M1

TVGA
Engineering, Surveying, P.C.

☑ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: [signature]
DATE: 4/9/01

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	BILL OF MATERIAL QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		326D1	4		ABUT DIAPHRAGM				267	
303	C		4	a326	W 18x35	6	7 1/16			
303	E		8	b326	PL 1/2x15	0	8 1/2	BENT		
		326D2	4		PIER DIAPHRAGMS				281	
303	D		4	c326	W 18x35	6	10 11/16			
303	E		8	d326	PL 1/2x15	0	8 1/2	BENT		
304	C		40		7/8 Ø HSB	0	2 1/4	(A325-3)		
304	H		40		7/8 Ø HSW			(F436W)		
		326D3	4		PIER DIAPHRAGMS				285	
303	D		4	f326	W 18x35	7	0			
303	E		8	g326	PL 1/2x15	0	8 1/2	BENT		
304	C		40		7/8 Ø HSB	0	2 1/4	(A325-3)		
304	H		40		7/8 Ø HSW			(F436W)		
					INT. DIAPHRAGMS					
303	B	326D4	48		W 18x35	7	2 1/2		252	
					END PLATES					
303	H	326M1	5		PL 1/4x11 1/2	2	11 7/16	BENT	29	
					FIELD BOLTS				1305	
								2% ADDED +3 FOR TEST		
305	C		493		7/8 Ø HSB	0	2 1/4	(A325-3)		
305	E		85		7/8 Ø HSB	0	2 3/4	(A325-3)		
305	F		982		7/8 Ø HSB	0	3	(A325-3)		
305	J		1635		7/8 Ø HSB	0	4 1/4	(A325-3)		
305	L		3195		7/8 Ø HSW			(F436W)		
305	P		45		7/8 Ø HSB	0	2 1/4	(A325-1) GALV.		
305	R		45		7/8 Ø HSB	0	2 3/4	(A325-1) GALV.		
305	T		90		7/8 Ø HSW			(F436) GALV.		

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	3-13-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 Ø (UN)	7/8 Ø (UN)

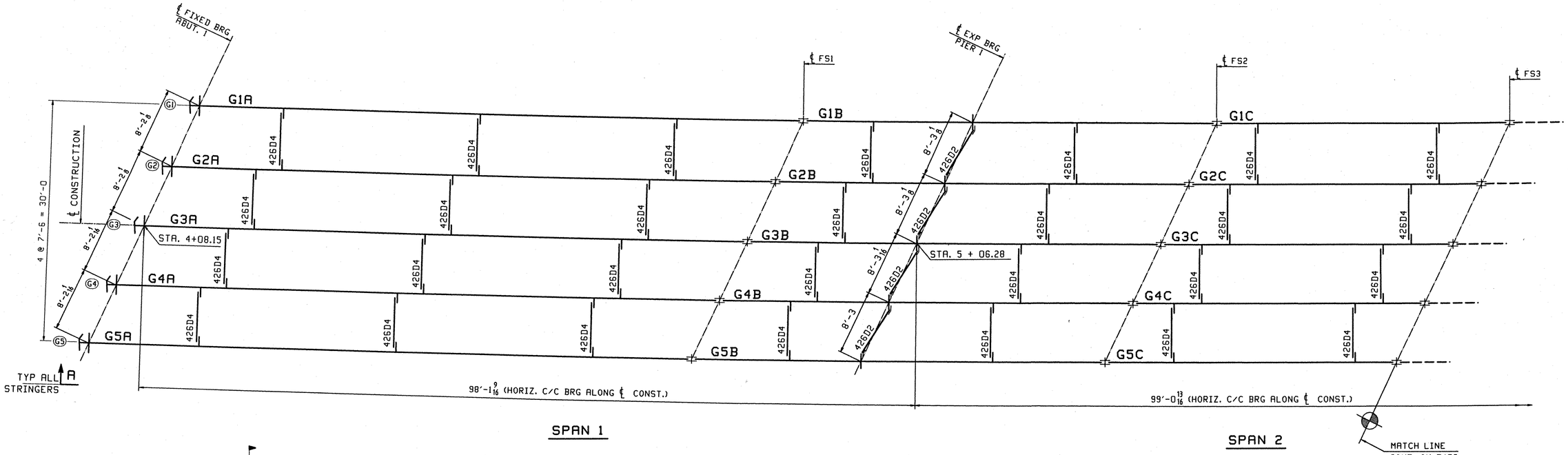
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN301)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

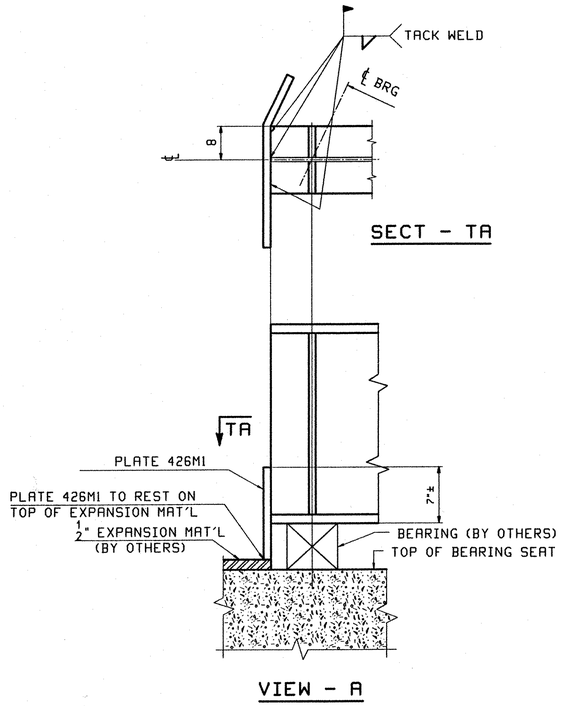
DESCRIPTION: DIAPHRAGMS	DRAWN BY	DATE
JOB: BRIDGE NO. 48S I-89 SB OVER LITTLE RIVER I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	02/26/01
	CHKD BY	
	ELC	03/7/01
TENSOR 2107-S	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
118-48S	326
	REV. △

ELC Fri Mar 9 10:02:48 EST 2001 /users/jobs/2107-S/326 : Rev0





N

FRAMING PLAN

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-3-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

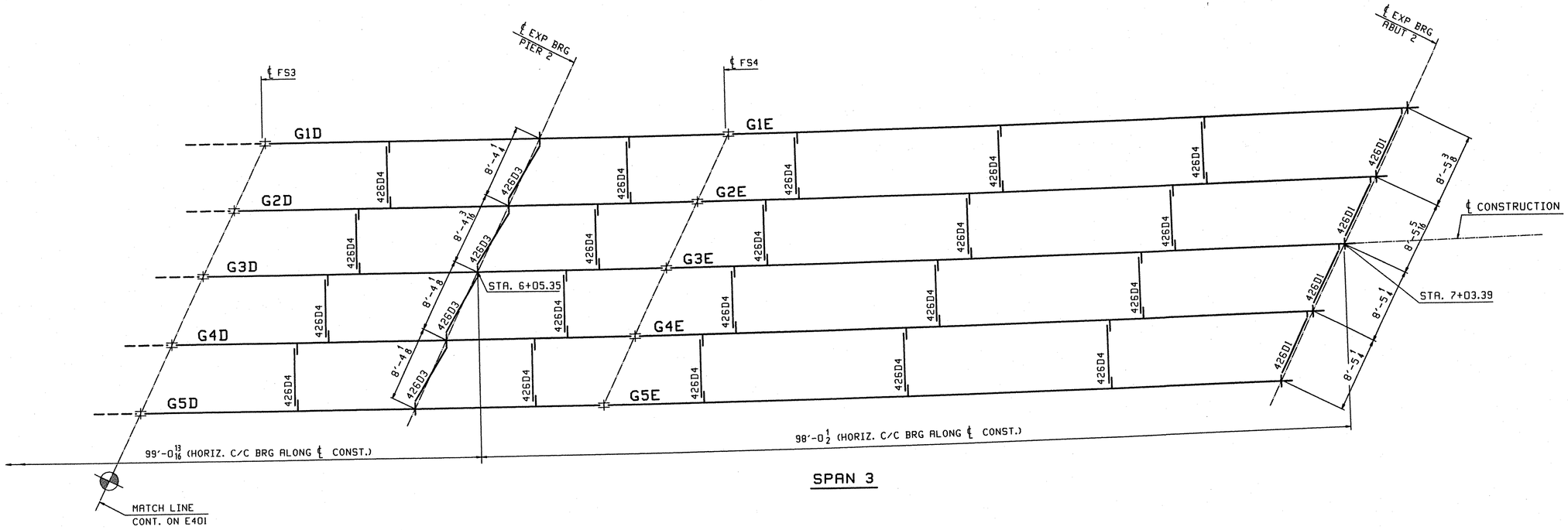
☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 10-11-2001

DESCRIPTION:	FRAMING PLAN	DRAWN BY	DATE
JOB:	BRIDGE 48N I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	8/04
		CHKD BY	
TENSOR 2107-N		ELC	9/14/01
		APPROV BY	
PROJ NO.	IM-089-2(26)	SUPERVISOR	W. J. GATTI
		Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		
CASCO BAY STEEL STRUCTURES, INC.		JOB NO.	DRG. NO.
75 SPRING HILL ROAD	SACO, MAINE 04072	119-48N	E401
PHONE (207) 282-7360	FAX. (207) 282-1179		REV. △

ELC Thu Sep 20 11:50:05 EDT 2001 /users/jobs/2107-N/E401 - Rev0



SPAN 3

FRAMING PLAN

N

FIELD BOLT LIST						A325 Type 3 BOLTS								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
1														FIELD SPLICES
2	1600	7/8	4 1/4	40	40	2 7/8	5/8	1 5/8	5/8				1	TOP & BTM FLG SPLICE
3	960	7/8	3	48	20	1 1/2	1/2	1/2	1/2				1	WEB SPLICE
4														
5														INT. DIAPHRAGMS
6	480	7/8	2 1/4	5	96	13/16	5/16	1/2					1	WEB TO CONN PL
7														
8														PIER DIAPHRAGMS
9	80	7/8	2 3/4	5	16	1 1/8	1/2	7/8					1	GUSSET TO CONN PL
WASHER CODES														
1: 1 Hard Flat Washer														

FIELD BOLT LIST						A325 Type 1 BOLTS								
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
10														ABUT DIAPHRAGMS
11	40	7/8	2 3/4	5	8	1 3/8	1/2	7/8					1	GUSSET TO CONN PL
12	40	7/8	2 1/4	5	8	13/16	1/2	5/16					1	GUSSET TO WEB
WASHER CODES														
1: 1 Hard Flat Washer														

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 10-4-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-3-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR. 50W (UN)
ELECTRODES:
HOLES: 15/16 ø (U.N.)
SHOP BOLTS: 7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: FRAMING PLAN

JOB:
I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT

TENSOR 2107-N

PROJ NO. IM-089-2(26)

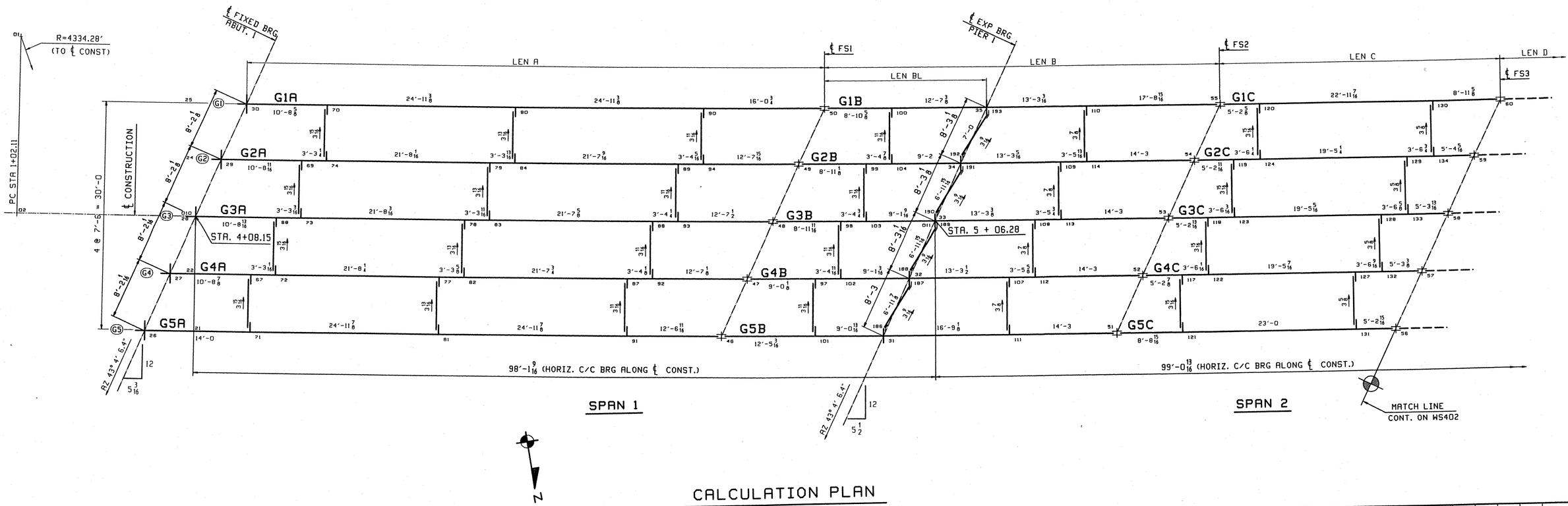
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	08/06/01
CHKD BY	
ELC	9/14/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

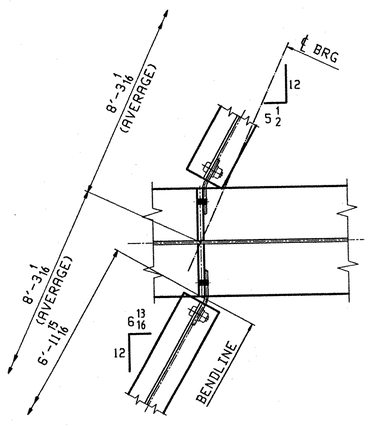
JOB NO.	DRG. NO.
119-48N	E402
	REV. △

ELC Thu Sep 20 09:09:24 EDT 2001 /users/jobs/2107-N/E402 : Rev0



CALCULATION PLAN

Line	DEVELOPED LENGTHS ALONG BTM OF WEB				GRADE	
	LEN A	LEN BL	LEN B	LEN C	ABUT. 1	PIER 1
1	76'-8 1/8	21'-6	52'-6 1/8	37'-1 11/16	.0106	.0054
2	76'-7 5/8	21'-6	52'-6 1/8	37'-1 1/4	.0107	.0055
3	76'-7 1/4	21'-6	52'-6 1/8	37'-0 3/4	.0107	.0055
4	76'-6 13/16	21'-6	52'-6 1/8	37'-0 5/16	.0107	.0055
5	76'-6 7/16	21'-6	52'-6 1/8	36'-11 7/8	.0106	.0054



DIAPHRAGM WORKPOINTS @ PIER 1

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF WEB WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF GIRDERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. CF STIFF, INT STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS = TOP PT NUMBERS + 200
7. FOR LAYOUTS SEE DWG TD401.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 3/16
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ BENT PLATE.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 8-4-2004

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-3-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ø (U.N.)	7/8 ø (U.N.)

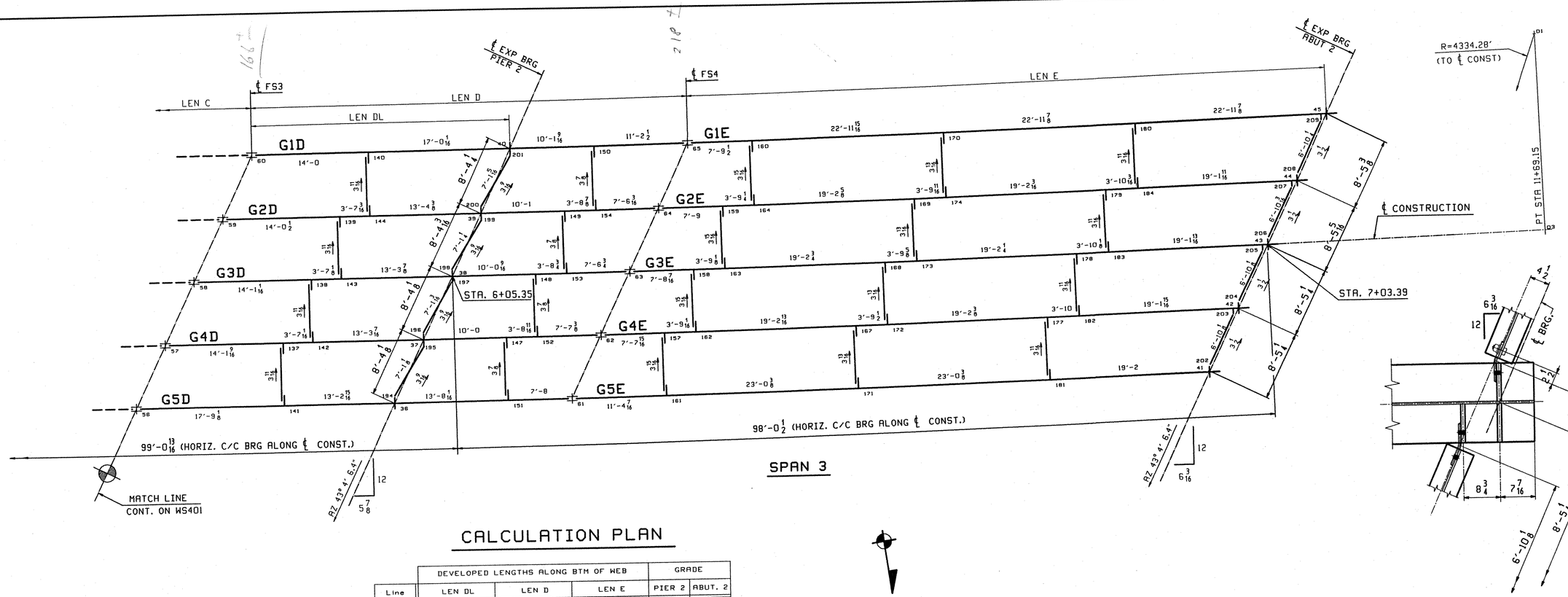
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	JAK	07/27
	CHKD BY	
	WL	8/04
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
119-48N	WS401
	REV. △

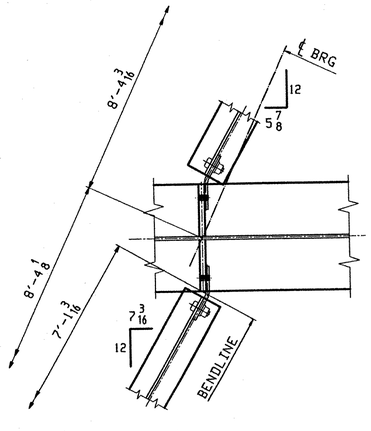
JRK Mon Aug 9 08:48:28 EDT 2004 /users/jak/2107-N/WS401 : RevD



DIAPHRAGM WORKPOINTS @ ABUT 2

CALCULATION PLAN

Line	DEVELOPED LENGTHS ALONG BTM OF WEB			GRADE	
	LEN DL	LEN D	LEN E	PIER 2	ABUT. 2
1	31'-0 1/16	52'-4 1/8	76'-9 3/16	.0055	.0003
2	31'-0 1/16	52'-4 1/8	76'-8 5/8	.0054	.0005
3	31'-0 1/16	52'-4 1/8	76'-8 1/8	.0054	.0005
4	31'-0 1/16	52'-4 1/8	76'-7 5/8	.0054	.0005
5	31'-0 1/16	52'-4 1/8	76'-7 3/16	.0055	.0003



DIAPHRAGM WORKPOINTS @ PIER 2

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: MM
DATE: 01-17-2002

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF WEB WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF STRINGERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. DIAPH STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS =TOP PT NUMBERS + 200.
7. FOR LAYOUTS SEE DWG TD401.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 3/16.
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.
10. WP's AT ℄ OF BENT PLATE.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-301									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ø (U.N.)	7/8 ø (U.N.)

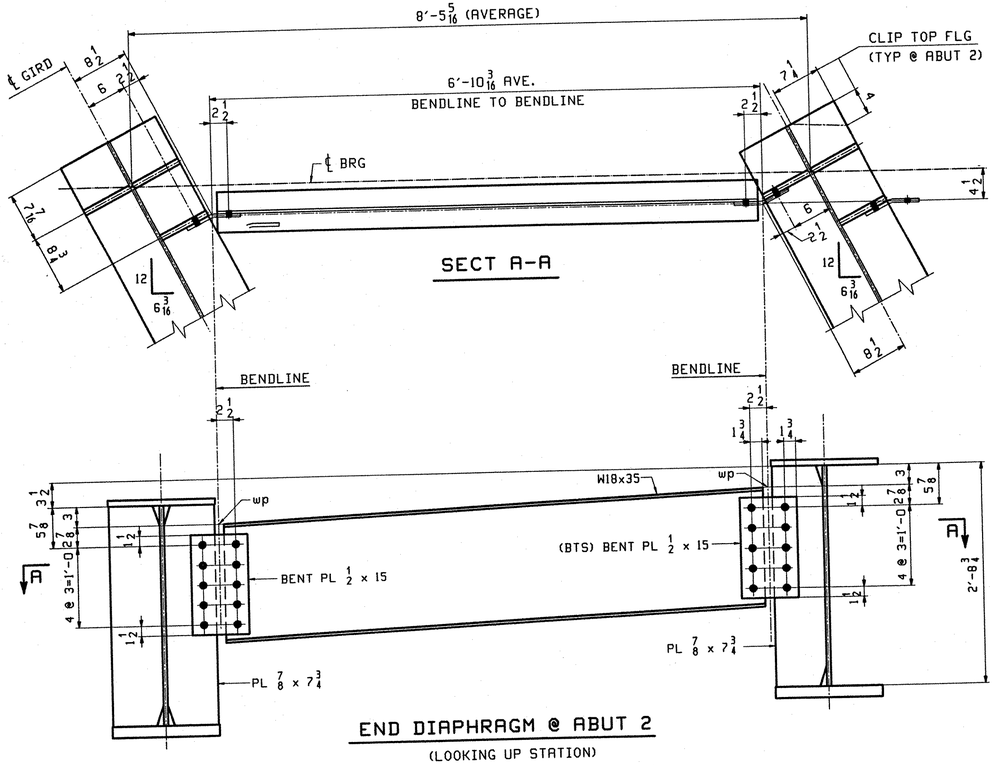
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	CALCULATION PLAN	DRAWN BY	DATE
JOB:	I-89 NB OVER LITTLE RIVER	JAK	07/27
	I-89 IMPROVEMENTS	CHKD BY	
	BETWEEN TOWNS OF MIDDLESEX & BOLTON	WL	8/04
TENSOR 2107-N	COUNTY OF WASHINGTON VERMONT	APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
119-48N	WS402
	REV. △

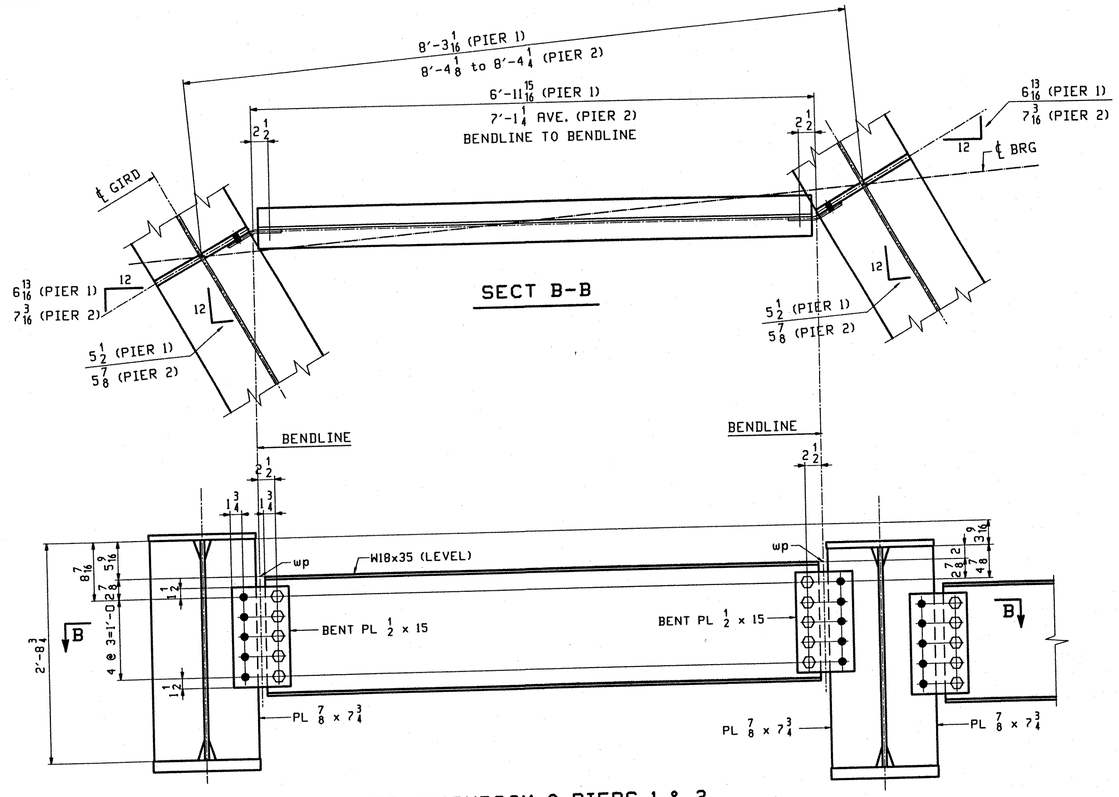
Mon Aug 9 09:41:31 EDT 2004 P:\casco\projects\2107-n\dwg\ws\ws402.dgn



END DIAPHRAGM @ ABUT 2

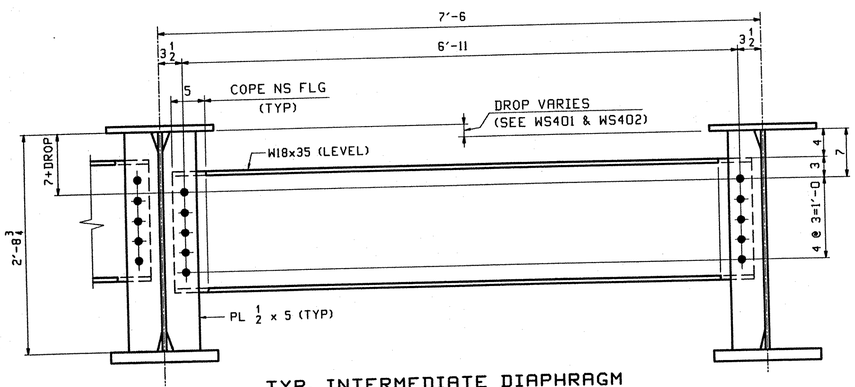
(LOOKING UP STATION)

THIS DIAPH SHALL BE PAINTED - SEE GN301



BRG DIAPHRAGM @ PIERS 1 & 2

(LOOKING BACK STATION)



TYP. INTERMEDIATE DIAPHRAGM

(LOOKING BACK STATION)

(NTS)

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 04-11-2003

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BEND LINES ARE TAKEN @ C/L PLATE.

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

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

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-31-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ø (U.N.)	7/8 ø (U.N.)

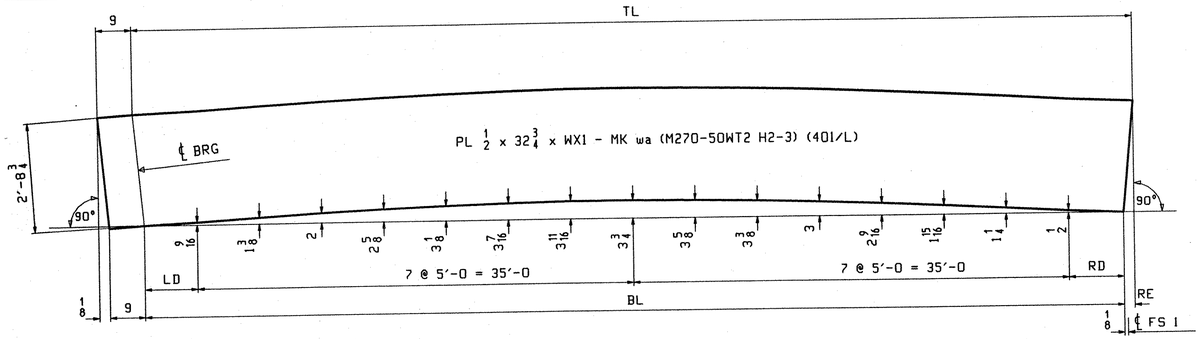
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: LAYOUTS	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	JAK	07/30
	CHKD BY	
	WL	8/04
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

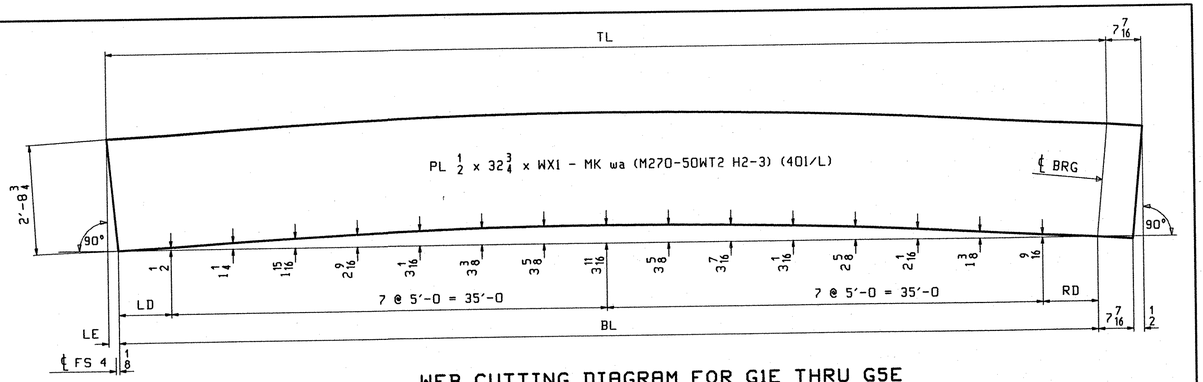
JOB NO.	DRG. NO.
119-48N	TD401
	REV. △

JRK Mon Aug 6 08:44:50 CDT 2001 /users/jrk/2107-N/TD401 : Rev:0



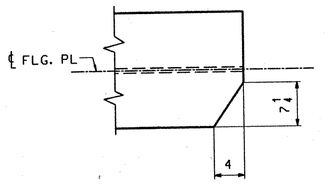
WEB CUTTING DIAGRAM FOR G1A THRU G5A

MARK	TL	BL	RE	WX1	LD	RD
G1A	76'-8 1/2	76'-8	3/8	77'-5 1/2	3'-4	3'-4
G2A	76'-8 1/16	76'-7 1/2	7/16	77'-5 1/16	3'-3 3/4	3'-3 3/4
G3A	76'-7 11/16	76'-7 1/8	7/16	77'-4 11/16	3'-3 5/8	3'-3 1/2
G4A	76'-7 1/4	76'-6 11/16	7/16	77'-4 1/4	3'-3 3/8	3'-3 5/16
G5A	76'-6 7/8	76'-6 5/16	7/16	77'-3 7/8	3'-3 1/8	3'-3 3/16



WEB CUTTING DIAGRAM FOR G1E THRU G5E

MARK	TL	BL	LE	WX1	LD	RD
G1E	76'-10	76'-9 1/16	7/16	77'-5 7/16	3'-4 1/2	3'-4 9/16
G2E	76'-9 7/16	76'-8 1/2	7/16	77'-4 7/8	3'-4 1/4	3'-4 1/4
G3E	76'-8 15/16	76'-8	7/16	77'-4 3/8	3'-4	3'-4
G4E	76'-8 7/16	76'-7 1/2	7/16	77'-3 7/8	3'-3 3/4	3'-3 3/4
G5E	76'-7 15/16	76'-7 1/16	3/8	77'-3 3/8	3'-3 1/2	3'-3 9/16



VIEW TR

(TOP FLG.ONLY / ABUT. 2 ONLY)

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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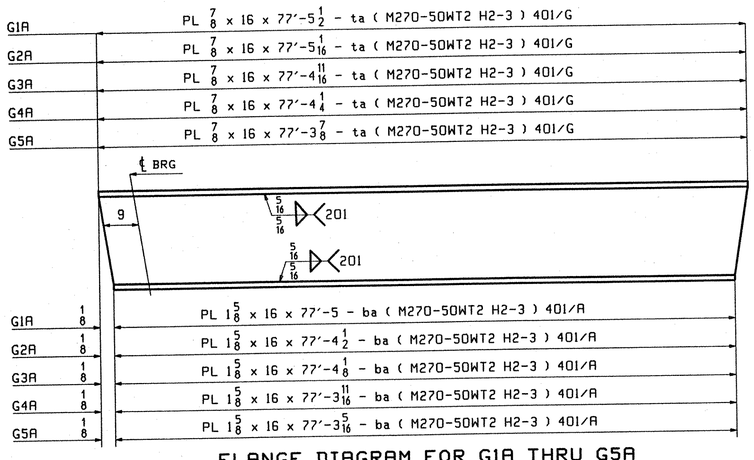
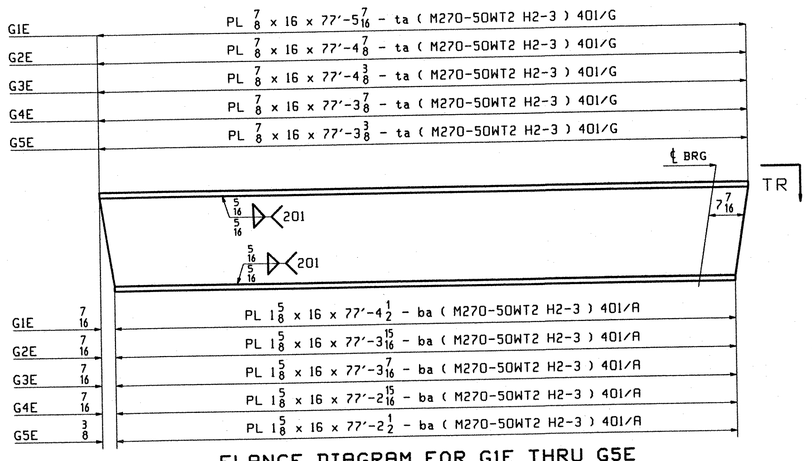
BY: [illegible]
DATE: 01-11-2002

SEE SHT. GN301 FOR GENERAL NOTES.



FLANGE DIAGRAM FOR G1A THRU G5A



FLANGE DIAGRAM FOR G1E THRU G5E

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ∅ (U.N.)	7/8 ∅ (U.N.)

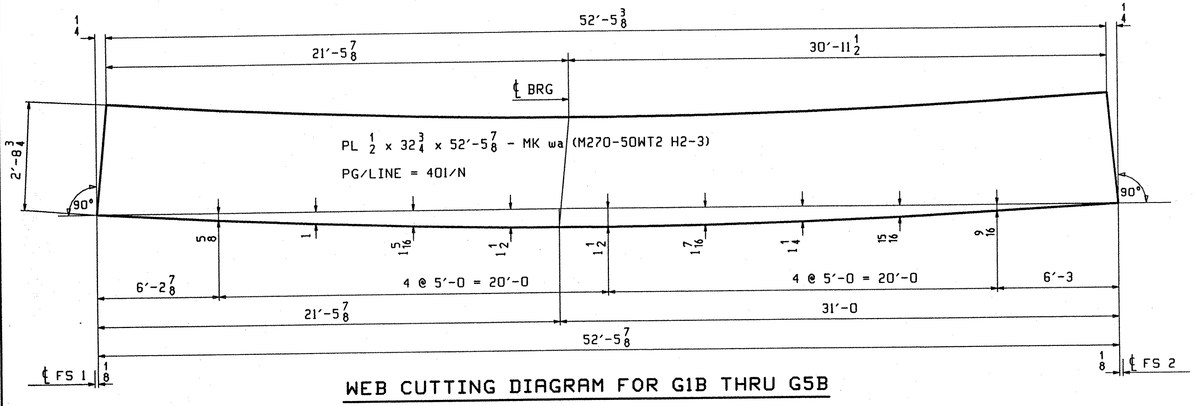
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PRINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER & FLANGE DIAGRAMS	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	JAK	07/30
	CHKD BY	
	WL	8/04
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

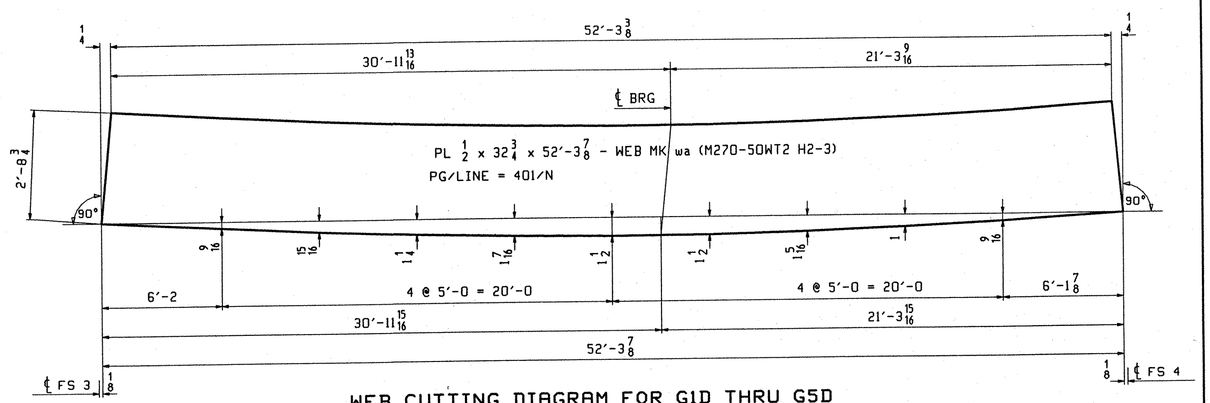
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	C401
	REV. △

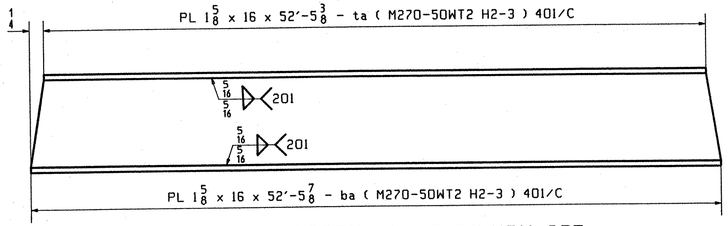
WL Mon Aug 6 10:07:22 EDT 2001 /users/jobs/2107-N/C401 : Rev0



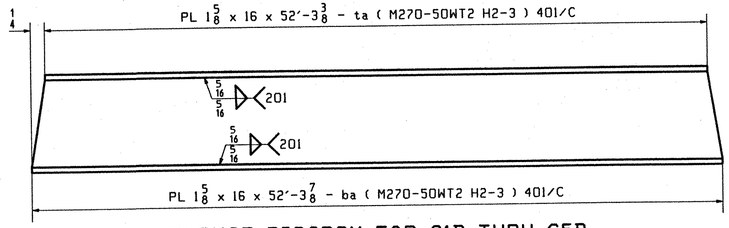
WEB CUTTING DIAGRAM FOR G1B THRU G5B



WEB CUTTING DIAGRAM FOR G1D THRU G5D



FLANGE DIAGRAM FOR G1B THRU G5B



FLANGE DIAGRAM FOR G1D THRU G5D

SEE SHT. GN301 FOR GENERAL NOTES.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-03 01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10′-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

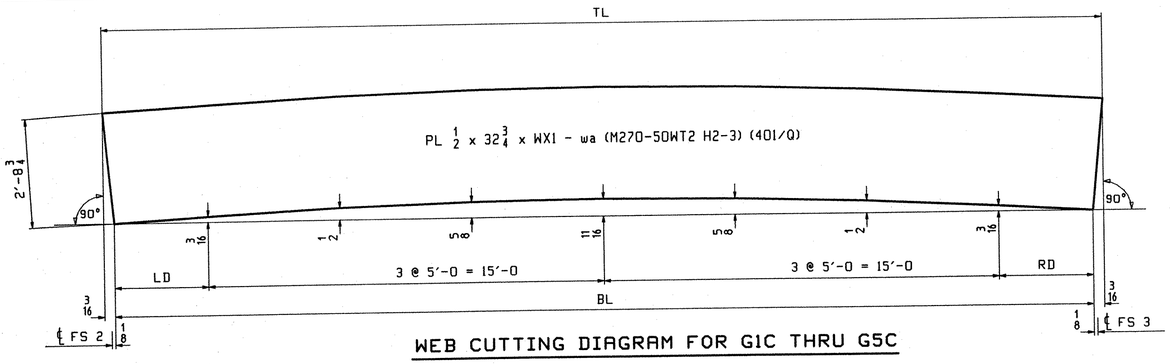
BY: _____
DATE: 01-18-2002

DESCRIPTION: CAMBER & FLANGE DIAGRAMS		DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	TENSOR 2107-N	JAK	07/30
		CHKD BY	
		WL	8/04
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)		Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION			

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

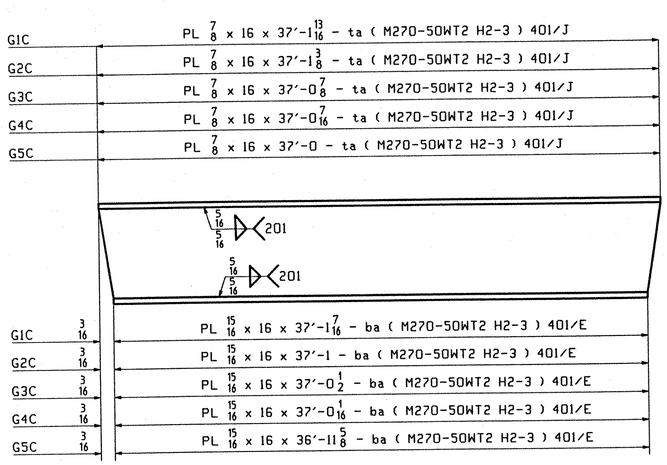
JOB NO.	DRG. NO.
119-48N	C402
	REV. △

WL Mon Aug 5 10:00:58 EDT 2002 /users/jake/2107-N/C402.1 RevD



WEB CUTTING DIAGRAM FOR G1C THRU G5C

MARK	TL	BL	WX1	LD	RD
G1C	37'-1 13/16	37'-1 7/16	37'-1 13/16	3'-6 3/4	3'-6 11/16
G2C	37'-1 3/8	37'-1	37'-1 3/8	3'-6 1/2	3'-6 1/2
G3C	37'-0 7/8	37'-0 1/2	37'-0 7/8	3'-6 1/4	3'-6 1/4
G4C	37'-0 7/16	37'-0 1/16	37'-0 7/16	3'-6	3'-6 1/16
G5C	37'-0	36'-11 5/8	37'-0	3'-5 7/8	3'-5 3/4



FLANGE DIAGRAM FOR G1C THRU G5C

SEE SHT. GN301 FOR GENERAL NOTES.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-17-2002

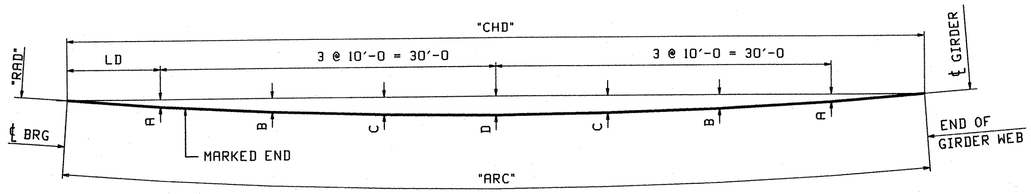
DESCRIPTION: CAMBER & FLANGE DIAGRAMS		DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT		JAK	07/30
		CHKD BY	
		WL	8/04
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)		Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION			

TENSOR 2107-N

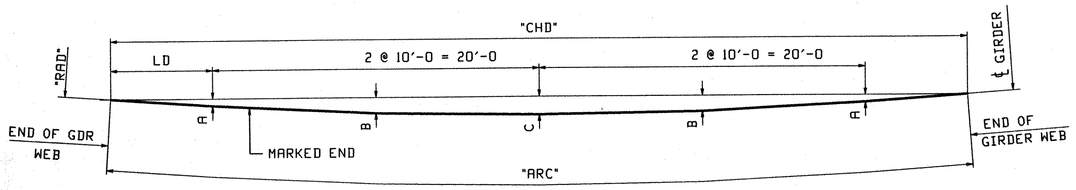
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	C403
	REV. △

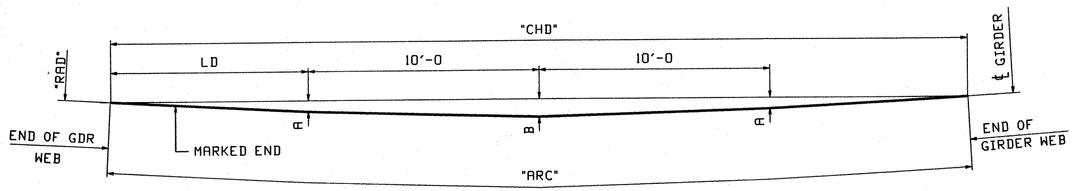
WL Mon Aug 5 10:05:04 EST 2002 /users/jobs/2107-N/C403 1 Rev0



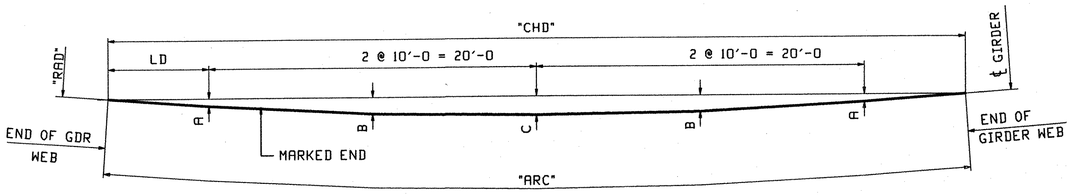
MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"D"	"LD"
G1A	76'-8	76'-8	4319.280	13/16	1 1/2	1 7/8	2 1/16	8'-4
G2A	76'-7 1/2	76'-7 1/2	4326.780	13/16	1 1/2	1 7/8	2 1/16	8'-3 3/4
G3A	76'-7 1/8	76'-7 1/8	4334.280	13/16	1 1/2	1 7/8	2 1/16	8'-3 9/16
G4A	76'-6 11/16	76'-6 11/16	4341.780	13/16	1 1/2	1 7/8	2	8'-3 5/16
G5A	76'-6 5/16	76'-6 5/16	4349.280	3/4	1 1/2	1 7/8	2	8'-3 1/8



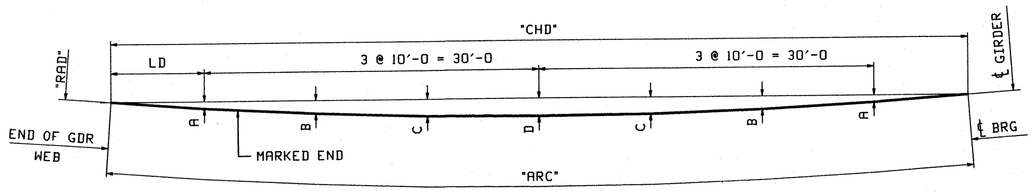
MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"LD"
G1B	52'-5 7/8	52'-5 7/8	4319.280	3/8	13/16	15/16	6'-2 15/16
G2B	52'-5 7/8	52'-5 7/8	4326.780	3/8	13/16	15/16	6'-2 15/16
G3B	52'-5 7/8	52'-5 7/8	4334.280	3/8	13/16	15/16	6'-2 15/16
G4B	52'-5 7/8	52'-5 7/8	4341.780	3/8	13/16	15/16	6'-2 15/16
G5B	52'-5 7/8	52'-5 7/8	4349.280	3/8	13/16	15/16	6'-2 15/16



MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"LD"
G1C	37'-1 7/16	37'-1 7/16	4319.280	5/16	1/2	8'-6 11/16
G2C	37'-1	37'-1	4326.780	5/16	1/2	8'-6 1/2
G3C	37'-0 1/2	37'-0 1/2	4334.280	5/16	1/2	8'-6 1/4
G4C	37'-0 1/16	37'-0 1/16	4341.780	5/16	1/2	8'-6
G5C	36'-11 5/8	36'-11 5/8	4349.280	5/16	1/2	8'-5 13/16



MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"LD"
G1D	52'-3 7/8	52'-3 7/8	4319.280	3/8	13/16	15/16	6'-1 15/16
G2D	52'-3 7/8	52'-3 7/8	4326.780	3/8	13/16	15/16	6'-1 15/16
G3D	52'-3 7/8	52'-3 7/8	4334.280	3/8	13/16	15/16	6'-1 15/16
G4D	52'-3 7/8	52'-3 7/8	4341.780	3/8	13/16	15/16	6'-1 15/16
G5D	52'-3 7/8	52'-3 7/8	4349.280	3/8	13/16	15/16	6'-1 15/16



MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"D"	"LD"
G1E	76'-9 1/16	76'-9 1/16	4319.280	13/16	1 1/2	1 15/16	2 1/16	8'-4 1/2
G2E	76'-8 1/2	76'-8 1/2	4326.780	13/16	1 1/2	1 7/8	2 1/16	8'-4 1/4
G3E	76'-8	76'-8	4334.280	13/16	1 1/2	1 7/8	2 1/16	8'-4
G4E	76'-7 1/2	76'-7 1/2	4341.780	13/16	1 1/2	1 7/8	2	8'-3 3/4
G5E	76'-7 1/16	76'-7 1/16	4349.280	13/16	1 1/2	1 7/8	2	8'-3 1/2

NOTE:

LONGITUDINAL DIMENSIONS TAKEN ALONG ℄ BOTTOM OF WEB.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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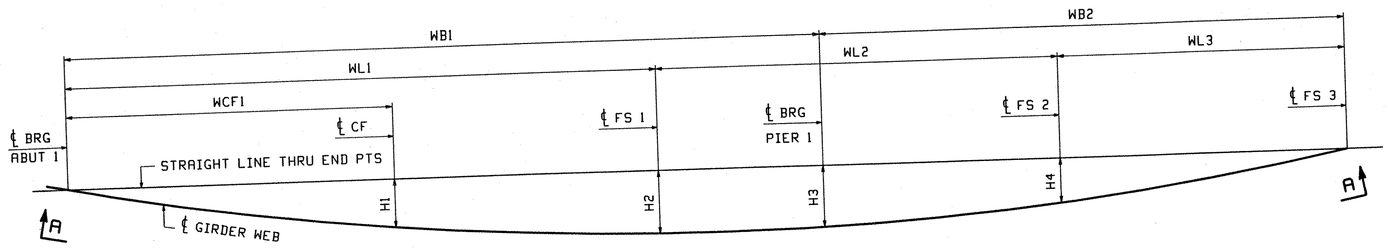
BY: _____
DATE: 01-11-2002

DESCRIPTION:	HORIZ. CURVING DIAGRAMS	DRAWN BY	DATE
JOB:	I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	JAK	07/30
		CHKD BY	
		WL	8/04
		APPROV BY	
TENSOR 2107-N		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

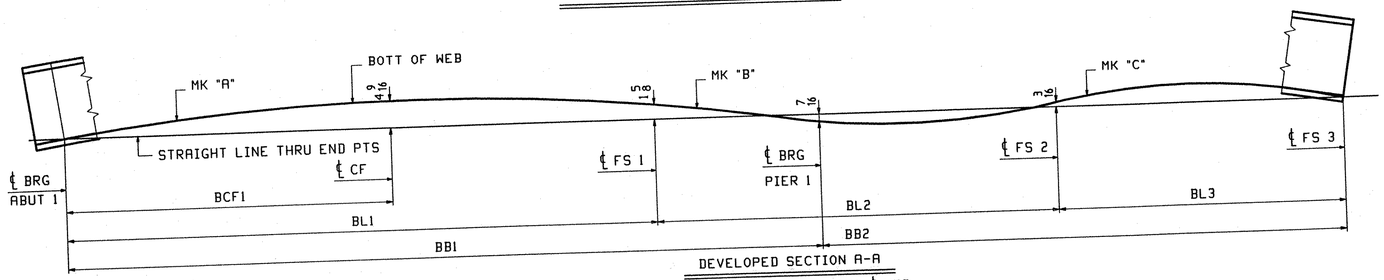
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	HC401
	REV. △

JAK Mon Aug 5 08:45:46 EST 2002 /users/jak/2107-N/HC401.1 Rev0



PLAN VIEW GIRDER @ BOTT OF WEB



DEVELOPED SECTION A-A

DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	WL3	H1	H2	H3	H4	WB1	WB2	WCF1	BL1	BL2	BL3	BB1	BB2	BCF1	"A"	"B"	"C"
1	76′-8 1/16	52′-6 1/8	37′-1 11/16	6 1/2	9 9/16	9 5/16	6 11/16	98′-2 1/8	68′-1 3/4	35′-7 15/16	76′-8 1/8	52′-6 1/8	37′-1 11/16	98′-2 1/8	68′-1 13/16	35′-8	G1A	G1B	G1C
2	76′-7 5/8	52′-6 1/8	37′-1 1/4	6 7/8	9 1/2	9 1/4	6 5/8	98′-1 11/16	68′-1 5/16	38′-11 13/16	76′-7 11/16	52′-6 1/8	37′-1 1/4	98′-1 11/16	68′-1 3/8	38′-11 7/8	G2A	G2B	G2C
3	76′-7 1/4	52′-6 1/8	37′-0 3/4	6 7/8	9 1/2	9 1/4	6 5/8	98′-1 1/4	68′-0 7/8	38′-11 13/16	76′-7 5/16	52′-6 1/8	37′-0 3/4	98′-1 5/16	68′-0 7/8	38′-11 7/8	G3A	G3B	G3C
4	76′-6 13/16	52′-6 1/8	37′-0 5/16	6 7/8	9 1/2	9 1/4	6 5/8	98′-0 7/8	68′-0 3/8	38′-11 13/16	76′-6 7/8	52′-6 1/8	37′-0 5/16	98′-0 7/8	68′-0 7/16	38′-11 7/8	G4A	G4B	G4C
5	76′-6 7/16	52′-6 1/8	36′-11 13/16	6 13/16	9 7/16	9 3/16	6 9/16	98′-0 7/16	67′-11 15/16	38′-11 13/16	76′-6 1/2	52′-6 1/8	36′-11 7/8	98′-0 1/2	68′-0	38′-11 7/8	G5A	G5B	G5C

NOTES
FOR GENERAL NOTES SEE DWG GN1
ALL DIMENSIONS GIVEN AT BOTT OF WEB (UN)

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR. 50W

ELECTRODES:

HOLES: 15/16 ø (U.N.)

SHOP BOLTS: 7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10′-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-11-2002

DESCRIPTION: SHOP ASSEMBLY

JOB: I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT

TENSOR 2107-N

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	08/06
CHKD BY	
WL	9/15/01
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
119-48N	SA401
	REV. △

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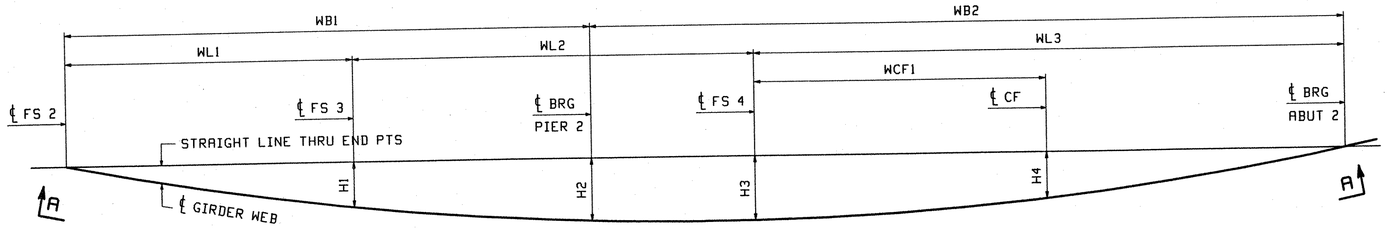
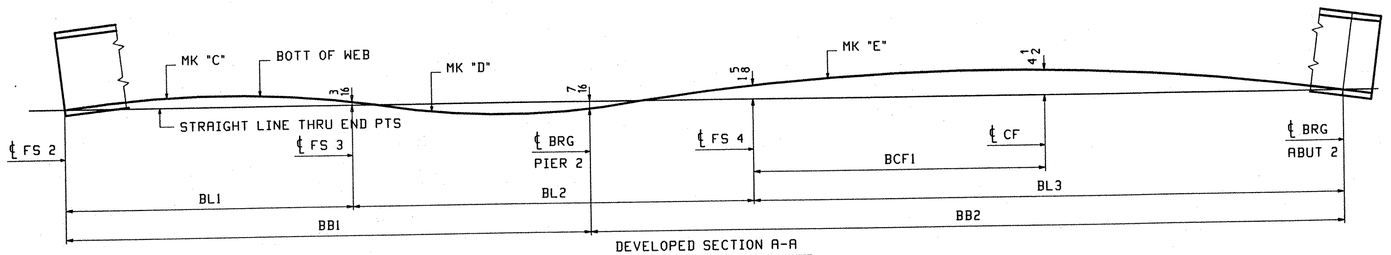


PLAN VIEW GIRDER @ BOTT OF WEB



DEVELOPED SECTION A-A
DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	WL3	H1	H2	H3	H4	WB1	WB2	WCF1	BL1	BL2	BL3	BB1	BB2	BCF1	"C"	"D"	"E"
1	37'-1 11/16	52'-4 1/8	76'-9 3/16	6 11/16	9 5/16	9 9/16	7 11/16	68'-1 3/4	98'-1 1/4	30'-9 7/16	37'-1 11/16	52'-4 1/8	76'-9 3/16	68'-1 3/4	98'-1 1/4	30'-9 7/16	G1C	G1D	G1E
2	37'-1 3/16	52'-4 1/8	76'-8 5/8	6 5/8	9 1/4	9 1/2	7 1/4	68'-1 1/4	98'-0 11/16	34'-6 5/8	37'-1 1/4	52'-4 1/8	76'-8 5/8	68'-1 5/16	98'-0 11/16	34'-6 5/8	G2C	G2D	G2E
3	37'-0 3/4	52'-4 1/8	76'-8 1/8	6 5/8	9 1/4	9 1/2	7 1/4	68'-0 13/16	98'-0 3/16	34'-6	37'-0 3/4	52'-4 1/8	76'-8 1/8	68'-0 13/16	98'-0 3/16	34'-6	G3C	G3D	G3E
4	37'-0 5/16	52'-4 1/8	76'-7 5/8	6 5/8	9 3/16	9 7/16	7 3/16	68'-0 3/8	97'-11 11/16	34'-5 3/8	37'-0 5/16	52'-4 1/8	76'-7 5/8	68'-0 3/8	97'-11 11/16	34'-5 3/8	G4C	G4D	G4E
5	36'-11 13/16	52'-4 1/8	76'-7 1/16	6 9/16	9 3/16	9 7/16	7 3/16	67'-11 7/8	97'-11 1/8	34'-4 3/4	36'-11 7/8	52'-4 1/8	76'-7 1/8	67'-11 15/16	97'-11 3/16	34'-4 3/4	G5C	G5D	G5E

NOTES
FOR GENERAL NOTES SEE DWG GN1
ALL DIMENSIONS GIVEN AT BOTT OF WEB (UN)

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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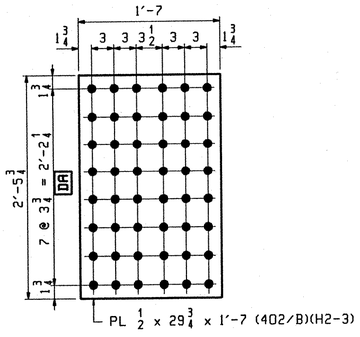
BY: _____
DATE: 01-12-2002

DESCRIPTION: SHOP ASSEMBLY	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT TENSOR 2107-N	BW	08/06
	CHKD BY	
	WL	9/15/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
119-48N	SA402
	REV. △

ML Thu Sep 20 09:41:18 EDT 2001 /users/jobs/2107-N/SHOP/SA402.1 Rev0



D.O.R.

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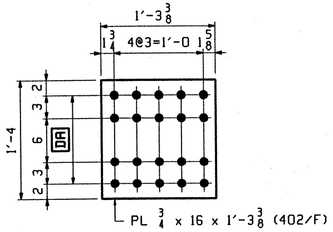

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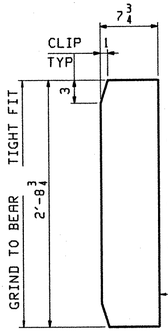
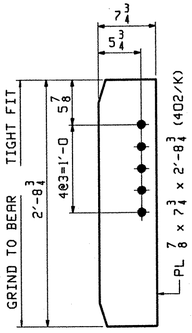


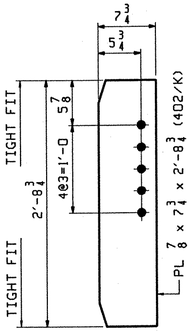
20 ~ x41g

BRG STIFF @ ABUT & PIERS



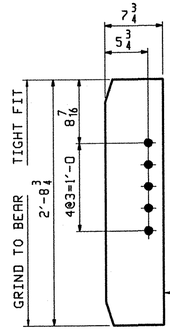
4 ~ x41k

BRG STIFF @ ABUT



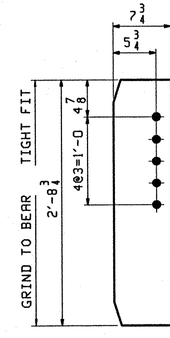
4 ~ x41m

CONN STIFF @ ABUT



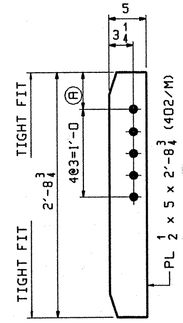
8 ~ x41n

BRG STIFF @ PIERS



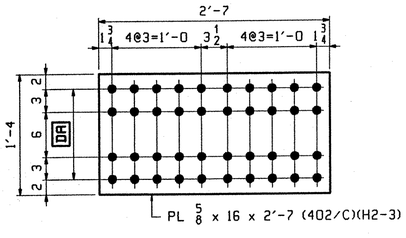
8 ~ x41p

BRG STIFF @ PIERS



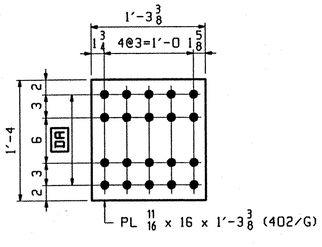
INT. CONN STIFF

MARK	REQ'D	Ⓐ
x41t	48	7
x41v	4	10 5/8
x41w	16	10 11/16
x41y	8	10 13/16
x41aa	8	10 7/8
x41ab	12	10 15/16

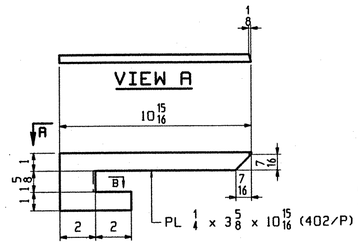


D.O.R.

40 ~ x41b

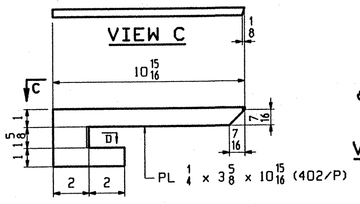


10 ~ x41f



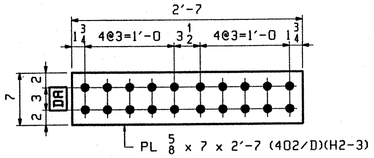
3 ~ x41ac

DRIP PL



3 ~ x41ad

DRIP PL



D.O.R.

80 ~ x41c

NOTES:

FOR GENERAL NOTES SEE GN301

H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

D.O.R. DENOTES DIRECTION OF MILL ROLLING

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR. 50W (UN)	ELECTRODES:	HOLES: 15/16 ø (U.N.)	SHOP BOLTS: 7/8 ø (U.N.)

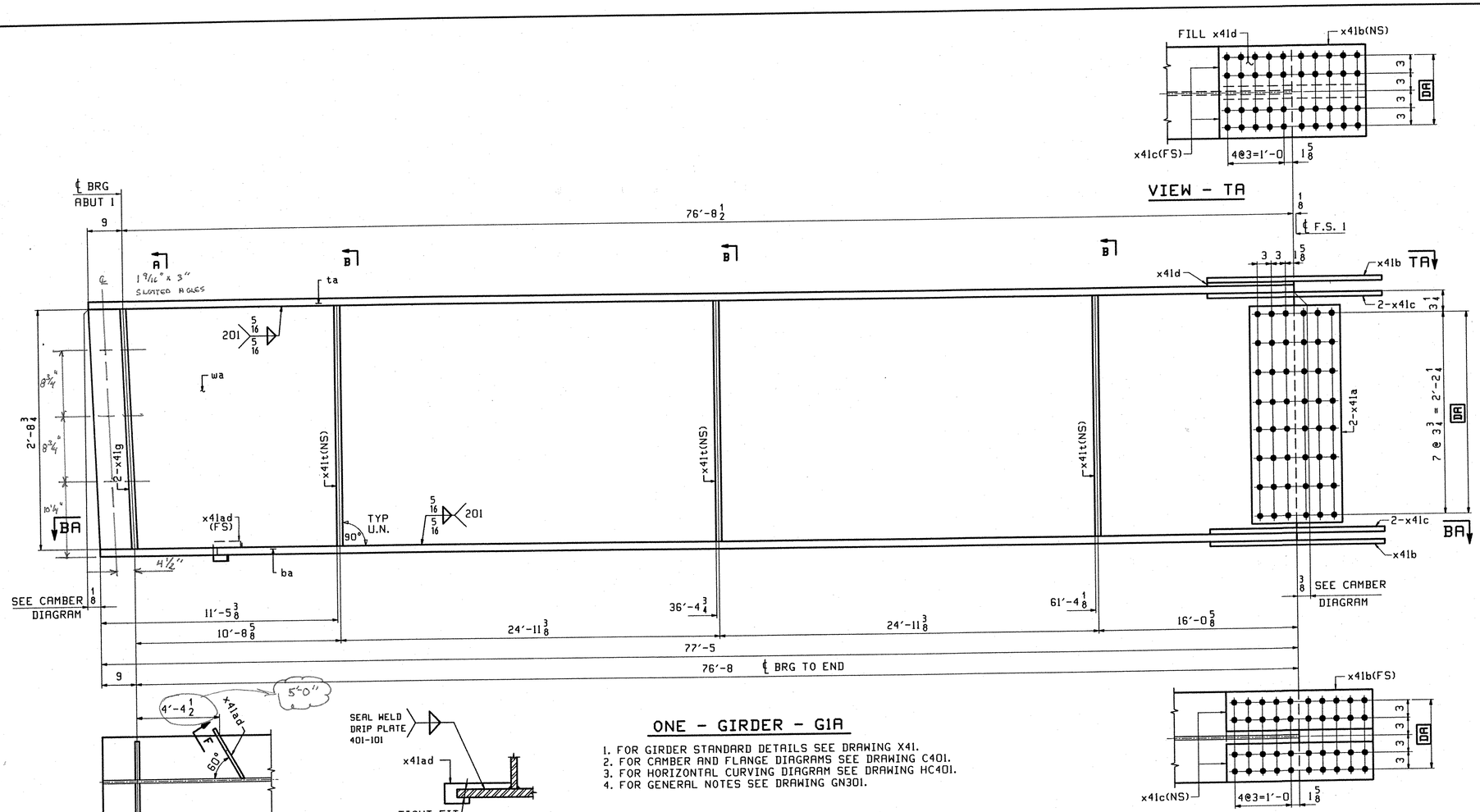
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER STANDARDS	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT TENSOR 2107-N	BW	07/31
	CHKD BY	
	ELC	9/10/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
119-48N	X41
	REV. △

ELC Thu Sep 20 09:31:27 CDT 2001 /users/jobs/2107-N/X41 : Rev=0



ONE - GIRDER - G1A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

BILL OF MATERIAL

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G1A	1		GIRDER				16090	
401	L		1	wa	PL 1/2 x 36 1/2	77	5 1/2	(H270-50WT2) (H2-3)		
401	G		1	ta	PL 1/8 x 16	77	5 1/2	(H270-50WT2) (H2-3)		
401	A		1	ba	PL 1 5/8 x 16	77	5	(H270-50WT2) (H2-3)		
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(H270-50WT2) (H2-3)		
402	C		2	x41b	PL 3/8 x 16	2	7	(H270-50WT2) (H2-3)		
402	D		4	x41c	PL 3/8 x 7	2	7	(H270-50WT2) (H2-3)		
402	F		1	x41d	PL 1/4 x 16	1	3 3/8	FILL		
402	K		2	x41g	PL 7/16 x 7 3/4	2	8 3/4			
402	M		3	x41t	PL 1/2 x 5	2	8 1/4			
402	P		1	x41ad	PL 1 1/4 x 3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [illegible]
DATE: 01-11-2002

OUT FOR APPROVAL	10-03-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										

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

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

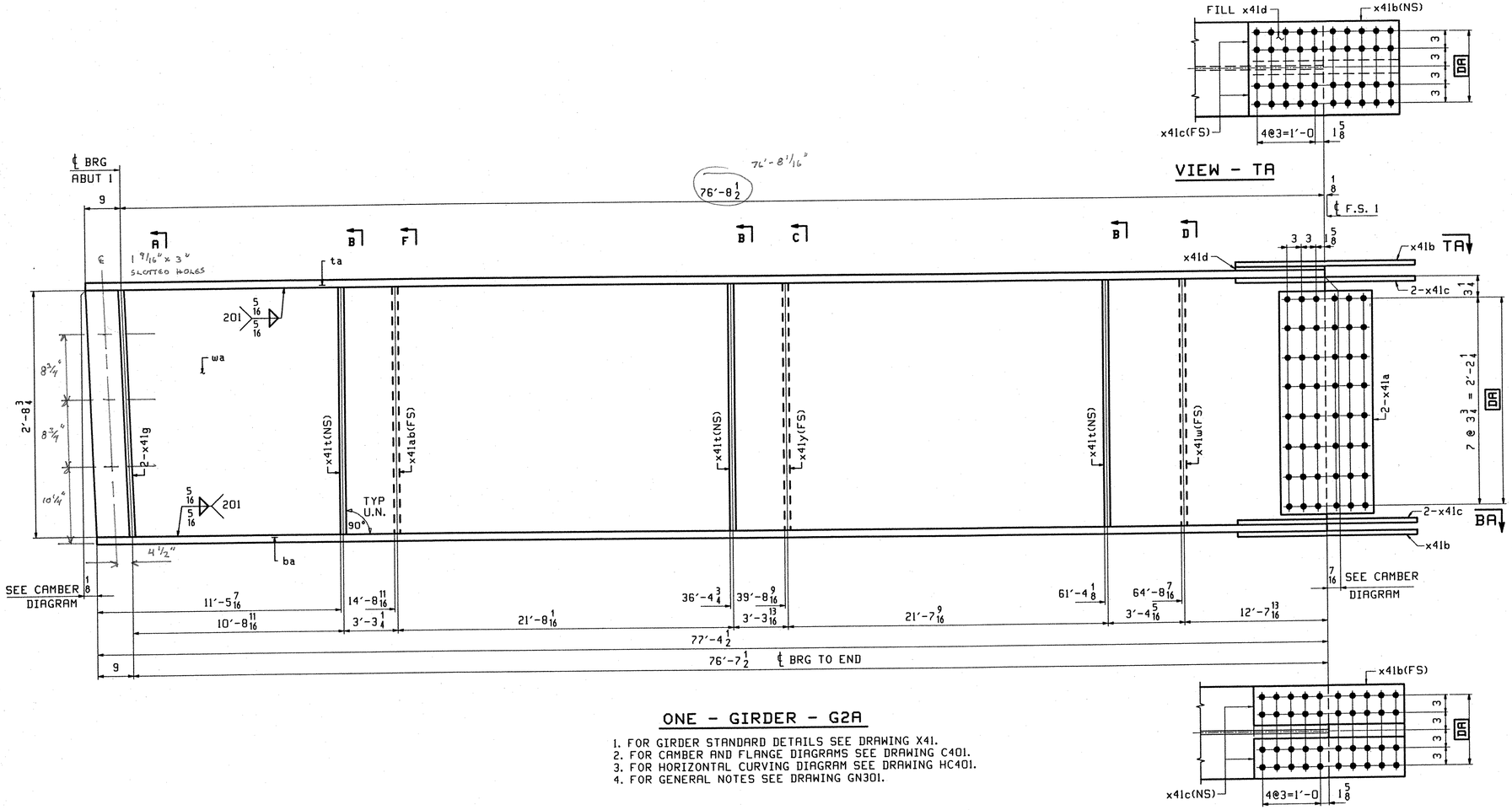
DESCRIPTION: GIRDER - G1A	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/01
	CHKD BY	
	ELC	9/10/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-N

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

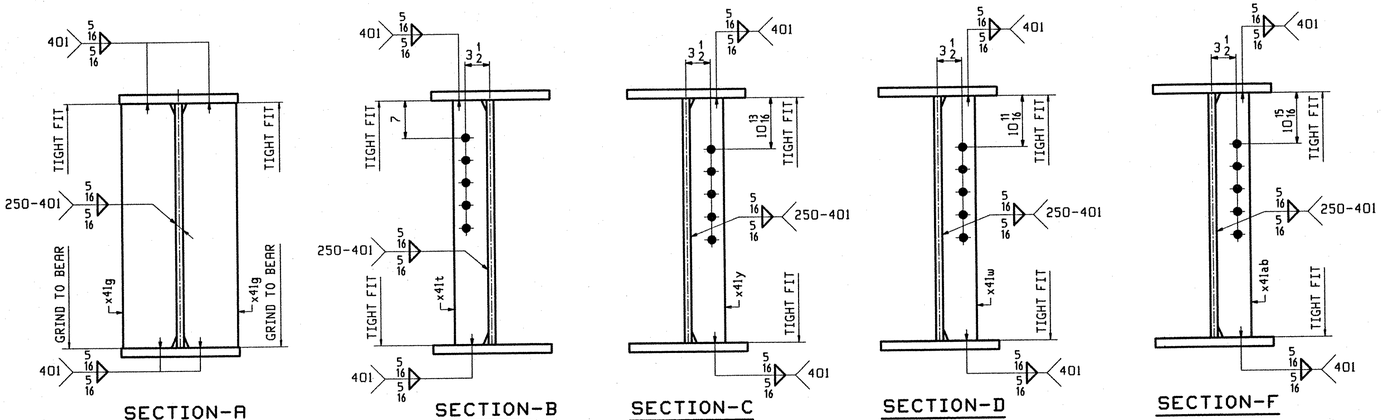
JOB NO.	DRG. NO.
119-48N	401
	REV. △

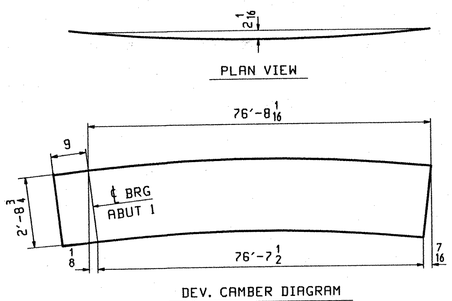
ELC Thu Sep 20 09:54:48 EST 2001 /users/jobs/2107-N/401.dgn



ONE - GIRDER - G2A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.





ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									402		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G2A	1		GIRDER				16149		
401	L		1	wa	PL 1/2x36 1/2	77	5 1/16	(H270-50WT2) (H2-3)			
401	G		1	ta	PL 7/8x16	77	5 1/16	(H270-50WT2) (H2-3)			
401	A		1	ba	PL 1 5/8x16	77	4 1/2	(H270-50WT2) (H2-3)			
402	B		2	x41a	PL 1/2x29 3/4	1	7	(H270-50WT2) (H2-3)			
402	C		2	x41b	PL 5/8x16	2	7	(H270-50WT2) (H2-3)			
402	D		4	x41c	PL 5/8x7	2	7	(H270-50WT2) (H2-3)			
402	F		1	x41d	PL 3/4x16	1	3 3/8	FILL			
402	K		2	x41g	PL 7/8x7 3/4	2	8 3/4				
402	M		1	x41ab	PL 1/2x5	2	8 3/4				
402	M		3	x41t	PL 1/2x5	2	8 3/4				
402	M		1	x41y	PL 1/2x5	2	8 3/4				
402	M		1	x41w	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 10-11-2001

OUT FOR APPROVAL	10-03-01										
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

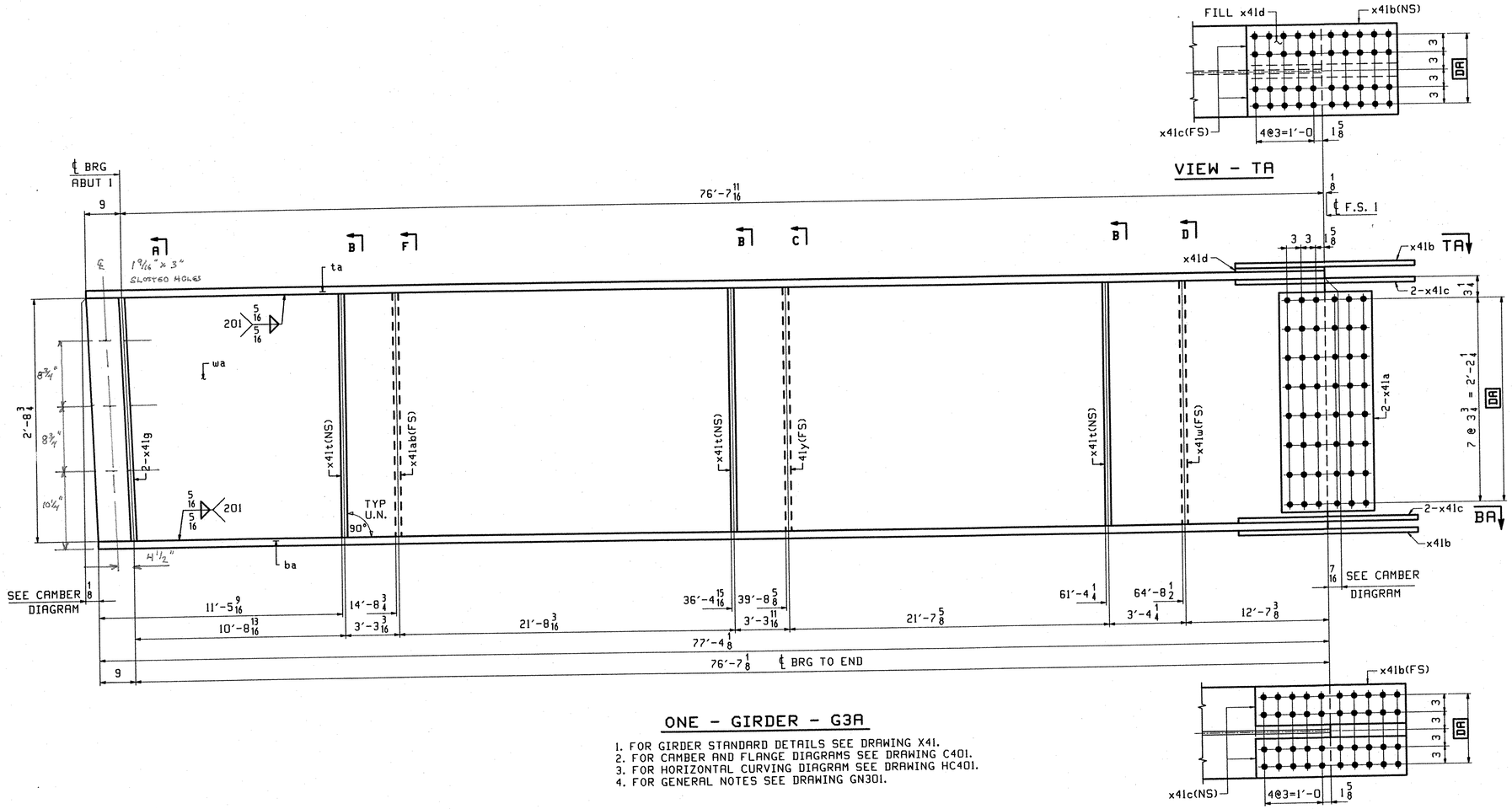
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2A	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/01
	CHKD BY	
	ELC	9/10/01
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

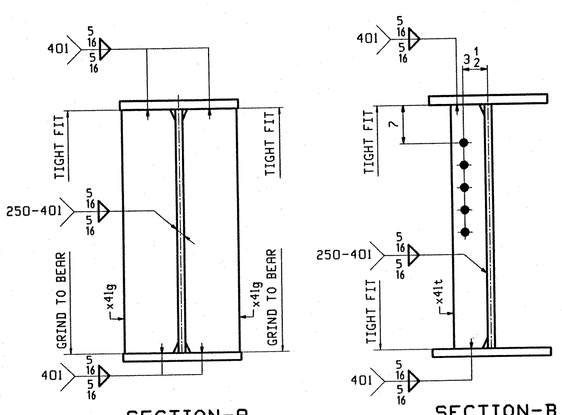
JOB NO.	DRG. NO.
119-48N	402
	REV. △

Thu Sep 20 14:02:43 EST 2001 /users/jpw/2107-N/402 : Rev0

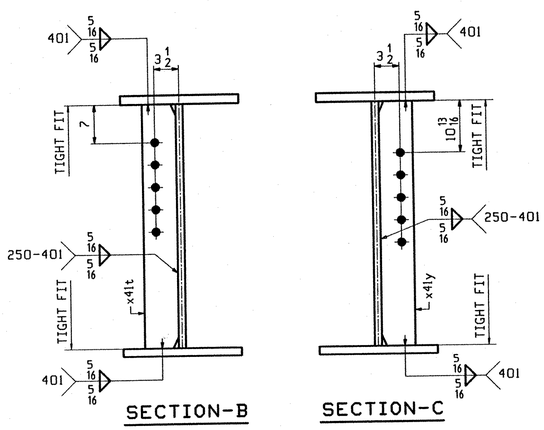


ONE - GIRDER - G3A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

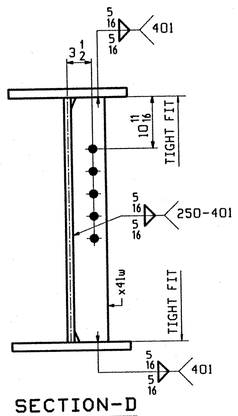


SECTION-A



SECTION-B

SECTION-C



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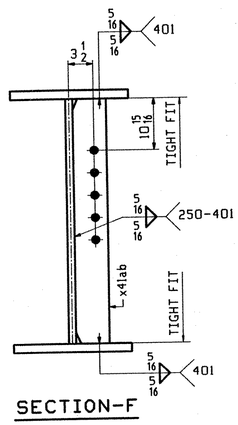

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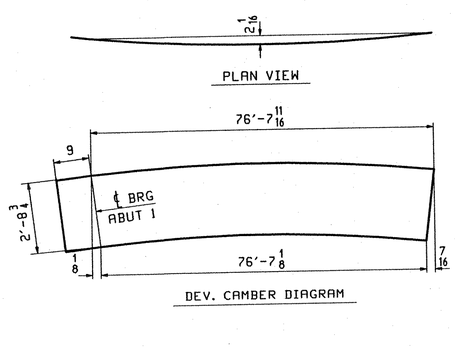

ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3A	1		GIRDER				16143	
401	L		1	wa	PL 1/2 x 36 1/2	77	4 11/16	(M270-50WT2) (H2-3)		
401	G		1	ta	PL 3/8 x 16	77	4 11/16	(M270-50WT2) (H2-3)		
401	A		1	ba	PL 1 5/8 x 16	77	4 1/8	(M270-50WT2) (H2-3)		
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)		
402	C		2	x41b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)		
402	D		4	x41c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)		
402	F		1	x41d	PL 3/4 x 16	1	3 3/8	FILL		
402	K		2	x41g	PL 7/8 x 7 3/4	2	8 3/4			
402	M		1	x41ab	PL 1/2 x 5	2	8 3/4			
402	M		3	x41t	PL 1/2 x 5	2	8 3/4			
402	M		1	x41y	PL 1/2 x 5	2	8 3/4			
402	M		1	x41w	PL 1/2 x 5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: LDP
DATE: 01-11-2002

OUT FOR APPROVAL	02-3-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

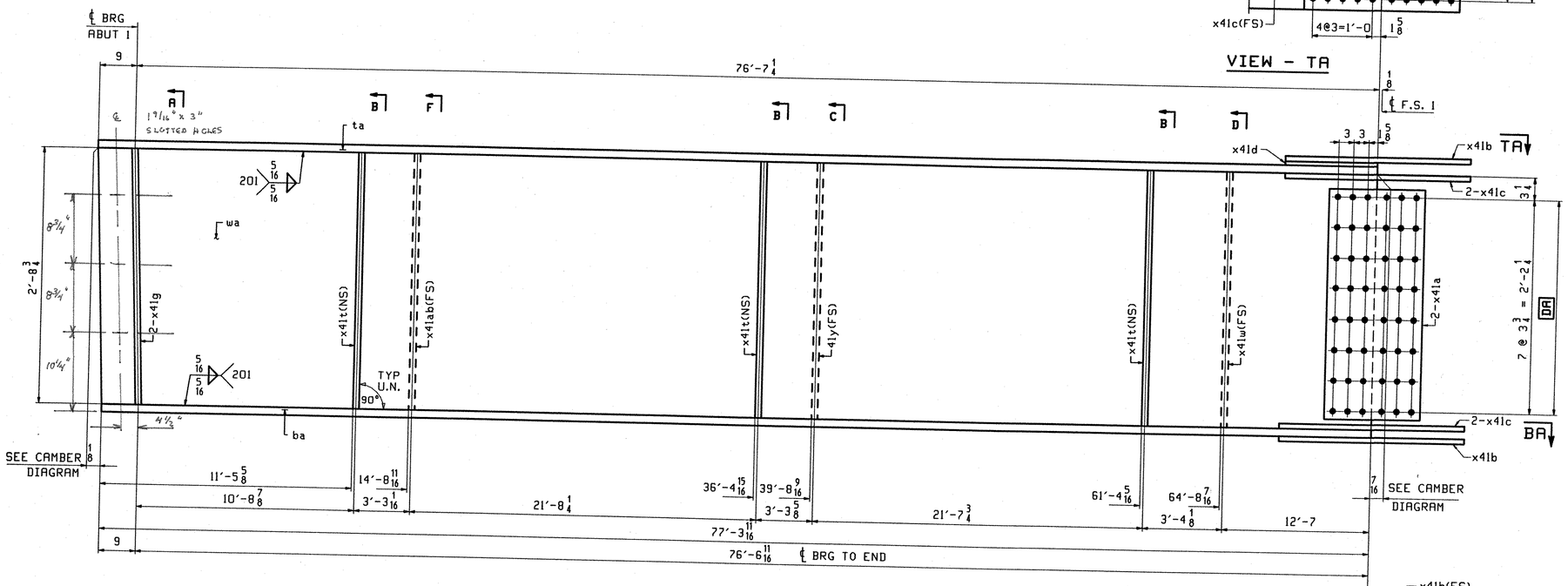
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3A	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/01
	CHKD BY	
	ELC	9/10/01
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

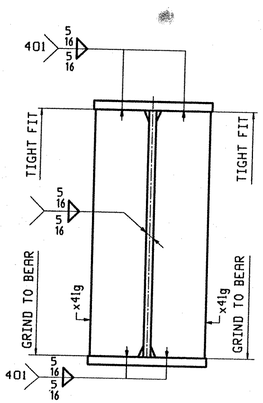
JOB NO.	DRG. NO.
119-48N	403
	REV. △

BW Thu Sep 20 14:03:40 EDT 2001 /users/jobs/2107-N/403.1 Rev0

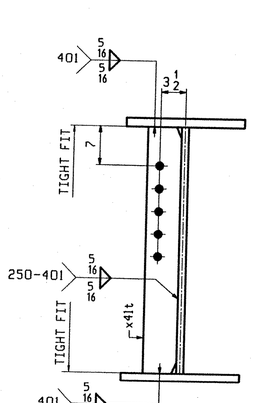


ONE - GIRDER - G4A

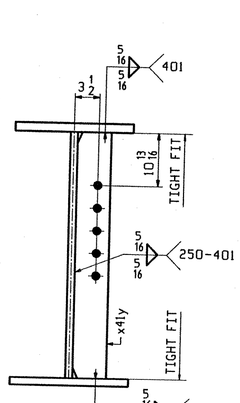
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



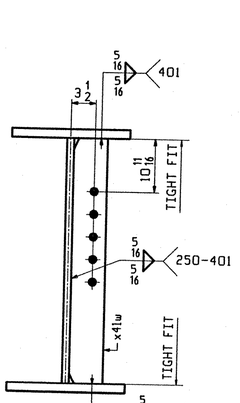
SECTION-A



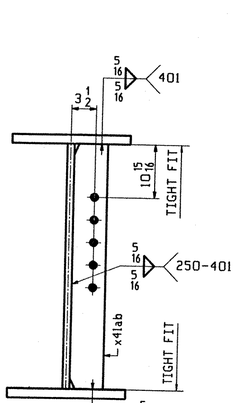
SECTION-B



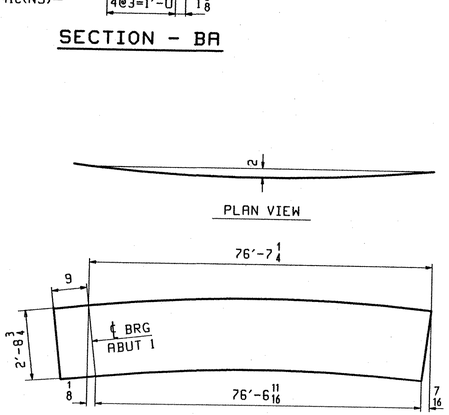
SECTION-C



SECTION-D



SECTION-F



DEV. CAMBER DIAGRAM

BILL OF MATERIAL

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4A	1		GIRDER				16136	
401	L		1	wa	PL 1/2 x 36 1/2	77	4 1/4	(M270-50WT2) (H2-3)		
401	G		1	ta	PL 7/8 x 16	77	4 1/4	(M270-50WT2) (H2-3)		
401	A		1	ba	PL 1 1/8 x 16	77	3 11/16	(M270-50WT2) (H2-3)		
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)		
402	C		2	x41b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)		
402	D		4	x41c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)		
402	F		1	x41d	PL 3/4 x 16	1	3 3/8	FILL		
402	K		2	x41g	PL 7/8 x 7 3/4	2	8 3/4			
402	M		1	x41ab	PL 1/2 x 5	2	8 3/4			
402	M		3	x41t	PL 1/2 x 5	2	8 3/4			
402	M		1	x41y	PL 1/2 x 5	2	8 3/4			
402	M		1	x41w	PL 1/2 x 5	2	8 3/4			

JOB NO.

DRAWING NO. 404

REV.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☑ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [illegible]
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10/03/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4A

JOB:
I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT

TENSOR 2107-N

PROJ NO. IM-089-2(26)

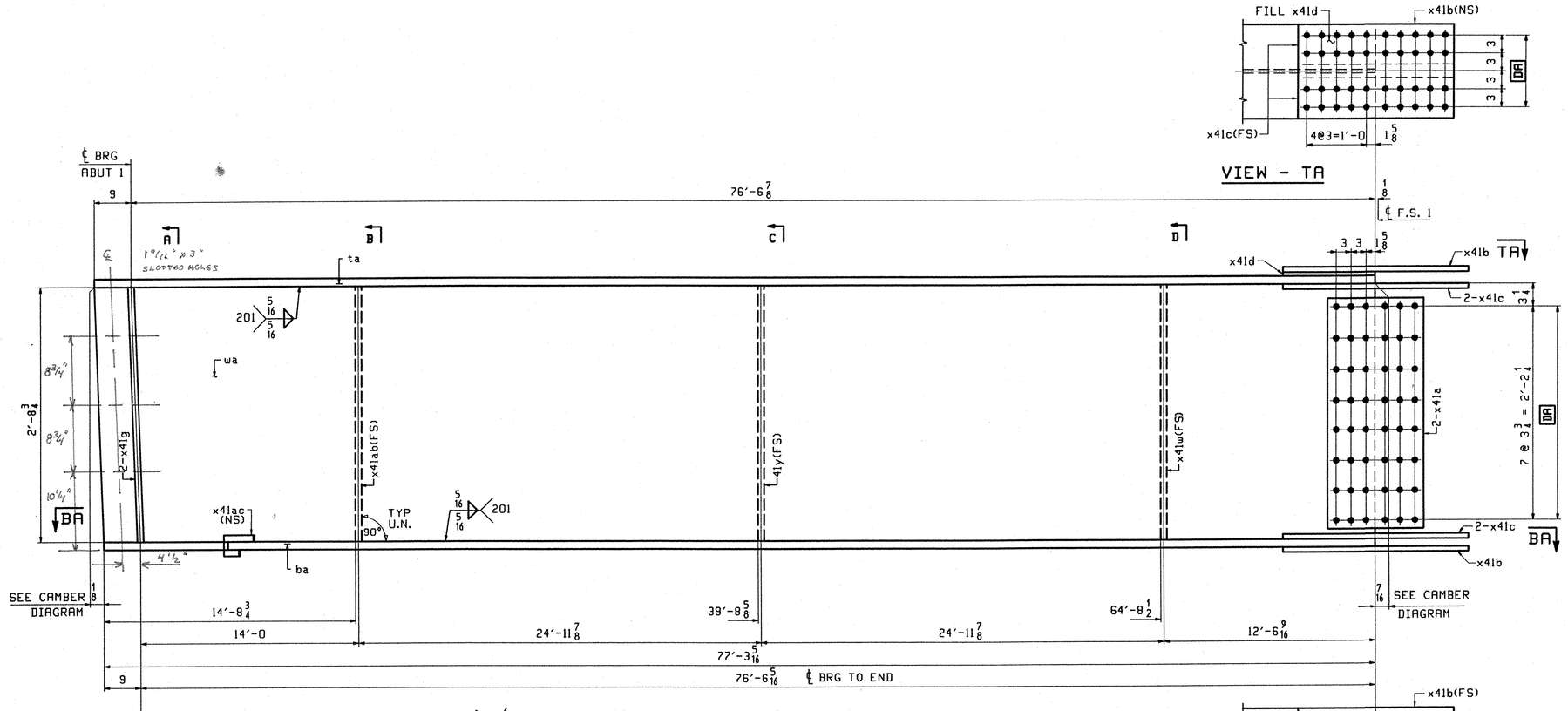
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	08/01
CHKD BY	
ELC	9/10/01
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
119-48N	404
	REV. △

Thu Sep 20 14:04:43 EDT 2001 /users/jake/2107-hc/404.dgn BW



ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									405	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5A	1		GIRDER				16063	
401	L		1	wa	PL 1/2 x 36 1/2	77	3 7/8	(M270-50WT2) (H2-3)		
401	G		1	ta	PL 7/8 x 16	77	3 7/8	(M270-50WT2) (H2-3)		
401	A		1	ba	PL 1 5/8 x 16	77	3 5/16	(M270-50WT2) (H2-3)		
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)		
402	C		2	x41b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)		
402	D		4	x41c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)		
402	F		1	x41d	PL 3/4 x 16	1	3 3/8	FILL		
402	K		2	x41g	PL 7/8 x 3 3/4	2	8 3/4			
402	M		1	x41w	PL 1/2 x 5	2	8 3/4			
402	M		1	x41y	PL 1/2 x 5	2	8 3/4			
402	M		1	x41ab	PL 1/2 x 5	2	8 3/4			
402	P		1	x41ac	PL 1/4 x 3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY:
DATE: 09-12-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

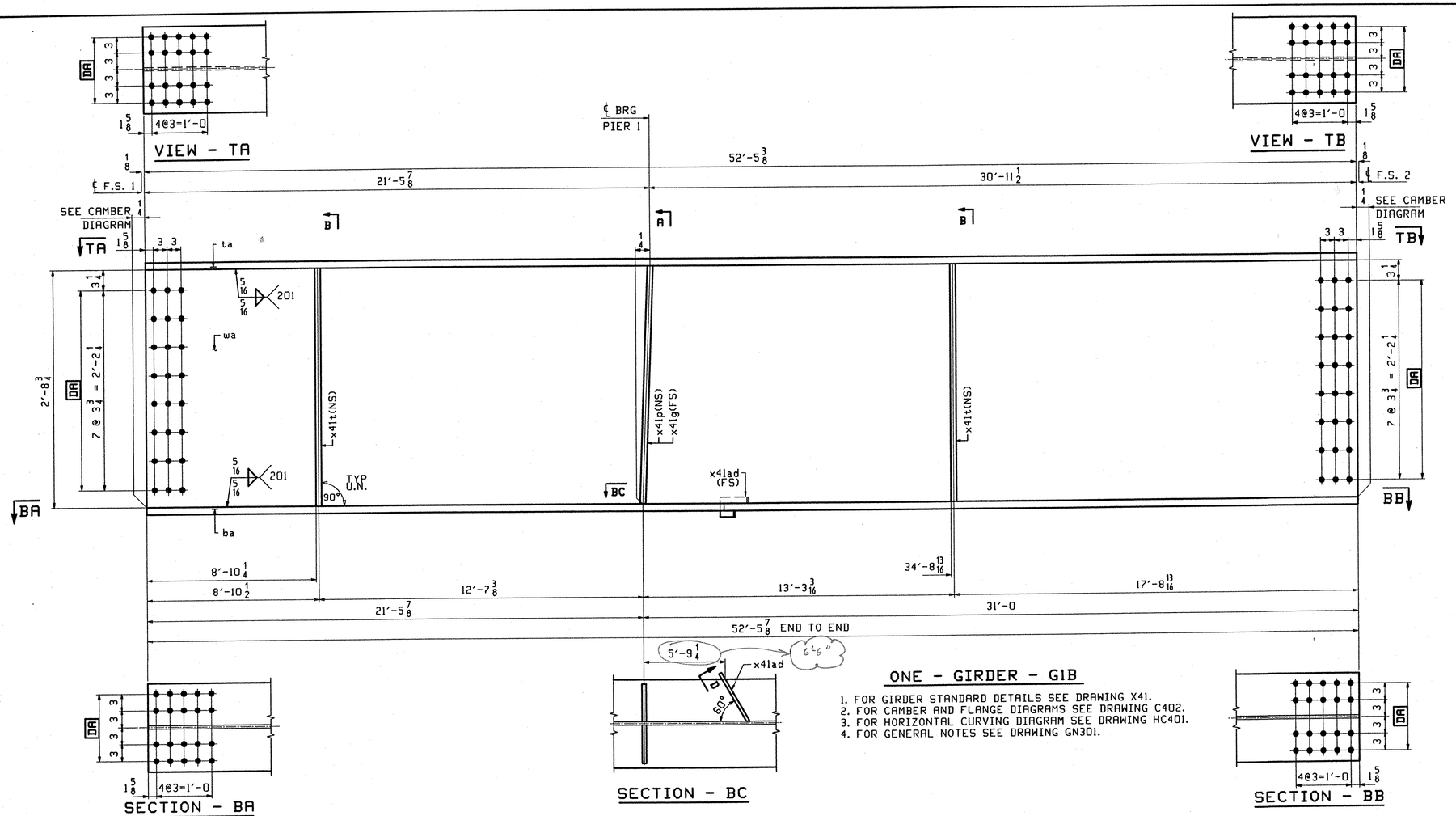
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

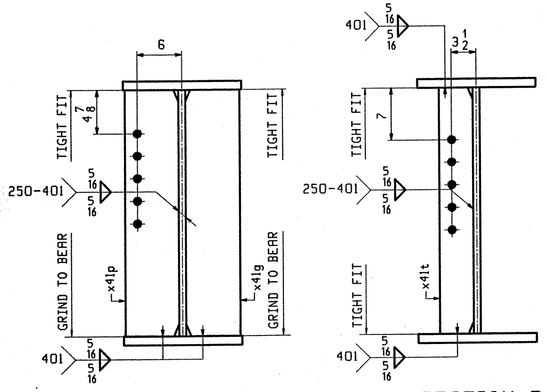
DESCRIPTION: GIRDER - G5A	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/01
	CHKD BY	
	ELC	9/10/01
TENSOR 2107-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

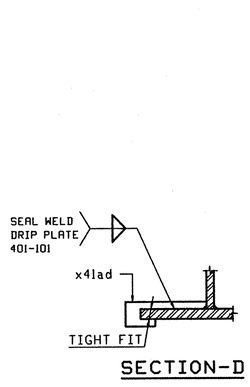
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

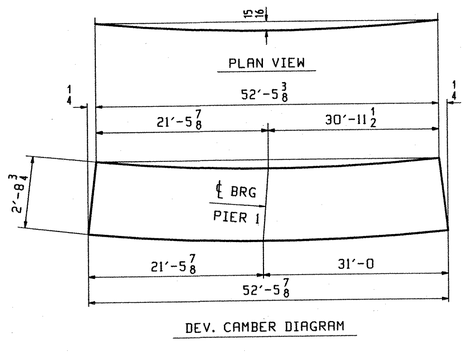
JOB NO.	DRG. NO.
119-48N	405
	REV. △

ELC Thu Sep 20 09:46:11 EDT 2001 /users/jobs/2107-N/405 : Rev0









ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									406	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G1B	1		GIRDER				12518	
401	N		1	wa	PL 1/2x34 1/4	52	5 7/8	(M270-50WT2) (H2-3)		
401	C		1	ta	PL 1 5/8x16	52	5 3/8	(M270-50WT2) (H2-3)		
401	C		1	ba	PL 1 5/8x16	52	5 7/8	(M270-50WT2) (H2-3)		
402	M		2	x41t	PL 1/2x5	2	8 3/4			
402	K		1	x41p	PL 7/8x7 3/4	2	8 3/4			
402	K		1	x41g	PL 7/8x7 3/4	2	8 3/4			
402	P		1	x41ad	PL 1/4x3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03 01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

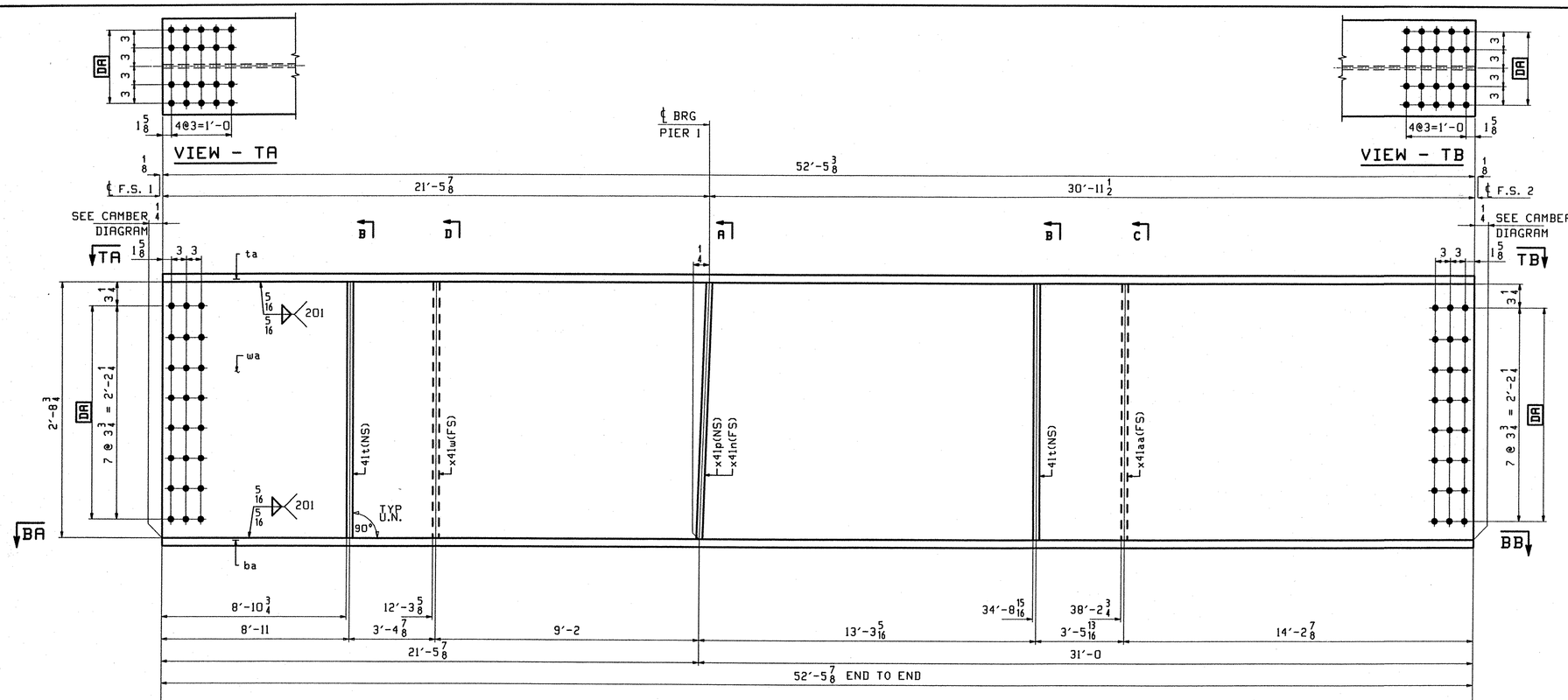
DESCRIPTION: GIRDER - G1B	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
	CHKD BY	
	ELC	9/11/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-N

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

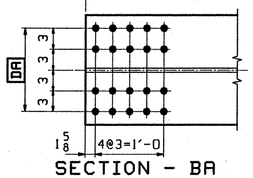
JOB NO.	DRG. NO.
119-48N	406
	REV. △

ELC Thu Sep 20 08:48:13 EDT 2001 /users/jobs/2107-N/406 : Rev0

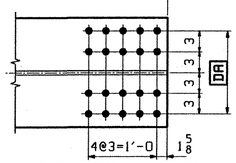


ONE - GIRDER - G2B

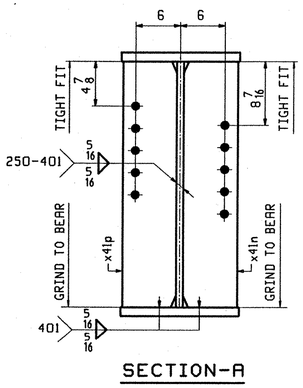
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



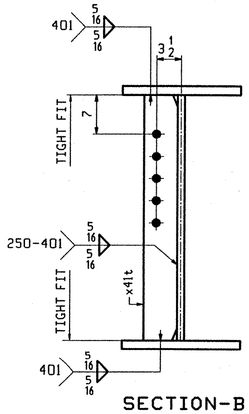
SECTION - BA



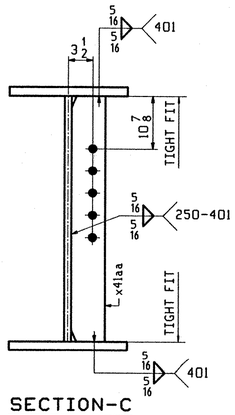
SECTION - BB



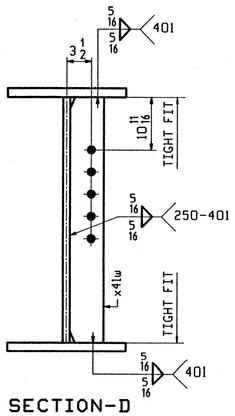
SECTION-A



SECTION-B



SECTION-C



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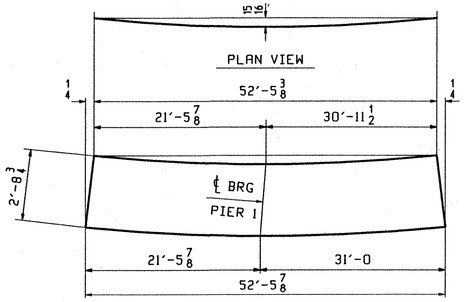

DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									407		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G2B	1		GIRDER				12562		
401	N		1	wa	PL 1/2x34 1/4	52	5 7/8	(M270-50WT2) (H2-3)			
401	C		1	ta	PL 1 5/8x16	52	5 3/8	(M270-50WT2) (H2-3)			
401	C		1	ba	PL 1 5/8x16	52	5 7/8	(M270-50WT2) (H2-3)			
402	M		2	x41t	PL 1/2x5	2	8 3/4				
402	M		1	x41w	PL 1/2x5	2	8 3/4				
402	K		1	x41p	PL 7/8x7 3/4	2	8 3/4				
402	K		1	x41n	PL 7/8x7 3/4	2	8 3/4				
402	M		1	x41aa	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-7-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR. 50W (UN)
ELECTRODES:
HOLES: 15/16 ø (U.N.)
SHOP BOLTS: 7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

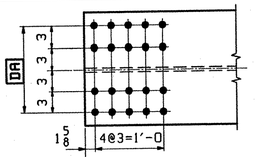
DESCRIPTION: GIRDER - G2B
JOB: I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT
TENSOR 2107-N
PROJ NO. IM-089-2(26)
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	08/02
CHKD BY	
ELC	9/12/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

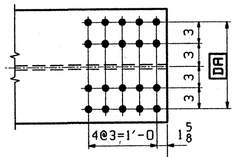
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	407
	REV. △

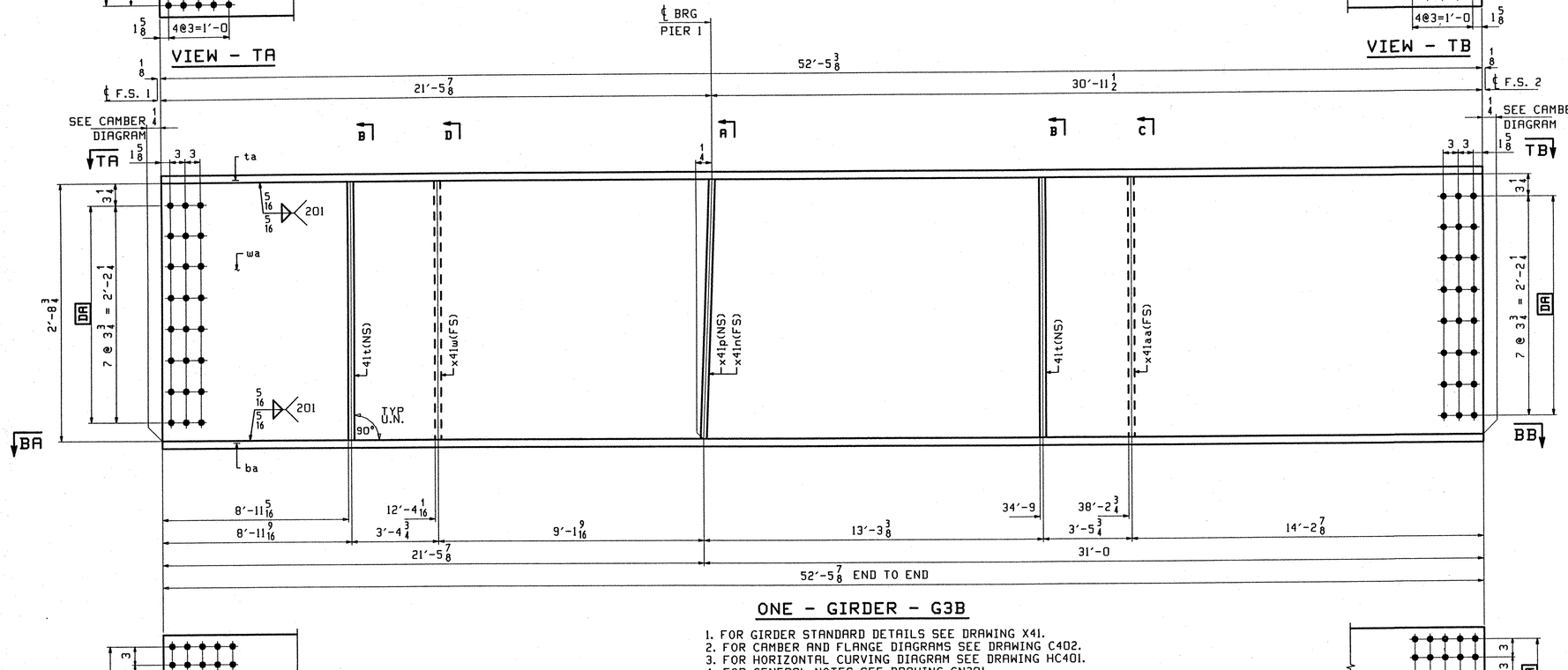
BM Thu Sep 20 14:07:14 EST 2001 /users/jobs/2107-N/407 : RevG



VIEW - TA

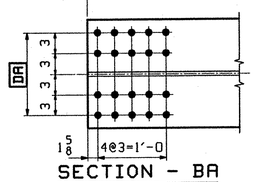


VIEW - TB

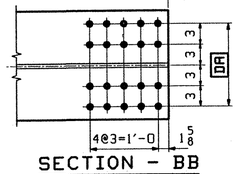


ONE - GIRDER - G3B

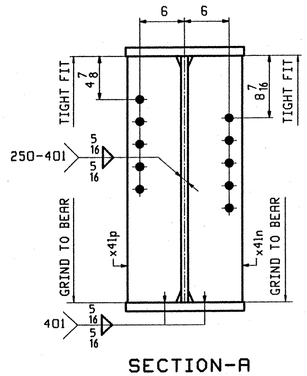
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



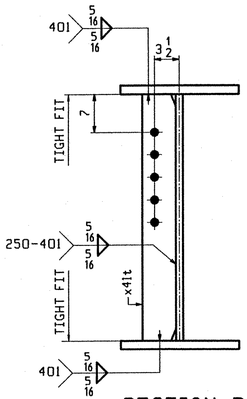
SECTION - BA



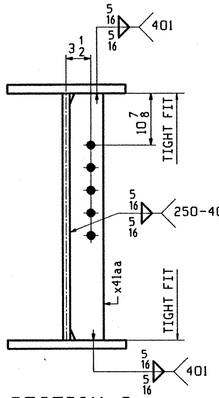
SECTION - BB



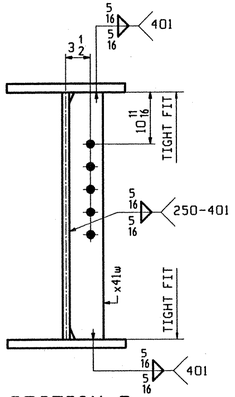
SECTION-A



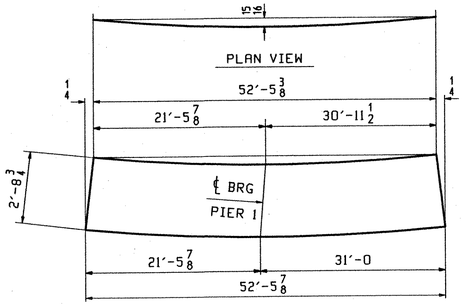
SECTION-B



SECTION-C



SECTION-D



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	408 WT	PROCUREMENT NOTES	
		G3B	1		GIRDER				12562		
401	N		1	wa	PL 1/2 x34 1/4	52	5 7/8	(M270-50WT2) (H2-3)			
401	C		1	ta	PL 5/8 x16	52	5 3/8	(M270-50WT2) (H2-3)			
401	C		1	ba	PL 1 5/8 x16	52	5 7/8	(M270-50WT2) (H2-3)			
402	M		2	x41t	PL 1/2 x5	2	8 3/4				
402	M		1	x41w	PL 1/2 x5	2	8 3/4				
402	K		1	x41p	PL 7/8 x7 3/4	2	8 3/4				
402	K		1	x41n	PL 7/8 x7 3/4	2	8 3/4				
402	M		1	x41aa	PL 1/2 x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-23-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

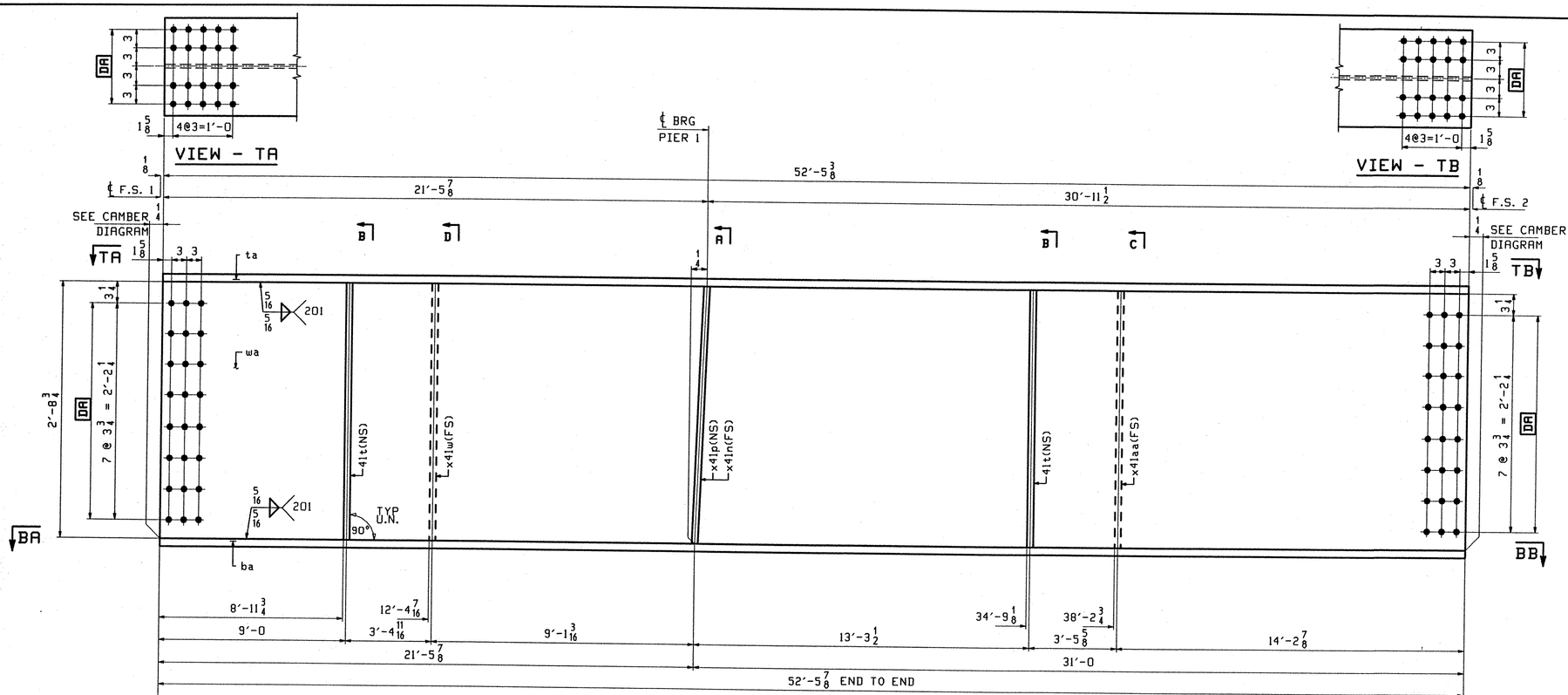
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	GIRDER - G3B	DRAWN BY	DATE
JOB:	I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
		CHKD BY	
		ELC	9/12/01
		APPROV BY	
TENSOR 2107-N		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

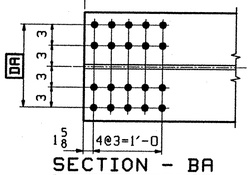
JOB NO.	DRG. NO.
119-48N	408
	REV. △

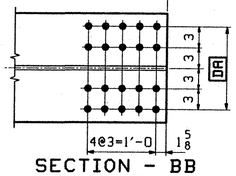
BW Thu Sep 20 14:08:13 EDT 2001 /users/jobs/2107-N/408.1 Rev2

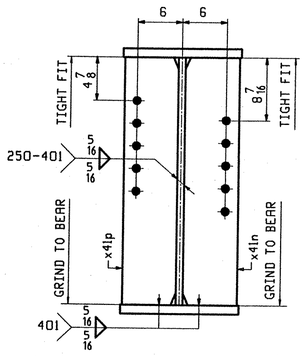


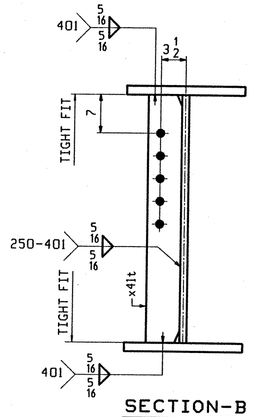
ONE - GIRDER - G4B

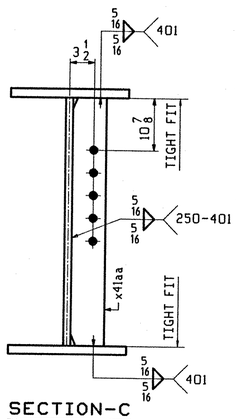
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

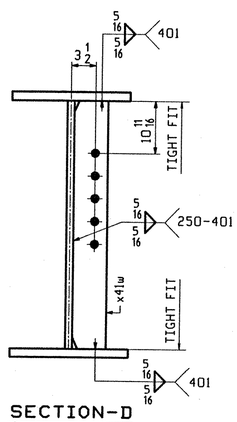


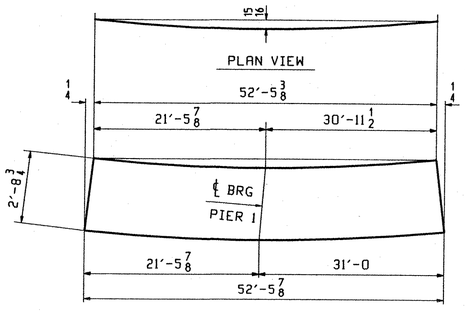












DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									409	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4B	1		GIRDER				12562	
401	N		1	wa	PL 1/2x34 1/4	52	5 7/8	(M270-50WT2) (H2-3)		
401	C		1	ta	PL 1 5/8x16	52	5 3/8	(M270-50WT2) (H2-3)		
401	C		1	ba	PL 1 5/8x16	52	5 7/8	(M270-50WT2) (H2-3)		
402	M		2	x41t	PL 1/2x5	2	8 3/4			
402	M		1	x41w	PL 1/2x5	2	8 3/4			
402	K		1	x41p	PL 7/8x7 3/4	2	8 3/4			
402	K		1	x41n	PL 7/8x7 3/4	2	8 3/4			
402	M		1	x41aa	PL 1/2x5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: _____
DATE: 01-17-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR. 50W (UN)
ELECTRODES:
HOLES: 15/16 ø (U.N.)
SHOP BOLTS: 7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

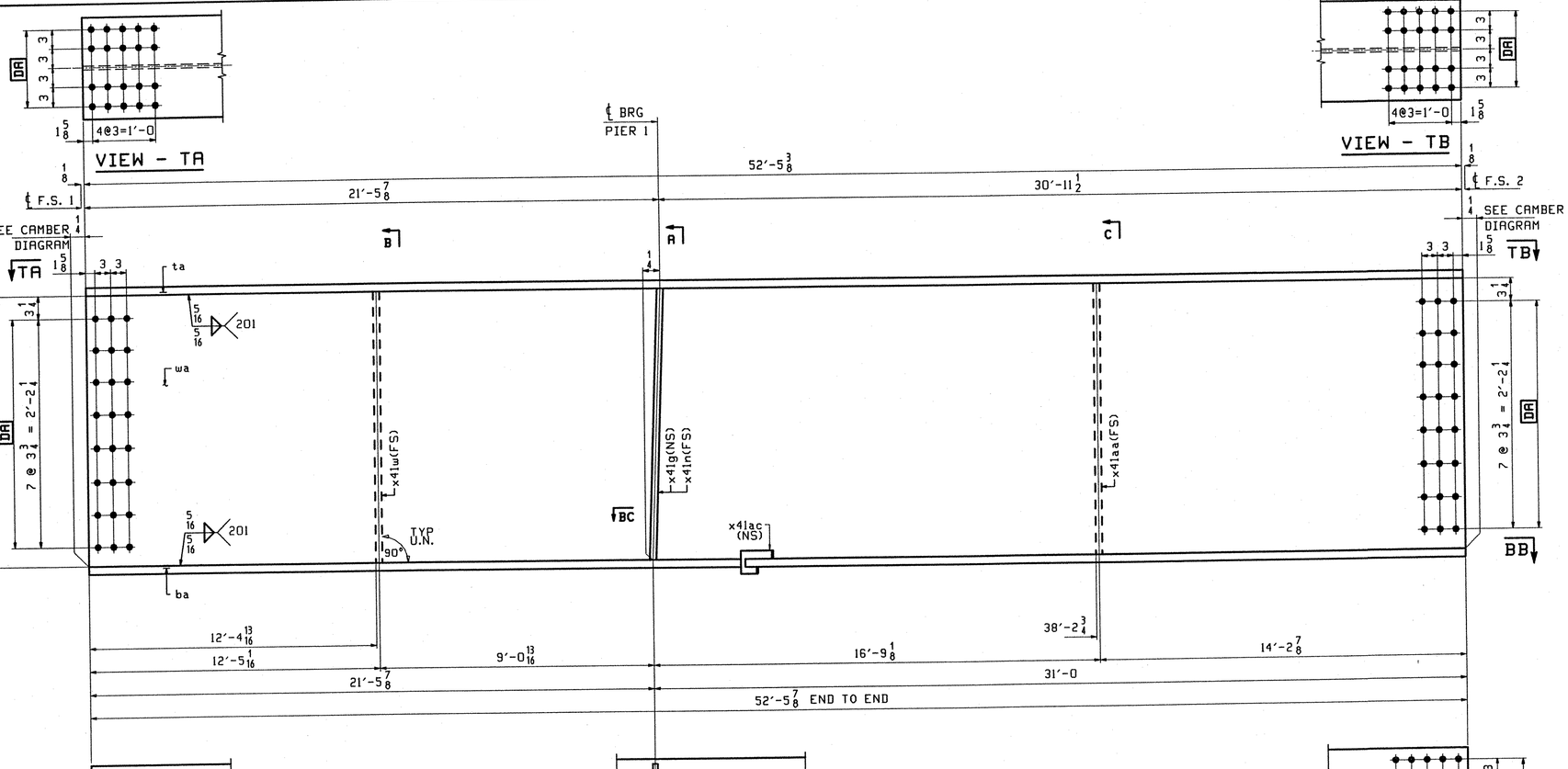
DESCRIPTION: GIRDER - G4B
JOB: I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT
TENSOR 2107-N
PROJ NO. IM-089-2(26)
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

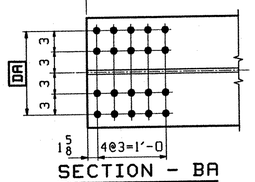
DRAWN BY	DATE
BW	08/02
CHKD BY	
ELC	9/12/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

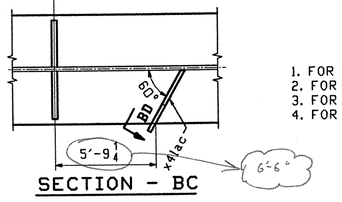
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	409
	REV. △

BM Thu Sep 20 14:58:11 CDT 2001 /users/jobs/2107-N/409 : Rev0

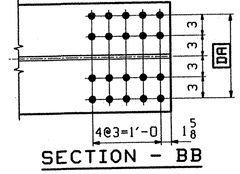


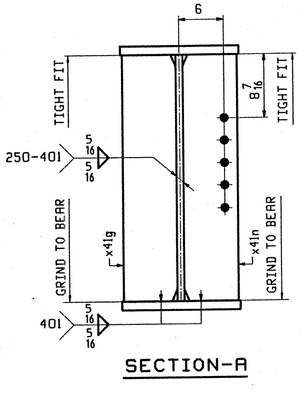


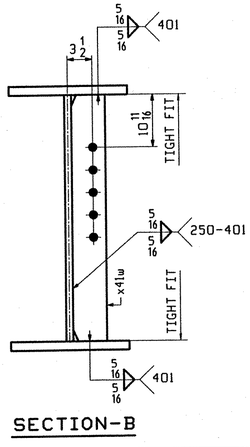


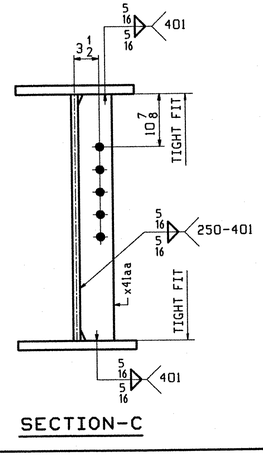
ONE - GIRDER - G5B

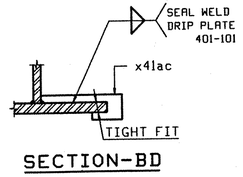
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

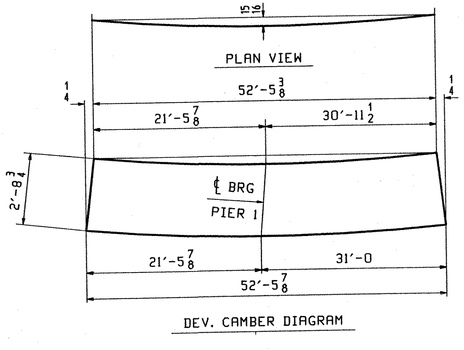












ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									410	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5B	1		GIRDER				12518	
401	N		1	wa	PL 1/2×34 1/4	52	5 7/8	(H270-50WT2) (H2-3)		
401	C		1	ta	PL 1 1/8×16	52	5 5/8	(H270-50WT2) (H2-3)		
401	C		1	ba	PL 1 5/8×16	52	5 7/8	(H270-50WT2) (H2-3)		
402	M		1	x41w	PL 1/2×5	2	8 3/4			
402	K		1	x41g	PL 7/8×7 3/4	2	8 3/4			
402	K		1	x41n	PL 7/8×7 3/4	2	8 3/4			
402	M		1	x41aa	PL 1/2×5	2	8 3/4			
402	P		1	x41ac	PL 1/4×3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

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☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-11-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	11-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

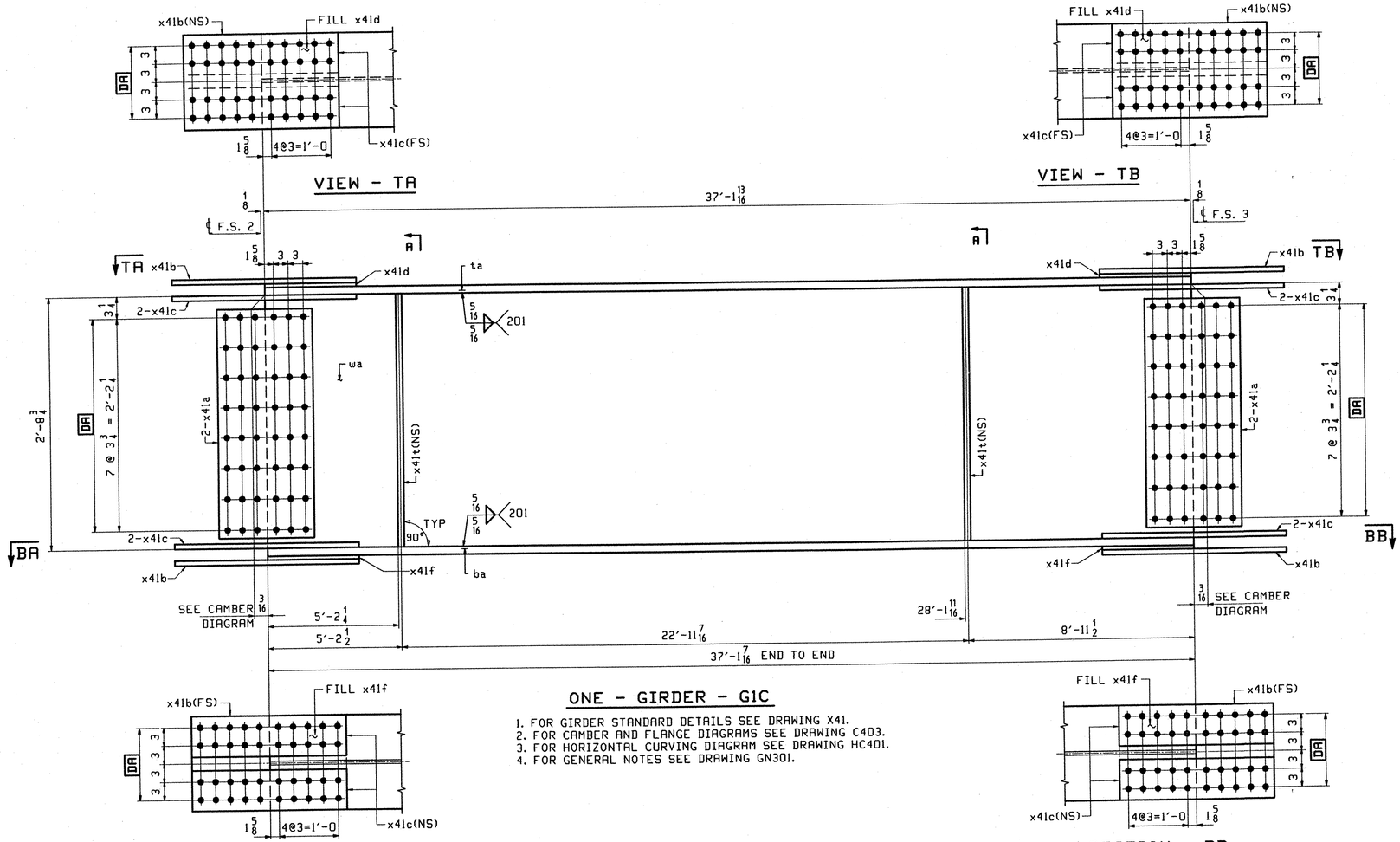
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5B	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
	CHKD BY	
	ELC	9/12/01
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

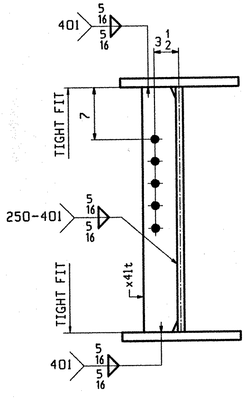
JOB NO.	DRG. NO.
119-48N	410
	REV. △

ELC Thu Sep 20 09:53:33 EDT 2001 /users/jobs/2107-N/410 | Rev=0

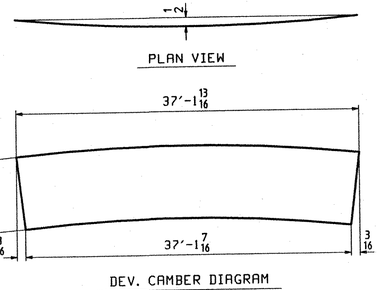


ONE - GIRDER - G1C

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C403.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SECTION-A



ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									411		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		GIC	1		GIRDER				7005		
401	Q		1	wa	PL 1/2x33 7/16	37	1 13/16	(M270-50WT2) (H2-3)			
401	J		1	ta	PL 7/8x16	37	1 13/16	(M270-50WT2) (H2-3)			
401	E		1	ba	PL 15/16x16	37	1 7/16	(M270-50WT2) (H2-3)			
402	B		4	x41a	PL 1/2x29 3/4	1	7	(M270-50WT2) (H2-3)			
402	C		4	x41b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)			
402	D		8	x41c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)			
402	F		2	x41d	PL 3/4x16	1	3 3/8	FILL			
402	G		2	x41f	PL 11/16x16	1	3 3/8	FILL			
402	M		2	x41t	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

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☐ FURNISH AS CORRECTED
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BY: _____
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

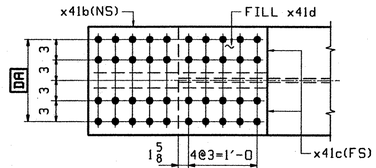
DESCRIPTION:	GIRDER - G1C	DRAWN BY	DATE
JOB:	I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
		CHKD BY	
		ELC	9/12/01
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-N

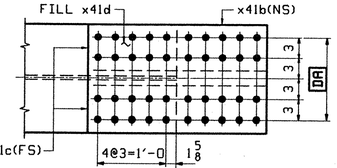
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	411
	REV. △

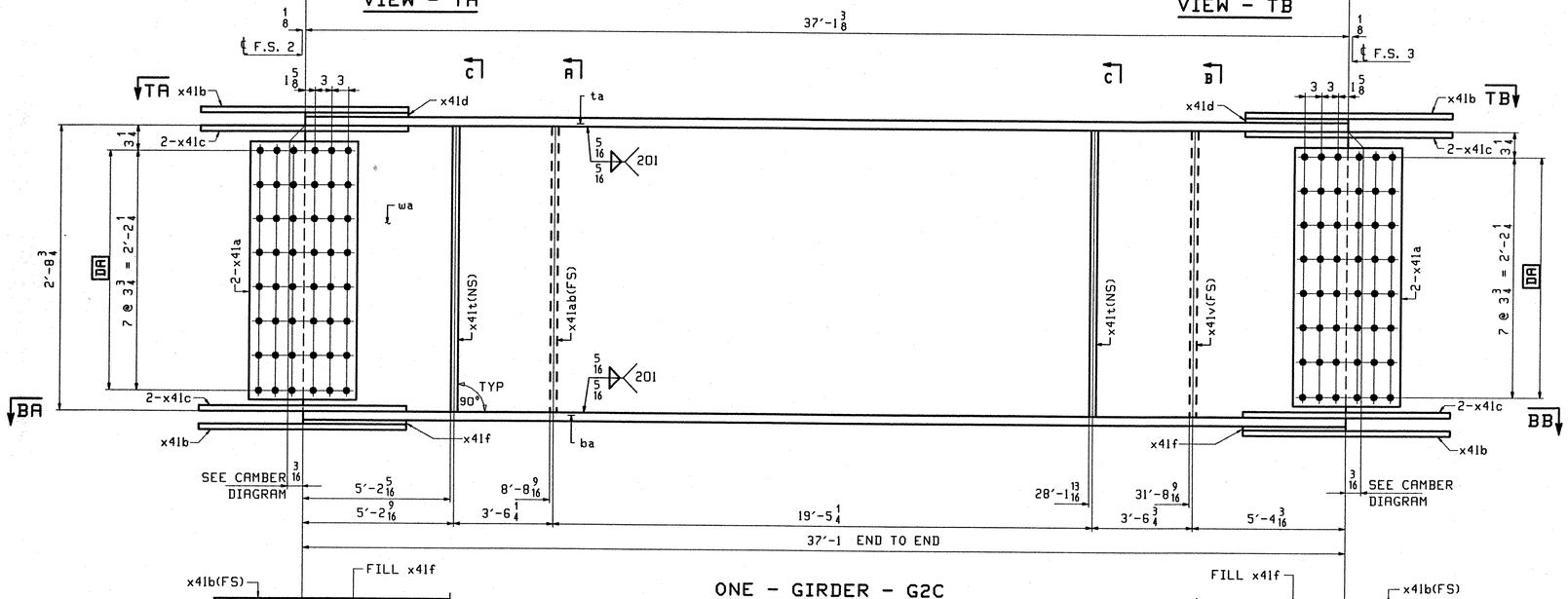
ELC Thu Sep 20 10:05:01 EDT 2001 /users/jobs/2107-N/411.dwg

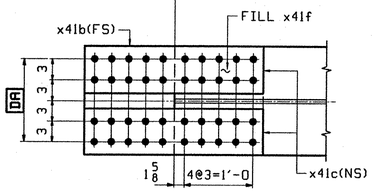


VIEW - TA

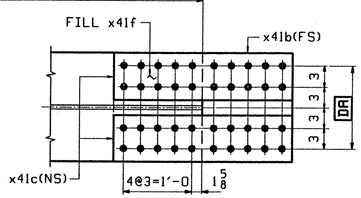


VIEW - TB





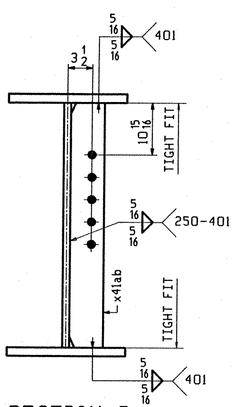
SECTION - BA



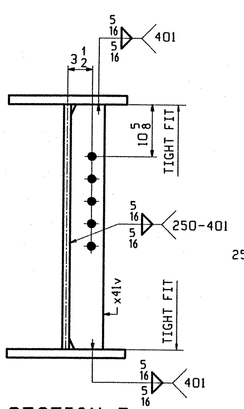
SECTION - BB

ONE - GIRDER - G2C

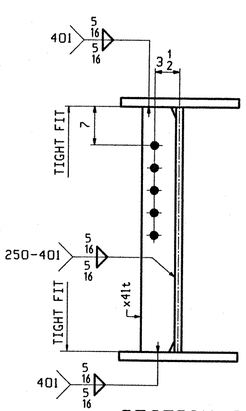
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C403.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



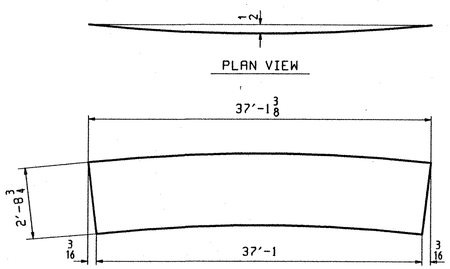
SECTION-A



SECTION-B



SECTION-C



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									412	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2C	1		GIRDER				7046	
401	Q		1	wa	PL 1/2 x 33 7/16	37	1 3/8	(H270-50WT2) (H2-3)		
401	J		1	ta	PL 7/8 x 16	37	1 3/8	(H270-50WT2) (H2-3)		
401	E		1	ba	PL 15/16 x 16	37	1	(H270-50WT2) (H2-3)		
402	B		4	x41a	PL 1/2 x 29 3/4	1	7	(H270-50WT2) (H2-3)		
402	C		4	x41b	PL 5/8 x 16	2	7	(H270-50WT2) (H2-3)		
402	D		8	x41c	PL 5/8 x 7	2	7	(H270-50WT2) (H2-3)		
402	F		2	x41d	PL 1/2 x 16	1	3 3/8	FILL		
402	G		2	x41f	PL 11/16 x 16	1	3 3/8	FILL		
402	M		2	x41t	PL 1/2 x 5	2	8 3/4			
402	M		1	x41ab	PL 1/2 x 5	2	8 3/4			
402	M		1	x41v	PL 1/2 x 5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 09-11-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	11-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

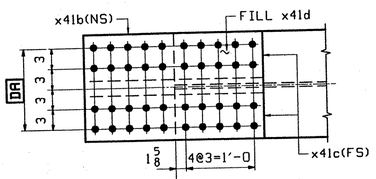
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2C	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
	CHKD BY	
	ELC	9/12/01
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

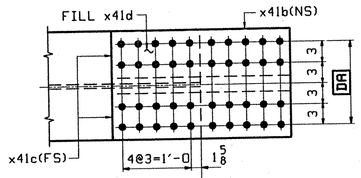
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	412
	REV. △

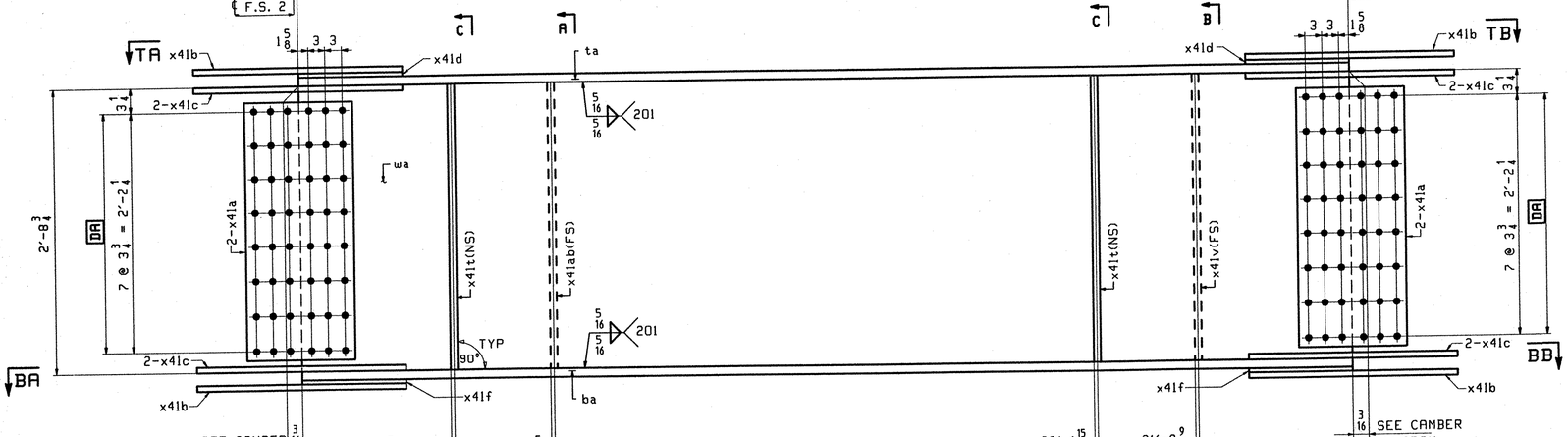
BW Thu Sep 20 14:03:23 EDT 2001 /users/jobs/2107-N/412 | Dwg

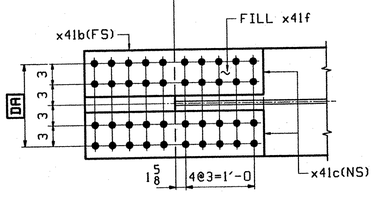


VIEW - TA



VIEW - TB

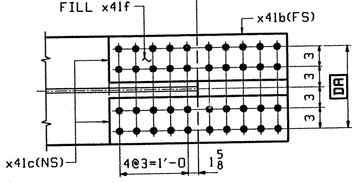




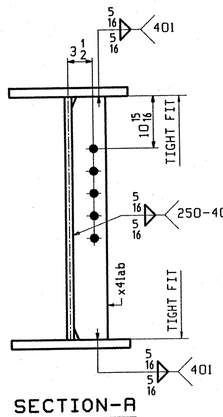
SECTION - BA

ONE - GIRDER - G3C

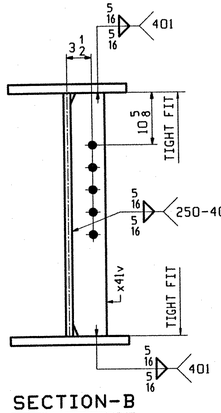
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C403.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



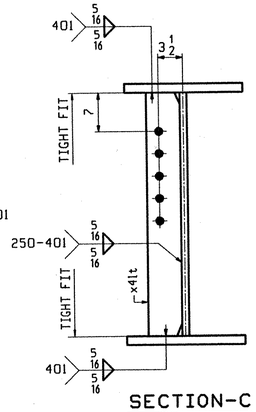
SECTION - BB



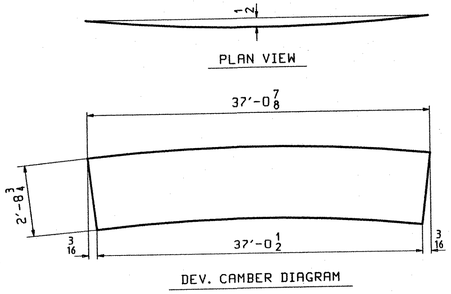
SECTION-A



SECTION-B



SECTION-C



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									413		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G3C	1		GIRDER				7039		
401	Q		1	wa	PL 1/2x33 7/16	37	0 7/8	(H270-50WT2) (H2-3)			
401	J		1	ta	PL 3/8x16	37	0 7/8	(H270-50WT2) (H2-3)			
401	E		1	ba	PL 15/16x16	37	0 1/2	(H270-50WT2) (H2-3)			
402	B		4	x41a	PL 1/2x29 3/4	1	7	(H270-50WT2) (H2-3)			
402	C		4	x41b	PL 5/8x16	2	7	(H270-50WT2) (H2-3)			
402	D		8	x41c	PL 5/8x7	2	7	(H270-50WT2) (H2-3)			
402	F		2	x41d	PL 3/4x16	1	3 3/8	FILL			
402	G		2	x41f	PL 11/16x16	1	3 3/8	FILL			
402	M		2	x41t	PL 1/2x5	2	8 3/4				
402	M		1	x41ab	PL 1/2x5	2	8 3/4				
402	M		1	x41v	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: MMD
DATE: 01-11-2002

OUT FOR APPROVAL		10-03-01									
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

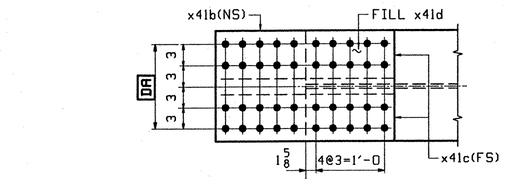
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3C	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
	CHKD BY	
	ELC	9/12/01
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

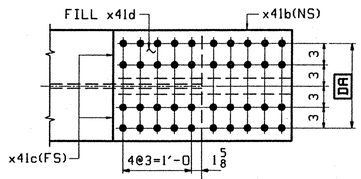
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	413
	REV. △

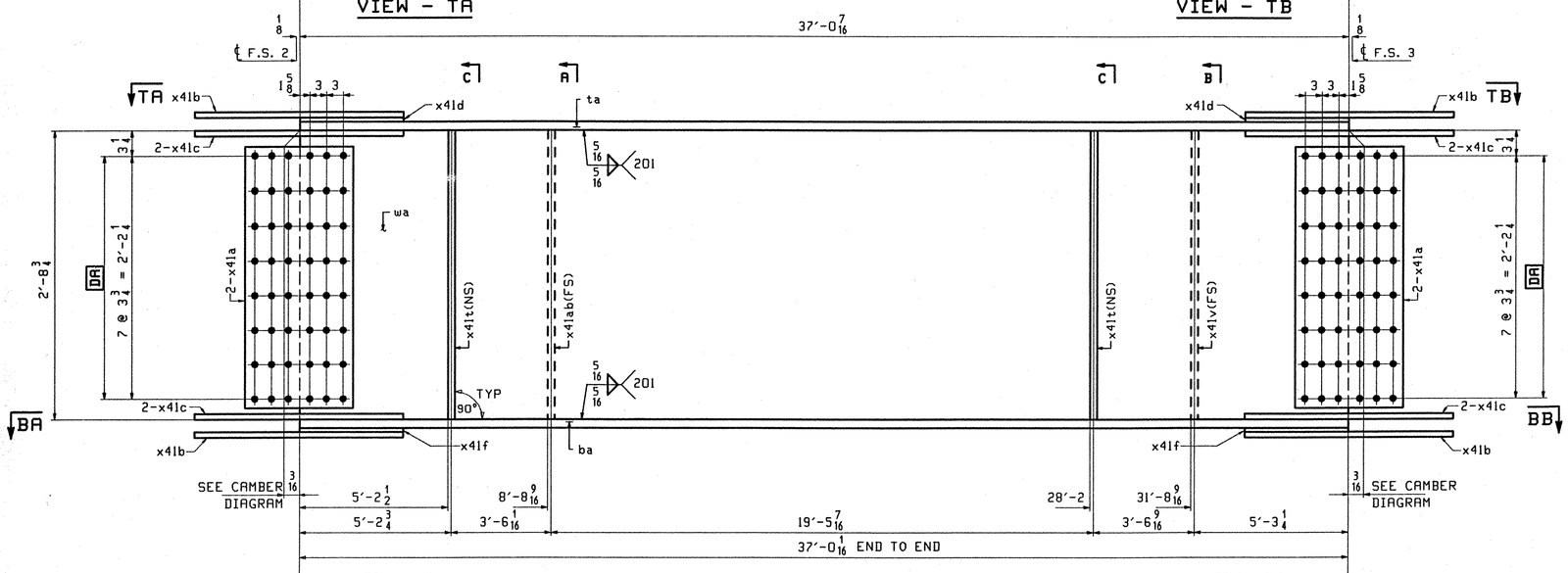
BW Thu Sep 20 14:45 EDT 2001 /users/jobs/2107-N/413 : Rev3

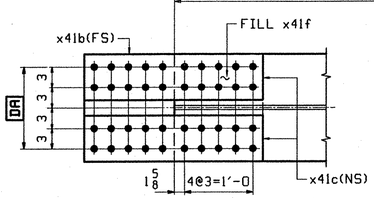


VIEW - TA

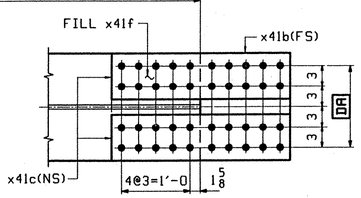


VIEW - TB





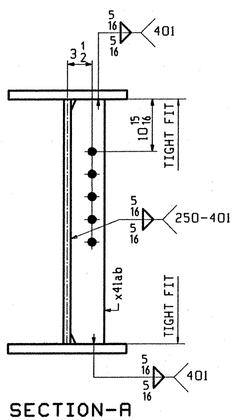
SECTION - BA



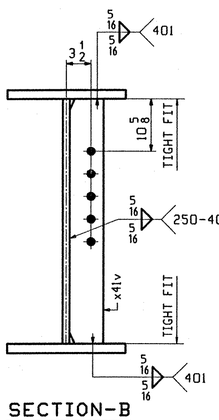
SECTION - BB

ONE - GIRDER - G4C

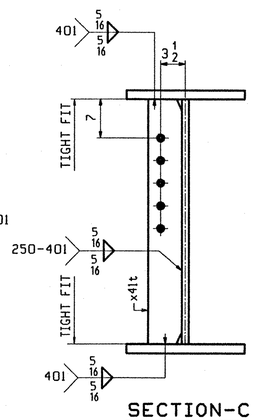
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C403.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



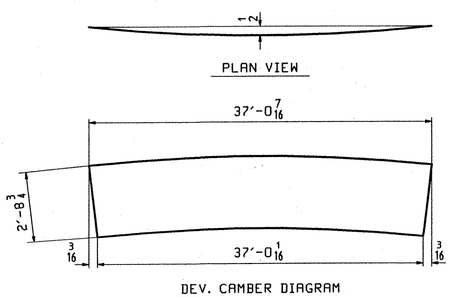
SECTION-A



SECTION-B



SECTION-C



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									414		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G4C	1		GIRDER				7033		
401	Q		1	wa	PL 1/2x33 7/16	37	0 7/16	(H270-50WT2) (H2-3)			
401	J		1	ta	PL 7/8x16	37	0 7/16	(H270-50WT2) (H2-3)			
401	E		1	ba	PL 15/16x16	37	0 1/16	(H270-50WT2) (H2-3)			
402	B		4	x41a	PL 1/2x29 3/4	1	7	(H270-50WT2) (H2-3)			
402	C		4	x41b	PL 5/8x16	2	7	(H270-50WT2) (H2-3)			
402	D		8	x41c	PL 5/8x7	2	7	(H270-50WT2) (H2-3)			
402	F		2	x41d	PL 3/4x16	1	3 3/8	FILL			
402	G		2	x41f	PL 11/16x16	1	3 3/8	FILL			
402	M		2	x41t	PL 1/2x5	2	8 3/4				
402	M		1	x41ab	PL 1/2x5	2	8 3/4				
402	M		1	x41v	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: MAP
DATE: 01-11-2002

OUT FOR APPROVAL	10-03-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

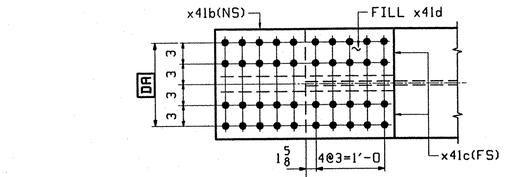
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4C	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
	CHKD BY	
	ELC	9/12/01
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

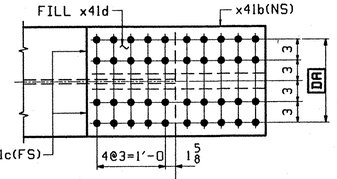
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	414
	REV. △

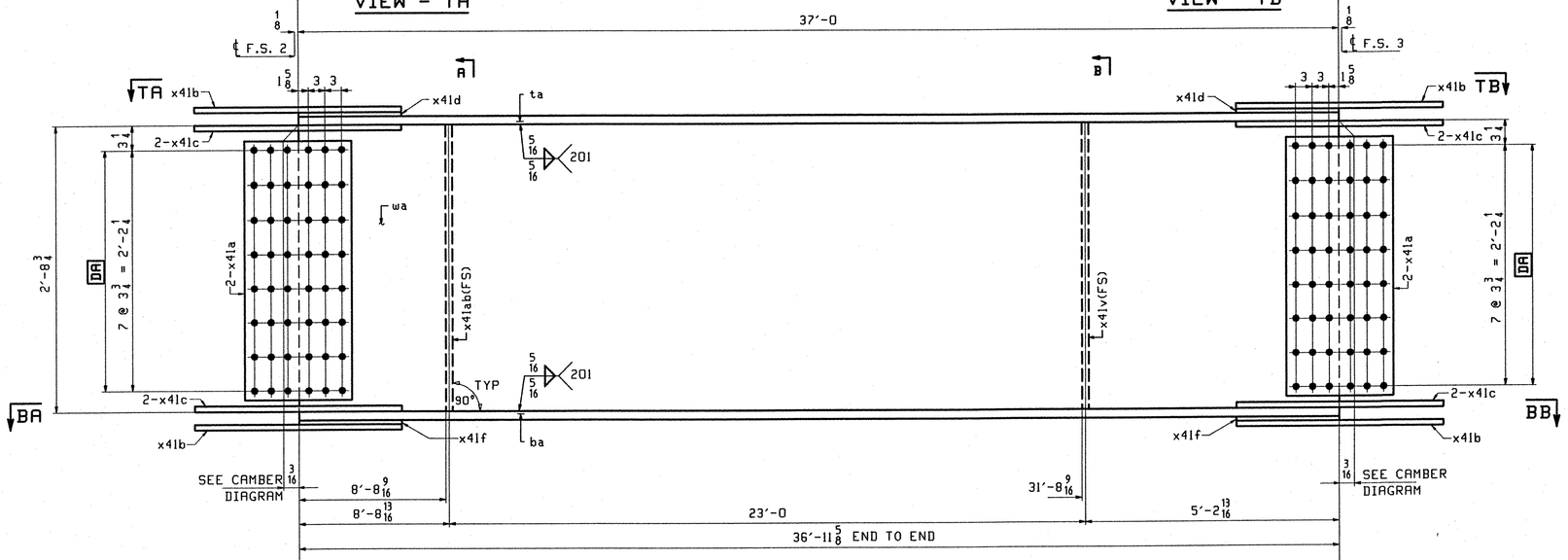
BM Thu Sep 20 14:14:46 EDT 2001 /users/jobs/2107-2x414.1 Rev0



VIEW - TA

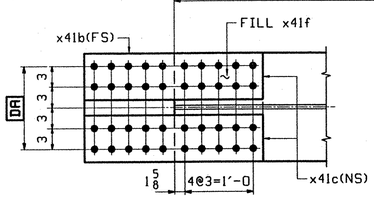


VIEW - TB

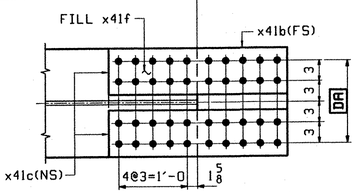


ONE - GIRDER - G5C

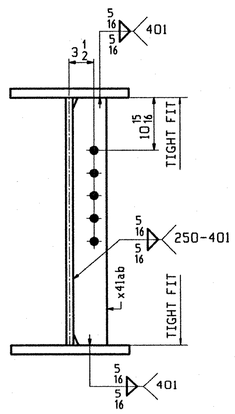
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C403.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



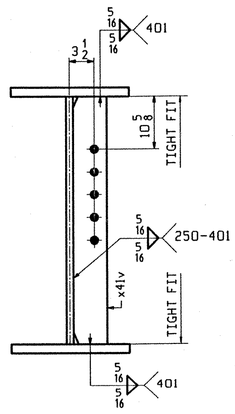
SECTION - BA



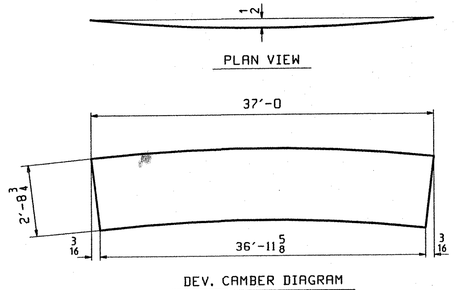
SECTION - BB



SECTION-A



SECTION-B



DEV. CAMBER DIAGRAM
SEE DWG. C403

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									415	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5C	1		GIRDER				6981	
401	Q		1	wa	PL 1/2 x33 7/16	37	0	(M270-50WT2) (H2-3)		
401	J		1	ta	PL 7/8 x16	37	0	(M270-50WT2) (H2-3)		
401	E		1	ba	PL 15/16 x16	36	11 5/8	(M270-50WT2) (H2-3)		
402	B		4	x41a	PL 1/2 x29 3/4	1	7	(M270-50WT2) (H2-3)		
402	C		4	x41b	PL 5/8 x16	2	7	(M270-50WT2) (H2-3)		
402	D		8	x41c	PL 5/8 x7	2	7	(M270-50WT2) (H2-3)		
402	F		2	x41d	PL 3/4 x16	1	3 3/8	FILL		
402	G		2	x41f	PL 11/16 x16	1	3 3/8	FILL		
402	M		1	x41ab	PL 1/2 x5	2	8 3/4			
402	M		1	x41v	PL 1/2 x5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: [illegible]
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

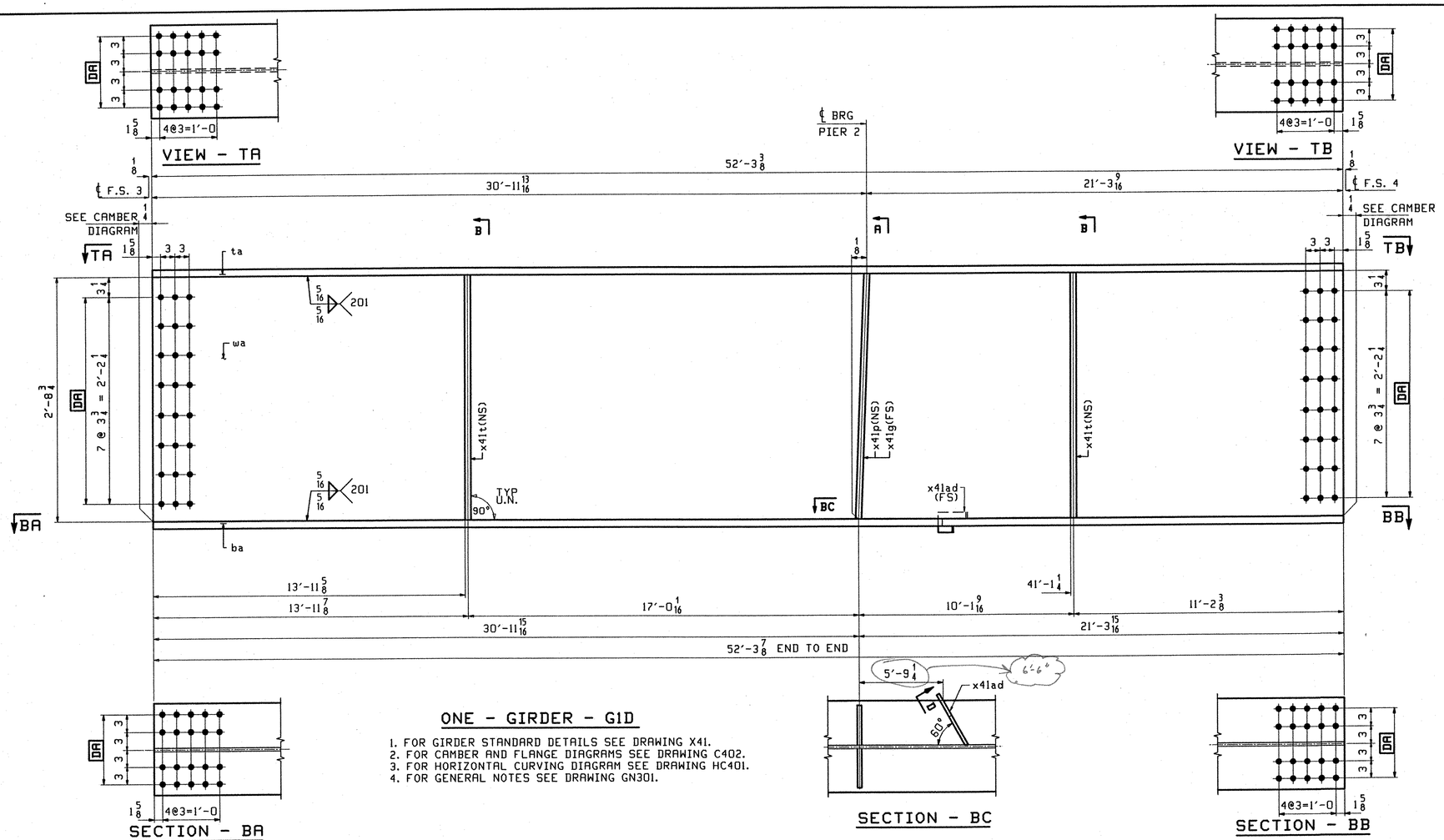
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5C	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT TENSOR 2107-N	BW	08/02
	CHKD BY	
	ELC	9/12/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
119-48N	415
	REV. △

ELC Thu Sep 20 10:38:24 EDT 2001 /users/jobs/2107-nv/415 - Rev0



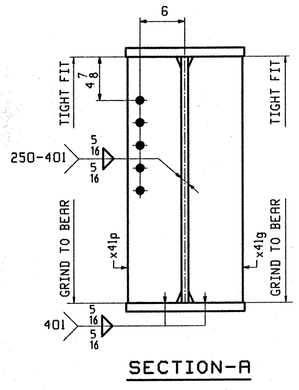
ONE - GIRDER - GID

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

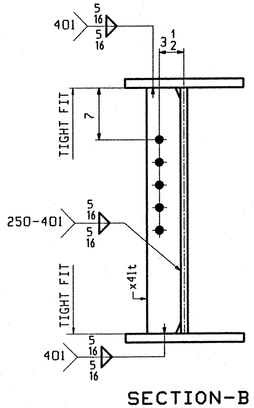
SECTION - BA

SECTION - BC

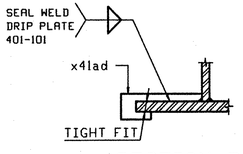
SECTION - BB



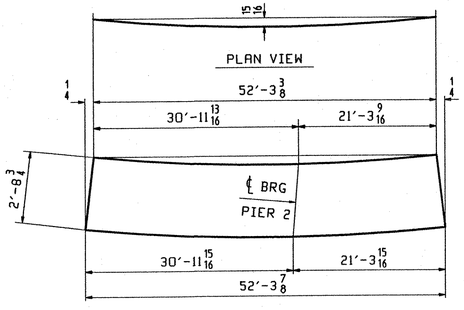
SECTION-A



SECTION-B



SECTION-D



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									416	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		GID	1		GIRDER				12479	
401	N		1	wa	PL 1/2x34 1/4	52	3 7/8	(M270-50WT2) (H2-3)		
401	C		1	ta	PL 1 5/8x16	52	3 3/8	(M270-50WT2) (H2-3)		
401	C		1	ba	PL 1 5/8x16	52	3 7/8	(M270-50WT2) (H2-3)		
402	M		2	x41t	PL 1/2x5	2	8 3/4			
402	K		1	x41p	PL 7/8x7 3/4	2	8 3/4			
402	K		1	x41g	PL 7/8x7 3/4	2	8 3/4			
402	P		1	x41ad	PL 1/4x3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	11-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

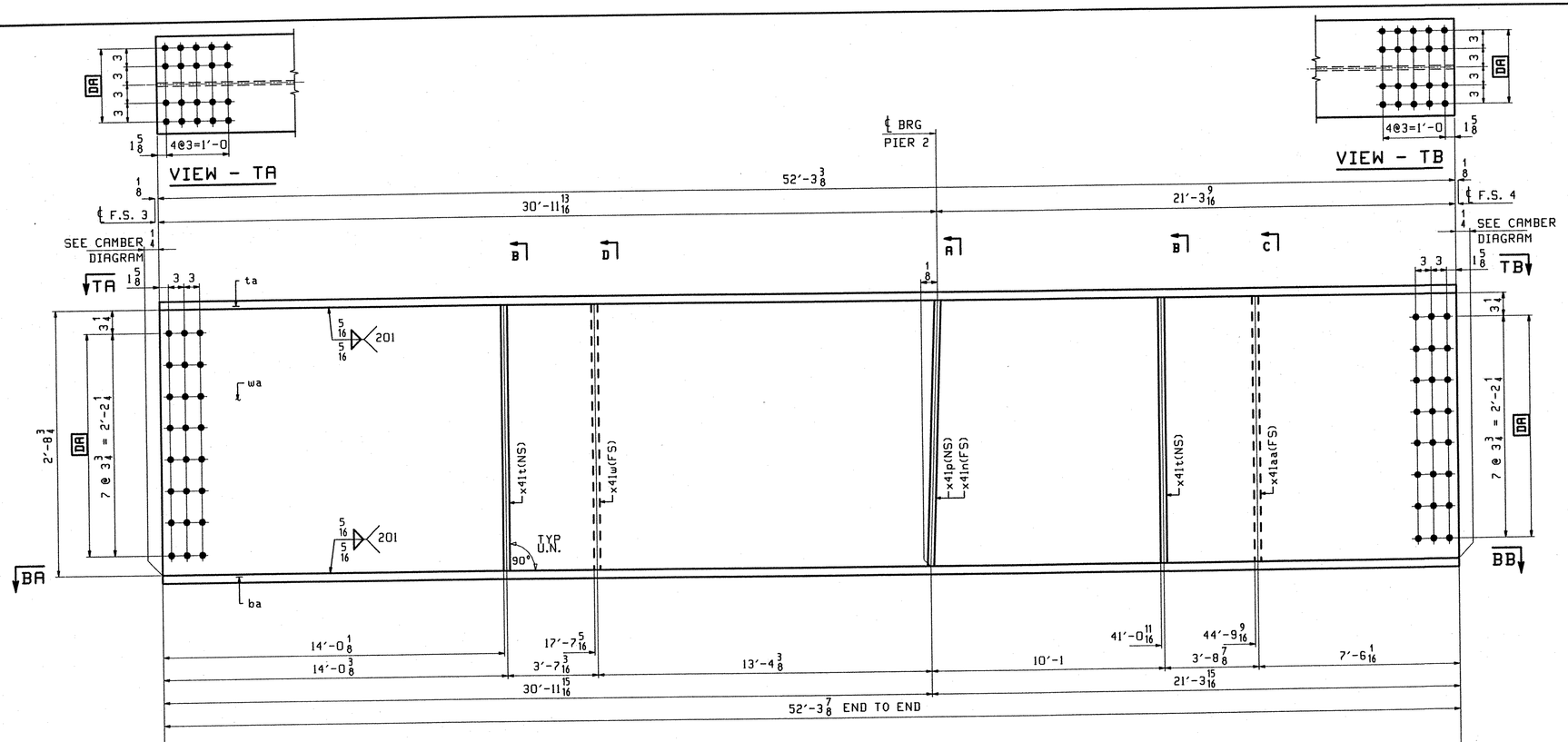
DESCRIPTION: GIRDER - GID	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
	CHKD BY	
	ELC	9/12/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-N

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

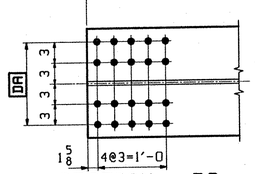
JOB NO.	DRG. NO.
119-48N	416
	REV. △

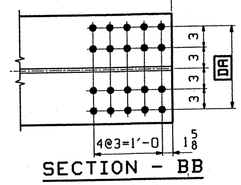
BW Thu Sep 20 14:52:29 CDT 2001 /users/jobs/2107-N/416_1.dwg

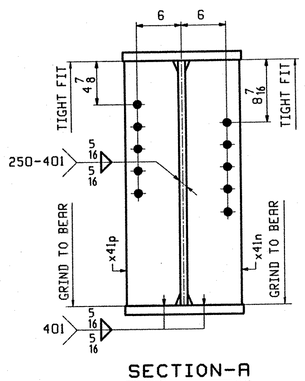


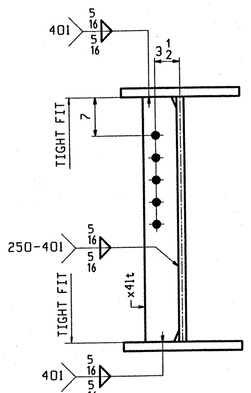
ONE - GIRDER - G2D

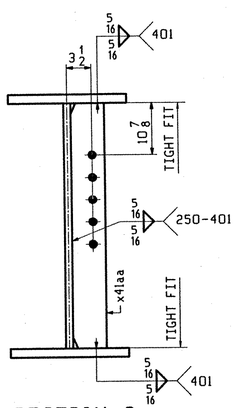
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

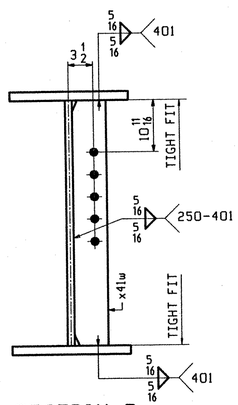


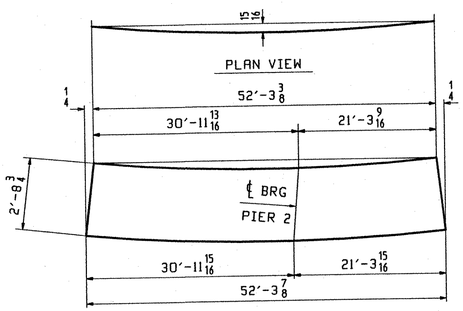












DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									417	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2D	1		GIRDER				12522	
401	N		1	wa	PL 1/2×34 1/4	52	3 7/8	(M270-50WT2) (H2-3)		
401	C		1	ta	PL 1 5/8×16	52	3 3/8	(M270-50WT2) (H2-3)		
401	C		1	ba	PL 1 5/8×16	52	3 7/8	(M270-50WT2) (H2-3)		
402	M		2	x41t	PL 1/2×5	2	8 3/4			
402	M		1	x41w	PL 1/2×5	2	8 3/4			
402	K		1	x41p	PL 7/8×7 3/4	2	8 3/4			
402	K		1	x41n	PL 7/8×7 3/4	2	8 3/4			
402	M		1	x41aa	PL 1/2×5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-14-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	11-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

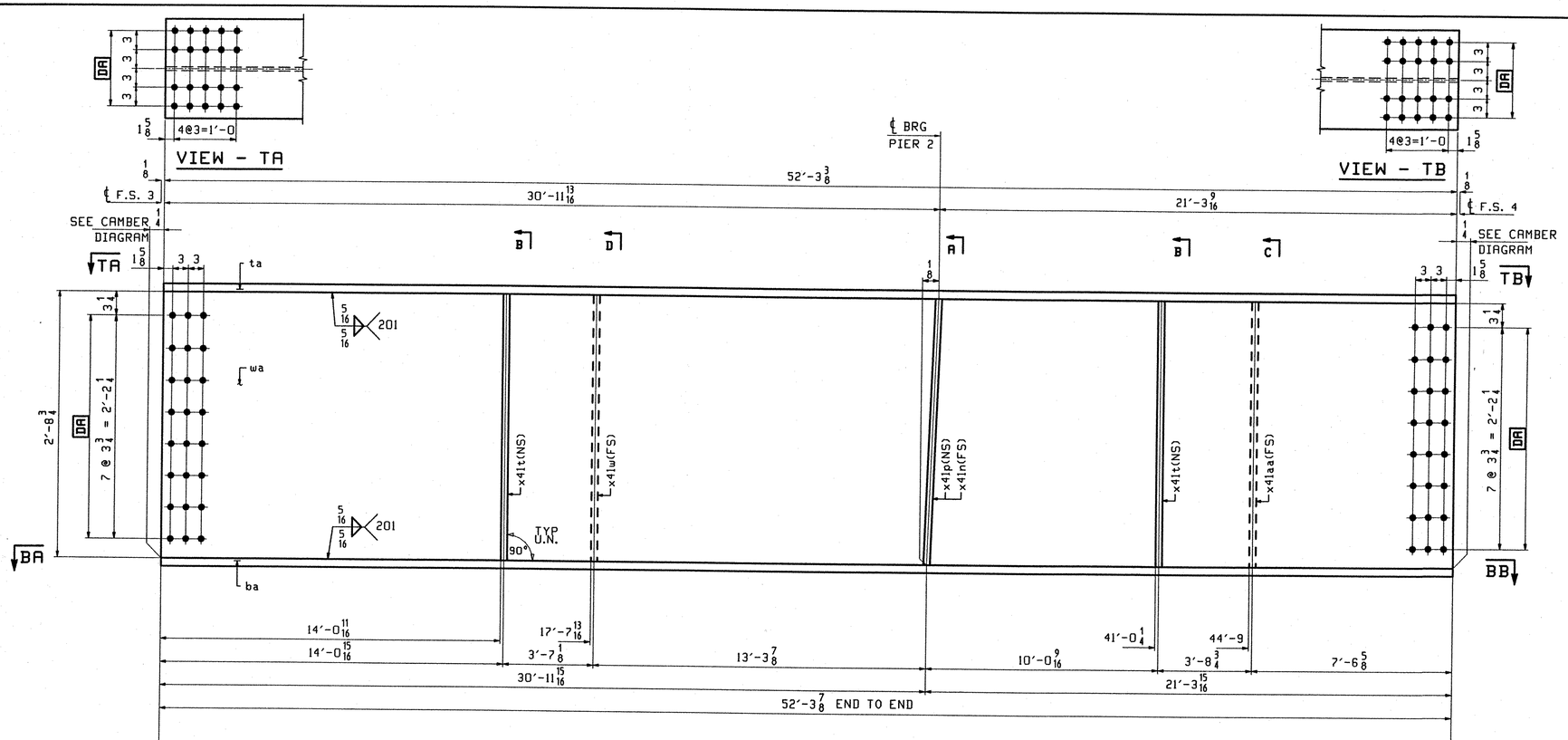
SURFACE PREP. & PRINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2D	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/02
	CHKD BY	
	ELC	9/12/01
	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

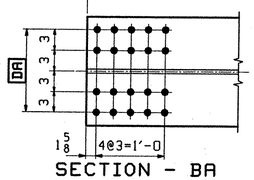
JOB NO.	DRG. NO.
119-48N	417
	REV. △

BW Thu Sep 20 14:17:10 EDT 2001 //admin/jobs/2107-n/417 ; Rev0

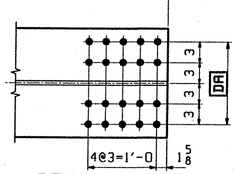


ONE - GIRDER - G3D

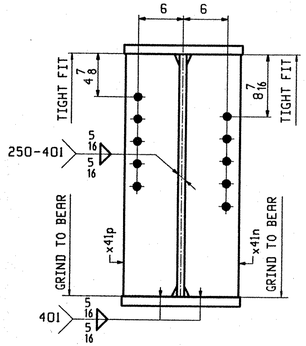
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



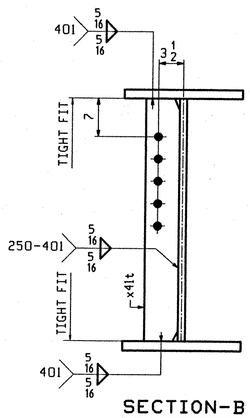
SECTION - BA



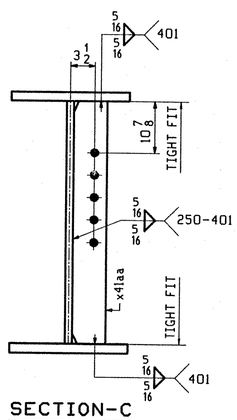
SECTION - BB



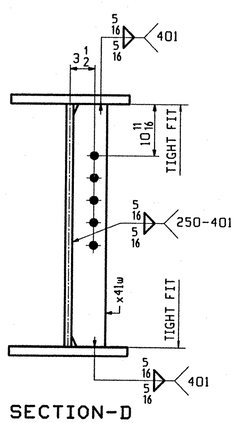
SECTION-A



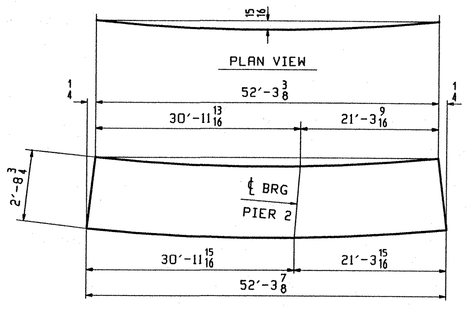
SECTION-B



SECTION-C



SECTION-D



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									418		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G3D	1		GIRDER				12522		
401	N		1	wa	PL 1/2x34 1/4	52	3 7/8	(M270-50WT2) (H2-3)			
401	C		1	ta	PL 1 1/8x16	52	3 3/8	(M270-50WT2) (H2-3)			
401	C		1	ba	PL 1 5/8x16	52	3 7/8	(M270-50WT2) (H2-3)			
402	M		2	x41t	PL 1/2x5	2	8 3/4				
402	M		1	x41w	PL 1/2x5	2	8 3/4				
402	K		1	x41p	PL 7/8x7 3/4	2	8 3/4				
402	K		1	x41n	PL 7/8x7 3/4	2	8 3/4				
402	M		1	x41aa	PL 1/2x5	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 10-11-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-03-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR. 50W (UN)
ELECTRODES:
HOLES: 15/16 ø (U.N.)
SHOP BOLTS: 7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3D

JOB:
I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT

TENSOR 2107-N

PROJ NO. IM-089-2(26)

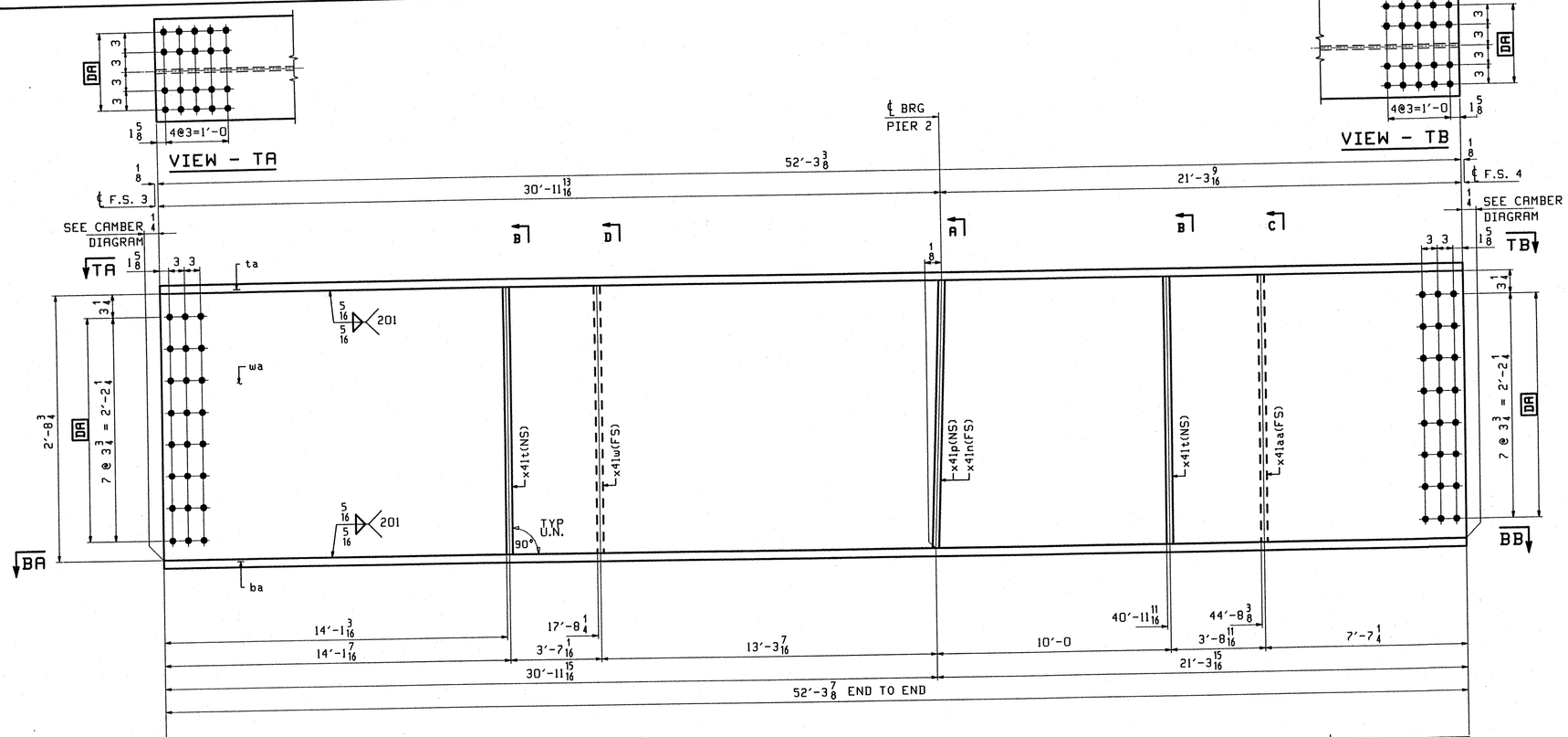
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	08/02
CHKD BY	
ELC	9/12/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

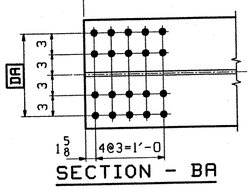
JOB NO.	DRG. NO.
119-48N	418
	REV. △

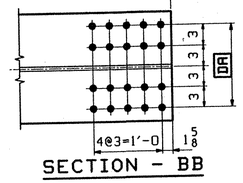
BM Thu Sep 20 14:17:44 EST 2001 /users/jobs/2107-N/418 1 Rev0

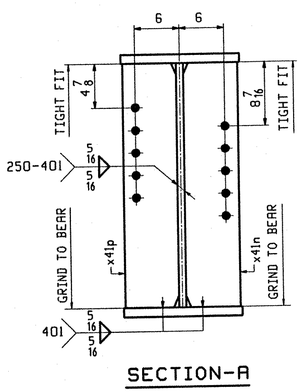


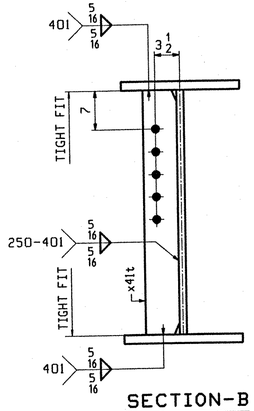
ONE - GIRDER - G4D

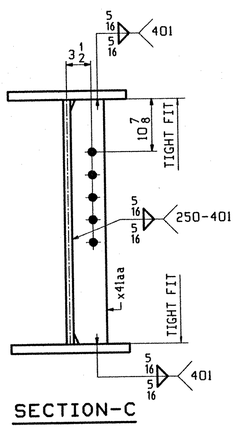
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

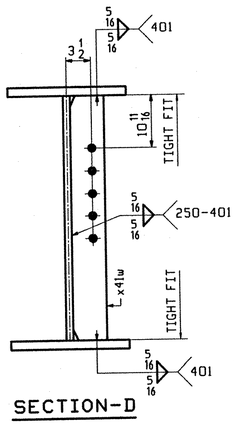


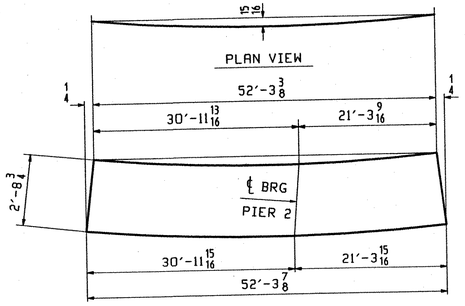












ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									419	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4D	1		GIRDER				12522	
401	N		1	wa	PL 1/2×34 1/4	52	3 7/8	(M270-50WT2) (H2-3)		
401	C		1	ta	PL 5/8×16	52	3 3/8	(M270-50WT2) (H2-3)		
401	C		1	ba	PL 1 5/8×16	52	3 7/8	(M270-50WT2) (H2-3)		
402	M		2	x41t	PL 1/2×5	2	8 3/4			
402	M		1	x41w	PL 1/2×5	2	8 3/4			
402	K		1	x41p	PL 7/8×7 3/4	2	8 3/4			
402	K		1	x41n	PL 7/8×7 3/4	2	8 3/4			
402	M		1	x41aa	PL 1/2×5	2	8 3/4			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	O.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	8-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

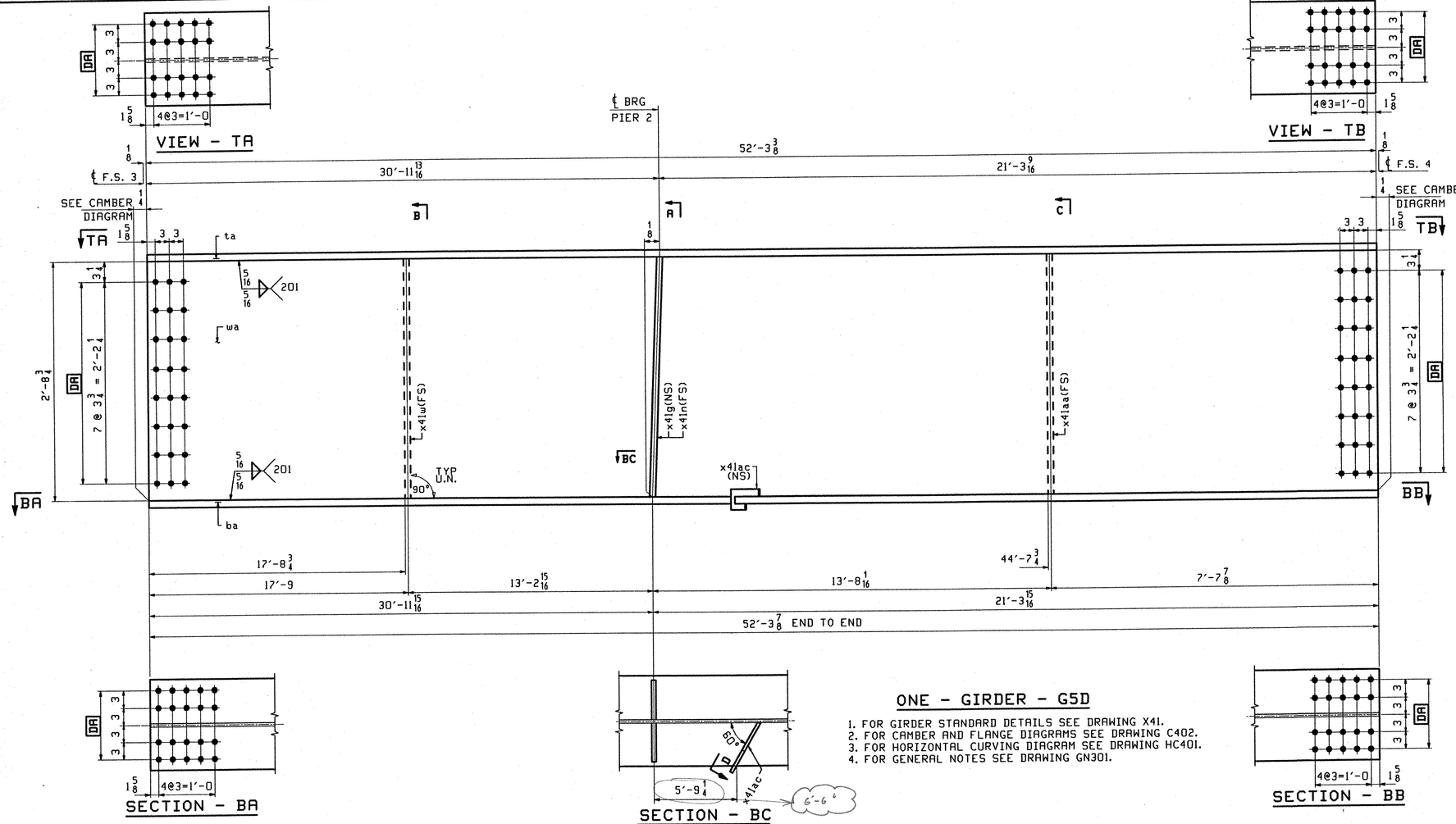
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4D	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/03
	CHKD BY	
	ELC	9/12/01
TENSOR 2107-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	O.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
119-48N	419
	REV. △

Thu Sep 20 14:18:32 EDT 2001 /users/jobs/2107-N/419 / 8x11



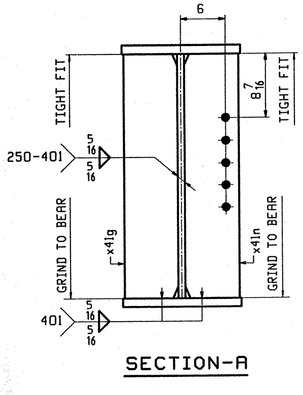
SECTION - BA

SECTION - BC

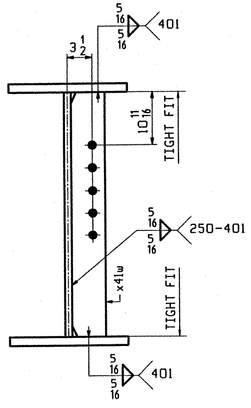
SECTION - BB

ONE - GIRDER - G5D

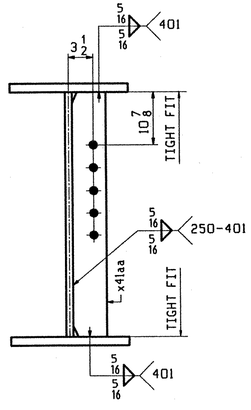
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C402.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



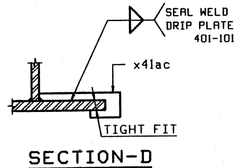
SECTION-A



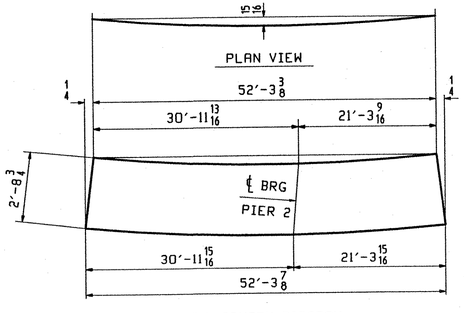
SECTION-B



SECTION-C



SECTION-D



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									420	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5D	1		GIRDER				12479	
401	N		1	wa	PL 1/2x34 1/4	52	3 7/8	(H270-50WT2) (H2-3)		
401	C		1	ta	PL 1 5/8x16	52	3 3/8	(H270-50WT2) (H2-3)		
401	C		1	ba	PL 1 5/8x16	52	3 7/8	(H270-50WT2) (H2-3)		
402	M		1	x41w	PL 1/2x5	2	8 3/4			
402	K		1	x41g	PL 7/8x7 3/4	2	8 3/4			
402	K		1	x41n	PL 7/8x7 3/4	2	8 3/4			
402	M		1	x41aa	PL 1/2x5	2	8 3/4			
402	P		1	x41ac	PL 1/4x3 5/8	0	10 15/16			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 01-11-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10/30/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

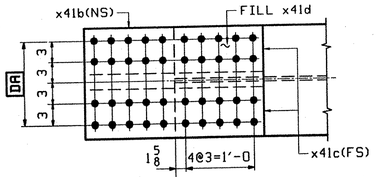
SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5D	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/03
	CHKD BY	
	ELC	9/13/01
TENSOR 2107-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

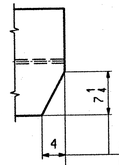
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	420
	REV. △

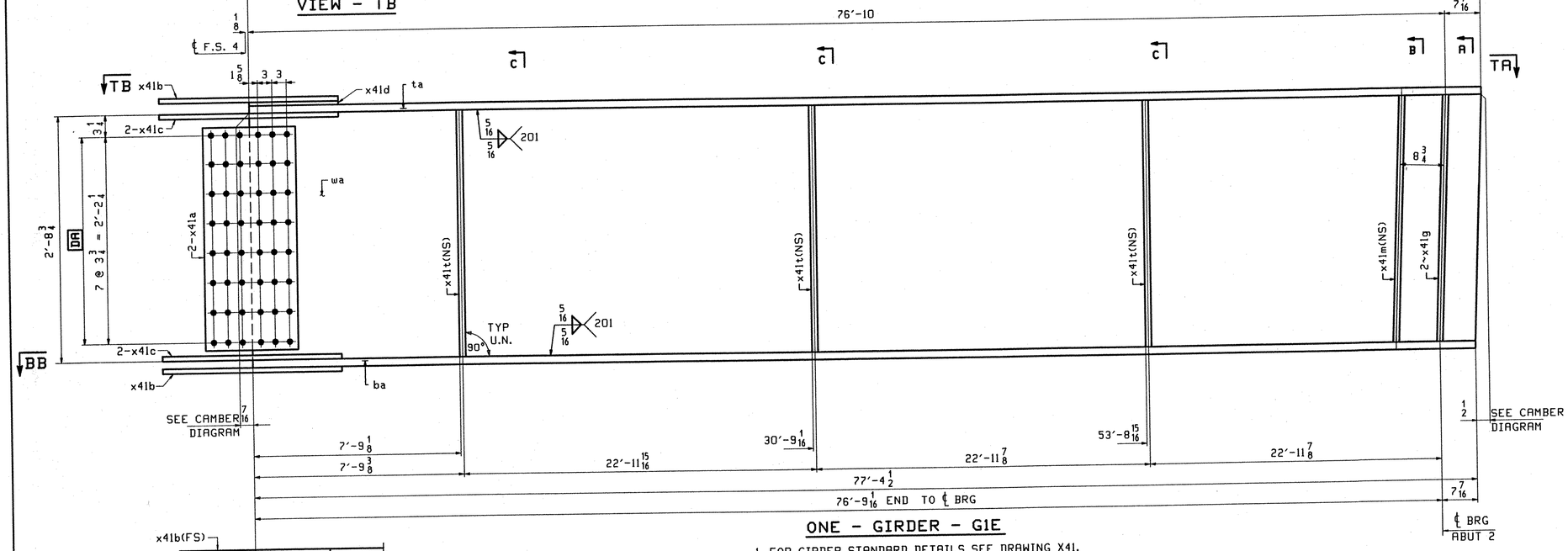
ELC Thu Sep 20 10:49:58 EDT 2001 /users/jobs/2107-N/420.1 Rev=0



VIEW - TB

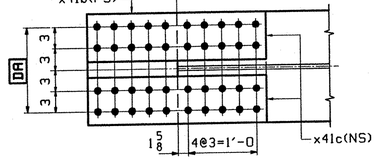


VIEW - TA

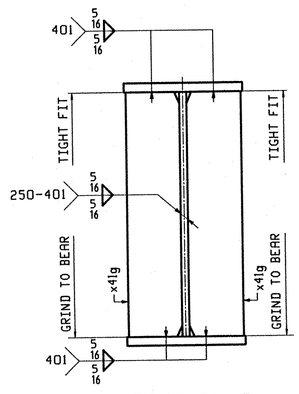


ONE - GIRDER - G1E

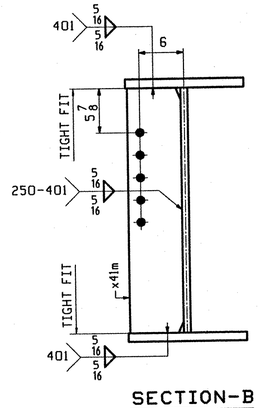
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



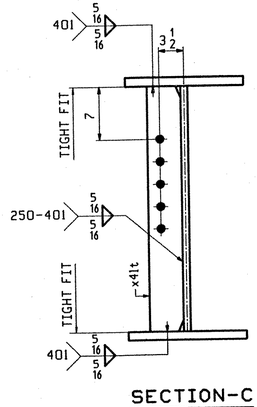
SECTION - BB



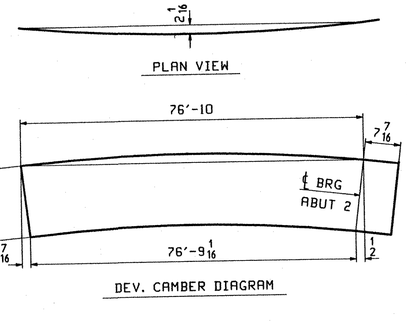
SECTION-A



SECTION-B



SECTION-C



DEV. CAMBER DIAGRAM

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	421 WT	PROCUREMENT NOTES	
		GIE	1		GIRDER				16138		
401	L		1	wa	PL 1/2 x 36 7/16	77	5 7/16	(M270-50WT2 (H2-3)			
401	G		1	ta	PL 7/8 x 16	77	5 7/16	(M270-50WT2 (H2-3)			
401	A		1	ba	PL 1 5/8 x 16	77	4 1/2	(M270-50WT2 (H2-3)			
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(M270-50WT2 (H2-3)			
402	C		2	x41b	PL 5/8 x 16	2	7	(M270-50WT2 (H2-3)			
402	D		4	x41c	PL 5/8 x 7	2	7	(M270-50WT2 (H2-3)			
402	F		1	x41d	PL 3/4 x 16	1	3 3/8	FILL			
402	M		3	x41t	PL 1/2 x 5	2	8 3/4				
402	K		2	x41g	PL 7/8 x 7 3/4	2	8 3/4				
402	K		1	x41m	PL 7/8 x 7 3/4	2	8 3/4				

TVGA
Engineering, Surveying, P.C.

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: MAR
DATE: 01-11-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	GIRDER - G1E	DRAWN BY	DATE
JOB:	I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/03
		CHKD BY	
		ELC	9/13/01
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

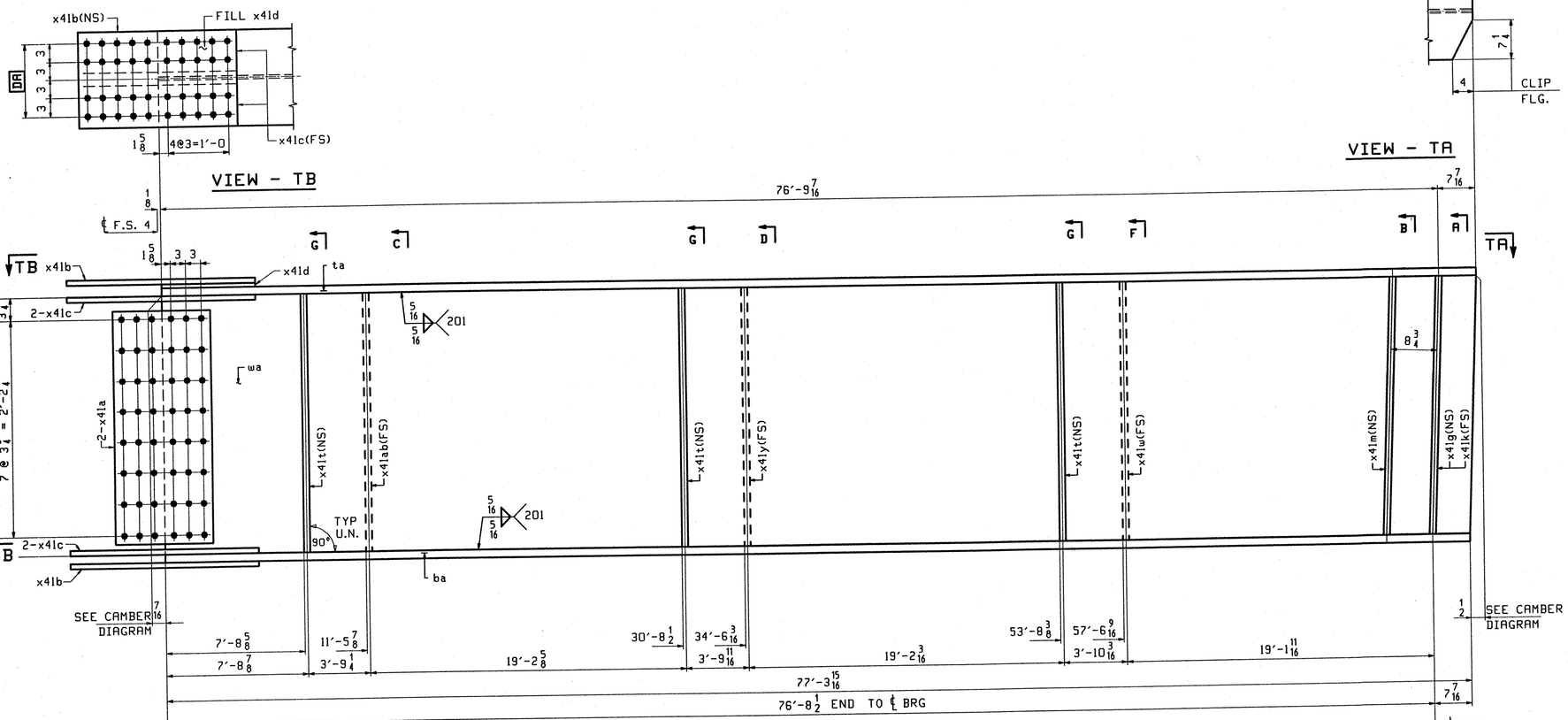
TENSOR 2107-N

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

JOB NO.	DRG. NO.
119-48N	421
	REV. △

ELC Thu Sep 20 10:54:08 EDT 2001 c:\work\jobs\2107-N\421.r Rev0

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									422	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2E	1		GIRDER				16198	
401	L		1	wa	PL $\frac{1}{2}$x36$\frac{7}{16}$	77	4$\frac{7}{8}$	(M270-50WT2) (H2-3)		
401	G		1	ta	PL $\frac{7}{8}$x16	77	4$\frac{7}{8}$	(M270-50WT2) (H2-3)		
401	A		1	ba	PL 1$\frac{5}{8}$x16	77	3$\frac{15}{16}$	(M270-50WT2) (H2-3)		
402	B		2	x41a	PL $\frac{1}{2}$x29$\frac{3}{4}$	1	7	(M270-50WT2) (H2-3)		
402	C		2	x41b	PL $\frac{5}{8}$x16	2	7	(M270-50WT2) (H2-3)		
402	D		4	x41c	PL $\frac{5}{8}$x7	2	7	(M270-50WT2) (H2-3)		
402	F		1	x41d	PL $\frac{3}{4}$x16	1	3$\frac{3}{8}$	FILL		
402	M		3	x41t	PL $\frac{1}{2}$x5	2	8$\frac{3}{4}$			
402	M		1	x41ab	PL $\frac{1}{2}$x5	2	8$\frac{3}{4}$			
402	M		1	x41y	PL $\frac{1}{2}$x5	2	8$\frac{3}{4}$			
402	M		1	x41w	PL $\frac{1}{2}$x5	2	8$\frac{3}{4}$			
402	K		1	x41g	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	8$\frac{3}{4}$			
402	K		1	x41m	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	8$\frac{3}{4}$			
402	K		1	x41k	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	8$\frac{3}{4}$			



SECTION - BB

ONE - GIRDER - G2E

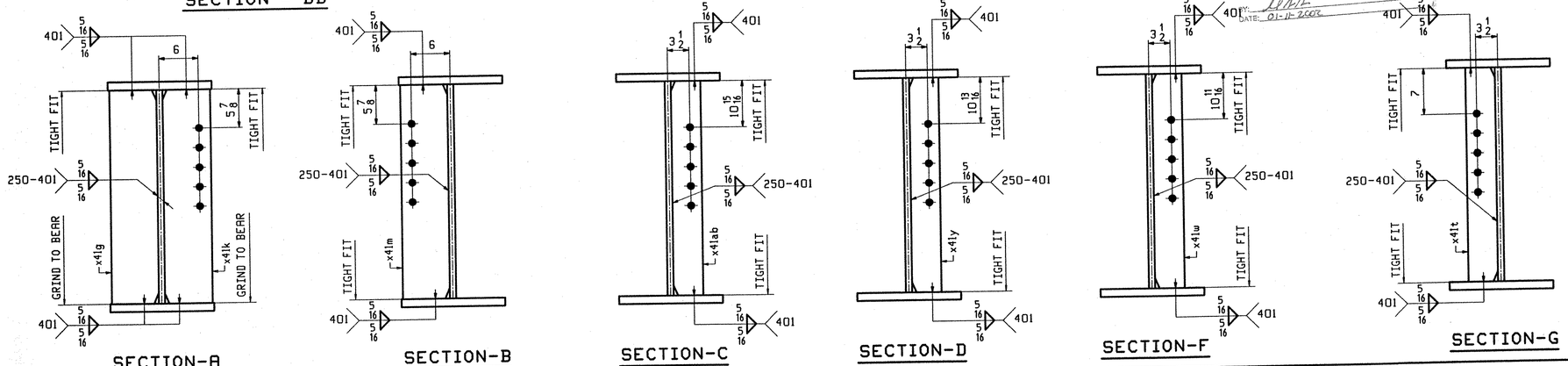
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

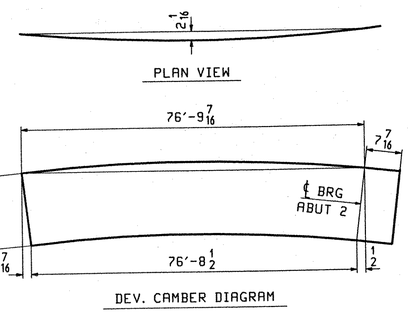
TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and either data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [illegible]
DATE: 01-11-2002





DEV. CAMBER DIAGRAM

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	12-03-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ∅ (U.N.)	7/8 ∅ (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2E

JOB: I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT

TENSOR 2107-N

PROJ NO. IM-089-2(26)

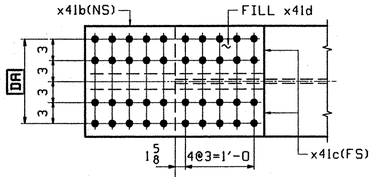
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	08/03
CHKD BY	
ELC	9/13/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

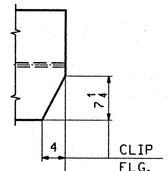
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	422
	REV. △

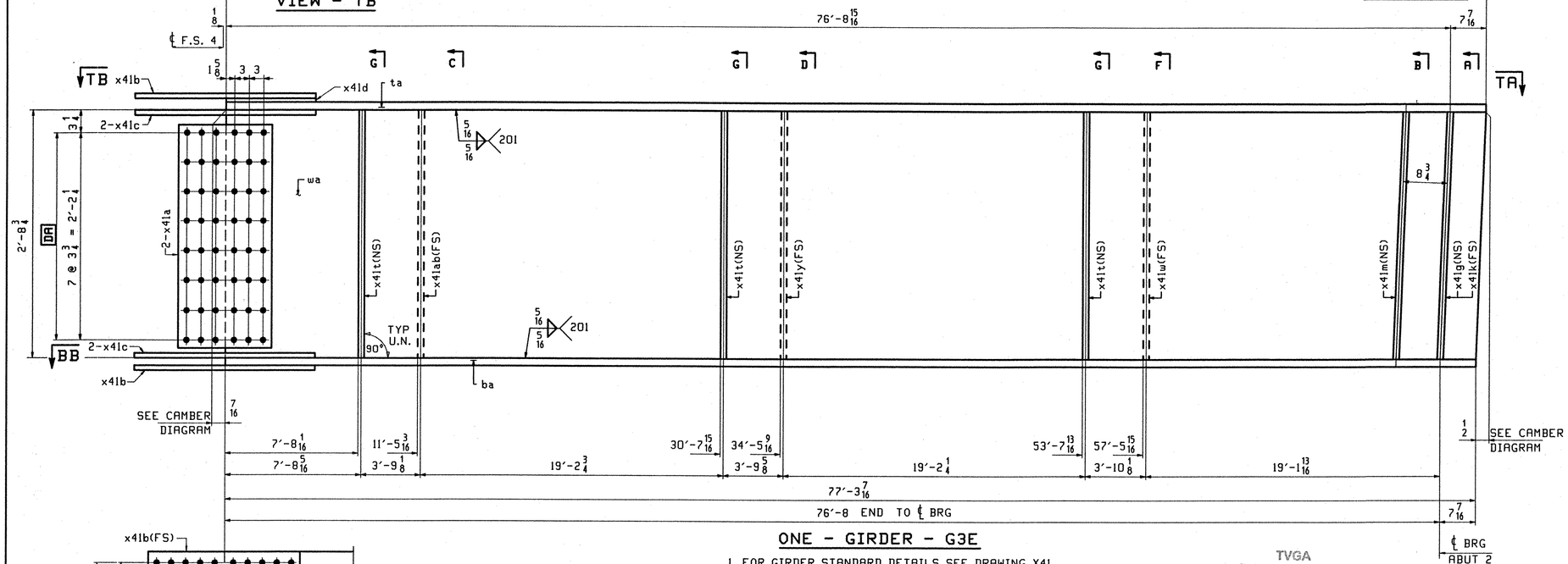
ELC Thu Sep 20 11:04:23 EDT 2001 /users/jobs/2107-N/422.1 Rev0



VIEW - TB

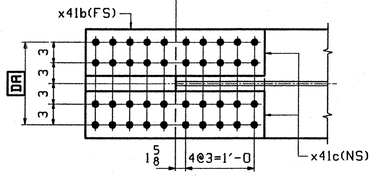


VIEW - TA

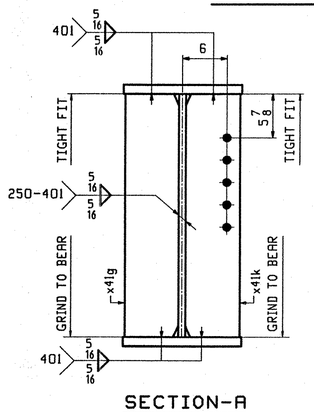


ONE - GIRDER - G3E

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



SECTION - BB



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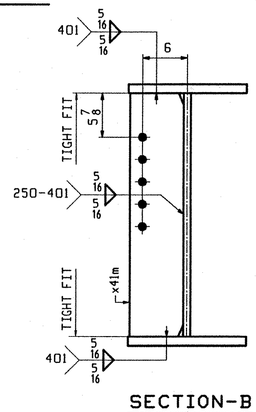
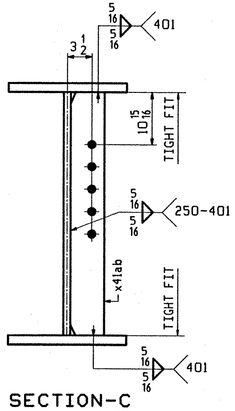
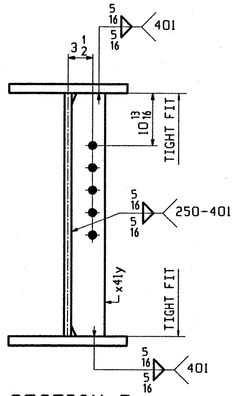


SECTION-B



SECTION-C



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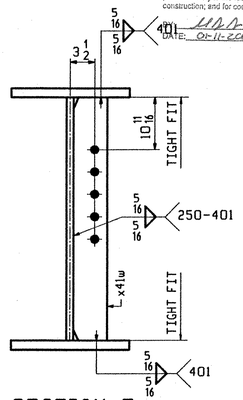
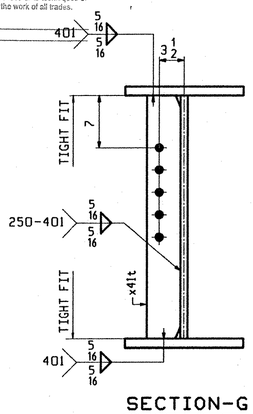


SECTION-F



SECTION-G

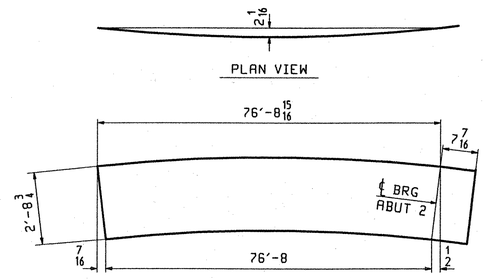
TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 04-11-2001

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									423		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G3E	1		GIRDER				16190		
401	L		1	wa	PL 1/2 x 36 7/16	77	4 3/8	(M270-50WT2) (H2-3)			
401	G		1	ta	PL 7/8 x 16	77	4 3/8	(M270-50WT2) (H2-3)			
401	A		1	ba	PL 1 5/8 x 16	77	3 7/16	(M270-50WT2) (H2-3)			
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)			
402	C		2	x41b	PL 3/8 x 16	2	7	(M270-50WT2) (H2-3)			
402	D		4	x41c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)			
402	F		1	x41d	PL 1/4 x 16	1	3 3/8	FILL			
402	M		3	x41t	PL 1/2 x 5	2	8 3/4				
402	M		1	x41ab	PL 1/2 x 5	2	8 3/4				
402	M		1	x41y	PL 1/2 x 5	2	8 3/4				
402	M		1	x41w	PL 1/2 x 5	2	8 3/4				
402	K		1	x41g	PL 7/8 x 7 3/4	2	8 3/4				
402	K		1	x41m	PL 7/8 x 7 3/4	2	8 3/4				
402	K		1	x41k	PL 7/8 x 7 3/4	2	8 3/4				



DEV. CAMBER DIAGRAM

REV.	REMARKS	DATE	DWN	CHK	APP
	OUT FOR APPROVAL	10-03-01			
	OUT FOR APPROVAL				
	ISSUED TO SHOP				
	FIELD & OFFICE				

Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

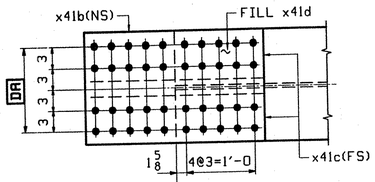
DESCRIPTION: GIRDER - G3E	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/03
	CHKD BY	
	ELC	9/13/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2107-N

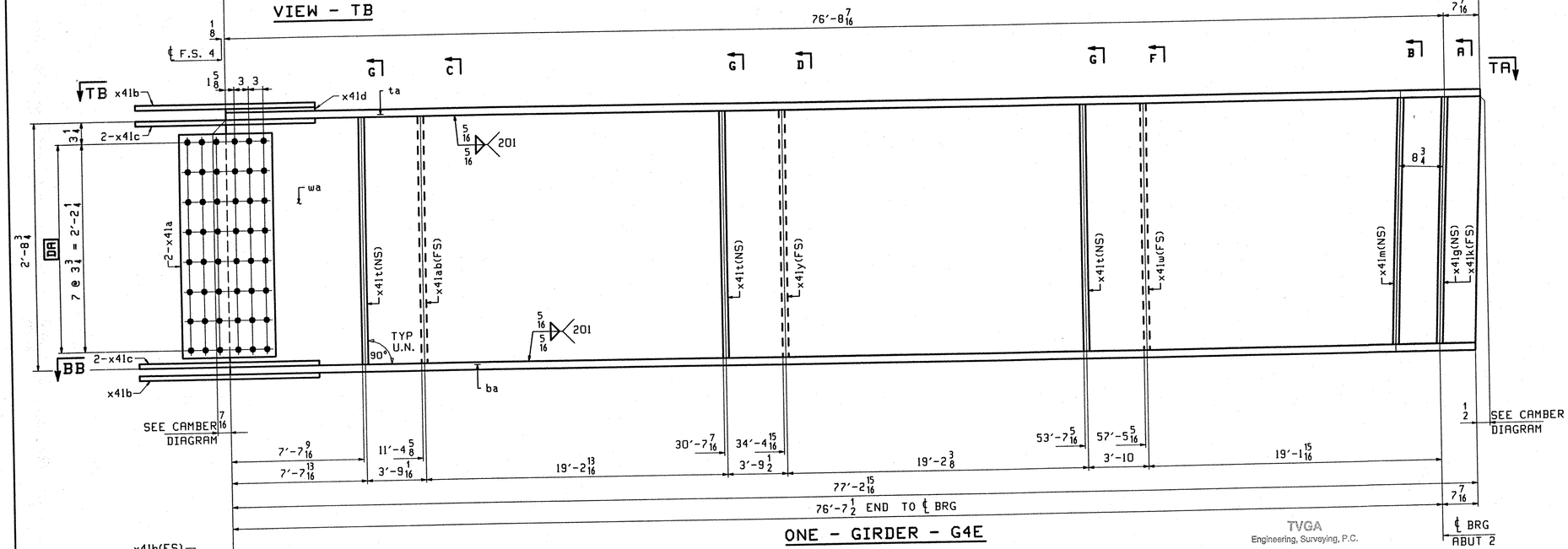
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	423
	REV. △

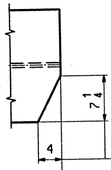
ELC Thu Sep 20 11:08:18 EDT 2001 /users/jobs2107-n/423 | Rev-0



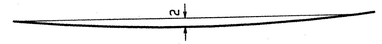
VIEW - TB



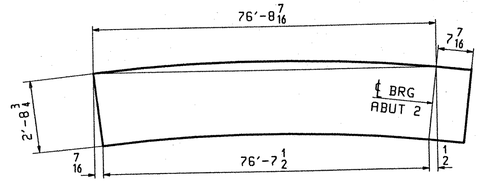
VIEW - TA



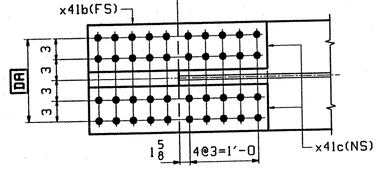
ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
									424	
		G4E	1		GIRDER				16182	
401	L		1	wa	PL 1/2 x 36 7/16	77	3 7/8	(M270-50WT2) (H2-3)		
401	G		1	ta	PL 5/8 x16	77	3 7/8	(M270-50WT2) (H2-3)		
401	A		1	ba	PL 1 5/8 x16	77	2 15/16	(M270-50WT2) (H2-3)		
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)		
402	C		2	x41b	PL 5/8 x16	2	7	(M270-50WT2) (H2-3)		
402	D		4	x41c	PL 5/8 x7	2	7	(M270-50WT2) (H2-3)		
402	F		1	x41d	PL 3/4 x16	1	3 3/8	FILL		
402	M		3	x41t	PL 1/2 x5	2	8 3/4			
402	M		1	x41ab	PL 1/2 x5	2	8 3/4			
402	M		1	x41y	PL 1/2 x5	2	8 3/4			
402	M		1	x41w	PL 1/2 x5	2	8 3/4			
402	K		1	x41g	PL 7/8 x7 3/4	2	8 3/4			
402	K		1	x41m	PL 7/8 x7 3/4	2	8 3/4			
402	K		1	x41k	PL 7/8 x7 3/4	2	8 3/4			



PLAN VIEW



DEV. CAMBER DIAGRAM



SECTION - BB

ONE - GIRDER - G4E

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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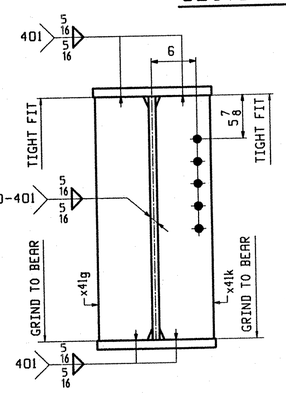
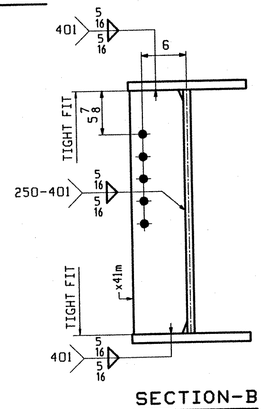
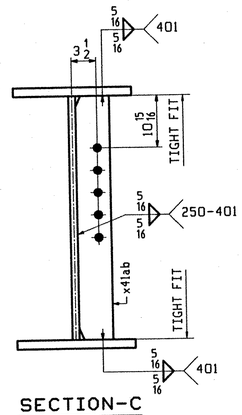
BY: _____
DATE: 01-11-2001



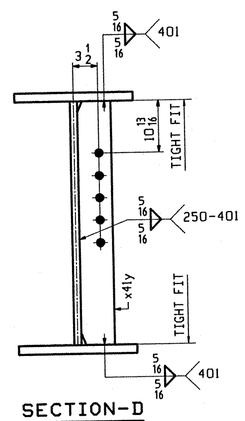
SECTION-A



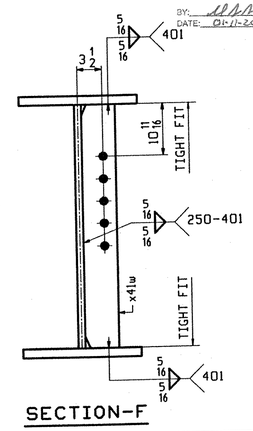
SECTION-B



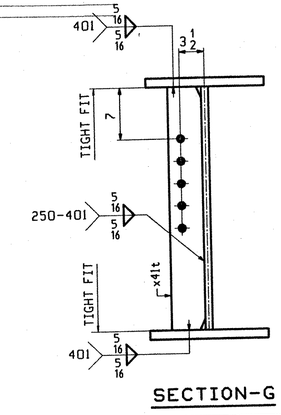
SECTION-C



SECTION-D



SECTION-F



SECTION-G

OUT FOR APPROVAL	10-03-01								
OUT FOR APPROVAL									
ISSUED TO SHOP									
FIELD & OFFICE									

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

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
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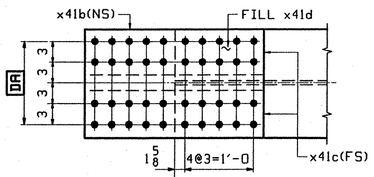
DESCRIPTION: GIRDER - G4E	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER	BW	08/04
I-89 IMPROVEMENTS	CHKD BY	
BETWEEN TOWNS OF MIDDLESEX & BOLTON	ELC	9/13/01
COUNTY OF WASHINGTON VERMONT	APPROV BY	
TENSOR 2107-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

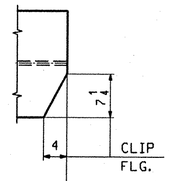
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
119-48N	424
	REV. △

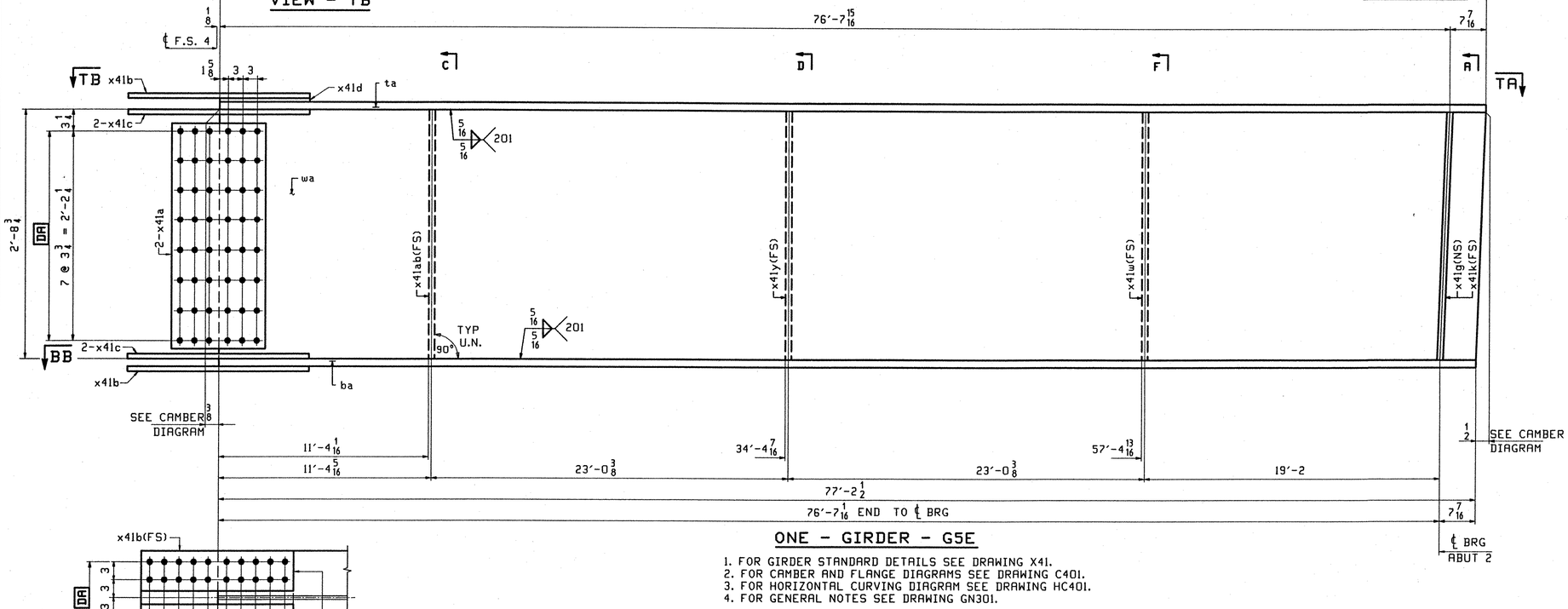
BW Thu Sep 20 14:09:28 EDT 2001 /users/jobs/2107-N/424 : Rev0



VIEW - TB

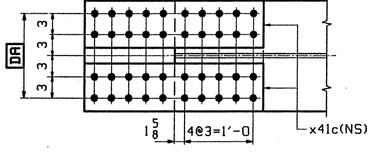


VIEW - TA

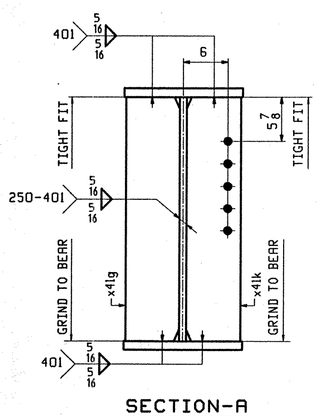


ONE - GIRDER - G5E

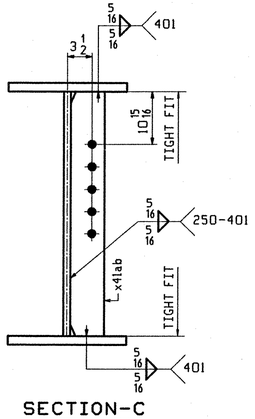
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X41.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C401.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC401.
4. FOR GENERAL NOTES SEE DRAWING GN301.



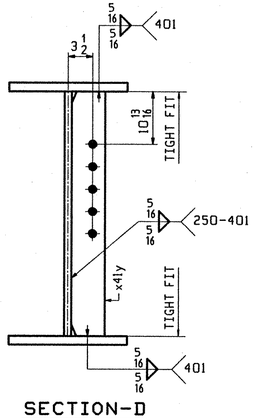
SECTION - BB



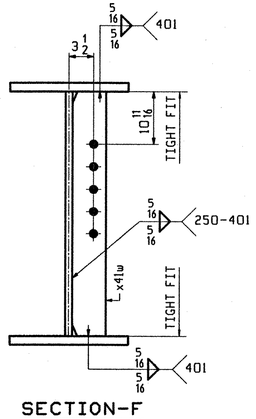
SECTION-A



SECTION-C

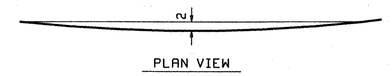


SECTION-D

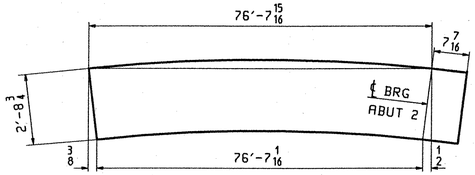


SECTION-F

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									425		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G5E	1		GIRDER				16041		
401	L		1	wa	PL 1/2 x 36 7/16	77	3 3/8	(M270-50WT2) (H2-3)			
401	G		1	ta	PL 7/8 x 16	77	3 3/8	(M270-50WT2) (H2-3)			
401	A		1	ba	PL 1 5/8 x 16	77	2 1/2	(M270-50WT2) (H2-3)			
402	B		2	x41a	PL 1/2 x 29 3/4	1	7	(M270-50WT2) (H2-3)			
402	C		2	x41b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)			
402	D		4	x41c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)			
402	F		1	x41d	PL 3/4 x 16	1	3 3/8	FILL			
402	M		1	x41ab	PL 1/2 x 5	2	8 3/4				
402	M		1	x41y	PL 1/2 x 5	2	8 3/4				
402	M		1	x41w	PL 1/2 x 5	2	8 3/4				
402	K		1	x41g	PL 7/8 x 7 3/4	2	8 3/4				
402	K		1	x41k	PL 7/8 x 7 3/4	2	8 3/4				



PLAN VIEW



DEV. CAMBER DIAGRAM

OUT FOR APPROVAL	10-03-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR. 50W (UN)		15/16 ø (U.N.)	7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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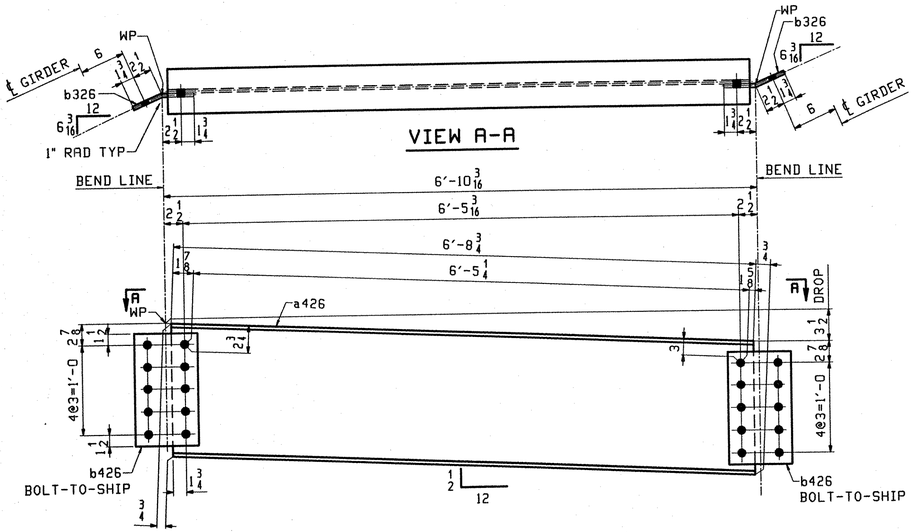
BY: _____
DATE: 01-16-2008

DESCRIPTION: GIRDER - G5E	DRAWN BY	DATE
JOB: I-89 NB OVER LITTLE RIVER I-89 IMPROVEMENTS BETWEEN TOWNS OF MIDDLESEX & BOLTON COUNTY OF WASHINGTON VERMONT	BW	08/04
	CHKD BY	
	ELC	9/13/01
TENSOR 2107-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

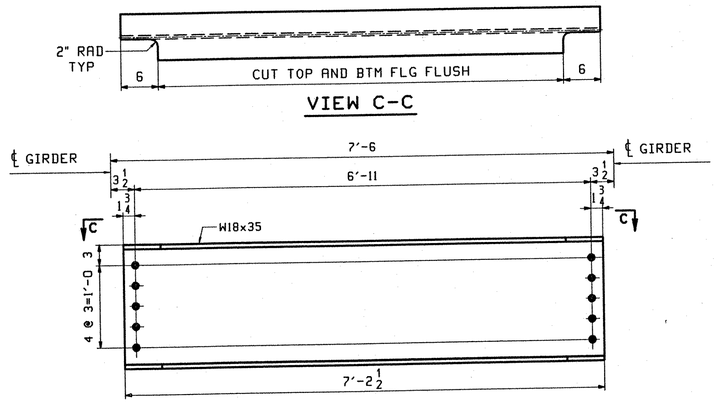
JOB NO.	DRG. NO.
119-48N	425
	REV. △

Thu Sep 20 14:02:26 EDT 2001 /users/jms/2107-N/425 ; Rev=0

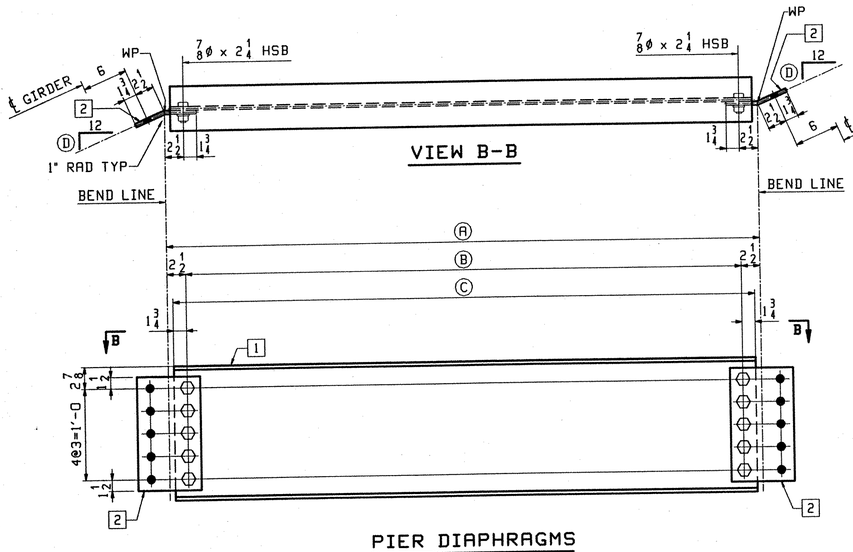


4 ~ ABUT DIAPHRAGMS ~ 426D1

PAINTED SEE GN301

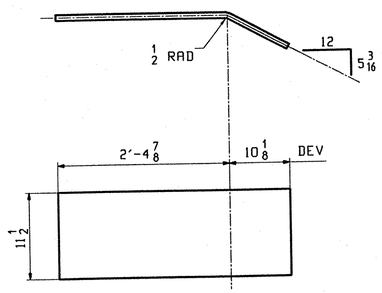


48 ~ INT. DIAPHRAGMS ~ 426D4



PIER DIAPHRAGMS

MARK	REQ'D	Ⓐ	Ⓑ	Ⓒ	Ⓓ	1	2	
426D2	4	6'-11 15/16	6'-6 15/16	6'-10 7/16	6 13/16	c426	d426	PIER 1
426D3	4	7'-1 1/4	6'-8 1/4	6'-11 3/4	7 3/16	f426	g426	PIER 2



5 ~ END PLATES ~ 426M1

ABM INFO		SHIP	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
PAGE	LINE	MARK								
		426D1	4		ABUT DIAPHRAGM				274	
403	C		4	a426	W 18x35	6	9 1/2			
403	E		8	b426	PL 1/2x15	0	8 1/2	BENT		
		426D2	4		PIER DIAPHRAGMS				285	
403	D		4	c426	W 18x35	6	10 7/16			
403	E		8	d426	PL 1/2x15	0	8 1/2	BENT		
404	C		40		7/8 ø HSB	0	2 1/4	(A325-3)		
404	H		40		7/8 ø HSW			(F436W)		
		426D3	4		PIER DIAPHRAGMS				289	
403	D		4	f426	W 18x35	6	11 3/4			
403	E		8	g426	PL 1/2x15	0	8 1/2	BENT		
404	C		40		7/8 ø HSB	0	2 1/4	(A325-3)		
404	H		40		7/8 ø HSW			(F436W)		
					INT. DIAPHRAGMS					
403	B	426D4	48		W 18x35	7	2 1/2		252	
					END PLATES					
403	H	426M1	5		PL 1/4x11 1/2	3	3	BENT	581	
					FIELD BOLTS					
								2% ADDED +3 FOR TEST		
405	C		493		7/8 ø HSB	0	2 1/4	(A325-3)		
405	E		85		7/8 ø HSB	0	2 3/4	(A325-3)		
405	F		982		7/8 ø HSB	0	3	(A325-3)		
405	J		1635		7/8 ø HSB	0	4 1/4	(A325-3)		
405	L		3195		7/8 ø HSW			(F436W)		
405	P		45		7/8 ø HSB	0	2 1/4	(A325-1) GALV.		
405	R		45		7/8 ø HSB	0	2 3/4	(A325-1) GALV.		
405	T		90		7/8 ø HSW			(F436) GALV.		

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10/23/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR. 50W (UN)
ELECTRODES:
HOLES: 15/16 ø (U.N.)
SHOP BOLTS: 7/8 ø (U.N.)

SURFACE PREP. & PAINT:
- STEEL WITHIN 10'-0 OF ABUT. 2 SHALL BE PAINTED (SEE GN301)
- ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-11-2001

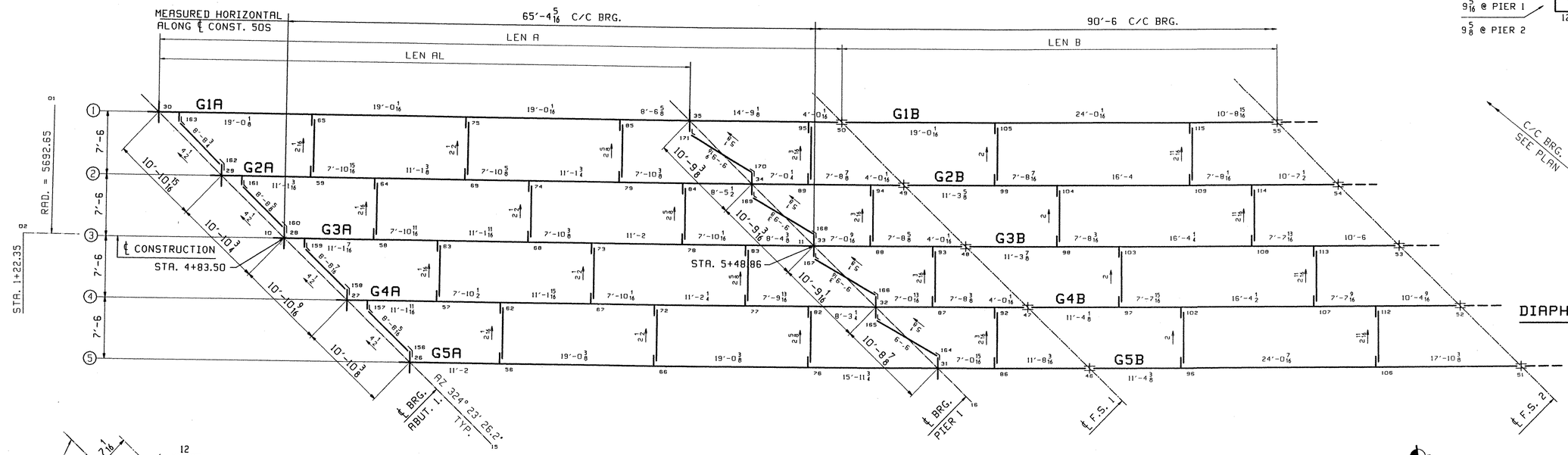
DESCRIPTION: DIAPHRAGMS
JOB: I-89 NB OVER LITTLE RIVER
I-89 IMPROVEMENTS
BETWEEN TOWNS OF MIDDLESEX & BOLTON
COUNTY OF WASHINGTON VERMONT
TENSOR 2107-N
PROJ NO. IM-089-2(26)
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

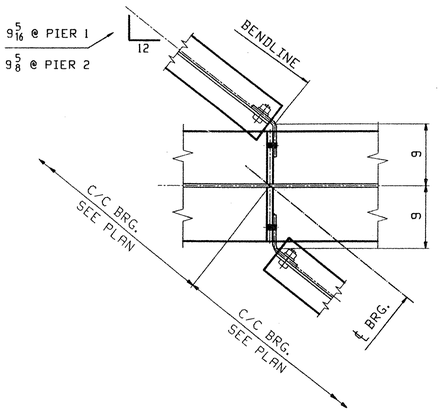
DRAWN BY	DATE
BW	08/04
CHKD BY	
ELC	9/13/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	
JOB NO.	DRG. NO.
119-48N	426
	REV. △

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

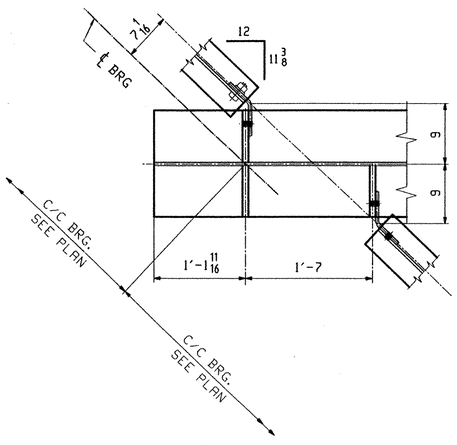
JOB NO. 426
DRAWING NO. 426
REV.

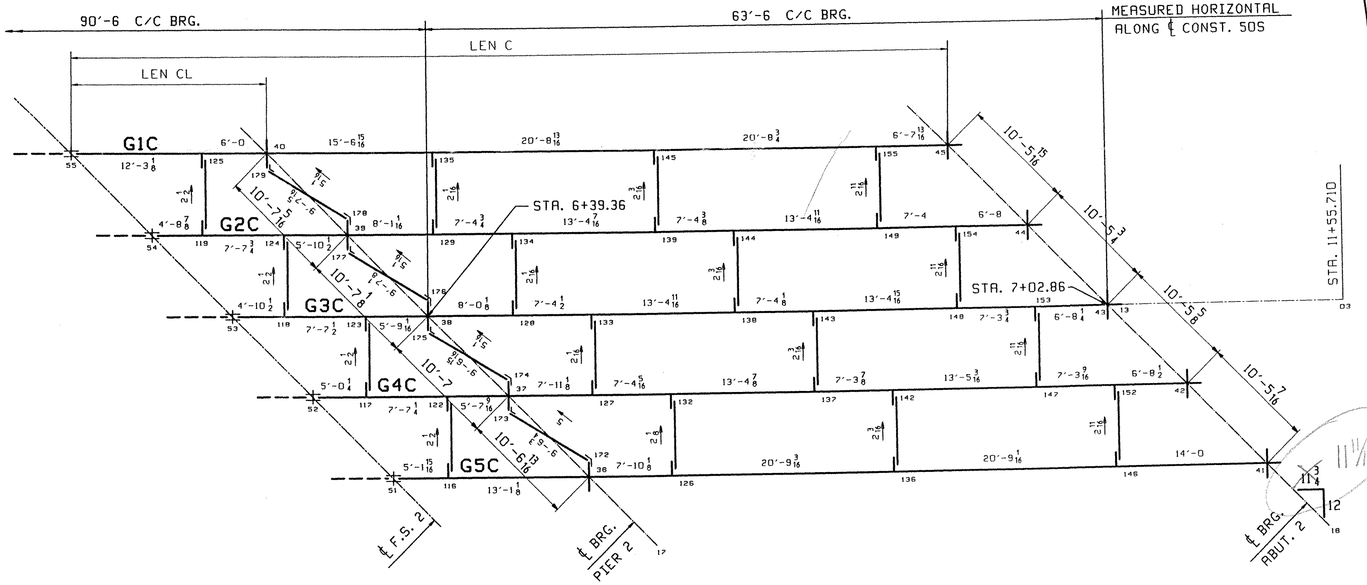
ELC Thu Sep 20 10:59:59 EDT 2001 /users/jobs/2107-N/426.1 Rev0





DIAPHRAGM WORKPOINTS @ PIERS





DIAPHRAGM WORKPOINTS @ ABUT 1

FRAMING PLAN

Line	LEN AL	LEN A	LEN B	LEN CL	LEN C	Abut.1	Pier 1	Pier 2	Abut. 2
1	65'-6 7/8	84'-4 1/16	53'-9 1/16	18'-3 1/8	81'-11 7/16	.0366	.0300	.0307	.0242
2	65'-5 3/4	84'-2 15/16	53'-7 5/8	18'-3 1/8	81'-10 7/16	.0361	.0299	.0305	.0242
3	65'-4 5/8	84'-1 7/8	53'-6 1/8	18'-3 1/16	81'-9 7/16	.0361	.0299	.0305	.0241
4	65'-3 1/2	84'-0 3/4	53'-4 11/16	18'-3 1/16	81'-8 1/2	.0360	.0298	.0304	.0241
5	65'-2 1/2	83'-11 5/8	53'-3 3/16	18'-3 1/16	81'-7 7/16	.0361	.0297	.0304	.0237

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF WEB WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF GIRDERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. CF STIFF, INT STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS = TOP PT NUMBERS + 200
7. FOR LAYOUTS SEE DWG TD501 & TD502.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 3/16
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.

TVGA
Engineering, Surveying, P.C.

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BY: Pat W. St E
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ∅ (UN)	7/8 ∅ (UN)

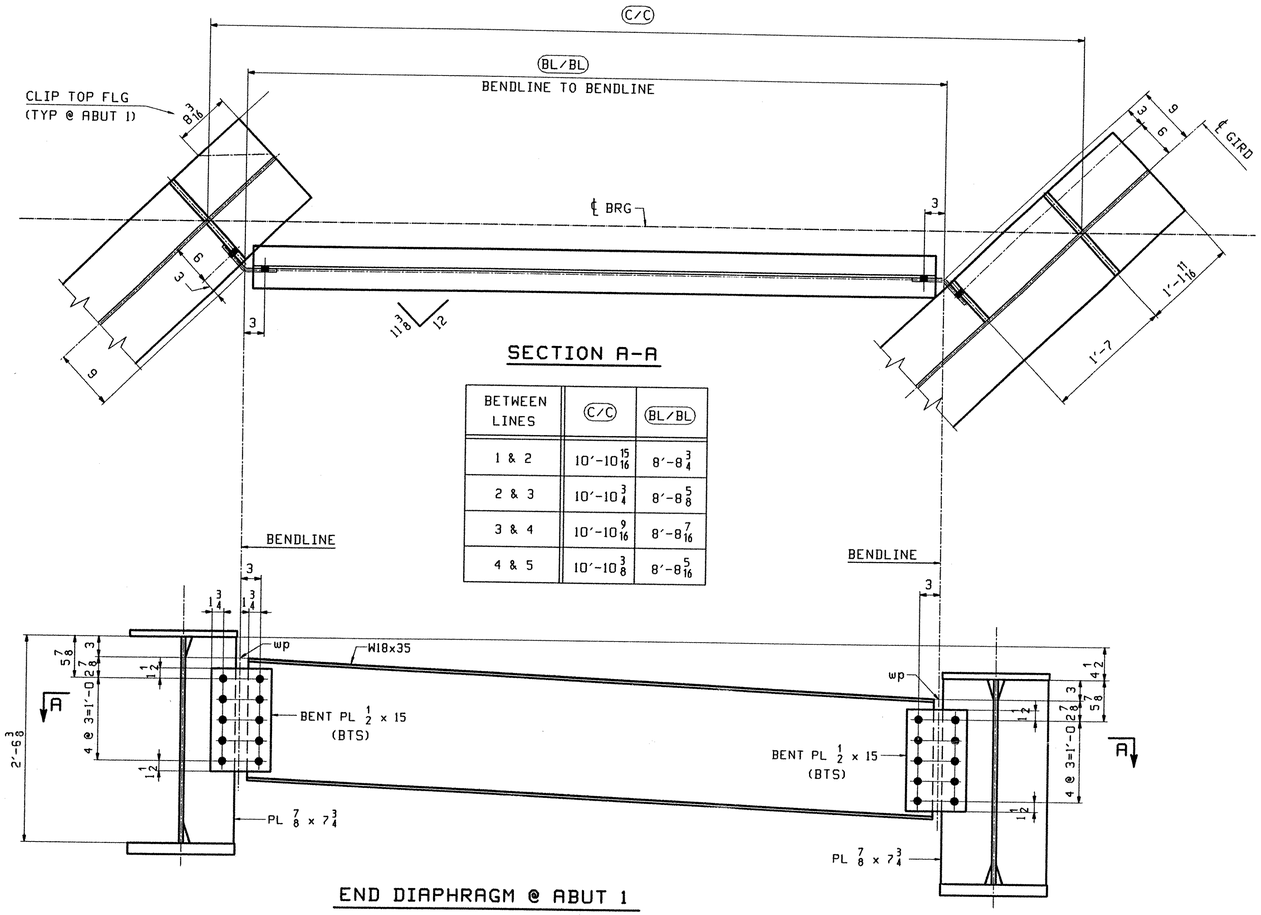
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 505	JAK	02/27
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	WL	3/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-5	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
122-505	WS501
	REV. △

JAK Fri Mar 2 15:17:14 EST 2001 /users/jobs/2108-5/ws501.dgn



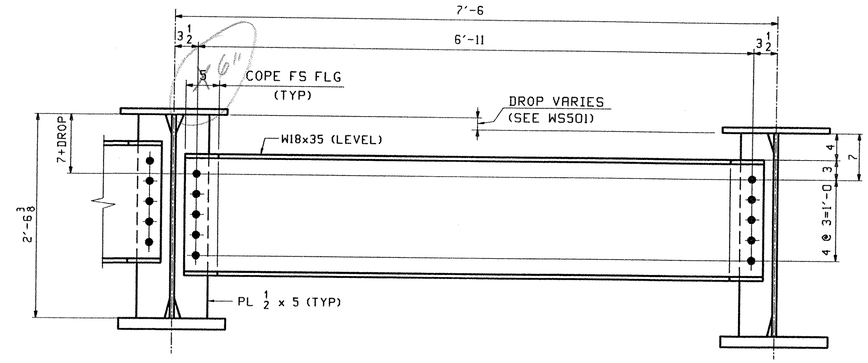
SECTION A-A

BETWEEN LINES	C/C	BL/BL
1 & 2	10'-10 15/16	8'-8 3/4
2 & 3	10'-10 3/4	8'-8 5/8
3 & 4	10'-10 9/16	8'-8 7/16
4 & 5	10'-10 3/8	8'-8 5/16

END DIAPHRAGM @ ABUT 1

(LOOKING BACK STATION)

THIS DIAPH SHALL BE PAINTED - SEE GN501



TYP. INTERMEDIATE DIAPHRAGM

(LOOKING BACK STATION)
(NTS)

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BEND LINES ARE TAKEN @ C/L PLATE.

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

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

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Gatti
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

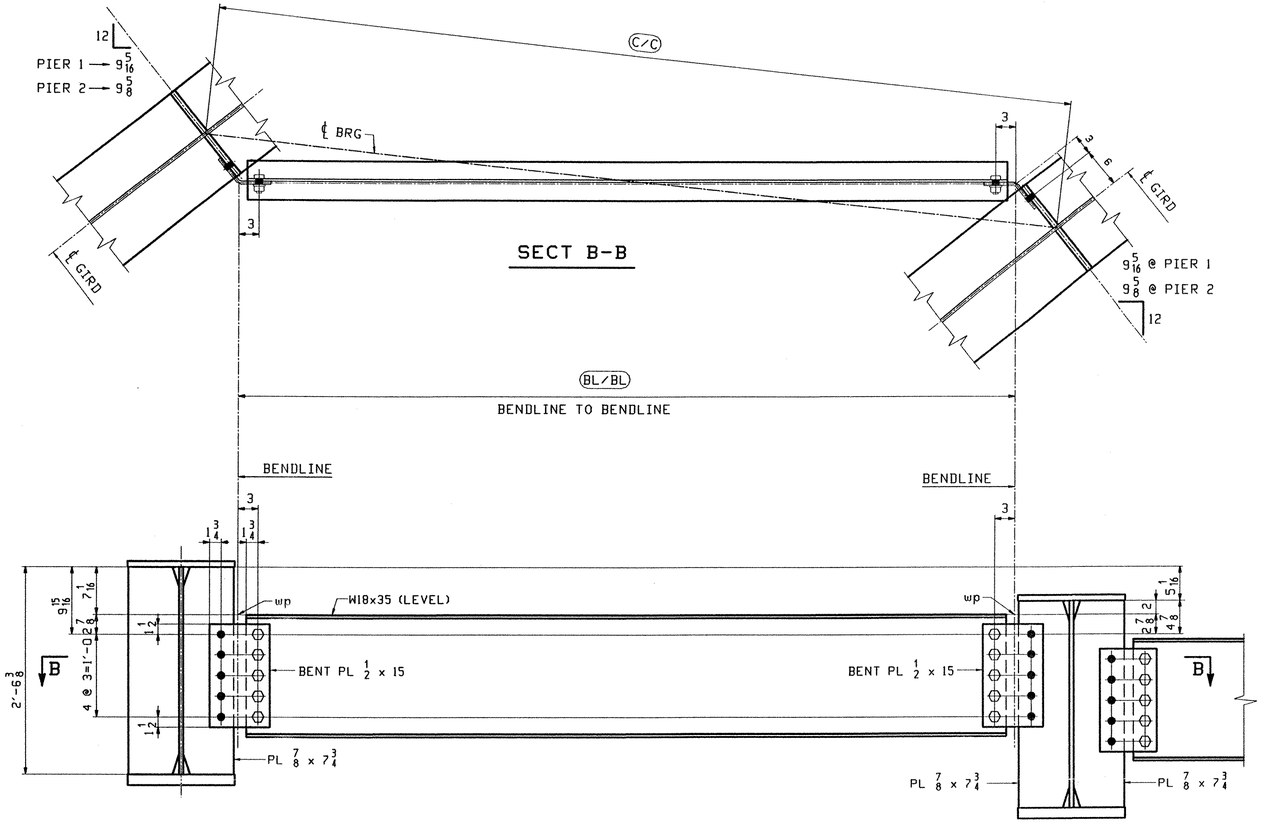
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: LAYOUTS	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	JAK	02/27
	CHKD BY	
	WL	3/01
	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
122-505	TD501
	REV. △

M:\...\Tue Mar 6 10:30:46 EST 2001 /users/jmac/2108-S/TD501 Rev0



BRG DIAPHRAGM @ PIERS 1 & 2

(LOOKING BACK STATION)

PIER 1		
BETWEEN LINES	C/C	BL/BL
1 & 2	10'-9 3/8	9'-9 9/16
2 & 3	10'-9 3/16	9'-9 3/8
3 & 4	10'-9 1/16	9'-9 3/16
4 & 5	10'-8 7/8	9'-9

PIER 2		
BETWEEN LINES	C/C	BL/BL
1 & 2	10'-7 5/16	9'-7 5/16
2 & 3	10'-7 1/8	9'-7 1/8
3 & 4	10'-7	9'-6 15/16
4 & 5	10'-6 13/16	9'-6 3/4

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BEND LINES ARE TAKEN @ C/L PLATE.

**** NOTE ****
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SCALE: 1 1/8" = 1'-0

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: Pat W. Sic
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: LAYOUTS	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	JAK	02/27
	CHKD BY	
	WL	3/01
	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
122-505	TD502
	REV. △

JAK Fri Mar 2 14:01:06 EST 2001 /users/jak/2108-S/TD502.dgn

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS

1). ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990 WITH LATEST REVISIONS AND THE SPECIAL PROVISIONS.

DESIGN SPECIFICATIONS

1). AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (A.A.S.H.T.O) STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 1996 EDITION WITH LATEST REVISIONS.

MATERIAL SPECIFICATIONS

1). UNLESS NOTED, ALL STEEL TO BE AASHTO M270 GRADE 50W (ASTM A709-50W).

2). HIGH STRENGTH BOLTS: AASHTO M164 (ASTM A325) 7/8" DIA.
TYPE 3 BOLTS SHALL BE USED FOR UNPAINTED CONNECTIONS.
TYPE 1 (GALV.) BOLTS SHALL BE USED FOR PAINTED CONNECTIONS.

3). ALL MAIN MEMBERS SUBJECT TO TENSION AND REVERSAL OF STRESS SHALL BE CHARPY V NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS. DRAWINGS SHALL CALL OUT "H2-3" FOR EACH APPLICABLE ITEM IN THE BILLS OF MATERIAL.

4). "BUY AMERICA" PROVISIONS OF VERMONT SPEC. 107.22. AS MODIFIED IN SPECIAL PROVISIONS ITEM 51 (DATED 2-8-93)

FABRICATION

1). ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE (UN). HOLES NOTED "DA" SHALL BE DRILLED DURING ASSEMBLY WITH PARTS ASSEMBLED.

2). STUDS ARE FURNISHED AND FIELD APPLIED BY OTHERS.

WELDING

1). THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH AASHTO/AWS D1.5-96 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.

2). WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.

3). NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.

CLEANING:

1). ALL STEEL SHALL BR BLAST CLEANED AS PER SSPC SP-10 PER SPEC. 506.14(a)
2). 1/16" RADIUS ON ALL EDGES OF PAINTED SURFACES.

PAINTING

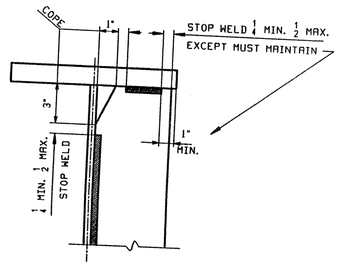
1). ALL STEEL COMPONENTS WITHIN 10'-0 OF END OF GIRDERS AS SHOWN IN SKETCH "P1" SHALL BE COATED WITH THE PROTECTIVE SYSTEM ACCORDING TO SECTION 513 OF THE SPECIFICATION. THE PAINT COLOR SHALL BE BROWN. PAINT SYSTEM MUST BE SYSTEM LISTED ON THE QUALIFIED PRODUCT LIST SECTION 513.02 BROWN COLOR CHIP #20059.

FIELD CONNECTIONS

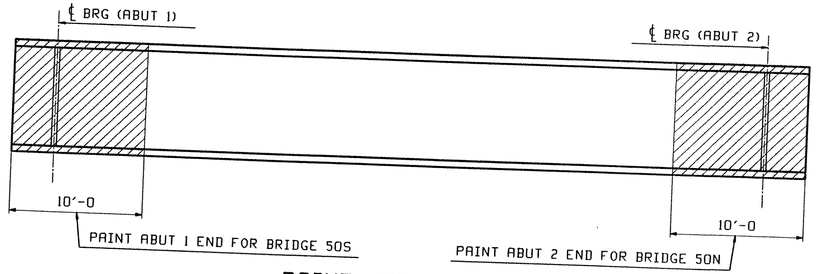
1). ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH STRENGTH A-325 BOLTS, INSTALLED PER 506.19(c) AND SPECIAL PROVISIONS.

2). BOLTS SHALL HAVE HEAVY HEX NUT, HEX HEAD, & ONE FLAT WASHER EACH (WASHER TO BE PLACED UNDER TURNED ELEMENT).

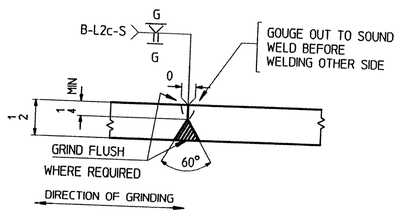
3). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.



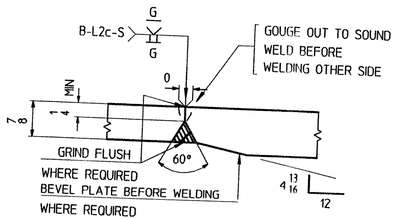
DETAIL "WS1"



PAINT SKETCH "P1"



WEB PLATE SPLICE DETAIL "WB"



FLANGE PLATE SPLICE DETAIL "FA"

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

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.
BY: Pete W, LEC
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN1)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GENERAL NOTES

JOB: BRIDGE NO. 50S
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
TENSOR 2108-S

PROJ NO. IM-089-2(26)

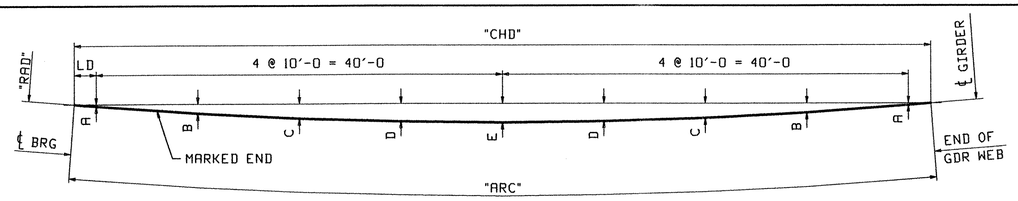
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
JAK	02/27
CHKD BY	
WL	3/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

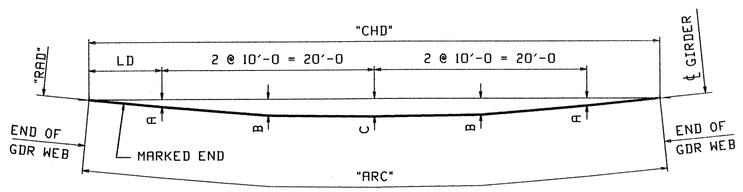
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-50S 122-50N	GN501
	REV. △

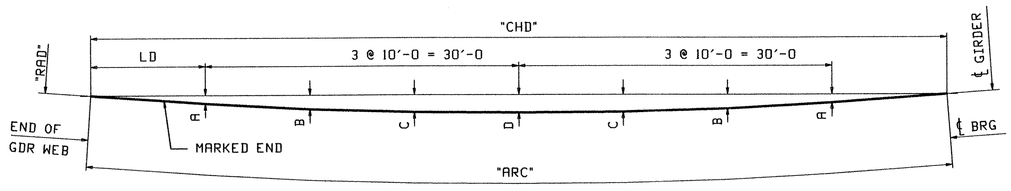
Fri Mar 2 15:37:35 EST 2001 /users/jak/2108-S/GN501.1 Rev=0
JAK



MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"D"	"E"	"LD"
G1A	84'-3 15/16	84'-3 15/16	5677.650	3/16	15/16	1 7/16	1 3/4	1 7/8	2'-1 15/16
G2A	84'-2 13/16	84'-2 13/16	5685.150	3/16	15/16	1 7/16	1 3/4	1 7/8	2'-1 3/8
G3A	84'-1 3/4	84'-1 3/4	5692.650	3/16	15/16	1 7/16	1 3/4	1 7/8	2'-0 7/8
G4A	84'-0 5/8	84'-0 5/8	5700.150	3/16	15/16	1 7/16	1 3/4	1 7/8	2'-0 5/16
G5A	83'-11 1/2	83'-11 1/2	5707.650	3/16	7/8	1 7/16	1 3/4	1 7/8	1'-11 3/4



MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"LD"
G1B	53'-8 13/16	53'-8 13/16	5677.650	5/16	11/16	3/4	6'-10 3/8
G2B	53'-7 3/8	53'-7 3/8	5685.150	5/16	5/8	3/4	6'-9 11/16
G3B	53'-5 7/8	53'-5 7/8	5692.650	5/16	5/8	3/4	6'-8 15/16
G4B	53'-4 7/16	53'-4 7/16	5700.150	5/16	5/8	3/4	6'-8 3/16
G5B	53'-2 15/16	53'-2 15/16	5707.650	5/16	5/8	3/4	6'-7 7/16



MARK	"ARC"	"CHD"	"RAD"	"A"	"B"	"C"	"D"	"LD"
G1C	81'-11 5/16	81'-11 5/16	5677.650	13/16	1 3/8	1 11/16	1 3/4	10'-11 5/8
G2C	81'-10 5/16	81'-10 5/16	5685.150	13/16	1 3/8	1 11/16	1 3/4	10'-11 1/8
G3C	81'-9 5/16	81'-9 5/16	5692.650	13/16	1 5/16	1 5/8	1 3/4	10'-10 5/8
G4C	81'-8 3/8	81'-8 3/8	5700.150	13/16	1 5/16	1 5/8	1 3/4	10'-10 3/16
G5C	81'-7 5/16	81'-7 5/16	5707.650	13/16	1 5/16	1 5/8	1 3/4	10'-9 5/8

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Gatti
DATE: 5/3/01

NOTE:

LONGITUDINAL DIMENSIONS TAKEN ALONG ℄ BOTTOM OF WEB.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	4-5-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

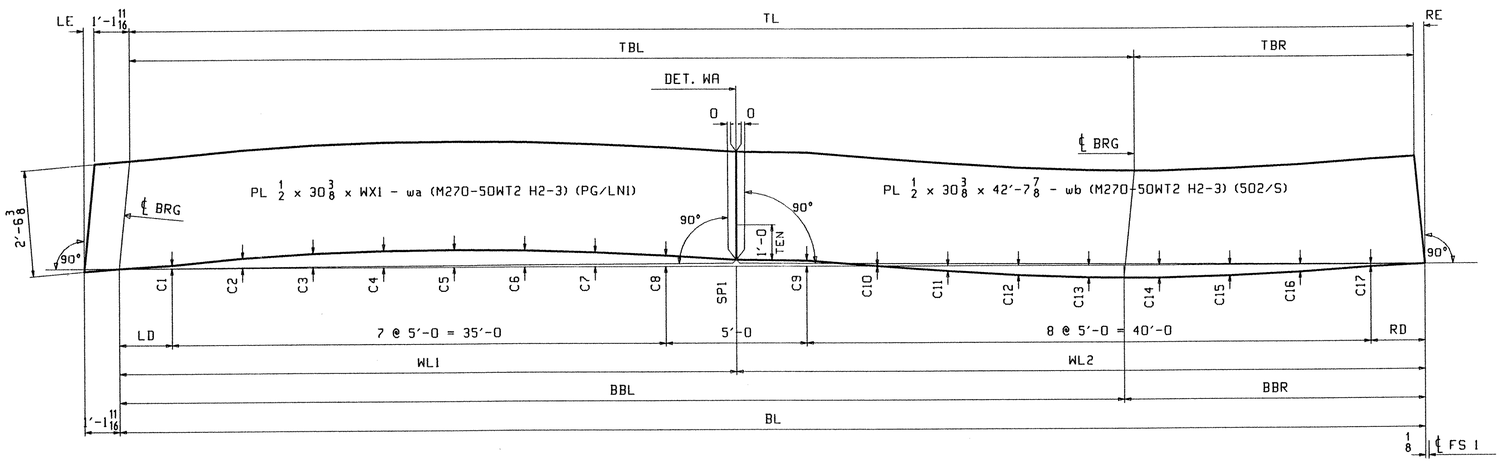
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: HEAT CURVE DIAGRAMS	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT TENSOR 2108-S	JAK	03/02
	CHKD BY	
	WL	03/06
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

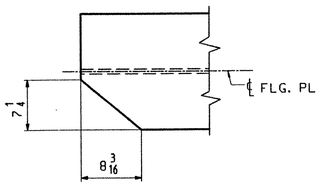
JOB NO.	DRG. NO.
122-505	HC501
	REV. △

14 Tue Mar 6 11:23:14 EST 2001 /users/dan/TCSB-S/HC501.dwg



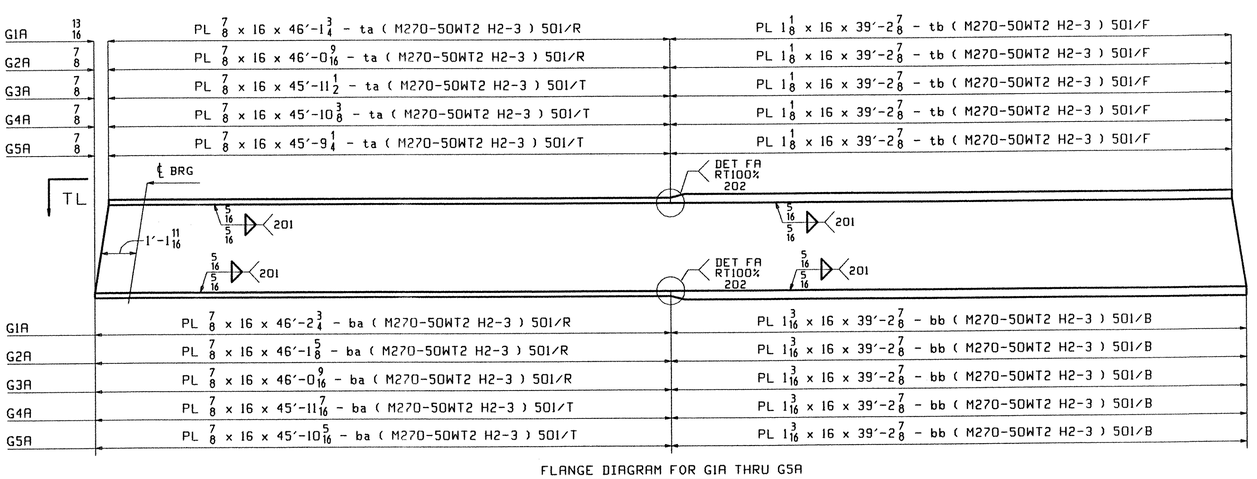
MARK	TL	BL	LE	RE	WL1	WL2	WX1	SP1	TBL	TBR	BBL	BBR	LD	RD	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	PG/LN1
G1A	84'-2 15/16	84'-3 15/16	13/16	3/16	41'-8 1/16	42'-7 7/8	42'-9 3/4	7/16	65'-7	18'-7 15/16	65'-6 7/8	18'-9 1/16	2'-2	2'-1 15/16	1/4	11/16	1	1 3/16	1 1/4	1 3/16	1	3/4	7/16	0	3/8	11/16	7/8	7/8	3/4	1/2	3/16	502/ E
G2A	84'-1 3/4	84'-2 13/16	7/8	3/16	41'-6 15/16	42'-7 7/8	42'-8 5/8	1/2	65'-5 13/16	18'-7 15/16	65'-5 3/4	18'-9 1/16	2'-1 3/8	2'-1 7/16	3/16	5/8	15/16	1 3/16	1 1/4	1 1/4	1 1/16	13/16	7/16	0	3/8	11/16	7/8	15/16	13/16	1/2	3/16	502/ E
G3A	84'-0 11/16	84'-1 3/4	7/8	3/16	41'-5 7/8	42'-7 7/8	42'-7 9/16	1/2	65'-4 11/16	18'-8	65'-4 5/8	18'-9 1/8	2'-0 7/8	2'-0 7/8	3/16	5/8	15/16	1 3/16	1 1/4	1 1/4	1 1/16	13/16	3/8	0	3/8	11/16	7/8	15/16	3/4	1/2	3/16	502/ E
G4A	83'-11 9/16	84'-0 5/8	7/8	3/16	41'-4 3/4	42'-7 7/8	42'-6 7/16	7/16	65'-3 9/16	18'-8	65'-3 1/2	18'-9 1/8	2'-0 3/8	2'-0 1/4	3/16	5/8	15/16	1 3/16	1 1/4	1 1/4	1 1/16	13/16	3/8	0	3/8	11/16	7/8	15/16	3/4	1/2	3/16	502/ G
G5A	83'-10 7/16	83'-11 1/2	7/8	3/16	41'-3 5/8	42'-7 7/8	42'-5 5/16	7/16	65'-2 1/2	18'-7 15/16	65'-2 1/2	18'-9	1'-11 3/4	1'-11 3/4	3/16	5/8	15/16	1 1/8	1 1/4	1 3/16	1 1/16	3/4	3/8	0	3/8	11/16	7/8	15/16	3/4	1/2	1/8	502/ G

NOTES:
1. FOR GENERAL NOTES SEE SHT. GN501.
2. FOR WELD DETAILS FA & WB SEE GN501.



VIEW TL

(TOP FLG.ONLY / ABUT.1 ONLY)



FLANGE DIAGRAM FOR G1A THRU G5A

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4501									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER & FLANGE DIAGRAM

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-S

PROJ NO. IM-089-2(26)

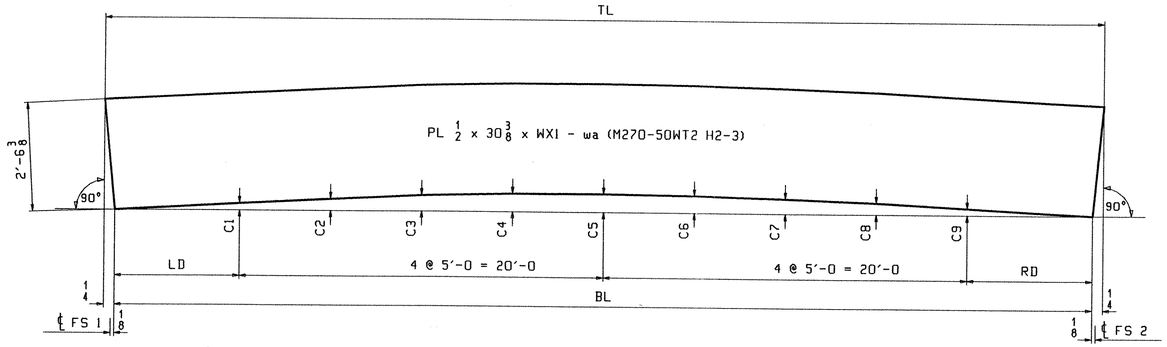
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
JAK	02/27
CHKD BY	
WL	3/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

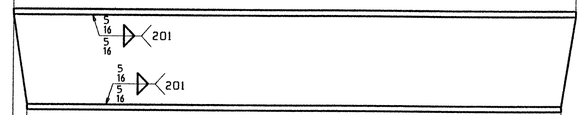
JOB NO.	DRG. NO.
122-505	C501
	REV. △

JAK Fri Mar 2 15:23:38 EST 2001 /users/jak/2108-S/C501.dgn



MARK	TL	BL	WX1	LD	RD	C1	C2	C3	C4	C5	C6	C7	C8	C9	PG/LINE
G1B	53'-9 5/16	53'-8 13/16	53'-9 5/16	6'-10 3/8	6'-10 7/16	11/16	1 1/8	1 1/2	1 3/4	1 3/4	1 5/8	1 7/16	1 1/8	11/16	501/ Z
G2B	53'-7 7/8	53'-7 3/8	53'-7 7/8	6'-9 5/8	6'-9 3/4	11/16	1 1/8	1 1/2	1 3/4	1 7/8	1 3/4	1 1/2	1 1/8	11/16	501/ Z
G3B	53'-6 3/8	53'-5 7/8	53'-6 3/8	6'-8 7/8	6'-9	11/16	1 1/8	1 1/2	1 3/4	1 13/16	1 3/4	1 1/2	1 1/8	5/8	502/ A
G4B	53'-4 15/16	53'-4 7/16	53'-4 15/16	6'-8 1/4	6'-8 3/16	11/16	1 1/8	1 1/2	1 3/4	1 13/16	1 3/4	1 1/2	1 1/8	5/8	502/ A
G5B	53'-3 7/16	53'-2 15/16	53'-3 7/16	6'-7 1/2	6'-7 7/16	11/16	1 1/8	1 7/16	1 5/8	1 3/4	1 11/16	1 1/2	1 1/8	5/8	502/ C

G1B — PL 7/8 x 16 x 53'-9 5/16 - ta (M270-50WT2 H2-3) 501/K
G2B — PL 7/8 x 16 x 53'-7 7/8 - ta (M270-50WT2 H2-3) 501/K
G3B — PL 7/8 x 16 x 53'-6 3/8 - ta (M270-50WT2 H2-3) 501/M
G4B — PL 7/8 x 16 x 53'-4 15/16 - ta (M270-50WT2 H2-3) 501/M
G5B — PL 7/8 x 16 x 53'-3 7/16 - ta (M270-50WT2 H2-3) 501/P



G1B 1/4 — PL 7/8 x 16 x 53'-8 13/16 - ba (M270-50WT2 H2-3) 501/K
G2B 1/4 — PL 7/8 x 16 x 53'-7 3/8 - ba (M270-50WT2 H2-3) 501/K
G3B 1/4 — PL 7/8 x 16 x 53'-5 7/8 - ba (M270-50WT2 H2-3) 501/M
G4B 1/4 — PL 7/8 x 16 x 53'-4 7/16 - ba (M270-50WT2 H2-3) 501/M
G5B 1/4 — PL 7/8 x 16 x 53'-2 15/16 - ba (M270-50WT2 H2-3) 501/P

FLANGE DIAGRAM FOR G1B THRU G5B

NOTES:
1. FOR GENERAL NOTES SEE SHT. GN501.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W	ELECTRODES:	HOLES: 15/16 ø (UN)	SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER & FLANGE DIAGRAM

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 210R-S

PROJ NO. IM-089-2(26)

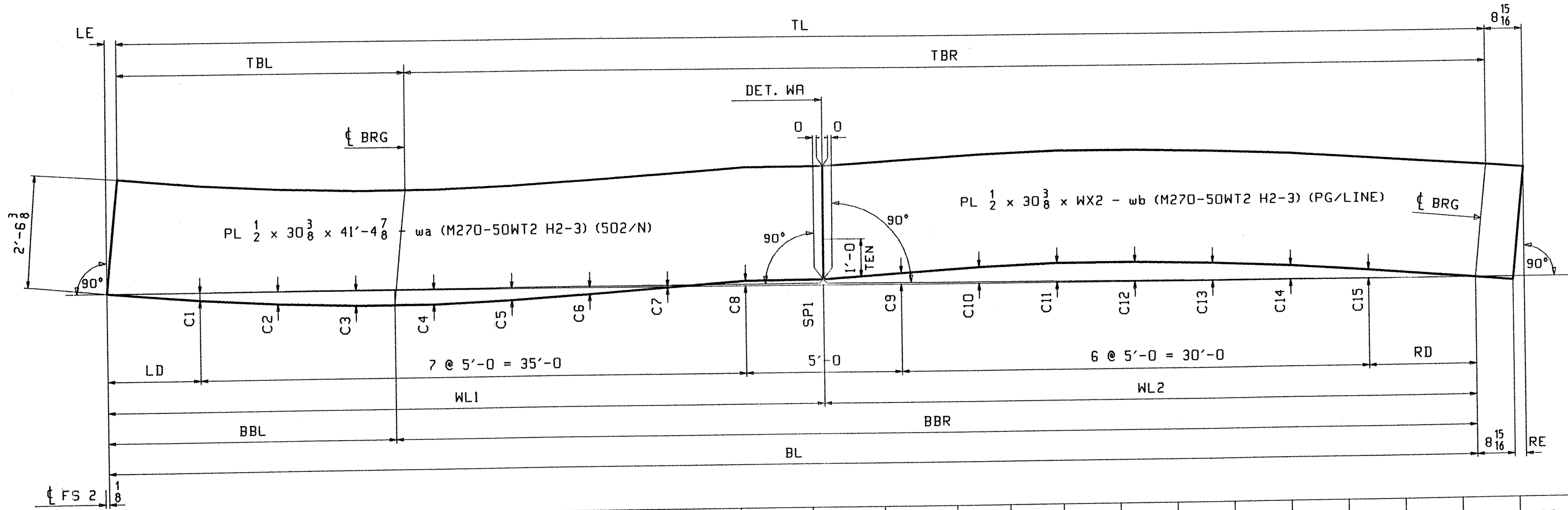
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
JAK	02/27
CHKD BY	
WL	2/01
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
122-505	C502
	REV. △

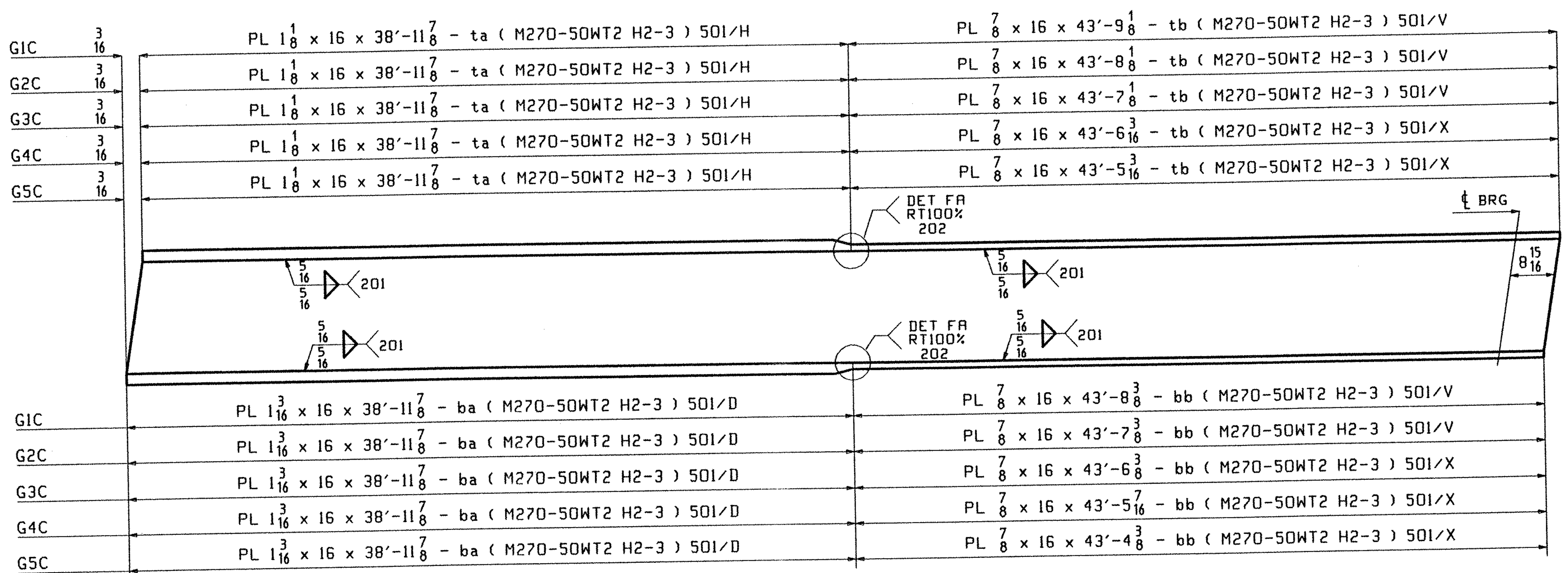
Tue Mar 6 10:43:09 EST 2001 c:\work\jobs\505\c502.dgn



MARK	TL	BL	LE	RE	WL1	WL2	WX2	SP1	TBL	TBR	BBL	BBR	LD	RD	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	PG/LINE
G1C	82'-0 1/16	81'-11 5/16	3/16	15/16	41'-4 7/8	40'-6 7/16	41'-4 5/16	5/16	18'-3 3/4	63'-8 5/16	18'-3	63'-8 5/16	5'-11 5/8	5'-11 11/16	7/16	11/16	7/8	7/8	11/16	3/8	0	5/16	5/8	15/16	1 1/8	1 1/8	1	13/16	1/2	502/ J
G2C	81'-11 1/16	81'-10 5/16	3/16	15/16	41'-4 7/8	40'-5 7/16	41'-3 5/16	3/8	18'-3 3/4	63'-7 5/16	18'-3	63'-7 5/16	5'-11 1/8	5'-11 3/16	7/16	11/16	7/8	7/8	3/4	7/16	0	5/16	11/16	15/16	1 1/8	1 3/16	1 1/16	7/8	1/2	502/ J
G3C	81'-10 1/16	81'-9 5/16	3/16	15/16	41'-4 7/8	40'-4 7/16	41'-2 5/16	3/8	18'-3 11/16	63'-6 3/8	18'-2 15/16	63'-6 3/8	5'-10 5/8	5'-10 11/16	7/16	11/16	7/8	7/8	3/4	7/16	0	5/16	11/16	15/16	1 1/8	1 3/16	1 1/16	7/8	1/2	502/ J
G4C	81'-9 1/8	81'-8 3/8	3/16	15/16	41'-4 7/8	40'-3 1/2	41'-1 3/8	3/8	18'-3 11/16	63'-5 7/16	18'-2 15/16	63'-5 7/16	5'-10 1/8	5'-10 1/4	7/16	11/16	7/8	7/8	3/4	7/16	0	5/16	11/16	15/16	1 1/8	1 3/16	1 1/16	13/16	1/2	502/ L
G5C	81'-8 1/8	81'-7 5/16	3/16	1	41'-4 7/8	40'-2 7/16	41'-0 3/8	3/8	18'-3 11/16	63'-4 7/16	18'-2 15/16	63'-4 3/8	5'-9 5/8	5'-9 11/16	7/16	11/16	7/8	7/8	3/4	7/16	0	5/16	11/16	15/16	1 1/16	1 1/8	1 1/16	7/8	9/16	502/ L

NOTES:

1. FOR GENERAL NOTES SEE SHT. GN501.
2. FOR WELD DETAILS FA & WB SEE GN501.



FLANGE DIAGRAM FOR G1C THRU G5C

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review is not extended to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pete W. [signature]
DATE: 5/3/01

OUT FOR APPROVAL	4-5-01										
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV. REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER	

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 Ø (UN)
SHOP BOLTS: 7/8 Ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CAMBER & FLANGE DIAGRAM

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-S

PROJ NO. IM-089-2(26)

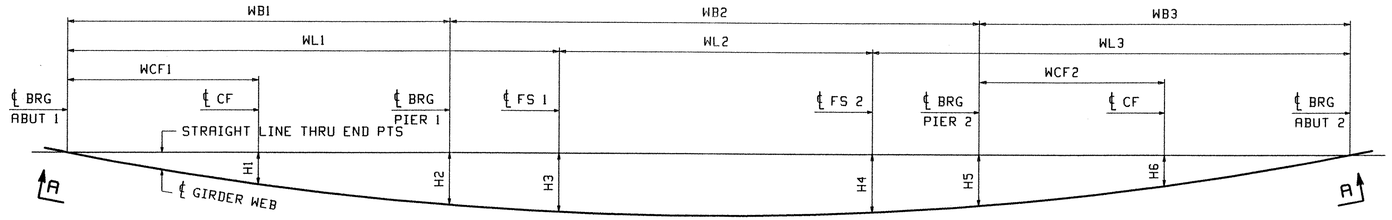
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
JAK	02/27
CHKD BY	
WL	3/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

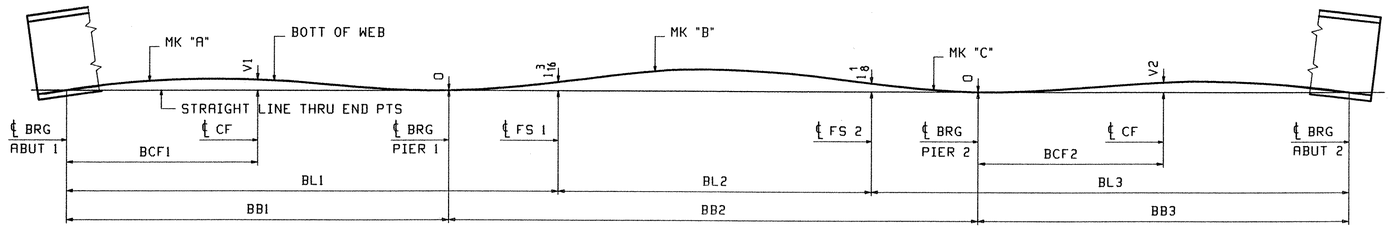
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 122-505
DRG. NO. C503
REV. △

JAK Fri Mar 2 15:20:11 EST 2001 /users/jobs/2108-S/C503 : Rev0



PLAN VIEW GIRDER @ BOTT OF WEB



DEVELOPED SECTION A-A

DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	WL3	H1	H2	H3	H4	H5	H6	WB1	WB2	WB3	WCF1	WCF2	BL1	BL2	BL3	V1	V2	BB1	BB2	BB3	BCF1	BCF2
1	84'-4	53'-9 1/8	81'-11 5/16	7 5/16	10 11/16	1'-0 1/16	11 15/16	10 1/2	5 9/16	65'-6 13/16	90'-9 3/8	63'-8 1/4	38'-0 1/8	36'-3 3/4	84'-4 1/16	53'-9 1/8	81'-11 7/16	1 1/4	1 1/2	65'-6 7/8	90'-9 3/8	63'-8 5/16	30'-0 3/16	36'-3 13/16
2	84'-2 7/8	53'-7 5/8	81'-10 3/8	6	10 5/8	1'-0 1/16	11 7/8	10 1/2	6 3/4	65'-5 11/16	90'-7 15/16	63'-7 1/4	30'-1 1/2	28'-10 13/16	84'-2 15/16	53'-7 5/8	81'-10 7/16	1 9/16	1 1/4	65'-5 3/4	90'-7 15/16	63'-7 5/16	30'-1 9/16	28'-10 3/16
3	84'-1 3/4	53'-6 1/8	81'-9 3/8	6	10 5/8	1'-0	11 7/8	10 7/16	6 3/4	65'-4 9/16	90'-6 7/16	63'-6 1/4	30'-1 3/4	28'-9 1/4	84'-1 7/8	53'-6 1/8	81'-9 7/16	1 9/16	1 1/4	65'-4 5/8	90'-6 7/16	63'-6 3/8	30'-1 13/16	28'-9 1/4
4	84'-0 5/8	53'-4 11/16	81'-8 3/8	6	10 9/16	11 15/16	11 13/16	10 3/8	6 3/4	65'-3 7/16	90'-5	63'-5 1/4	30'-2	28-8 1/4	84'-0 3/4	53'-4 11/16	81'-8 1/2	1 9/16	1 1/4	65'-3 1/2	90'-5	63'-5 7/16	30'-2 1/16	28'-8 1/4
5	83'-11 9/16	53'-3 3/16	81'-7 7/16	6	10 1/2	11 7/8	11 3/4	10 3/8	6 3/4	65'-2 3/8	90'-3 1/2	63'-4 5/16	30'-2 5/16	28'-7 1/4	83'-11 5/8	53'-3 1/4	81'-7 1/2	1 9/16	1 1/4	65'-2 1/2	90'-3 9/16	63'-4 3/8	30'-2 5/16	28'-7 5/16

LINE	"A"	"B"	"C"
1	G1A	G1B	G1C
2	G2A	G2B	G2C
3	G3A	G3B	G3C
4	G4A	G4B	G4C
5	G5A	G5B	G5C

NOTES

FOR GENERAL NOTES SEE DWG GN501

ALL DIMENSIONS GIVEN AT BOTT OF WEB (UN)

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)

-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Gatti
DATE: 5/3/01

DESCRIPTION: SHOP ASSEMBLY	DRAWN BY	DATE
JOB: BRIDGE NO. 505	PHG	03/12/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

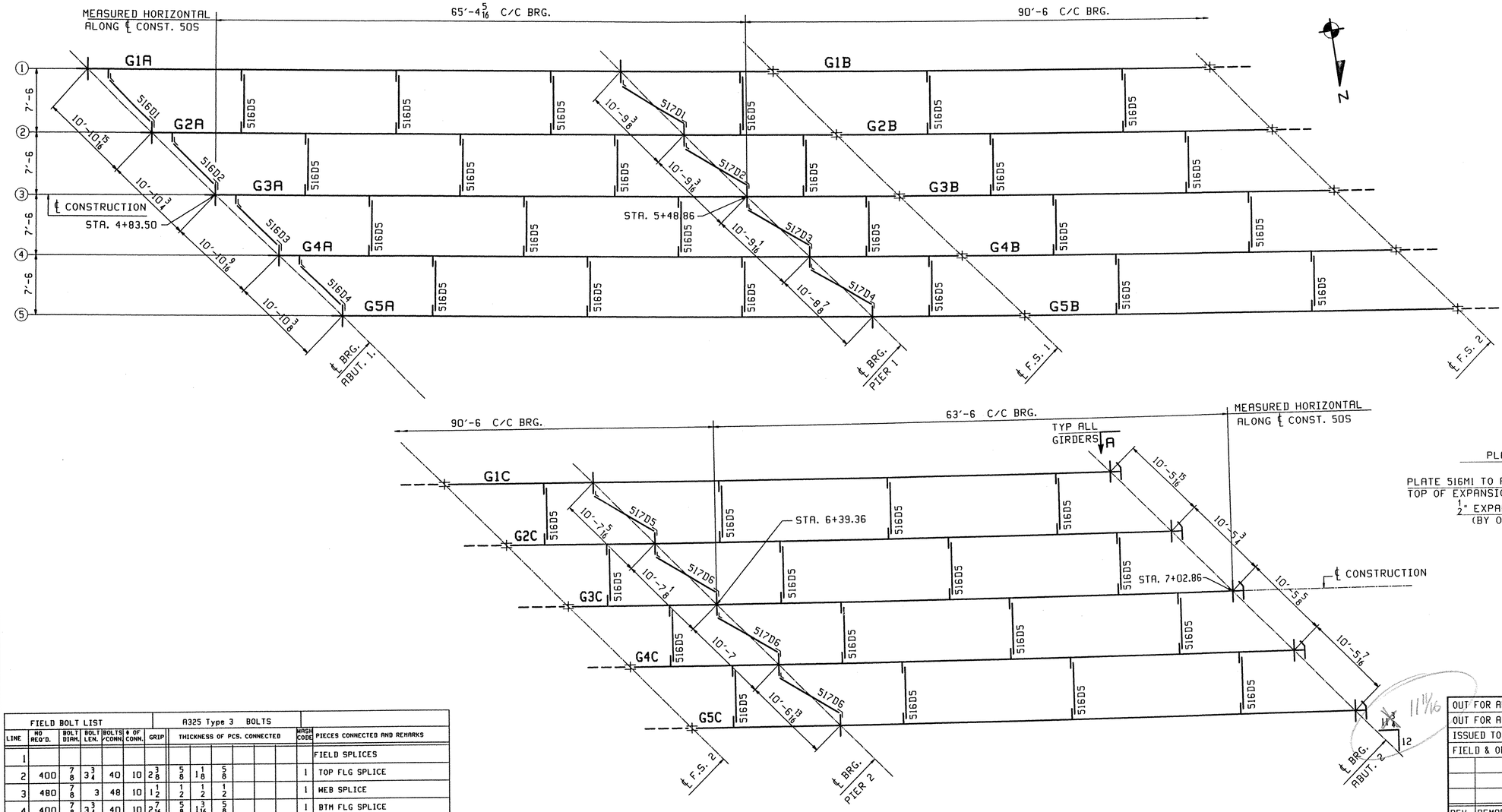
CASCO BAY STEEL STRUCTURES, INC.

75 SPRING HILL ROAD SACO, MAINE 04072

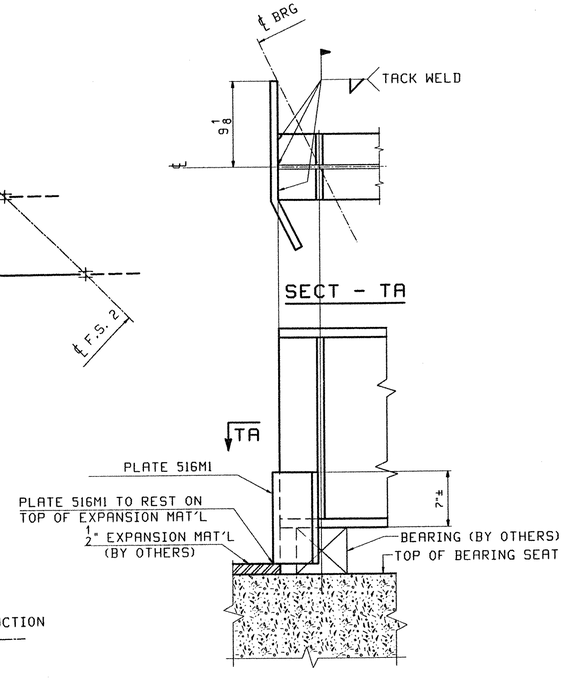
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-505	SA501
	REV. △

PHG Tue Mar 13 10:00:07 EST 2001 /users/jake/2108-S/SA501.1 Rev0



FRAMING PLAN



VIEW - A
ROTATED

FIELD BOLT LIST							A325 Type 3 BOLTS							
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
1														FIELD SPLICES
2	400	7/8	3 1/4	40	10	2 3/8	5/8	1 1/8	5/8				1	TOP FLG SPLICE
3	480	7/8	3	48	10	1 1/2	1/2	1/2	1/2				1	WEB SPLICE
4	400	7/8	3 1/4	40	10	2 7/16	5/8	1 3/16	5/8				1	BTM FLG SPLICE
5														
6														INT. DIAPHRAGMS
7	400	7/8	2 1/4	5	80	13/16	5/16	1/2					1	WEB TO CONN PL
8														
9														PIER DIAPHRAGMS
10	80	7/8	2 3/4	5	16	3/8	1/2	7/8					1	GUSSET TO CONN PL
WASHER CODES 1: 1 Hard Flat Washer														

FIELD BOLT LIST							A325 Type 1 BOLTS							
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
11														ABUT DIAPHRAGMS
12	40	7/8	2 3/4	5	8	1 3/8	1/2	7/8					1	GUSSET TO CONN PL
13	40	7/8	2 1/4	5	8	13/16	1/2	5/16					1	GUSSET TO WEB
WASHER CODES 1: 1 Hard Flat Washer														

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4501									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

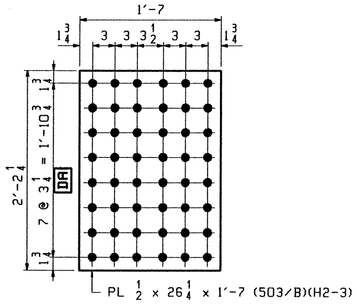
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: FRAMING PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 505	PHG	03/12/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

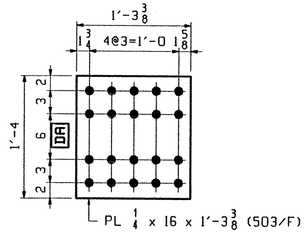
JOB NO.	DRG. NO.
122-505	E501
	REV. △

PHG Tue Apr 3 10:02:15 EDT 2001 /users/jobs/2108-S/E501.dgn

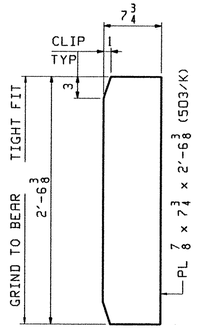


D.O.R.

20 ~ x51a

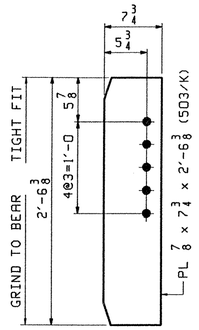


10 ~ x51d



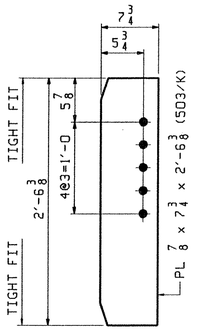
20 ~ x51g

BRG STIFF @ ABUT & PIERS



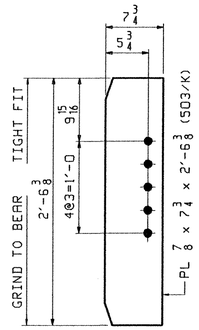
4 ~ x51k

BRG STIFF @ ABUT



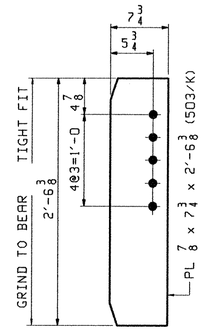
4 ~ x51m

CONN STIFF @ ABUT



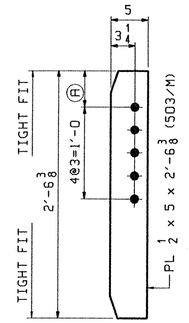
8 ~ x51n

BRG STIFF @ PIERS



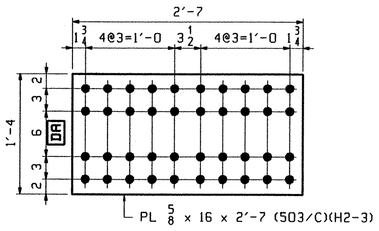
8 ~ x51p

BRG STIFF @ PIERS



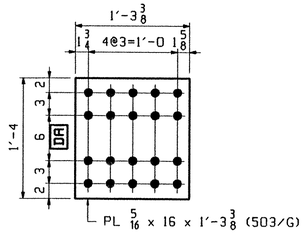
INT. CONN STIFF

MARK	REQ'D	Ⓐ
x51t	40	7
x51w	12	9 1/16
x51y	8	9 3/16
x51aa	8	9 1/2
x51ab	12	9 11/16

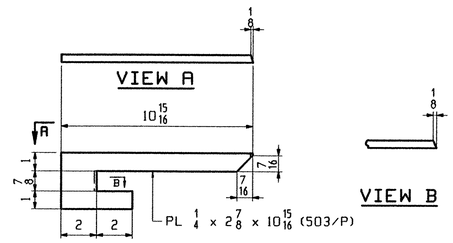


D.O.R.

20 ~ x51b

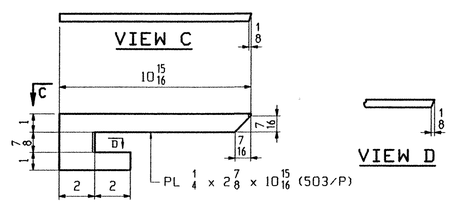


10 ~ x51f



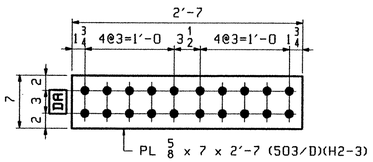
1 ~ x51ac

DRIP PL



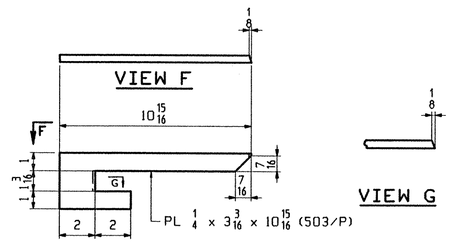
1 ~ x51ad

DRIP PL



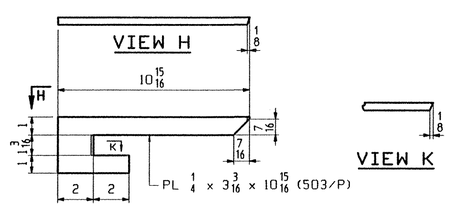
D.O.R.

40 ~ x51c



2 ~ x51af

DRIP PL



2 ~ x51ag

DRIP PL

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: Pete W. Lee
DATE: 5/3/01

NOTES:

FOR GENERAL NOTES SEE GN501

H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

D.O.R. DENOTES DIRECTION OF MILL ROLLING

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4/30/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

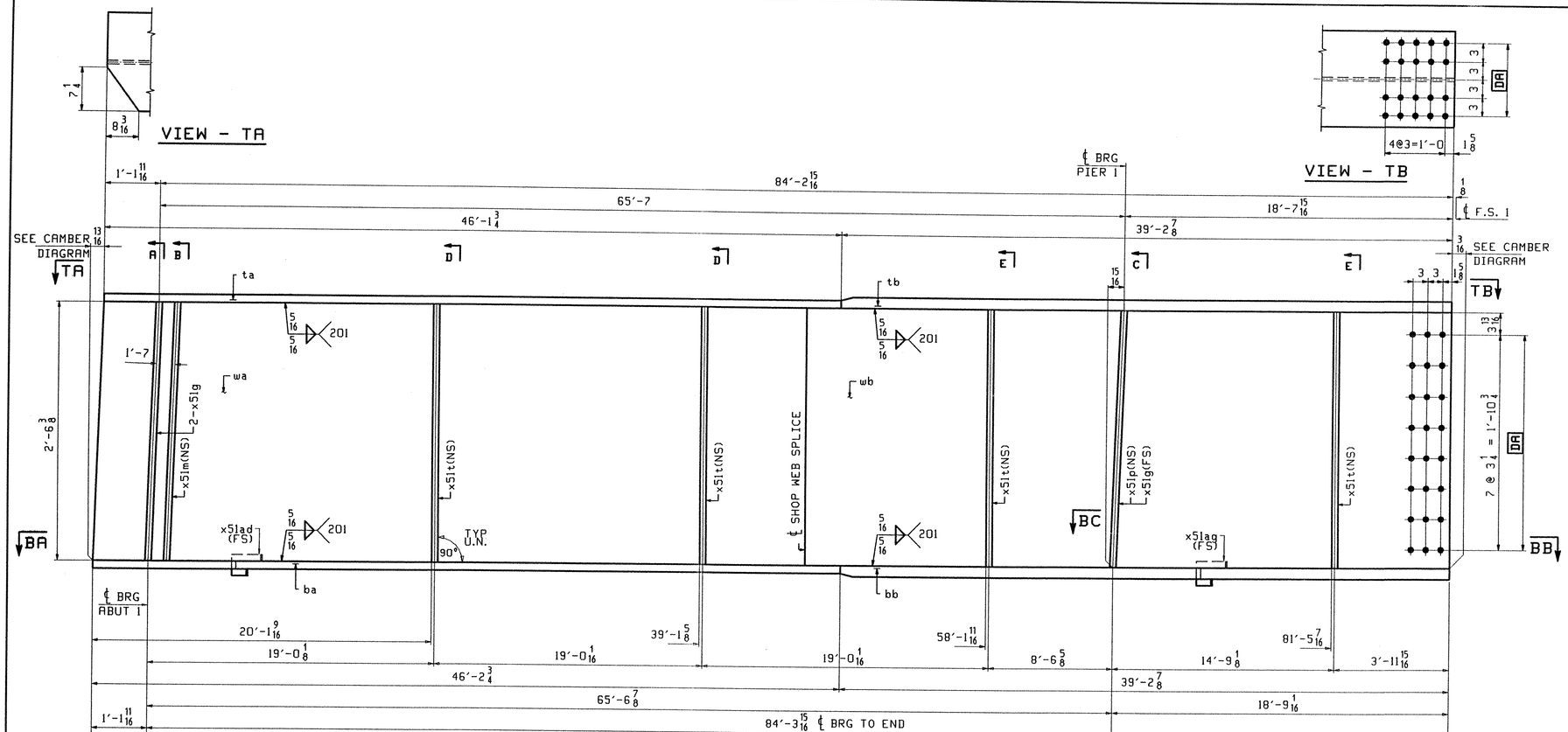
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

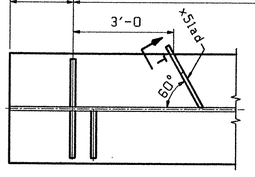
DESCRIPTION: GIRDER STANDARDS	DRAWN BY	DATE
JOB: BRIDGE NO. 50S	PHG	03/07/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

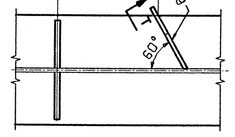
JOB NO.	DRG. NO.
122-50S	X51
	REV. △

PHG Tue Apr 3 08:07:07 EDT 2001 /users/phg/2108-S/X51.dwg

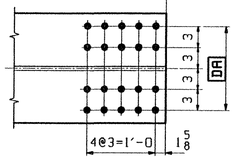




SECTION - BA



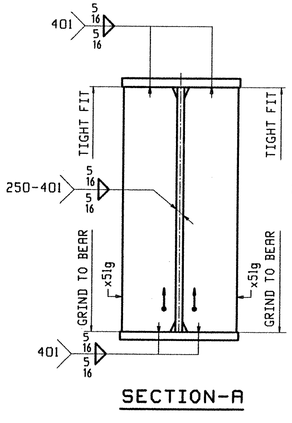
SECTION - BC



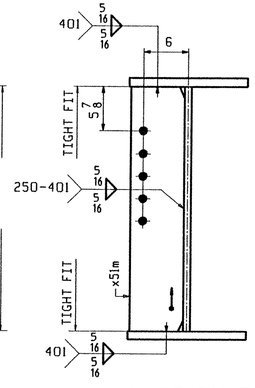
SECTION - BB

ONE - GIRDER - G1A

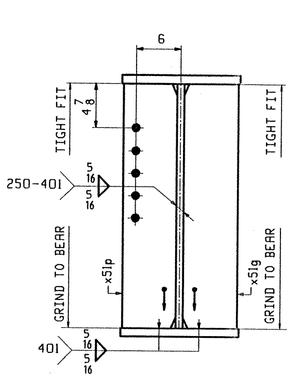
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C501.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



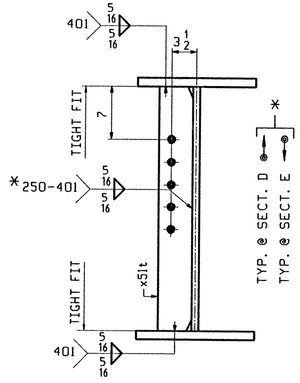
SECTION-A



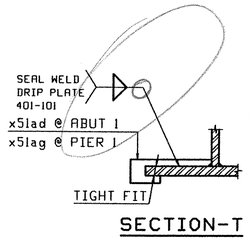
SECTION-B



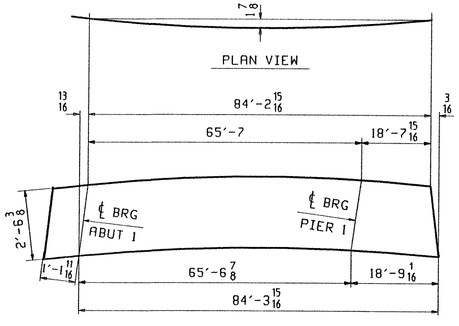
SECTION-C



SECTION-D&E



SECTION-T



DEV. CAMBER DIAGRAM

SEE DWG. C501

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS			
									501		
		GIA	1		GIRDER				WT	PROCUREMENT NOTES	
									14141		
502	E		1	wa	PL 1/2×30 3/8	42	9 3/4	(M270-50WT2) (H2-3)			
502	S		1	wb	PL 1/2×30 3/8	42	7 7/8	(M270-50WT2) (H2-3)			
501	R		1	ta	PL 7/8×16	46	1 3/4	(M270-50WT2) (H2-3)			
501	F		1	tb	PL 1 1/8×16	39	2 7/8	(M270-50WT2) (H2-3)			
501	R		1	ba	PL 7/8×16	46	2 1/4	(M270-50WT2) (H2-3)			
501	B		1	bb	PL 1 3/16×16	39	2 7/8	(M270-50WT2) (H2-3)			
503	K		3	x51g	PL 7/8×7 3/4	2	6 3/8	(M270-50W)			
503	K		1	x51m	PL 7/8×7 3/4	2	6 3/8	(M270-50W)			
503	M		4	x51t	PL 1/2×5	2	6 3/8	(M270-50W)			
503	K		1	x51p	PL 7/8×7 3/4	2	6 3/8	(M270-50W)			
503	P		1	x51ad	PL 1/4×2 7/8	0	10 15/16	(M270-50W)			
503	P		1	x51ag	PL 1/4×3 3/16	0	10 15/16	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: PEW, JR
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL 4-5-01										
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT I SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

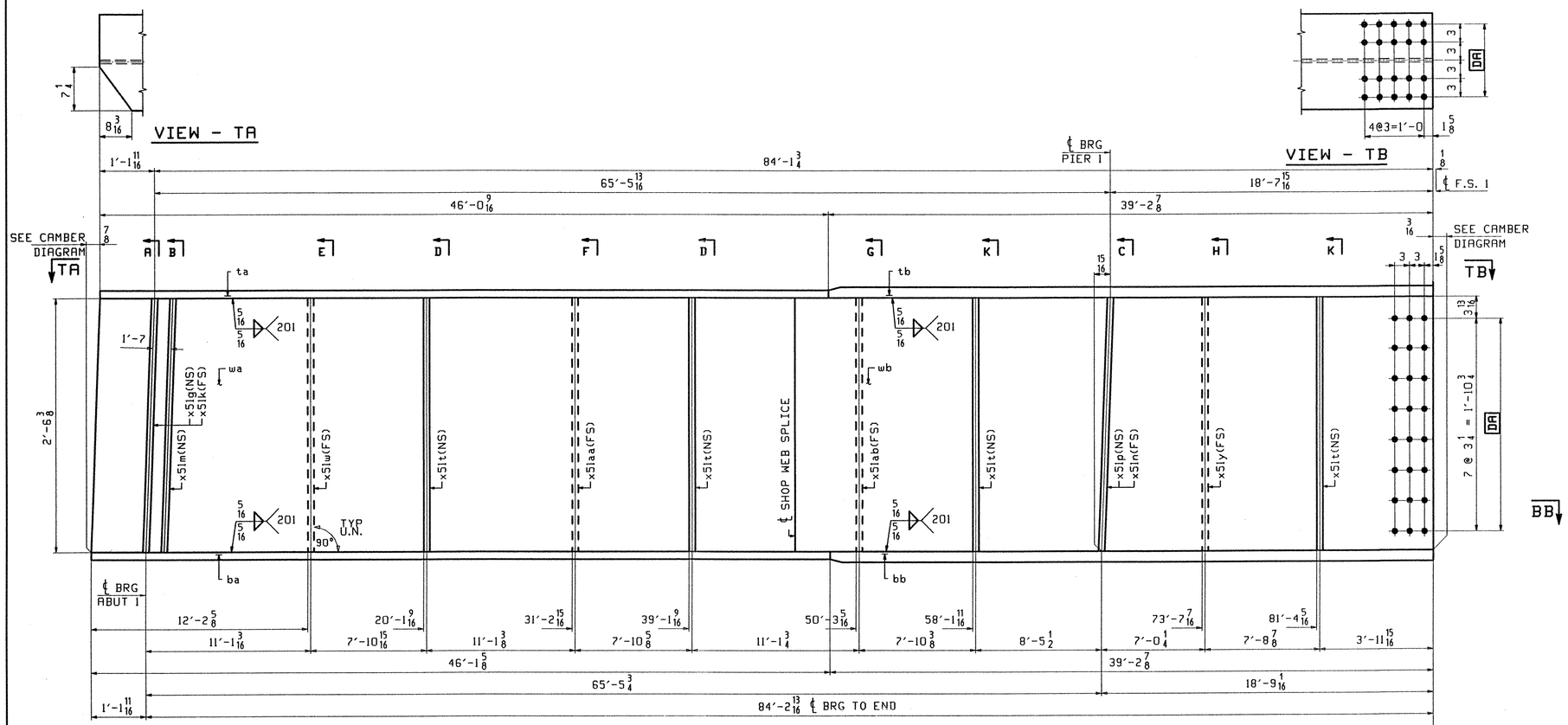
DESCRIPTION: GIRDER - G1A	DRAWN BY	DATE
JOB: BRIDGE NO. 505	PHG	03/08/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

CASCO BAY STEEL STRUCTURES, INC.

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

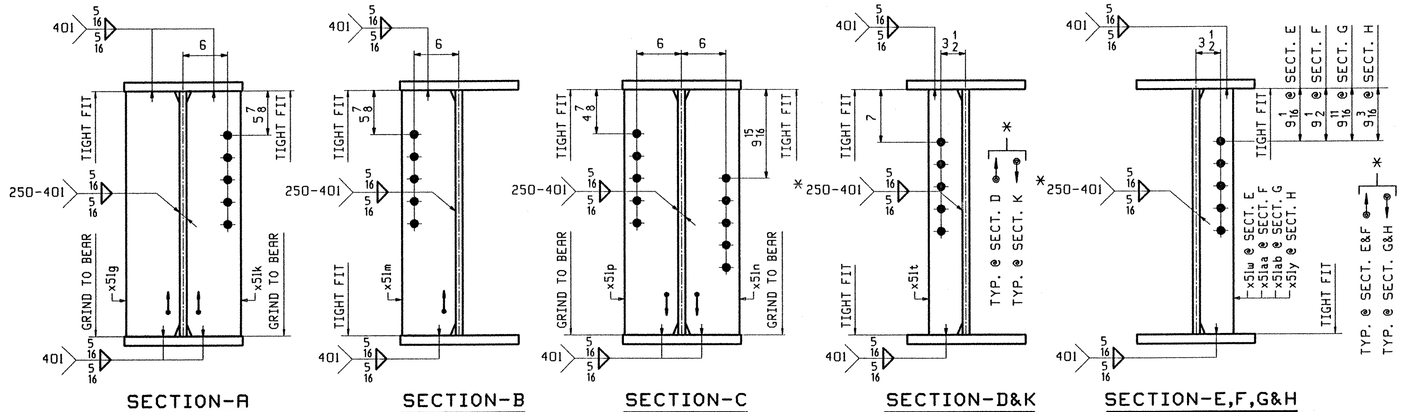
JOB NO.	DRG. NO.
122-505	501
	REV. △

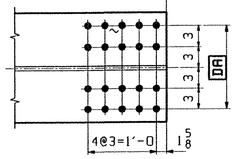
PHG Tue Mar 3 08:52:57 EST 2001 /users/jobs/2108-s/501.dwg

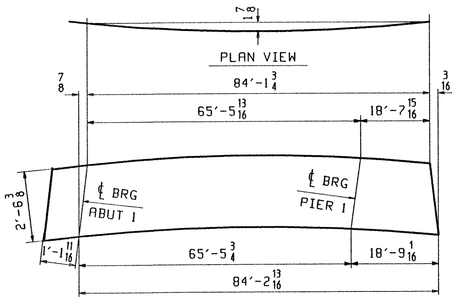


ONE - GIRDER - G2A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C501.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.







ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2A	1		GIRDER				14208	
502	E		1	wa	PL 1/2x30 3/8	42	8 5/8	(M270-50WT2) (H2-3)		
502	S		1	wb	PL 1/2x30 3/8	42	7 7/8	(M270-50WT2) (H2-3)		
501	R		1	ta	PL 7/8x16	46	0 9/16	(M270-50WT2) (H2-3)		
501	F		1	tb	PL 1 1/8x16	39	2 7/8	(M270-50WT2) (H2-3)		
501	R		1	ba	PL 7/8x16	46	1 5/8	(M270-50WT2) (H2-3)		
501	B		1	bb	PL 1 3/16x16	39	2 7/8	(M270-50WT2) (H2-3)		
503	K		1	x51g	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
503	K		1	x51k	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
503	K		1	x51m	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
503	M		1	x51w	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		4	x51t	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		1	x51aa	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		1	x51ab	PL 1/2x5	2	6 3/8	(M270-50W)		
503	K		1	x51p	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
503	K		1	x51n	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
503	M		1	x51y	PL 1/2x5	2	6 3/8	(M270-50W)		

JOB NO.: 502 | DRAWING NO.: 502 | REV.:

TVGA
Engineering, Surveying, P.C.

NO EXCEPTIONS TAKEN ☐ REJECTED
FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pat W. Sch
DATE: 5/7/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2A

JOB: BRIDGE NO. 5015
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-S

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

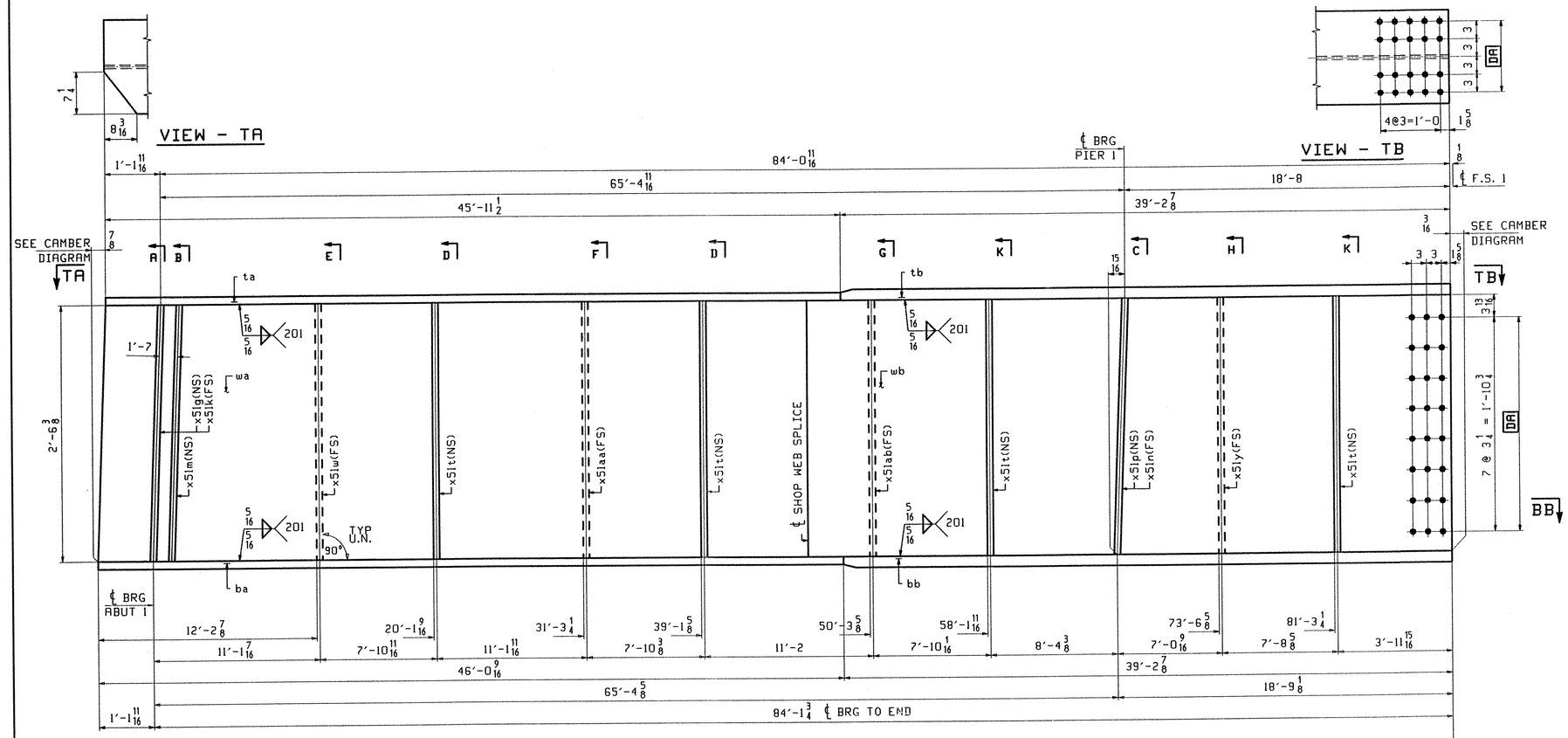
DRAWN BY	PHG
DATE	03/08/01
CHKD BY	
TRM	04/03/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

JOB NO. 122-505 | DRG. NO. 502 | REV.

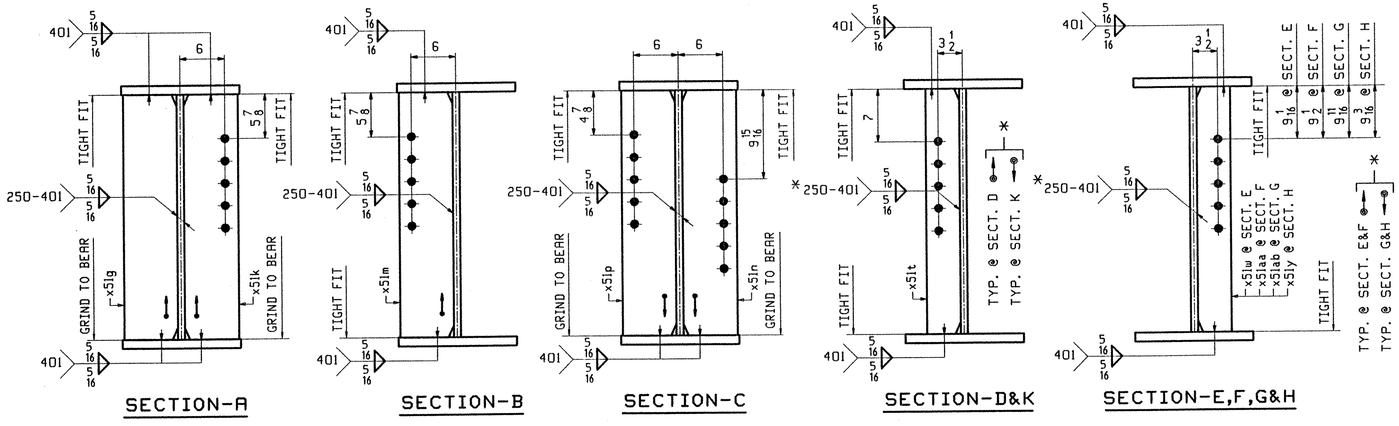
PHG Tue Apr 3 08:26:23 EST 2001 /users/jmay/2108-S-502 | Rev-0

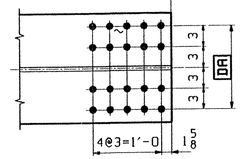
ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									503	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3A	1		GIRDER				14195	
502	E		1	wa	PL $\frac{1}{2}$x30$\frac{3}{8}$	42	7$\frac{9}{16}$	(M270-50W12) (W2-3)		
502	S		1	wb	PL $\frac{1}{2}$x30$\frac{3}{8}$	42	7$\frac{7}{8}$	(M270-50W12) (W2-3)		
501	T		1	ta	PL $\frac{7}{8}$x16	45	11$\frac{1}{2}$	(M270-50W12) (W2-3)		
501	F		1	tb	PL 1$\frac{1}{8}$x16	39	2$\frac{7}{8}$	(M270-50W12) (W2-3)		
501	R		1	ba	PL $\frac{7}{8}$x16	46	0$\frac{9}{16}$	(M270-50W12) (W2-3)		
501	B		1	bb	PL 1$\frac{3}{16}$x16	39	2$\frac{7}{8}$	(M270-50W12) (W2-3)		
503	K		1	x51g	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	6$\frac{3}{8}$	(M270-50W)		
503	K		1	x51k	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	6$\frac{3}{8}$	(M270-50W)		
503	K		1	x51m	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	6$\frac{3}{8}$	(M270-50W)		
503	M		1	x51w	PL $\frac{1}{2}$x5	2	6$\frac{3}{8}$	(M270-50W)		
503	M		4	x51t	PL $\frac{1}{2}$x5	2	6$\frac{3}{8}$	(M270-50W)		
503	M		1	x51aa	PL $\frac{1}{2}$x5	2	6$\frac{3}{8}$	(M270-50W)		
503	M		1	x51ab	PL $\frac{1}{2}$x5	2	6$\frac{3}{8}$	(M270-50W)		
503	K		1	x51p	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	6$\frac{3}{8}$	(M270-50W)		
503	K		1	x51n	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	6$\frac{3}{8}$	(M270-50W)		
503	M		1	x51y	PL $\frac{1}{2}$x5	2	6$\frac{3}{8}$	(M270-50W)		

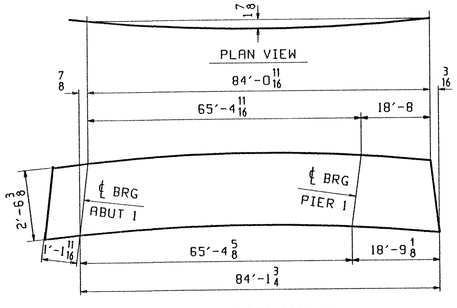


ONE - GIRDER - G3A

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C501.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.







DEV. CAMBER DIAGRAM
SEE DWG. C501

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pete W. Gatti
DATE: 5/8/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3A

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

PROJ NO. IM-089-2(26)

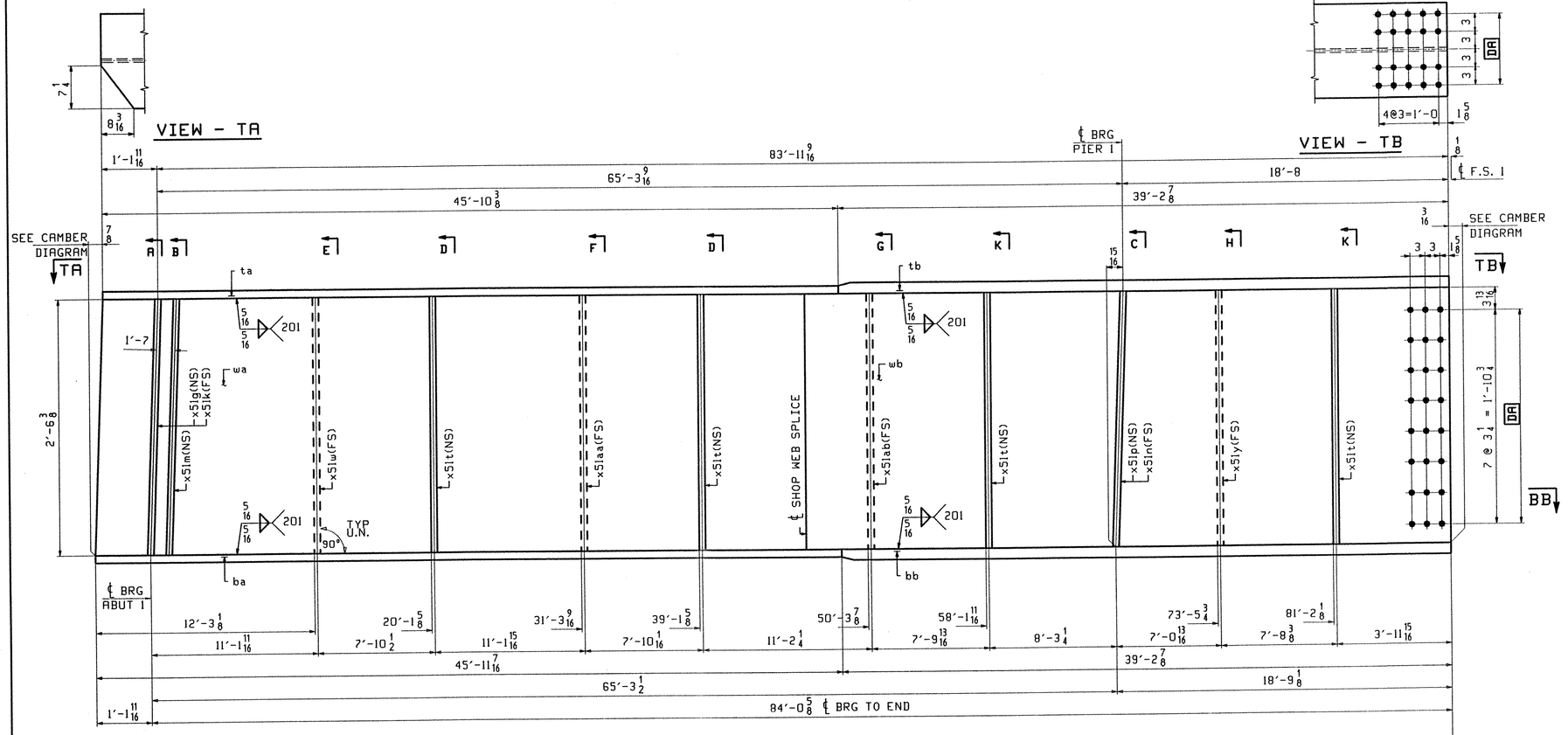
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	03/08/01
CHKD BY	
TRM	04/03/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

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

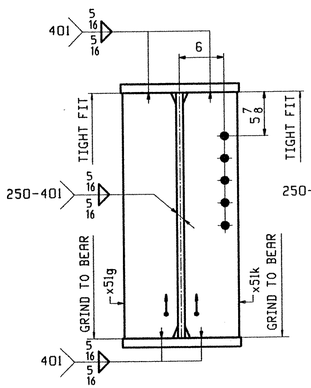
JOB NO.	DRG. NO.
122-505	503
	REV. △

PHG Tue Apr 3 08:26:28 EST 2001 /users/jobs/2108-5/503 1 Rev0

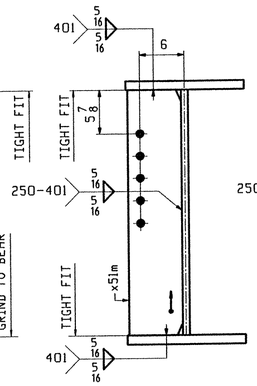


ONE - GIRDER - G4A

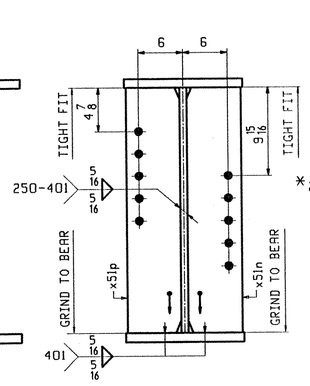
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C501.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



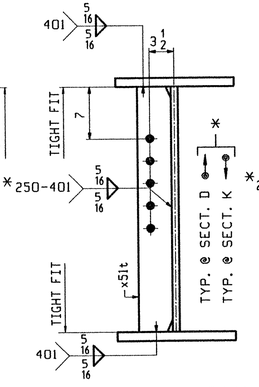
SECTION-A



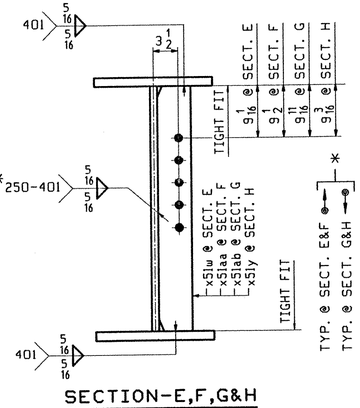
SECTION-B



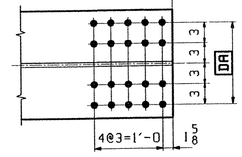
SECTION-C



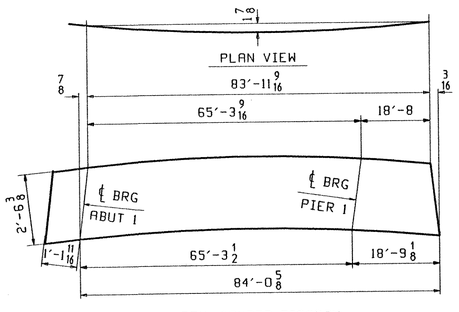
SECTION-D&K



SECTION-E,F,G&H



SECTION - BB



DEV. CAMBER DIAGRAM
SEE DWG. C501

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									504		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G4A	1		GIRDER				14182		
502	G		1	wa	PL 1/2x30 3/8	42	6 7/16	(M270-50WT2) (H2-3)			
502	S		1	wb	PL 1/2x30 3/8	42	7 7/8	(M270-50WT2) (H2-3)			
501	T		1	ta	PL 7/8x16	45	10 3/8	(M270-50WT2) (H2-3)			
501	F		1	tb	PL 1 1/8x16	39	2 7/8	(M270-50WT2) (H2-3)			
501	T		1	ba	PL 7/8x16	45	11 7/16	(M270-50WT2) (H2-3)			
501	B		1	bb	PL 1 3/16x16	39	2 7/8	(M270-50WT2) (H2-3)			
503	K		1	x51g	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			
503	K		1	x51k	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			
503	K		1	x51m	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			
503	M		1	x51w	PL 1/2x5	2	6 3/8	(M270-50W)			
503	M		4	x51t	PL 1/2x5	2	6 3/8	(M270-50W)			
503	M		1	x51aa	PL 1/2x5	2	6 3/8	(M270-50W)			
503	M		1	x51ab	PL 1/2x5	2	6 3/8	(M270-50W)			
503	K		1	x51p	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			
503	K		1	x51n	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			
503	M		1	x51y	PL 1/2x5	2	6 3/8	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Peter W. Gatti
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

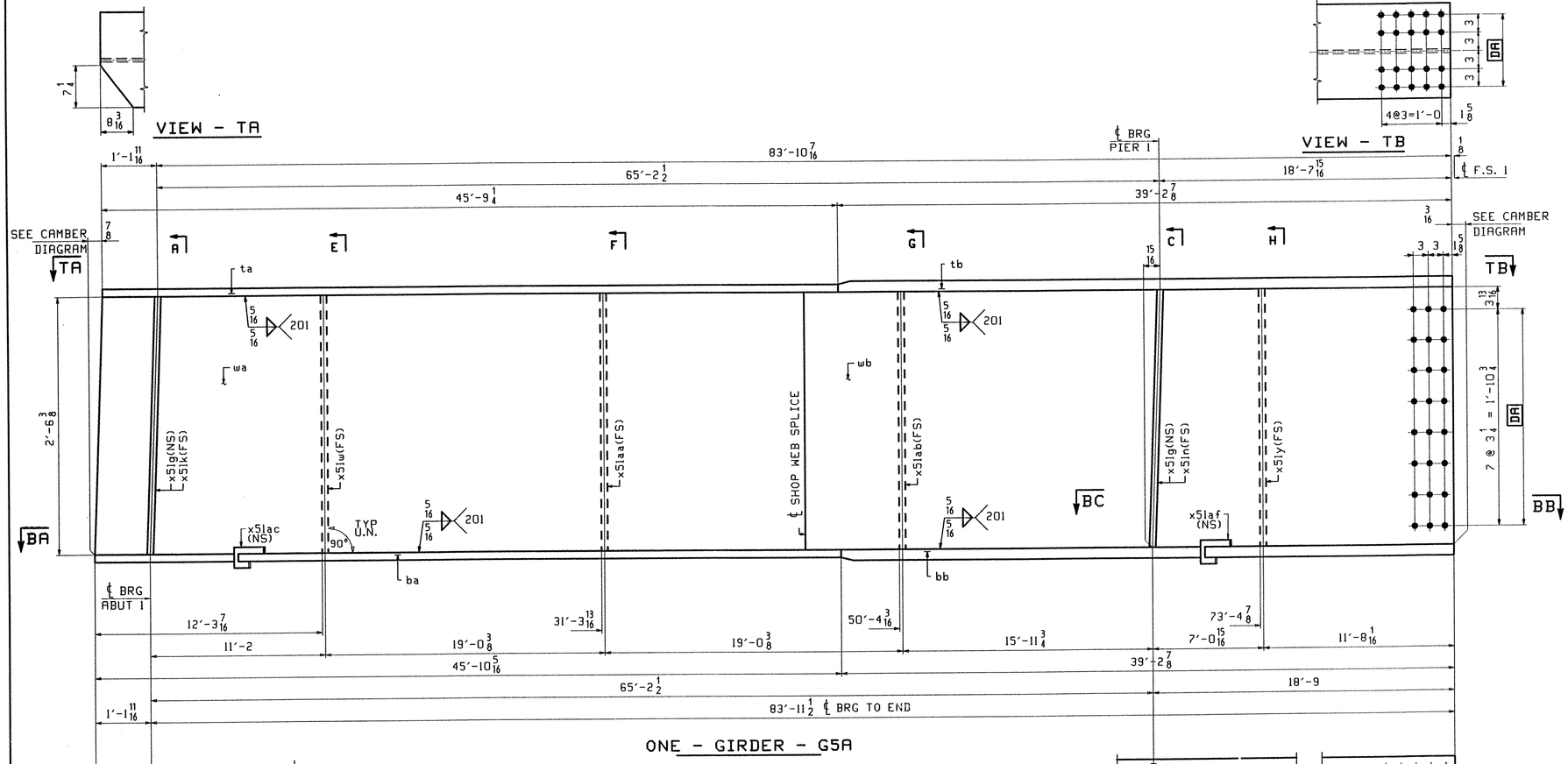
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4A	DRAWN BY	DATE
JOB: BRIDGE NO. 505	PHG	03/09/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

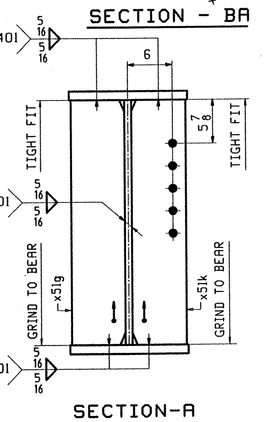
JOB NO.	DRG. NO.
122-505	504
	REV. △

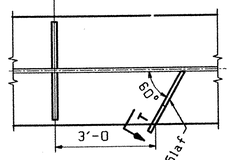
PHG Tue Apr 3 08:30:24 EST 2001 /users/jobs/2108-S/504.1 Rev=0

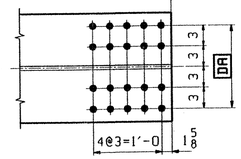


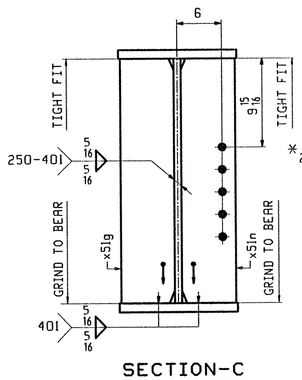
ONE - GIRDER - G5A

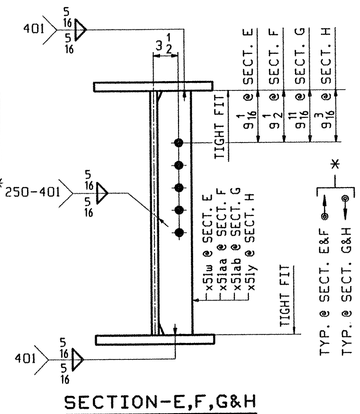
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C501.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.

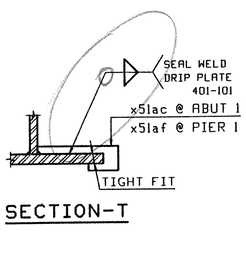


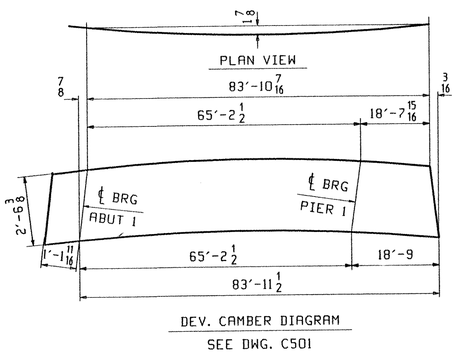












DEV. CAMBER DIAGRAM
SEE DWG. C501

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	505 WT	PROCUREMENT NOTES	
		G5A	1		GIRDER				14028		
502	G		1	wa	PL 1/2 x 30 3/8	42	5 5/16	(M270-50WT2) (H2-3)			
502	S		1	wb	PL 1/2 x 30 3/8	42	7 7/8	(M270-50WT2) (H2-3)			
501	T		1	ta	PL 7/8 x 16	45	9 1/4	(M270-50WT2) (H2-3)			
501	F		1	tb	PL 1 1/8 x 16	39	2 5/8	(M270-50WT2) (H2-3)			
501	T		1	ba	PL 7/8 x 16	45	10 5/16	(M270-50WT2) (H2-3)			
501	B		1	bb	PL 1 1/16 x 16	39	2 7/8	(M270-50WT2) (H2-3)			
503	K		2	x51g	PL 7/8 x 7 3/4	2	6 3/8	(M270-50W)			
503	K		1	x51k	PL 7/8 x 7 3/4	2	6 3/8	(M270-50W)			
503	M		1	x51w	PL 1/2 x 5	2	6 3/8	(M270-50W)			
503	M		1	x51aa	PL 1/2 x 5	2	6 3/8	(M270-50W)			
503	M		1	x51ab	PL 1/2 x 5	2	6 3/8	(M270-50W)			
503	K		1	x51in	PL 7/8 x 7 3/4	2	6 3/8	(M270-50W)			
503	M		1	x51y	PL 1/2 x 5	2	6 3/8	(M270-50W)			
503	P		1	x51ac	PL 1/4 x 2 7/8	0	10 15/16	(M270-50W)			
503	P		1	x51af	PL 1/4 x 3 3/16	0	10 15/16	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information shown in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review is not limited to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pete W. Gatti
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

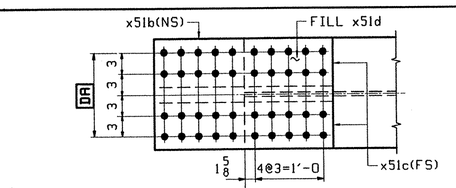
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5A	DRAWN BY	DATE
JOB: BRIDGE NO. 505	PHG	03/09/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

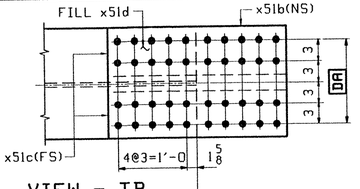
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-505	505
	REV. △

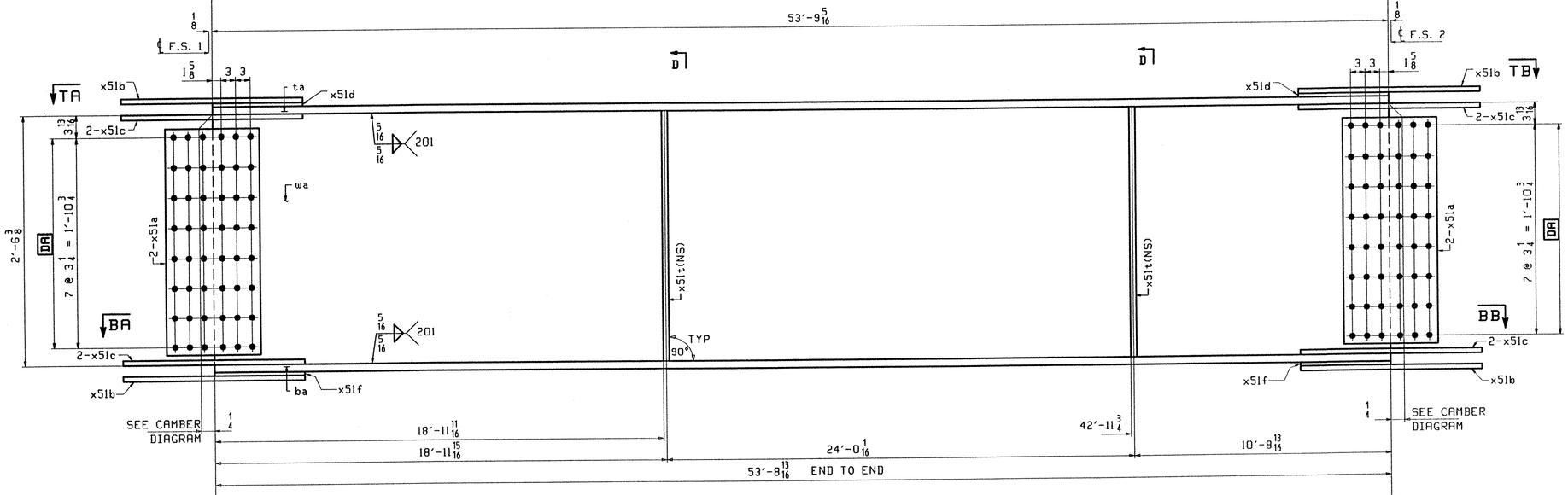
PHG Tue Mar 3 08:49:53 EST 2001 /users/jaw/2108-S/505 1 Rev0



VIEW - TA

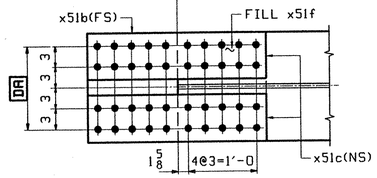


VIEW - TB

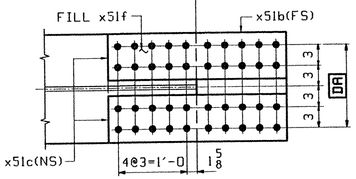


ONE - GIRDER - G1B

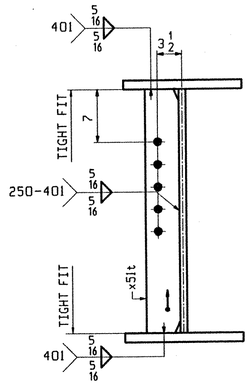
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C502.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



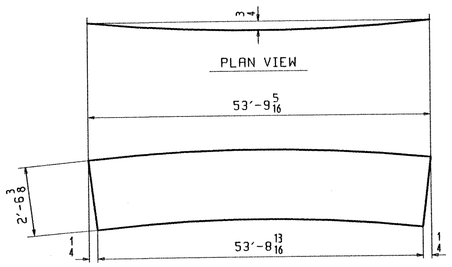
SECTION - BA



SECTION - BB



SECTION-D



DEV. CAMBER DIAGRAM
SEE DWG C502

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
									506	
		GIB	1		GIRDER				8964	
501	Z		1	wa	PL 1/2x30 3/8	53	9 5/16	(M270-50WT2) (H2-3)		
501	K		1	ta	PL 7/8x16	53	9 5/16	(M270-50WT2) (H2-3)		
501	K		1	ba	PL 7/8x16	53	8 13/16	(M270-50WT2) (H2-3)		
503	B		4	x51a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
503	C		4	x51b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)		
503	D		8	x51c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
503	F		2	x51d	PL 1/4x16	1	3 3/8	(M270-50W) FILL		
503	G		2	x51f	PL 5/16x16	1	3 3/8	(M270-50W) FILL		
503	M		2	x51t	PL 1/2x5	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review *do not* extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: PE W. SIT
DATE: 5/2/01

OUT FOR APPROVAL	4501											
OUT FOR APPROVAL												
ISSUED TO SHOP												
FIELD & OFFICE												
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER	

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

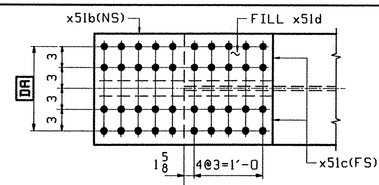
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G1B	DRAWN BY	DATE
JOB: BRIDGE NO. 50S I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	03/09/01
	CHKD BY	
	TRM	04/03/01
	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

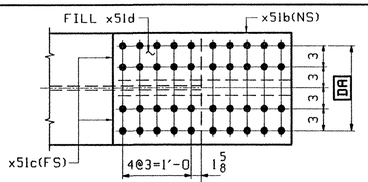
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-50S	506
	REV. △

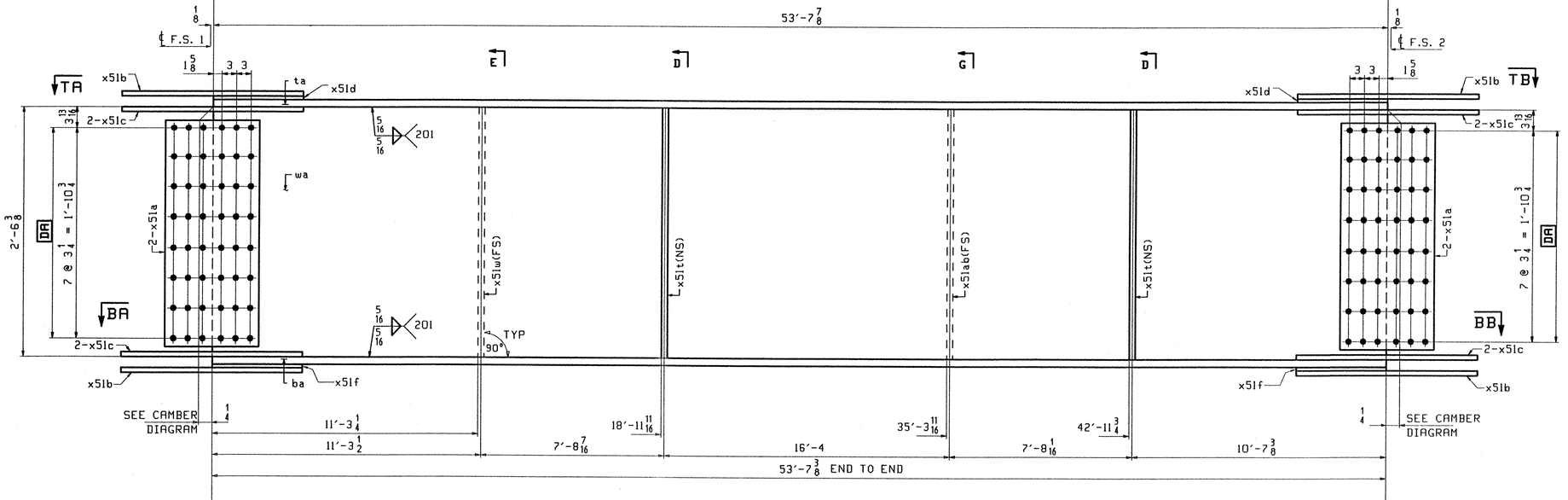
PHG Tue Apr 3 08:48:07 EDT 2001 /users/jobs/2108-S/50S : RevO



VIEW - TA

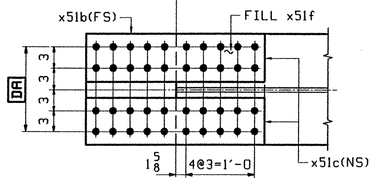


VIEW - TB

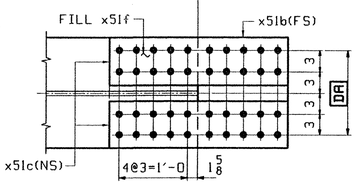


ONE - GIRDER - G2B

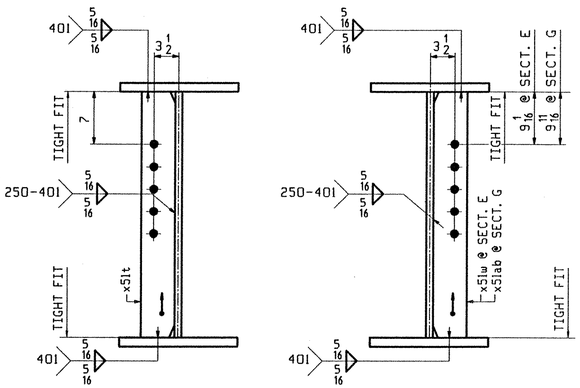
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C502.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



SECTION - BA

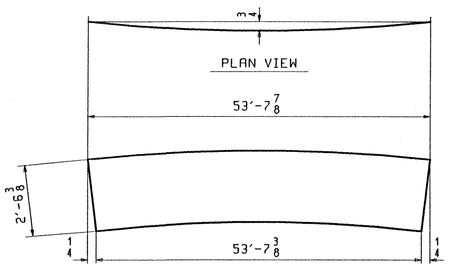


SECTION - BB



SECTION-D

SECTION-E&G



DEV. CAMBER DIAGRAM
SEE DWG C502

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									507		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G2B	1		GIRDER				8990		
501	Z		1	wa	PL 1/2x30 3/8	53	7 7/8	(M270-50WT2) (H2-3)			
501	K		1	ta	PL 7/8x16	53	7 7/8	(M270-50WT2) (H2-3)			
501	K		1	ba	PL 7/8x16	53	7 3/8	(M270-50WT2) (H2-3)			
503	B		4	x51a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)			
503	C		4	x51b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)			
503	D		8	x51c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)			
503	F		2	x51d	PL 1/4x16	1	3 3/8	(M270-50W) FILL			
503	G		2	x51f	PL 5/16x16	1	3 5/8	(M270-50W) FILL			
503	M		1	x51w	PL 1/2x5	2	6 3/8	(M270-50W)			
503	M		2	x51t	PL 1/2x5	2	6 3/8	(M270-50W)			
503	M		1	x51ab	PL 1/2x5	2	6 3/8	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature] 5/3/01
DATE:

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

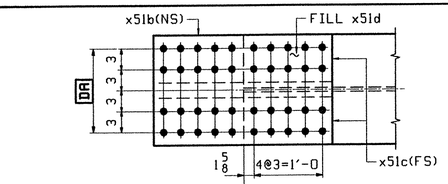
DESCRIPTION: GIRDER - G2B	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	03/09/01
	CHKD BY	
	TRM	04/03/01
	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2108-S

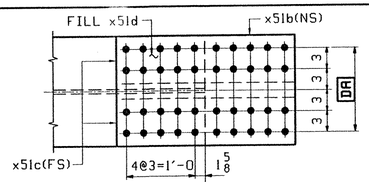
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-505	507
	REV. △

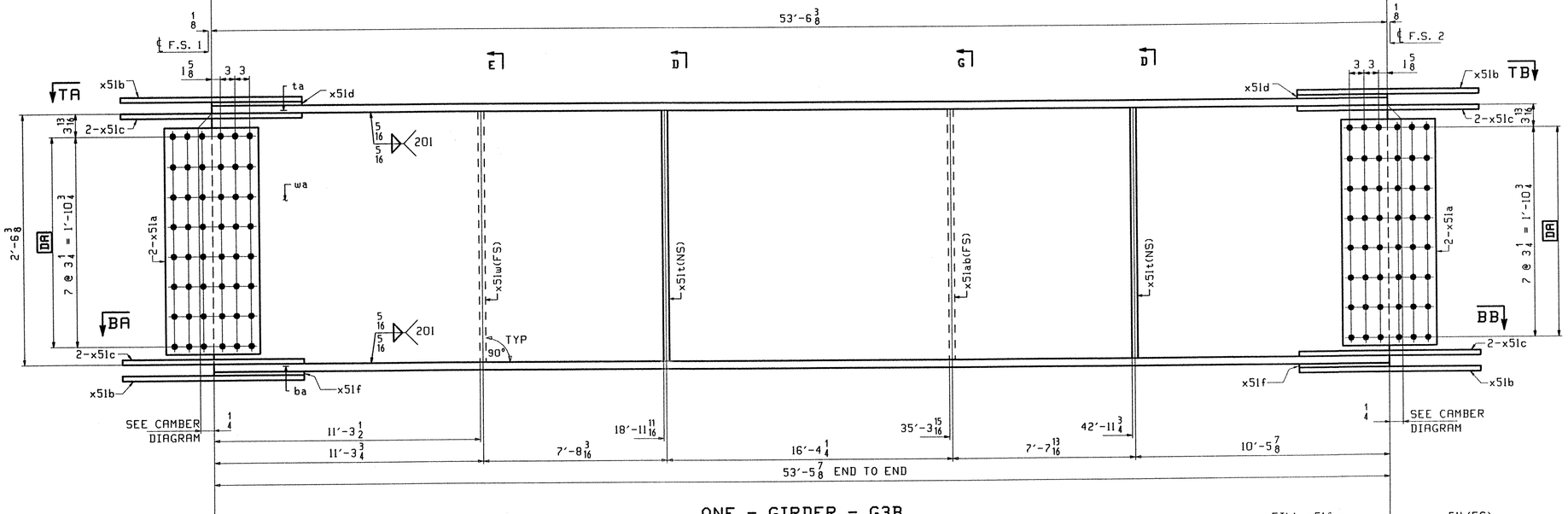
PHG Tue Apr 3 08:49:23 EST 2001 /users/jobs/2108-S/507.dwg



VIEW - TA

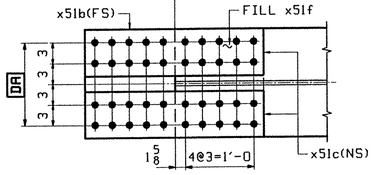


VIEW - TB

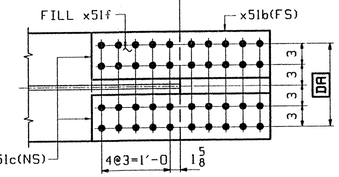


ONE - GIRDER - G3B

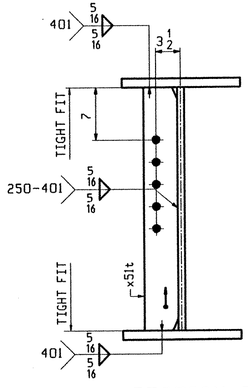
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C502.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



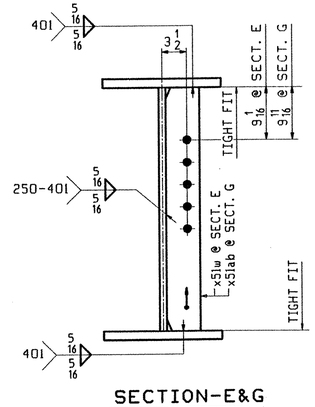
SECTION - BA



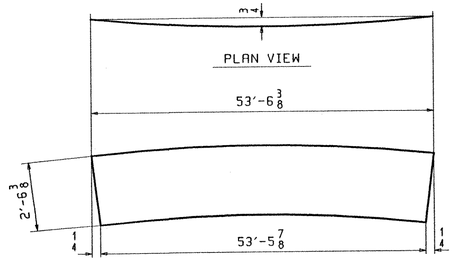
SECTION - BB



SECTION-D



SECTION-E&G



DEV. CAMBER DIAGRAM
SEE DWG C502

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									508		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G3B	1		GIRDER				9972		
502	A		1	wa	PL 1/2x30 3/8	53	6 3/8	(M270-50W,T2) (H2-3)			
501	M		1	ta	PL 7/8x16	53	6 3/8	(M270-50W,T2) (H2-3)			
501	M		1	ba	PL 7/8x16	53	5 7/8	(M270-50W,T2) (H2-3)			
503	B		4	x51a	PL 1/2x26 1/4	1	7	(M270-50W,T2) (H2-3)			
503	C		4	x51b	PL 5/8x16	2	7	(M270-50W,T2) (H2-3)			
503	D		8	x51c	PL 5/8x7	2	7	(M270-50W,T2) (H2-3)			
503	F		2	x51d	PL 1/4x16	1	3 3/8	(M270-50W) FILL			
503	G		2	x51f	PL 5/16x16	1	3 3/8	(M270-50W) FILL			
503	M		1	x51w	PL 1/2x5	2	6 3/8	(M270-50W)			
503	M		2	x51t	PL 1/2x5	2	6 3/8	(M270-50W)			
503	M		1	x51ab	PL 1/2x5	2	6 3/8	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pete W. Sutt
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	4-5-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3B

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-S

PROJ NO. IM-089-2(26)

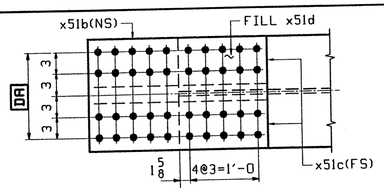
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	03/09/01
CHKD BY	
TRM	04/03/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

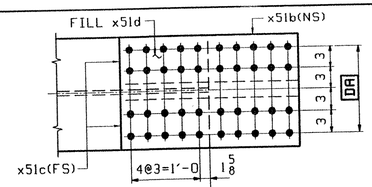
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-505	508
	REV. △

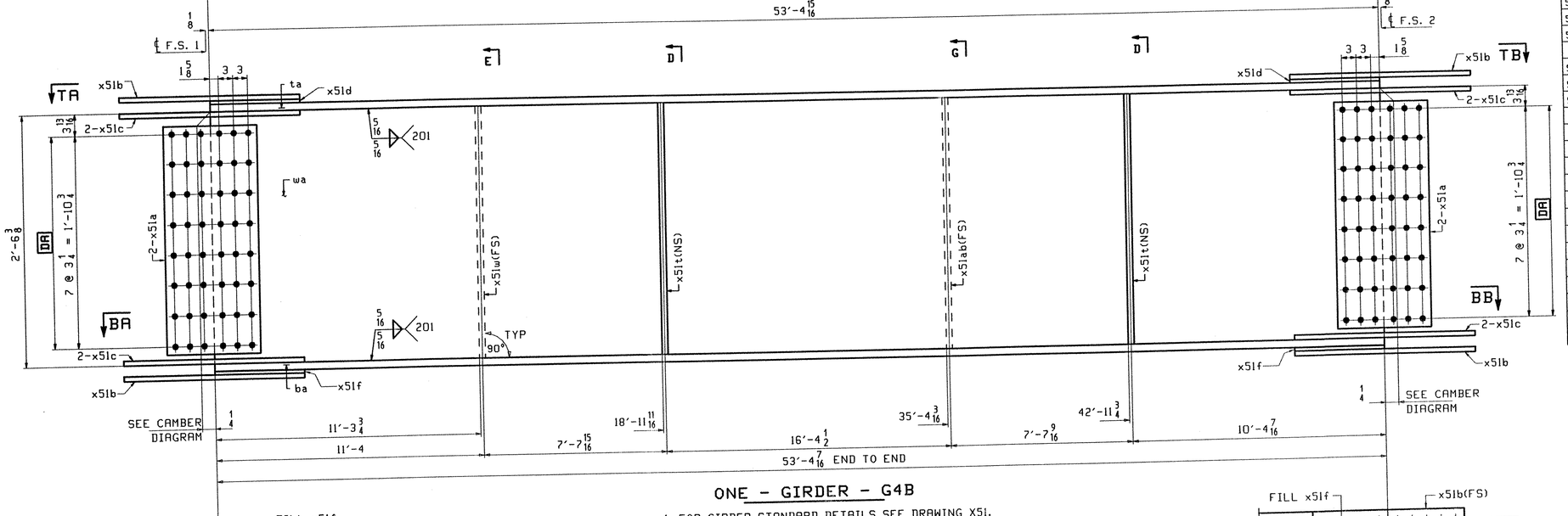
PHG Tue Apr 3 08:48:08 EDT 2001 /users/jobs/2108-s/508.1 Rev0



VIEW - TA

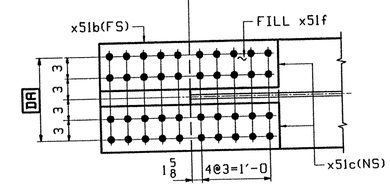


VIEW - TB

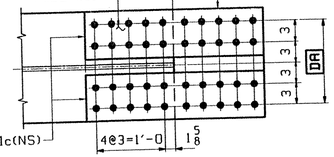


ONE - GIRDER - G4B

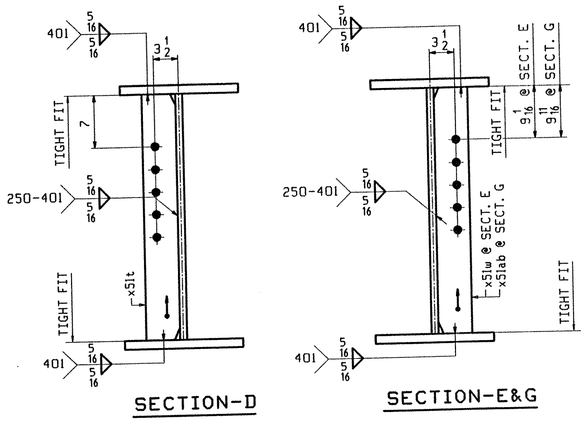
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C502.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



SECTION - BA

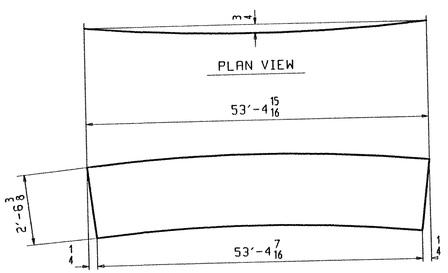


SECTION - BB



SECTION-D

SECTION-E&G



DEV. CAMBER DIAGRAM
SEE DWG C502

ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
									509	
		G4B	1		GIRDER				8954	
502	A		1	wa	PL 1/2x30 3/8	53	4 15/16	(M270-50WT2) (H2-3)		
501	M		1	ta	PL 7/8x16	53	4 15/16	(M270-50WT2) (H2-3)		
501	M		1	ba	PL 7/8x16	53	4 7/16	(M270-50WT2) (H2-3)		
503	B		4	x51a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
503	C		4	x51b	PL 3/8x16	2	7	(M270-50WT2) (H2-3)		
503	D		8	x51c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
503	F		2	x51d	PL 1/4x16	1	3 3/8	(M270-50W) FILL		
503	G		2	x51f	PL 5/16x16	1	3 3/8	(M270-50W) FILL		
503	M		1	x51w	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		2	x51t	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		1	x51ab	PL 1/2x5	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review neither extends to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: PHG
DATE: 5/3/01

OUT FOR APPROVAL	4-5-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

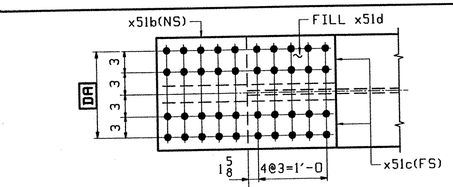
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4B	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	03/09
	CHKD BY	
	TRM	04/03/01
	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

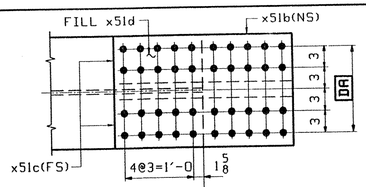
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-505	509
	REV. △

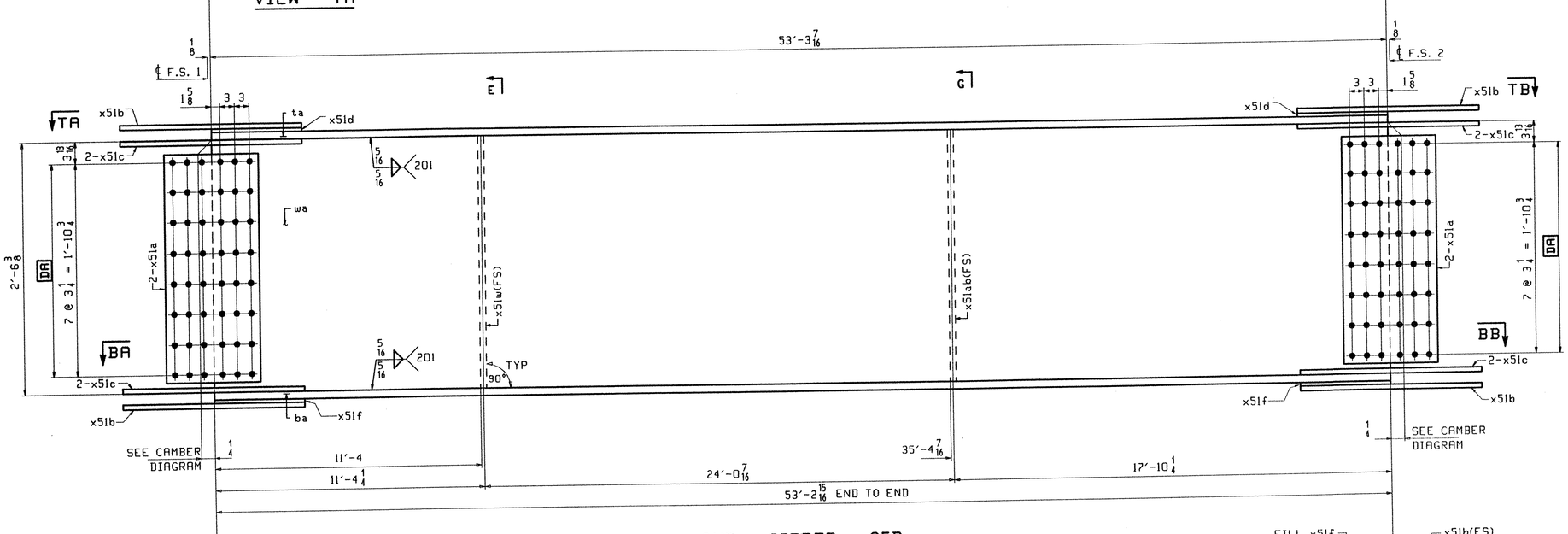
PHG Tue Mar 3 08:47:52 EST 2009 /users/jobs/2108-S/505 | Rev0

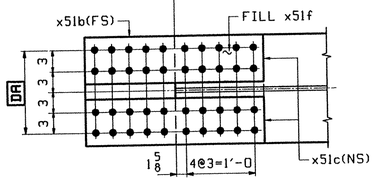


VIEW - TA

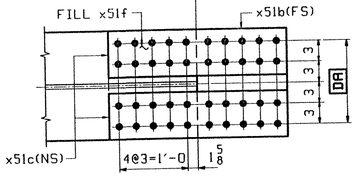


VIEW - TB





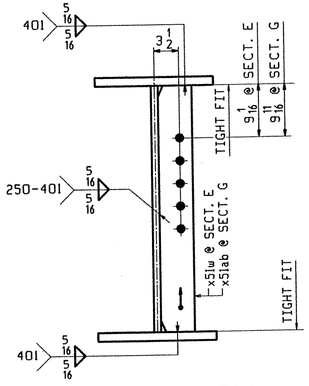
SECTION - BA



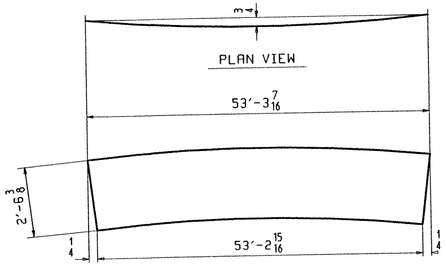
SECTION - BB

ONE - GIRDER - G5B

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C502.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



SECTION-E&G



DEV. CAMBER DIAGRAM
SEE DWG C502

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5B	1		GIRDER				8893	
502	C		1	wa	PL 1/2 x 30 3/8	53	3 7/16	(M270-50WT2) (H2-3)		
501	P		1	ta	PL 7/8 x 16	53	3 7/16	(M270-50WT2) (H2-3)		
501	P		1	ba	PL 7/8 x 16	53	2 15/16	(M270-50WT2) (H2-3)		
503	B		4	x51a	PL 1/2 x 26 1/4	1	7	(M270-50WT2) (H2-3)		
503	C		4	x51b	PL 5/8 x 16	2	7	(M270-50WT2) (H2-3)		
503	D		8	x51c	PL 5/8 x 7	2	7	(M270-50WT2) (H2-3)		
503	F		2	x51d	PL 1/4 x 16	1	3 3/8	(M270-50W) FILL		
503	G		2	x51f	PL 5/16 x 16	1	3 3/8	(M270-50W) FILL		
503	M		1	x51w	PL 1/2 x 5	2	6 3/8	(M270-50W)		
503	M		1	x51ab	PL 1/2 x 5	2	6 3/8	(M270-50W)		

JOB NO. | DRAWING NO. 510 | REV.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Sit
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4501									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

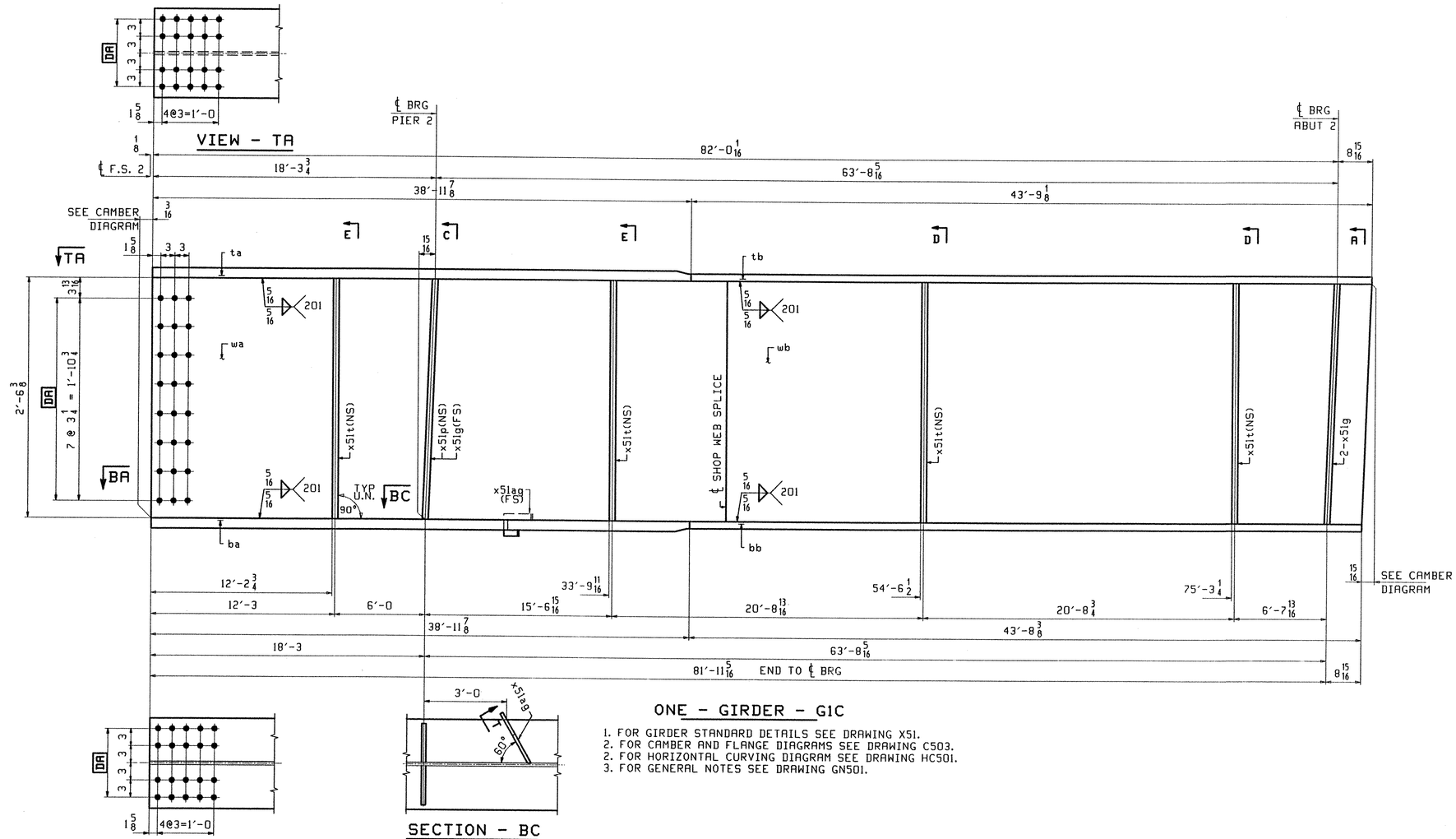
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5B	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	03/09/01
	CHKD BY	
	TRM	04/03/01
	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

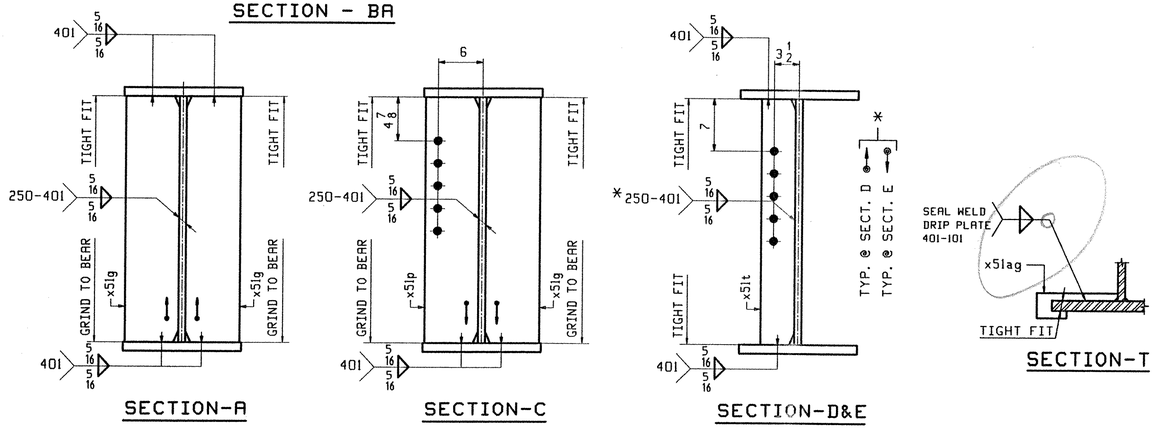
JOB NO.	DRG. NO.
122-505	510
	REV. △

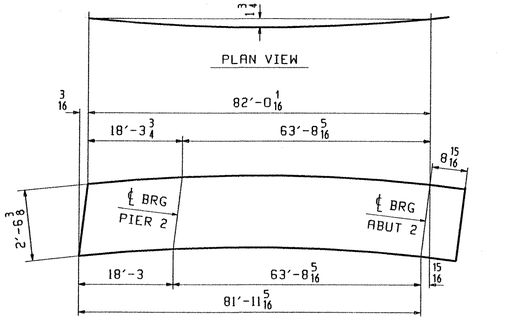
PHG Tue Apr 3 08:38:18 CDT 2001 /users/jobs/2108-S/510 : Rev0



ONE - GIRDER - G1C

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C503.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.





ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO.	DRAWING NO.		REV.
									511		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES	
		GIC	1		GIRDER				13675		
502	N		1	wa	PL 1/2×30 3/8	41	4 7/8	(M270-50W12) (H2-3)			
502	J		1	wb	PL 1/2×30 3/8	41	4 5/16	(M270-50W12) (H2-3)			
501	H		1	ta	PL 1 1/16×16	38	11 7/8	(M270-50W12) (H2-3)			
501	V		1	tb	PL 7/8×16	43	9 1/8	(M270-50W12) (H2-3)			
501	D		1	ba	PL 1 3/16×16	38	11 7/8	(M270-50W12) (H2-3)			
501	V		1	bb	PL 7/8×16	43	8 3/8	(M270-50W12) (H2-3)			
503	M		4	x51t	PL 1/2×5	2	6 3/8	(M270-50W)			
503	K		1	x51p	PL 7/8×7 3/4	2	6 3/8	(M270-50W)			
503	K		3	x51g	PL 7/8×7 3/4	2	6 3/8	(M270-50W)			
503	P		1	x51ag	PL 1/4×3 3/16	0	10 15/16	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

NO EXCEPTIONS TAKEN ☐ REJECTED
FURNISH AS CORRECTED
REVISE AND RESUBMIT

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BY: DE W. St
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

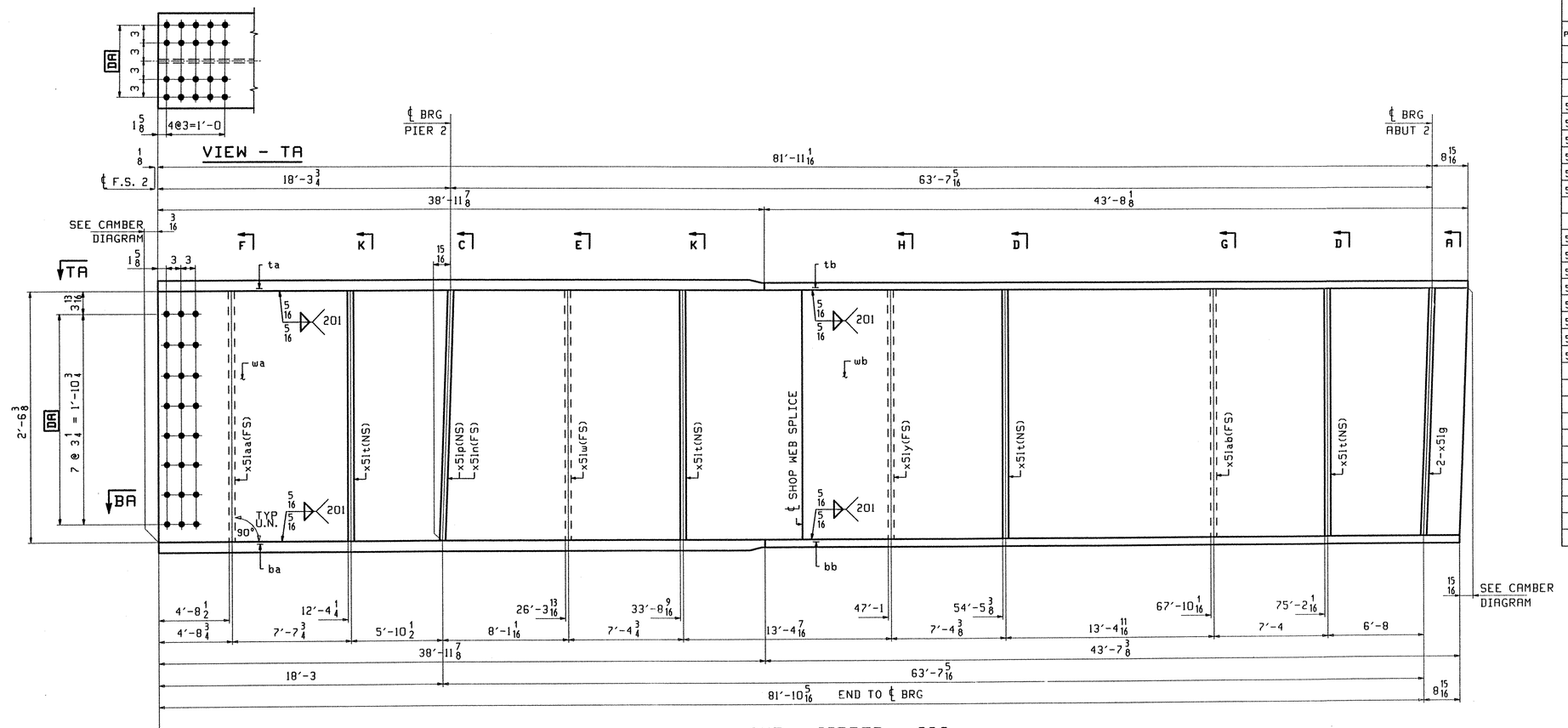
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G1C	DRAWN BY	DATE
JOB: BRIDGE NO. 505	PHG	03/09/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

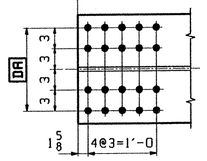
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

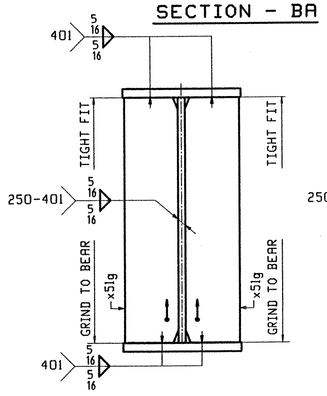
JOB NO.	DRG. NO.
122-505	511
	REV. △

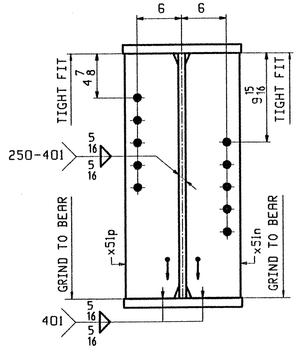
PHG Tue Mar 3 08:58:22 CST 2021 /users/jobs/2108-S/511.dgn

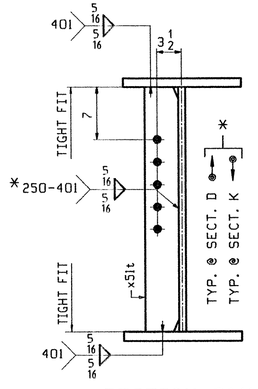


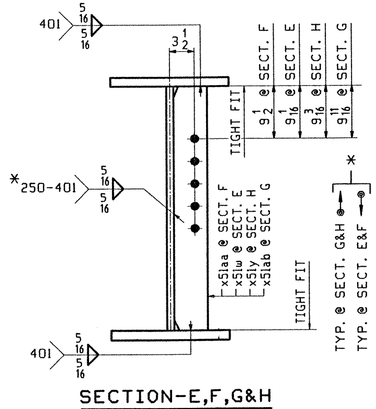
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C503.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.

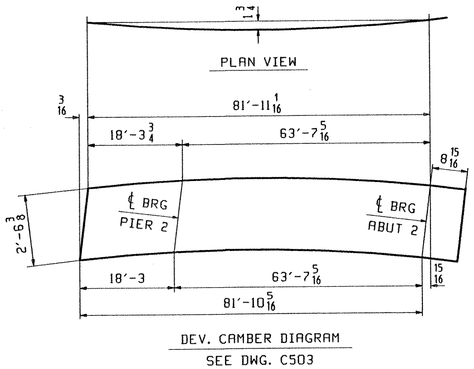












DEV. CAMBER DIAGRAM
SEE DWG. C503

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
					BILL OF MATERIAL			JOB NO.	DRAWING NO. 512	REV.
		G2C	1		GIRDER				13746	
502	N		1	wa	PL 1/2×30 3/8	41	4 7/8	(M270-50WT2) (M2-3)		
502	J		1	wb	PL 1/2×30 3/8	41	3 5/16	(M270-50WT2) (M2-3)		
501	H		1	ta	PL 1 1/8×16	38	11 7/8	(M270-50WT2) (M2-3)		
501	V		1	tb	PL 7/8×16	43	8 1/8	(M270-50WT2) (M2-3)		
501	D		1	ba	PL 1 3/16×16	38	11 7/8	(M270-50WT2) (M2-3)		
501	V		1	bb	PL 7/8×16	43	7 3/8	(M270-50WT2) (M2-3)		
503	M		1	x51aa	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		4	x51t	PL 1/2×5	2	6 3/8	(M270-50W)		
503	K		1	x51p	PL 7/8×7 3/4	2	6 3/8	(M270-50W)		
503	K		1	x51n	PL 7/8×7 3/4	2	6 3/8	(M270-50W)		
503	M		1	x51w	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		1	x51y	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		1	x51ab	PL 1/2×5	2	6 3/8	(M270-50W)		
503	K		2	x51g	PL 7/8×7 3/4	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review by ENGINEER shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site. For information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pat W. Gatti
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	4-5-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

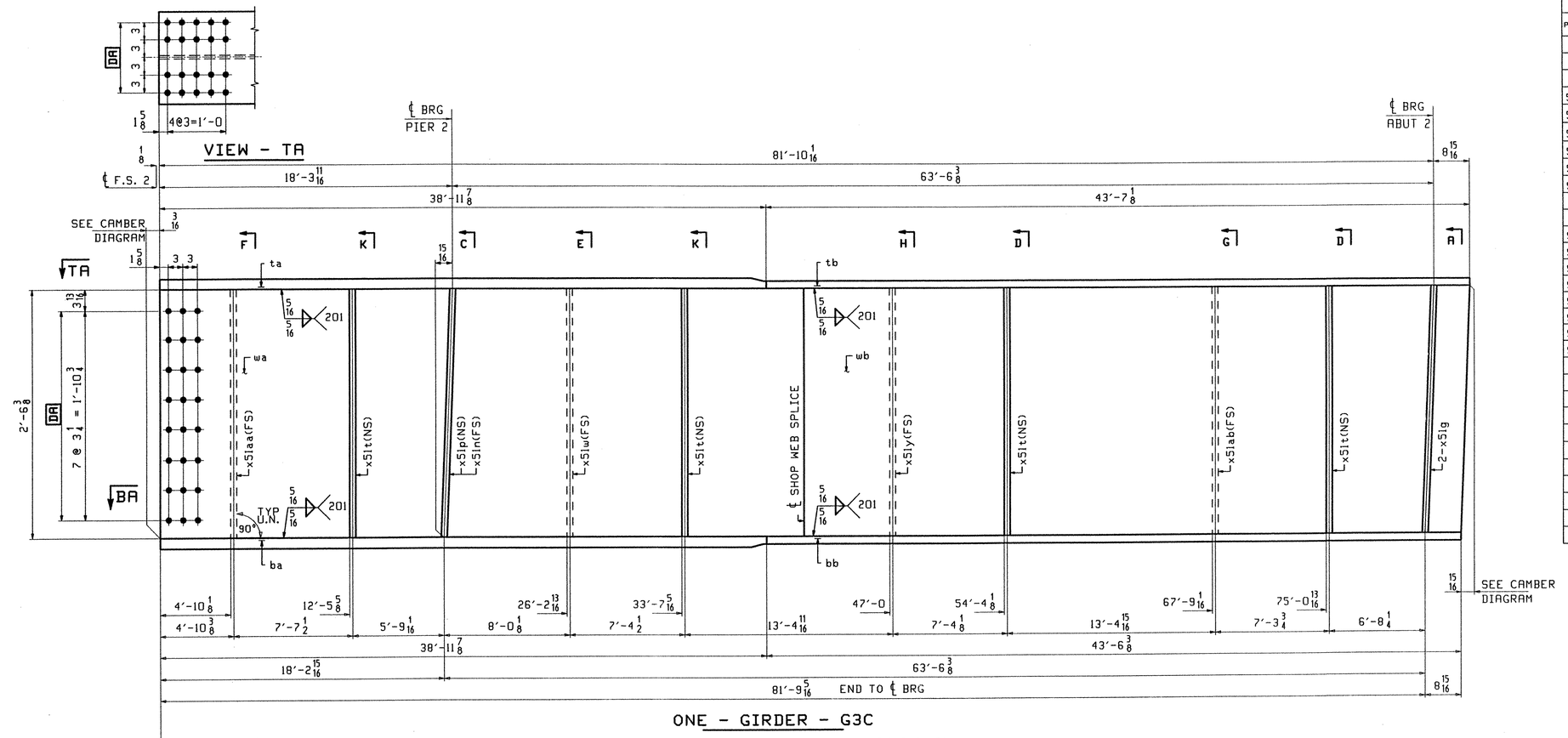
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2C	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	03/09/01
	CHKD BY	
	TRM	04/03/01
	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

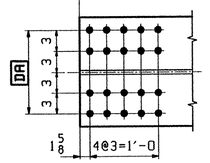
JOB NO.	DRG. NO.
122-505	512
	REV. △

PHG Tue Apr 3 09:05:53 EST 2001 /users/jobs/2108-S/512 | Rev:0

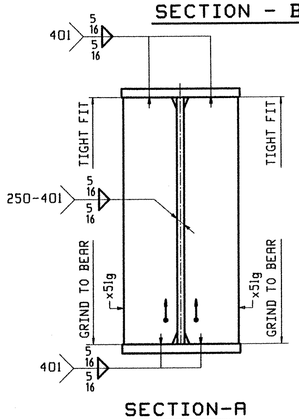


ONE - GIRDER - G3C

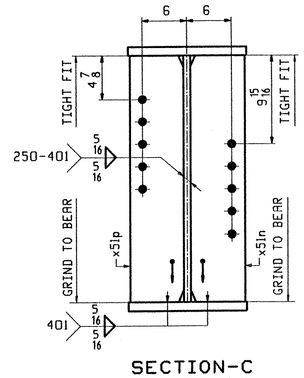
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C503.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



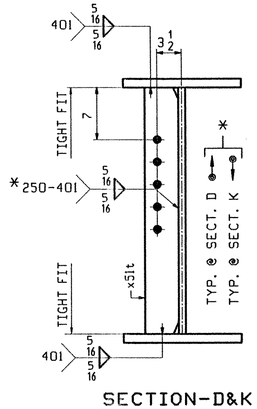
SECTION - BA



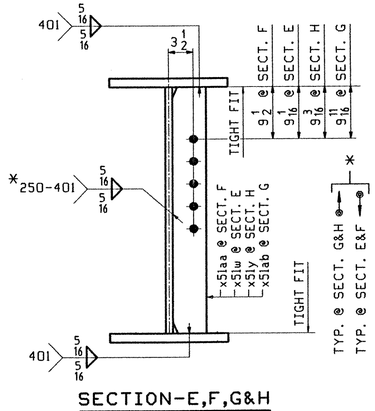
SECTION-A



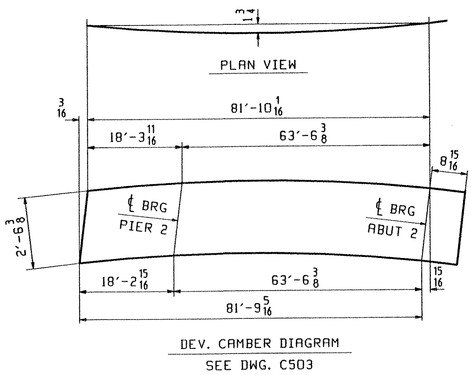
SECTION-C



SECTION-D&K



SECTION-E,F,G&H



DEV. CAMBER DIAGRAM
SEE DWG. C503

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3C	1		GIRDER				13734	
502	N		1	wa	PL 1/2x30 3/8	41	4 7/8	(M270-50WT2) (H2-3)		
502	J		1	wb	PL 1/2x30 3/8	41	2 5/16	(M270-50WT2) (H2-3)		
501	H		1	ta	PL 1 1/8x16	38	11 7/8	(M270-50WT2) (H2-3)		
501	V		1	tb	PL 7/8x16	43	7 1/8	(M270-50WT2) (H2-3)		
501	D		1	ba	PL 1 3/16x16	38	11 7/8	(M270-50WT2) (H2-3)		
501	X		1	bb	PL 7/8x16	43	6 3/8	(M270-50WT2) (H2-3)		
503	M		1	x5laa	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		4	x5lt	PL 1/2x5	2	6 3/8	(M270-50W)		
503	K		1	x5lp	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
503	K		1	x5ln	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
503	M		1	x5lw	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		1	x5ly	PL 1/2x5	2	6 3/8	(M270-50W)		
503	M		1	x5lab	PL 1/2x5	2	6 3/8	(M270-50W)		
503	K		2	x5lg	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		

JOB NO. | DRAWING NO. 513 | REV.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning unit as indicated in the Contract Documents. Shop review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.
BY: Peter W. Gatti
DATE 5/3/01

OUT FOR APPROVAL	4-5-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										

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

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PRINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3C

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT
TENSOR 2108-5

PROJ NO. IM-089-2(26)

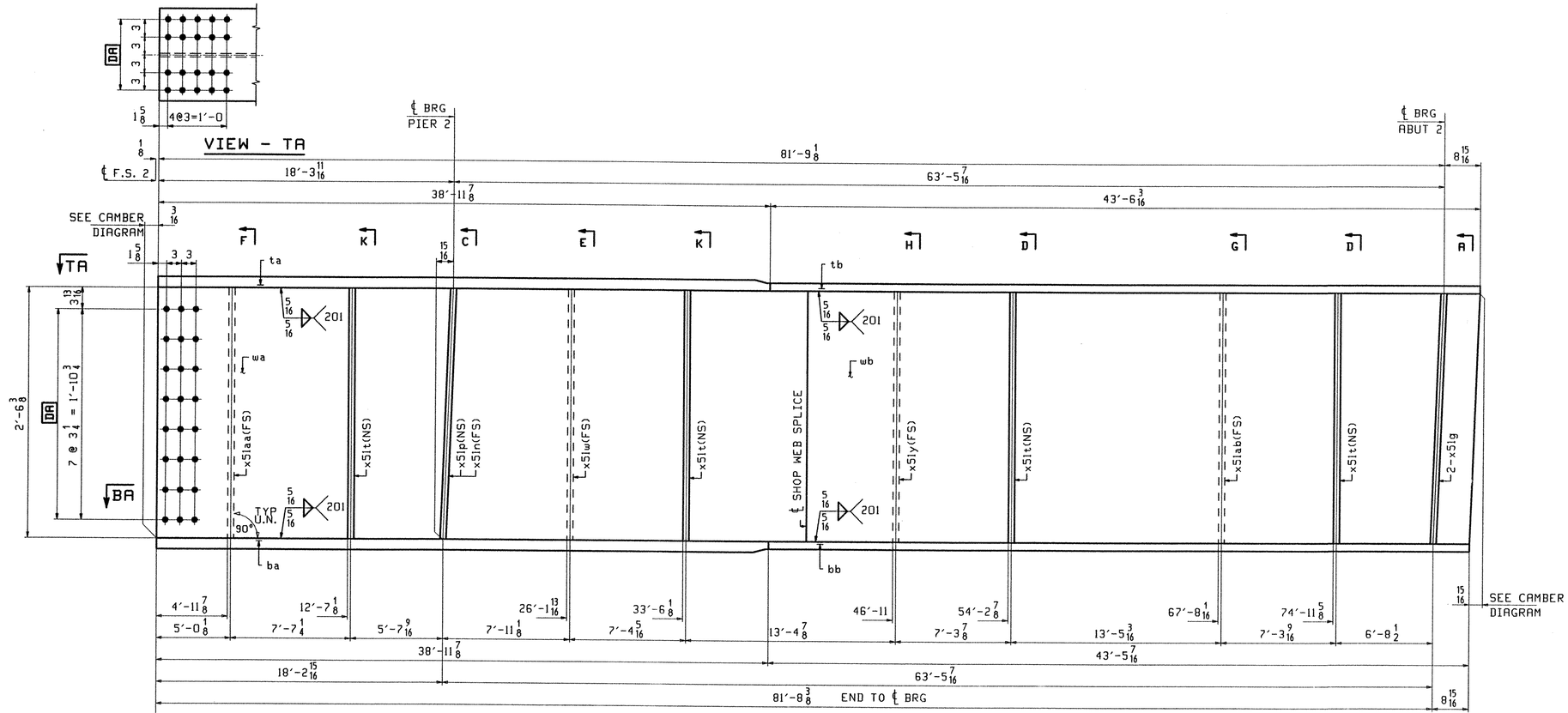
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	03/09/01
CHKD BY	
TRM	04/03/01
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

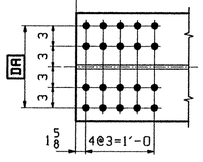
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
122-505	513
	REV. △

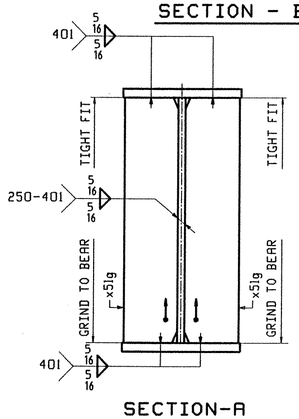
PHG Tue Mar 3 09:04:28 EST 2001 /users/jobs/2108-5/513.1 Rev=0



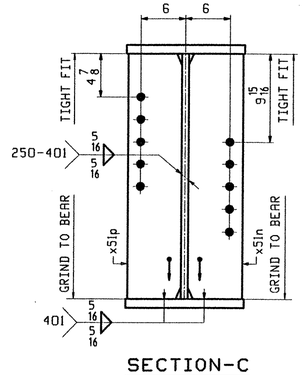
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X5I.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C503.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC50I.
3. FOR GENERAL NOTES SEE DRAWING GN50I.



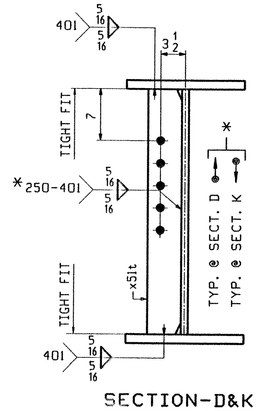
SECTION - BA



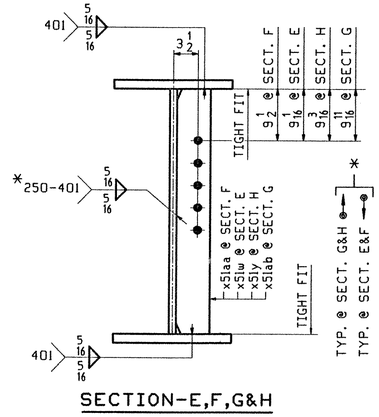
SECTION-A



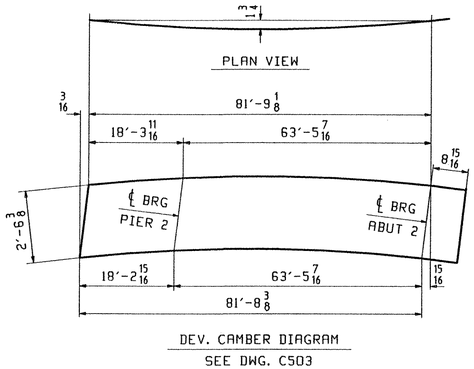
SECTION-C



SECTION-D&K



SECTION-E,F,G&H



DEV. CAMBER DIAGRAM
SEE DWG. C503

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									514	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4C	1		GIRDER				13723	
502	N		1	wa	PL 1/2×30 3/8	41	4 7/8	(M270-50W12) (W2-3)		
502	L		1	wb	PL 1/2×30 3/8	41	1 3/8	(M270-50W12) (W2-3)		
501	H		1	ta	PL 1 1/8×16	38	11 7/8	(M270-50W12) (W2-3)		
501	X		1	tb	PL 7/8×16	43	6 3/16	(M270-50W12) (W2-3)		
501	D		1	ba	PL 1 1/8×16	38	11 7/8	(M270-50W12) (W2-3)		
501	X		1	bb	PL 7/8×16	43	5 7/16	(M270-50W12) (W2-3)		
503	M		1	x5laa	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		4	x5lt	PL 1/2×5	2	6 3/8	(M270-50W)		
503	K		1	x5lp	PL 7/8×7 3/4	2	6 3/8	(M270-50W)		
503	K		1	x5ln	PL 7/8×7 3/4	2	6 3/8	(M270-50W)		
503	M		1	x5lw	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		1	x5ly	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		1	x5lab	PL 1/2×5	2	6 3/8	(M270-50W)		
503	K		2	x5lg	PL 7/8×7 3/4	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 3/3/01

OUT FOR APPROVAL	4.5.01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

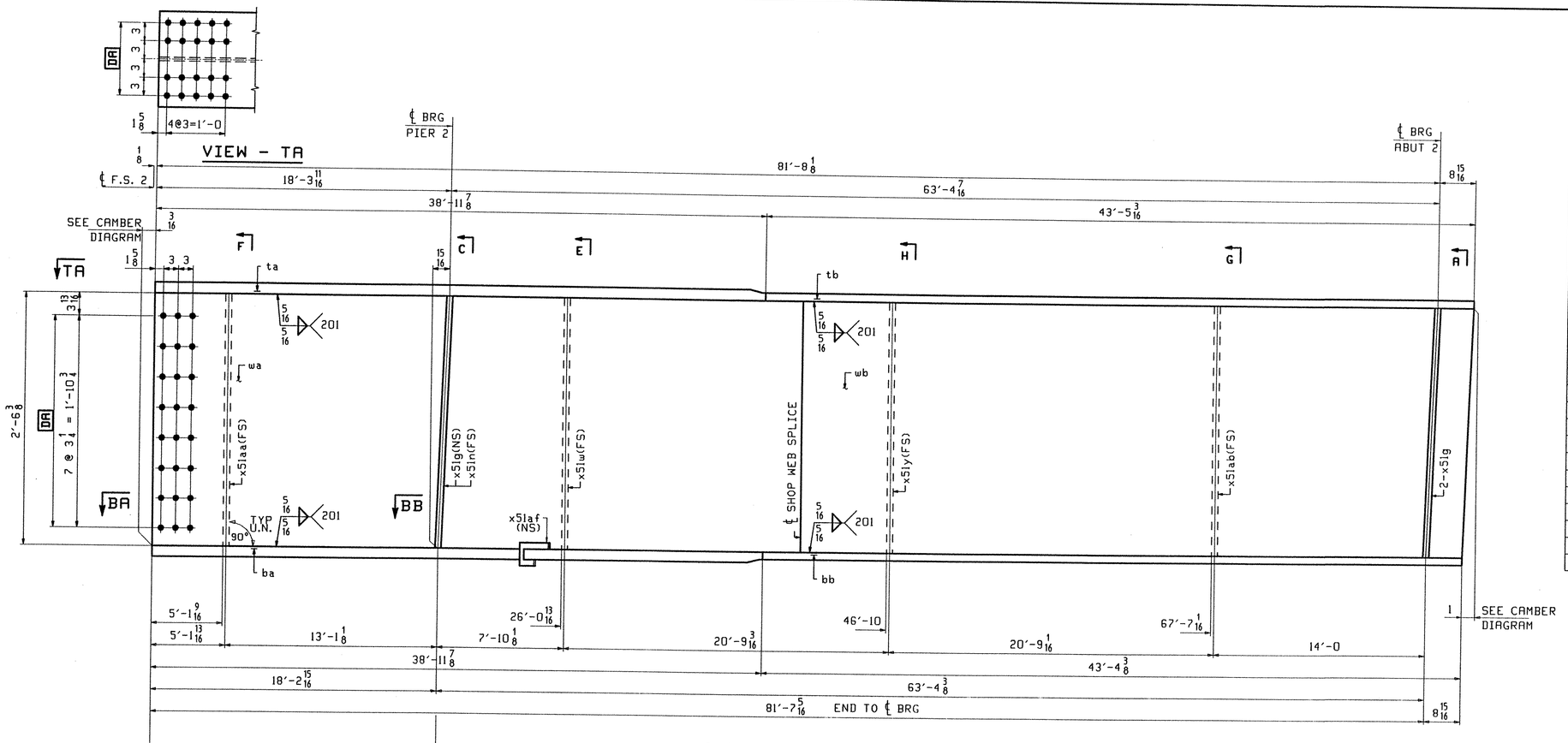
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4C	DRAWN BY	DATE
JOB: BRIDGE NO. 505	PHG	03/09/01
I-89 SB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	TRM	04/03/01
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

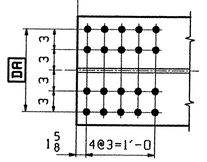
JOB NO.	DRG. NO.
122-505	514
	REV. △

PHG Tue Mar 3 08:11:47 EST 2001 /users/jobs/2108-S/514.dgn Rev:0

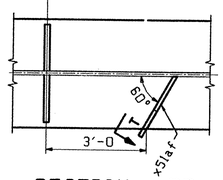


ONE - GIRDER - G5C

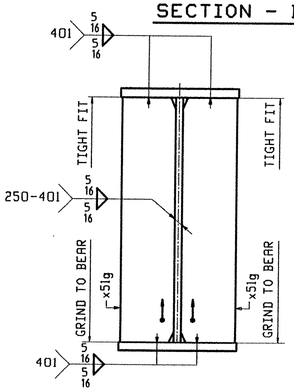
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X51.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C503.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC501.
3. FOR GENERAL NOTES SEE DRAWING GN501.



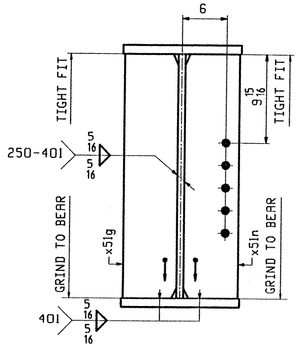
SECTION - BA



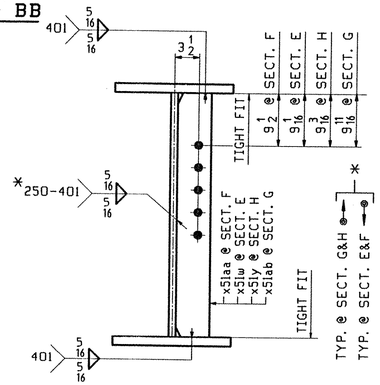
SECTION - BB



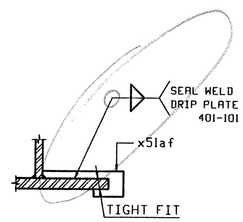
SECTION-A



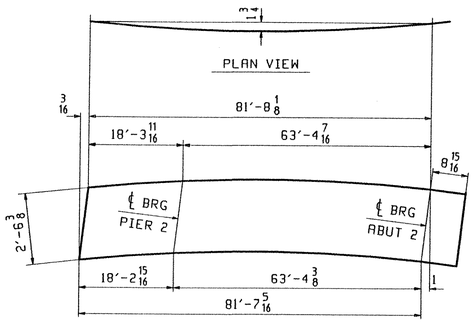
SECTION-C



SECTION-E,F,G&H



SECTION-T



DEV. CAMBER DIAGRAM
SEE DWG. C503

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5C	1		GIRDER				13626	
502	N		1	wa	PL 1/2×30 3/8	41	4 7/8	(M270-50WT2) (H2-3)		
502	L		1	wb	PL 1/2×30 3/8	41	0 3/8	(M270-50WT2) (H2-3)		
501	H		1	ta	PL 1 1/8×16	38	11 7/8	(M270-50WT2) (H2-3)		
501	X		1	tb	PL 7/8×16	43	5 3/16	(M270-50WT2) (H2-3)		
501	D		1	ba	PL 1 1/8×16	38	11 7/8	(M270-50WT2) (H2-3)		
501	X		1	bb	PL 7/8×16	43	4 3/8	(M270-50WT2) (H2-3)		
503	M		1	x51aa	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		1	x51w	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		1	x51y	PL 1/2×5	2	6 3/8	(M270-50W)		
503	M		1	x51ab	PL 1/2×5	2	6 3/8	(M270-50W)		
503	K		3	x51g	PL 7/8×7 3/4	2	6 3/8	(M270-50W)		
503	K		1	x51n	PL 7/8×7 1/2	2	6 3/8	(M270-50W)		
503	P		1	x51af	PL 1/4×3 3/16	0	10 15/16	(M270-50W)		

BILL OF MATERIAL — JOB NO. — DRAWING NO. 515 — REV.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Smith
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	4/5/01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ∅ (UN)
SHOP BOLTS: 7/8 ∅ (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5C

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-S

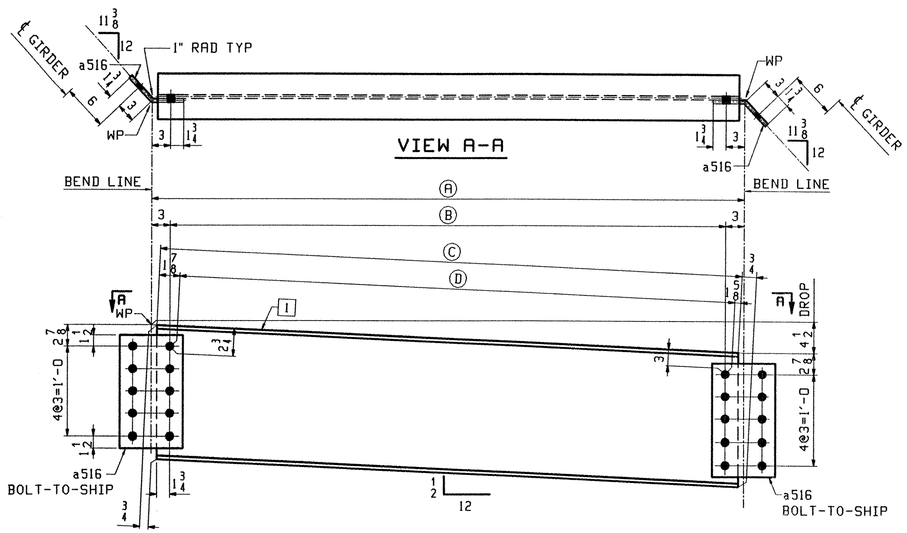
PROJ NO. IM-089-2(26)
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	PHG
DATE	03/10/01
CHKD BY	
TRM	04/03/01
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
122-505	515
	REV. △

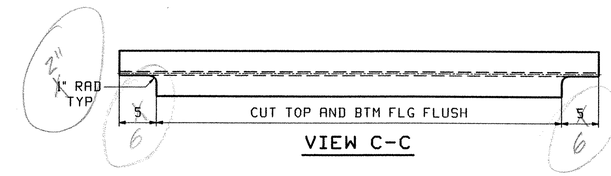
PWG Tue Apr 3 09:55:54 EST 2001 /users/jobs/2108-S/515.1.dwg

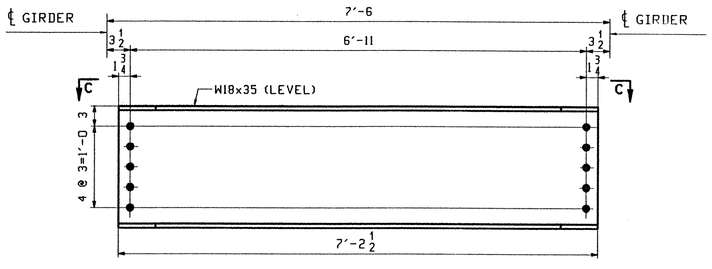


ABUT DIAPHRAGMS

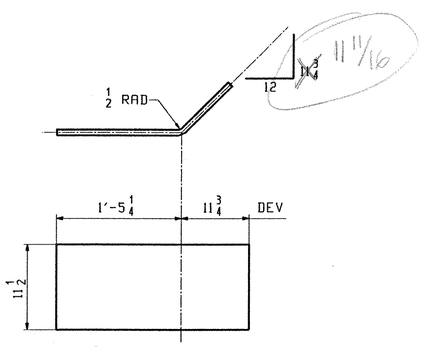
PAINTED SEE GN501

MARK	REQ'D	Ⓐ	Ⓑ	Ⓒ	Ⓓ	I
516D1	1	8'-8 3/4	8'-2 3/4	8'-6 5/16	8'-2 13/16	b516
516D2	1	8'-8 5/8	8'-2 5/8	8'-6 3/16	8'-2 11/16	c516
516D3	1	8'-8 7/16	8'-2 7/16	8'-6	8'-2 1/2	d516
516D4	1	8'-8 5/16	8'-2 5/16	8'-5 7/8	8'-2 3/8	f516





40 ~ INT. DIAPHRAGMS ~ 516D5



5 ~ END PLATES ~ 516M1

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		516D1	1		ABUT DIAPHRAGM				341	
504	C		1	b516	W 18x35	8	7 1/16			
504	E		2	a516	PL 1/2x15	0	9 1/2	BENT		
		516D2	1		ABUT DIAPHRAGM				341	
504	C		1	c516	W 18x35	8	6 15/16			
504	E		2	a516	PL 1/2x15	0	9 1/2	BENT		
		516D3	1		ABUT DIAPHRAGM				340	
504	C		1	d516	W 18x35	8	6 3/4			
504	E		2	a516	PL 1/2x15	0	9 1/2	BENT		
		516D4	1		ABUT DIAPHRAGM				340	
504	C		1	f516	W 18x35	8	6 5/8			
504	E		2	a516	PL 1/2x15	0	9 1/2	BENT		
					INT. DIAPHRAGMS					
504	B	516D5	40		W 18x35	7	2 1/2		252	
					END PLATES					
504	H	516M1	5		PL 1/4x11 1/2	2	5	BENT	24	

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences, procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.
BY: Pete W. Scott
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	4-5-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

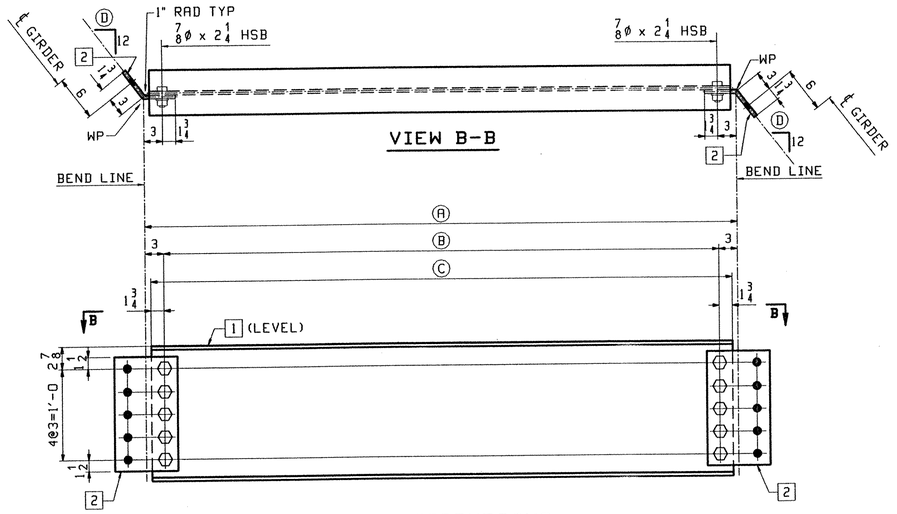
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: DIAPHRAGMS	DRAWN BY	DATE
JOB: BRIDGE NO. 505 I-89 SB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	PHG	03/10/01
	CHKD BY	
	TRM	04/03/01
	APPROV BY	
TENSOR 2108-S	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
122-505	516
	REV. △

PHG Tue Mar 3 08:37:11 CST 2001 /users/jobs/2108-S/516 : Rev0



PIER DIAPHRAGMS

MARK	REQ'D	Ⓐ	Ⓑ	Ⓒ	Ⓓ	1	2	
517D1	1	9'-9 9/16	9'-3 9/16	9'-7 1/16	9 5/16	a517	m517	PIER 1
517D2	1	9'-9 3/8	9'-3 3/8	9'-6 7/8	9 5/16	b517	m517	PIER 1
517D3	1	9'-9 3/16	9'-3 3/16	9'-6 11/16	9 5/16	c517	m517	PIER 1
517D4	1	9'-9	9'-3	9'-6 1/2	9 5/16	d517	m517	PIER 1
517D5	1	9'-7 5/16	9'-1 5/16	9'-4 13/16	9 5/8	f517	n517	PIER 2
517D6	1	9'-7 1/8	9'-1 1/8	9'-4 5/8	9 5/8	g517	n517	PIER 2
517D7	1	9'-6 15/16	9'-0 15/16	9'-4 7/16	9 5/8	h517	n517	PIER 2
517D8	1	9'-6 3/4	9'-0 3/4	9'-4 1/4	9 5/8	k517	n517	PIER 2

PHG Tue Apr 3 09:58:50 EDT 2001 /users/jobs/2108-5/517 : Rev0

BILL OF MATERIAL

JOB NO. | DRAWING NO. 517 | REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		517D7	1		PIER DIAPHRAGMS				372	
504	D		1	h517	W 18x35	9	4 7/16			
504	E		2	n517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		
		517D8	1		PIER DIAPHRAGMS				372	
504	D		1	k517	W 18x35	9	4 1/4			
504	E		2	n517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		
					FIELD BOLTS				754	
								2% ADDED +3 FOR TEST		
506	C		411		7/8 ø HSB	0	2 1/4	(A325-3)		
506	E		85		7/8 ø HSB	0	2 1/4	(A325-3)		
506	F		493		7/8 ø HSB	0	3	(A325-3)		
506	H		819		7/8 ø HSB	0	3 1/2	(A325-3)		
506	L		1808		7/8 ø HSW			(F436W)		
506	P		45		7/8 ø HSB	0	2 1/4	(A325-1) GALV.		
506	R		45		7/8 ø HSB	0	2 3/4	(A325-1) GALV.		
506	T		90		7/8 ø HSW			(F436) GALV.		

BILL OF MATERIAL

JOB NO. | DRAWING NO. 517 | REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		517D1	1		PIER DIAPHRAGMS				380	
504	D		1	a517	W 18x35	9	7 1/16			
504	E		2	m517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		
		517D2	1		PIER DIAPHRAGMS				379	
504	D		1	b517	W 18x35	9	6 5/8			
504	E		2	m517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		
		517D3	1		PIER DIAPHRAGMS				379	
504	D		1	c517	W 18x35	9	6 11/16			
504	E		2	m517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		
		517D4	1		PIER DIAPHRAGMS				378	
504	D		1	d517	W 18x35	9	6 1/2			
504	E		2	m517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		
		517D5	1		PIER DIAPHRAGMS				373	
504	D		1	f517	W 18x35	9	4 13/16			
504	E		2	n517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		
		517D6	1		PIER DIAPHRAGMS				373	
504	D		1	g517	W 18x35	9	4 5/8			
504	E		2	n517	PL 1/2x15	0	9 1/2	BENT		
505	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
505	H		10		7/8 ø HSW			(F436W)		

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Sanborn
DATE: 5/3/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	4-5-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W
ELECTRODES:
HOLES: 15/16 ø (UN)
SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PRINT:
-STEEL WITHIN 10'-0 OF ABUT 1 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: PIER DIAPHRAGMS

JOB: BRIDGE NO. 505
I-89 SB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-5

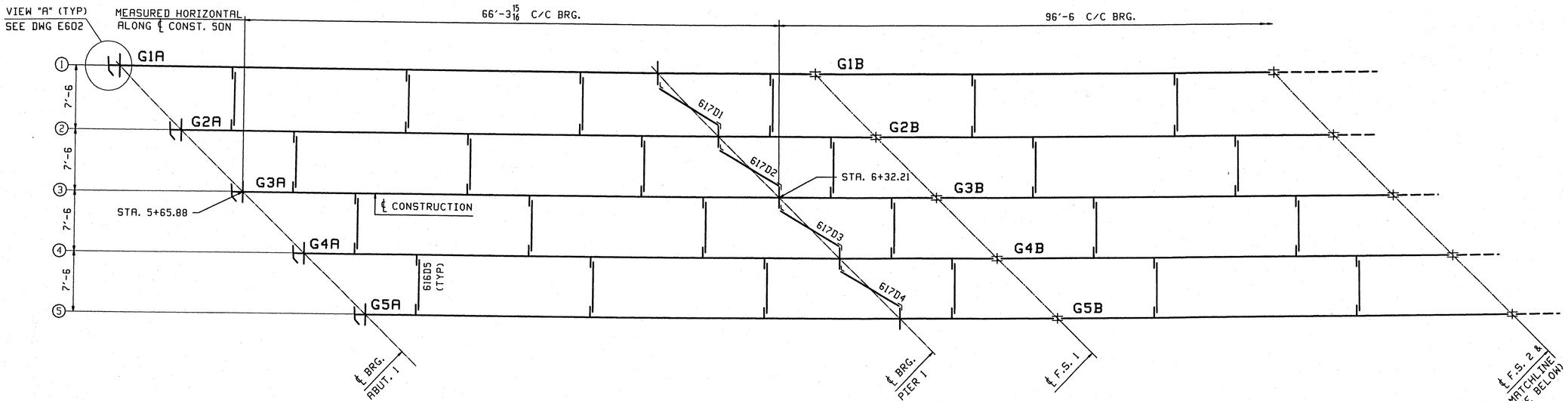
PROJ NO. IM-089-2(26)

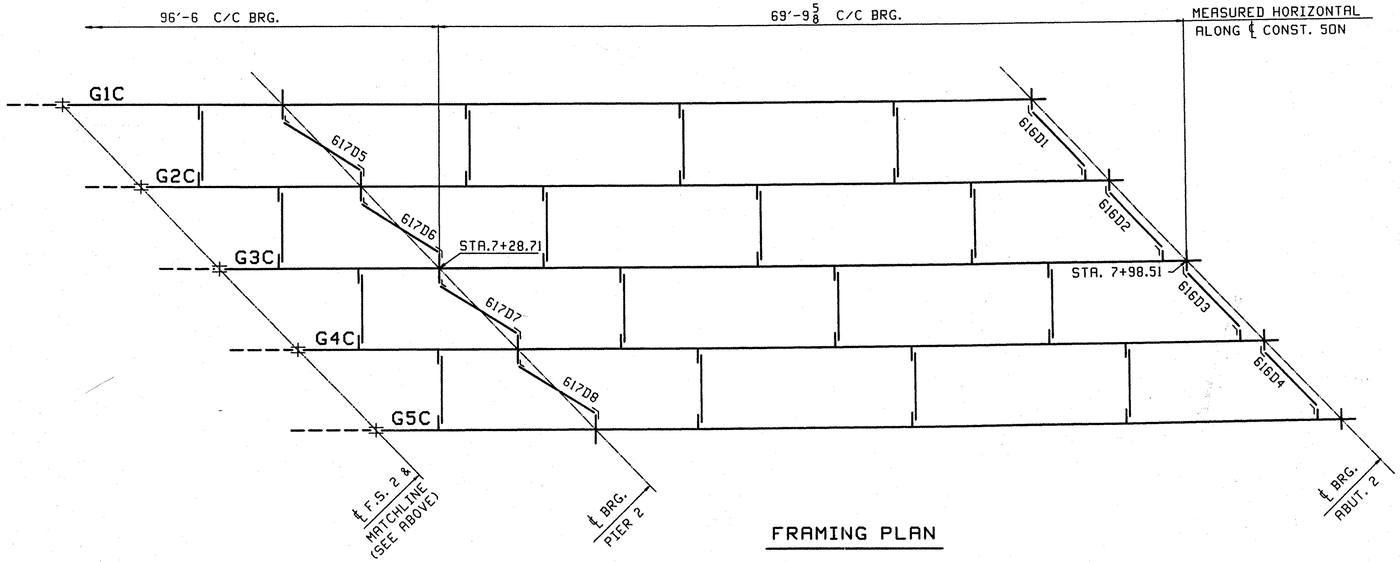
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
PHG	03/10/01
CHKD BY	
TRM	04/03/01
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
122-505	517
	REV. △





FRAMING PLAN

N

WORK THIS DWG WITH DWG E602

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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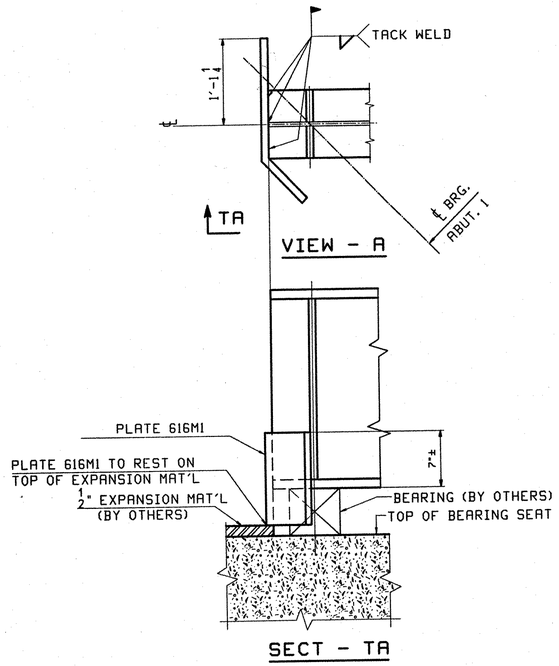
BY: MMH
DATE: 01-16-2002

DESCRIPTION:	FRAMING PLAN	DRAWN BY	DATE
JOB:	BRIDGE NO. 5ON	BW	09/25
	I-89 NB OVER U.S. ROUTE 2	CHKD BY	
	I-89 IMPROVEMENTS	DO	10/1
TENSOR 2108-N	TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
123-5ON	E601
	REV. △

BW Thu Oct 4 08:08:15 EDT 2001 /users/jobs/2108-N/E601.1 Rev0



FIELD BOLT LIST							A325 Type 3 BOLTS							
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
1														FIELD SPLICES
2														F.S. 1
3	200	7/8	4	40	5	2 1/2	5/8	1 1/4	5/8				1	TOP FLG SPLICE
4	240	7/8	3	48	5	1 1/2	1/2	1/2	1/2				1	WEB SPLICE
5	200	7/8	4	40	5	2 1/2	5/8	1 1/4	5/8				1	BTM FLG SPLICE
6														
7														F.S. 2
8	200	7/8	4	40	5	2 9/16	5/8	1 5/16	5/8				1	TOP FLG SPLICE
9	240	7/8	3	48	5	1 1/2	1/2	1/2	1/2				1	WEB SPLICE
10	200	7/8	4	40	5	2 9/16	5/8	1 5/16	5/8				1	BTM FLG SPLICE
11														
12														INT. DIAPHRAGMS
13	400	7/8	2 1/4	5	80	13/16	5/16	1/2					1	WEB TO CONN PL
14														
15														PIER DIAPHRAGMS
16	80	7/8	2 3/4	5	16	1 3/8	1/2	7/8					1	GUSSET TO CONN PL
17														

WASHER CODES

1: 1 Hard Flat Washer

FIELD BOLT LIST							A325 Type 1 GALV. BOLTS							
LINE	NO REQ'D.	BOLT DIAM.	BOLT LEN.	BOLTS /CONN.	# OF CONN.	GRIP	THICKNESS OF PCS. CONNECTED						WASH CODE	PIECES CONNECTED AND REMARKS
18														ABUT DIAPHRAGMS
19	40	7/8	2 3/4	5	8	1 3/8	1/2	7/8					1	GUSSET TO CONN PL
20	40	7/8	2 1/4	5	8	13/16	1/2	5/16					1	GUSSET TO DIAPH WEB

WASHER CODES

1: 1 Hard Flat Washer

WORK THIS DWG WITH DWG E601

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL: M270 GR 50W

ELECTRODES:

HOLES: 15/16 ø (UN)

SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

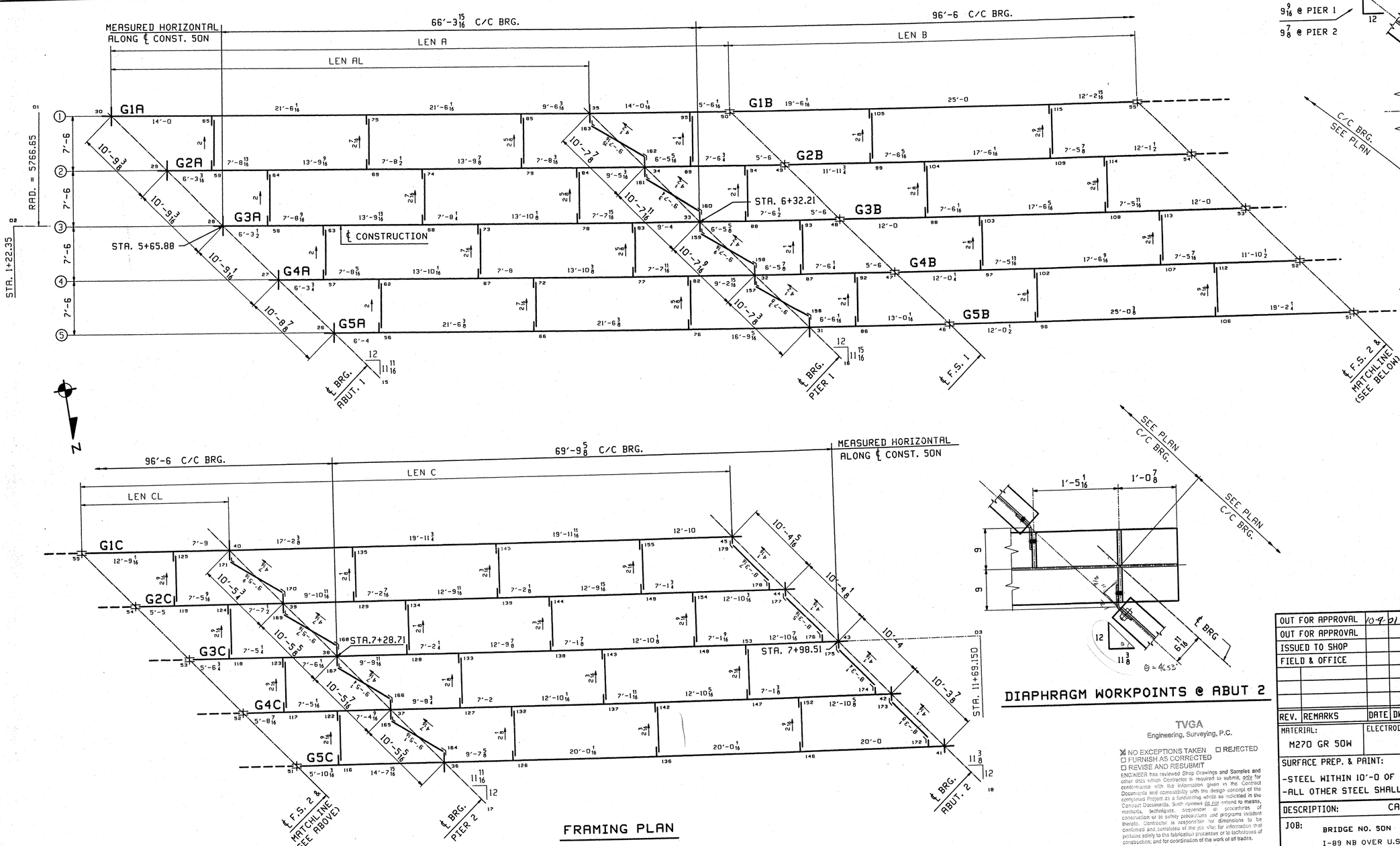
BY: _____
DATE: 10-17-2002

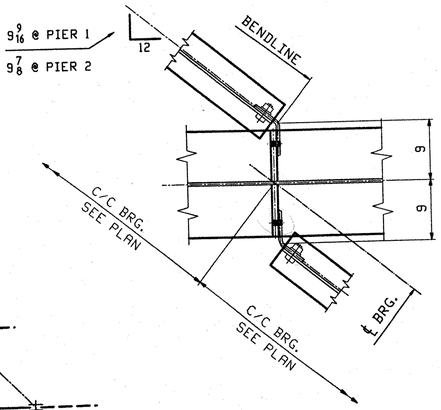
DESCRIPTION: SECTION	DRAWN BY	DATE
JOB: BRIDGE NO. 5ON I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/26
	CHKD BY	
	DO	10/1
TENSOR 2108-N	APPROV BY	
PROJ NO. IM-089-2(26)	SUPERVISOR	W. J. GATTI
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION	Q.A.	

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

JOB NO.	DRG. NO.
123-5ON	E602
	REV. △

BW Thu Oct 4 08:25:07 EDT 2001 /users/jobs/2108-w/E602 1 Rev0





WORKPOINTS @ PIERS

FRAMING PLAN

DIAPHRAGM WORKPOINTS @ ABUT 2

Line	LEN AL	LEN A	LEN B	LEN CL	LEN C	Abut.1	Pier 1	Pier 2	Abut. 2
1	66'-6 5/16	86'-0 7/16	56'-9	20'-6 1/16	90°-5 7/8	.0298	.0236	.0239	.0182
2	66'-5 5/16	85'-11 3/8	56'-7 1/2	20'-6 1/16	90°-4 7/8	.0296	.0241	.0238	.0182
3	66'-4 3/16	85'-10 5/16	56'-6 1/16	20'-6 1/16	90°-3 7/8	.0296	.0241	.0237	.0182
4	66'-3 1/8	85'-9 1/4	56'-4 9/16	20'-6 1/16	90°-2 7/8	.0295	.0240	.0237	.0182
5	66'-2 1/16	85'-8 3/16	56'-3 1/8	20'-6 1/8	90°-1 7/8	.0295	.0240	.0237	.0177

**** NOTE ****
THE PURPOSE OF THIS DRAWING IS TO COORDINATE GEOMETRIC CONTROL INFORMATION. THIS DWG IS SUBMITTED FOR INFORMATION ONLY AND IS NOT INTENDED FOR SHOP FABRICATION.

NOTES
1. LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BOTT OF WEB WITH CORRECTIONS MADE FOR VERTICAL CURVE, GRADE & DL CAMBER (UN).
2. TRANSVERSE DIMENSIONS ARE IN A HORIZ. PLANE (UN).
3. ARROW POINTS TOWARDS LOW END OF MEMBER.
4. ENDS OF GIRDERS AND BRG. STIFF'S ARE VERTICAL AFTER DL ROTATION.
5. CF STIFF, INT STIFF & FIELD SPLICES ARE NORMAL TO GRADE.
6. BOTT PT NUMBERS = TOP PT NUMBERS + 200
7. FOR LAYOUTS SEE DWG TD601 & TD602.
8. COMBINE CROSSFRAMES FOR DIFF IN DROPS OF +/- 3/16
9. CROSSFRAMES DROPS ARE CALCULATED IN THEIR FINAL POSITION.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 08162002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

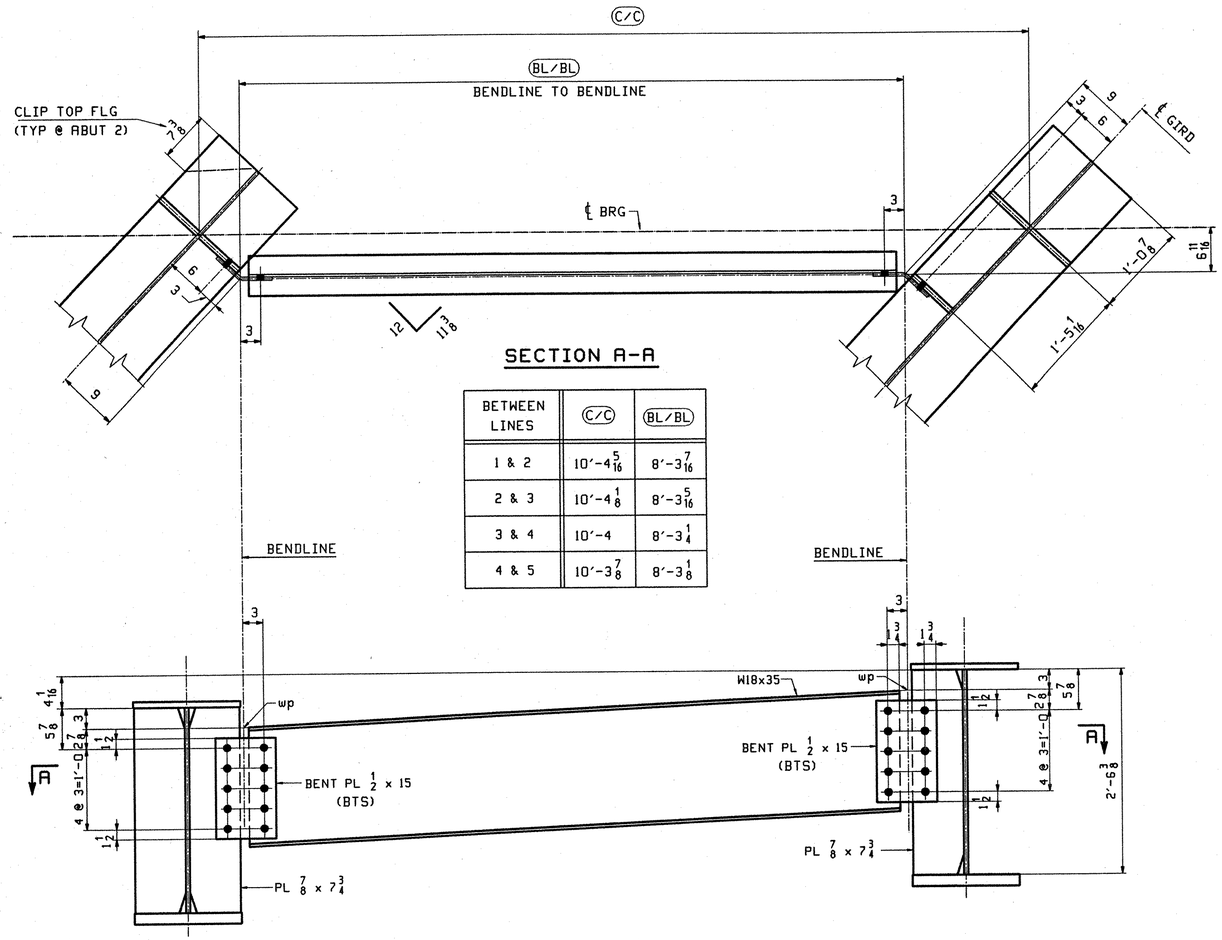
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: CALCULATION PLAN	DRAWN BY	DATE
JOB: BRIDGE NO. 5ON I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	JAK	08/15
	CHKD BY	
	WMJ	8/20
	APPROV BY	
TENSOR 2108-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
123-5ON	WS601
	REV. △

Wed Aug 22 17:43:2 EDT 2001 /users/jake/2108-N/WS601.1 Rev0



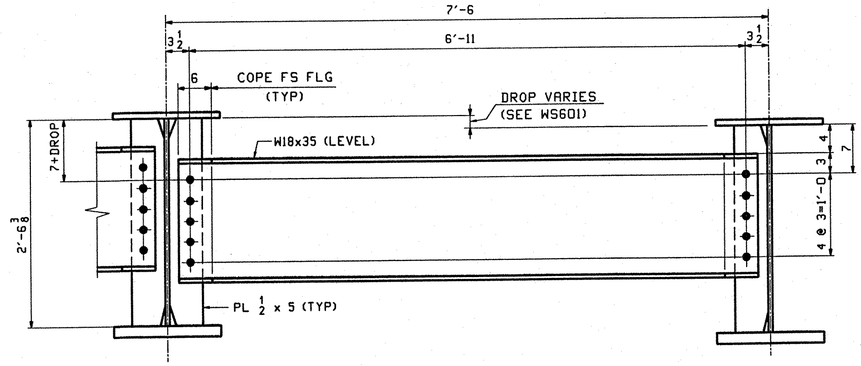
SECTION A-A

BETWEEN LINES	C/C	BL/BL
1 & 2	10'-4 5/16	8'-3 7/16
2 & 3	10'-4 1/8	8'-3 5/16
3 & 4	10'-4	8'-3 1/4
4 & 5	10'-3 7/8	8'-3 1/8

END DIAPHRAGM @ ABUT 2

(LOOKING UP STATION)

THIS DIAPH SHALL BE PAINTED - SEE GN501



TYP. INTERMEDIATE DIAPHRAGM

(LOOKING BACK STATION)
(NTS)

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-12-2002

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BEND LINES ARE TAKEN @ C/L PLATE.

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

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

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: LAYOUTS

JOB: BRIDGE NO. 5ON
I-89 NB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-N

PROJ NO. IM-089-2(26)

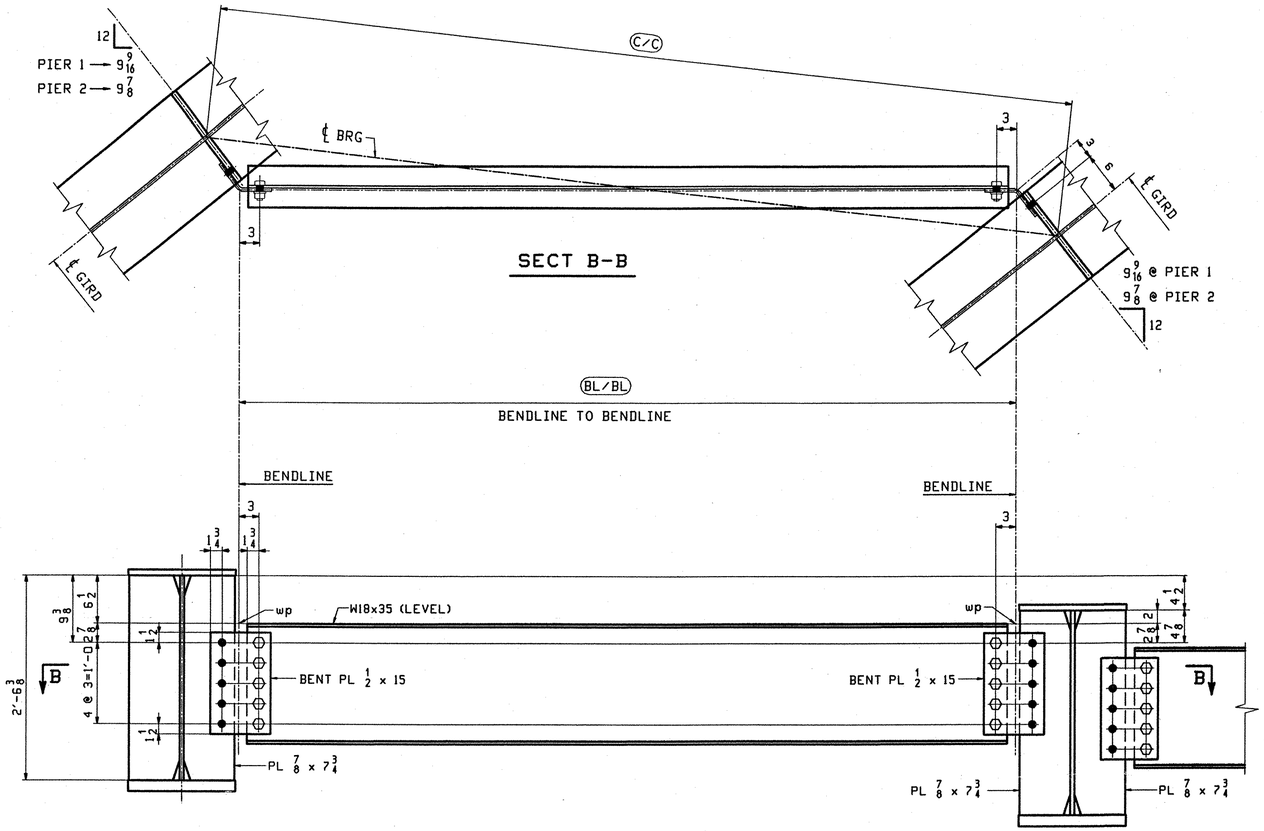
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
JAK	8/15
CHKD BY	
WMJ	8/20
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
123-5ON	TD601
	REV. △

WMJ Tue Aug 21 10:43:38 EDT 2001 /users/jobs/2108-mv/TD601.1 Rev-0



BRG DIAPHRAGM @ PIERS 1 & 2

(LOOKING BACK STATION)

PIER 1		
BETWEEN LINES	C/C	BL/BL
1 & 2	10'-7 7/8	9'-7 15/16
2 & 3	10'-7 11/16	9'-7 3/4
3 & 4	10'-7 9/16	9'-7 9/16
4 & 5	10'-7 3/8	9'-7 3/8

PIER 2		
BETWEEN LINES	C/C	BL/BL
1 & 2	10'-5 3/4	9'-5 9/16
2 & 3	10'-5 5/8	9'-5 7/16
3 & 4	10'-5 7/16	9'-5 1/4
4 & 5	10'-5 5/16	9'-5 1/16

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 10-16-2001

DETAILER NOTE

ALL EDGE DISTANCES ARE 1 3/4" U.N.

BEND LINES ARE TAKEN @ C/L PLATE.

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

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

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-9-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

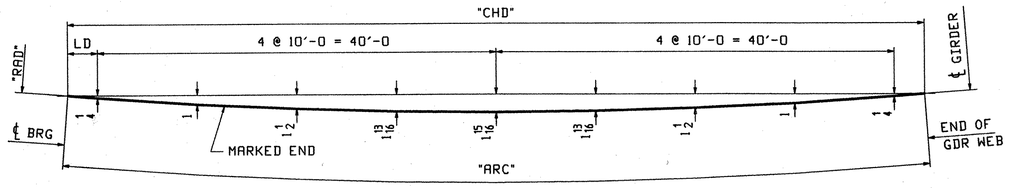
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: LAYOUTS	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	JAK	8/15
	CHKD BY	
	WMJ	8/20
TENSOR 2108-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

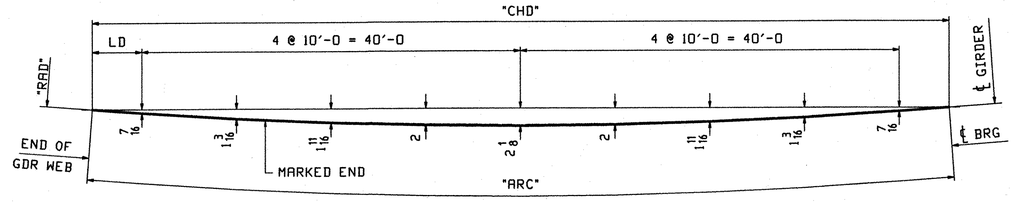
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	TD602
	REV. △

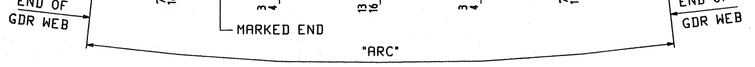
WMJ Tue Aug 21 10:44:21 EDT 2001 /users/jobs/2108-N/TD602 - Rev-0



MARK	"ARC"	"CHD"	"RAD"	"LD"
G1A	86'-0 5/16	86'-0 5/16	5751.650	3'-0 1/8
G2A	85'-11 1/4	85'-11 1/4	5759.150	2'-11 5/8
G3A	85'-10 3/16	85'-10 3/16	5766.650	2'-11 1/16
G4A	85'-9 1/8	85'-9 1/8	5774.150	2'-10 9/16
G5A	85'-8 1/16	85'-8 1/16	5781.650	2'-10



MARK	"ARC"	"CHD"	"RAD"	"LD"
G1C	90'-5 3/4	90'-5 3/4	5751.650	5'-2 7/8
G2C	90'-4 3/4	90'-4 3/4	5759.150	5'-2 3/8
G3C	90'-3 3/4	90'-3 3/4	5766.650	5'-1 7/8
G4C	90'-2 3/4	90'-2 3/4	5774.150	5'-1 3/8
G5C	90'-1 3/4	90'-1 3/4	5781.650	5'-0 7/8



MARK	"ARC"	"CHD"	"RAD"	"LD"
G1B	56'-8 3/4	56'-8 3/4	5751.650	8'-4 3/8
G2B	56'-7 1/4	56'-7 1/4	5759.150	8'-3 5/8
G3B	56'-5 13/16	56'-5 13/16	5766.650	8'-2 7/8
G4B	56'-4 5/16	56'-4 5/16	5774.150	8'-2 1/8
G5B	56'-2 7/8	56'-2 7/8	5781.650	8'-1 7/16

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: _____
DATE: 01-16-2002

NOTE:

LONGITUDINAL DIMENSIONS TAKEN ALONG ℄ BOTTOM OF WEB.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: HORIZONTAL CURVE DIAGRAMS

JOB:
BRIDGE NO. 50N
I-89 NB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-N

PROJ NO. IM-089-2(26)

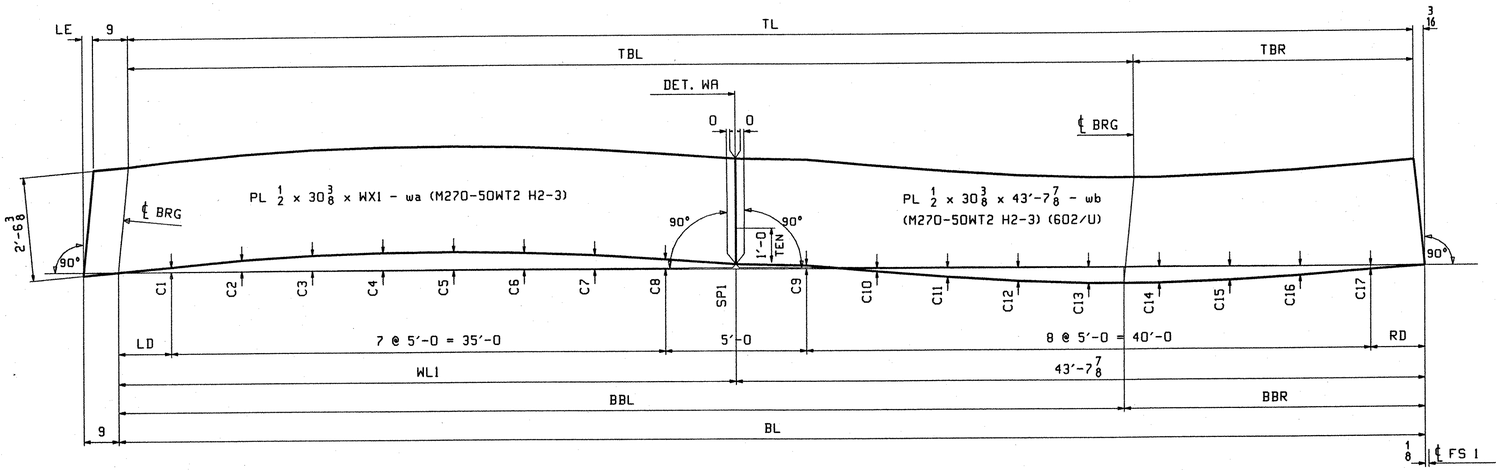
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
JAK	08/16
CHKD BY	
WMJ	8/20
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

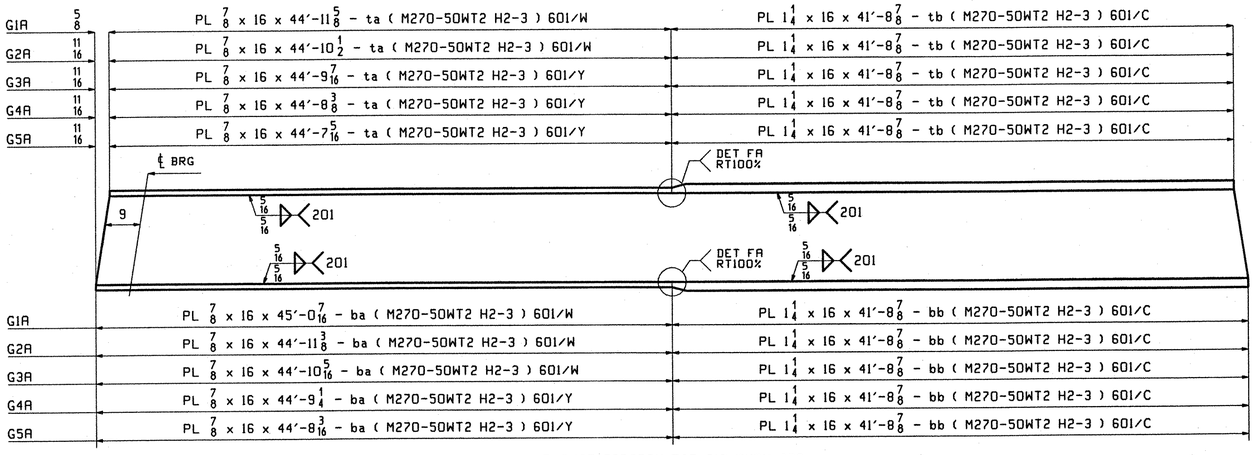
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 123-50N
DRG. NO. HC601
REV. △

WMJ Tue Aug 21 10:54:46 EDT 2001 /users/jobs/2108-N/HC601.1 RevG



MARK	TL	BL	LE	WL1	WX1	SP1	TBL	TBR	BBL	BBR	LD	RD	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	PG/LINE
G1A	85'-11 1/2	86'-0 5/16	5/8	42'-4 7/16	43'-1 7/16	5/16	66'-6 3/8	19'-5 1/8	66'-6 5/16	19'-6	3'-0 1/8	3'-0 3/16	5/16	11/16	1	1 1/8	1 1/8	1 1/16	15/16	5/8	1/4	3/16	9/16	13/16	1	1	7/8	9/16	1/4	602/ N
G2A	85'-10 3/8	85'-11 1/4	11/16	42'-3 3/8	43'-0 3/8	5/16	66'-5 5/16	19'-5 1/16	66'-5 5/16	19'-5 15/16	2'-11 5/8	2'-11 5/8	1/4	11/16	15/16	1 1/8	1 3/16	1 1/8	15/16	5/8	1/4	3/16	9/16	7/8	1	1	13/16	9/16	1/4	602/ N
G3A	85'-9 5/16	85'-10 3/16	11/16	42'-2 5/16	42'-11 5/16	5/16	66'-4 3/16	19'-5 1/8	66'-4 3/16	19'-6	2'-11 1/8	2'-11 1/16	1/4	11/16	15/16	1 1/8	1 3/16	1 1/8	15/16	5/8	1/4	3/16	9/16	7/8	1	1	13/16	9/16	1/4	602/ N
G4A	85'-8 1/4	85'-9 1/8	11/16	42'-1 1/4	42'-10 1/4	5/16	66'-3 1/8	19'-5 1/8	66'-3 1/8	19'-6	2'-10 1/2	2'-10 5/8	1/4	11/16	15/16	1 1/8	1 3/16	1 1/8	15/16	5/8	1/4	3/16	9/16	7/8	1	1	13/16	9/16	1/4	602/ Q
G5A	85'-7 3/16	85'-8 1/16	11/16	42'-0 3/16	42'-9 3/16	1/4	66'-2 1/16	19'-5 1/8	66'-2 1/16	19'-6	2'-10	2'-10 1/16	1/4	11/16	15/16	1 1/8	1 3/16	1 1/8	7/8	9/16	3/16	3/16	9/16	13/16	1	1	13/16	9/16	3/16	602/ Q



FLANGE DIAGRAM FOR G1A THRU G5A

NOTES:
1. FOR GENERAL NOTES SEE SHT. GN501.
2. FOR WELD DETAILS FA & WB SEE GN501.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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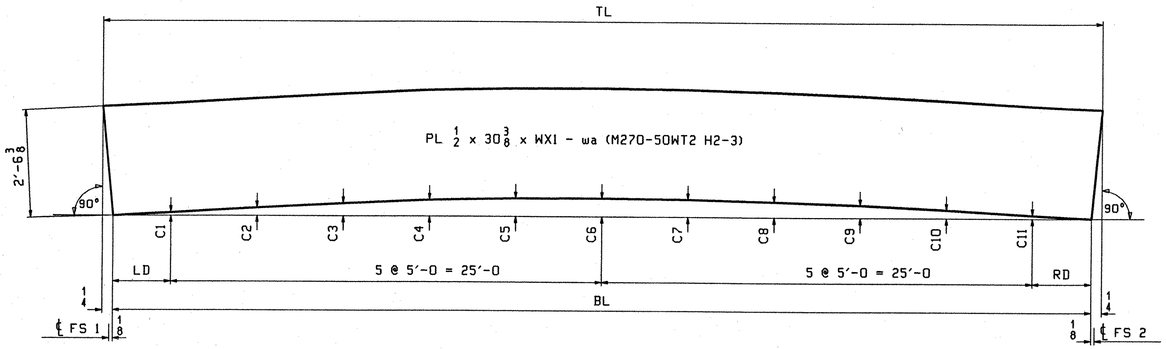
BY: MMA
DATE: 01-16-2002

DESCRIPTION: CAMBER & FLANGE DIAGRAM	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	JAK	08/16
	CHKD BY	
	WMJ	8/20
	APPROV BY	
TENSOR 2108-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

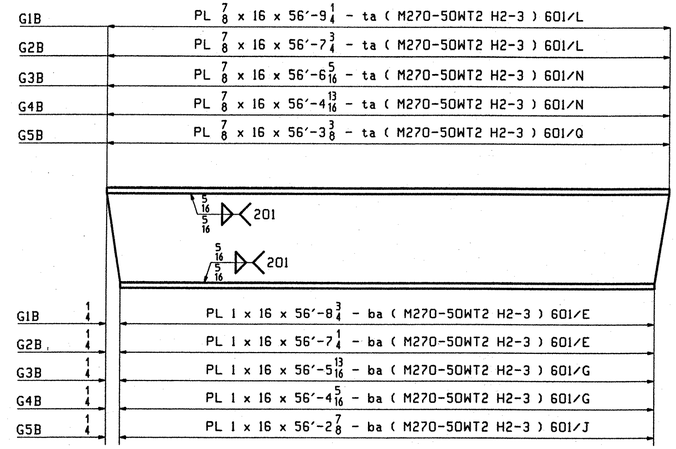
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	C601
	REV. △

WMJ Tue Aug 21 10:09:13 EDT 2001 /users/jak/2108-N/C601 | Rev9



MARK	TL	BL	WX1	LD	RD	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	PG/LINE
G1B	56'-9 1/4	56'-8 3/4	56'-9 1/4	3'-4 3/8	3'-4 3/8	5/16	13/16	1 1/4	1 11/16	1 7/8	1 7/8	1 3/4	1 9/16	1 1/4	13/16	5/16	602/ E
G2B	56'-7 3/4	56'-7 1/4	56'-7 3/4	3'-3 5/8	3'-3 5/8	3/8	7/8	1 3/8	1 11/16	1 7/8	1 15/16	1 7/8	1 5/8	1 1/4	13/16	5/16	602/ A
G3B	56'-6 5/16	56'-5 13/16	56'-6 5/16	3'-2 7/8	3'-2 15/16	5/16	7/8	1 3/8	1 11/16	1 7/8	1 15/16	1 7/8	1 5/8	1 1/4	13/16	5/16	602/ A
G4B	56'-4 13/16	56'-4 5/16	56'-4 13/16	3'-2 1/8	3'-2 3/16	5/16	7/8	1 5/16	1 11/16	1 7/8	1 15/16	1 7/8	1 5/8	1 1/4	13/16	5/16	602/ C
G5B	56'-3 3/8	56'-2 7/8	56'-3 3/8	3'-1 3/8	3'-1 1/2	5/16	7/8	1 5/16	1 5/8	1 13/16	1 7/8	1 13/16	1 5/8	1 1/4	13/16	5/16	602/ G



FLANGE DIAGRAM FOR G1B THRU G5B

NOTES:
1. FOR GENERAL NOTES SEE SHT. GN501.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

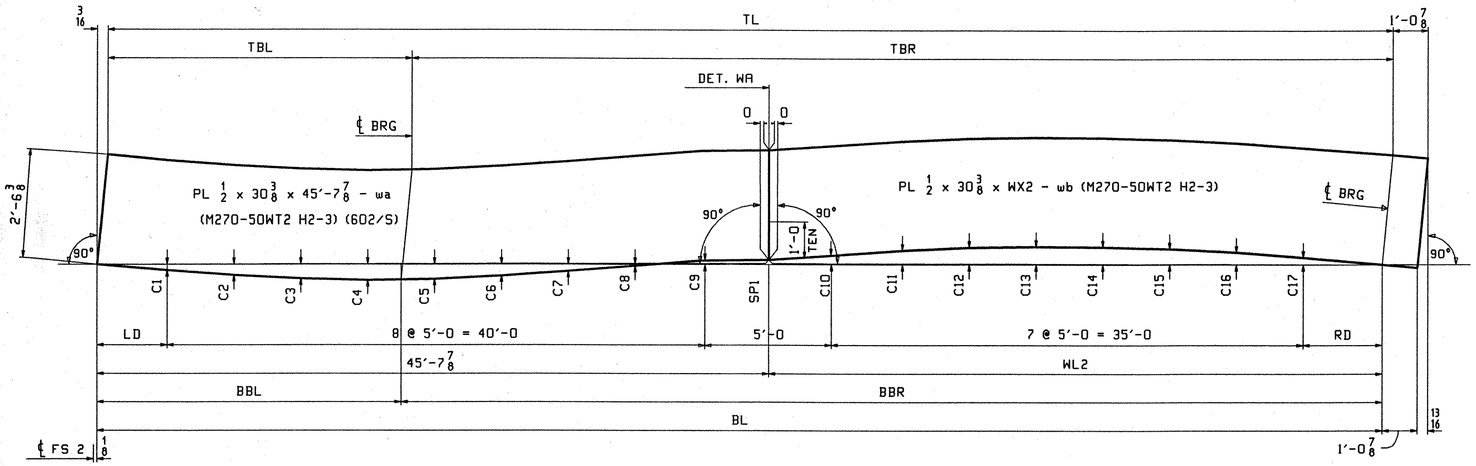
BY: _____
DATE: 01-16-2002

DESCRIPTION: CAMBER & FLANGE DIAGRAM	DRAWN BY	DATE
JOB: BRIDGE NO. 5DN	JAK	08/16
I-89 NB OVER U.S. ROUTE 2	CHKD BY	
I-89 IMPROVEMENTS	WMJ	8/20
TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

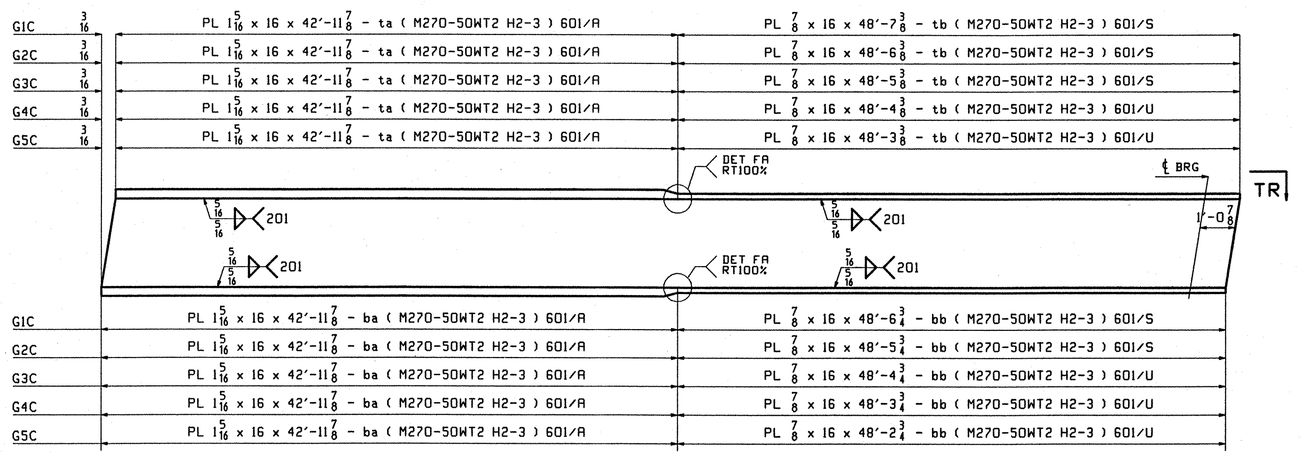
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-5DN	C602
	REV. △

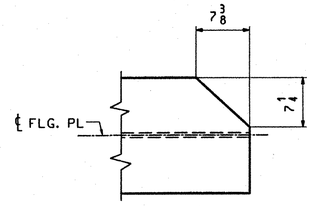
MMJ Tue Aug 21 13:45:21 EDT 2001 /users/jobs/2108-N/C602 : Rev0



MARK	TL	BL	WL2	WX2	SP1	TBL	TBR	BBL	BBR	LD	RD	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	PG/LINE
G1C	90'-6 3/8	90'-5 3/4	44'-9 7/8	45'-11 9/16	5/16	20'-6 1/2	69'-11 7/8	20'-5 15/16	69'-11 13/16	5'-2 7/8	5'-2 7/8	7/16	3/4	1	1 1/8	1 1/16	13/16	1/2	1/8	5/16	11/16	1	1 1/4	1 5/16	1 1/4	1 1/8	7/8	1/2	602/ J
G2C	90'-5 3/8	90'-4 3/4	44'-8 7/8	45'-10 9/16	3/8	20'-6 1/2	69'-10 7/8	20'-5 15/16	69'-10 13/16	5'-2 3/8	5'-2 3/8	7/16	3/4	1 1/16	1 1/8	1 1/16	13/16	1/2	1/8	5/16	11/16	1	1 1/4	1 5/16	1 1/4	1 1/8	7/8	1/2	602/ J
G3C	90'-4 3/8	90'-3 3/4	44'-7 7/8	45'-9 9/16	3/8	20'-6 1/2	69'-9 7/8	20'-5 15/16	69'-9 13/16	5'-1 7/8	5'-1 7/8	7/16	3/4	1 1/16	1 1/8	1 1/16	13/16	1/2	1/8	5/16	11/16	1	1 1/4	1 5/16	1 1/4	1 1/8	7/8	1/2	602/ J
G4C	90'-3 3/8	90'-2 3/4	44'-6 7/8	45'-8 9/16	3/8	20'-6 1/2	69'-8 7/8	20'-5 15/16	69'-8 13/16	5'-1 3/8	5'-1 3/8	7/16	3/4	1 1/16	1 1/8	1 1/16	13/16	1/2	1/8	5/16	11/16	1	1 1/4	1 5/16	1 1/4	1 1/8	7/8	1/2	602/ L
G5C	90'-2 3/8	90'-1 3/4	44'-5 7/8	45'-7 9/16	3/8	20'-6 1/2	69'-7 7/8	20'-6	69'-7 3/4	5'-0 7/8	5'-0 7/8	7/16	3/4	1	1 1/8	1 1/16	13/16	1/2	1/8	5/16	11/16	15/16	1 1/8	1 1/4	1 1/4	1 3/16	15/16	9/16	602/ L



FLANGE DIAGRAM FOR G1C THRU G5C



VIEW TR

(TOP FLG.ONLY / ABUT. 2 ONLY)

NOTES:
1. FOR GENERAL NOTES SEE SHT. GN501.
2. FOR WELD DETAILS FA & WB SEE GN501.

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10/9/01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

TVGA
Engineering, Surveying, P.C.

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☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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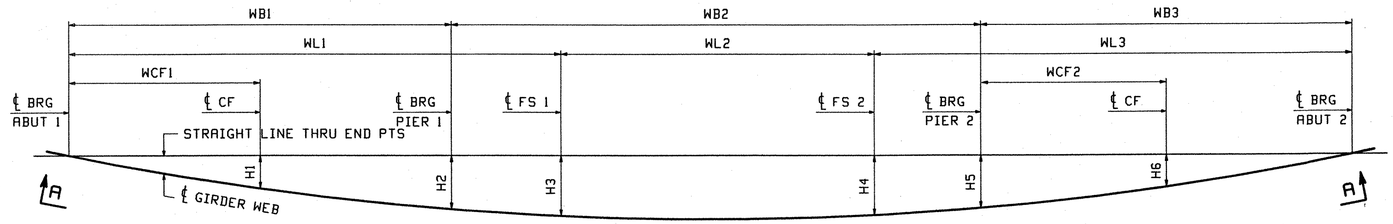
BY:
DATE: 01-16-2002

DESCRIPTION: CAMBER & FLANGE DIAGRAM	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	JAK	08/16
	CHKD BY	
	WMJ	8/20
	APPROV BY	
TENSOR 2108-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

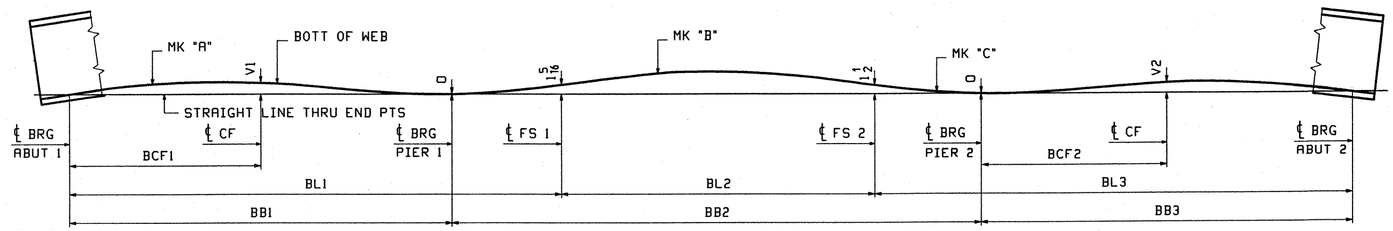
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	C603
	REV. △

WMJ Tue Aug 21 10:43:18 EST 2001 /users/jaa/2108-N/C603 1 Rev0



PLAN VIEW GIRDER @ BOTT OF WEB



DEVELOPED SECTION A-A
DIMENSIONS GIVEN ALONG ℄ WEB

LINE	WL1	WL2	WL3	H1	H2	H3	H4	H5	H6	WB1	WB2	WB3	WCF1	WCF2	BL1	BL2	BL3	V1	V2	BB1	BB2	BB3	BCF1	BCF2	"A"	"B"	"C"
1	86'-0 3/8	56'-9	90'-5 13/16	7 5/16	11 9/16	1'-1 3/16	1'-1 1/2	11 15/16	6 7/8	66'-6 1/4	96'-9 1/4	69'-11 11/16	35'-6	37'-2 1/8	86'-0 1/2	56'-9	90'-5 7/8	1 3/8	1 11/16	66'-6 5/16	96'-9 1/4	69'-11 13/16	35'-6 1/16	37'-2 1/8	G1A	G1B	G1C
2	85'-11 5/16	56'-7 1/2	90'-4 13/16	5 15/16	11 1/2	1'-1 3/16	1'-1 7/16	11 7/8	8 1/16	66'-5 1/8	96'-7 3/4	69'-10 3/4	27'-9 9/16	29'-10 3/4	85'-11 3/8	56'-7 1/2	90'-4 15/16	1 9/16	1 3/8	66'-5 1/4	96'-7 3/4	69'-10 13/16	27'-9 5/8	29'-10 13/16	G2A	G2B	G2C
3	85'-10 3/16	56'-6 1/16	90'-3 13/16	5 15/16	11 1/2	1'-1 1/8	1'-1 3/8	11 13/16	8	66'-4 1/16	96'-6 1/4	69'-9 3/4	27'-9 13/16	29'-9 3/4	85'-10 5/16	56'-6 1/16	90'-3 7/8	1 9/16	1 3/8	66'-4 3/16	96'-6 1/4	69'-9 13/16	27'-9 7/8	27'-9 13/16	G3A	G3B	G3C
4	85'-9 1/8	56'-4 9/16	90'-2 13/16	5 15/16	11 7/16	1'-1 1/16	1'-1 5/16	11 3/4	8	66'-3	96'-4 13/16	69'-8 11/16	27'-10 1/16	29'-8 3/4	85'-9 1/4	56'-4 9/16	90'-2 7/8	1 9/16	1 3/8	66'-3 1/8	96'-4 13/16	69'-8 3/4	27'-10 1/8	29'-8 13/16	G4A	G4B	G4C
5	85'-8 1/16	56'-3 1/8	90'-1 13/16	5 7/8	11 3/8	1'-1	1'-1 1/4	11 3/4	8	66'-2	96'-3 5/16	69'-7 11/16	27'-10 5/16	29'-7 3/4	85'-8 3/16	56'-3 1/8	90'-1 7/8	1 9/16	1 3/8	66'-2 1/16	96'-3 3/8	69'-7 3/4	27'-10 5/16	29'-7 3/4	G5A	G5B	G5C

NOTES
FOR GENERAL NOTES SEE DWG GN501
ALL DIMENSIONS GIVEN AT BOTT OF WEB

OUT FOR APPROVAL	10-9-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
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TVGA
Engineering, Surveying, P.C.

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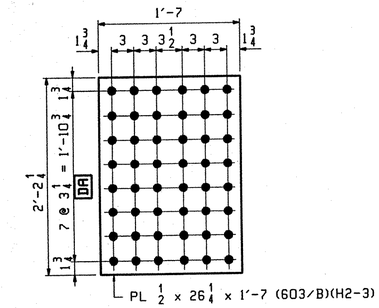
BY: [signature]
DATE: 01-16-2002

DESCRIPTION:	SHOP ASSEMBLY	DRAWN BY	DATE
JOB:	BRIDGE NO. 5ON I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/26
		CHKD BY	
		DO	10/2
TENSOR 2108-N		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

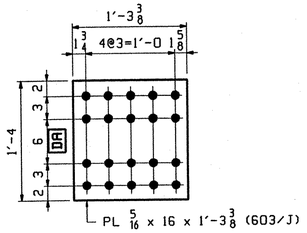
JOB NO.	DRG. NO.
123-5ON	SA601
	REV. △

DO Thu Oct 4 14:05:49 CST 2001 /users/jpw/2108-N/SA601 : Rev0



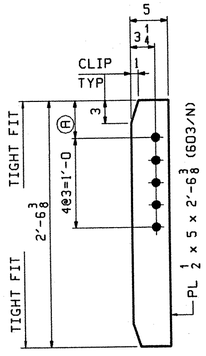
D.O.R.

20 ~ x61a



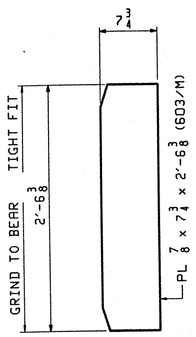
5 ~ x61f

(BOTT. FILL)



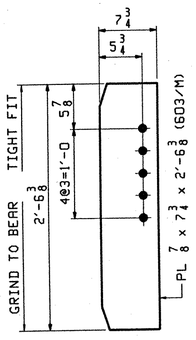
INT. CONN STIFF

MARK	REQ'D	Ⓐ
x61k	40	7
x61m	20	9 9/16
x61n	20	9 3/16



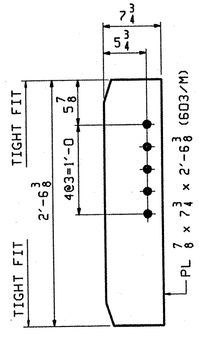
20 ~ x61s

BRG STIFF @ ABUT & PIERS



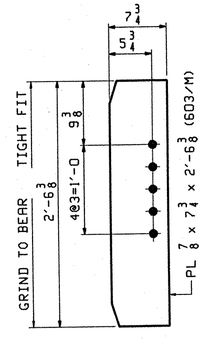
4 ~ x61t

BRG STIFF @ ABUT



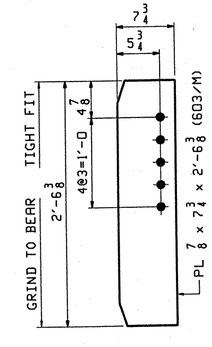
4 ~ x61v

CONN STIFF @ ABUT



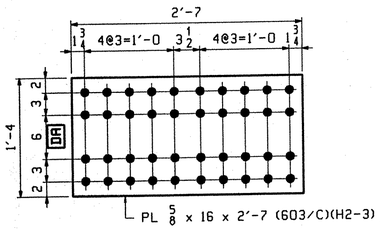
8 ~ x61aa

BRG STIFF @ PIERS



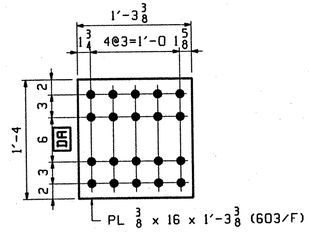
8 ~ x61ab

BRG STIFF @ PIERS



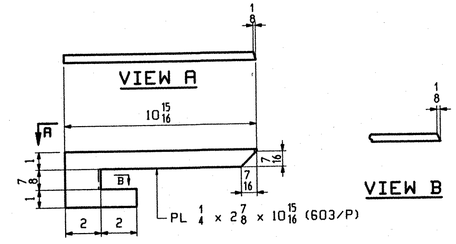
D.O.R.

20 ~ x61b



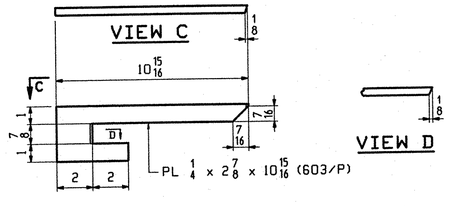
5 ~ x61g

(TOP FILL)



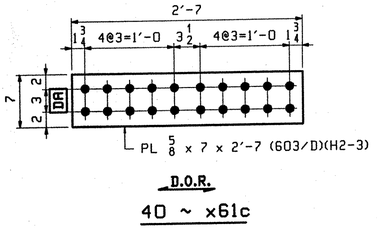
1 ~ x61ac

DRIP PL



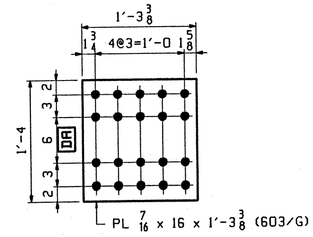
1 ~ x61ad

DRIP PL



D.O.R.

40 ~ x61c



5 ~ x61h

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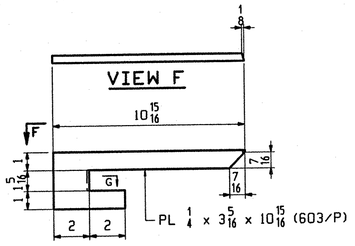
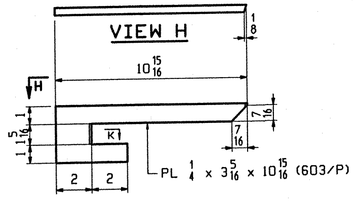


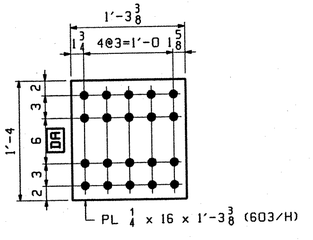
1 ~ x61af

DRIP PL



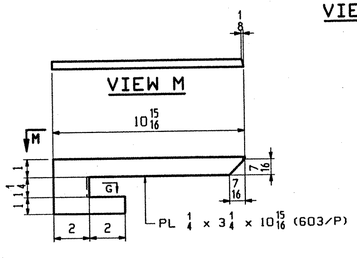
1 ~ x61ag

DRIP PL



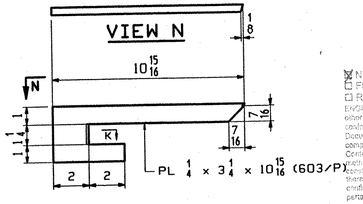
5 ~ x61d

(BOTT. FILL)



1 ~ x61ak

DRIP PL



1 ~ x61am

DRIP PL

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 09-16-2021

NOTES:

FOR GENERAL NOTES SEE GN501

H2-3 DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TESTING.

D.O.R. DENOTES DIRECTION OF MILL ROLLING

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER STANDARDS

JOB: BRIDGE NO. 5ON
I-89 NB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-N

PROJ NO. IM-089-2(26)

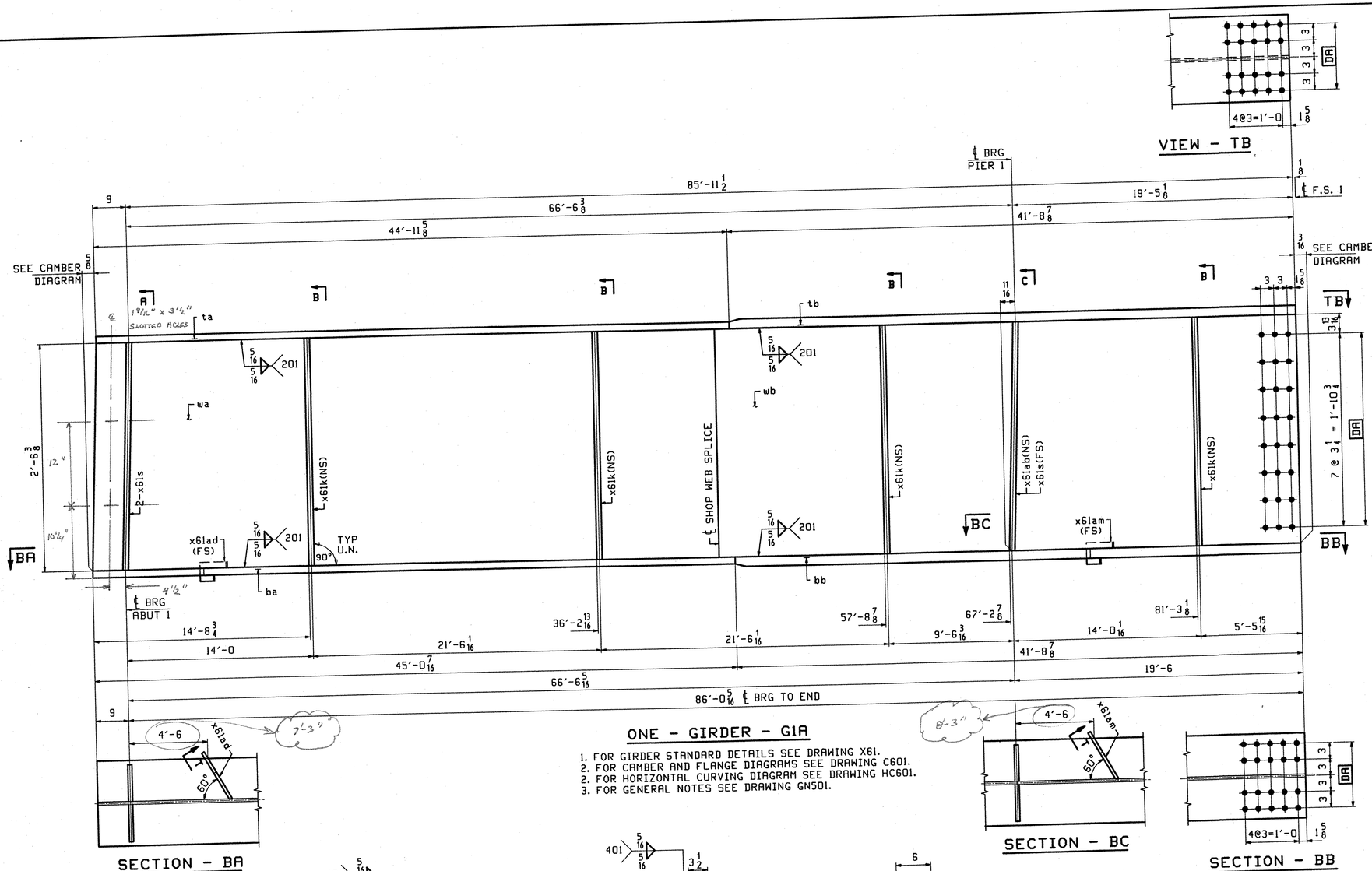
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

	DRAWN BY	DATE
	BW	09/21
	CHKD BY	
	DO	09/27
	APPROV BY	
	SUPERVISOR	W. J. GATTI
	Q.A.	

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

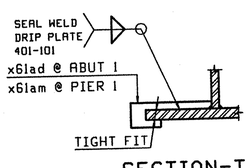
JOB NO.	DRG. NO.
123-5ON	X61
	REV. △

BW Thu Oct 4 09:34:46 EDT 2001 /users/jobs/2108-N/X61.1 8x=0

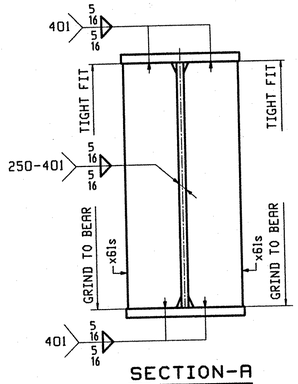


ONE - GIRDER - G1A

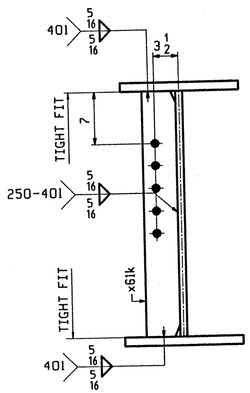
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C601.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



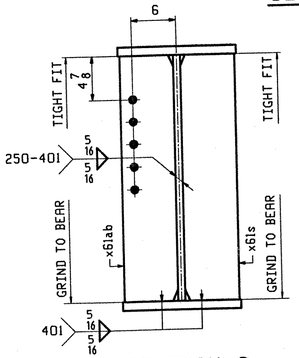
SECTION-T



SECTION-A



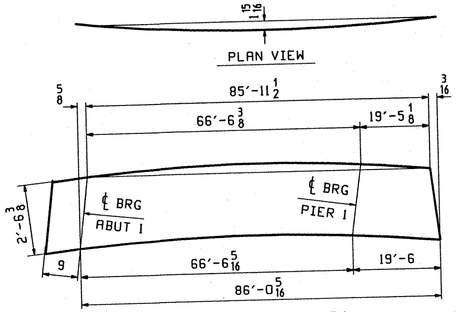
SECTION-B



SECTION-C

SECTION - BC

SECTION - BB



DEV. CAMBER DIAGRAM
SEE DWG. C601

SECTION - BA

BILL OF MATERIAL

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		GIA	1		GIRDER				14916	
602	N		1	wa	PL 1/2x31 3/8	43	1 7/16	(M270-50WT2) (H2-3)		
602	U		1	wb	PL 1/2x31 1/4	43	7 7/8	(M270-50WT2) (H2-3)		
601	W		1	ta	PL 7/8x16	44	11 5/8	(M270-50WT2) (H2-3)		
601	C		1	tb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)		
601	W		1	ba	PL 7/8x16	45	0 7/16	(M270-50WT2) (H2-3)		
601	C		1	bb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)		
603	M		3	x61s	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	N		4	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61ab	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	P		1	x61ad	PL 1/4x2 7/8	0	10 15/16	(M270-50W)		
603	P		1	x61am	PL 1/4x3 1/4	0	10 15/16	(M270-50W)		

JOB NO.

DRAWING NO. 601

REV.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY:
DATE: 01-16-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

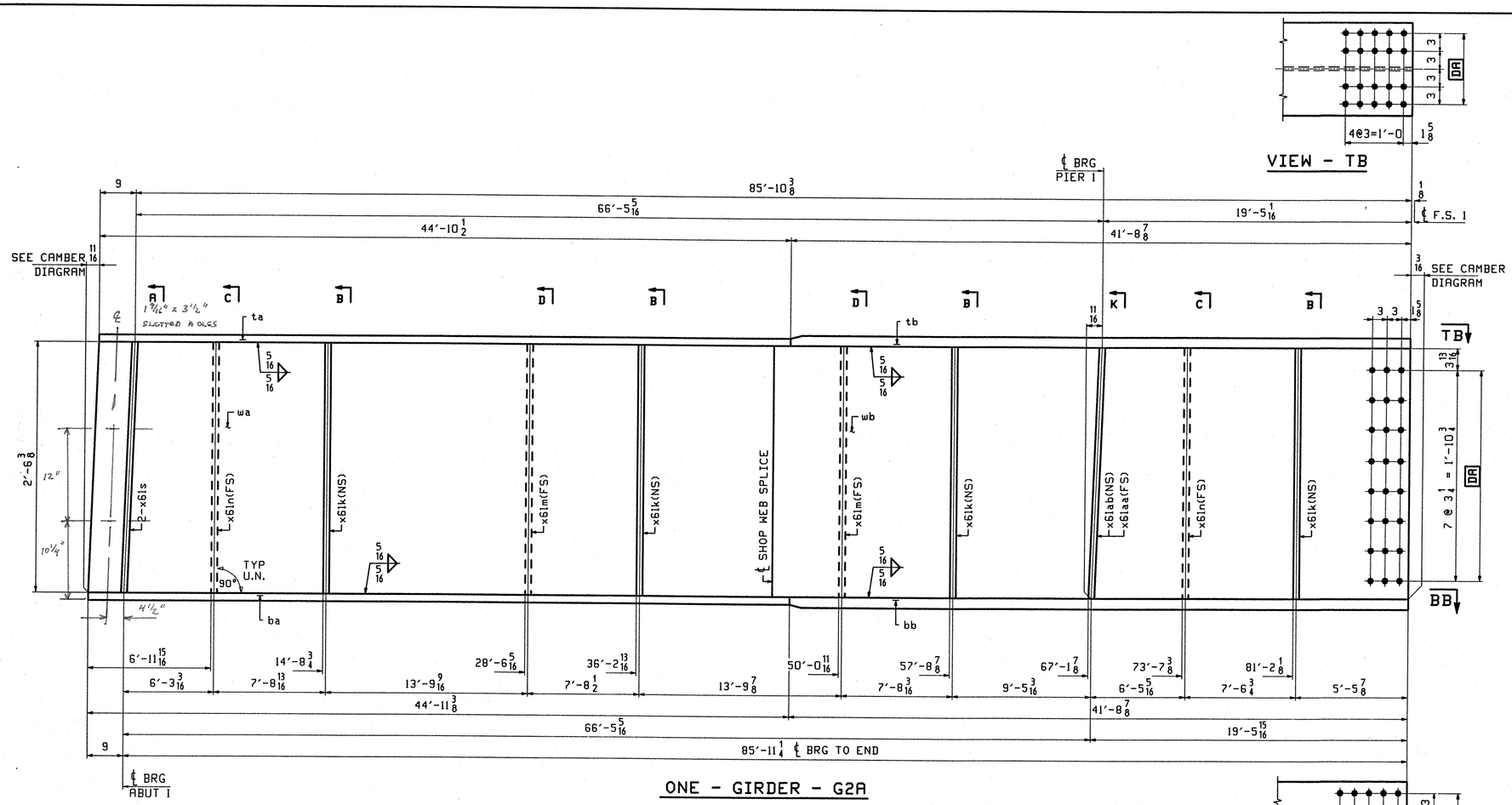
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	GIRDER - G1A	DRAWN BY	DATE
JOB:	BRIDGE NO. 5ON	BW	09/22
	I-89 NB OVER U.S. ROUTE 2	CHKD BY	
	I-89 IMPROVEMENTS	DO	09/27
TENSOR 2108-N	TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

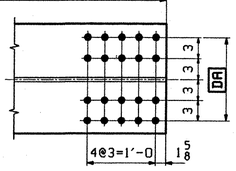
JOB NO.	DRG. NO.
123-5ON	601
	REV. △

BW Thu Oct 4 09:56:05 EDT 2001 /users/jobs/2108-N/601 : Rev0

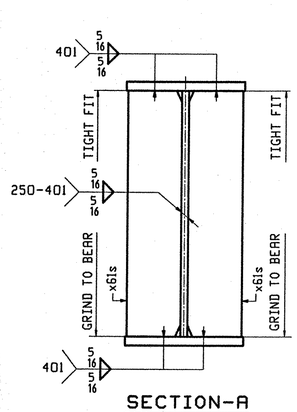


ONE - GIRDER - G2A

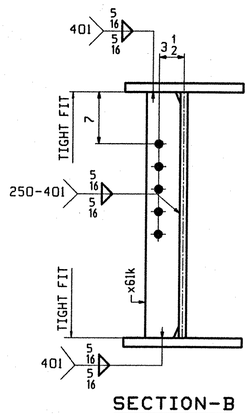
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C601.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



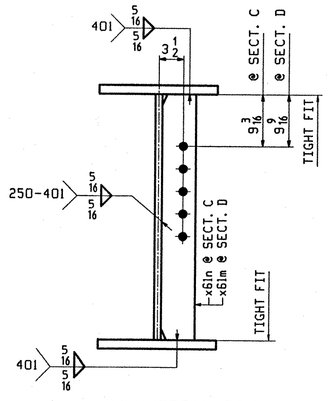
SECTION - BB



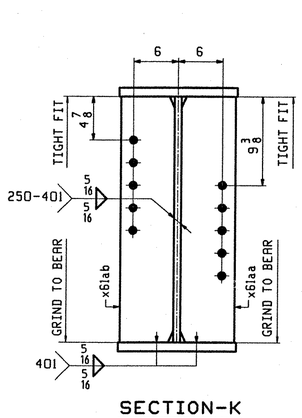
SECTION-A



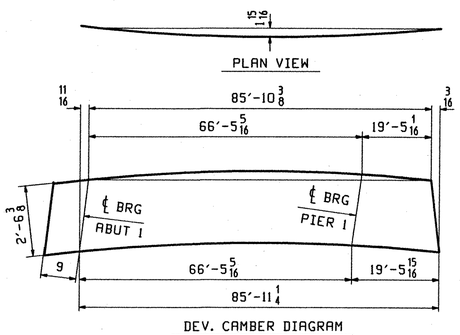
SECTION-B



SECTION-C&D



SECTION-K



DEV. CAMBER DIAGRAM
SEE DWG. C601

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
									602		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G2A	1		GIRDER				14984		
602	N		1	wa	PL 1/2x31 3/8	43	0 3/8	(M270-50WT2) (H2-3)			
602	U		1	wb	PL 1/2x31 1/4	43	7 7/8	(M270-50WT2) (H2-3)			
601	W		1	ta	PL 7/8x16	44	10 1/2	(M270-50WT2) (H2-3)			
601	C		1	tb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)			
601	W		1	ba	PL 7/8x16	44	11 3/8	(M270-50WT2) (H2-3)			
601	C		1	bb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)			
603	M		2	x61s	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			
603	N		2	x61n	PL 1/2x5	2	6 3/8	(M270-50W)			
603	N		4	x61k	PL 1/2x5	2	6 3/8	(M270-50W)			
603	N		2	x61m	PL 1/2x5	2	6 3/8	(M270-50W)			
603	M		1	x61ab	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			
603	M		1	x61aa	PL 7/8x7 3/4	2	6 3/8	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

DRAWINGS has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: LMP
DATE: 01-14-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

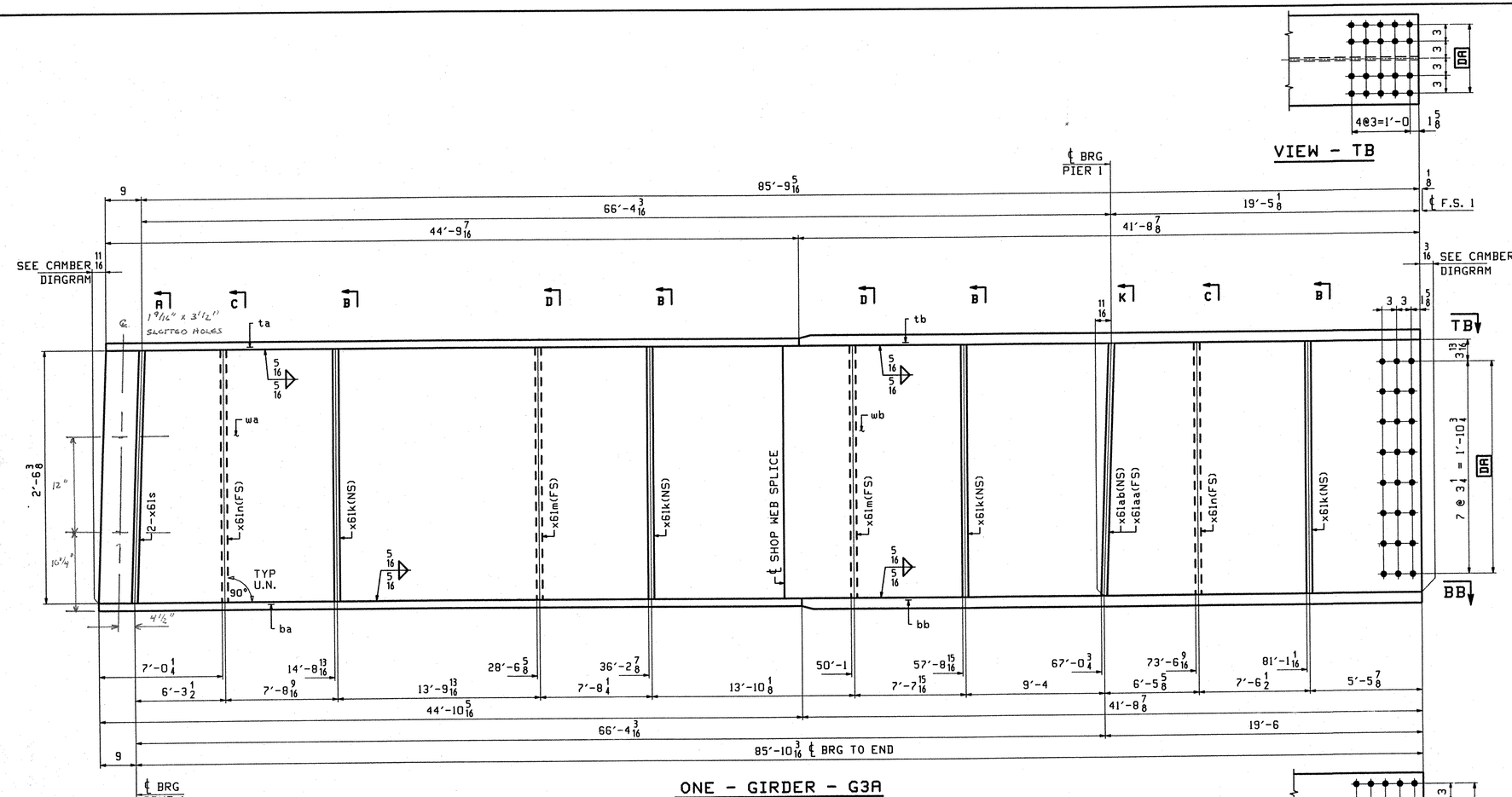
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G2A	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/24
	CHKD BY	
	DO	09/27
TENSOR 2108-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

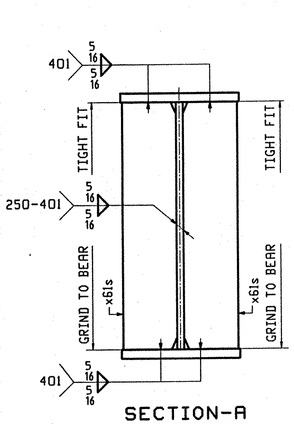
JOB NO.	DRG. NO.
123-50N	602
	REV. △

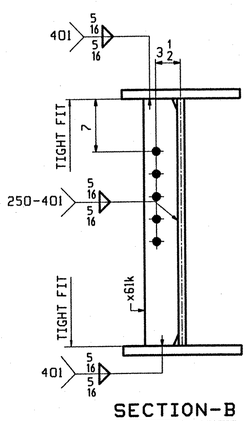
Thu Oct 4 10:02:52 EDT 2001 /users/jake/2108-N/602 • Rev0

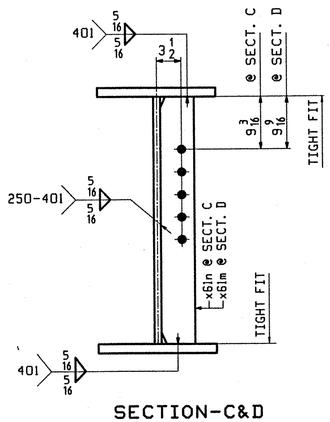


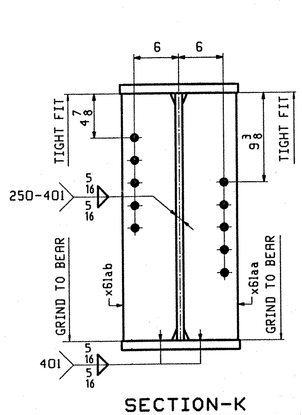
ONE - GIRDER - G3A

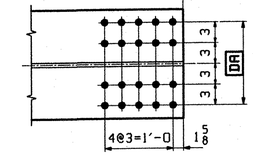
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C601.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.

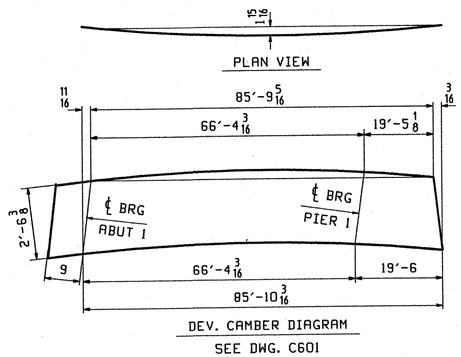












ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3A	1		GIRDER				14971	
602	N		1	wa	PL 1/2 x 31 3/8	42	11 5/16	(M270-50WT2) (H2-3)		
602	U		1	wb	PL 1/2 x 31 1/4	43	7 7/8	(M270-50WT2) (H2-3)		
601	Y		1	ta	PL 5/8 x16	44	9 1/16	(M270-50WT2) (H2-3)		
601	C		1	tb	PL 1 1/4 x16	41	8 7/8	(M270-50WT2) (H2-3)		
601	W		1	ba	PL 5/8 x16	44	10 5/16	(M270-50WT2) (H2-3)		
601	C		1	bb	PL 1 1/4 x16	41	8 7/8	(M270-50WT2) (H2-3)		
603	M		2	x61s	PL 7/8 x 7 3/4	2	6 3/8	(M270-50W)		
603	N		2	x61n	PL 1/2 x5	2	6 3/8	(M270-50W)		
603	N		4	x61k	PL 1/2 x5	2	6 3/8	(M270-50W)		
603	N		2	x61m	PL 1/2 x5	2	6 3/8	(M270-50W)		
603	M		1	x61ab	PL 7/8 x 7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61aa	PL 7/8 x 7 3/4	2	6 3/8	(M270-50W)		

BILL OF MATERIAL

JOB NO.

DRAWING NO. 603

REV.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and either lists which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 01-16-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-9-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W

ELECTRODES:

HOLES: 15/16 ø (UN)

SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3A

JOB: BRIDGE NO. 5ON
I-89 NB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2106-N

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

	DRAWN BY	DATE
	BW	09/24
	CHKD BY	
	DO	09/27
	APPROV BY	
	SUPERVISOR	W. J. GATTI
	Q.A.	

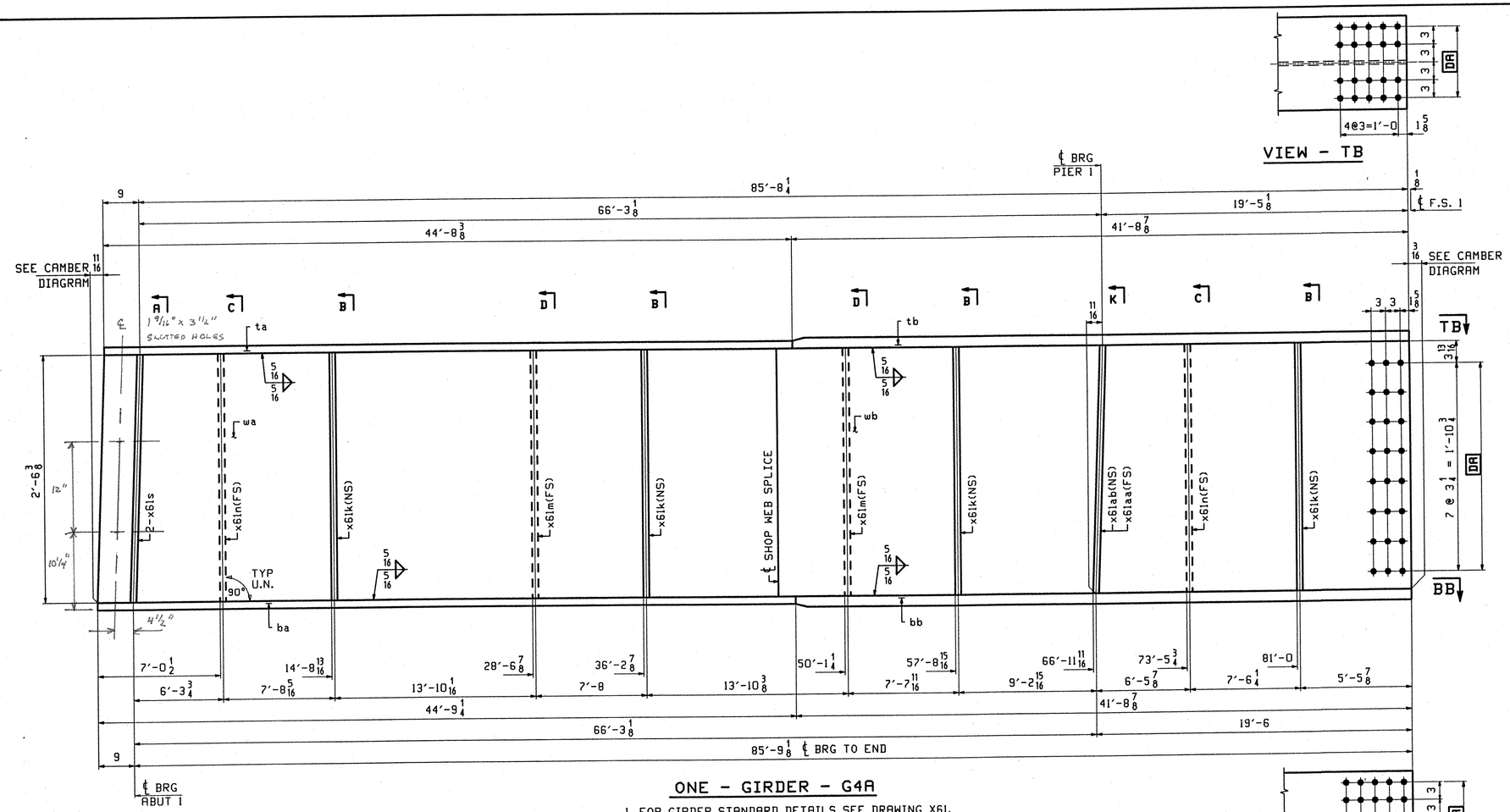
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 123-5ON

DRG. NO. 603

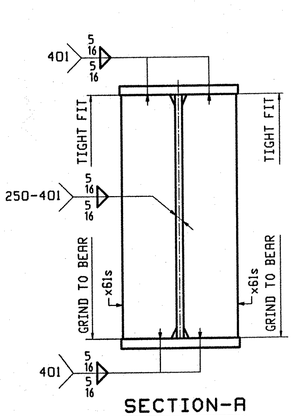
REV. △

Thu Oct 4 08:08:52 CDT 2001 /users/jobs/2106-N/603.dgn Rev=0

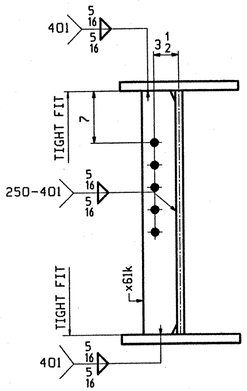


ONE - GIRDER - G4A

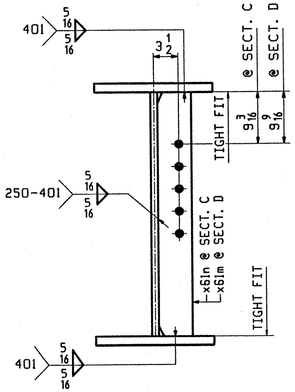
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C601.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



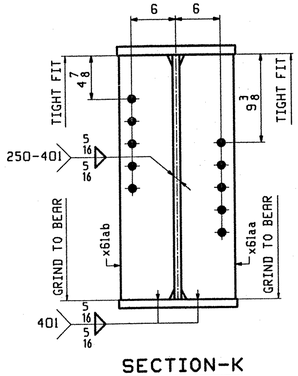
SECTION-A



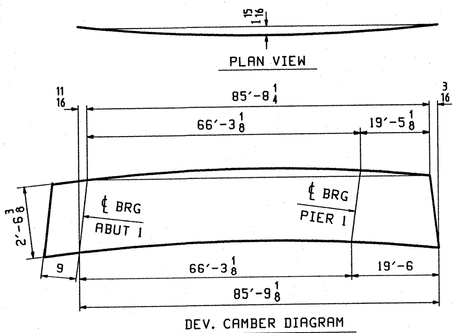
SECTION-B



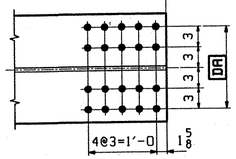
SECTION-C&D



SECTION-K



DEV. CAMBER DIAGRAM
SEE DWG. C601



SECTION - BB

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									604	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4A	1		GIRDER				14958	
602	Q		1	wa	PL 1/2x31 3/8	42	10 1/4	(M270-50WT2) (H2-3)		
602	U		1	wb	PL 1/2x31 1/4	43	7 7/8	(M270-50WT2) (H2-3)		
601	Y		1	ta	PL 7/8x16	44	8 3/8	(M270-50WT2) (H2-3)		
601	C		1	tb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)		
601	Y		1	ba	PL 7/8x16	44	9 1/4	(M270-50WT2) (H2-3)		
601	C		1	bb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)		
603	M		2	x61s	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	N		2	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		4	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		2	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61ab	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61aa	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for determining as to confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: MM
DATE: 01-16-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-9-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

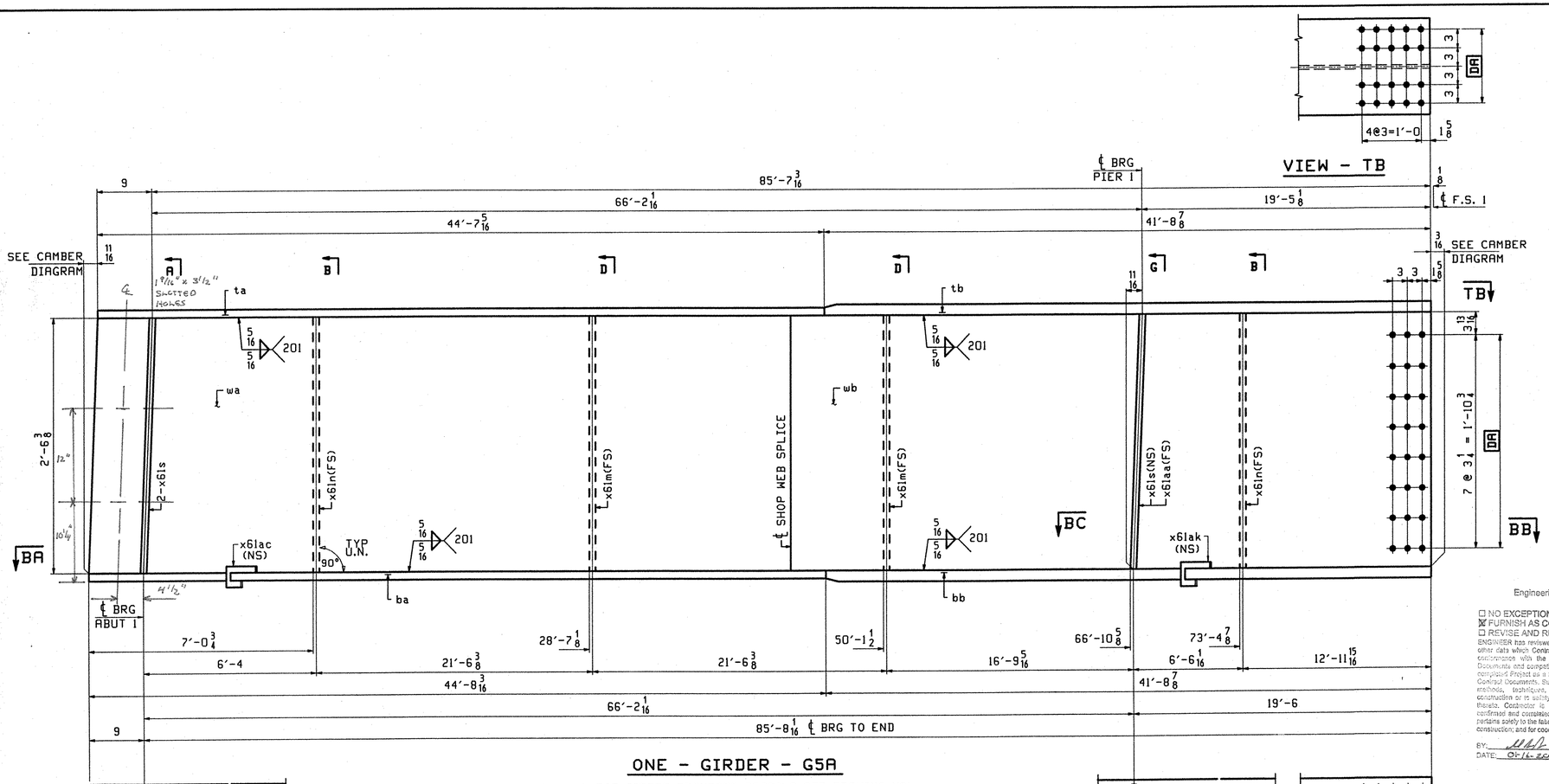
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	GIRDER - G4A	DRAWN BY	DATE
JOB:	BRIDGE NO. 5ON	BW	09/24
	I-89 NB OVER U.S. ROUTE 2	CHKD BY	
	I-89 IMPROVEMENTS	DO	09/28
	TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
TENSOR 2108-N		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

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

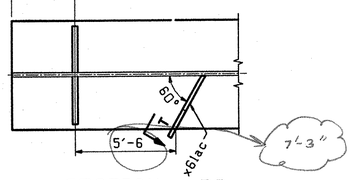
JOB NO.	DRG. NO.
123-5ON	604
	REV. △

DO Thu Oct 4 14:02:08 EST 2001 /users/jobs/2108-N/G04 1 Rev0

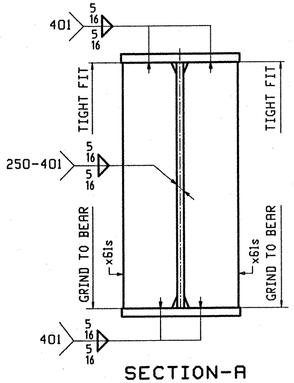


ONE - GIRDER - G5A

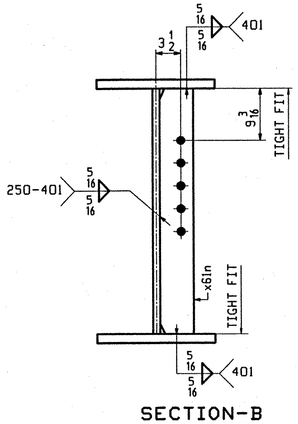
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C601.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



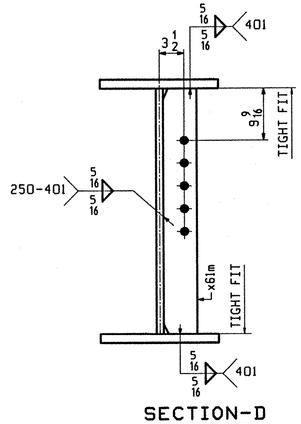
SECTION - BA



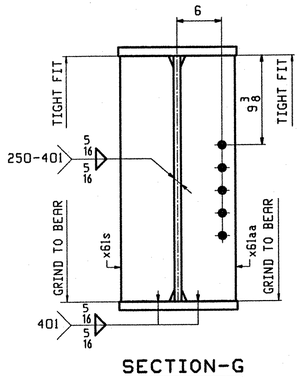
SECTION-A



SECTION-B



SECTION-D



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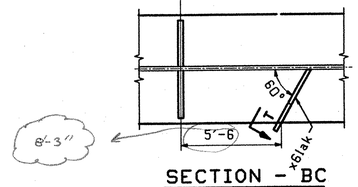
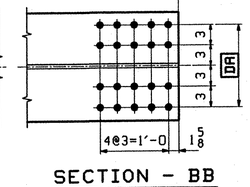
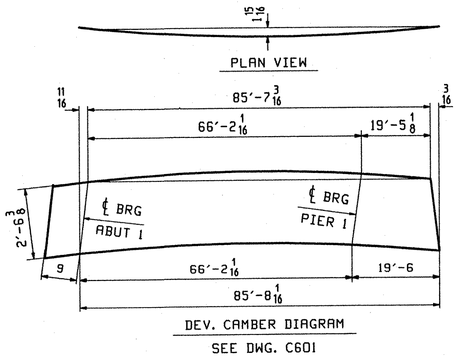


SECTION - BC

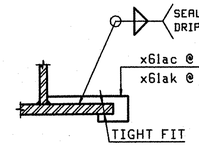


SECTION - BB



DEV. CAMBER DIAGRAM

SEE DWG. C601



SECTION-T

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5A	1		GIRDER				14864	
602	Q		1	wa	PL 1/2x31 3/8	42	9 3/16	(M270-50WT2) (H2-3)		
602	U		1	wb	PL 1/2x31 1/4	43	7 7/8	(M270-50WT2) (H2-3)		
601	Y		1	ta	PL 7/8x16	44	7 5/16	(M270-50WT2) (H2-3)		
601	C		1	tb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)		
601	Y		1	ba	PL 7/8x16	44	8 3/16	(M270-50WT2) (H2-3)		
601	C		1	bb	PL 1 1/4x16	41	8 7/8	(M270-50WT2) (H2-3)		
603	M		3	x61s	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	N		2	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		2	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61aa	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	P		1	x61ac	PL 1/4x2 7/8	0	10 15/16	(M270-50W)		
603	P		1	x61ak	PL 1/4x3 1/4	0	10 15/16	(M270-50W)		

JOB NO.

DRAWING NO. 605

REV.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 01-16-2003

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-9-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL: M270 GR 50W

ELECTRODES:

HOLES: 15/16 ø (UN)

SHOP BOLTS: 7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5A

JOB: BRIDGE NO. 5ON
I-89 NB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-N

PROJ NO. IM-089-2(26)

CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	09/24
CHKD BY	
DO	09/28
APPROV BY	
SUPERVISOR	W. J. GATTI
Q.A.	

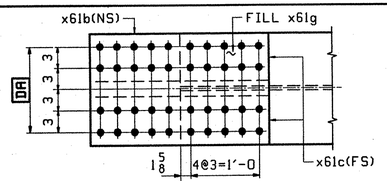
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 123-5ON

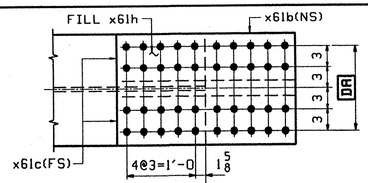
DRG. NO. 605

REV. △

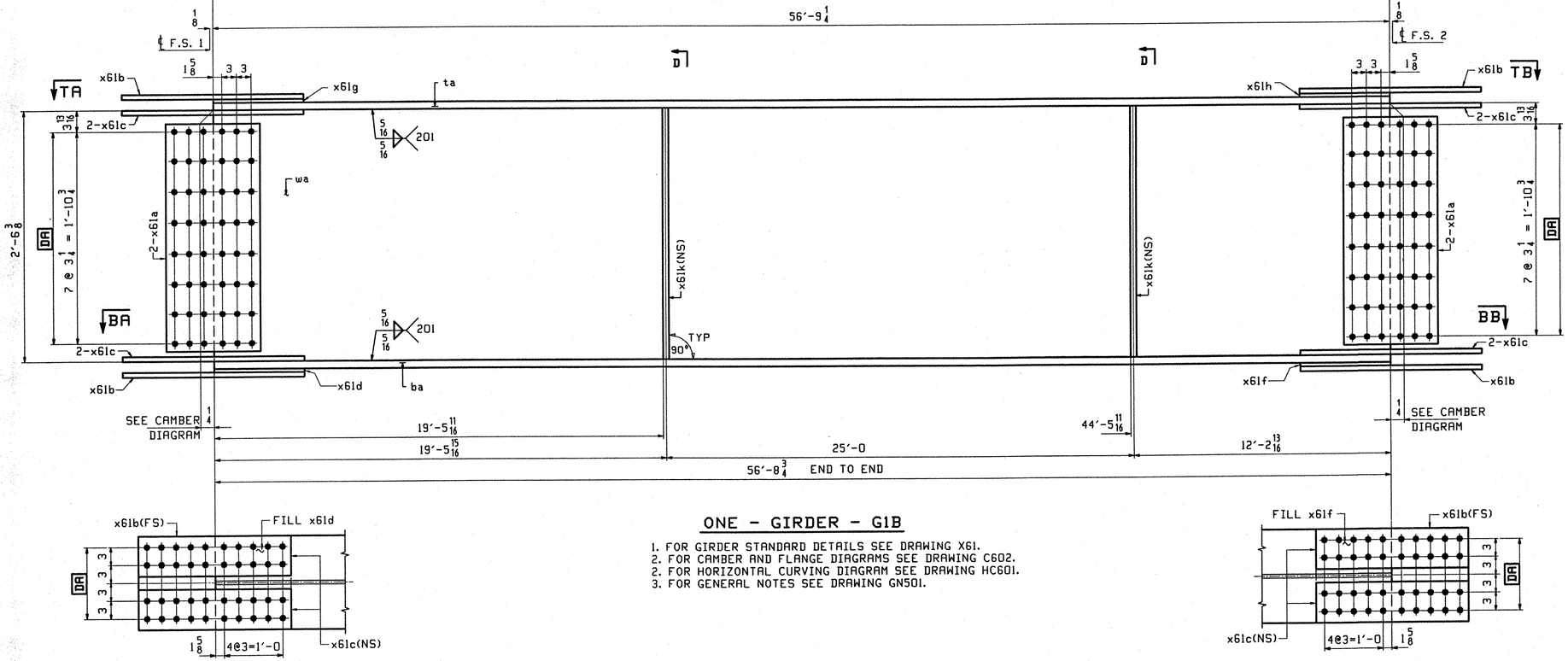
BM Thu Oct 4 10:28:49 EDT 2001 /users/jobs/2108-N/605 : Rev0



VIEW - TA



VIEW - TB

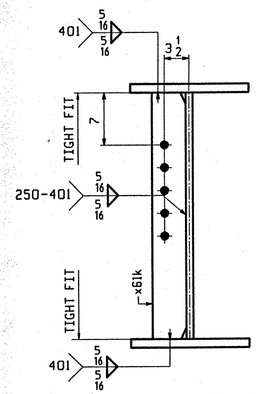


ONE - GIRDER - G1B

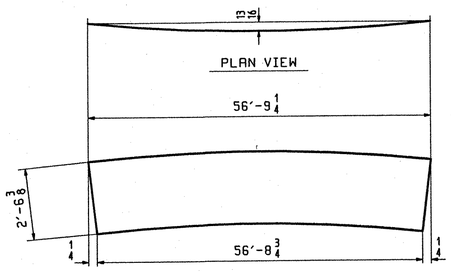
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C602.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.

SECTION - BA

SECTION - BB



SECTION-D



DEV. CAMBER DIAGRAM
SEE DWG C602

ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
									606	
		G1B	1		GIRDER				9989	
602	E		1	wa	PL 1/2x32 1/4	56	9 1/4	(M270-50WT2) (H2-3)		
601	L		1	ta	PL 5/8x16	56	9 1/4	(M270-50WT2) (H2-3)		
601	E		1	ba	PL 1x16	56	8 3/4	(M270-50WT2) (H2-3)		
603	B		4	x61a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
603	C		4	x61b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)		
603	D		8	x61c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
603	H		1	x61d	PL 1/4x16	1	3 3/8	(M270-50W) FILL		
603	J		1	x61f	PL 5/16x16	1	3 3/8	(M270-50W) FILL		
603	F		1	x61g	PL 3/8x16	1	3 3/8	(M270-50W) FILL		
603	G		1	x61h	PL 7/16x16	1	3 3/8	(M270-50W) FILL		
603	N		2	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 09/26/2001

OUT FOR APPROVAL	10-9-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

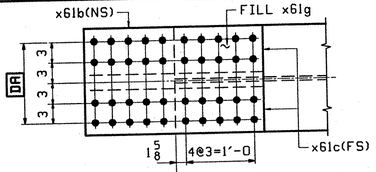
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G1B	DRAWN BY	DATE
JOB: BRIDGE NO. 5ON I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
	CHKD BY	
	DO	09/28
TENSOR 2108-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

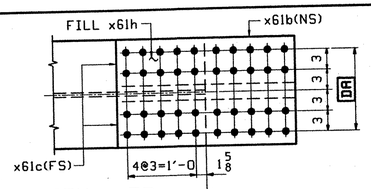
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-5ON	606
	REV. △

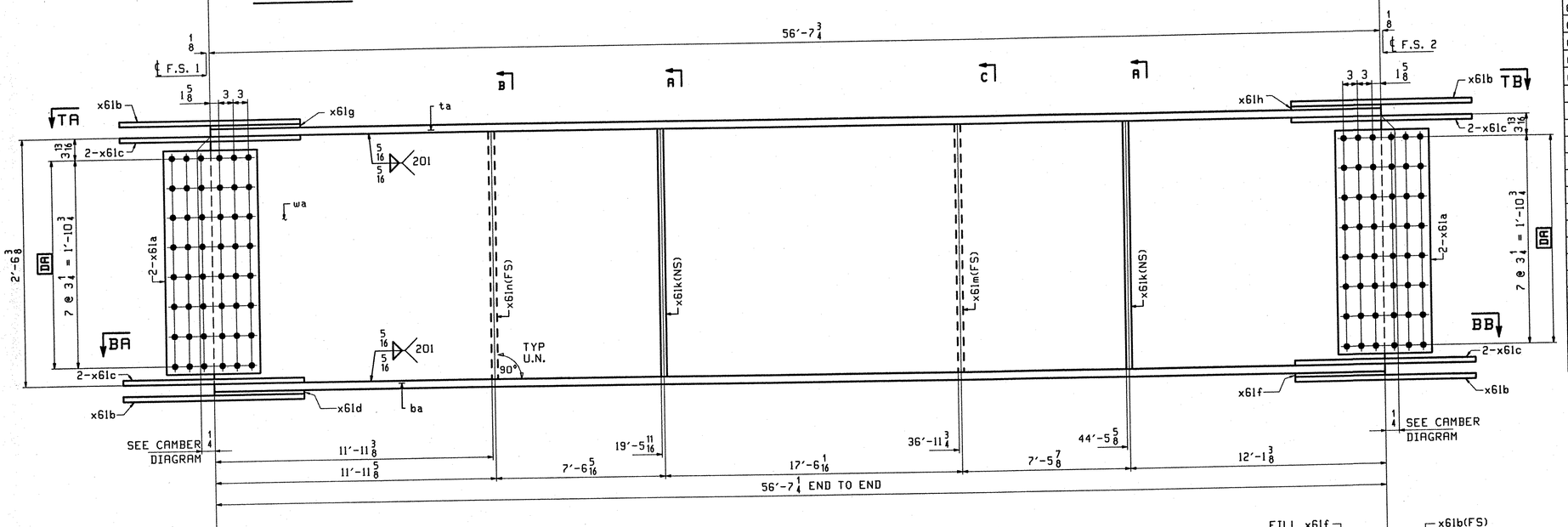
Thu Oct 4 11:53:03 EDT 2001 /users/jobs/2108-N/606.e Rev0



VIEW - TA

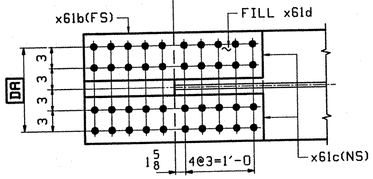


VIEW - TB

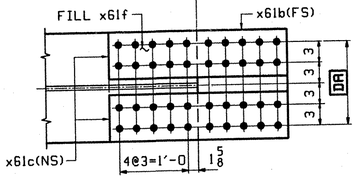


ONE - GIRDER - G2B

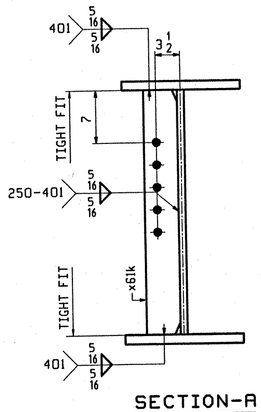
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C602.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



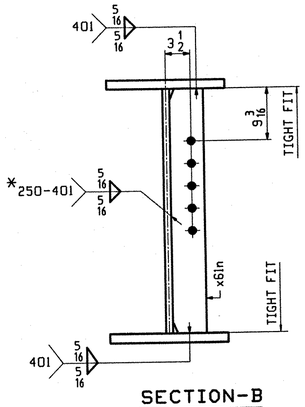
SECTION - BA



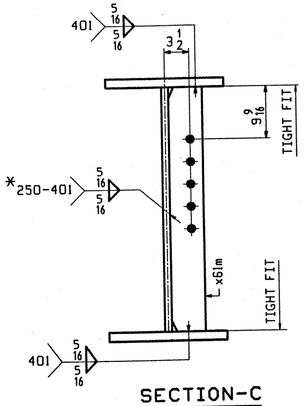
SECTION - BB



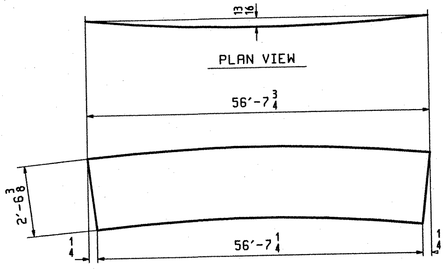
SECTION-A



SECTION-B



SECTION-C



DEV. CAMBER DIAGRAM
SEE DWG C602

ABM INFO		SHIP	BILL OF MATERIAL			LENGTH		JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2B	1		GIRDER				10019	
602	A		1	wa	PL 1/2 x32 5/16	56	7 3/4	(M270-50WT2) (H2-3)		
601	L		1	ta	PL 7/8 x16	56	7 3/4	(M270-50WT2) (H2-3)		
601	E		1	ba	PL 1x16	56	7 1/4	(M270-50WT2) (H2-3)		
603	B		4	x61a	PL 1/2 x26 1/4	1	7	(M270-50WT2) (H2-3)		
603	C		4	x61b	PL 5/8 x16	2	7	(M270-50WT2) (H2-3)		
603	D		8	x61c	PL 5/8 x7	2	7	(M270-50WT2) (H2-3)		
603	H		1	x61d	PL 1/4 x16	1	3 3/8	(M270-50W) FILL		
603	J		1	x61f	PL 5/16 x16	1	3 3/8	(M270-50W) FILL		
603	F		1	x61g	PL 3/8 x16	1	3 3/8	(M270-50W) FILL		
603	G		1	x61h	PL 7/16 x16	1	3 3/8	(M270-50W) FILL		
603	N		1	x61n	PL 1/2 x5	2	6 3/8	(M270-50W)		
603	N		2	x61k	PL 1/2 x5	2	6 3/8	(M270-50W)		
603	N		1	x61m	PL 1/2 x5	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 09-16-2021

OUT FOR APPROVAL	09-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

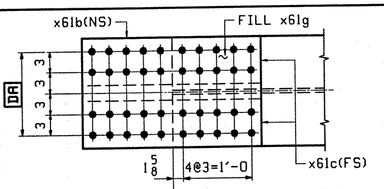
DESCRIPTION:	GIRDER - G2B	DRAWN BY	DATE
JOB:	BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
		CHKD BY	
		DO	09/28
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

TENSOR 2108-N

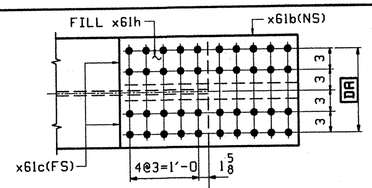
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD, SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	607
	REV. △

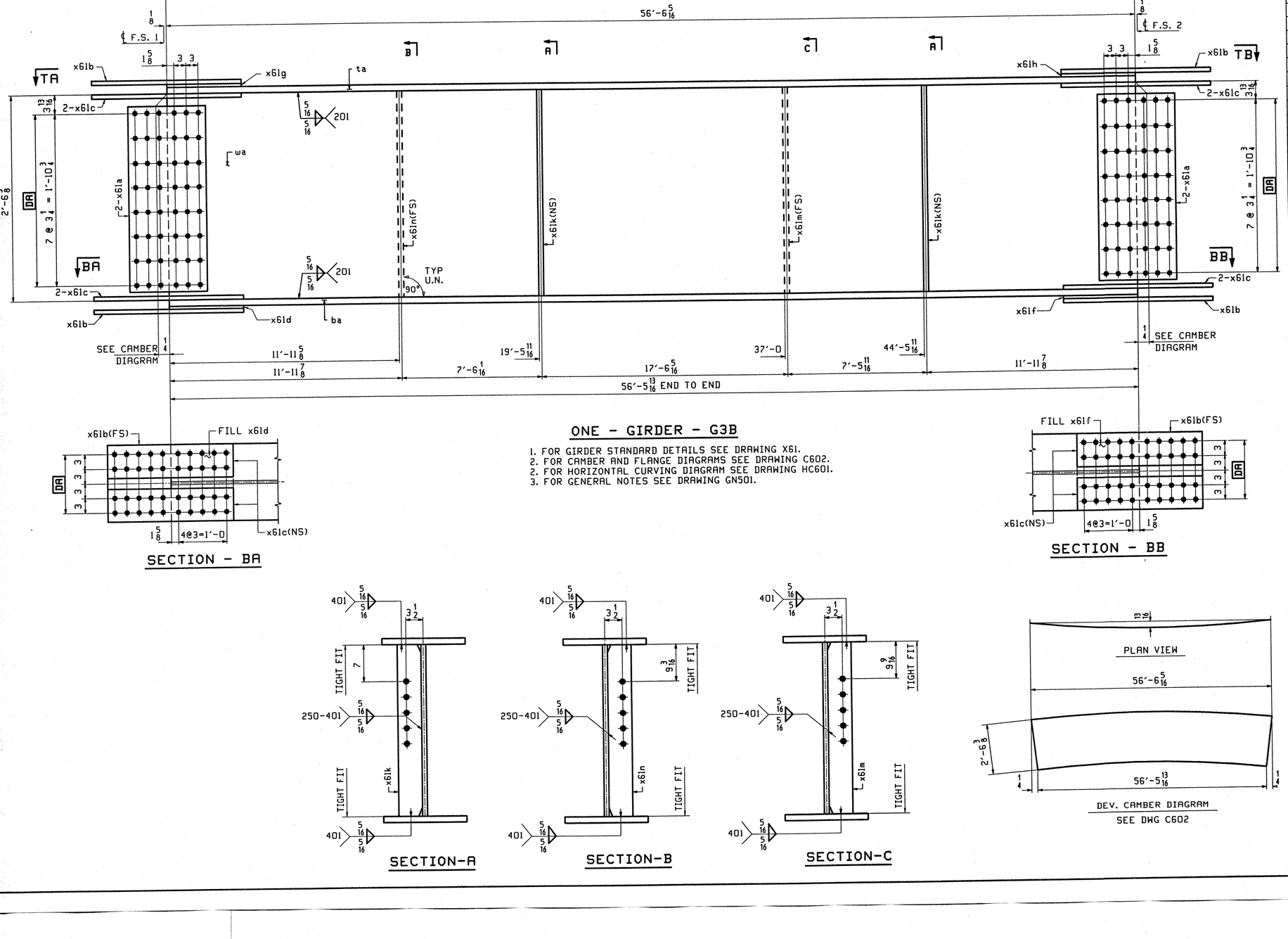
Thu Oct 4 141734 EDT 2001 /users/jobs/2108-N/607.1 RevD



VIEW - TA



VIEW - TB



ONE - GIRDER - G3B

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C602.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.

SECTION - BA

SECTION - BB

SECTION-A

SECTION-B

SECTION-C

DEV. CAMBER DIAGRAM
SEE DWG C602

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
						LENGTH			608	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3B	1		GIRDER				10000	
602	A		1	wa	PL 1/2x32 5/16	56	6 5/16	(M270-50WT2) (H2-3)		
601	N		1	ta	PL 7/8x16	56	6 7/16	(M270-50WT2) (H2-3)		
601	G		1	ba	PL 1x16	56	5 13/16	(M270-50WT2) (H2-3)		
603	B		4	x61a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
603	C		4	x61b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)		
603	D		8	x61c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
603	H		1	x61d	PL 1/4x16	1	3 3/8	(M270-50W) FILL		
603	J		1	x61f	PL 5/16x16	1	3 3/8	(M270-50W) FILL		
603	F		1	x61g	PL 3/8x16	1	3 3/8	(M270-50W) FILL		
603	G		1	x61h	PL 7/16x16	1	3 3/8	(M270-50W) FILL		
603	N		1	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		2	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		1	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 10-16-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

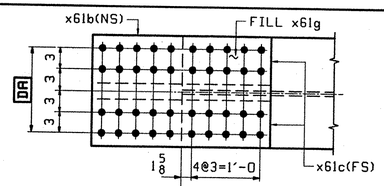
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G3B	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
	CHKD BY	
	DO	09/28
	APPROV BY	
TENSOR 2108-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

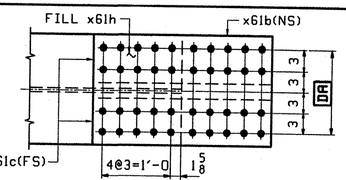
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	608
	REV. △

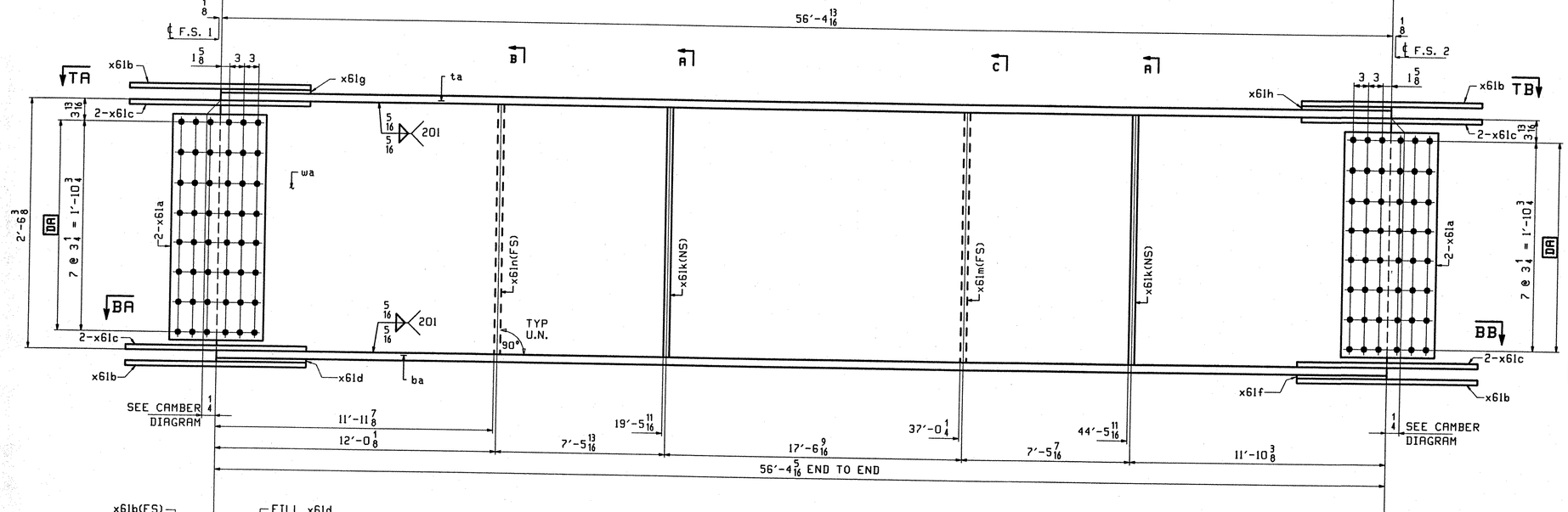
BW Thu Oct 4 10:35:58 EDT 2001 /users/jobs/2108-N/608.1 Rev0



VIEW - TA

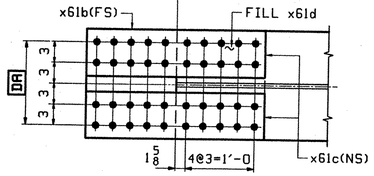


VIEW - TB

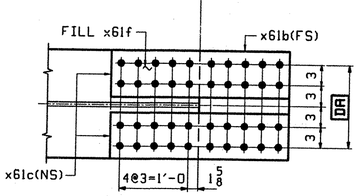


ONE - GIRDER - G4B

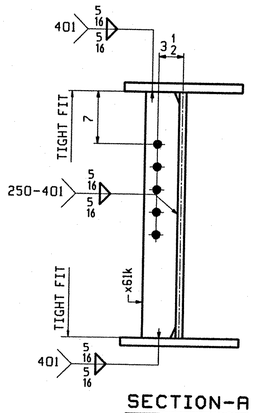
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C602.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



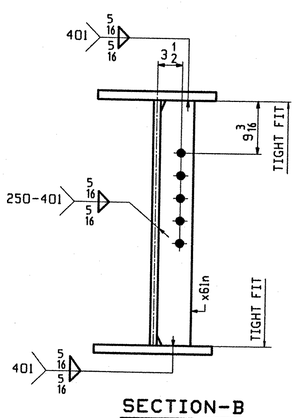
SECTION - BA



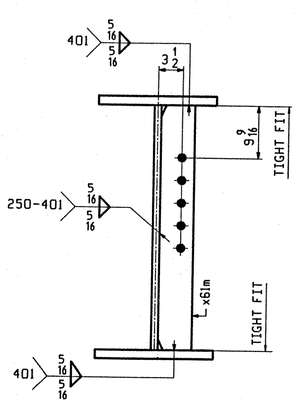
SECTION - BB



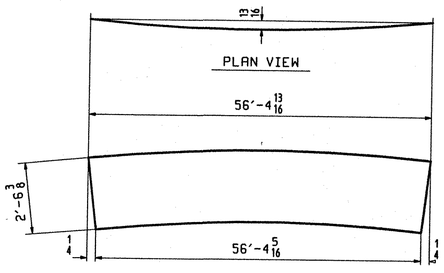
SECTION-A



SECTION-B



SECTION-C



DEV. CAMBER DIAGRAM
SEE DWG C602

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									609	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G4B	1		GIRDER				9980	
602	C		1	wa	PL 1/2x32 5/16	56	4 13/16	(M270-50WT2) (H2-3)		
601	N		1	ta	PL 2/8x16	56	4 13/16	(M270-50WT2) (H2-3)		
601	G		1	ba	PL 1x16	56	4 5/16	(M270-50WT2) (H2-3)		
603	B		4	x61a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
603	C		4	x61b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)		
603	D		8	x61c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
603	H		1	x61d	PL 1/4x16	1	3 3/8	(M270-50W) FILL		
603	J		1	x61f	PL 5/16x16	1	3 3/8	(M270-50W) FILL		
603	F		1	x61g	PL 3/8x16	1	3 3/8	(M270-50W) FILL		
603	G		1	x61h	PL 7/16x16	1	3 3/8	(M270-50W) FILL		
603	N		1	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		2	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		1	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 01-16-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-9-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

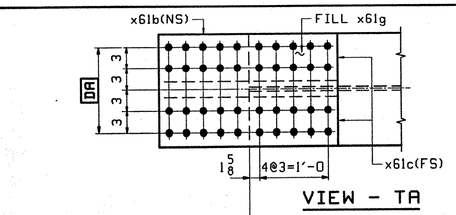
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G4B	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
	CHKD BY	
	DO	09/28
TENSOR 2108-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

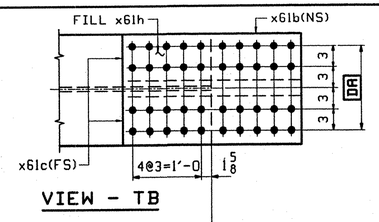
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	609
	REV. △

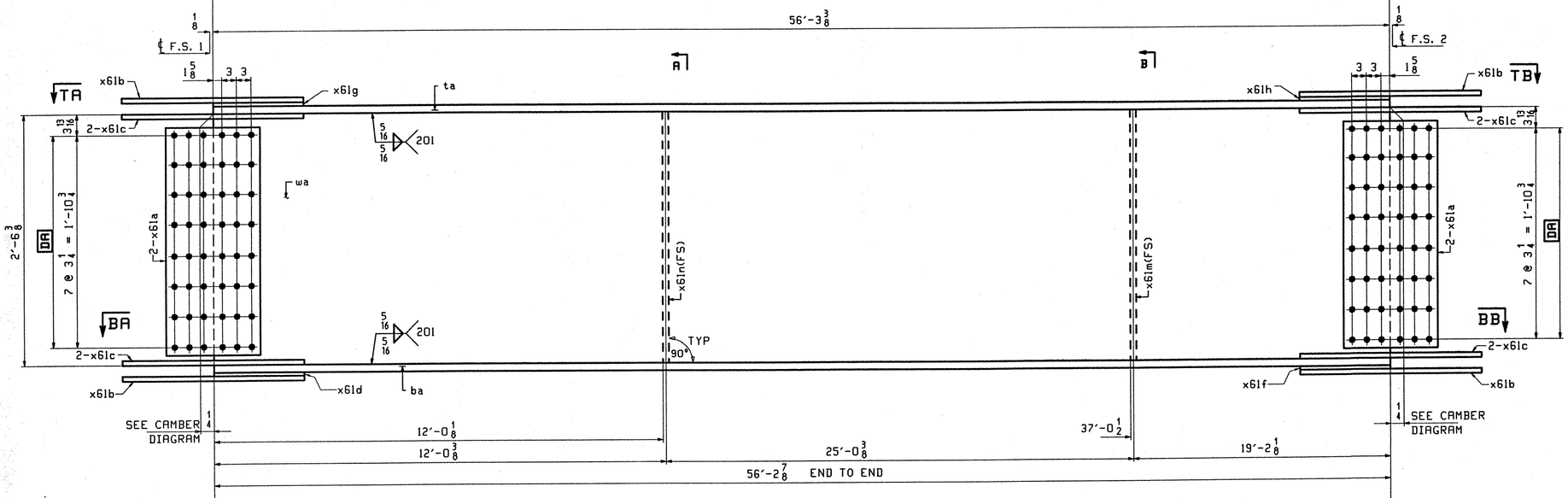
BW Thu Oct 4 10:08:24 EDT 2001 /users/jobs/2108-N/609 : Rev:0

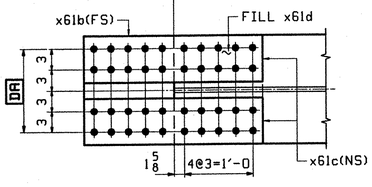


VIEW - TA

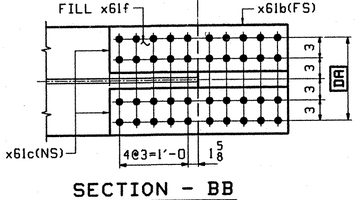


VIEW - TB





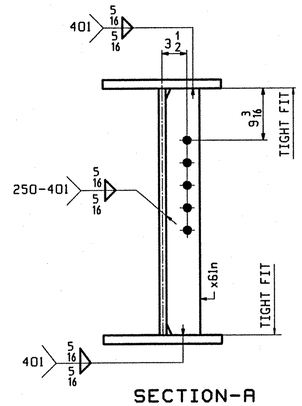
SECTION - BA



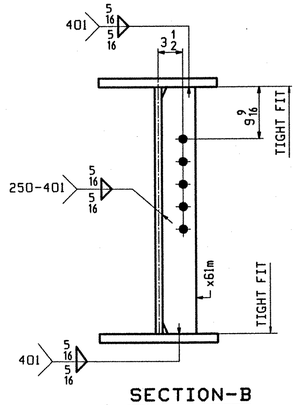
SECTION - BB

ONE - GIRDER - G5B

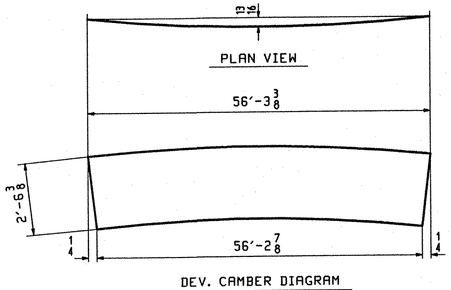
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C602.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



SECTION-A



SECTION-B



DEV. CAMBER DIAGRAM
SEE DWG C602

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									610	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G5B	1		GIRDER				9912	
602	G		1	wa	PL 1/2x32 1/4	56	3 3/8	(M270-50WT2) (H2-3)		
601	Q		1	ta	PL 7/8x16	56	3 3/8	(M270-50WT2) (H2-3)		
601	J		1	ba	PL 1x16	56	2 7/8	(M270-50WT2) (H2-3)		
603	B		4	x61a	PL 1/2x26 1/4	1	7	(M270-50WT2) (H2-3)		
603	C		4	x61b	PL 5/8x16	2	7	(M270-50WT2) (H2-3)		
603	D		8	x61c	PL 5/8x7	2	7	(M270-50WT2) (H2-3)		
603	H		1	x61d	PL 1/4x16	1	3 3/8	(M270-50W) FILL		
603	J		1	x61f	PL 5/16x16	1	3 3/8	(M270-50W) FILL		
603	F		1	x61g	PL 3/8x16	1	3 3/8	(M270-50W) FILL		
603	G		1	x61h	PL 7/16x16	1	3 3/8	(M270-50W) FILL		
603	N		1	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		1	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: _____
DATE: 09-16-2004

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

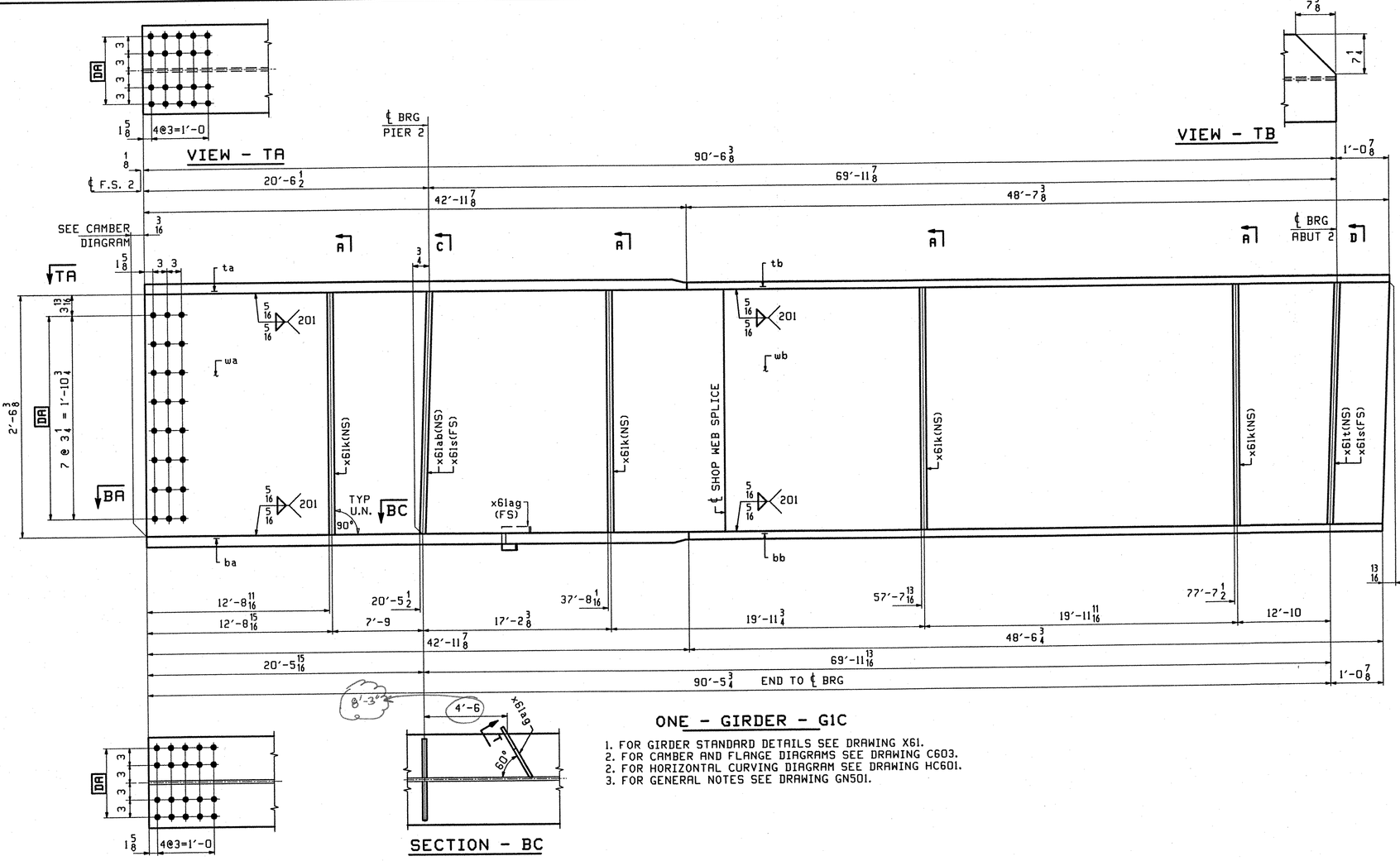
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5B	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
	CHKD BY	
	DO	09/28
TENSOR 2108-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

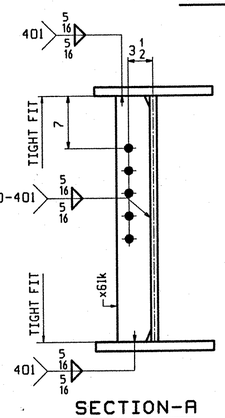
JOB NO.	DRG. NO.
123-50N	610
	REV. △

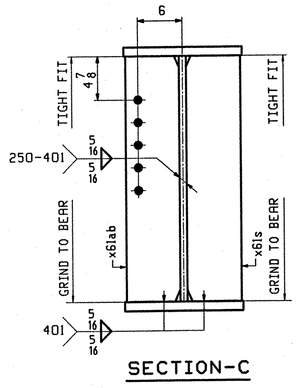
BM Thu Oct 4 10:39:46 EDT 2001 /users/jake/2108-W/610 | Rev:0

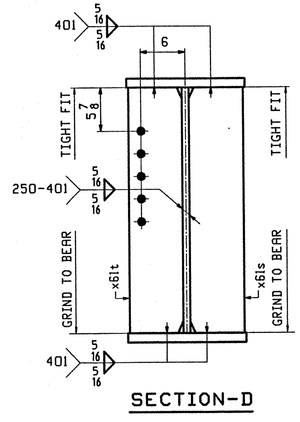


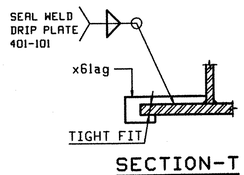
ONE - GIRDER - G1C

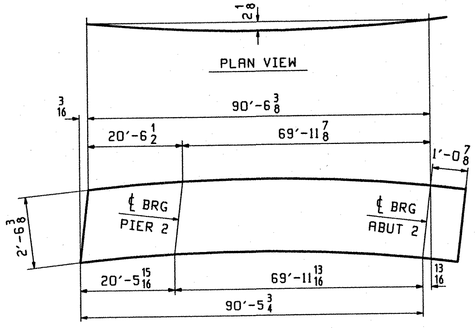
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C603.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.











DEV. CAMBER DIAGRAM
SEE DWG. C603

ABM INFO		SHIP	BILL OF MATERIAL						JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES	
		GIC	1		GIRDER				15987		
602	S		1	wa	PL 1/2×31 1/4	45	7 7/8	(M270-50WT2) (H2-3)			
602	J		1	wb	PL 1/2×31 1/2	45	11 9/16	(M270-50WT2) (H2-3)			
601	A		1	ta	PL 5/16×16	42	11 7/8	(M270-50WT2) (H2-3)			
601	S		1	tb	PL 7/8×16	48	7 3/8	(M270-50WT2) (H2-3)			
601	A		1	ba	PL 5/16×16	42	11 7/8	(M270-50WT2) (H2-3)			
601	S		1	bb	PL 7/8×16	48	6 3/4	(M270-50WT2) (H2-3)			
603	N		4	x61k	PL 1/2×5	2	6 3/8	(M270-50W)			
603	M		1	x61ab	PL 7/8×7 3/4	2	6 3/8	(M270-50W)			
603	M		2	x61s	PL 7/8×7 1/4	2	6 3/8	(M270-50W)			
603	M		1	x61t	PL 7/8×7 3/4	2	6 3/8	(M270-50W)			
603	P		1	x61ag	PL 1/4×3 5/16	0	10 15/16	(M270-50W)			

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 01-16-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

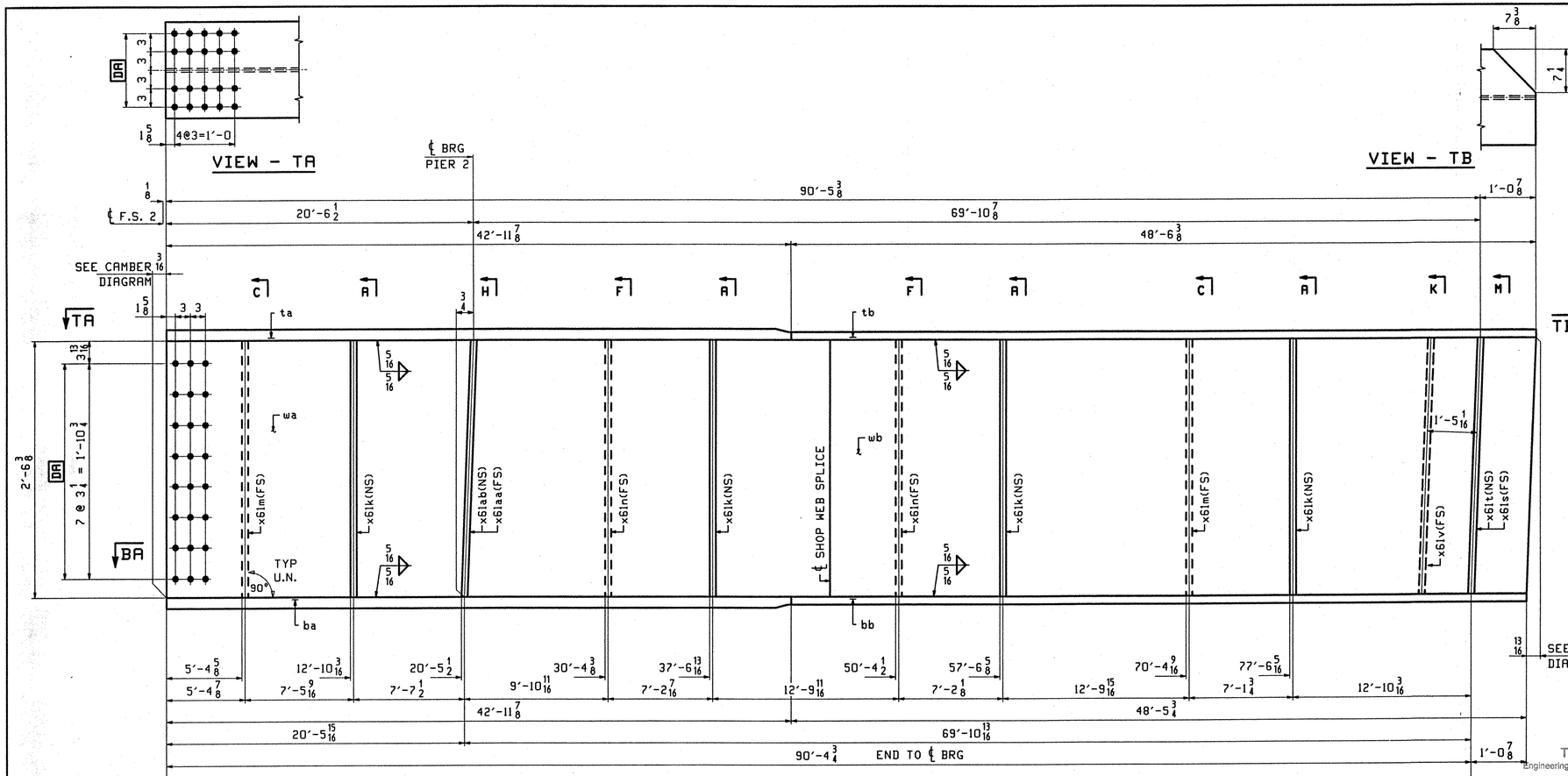
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

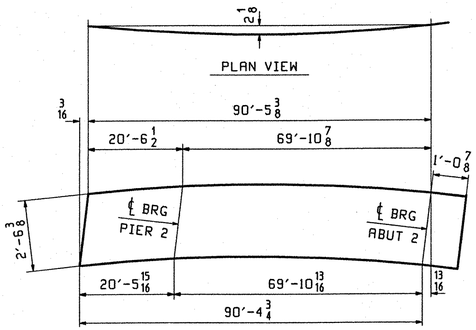
DESCRIPTION: GIRDER - G1C	DRAWN BY	DATE
JOB: BRIDGE NO. 5ON I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
	CHKD BY	
	DO	09/28
TENSOR 2108-N	APPROV BY	
PROJ NO. IM-089-2(26)	SUPERVISOR	W. J. GATTI
	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
123-5ON	611
	REV. △

BW Thu Oct 4 10:45:10 EDT 2001 /users/jobs/2108-N/611 : Rev0



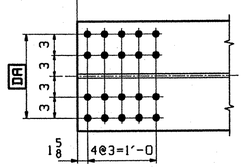


DEV. CAMBER DIAGRAM
SEE DWG. C603

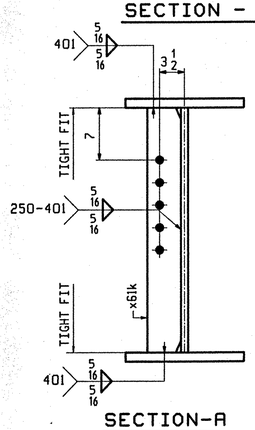
ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									612	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G2C	1		GIRDER				16116	
602	S		1	wa	PL 1/2x31 1/4	45	7 7/8	(M270-50WT2) (H2-3)		
602	J		1	wb	PL 1/2x31 1/2	45	10 9/16	(M270-50WT2) (H2-3)		
601	A		1	ta	PL 1 1/16x16	42	11 7/8	(M270-50WT2) (H2-3)		
601	S		1	tb	PL 7/8x16	48	6 3/8	(M270-50WT2) (H2-3)		
601	A		1	ba	PL 1 5/16x16	42	11 7/8	(M270-50WT2) (H2-3)		
601	S		1	bb	PL 7/8x16	48	5 3/4	(M270-50WT2) (H2-3)		
603	N		2	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		4	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61ab	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61aa	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	N		2	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61t	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61s	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61v	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		

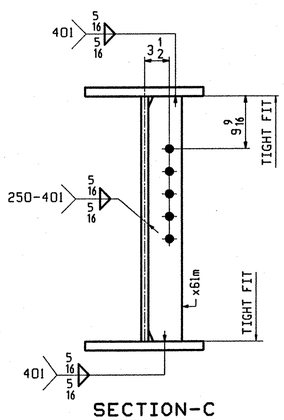
ONE - GIRDER - G2C

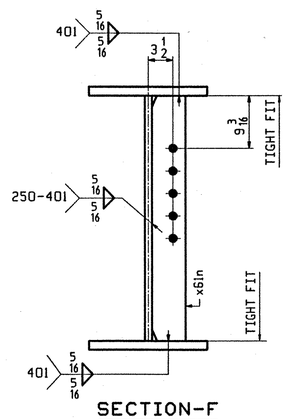
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C603.
3. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
4. FOR GENERAL NOTES SEE DRAWING GN501.

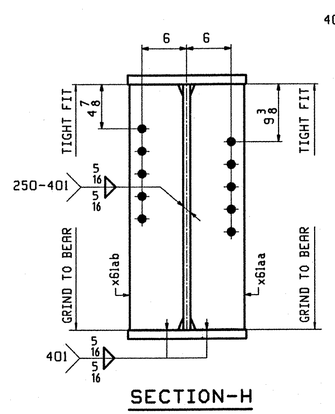


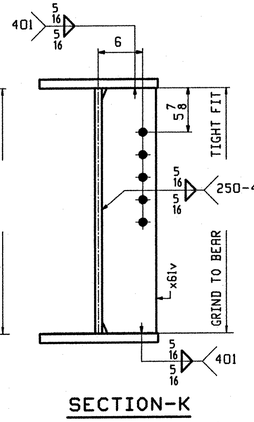
SECTION - BA

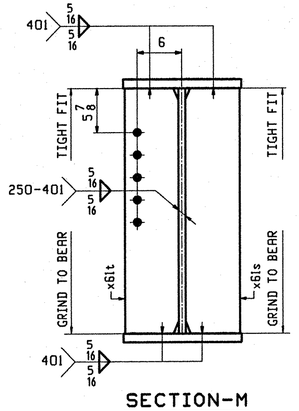












NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review(s) do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 01-16-2021

REV.	REMARKS	DATE	DWN	CHK	APP
	OUT FOR APPROVAL	09.01			
	OUT FOR APPROVAL				
	ISSUED TO SHOP				
	FIELD & OFFICE				

Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

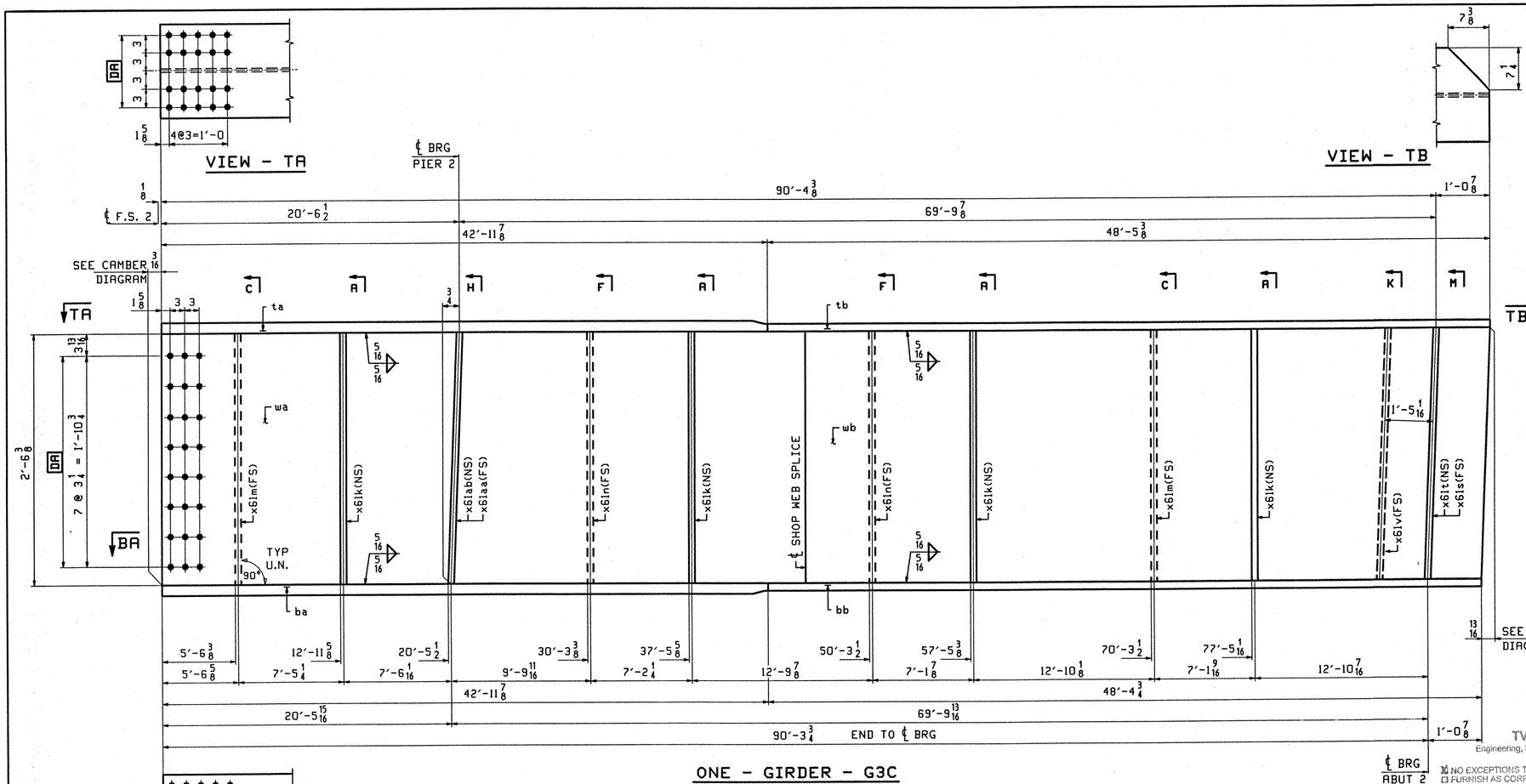
SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

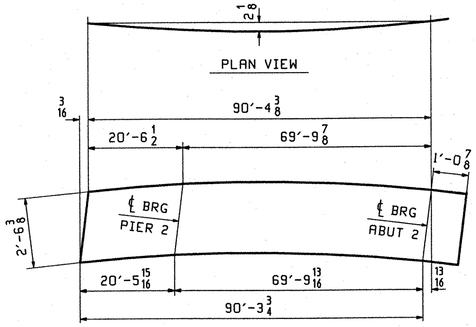
DESCRIPTION: GIRDER - G2C	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
	CHKD BY	
	DO	09/28
	APPROV BY	
TENSOR 2108-N	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

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

JOB NO.	DRG. NO.
123-50N	612
	REV. △

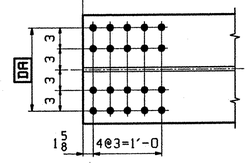
BW Thu Oct 4 11:32:00 EDT 2001 /users/jobs/2108-N/612 : Rev0





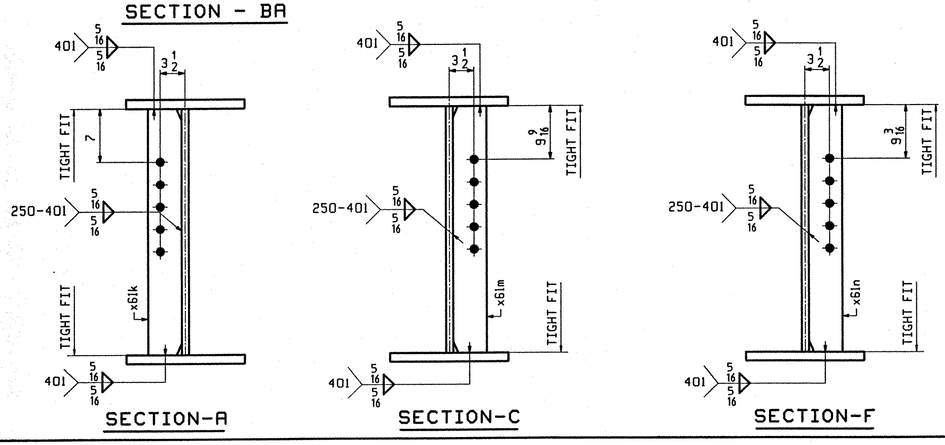
DEV. CAMBER DIAGRAM

SEE DWG. C603



ONE - GIRDER - G3C

1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C603.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.



ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									613	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		G3C	1		GIRDER				16104	
602	S		1	wa	PL 1/2x31 1/4	45	7 7/8	(M270-50WT2) (H2-3)		
602	J		1	wb	PL 1/2x31 1/2	45	9 1/16	(M270-50WT2) (H2-3)		
601	A		1	ta	PL 1 5/16x16	42	11 7/8	(M270-50WT2) (H2-3)		
601	S		1	tb	PL 7/8x16	48	5 3/8	(M270-50WT2) (H2-3)		
601	A		1	ba	PL 1 5/16x16	42	11 7/8	(M270-50WT2) (H2-3)		
601	U		1	bb	PL 7/8x16	48	4 3/4	(M270-50WT2) (H2-3)		
603	N		2	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		4	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61ab	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61aa	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	N		2	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61t	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61s	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61v	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY:
DATE: Oct 16 2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

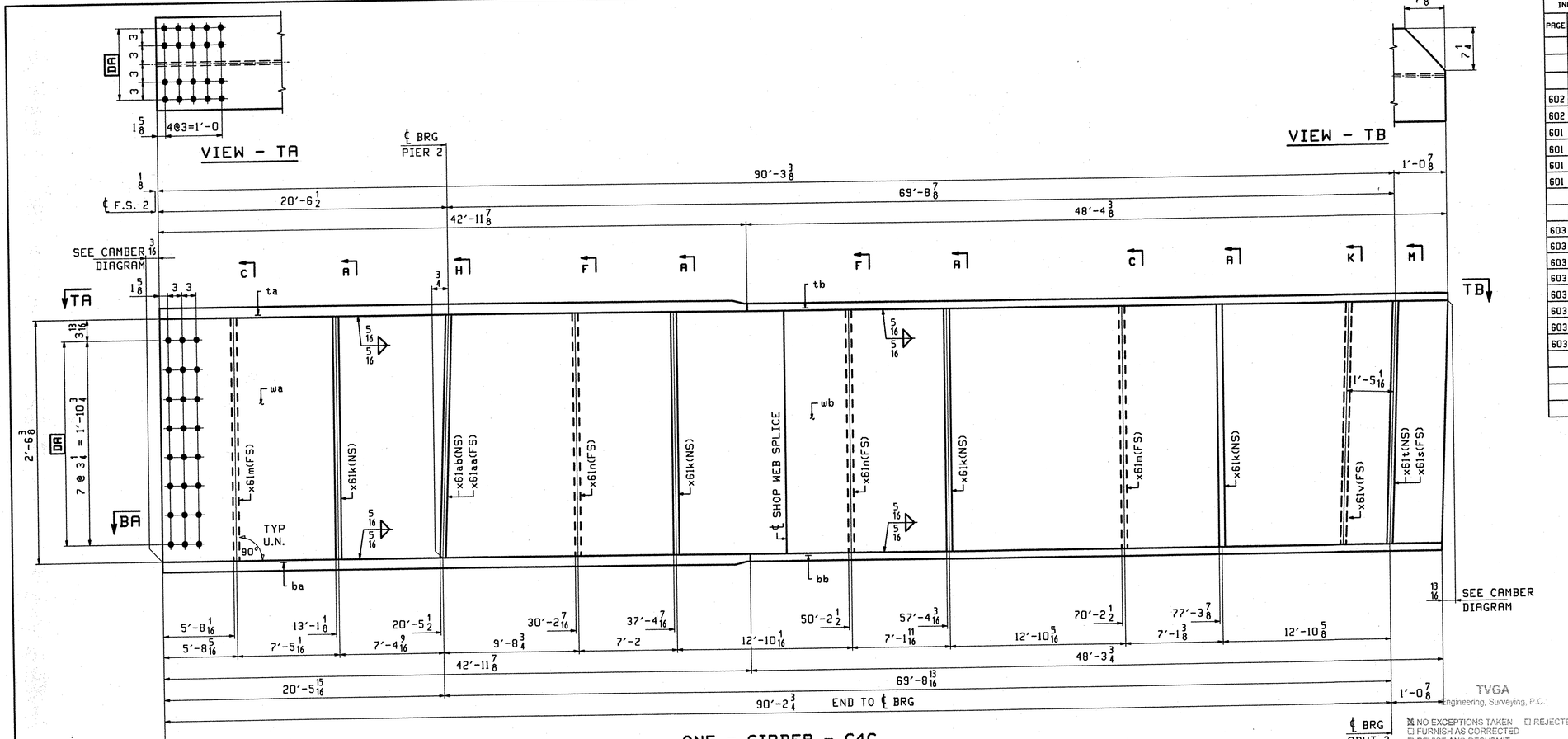
DESCRIPTION:	GIRDER - G3C	DRAWN BY	DATE
JOB:	BRIDGE NO. 5ON	BW	09/25
	I-89 NB OVER U.S. ROUTE 2	CHKD BY	
	I-89 IMPROVEMENTS	DO	09/28
TENSOR 2108-N	TOWN OF MIDDLESEX-BOLTON, VERMONT	APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

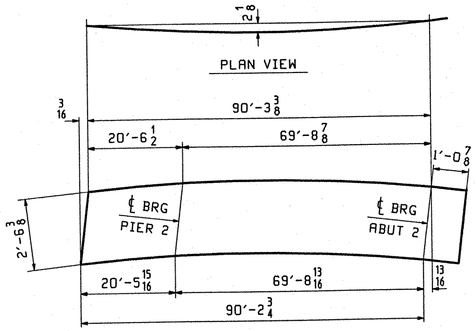
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-5ON	613
	REV. △

BW Thu Oct 4 11:51:18 EDT 2001 /users/jobs/2108-N/613.r Rev-0

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
									614	
		G4C	1		GIRDER				16091	
602	S		1	wa	PL 1/2x31 1/4	45	7 7/8	(M270-50WT2) (H2-3)		
602	L		1	wb	PL 1/2x31 1/2	45	8 9/16	(M270-50WT2) (H2-3)		
601	A		1	ta	PL 5/16x16	42	11 7/8	(M270-50WT2) (H2-3)		
601	U		1	tb	PL 7/8x16	48	4 3/8	(M270-50WT2) (H2-3)		
601	A		1	ba	PL 1 5/16x16	42	11 7/8	(M270-50WT2) (H2-3)		
601	U		1	bb	PL 7/8x16	48	3 3/4	(M270-50WT2) (H2-3)		
603	N		2	x61m	PL 1/2x5	2	6 3/8	(M270-50W)		
603	N		4	x61k	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61ab	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61aa	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	N		2	x61n	PL 1/2x5	2	6 3/8	(M270-50W)		
603	M		1	x61t	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61s	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		
603	M		1	x61v	PL 7/8x7 3/4	2	6 3/8	(M270-50W)		

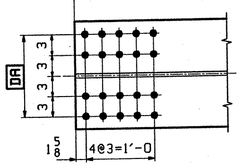




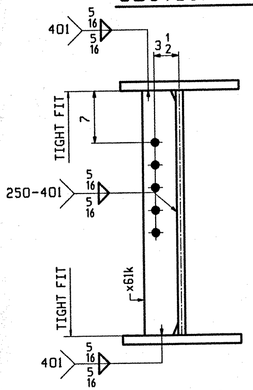
DEV. CAMBER DIAGRAM
SEE DWG. C603

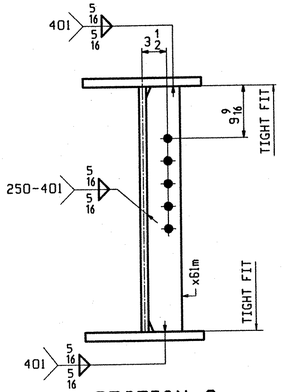
ONE - GIRDER - G4C

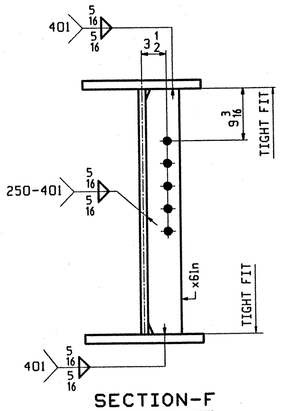
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C603.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.

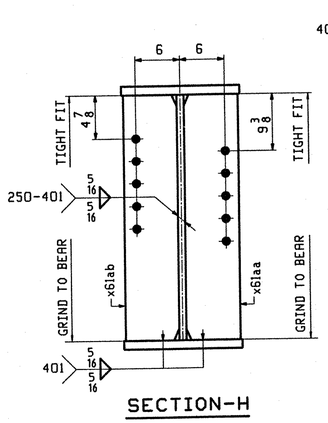


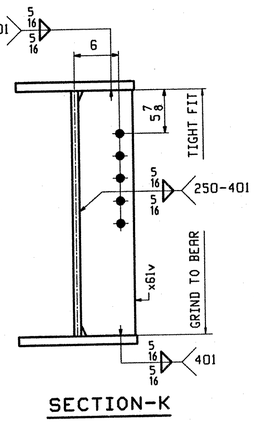
SECTION - BA

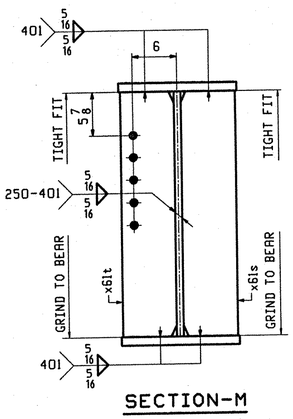












TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 10-6-2021

OUT FOR APPROVAL	10-6-21									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION:	GIRDER - G4C	DRAWN BY	DATE
JOB:	BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/25
		CHKD BY	
		DO	09/28
		APPROV BY	
		SUPERVISOR	W. J. GATTI
PROJ NO.	IM-089-2(26)	Q.A.	
CUSTOMER:	VERMONT AGENCY OF TRANSPORTATION		

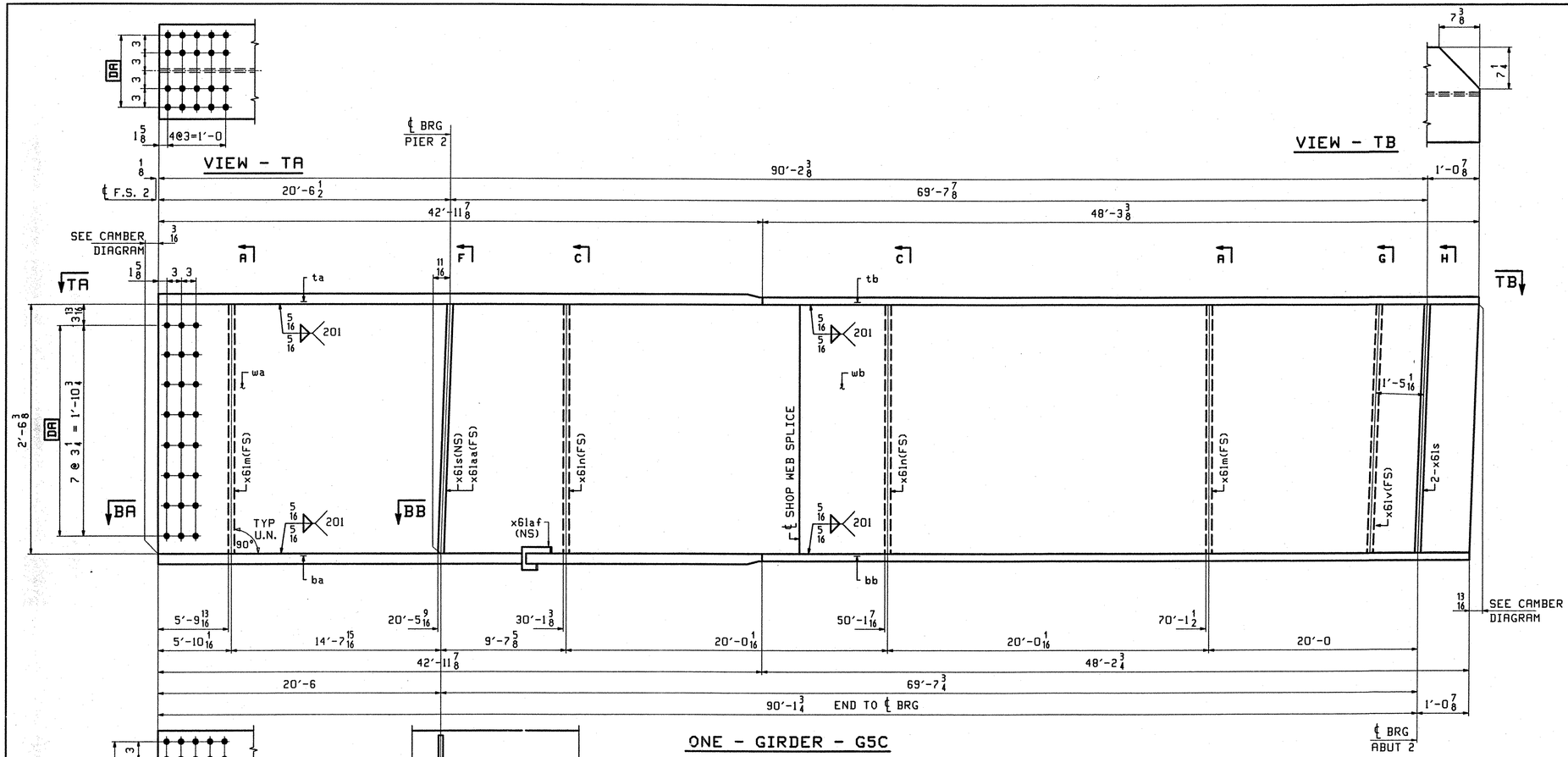
TENSOR 2108-N

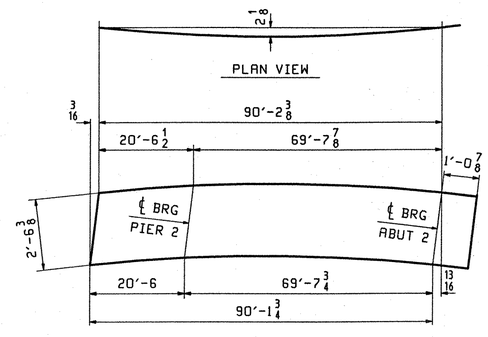
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	614
	REV. △

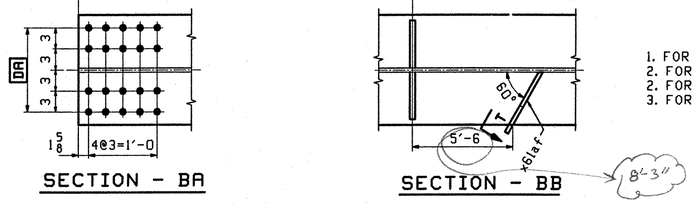
Thu Oct 14 10:05:54 EDT 2021 /users/jake/2108-N/614.1 Rev0

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.		REV.
						LENGTH			615		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	FT	INCHES	REMARKS	WT	PROCUREMENT NOTES	
		G5C	1		GIRDER				15995		
602	S		1	wa	PL $\frac{1}{2}$x31$\frac{1}{4}$	45	$7\frac{7}{8}$	(M270-50WT2) (H2-3)			
602	L		1	wb	PL $\frac{1}{2}$x31$\frac{1}{2}$	45	$7\frac{9}{16}$	(M270-50WT2) (H2-3)			
601	A		1	ta	PL $1\frac{5}{16}$x16	42	$11\frac{7}{8}$	(M270-50WT2) (H2-3)			
601	U		1	tb	PL $\frac{7}{8}$x16	48	$3\frac{3}{8}$	(M270-50WT2) (H2-3)			
601	A		1	ba	PL $1\frac{5}{16}$x16	42	$11\frac{7}{8}$	(M270-50WT2) (H2-3)			
601	U		1	bb	PL $\frac{7}{8}$x16	48	$2\frac{3}{4}$	(M270-50WT2) (H2-3)			
603	N		2	x61m	PL $\frac{1}{2}$x5	2	$6\frac{3}{8}$	(M270-50W)			
603	M		3	x61s	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	$6\frac{3}{8}$	(M270-50W)			
603	M		1	x61aa	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	$6\frac{3}{8}$	(M270-50W)			
603	N		2	x61n	PL $\frac{1}{2}$x5	2	$6\frac{3}{8}$	(M270-50W)			
603	M		1	x61v	PL $\frac{7}{8}$x7$\frac{3}{4}$	2	$6\frac{3}{8}$	(M270-50W)			
603	P		1	x61af	PL $\frac{1}{4}$x3$\frac{5}{16}$	0	$10\frac{15}{16}$	(M270-50W)			



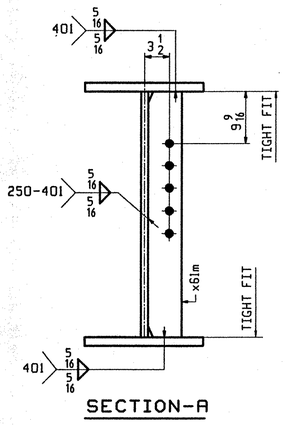


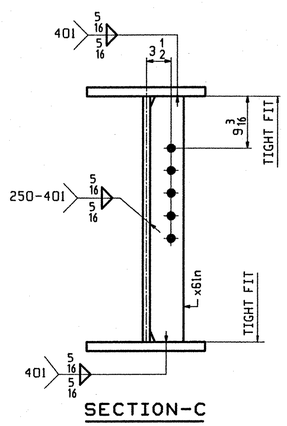
DEV. CAMBER DIAGRAM
SEE DWG. C603

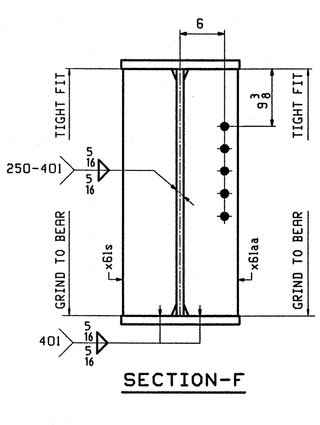


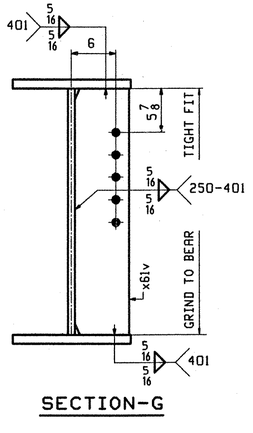
ONE - GIRDER - G5C

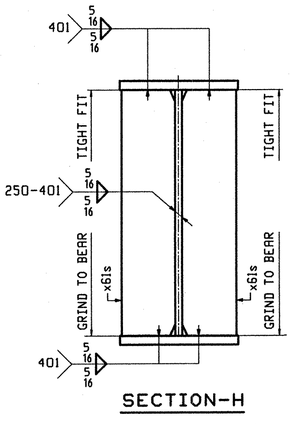
1. FOR GIRDER STANDARD DETAILS SEE DRAWING X61.
2. FOR CAMBER AND FLANGE DIAGRAMS SEE DRAWING C603.
2. FOR HORIZONTAL CURVING DIAGRAM SEE DRAWING HC601.
3. FOR GENERAL NOTES SEE DRAWING GN501.

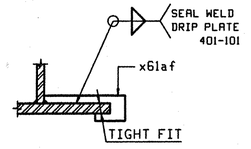












TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 01-16-2002

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-9-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10′-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: GIRDER - G5C

JOB: BRIDGE NO. 5ON
I-89 NB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 210B-N

PROJ NO. IM-089-2(26)

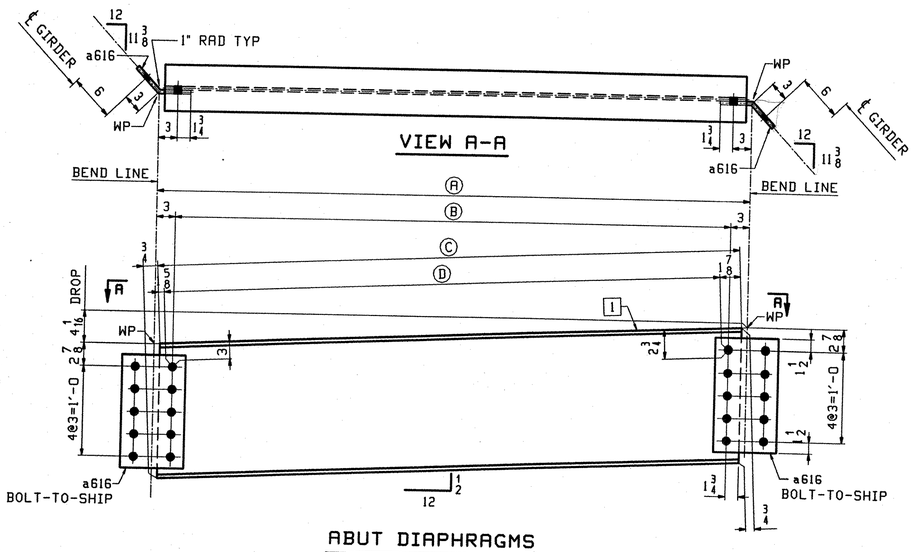
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	09/25
CHKD BY	
DO	09/28
APPROV BY	
SUPERVISOR	W. J. GATTI
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.
123-5ON	615
	REV. △

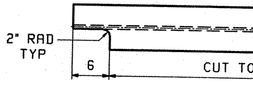
Thu Oct 4 14:45:23 EDT 2001 /users/jobs/210B-N/615.1 Rev0 DO



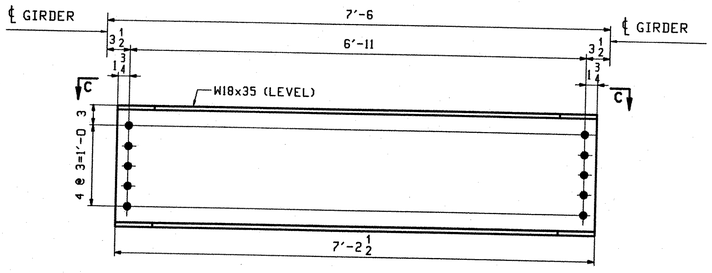
ABUT DIAPHRAGMS

PAINTED SEE GN501

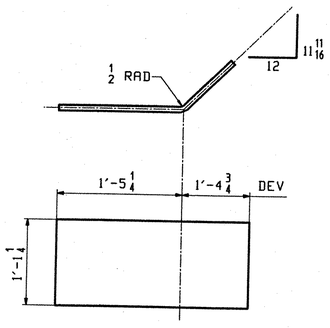
MARK	REQ'D	Ⓐ	Ⓑ	Ⓒ	Ⓓ	1
616D1	1	8'-3 7/16	7'-9 7/16	8'-1	7'-9 1/2	b616
616D2	1	8'-3 5/16	7'-9 5/16	8'-0 7/8	7'-9 3/8	c616
616D3	1	8'-3 1/4	7'-9 1/4	8'-0 13/16	7'-9 5/16	d616
616D4	1	8'-3 1/8	7'-9 1/8	8'-0 11/16	7'-9 3/16	f616



VIEW C-C



40 ~ INT. DIAPHRAGMS ~ 616D5



5 ~ END PLATES ~ 616M1

ABM INFO		SHIP	BILL OF MATERIAL					JOB NO.	DRAWING NO.	REV.
									616	
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		616D1	1		ABUT DIAPHRAGM				326	
604	C		1	b616	W 18x35	8	1 3/4			
604	E		2	a616	PL 1/2x15	0	9 1/2	BENT		
		616D2	1		ABUT DIAPHRAGM				325	
604	C		1	c616	W 18x35	8	1 5/8			
604	E		2	a616	PL 1/2x15	0	9 1/2	BENT		
		616D3	1		ABUT DIAPHRAGM				325	
604	C		1	d616	W 18x35	8	1 9/16			
604	E		2	a616	PL 1/2x15	0	9 1/2	BENT		
		616D4	1		ABUT DIAPHRAGM				325	
604	C		1	f616	W 18x35	8	1 7/16			
604	E		2	a616	PL 1/2x15	0	9 1/2	BENT		
					INT. DIAPHRAGMS					
604	B	616D5	40		W 18x35	7	2 1/2		252	
					END PLATES					
604	H	616M1	5		PL 1/4x13 1/4	2	10	BENT	32	

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	10-9-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:

-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
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DESCRIPTION: DIAPHRAGMS	DRAWN BY	DATE
JOB: BRIDGE NO. 50N I-89 NB OVER U.S. ROUTE 2 I-89 IMPROVEMENTS TOWN OF MIDDLESEX-BOLTON, VERMONT	BW	09/26
	CHKD BY	
	DO	10/1
TENSOR 2108-N	APPROV BY	
	SUPERVISOR	W. J. GATTI
PROJ NO. IM-089-2(26)	Q.A.	
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION		

CASCO BAY STEEL STRUCTURES, INC.

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

JOB NO.	DRG. NO.
123-50N	616
	REV. △

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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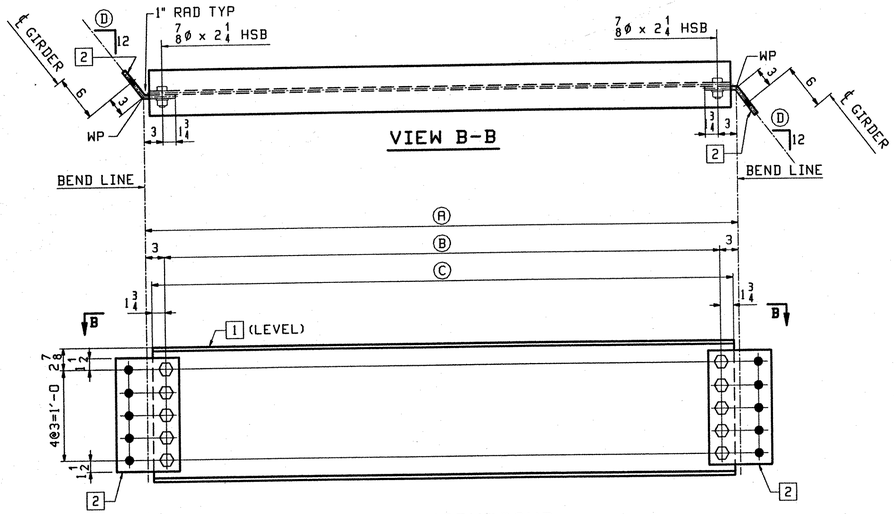
BY: _____
DATE: 01-16-2002

BW Thu Oct 4 15:20:17 EDT 2001 /users/jobs/2108-N/GS : Rev0



PIER DIAPHRAGMS

MARK	REQ'D	Ⓐ	Ⓑ	Ⓒ	Ⓓ	1	2	
617D1	1	9'-7 15/16	9'-1 15/16	9'-5 7/16	9 9/16	a617	m617	PIER 1
617D2	1	9'-7 3/4	9'-1 3/4	9'-5 1/4	9 9/16	b617	m617	PIER 1
617D3	1	9'-7 9/16	9'-1 9/16	9'-5 1/16	9 9/16	c617	m617	PIER 1
617D4	1	9'-7 3/8	9'-1 3/8	9'-4 7/8	9 9/16	d617	m617	PIER 1
617D5	1	9'-5 9/16	8'-11 9/16	9'-3 1/16	9 7/8	f617	n617	PIER 2
617D6	1	9'-5 7/16	8'-11 7/16	9'-2 15/16	9 7/8	g617	n617	PIER 2
617D7	1	9'-5 1/4	8'-11 1/4	9'-2 3/4	9 7/8	h617	n617	PIER 2
617D8	1	9'-5 1/16	8'-11 1/16	9'-2 9/16	9 7/8	k617	n617	PIER 2

BILL OF MATERIAL

JOB NO. | DRAWING NO. 617 | REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		617D7	1		PIER DIAPHRAGMS				372	
604	D		1	h617	W 18x35	9	2 3/4			
604	E		2	n617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		
		617D8	1		PIER DIAPHRAGMS				371	
604	D		1	k617	W 18x35	9	2 9/16			
604	E		2	n617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		
		1	1		FIELD BOLTS				1586	
								2% ADDED +3 FOR TEST		
606	C		411		7/8 ø HSB	0	2 1/4	(A325-3)		
606	E		85		7/8 ø HSB	0	2 1/4	(A325-3)		
606	F		493		7/8 ø HSB	0	3	(A325-3)		
606	J		819		7/8 ø HSB	0	4	(A325-3)		
606	L		1808		7/8 ø HSW			(F436W)		
606	P		45		7/8 ø HSB	0	2 1/4	(A325-1) GALV.		
606	R		45		7/8 ø HSB	0	2 3/4	(A325-1) GALV.		
606	T		90		7/8 ø HSW			(F436) GALV.		

BILL OF MATERIAL

JOB NO. | DRAWING NO. 617 | REV.

ABM INFO PAGE	ABM INFO LINE	SHIP MARK	QTY	MARK	MATERIAL	LENGTH FT	LENGTH INCHES	REMARKS	WT	PROCUREMENT NOTES
		617D1	1		PIER DIAPHRAGMS				380	
604	D		1	a617	W 18x35	9	5 7/16			
604	E		2	m617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		
		617D2	1		PIER DIAPHRAGMS				379	
604	D		1	b617	W 18x35	9	5 1/4			
604	E		2	m617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		
		617D3	1		PIER DIAPHRAGMS				379	
604	D		1	c617	W 18x35	9	5 1/16			
604	E		2	m617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		
		617D4	1		PIER DIAPHRAGMS				378	
604	D		1	d617	W 18x35	9	4 7/8			
604	E		2	m617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		
		617D5	1		PIER DIAPHRAGMS				373	
604	D		1	f617	W 18x35	9	3 1/16			
604	E		2	n617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		
		617D6	1		PIER DIAPHRAGMS				372	
604	D		1	g617	W 18x35	9	2 15/16			
604	E		2	n617	PL 1/2x15	0	9 1/2	BENT		
605	C		10		7/8 ø HSB	0	2 1/4	(A325-3)		
605	H		10		7/8 ø HSW			(F436W)		

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review during extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 10-16-2001

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	10-9-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

MATERIAL:	ELECTRODES:	HOLES:	SHOP BOLTS:
M270 GR 50W		15/16 ø (UN)	7/8 ø (UN)

SURFACE PREP. & PAINT:
-STEEL WITHIN 10'-0 OF ABUT 2 SHALL BE PAINTED (SEE GN501)
-ALL OTHER STEEL SHALL BE BLAST CLEANED AND LEFT UNPAINTED.

DESCRIPTION: PIER DIAPHRAGMS

JOB:
BRIDGE NO. 50N
I-89 NB OVER U.S. ROUTE 2
I-89 IMPROVEMENTS
TOWN OF MIDDLESEX-BOLTON, VERMONT

TENSOR 2108-N

PROJ NO. IM-089-2(26)

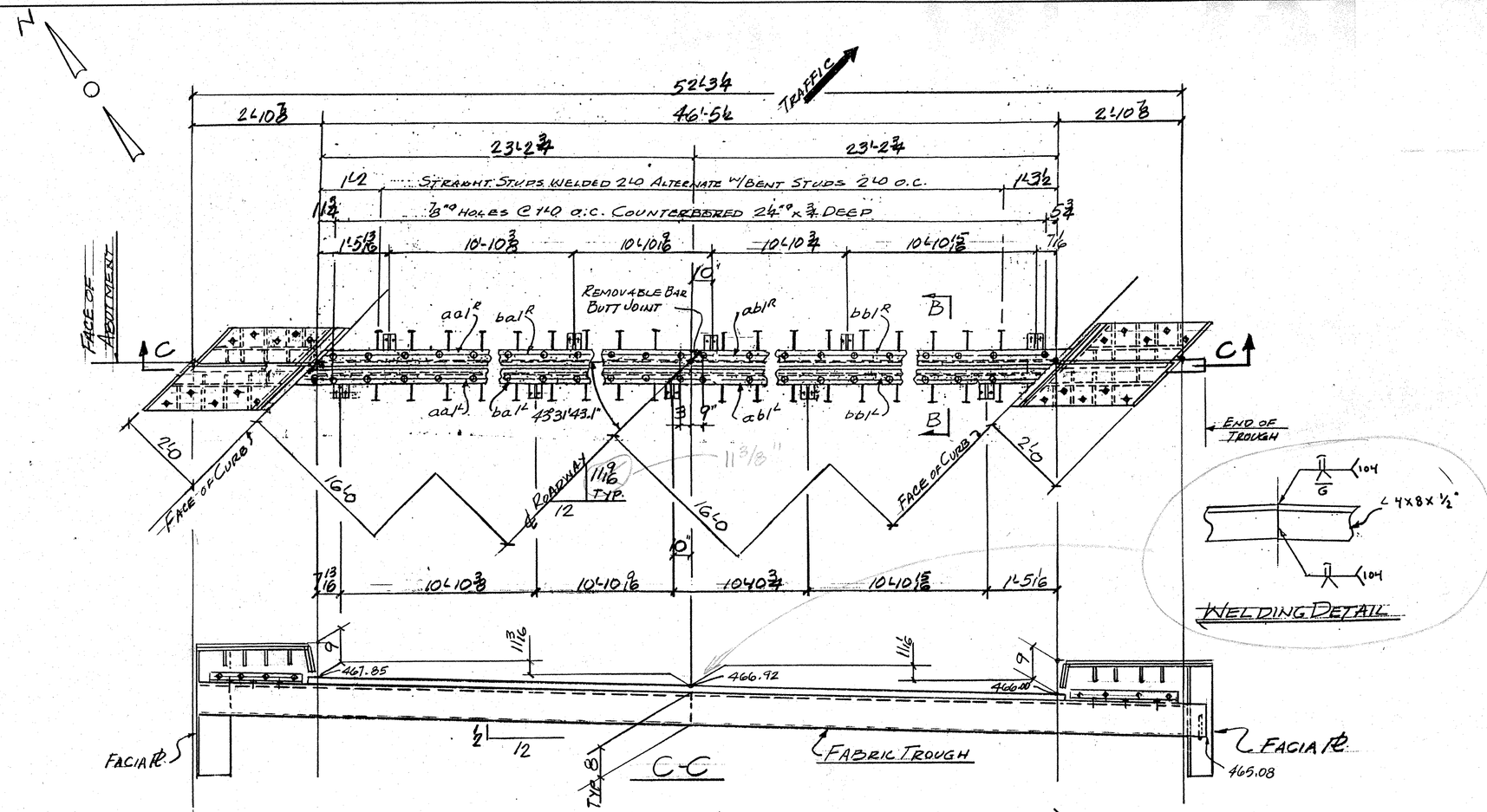
CUSTOMER: VERMONT AGENCY OF TRANSPORTATION

DRAWN BY	DATE
BW	09/26
CHKD BY	
DO	10/1
APPROV BY	
SUPERVISOR	H. J. GATTI
Q.A.	

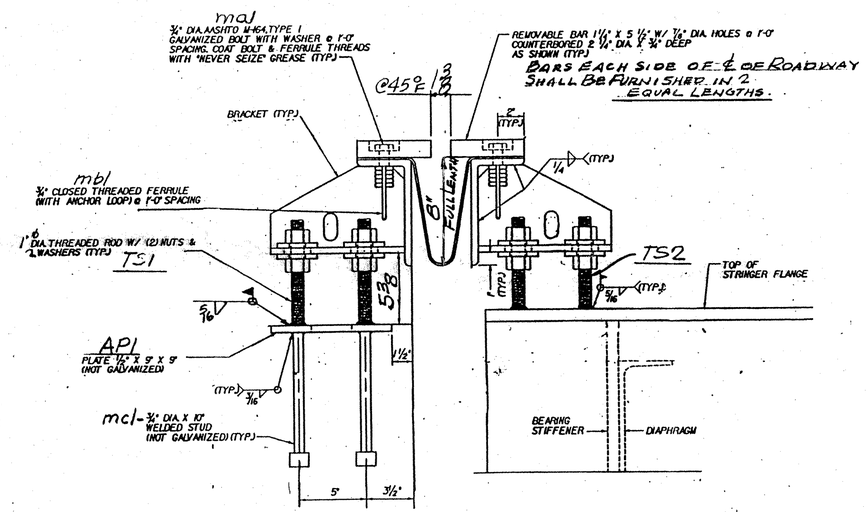
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO.	DRG. NO.
123-50N	617
	REV. △

BW Thu Oct 4 11:40:09 EDT 2001 /users/jobs/2108-N/617 ; Rev0

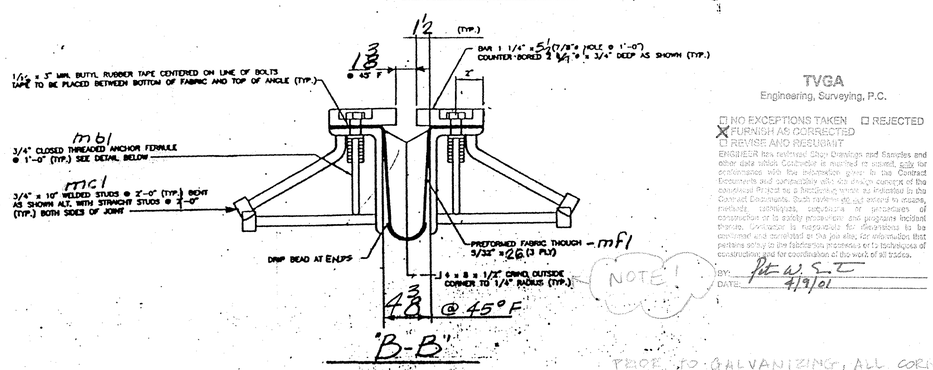


EJ1-S - ONE REQ'D (@ ABUT. 1 - BRIDGE -505)



TYP. SECTION @ ADJUSTMENT BRACKETS.

WORK THIS DWG W/ DWG. J1A



ANCHOR FERRULE DETAIL - mb1

NOTE!
PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF PLATES, SHAPES, ETC.. SHALL BE GROUND TO A 1/16" RADIUS.

TVGA
Engineering, Surveying, P.C.
☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for deviations to the contract and compliance on the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.
BY: Pete W. Sweet
DATE: 4/9/01

SHOP BILL

JOB NO. 127-505 DRG. NO. J1

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT. ASS'Y	53	0¼		EJ1S		—
		2	L 8x4x½	26	6	ba1			
		2	DO	26	6	ab1			
		2	BAR 5½x1/4	24	0	bc1			
		2	DO	24	0	bb1			
		10	℄ ½ x 8		10	bc1			
		10	℄ ½ x 6		10	bd1			
		93	¾" ø HS BOLTS		24	ma1			
		93	¾" ø CLOSE THREADED ANC. FERRULES			mb1			
		104	¾" ø ANC STUDS		10	mc1			
		1	PREFORMED FABR. 5/32" x 26"	54	0	mf1		SPEC PER SUBSECT. 707.07	
		2	BUTYL RUBBER TAPE ½ x 3	54	0			MEETS SPECMAB TYPE II	
		20	1" ø THREADED RODS		9		TS1		
		20	DO		7		TS2		
		80	1" ø HEX NUTS						
		80	BAR 3 x ⅜		3	W1		WASHER	
		5	℄ ½ x 9		9		AP1	NOT GALV.	
		20	¾" ø ANC STUDS		10	mc1			
		9	L 4x4x⅜	1	0	sa1			
		9	¾" ø HS BOLTS		3			W/1 WASH	
			CURBS						
		2	℄ ⅜ x 13½	3	9⅜	cp1			
		2	℄ ⅜ x 8⅜	1	7	cp1a			
		2	℄ ⅜ x 13 3/4	2	04	cp1b			
		2	℄ ⅜ x 12½	3	7¼	cp2			
		2	℄ ⅜ x 6¼	1	5¾	cp2a			
		2	℄ ⅜ x 13¾	2	5⅜	cp2b			
		2	℄ ⅜ x 9¾	3	5⅜	cp3			
		2	℄ ⅜ x 6¼	1	1¾	cp3a			
		2	℄ ⅜ x 9¾	3	4½	cp4			
		2	℄ ⅜ x 5⅞	1	1¾	cp4a			
		2	℄ ⅜ x 9	2	9⅜	cp5			
		2	℄ ⅜ x 8⅝	2	8¼	cp6			
		28	¾" ø HS BOLTS		24	ma1			
		28	¾" ø CLOSE THREADED ANC. FERRULES			mb1			
		24	¾" ø ANC STUDS		10	mc1		W/ NEW.	
		24	¾" ø HS BOLTS		24	md1			
		32	¾" ø ANC STUDS		7	me1			
		4	L 4x4x⅜	1	10½	ac1			
		16	℄ ⅜ x 5⅜		5⅜	sp1			
		16	℄ ⅜ x 4		4½	sp2			

PAY ITEM 516.10

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-8-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. INT-089-2(26) STATE BRIDGE NO. 505
MATERIAL: AASHTO M270-GR36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: ¾" ø H.S.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB

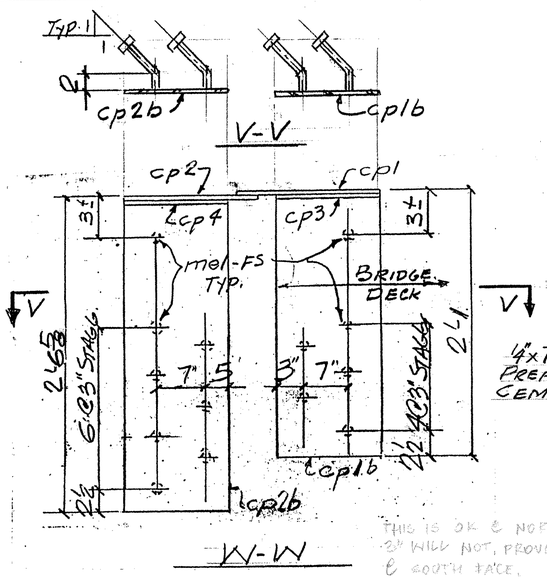
DESCRIPTION: EXP. JOINT - ABUT. 1
JOB: BRIDGE 505
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

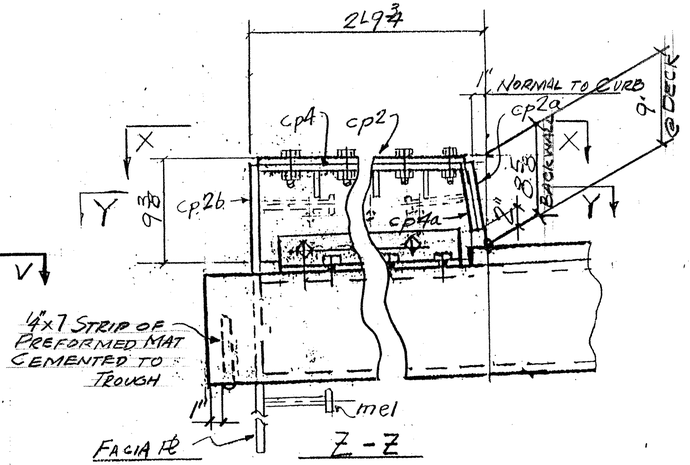
	DRAWN BY	DATE
	JPF	1-01
CHKD BY		
APPROV BY		
Q.A.		
JOB NO.	DRG. NO.	
127-505	J1	
	REV.	△

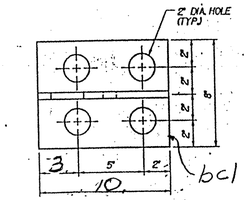
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX: (207) 282-1179

1" = 1'-0

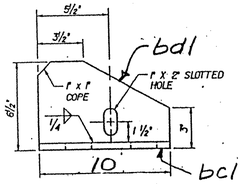
JOB NO. 127-505 | DRG. NO. J1A



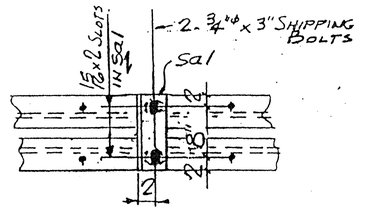




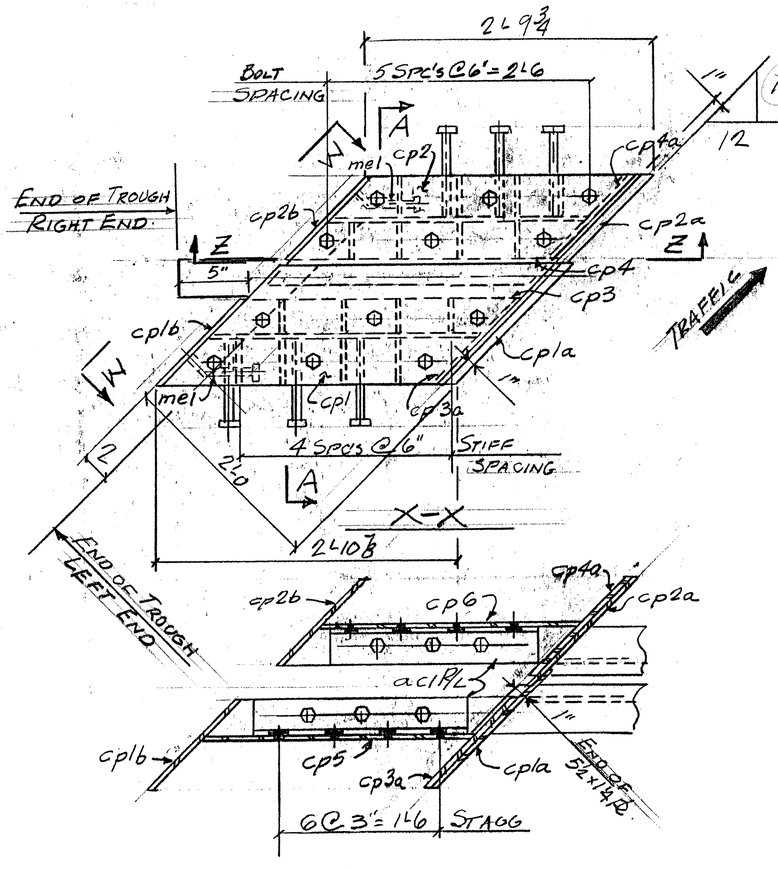
BRACKET PLAN



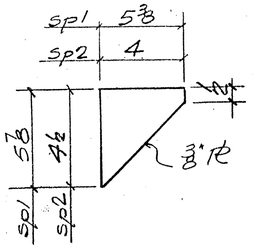
BRACKET ELEVATION



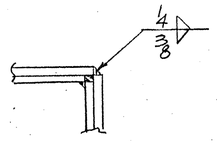
SHIPPING DEVICE
SPACED 540. OC. MAX. (9 REQ'D)



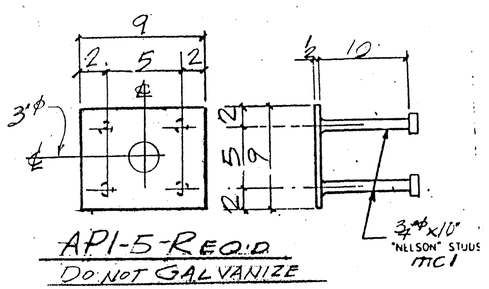
Y-Y (TROUGH NOT SHOWN)
LEFT END BRUSH CURB SHOWN
RIGHT END - OPP HAND



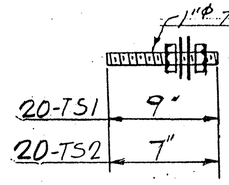
STIFF. DETAILS

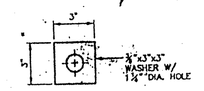


TYP. CORNER DET.

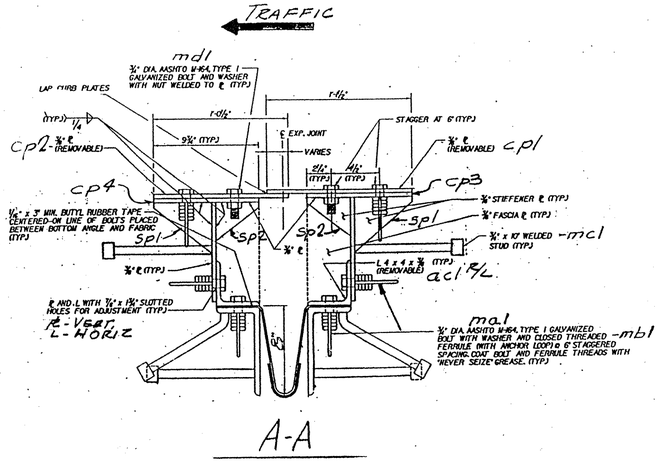


API-5-REQ'D
DO NOT GALVANIZE





WASHER FOR BRACKET
W1



A-A

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature] 4/9/01
DATE:

WORK THIS DWG. W/ DWG. J1

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 505
MATERIAL AASHTO M270-GR36 ELECTRODES: E70 BRODE HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:

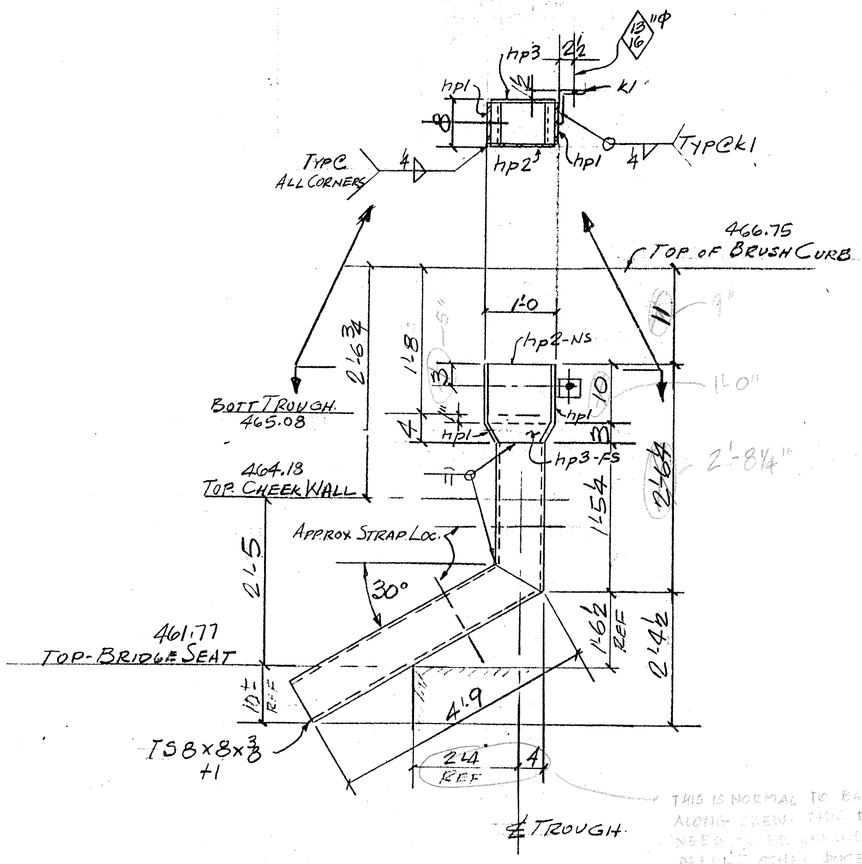
GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT-ABUT.
JOB: BRIDGE 505
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON VT
CUSTOMER: WINTERSET INC.

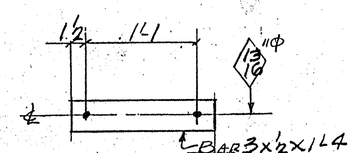
	DRAWN BY	DATE
	JPF	1-01
CHKD BY		
APPROV BY		
Q.A.		

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

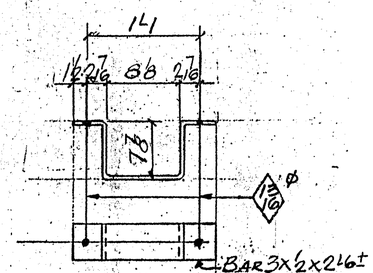
JOB NO.	DRG. NO.
127-505	J1A
REV.	△



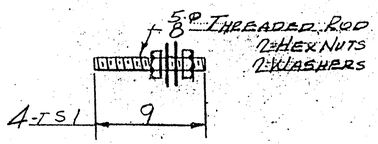
D505-ONE REQ'D.



SB1-2-REQ'D



SA1-2-REQ'D



TVGA
Engineering, Surveying, P.C.

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☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 1/9/01

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
			SHOP BILL					JOB NO. 127-505	DRG. NO. DS1
		1	DOWNSPOUT	5	10±		DS05		—
37.69	26.48	1	PL ⅜x8x3⅜	6	3±	f1		ASTM A709 GR 36	230.19
	9.74	2	R ⅜x7¼	1	7⅜	hp1		BEND	20.98
	14.3	1	R ⅜x11¼	1	0±	hp2			15.79
	2.83	1	R ⅜x3		11¼	hp3			3.59
	16.13	1	L 6x4x½		3	k1			4.05
	5.1	2	BAR 3x½	2	6±		SA1	BEND.	25.58
	5.1	2	DO	1	4		SB1		
1.944									13.59
		4	⅝ø THREADED ROD		9		TS1	SEE WINTERSET 7/1409	
		8	⅝ø HEX NUTS						(4.0)
		8	⅝ø WASHERS						
		4	EPOXY GROUT				FIELD	HILTI INC HIT-HY-150 SYSTEM	
		50 S	DOWN SPOUT						317.37

PAY ITEM 506.60

REV.	REMARKS	DATE	DWN	CHK	APP.	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	1-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

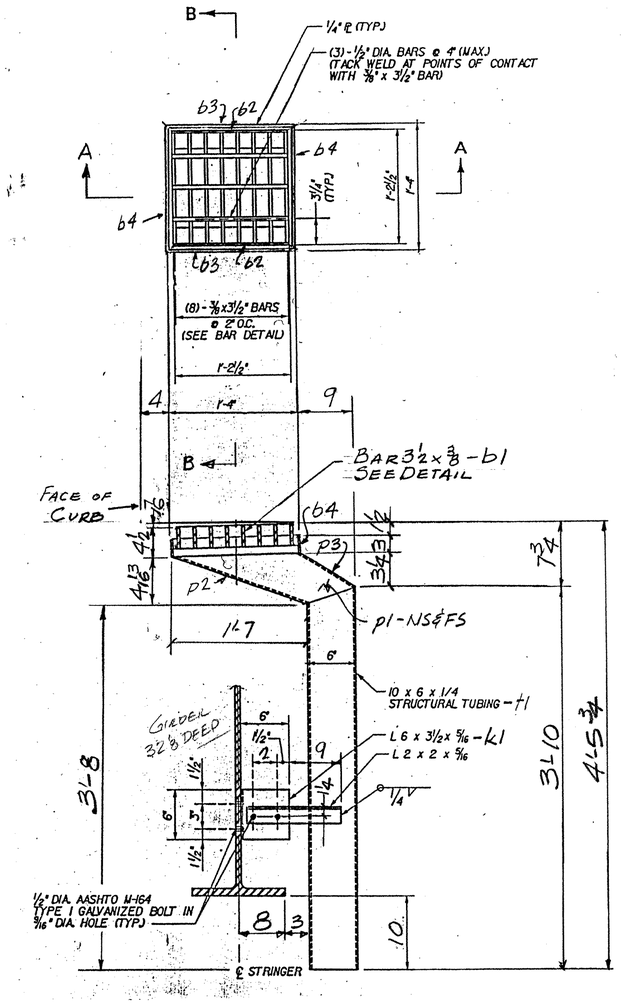
PROJECT NO: I M-089-2(26) STATE BRIDGE NO. 505
MATERIAL: AASHTO M270-Gr36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

DESCRIPTION: DOWNSPOUT - ABUT. 1
JOB: BRIDGE 505
I 89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON VT
CUSTOMER: WINTERSET INC.

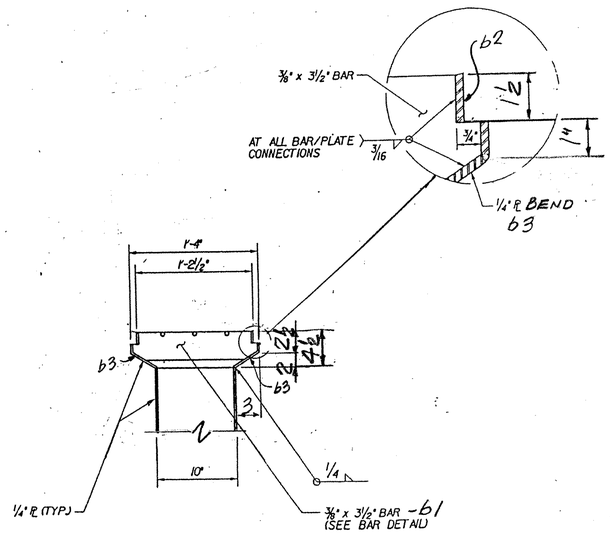
DRAWN BY	DATE
JPF	1-01
CHKD BY	
EJ.	
APPROV BY	
Q.A.	

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

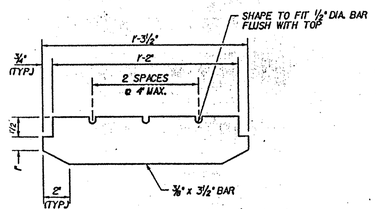
JOB NO.	DRG. NO.
127-505	DS1
	REV. 1



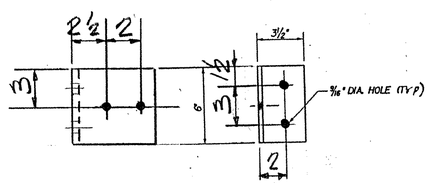
S50S - ONE REQ'D



SECTION B–B



DETAIL - BAR b1



DETAIL - k1
SHOP BOLT TO k2 FOR SHIPMENT

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT.	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	SCUPPER	4	6 #		5505		—
	25.44	1	TS 10x6x4	3	10	+1			97.52
	4.46	8	BAR 3 1/2 x 3/8	1	3 1/2	b1			4.09
	1.29	2	BAR 1/2 x 14	1	4	b2			3.40
	3.83	2	BAR 4 1/2 x 4	1	4	b3		BEND.	10.19
	2.55	2	BAR 3 x 4	1	3 1/2	b4			3.39
	0.468	3	1/2" BAR	1	2 1/2	r1			2.36
	4.46	2	PL 4 x 5 1/4	2	1	p1			19.59
	8.08	1	PL 4 x 9 1/2	1	7 1/2	p2			18.13
	8.08	1	DO		9 1/2	p3			6.89
	7.9	1	L 6 x 3 1/2 x 4		6	k1			3.95
	5.92	1	L 2 x 2 x 5/16	1	3	k2			4.70
									209.5
			505 - SCUPPER						210

98.78 +1.46

212 #

2.11.36

+ 1 1/4 lbs

PAY ITEM 506.55

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 505

MATERIAL: ~~AASHTO~~ M270 Gr 36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: 1" ø H.S.

SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB.

DESCRIPTION: SCUPPER DETAILS

JOB: BRIDGE 505
I-89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON, VT.

CUSTOMER: WINTER SET INC.

	DRAWN BY	DATE
	JPF	2-01
CHKD BY	EJ	
APPROV BY		
Q.A.		
JOB NO.	127-505	
DRG. NO.	SC1	
REV.	△	

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

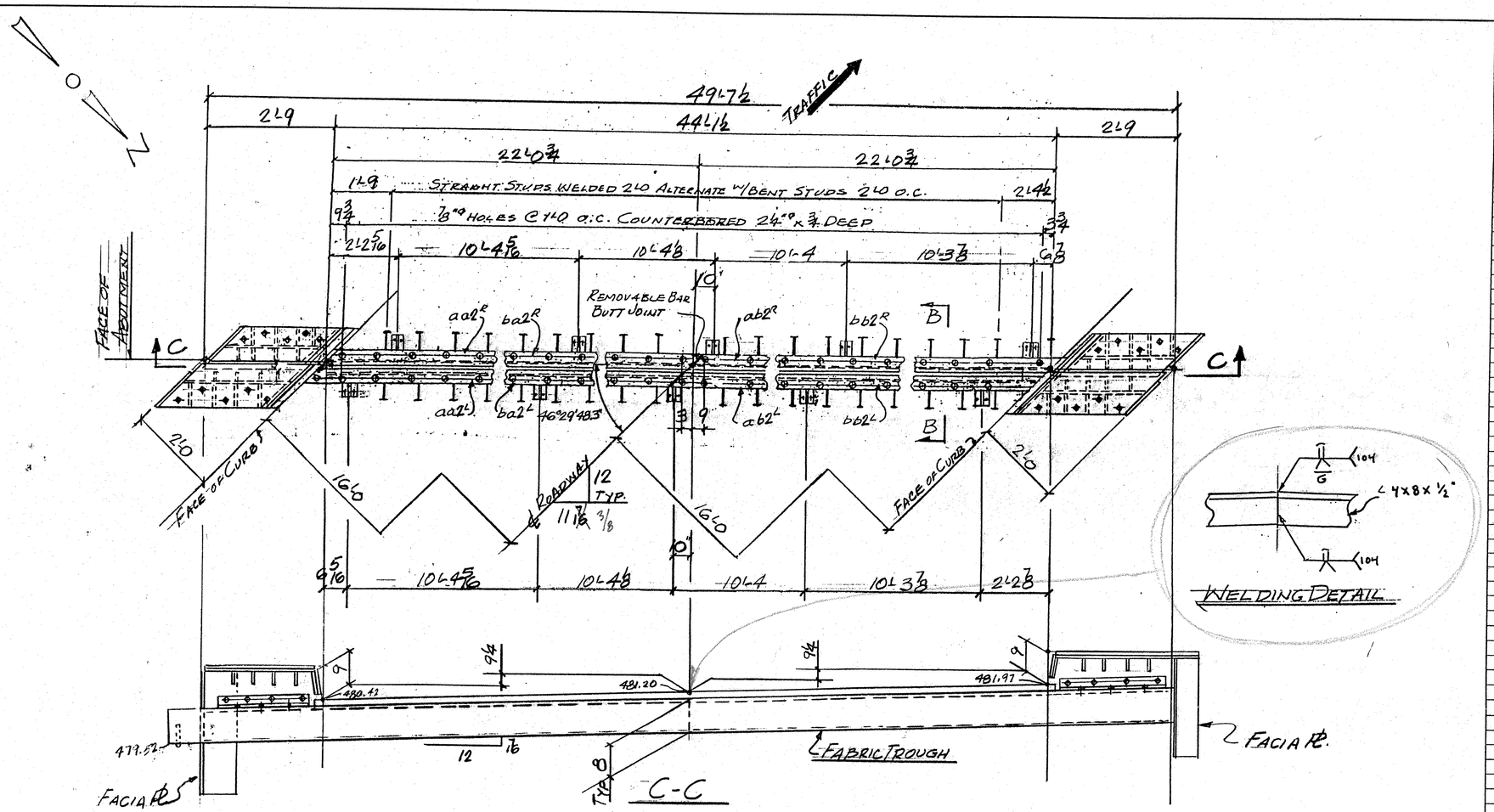
TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

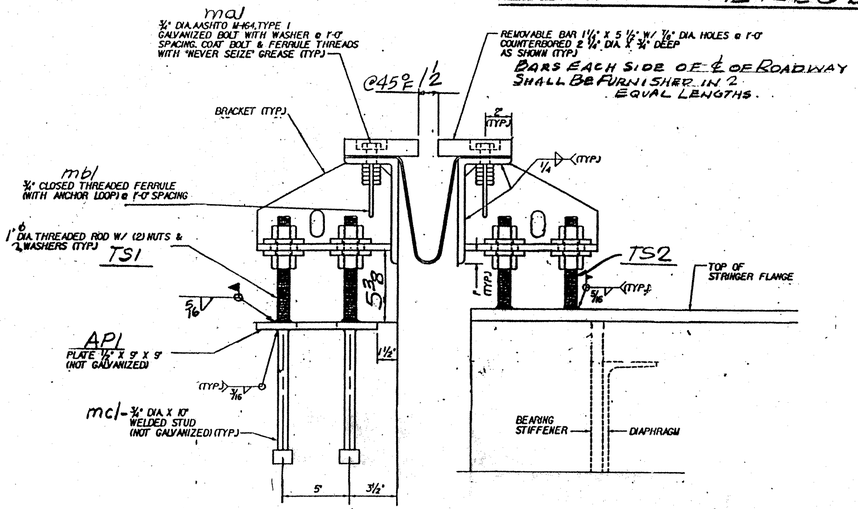
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: PK W, SE
DATE: 9/9/01

1" = 1'-0

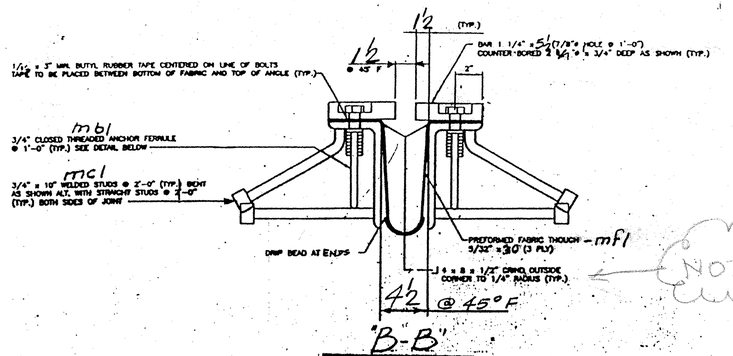


EJ2-N- ONE REQ'D (@ABUT. 2 - BRIDGE 50N)



TYP. SECTION @ ADUSTMENT BRACKETS.

WORK THIS DWG W/ DWG. J2A



ANCHOR FERRULE DETAIL - mb1

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: PE W. S.E.
DATE: 4/9/01

NOTE!!

PRIDE TO GALVANIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES ETC., SHALL BE GROUD TO A 1/16" RADIUS.

PAY ITEM 516.10

ABM INFO PAGE	ABM INFO LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT. ASS'Y						—
		2	L 8x4x½	25	2	aa2			
		2	Do	25	2	ab2			
		2	BAR 5½x¼	22	9	bc2			
		2	Do	22	9	bb2			
		10	PL ½x8		10	bc1			
		10	PL ½x6		10	bd1			
		88	¾" Ø H.S. BOLTS		24	ma1			
		88	¾" Ø CLOSED THREADED ANC. FERRULES			mb1			
		100	¾" Ø ANC STUDS		10	mc1			
		1	PREFORMED FABR. THOUGH 3/32"x3'0"	52	0	mf1		SPLY PER SPEC. SEC. 707.07 (M270 SPEC M18-TYPE II	
		2	BUTYL RUBBER TAPE ¼x3	50	0				
	20		1" Ø THREADED RODS		9		751		
	20		Do		7		752		
		80	1" Ø HEX NUTS						
		80	BAR 3x⅜		3	W1		WASHER	
	5		PL ½x9		9		API	NOT GALV.	
		20	¾" Ø ANC. STUDS		10	mc1			
		9	L 4x4x⅜	1	0	sa1			
		9	¾" Ø H.S. BOLTS		3			W/1 WASH	
			CURBS						
		2	PL ⅜x13½	3	8	cp1			
		2	PL ⅜x6⅜	1	7	cp1a			
		2	PL ⅜x13¾	2	24	cp1b			
		2	PL ⅜x12½	3	5⅜	cp2			
		2	PL ⅜x6 4	1	5¾	cp2a			
		2	PL ⅜x13¾	2	6⅜	cp2b			
		2	PL ⅜x9¾	3	3¾	cp3			
		2	PL ⅜x6 4	1	1¾	cp3a			
		2	PL ⅜x9¾	3	2⅝	cp4			
		2	PL ⅜x5⅞	1	1¾	cp4a			
		2	PL ⅜x9	2	7½	cp5			
		2	PL ⅜x8⅞	2	6⅜	cp6			
		28	¾" Ø H.S. BOLTS		24	ma1			
		28	¾" Ø CLOSED THREADED ANC. FERRULES			mb1			
		12	¾" Ø ANC STUDS		10	mc1			
		24	¾" Ø H.S. BOLTS		24	md1		W/ NEW.	
		32	¾" Ø ANC. STUDS		7	me1			
		4	L 4x4x⅜	1	10	ac1			
		16	PL ⅜x5⅜		5⅞	sp1			
		16	PL ⅜x4		4½	sp2			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 50N
MATERIAL: AASHTO M270-Gr36 ELECTRODES: SEE SPEC. HOLES: AS NOTED SHOP BOLTS: ¾" Ø H.S.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB

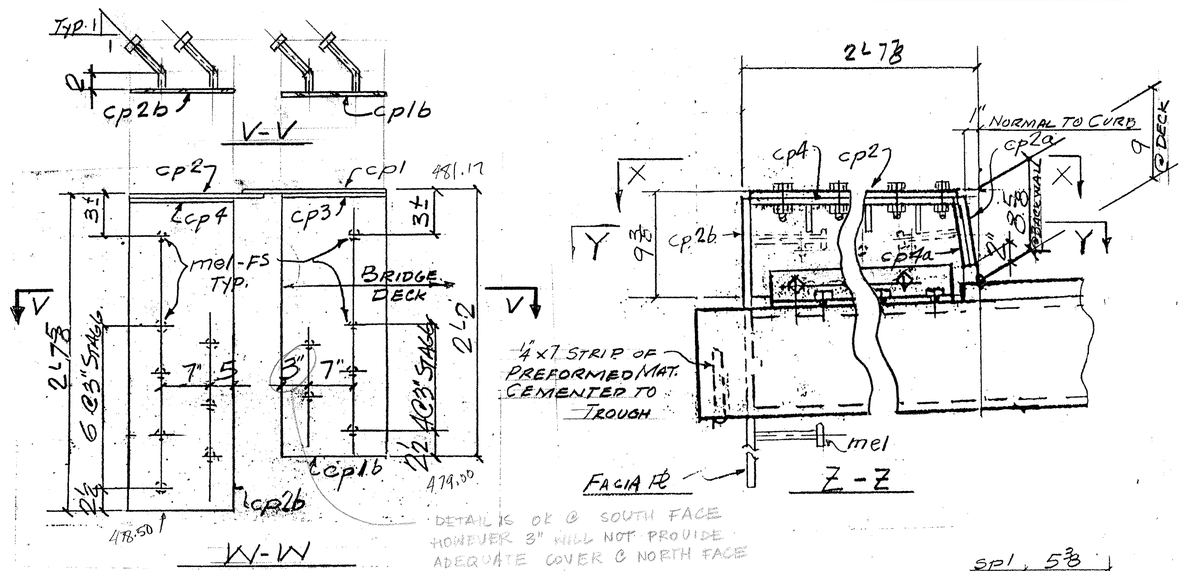
DESCRIPTION: EXP. JOINT - ABUT. 2
JOB: BRIDGE 50N
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

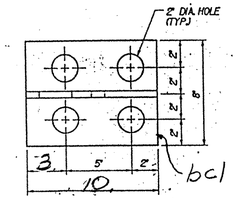
DRAWN BY: JPF DATE: 1-01
CHKD BY:
APPROV BY:
Q.A.

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

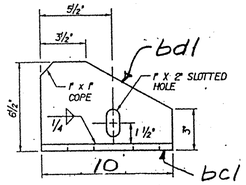
JOB NO. 127-50N DRG. NO. J2
REV. △

JOB NO. 127-50N | DRG. NO. J2A

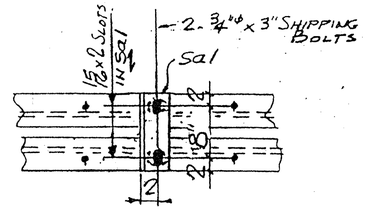




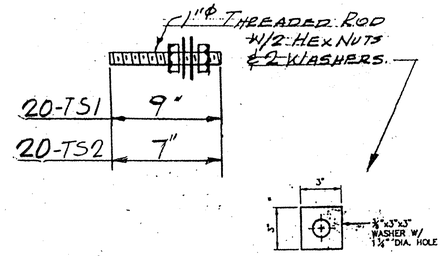
BRACKET PLAN



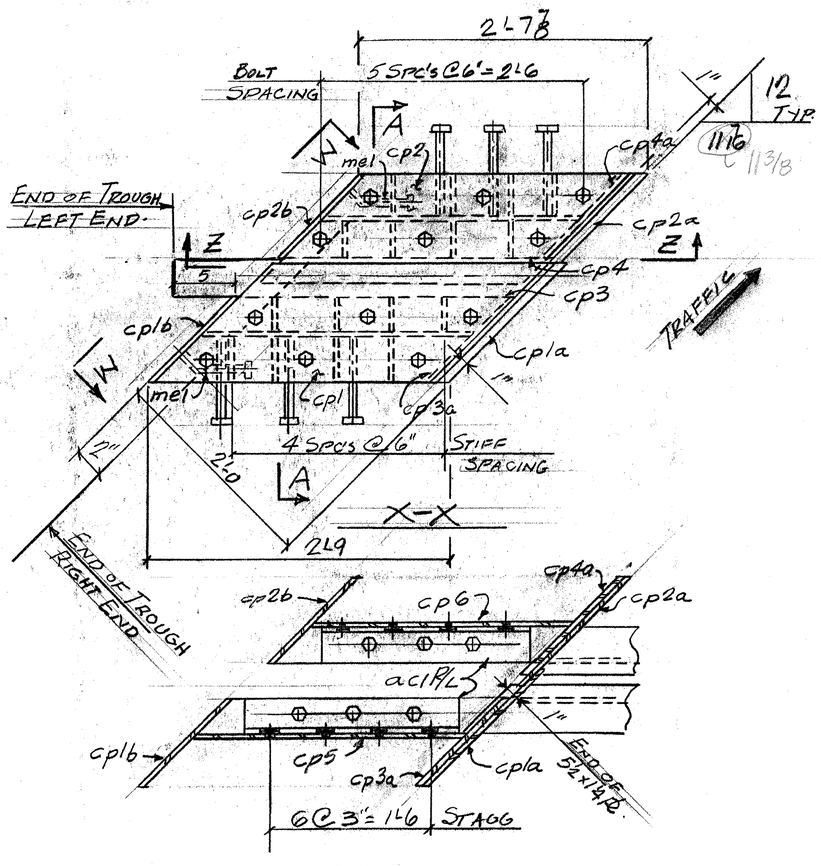
BRACKET ELEVATION



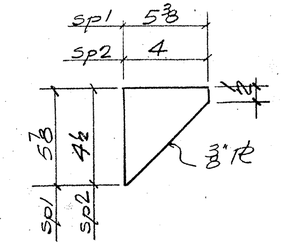
SHIPPING DEVICE
SPACED 5'-0" O.C. MAX. (9 REQ'D)



WASHER FOR BRACKET
W1

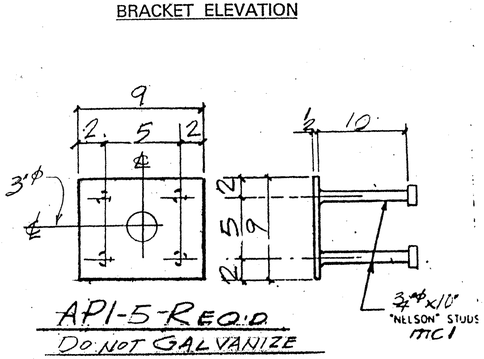


Y-Y
LEFT END BRUSH CURB SHOWN
RIGHT END - OPP HAND

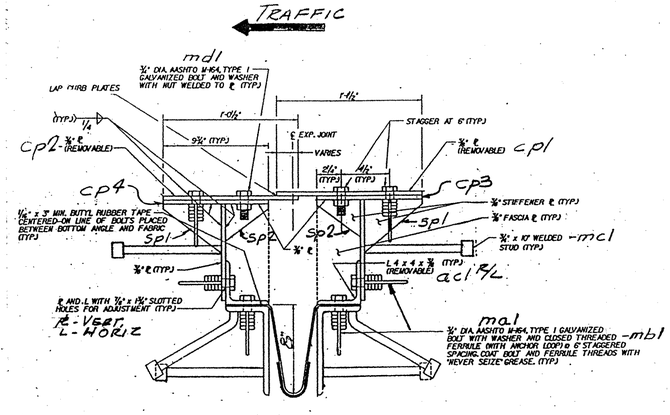


STIFF. DETAILS

TYP. CORNER DET.



API-5 REQ'D
DO NOT GALVANIZE



A-A

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Each reviewer or user agrees to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: Pat W. Sec
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-8-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 50N
MATERIAL AASHTO M270 GR 36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT - ABUT. 2
JOB: BRIDGE 50N

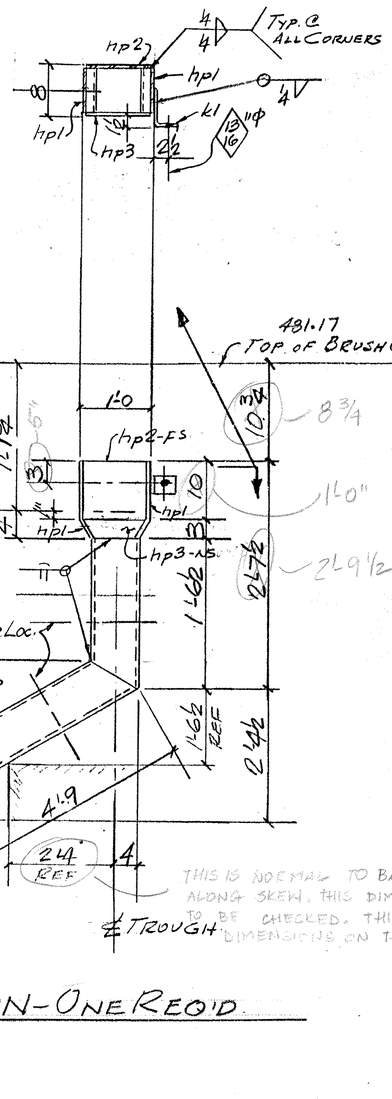
I 89 OVER U.S. ROUTE 2
MIDDLESEX - BOLTON VT

CUSTOMER: WINTERSET INC.

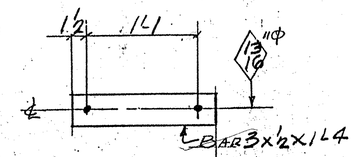
	DRAWN BY	DATE
	JPF	1-01
CHKD BY		
APPROV BY		
Q.A.		
JOB NO.	DRG. NO.	
127-50N	J2A	
	REV.	△

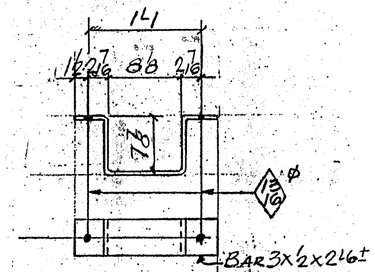
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

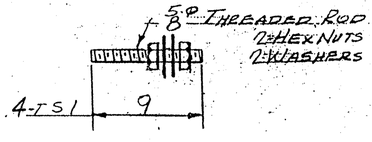
WORK THIS DWG. W/ DWG. J2



D50N-One Req'd







TVGA
Engineering, Surveying, P.C.

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BY: Pat W. Sec
DATE: 4/9/01

ABM INFO

SHOP BILL

JOB NO. 127-50N | DRG. NO. DS2

PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	DOWNSPOUT	5	11±		D50N		—
			ST						
37.69 (36.94)		1	W8x8x3/8	6	4±1			ASTM A500 Gr A 581	233.26
9.24	✓	12	PL 3/8 x 7	1	3/8	hp1		BEND	29.06
14.3	✓	1	PL 3/8 x 11	1	3	hp2			17.88
3.83	✓	1	PL 3/8 x 3		11	hp3			3.59
16.2	✓	1	L 6x4x1/2		3	k1			4.02
5.1	✓	2	BAR 3x1/2	2	6±		SA1	BEND	25.50
5.1	✓	2	DO	1	4		SB1		13.51
1.044		4	5/8" Threaded Rod		9		TS1	Per Winterset 71409	(4.0)
		8	5/8" Hex Nuts						
		8	5/8" Washers						
		4	Epoxy Grout					Hilti Inc HIT-HY-150 System	
		50	N DOWN SPOUTS						325.88

PAY ITEM 506.60

REV.	REMARKS	DATE	DWN	CHK	APP.	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

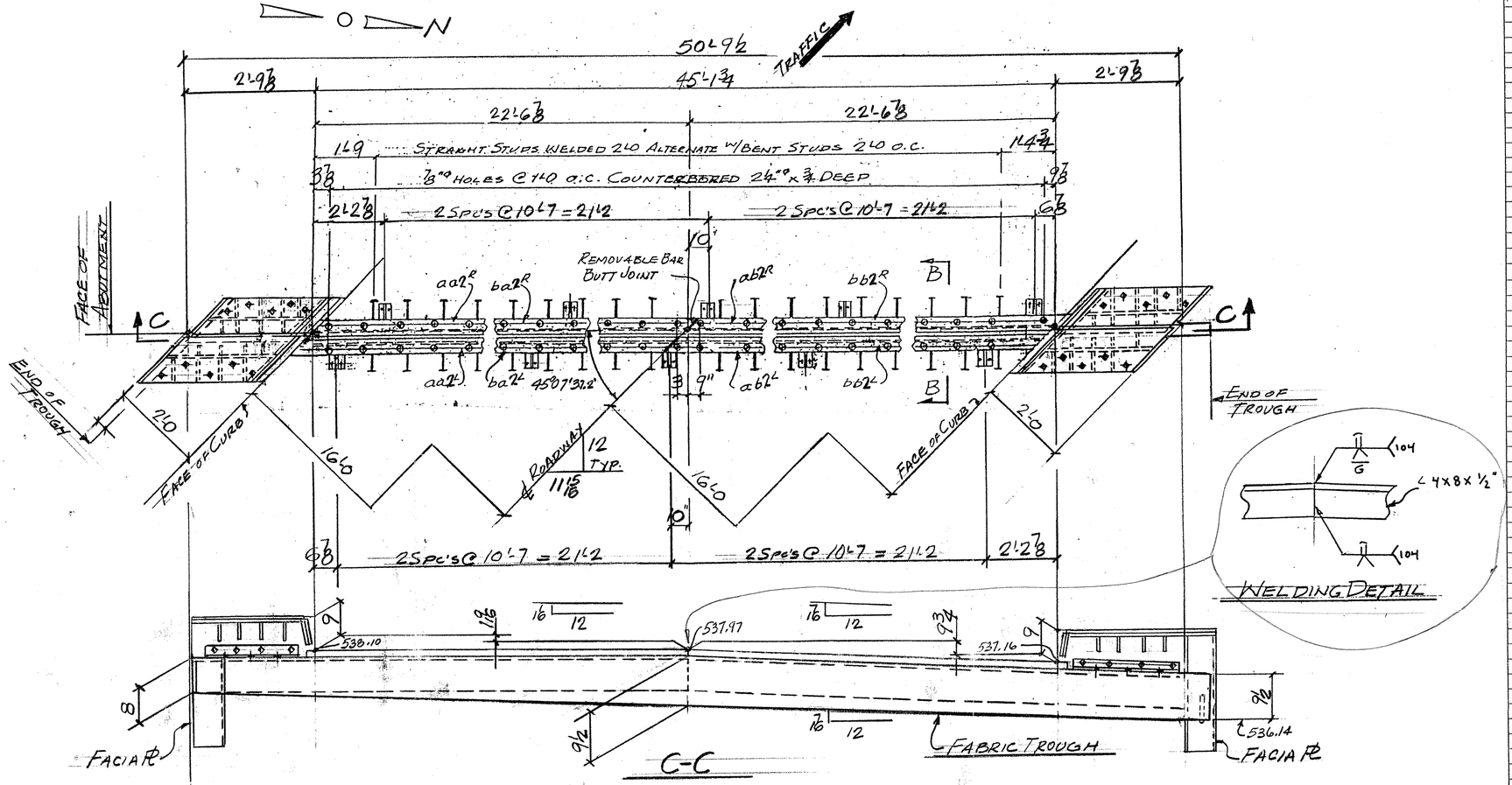
PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 50N
MATERIAL: AASHTO M270-Gr36 ELECTRODES: PER PROC HOLES: As Noted SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

DESCRIPTION: DOWNSPOUTS - ABUT. 2
JOB: BRIDGE 50N
I 89 over U.S. Route 2
Middlesex-Bolton Vt
CUSTOMER: WINTERSET, INC.

	DRAWN BY	DATE
	JPF	2-01
	CHKD BY	
	EJ.	
	APPROV BY	
	Q.A.	

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

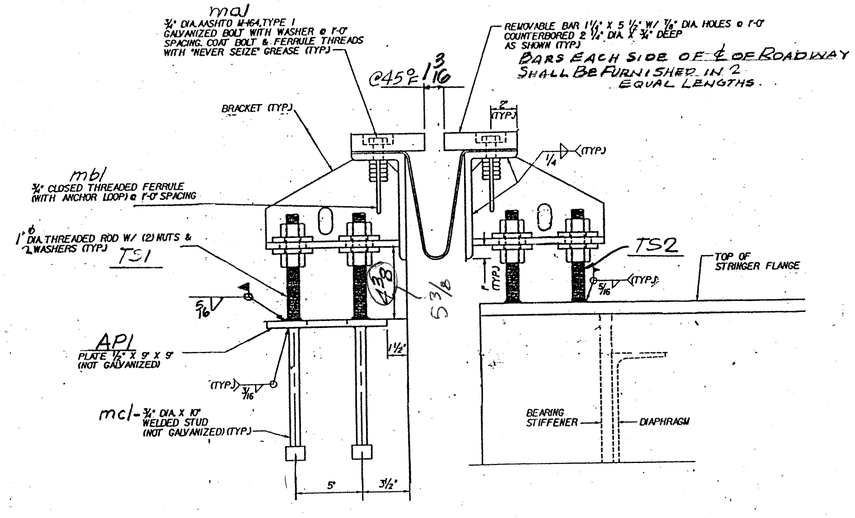
JOB NO. 127-50N | DRG. NO. DS2 | REV. A



EJ2-N - ONE REQ'D @ ABUT. 2 - BRIDGE 43N

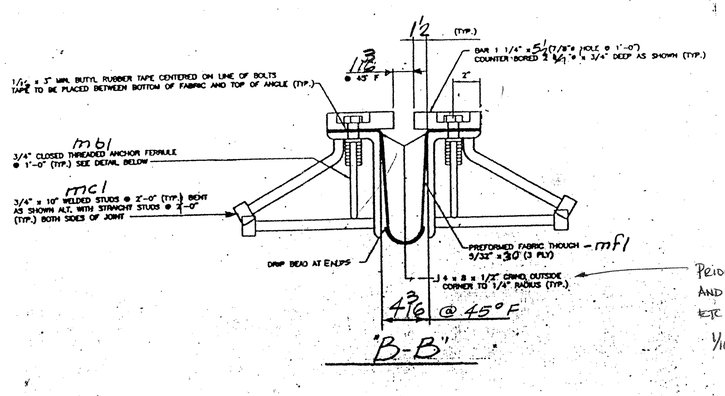
ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT. ASS'Y	53	0±		EJ2-N		—
		2	L 8x4x½	26	9	aa2			
		2	DO	25	9	ab2			
		2	BAR 5½x14	23	3¼	bc2			
		2	DO	23	3¼	bb2			
		10	PL ½x8		10	bc1			
		10	PL ½x6		10	bd1			
		90	¾"Ø H.S. BOLTS		24	ma1			
		90	¾" CLOSED THREADED ANC. FERRULES			mb1			
		100	¾"Ø ANC STUDS		10	mc1			
		1	PREFORMED FABR. 5/32 x 7½	53	0±	mf1		SPEC PER SUBSECT. 707.07 AASHTO SPEC. M 198-TYPE II	
		2	BUTYL RUBBER TAPE 1½ x 3	52	0±				
		20	1"Ø THREADED RODS		9		TS1		
		20	DO		7		TS2		
		80	1"Ø HEX NUTS						
		80	BAR 3x⅜		3	W1		WASHER	
		5	PL ½x9		9		API	NOT GALV.	
		20	¾"Ø ANC STUDS		10	mc1			
		9	L 4x4x⅜	1	0	sa1			
		9	¾"Ø H.S. BOLTS		3			W/1 WASH	
			CURBS						
		2	PL ⅜x13½	3	8⅜	cp1			
		2	PL ⅜x6⅜	1	7	cp1a			
		2	PL ⅜x13¾	2	0⅜	cp1b			
		2	PL ⅜x12½	3	6¼	cp2			
		2	PL ⅜x6¼	1	5½	cp2a			
		2	PL ⅜x13¾	2	6	cp2b			
		2	PL ⅜x9¾	3	4⅝	cp3			
		2	PL ⅜x6¼	1	1¾	cp3a			
		2	PL ⅜x9¾	3	3½	cp4			
		2	PL ⅜x5⅜	1	1¾	cp4a			
		2	PL ⅜x9	2	8⅜	cp5			
		2	PL ⅜x8⅝	2	7¼	cp6			
		28	¾"Ø H.S. BOLTS		24	ma1			
		28	¾" CLOSED THREADED ANC. FERRULES			mb1			
		12	¾"Ø ANC STUDS		10	mc1			
		24	¾"Ø H.S. BOLTS		24	md1		W/NEW.	
		24	¾"Ø ANC STUDS		7	me1			
		4	L 4x4x⅜	1	10	dc1			
		16	PL ⅜ x 5⅜		5⅜	sp1			
		16	PL ⅜ x 4		4½	sp2			

JOB NO. 124-43N DRG. NO. J2



TYP. SECTION @ ADJUSTMENT BRACKETS.

WORK THIS DWG W/ DWG. J2A



PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO A 1/16 INCH RADIUS.

ANCHOR FERRULE DETAIL - mb1

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [illegible] W. 2-L
DATE: 2/13/01

PAY ITEM 516.10

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	1-26-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 43N
MATERIAL: AASHTO M270-Gr36 ELECTRODES: SEE PROC HOLES: AS NOTED SHOP BOLTS: ¾"Ø H.S.
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT - ABUT. 2
JOB: BRIDGE 43N
I89 OVER U.S. ROUTE 2
MIDDLESEX - BOLTON, VT.
CUSTOMER: WINTERSET INC.

	DRAWN BY	DATE
	JPF	1-01
CHKD BY	EJ	
APPROV BY		
Q.A.		

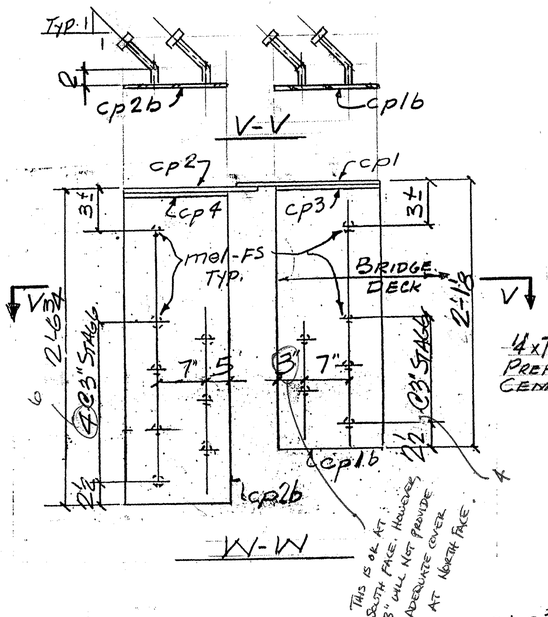
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX (207) 282-1179

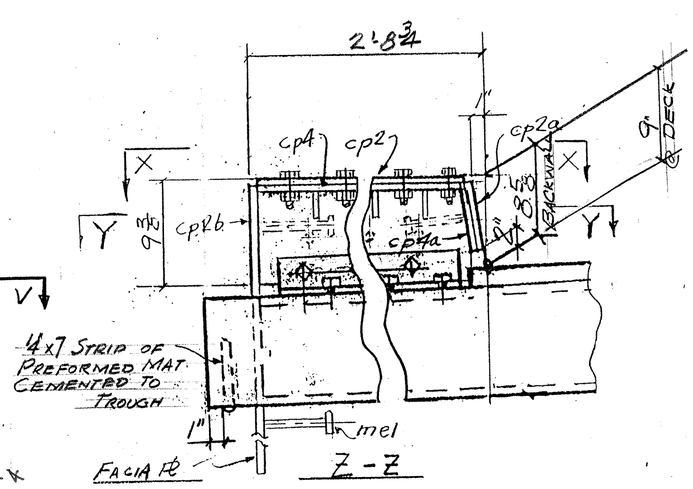
JOB NO.	DRG. NO.
124-43N	J2
	REV. △

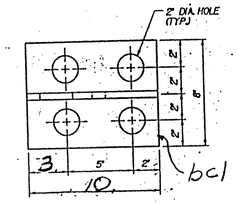
1" = 1'-0"

503 EJ 43N

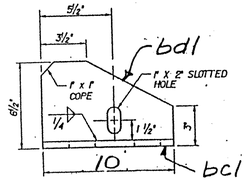
JOB NO. 124-43N | DRG. NO. J2A



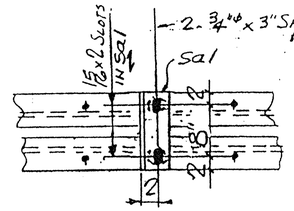




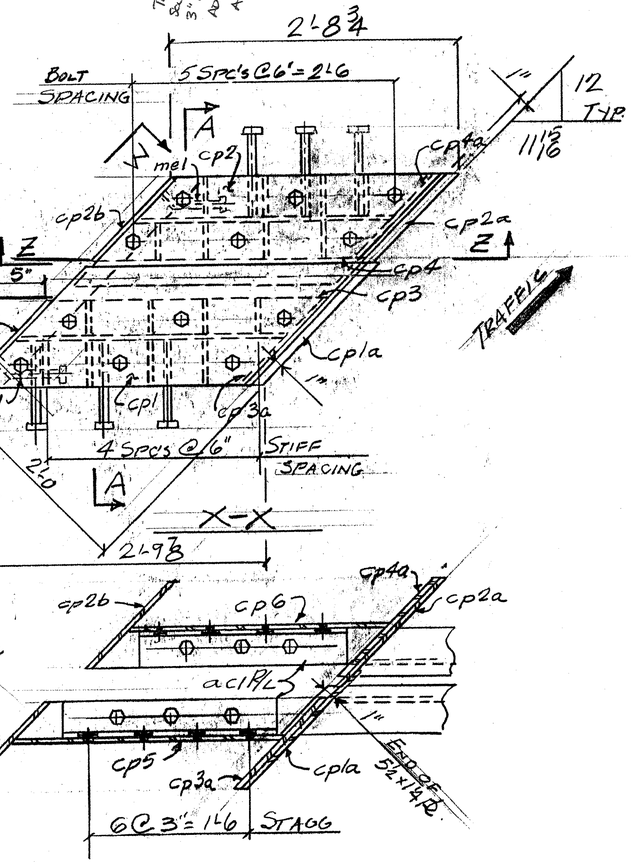
BRACKET PLAN



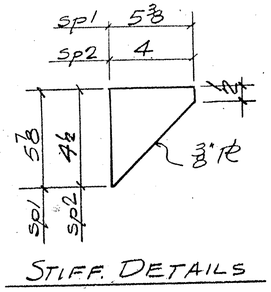
BRACKET ELEVATION



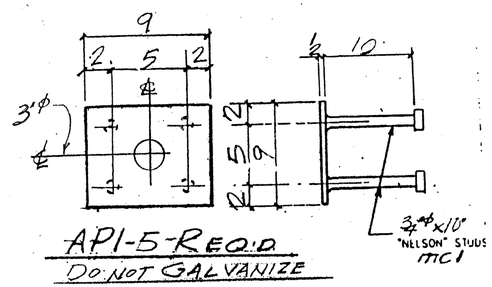
SHIPPING DEVICE
SPACED 540. OC. MAX. (9 REQ'D) EA UNT.



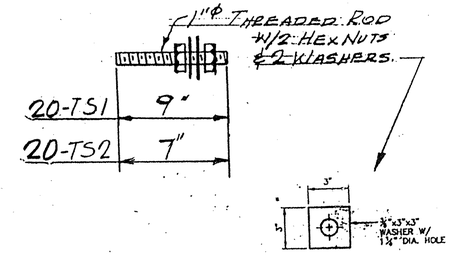
Y-Y (TROUGH NOT SHOWN)
SOUTH END BRUSH CURB SHOWN
NORTH END - OPP HAND



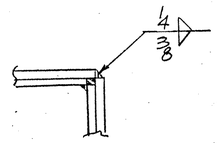
STIFF. DETAILS



API-5-REQ'D
DO NOT GALVANIZE

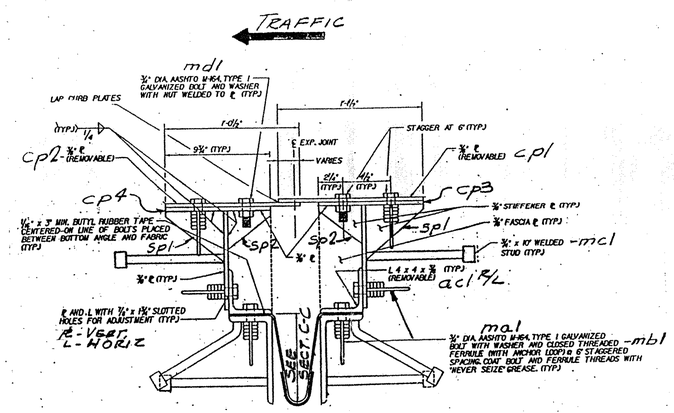


WASHER FOR BRACKET
W1



TYP. CORNER DET.

WORK THIS DWG. W/ DWG. J2



A-A

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: RE W. ETC
DATE: 2/13/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	1-26-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO.
MATERIAL AASHTO M270 GR 36 ELECTRODES: E70 LOW HYDROGEN HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB

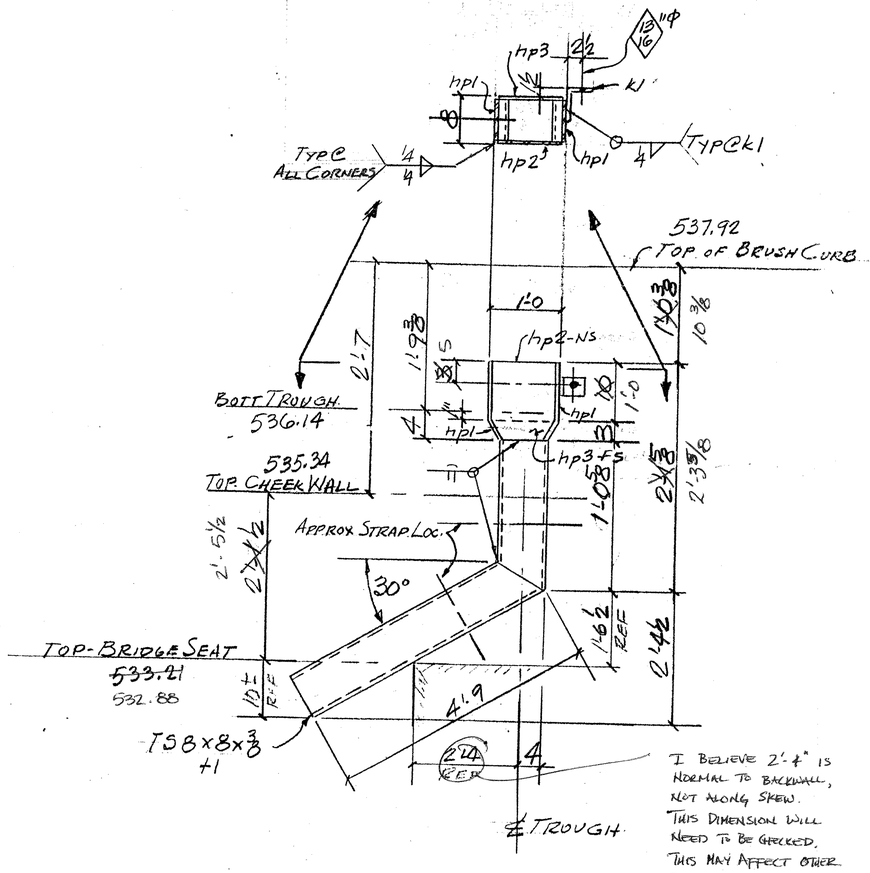
DESCRIPTION: EXP. JOINT-ABUT. 2
JOB: BRIDGE 43N
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON VT
CUSTOMER: WINTERSET INC.

DRAWN BY: dPF | DATE: 1-01
CHKD BY: EJ
APPROV BY:
Q.A.

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

JOB NO. 124-43N | DRG. NO. J2A | REV. △

504 BI 43N



D43N - One Req'd

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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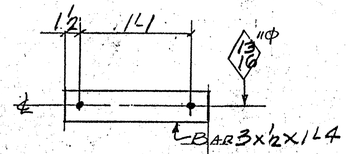
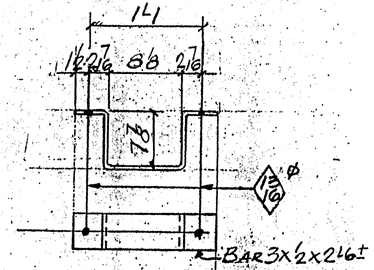
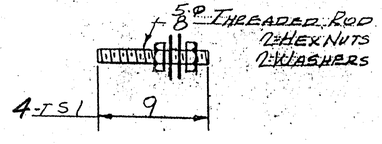
BY: Pat W. St
DATE: 2/13/01



SB1-2-Req'd



SA1-2-Req'd



ABM INFO PAGE	ABM INFO LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	HEIGHT
								JOB NO. 12443N	DRG. NO. DS2
		1	DOWNSPOUT				D43N		—
37.68	26.52	1	TS 8x8x3/8	5	10±1		A53N1 A1000 A501		214.94
	9.24	2	PL 3/8 x 7	1	7/8	hp1		BEND	29.06
	14.3	1	PL 3/8 x 11	1	7	hp2			17.86
	3.83	1	PL 3/8 x 3		11	hp3			12.41
	16.2	1	L 6x4x1/2		3	K1			4.85
	5.1	2	BAR 3x1/2	2	6		SA1	BEND.	25.50
	5.1	2	DO	1	4		SB1		14.03
1.044	3	4	5/8" Ø THREADED ROD		9		T51	PER SUBSET 7/1403	4.00
		8	5/8" Ø HEX NUTS						
		8	5/8" WASHERS						
		4	EPOXY GROUT					HILTI INC. HIT HY-150 SYSTEM.	
		43N	DOWN SPOUT						217.77
									318

PAY ITEM 506.60

314.75
310.73
-3.25 lbs.
511 #

REV.	REMARKS	DATE	DWN	CHK	APP.	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	1-26-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO: IM-089-2(26) STATE BRIDGE NO. 43N
MATERIAL: AASHTO M270 Gr 36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

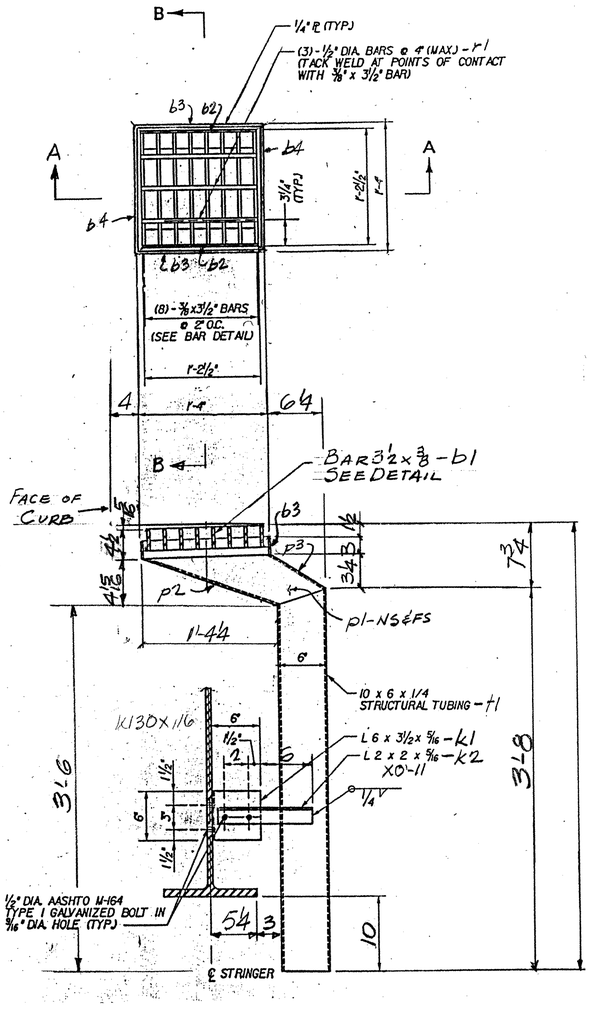
DESCRIPTION: DOWNSPOUTS - ABUT. 2
JOB: BRIDGE 43N
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON VT
CUSTOMER: WINTERSET INC.

	DRAWN BY	DATE
	JPF	1-01
CHKD BY	EJ	
APPROV BY		
Q.A.		

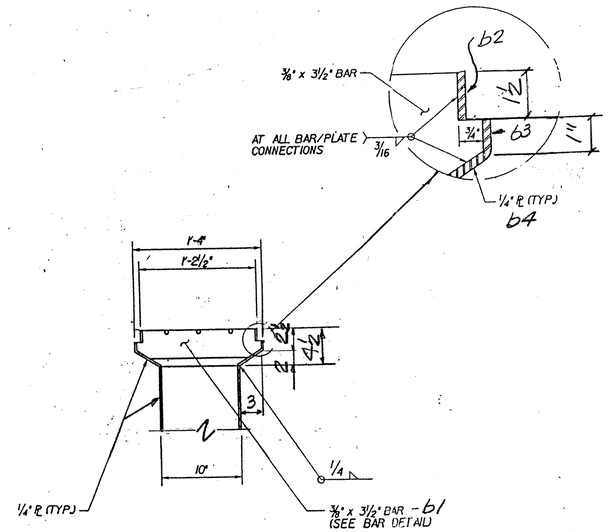
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 12443N DRG. NO. DS2 REV.

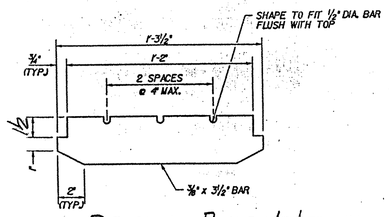
DS 505 43N



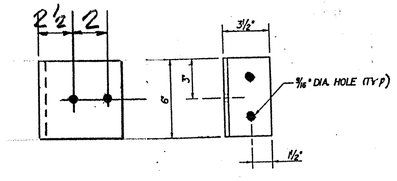
S 43N-2-REQ'D.



SECTION B-B



DETAIL - BAR b1



DETAIL - k1
SHOP BOLT TO k2 FOR SHIPMENT

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

By: RE W. ETC
Date: 2/13/01

ABM INFO

PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		2	SCUPPERS	4	5 1/2		S43N		—
25.52	25.44		2 TS10X6X1/4	3	8	P1			186.56
✓	4.46		16 BAR 3 1/2 x 3/8	1	3 1/2	b1			92.17
✓	1.28		4 BAR 1/2 x 4	1	4	b2			6.81
✓	3.83		4 BAR 4 1/2 x 1/4	1	4	b3		BEND.	20.38
✓	2.55		4 BAR 3 x 1/4	1	3 1/2	b4			13.18
									#
✓	0.668		6 1/2" Φ BAR	1	2 1/2	r1			4.84
✓	4.46		4 PL 1/4 x 5/4	1	10 1/2	p1			32.68
✓	8.63		2 PL 1/4 x 7 1/2		7	p2			9.42
✓	3.65		2 DO	1	5	p3			22.89
✓	7.9		2 L 6 x 3 1/2 x 1/4		6	k1			7.9
✓	3.92		2 L 2 x 2 x 5/16		11	k2			7.2
0.15			4 1/2" Φ H.S. BOLTS			SHOP		W/NEW M164-GALV.	0.60
		43 N	SCUPPERS						408.43
									409

187.35 + 2.87

0.60 - 3.4

407.82 - 1 lbs.

PAY ITEM 506.50

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	1-26-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(20) STATE BRIDGE NO. 43N
MATERIAL: AASHTO M270 GR 36 ELECTRODES: E80 FOR PEAC HOLES: AS NOTED SHOP BOLTS: 1" Φ H.S.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

DESCRIPTION: SCUPPER DETAILS
JOB: BRIDGE 43N
I89-OVER U.S. ROUTE 2
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

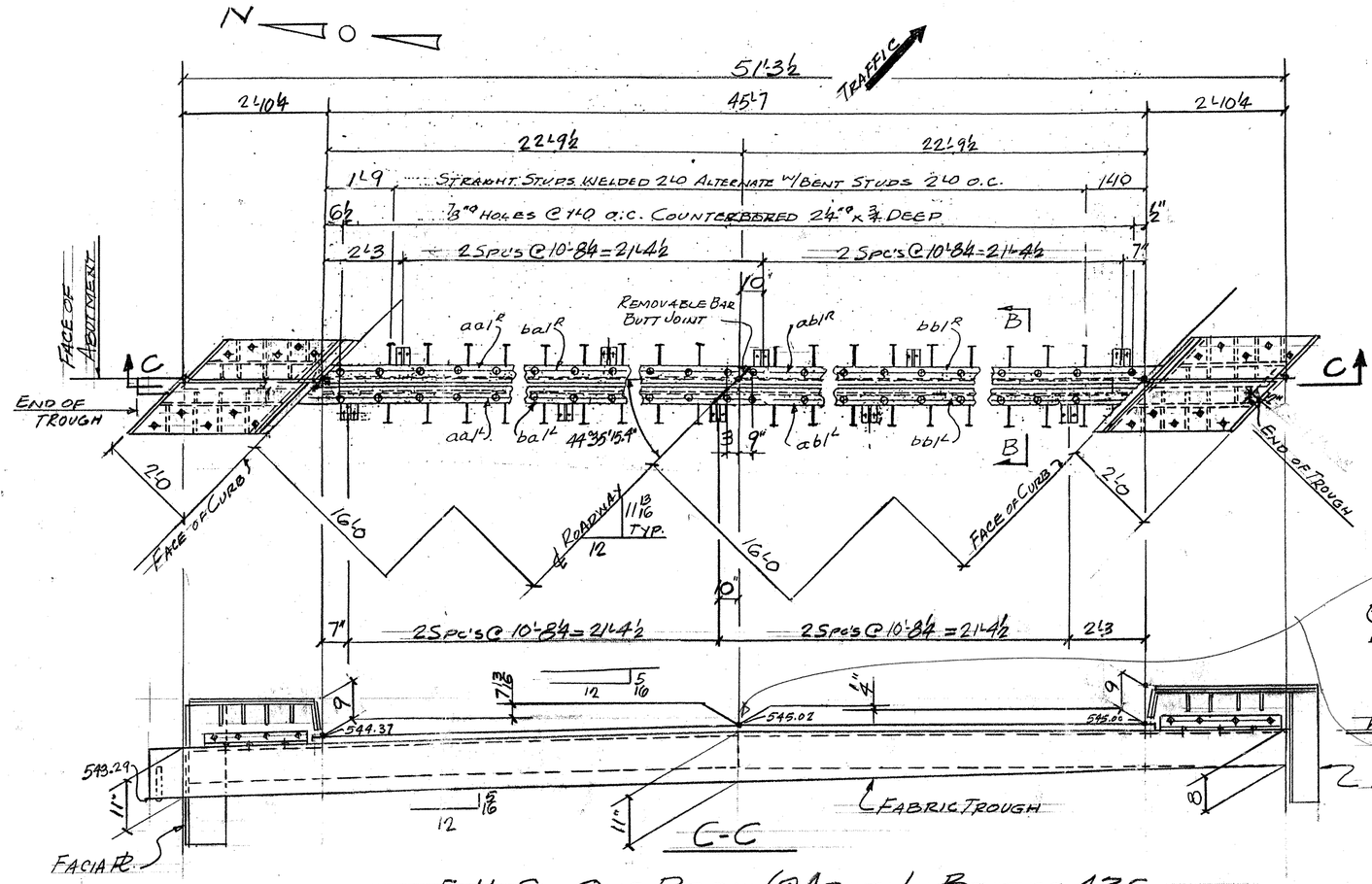
	DRAWN BY	DATE
	JPF	1-01
	CHKD BY	
	EJ	
	APPROV BY	
	Q.A.	

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

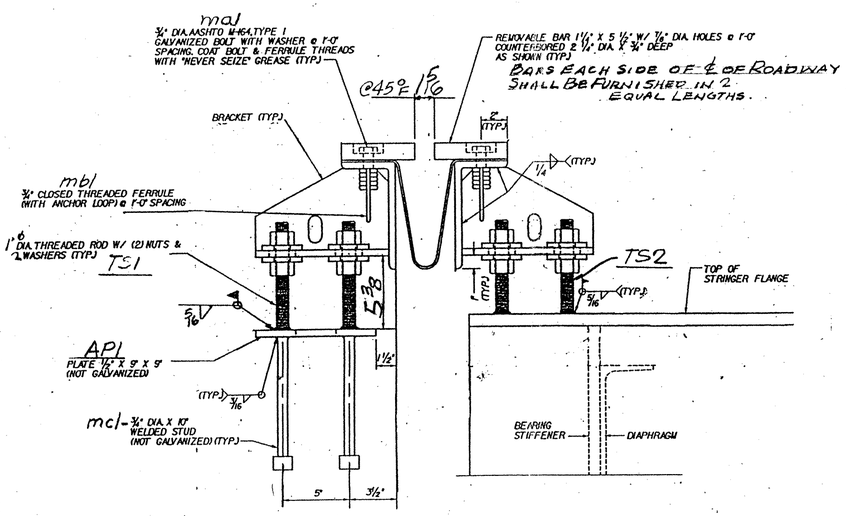
JOB NO.	DRG. NO.
124-43N	SC1
	REV. △

1" = 1'-0

506 DS 43N

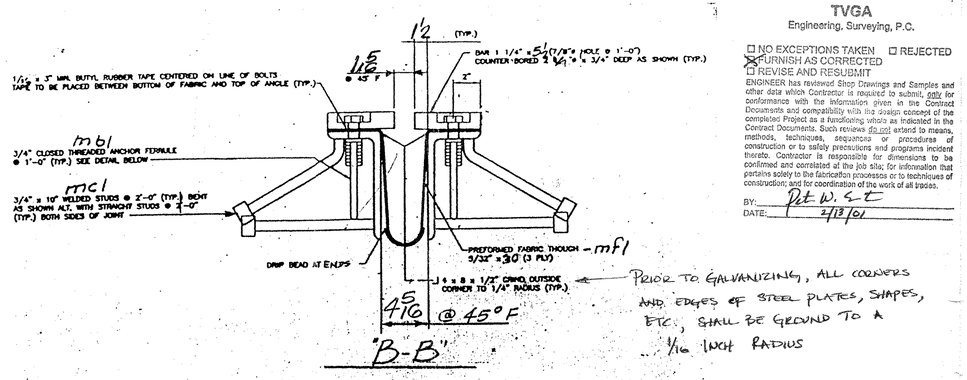


EJ1-S - ONE REQ'D (@ABUT. 1 - BRIDGE 435



TYP. SECTION @ ADJUSTMENT BRACKETS.

WORK THIS DWG. W/ DWG. J1A



PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC, SHALL BE GROUND TO A 1/16 INCH RADIUS

ANCHOR FERRULE DETAIL - mb1

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: P.E. W.S.T.
DATE: 2/13/01

SHOP BILL

JOB NO. 124-435 | DRG. NO. J1

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT. ASS'Y	53	0±		EJ1-S		—
		2	L 8x4x½	26	0	aa1½			
		2	DO	26	0	ab1½			
		2	BAR 5½x14	23	6	bc1½			
		2	DO	23	6	bb1½			
		10	Pl ½ x 8		10	bc1			
		10	Pl ½ x 6		10	bd1			
		92	¾"ø HS BOLTS		24	ma1			
		92	¾"ø CLOSE THREADED ANC. FERRULES			mb1			
		102	¾"ø ANC STUDS		10	mc1			
		1	PREFORMED FABR. 9/32" x 30' PLY	53	0±	mf1		SPEC PER SUBSECT. 707.07 AASHTO SPECIFIC. TYPE II	
		2	BUTYL RUBBER TAPE 1/16 x 3	52	0±				
		20	1" ø THREADED RODS		9		TS1		
		20	DO		7		TS2		
		80	1" ø HEX NUTS						
		80	BAR 3 x ⅜		3	W1		WASHER	
		5	Pl ½ x 9		9		API	NOT GALV.	
		20	¾"ø ANC STUDS		10	mc1			
		9	L 4x4x⅜	1	0	sa1			
		9	¾" ø HS BOLTS		3			W/1 WASH	
			CURBS						
		2	Pl ⅜ x 13½	3	9½	cp1			
		2	Pl ⅜ x 6⅝	1	7⅛	cp1a			
		2	Pl ⅜ x 13¾	2	14	cp1b			
		2	Pl ⅜ x 12½	3	7⅜	cp2			
		2	Pl ⅜ x 6¼	1	5⅜	cp2a			
		2	Pl ⅜ x 13¾	2	8⅜	cp2b			
		2	Pl ⅜ x 9¾	3	6	cp3			
		2	Pl ⅜ x 6¼	1	1¾	cp3a			
		2	Pl ⅜ x 9¾	3	5	cp4			
		2	Pl ⅜ x 5⅞	1	1¾	cp4a			
		2	Pl ⅜ x 9	2	8⅝	cp5			
		2	Pl ⅜ x 8⅞	2	8	cp6			
		28	¾"ø HS BOLTS		24	ma1			
		28	¾"ø CLOSE THREADED ANC. FERRULES			mb1			
		12	¾"ø ANC STUDS		10	mc1			
		24	¾"ø HS BOLTS		24	md1		W/NEW.	
		24	¾"ø ANC STUDS		7	me1			
		4	L 4x4x⅜	1	10	qc1½			
		16	Pl ⅜ x 5⅜		5⅜	sp1			
		16	Pl ⅜ x 4		4½	sp2			

PAY ITEM 516.10

OUT FOR APPROVAL	1-26-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 435
MATERIAL: AASHTO M270-Gr36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS: ¾" ø H.S.
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT - ABUT. 1	DRAWN BY	DATE
JOB: BRIDGE 435	JPF	1-01
I89 OVER U.S. ROUTE 2	CHKD BY	
MIDDLESEX-BOLTON, VT.	EJ	
	APPROV BY	
	Q.A.	
CUSTOMER: WINTERSET INC.		

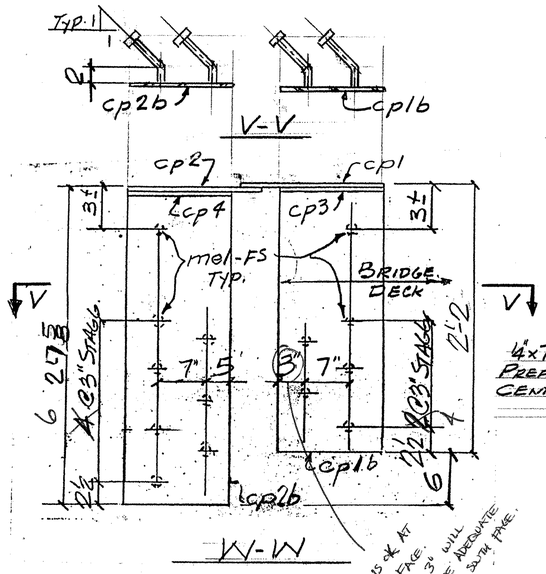
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX (207) 282-1179

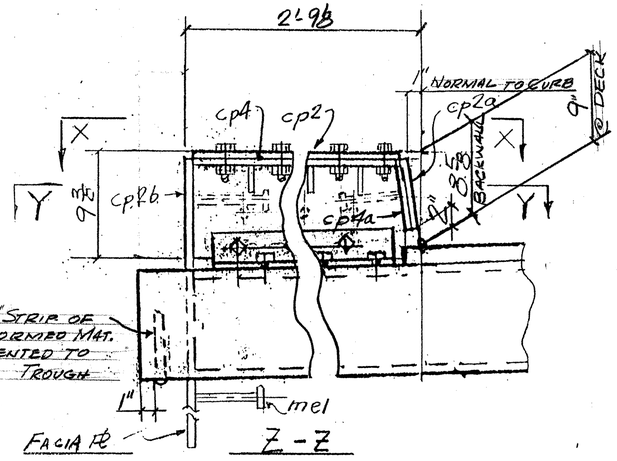
JOB NO.	DRG. NO.
124-435	J1
	REV. △

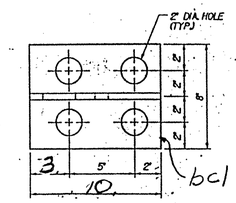
1" = 1'-0"

507BJ435

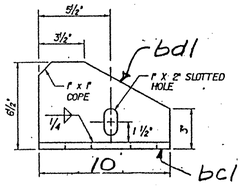
JOB NO. 124-435 | DRG. NO. J1A



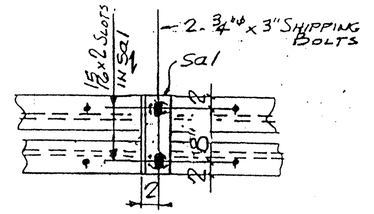




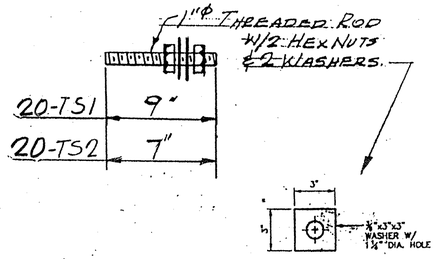
BRACKET PLAN



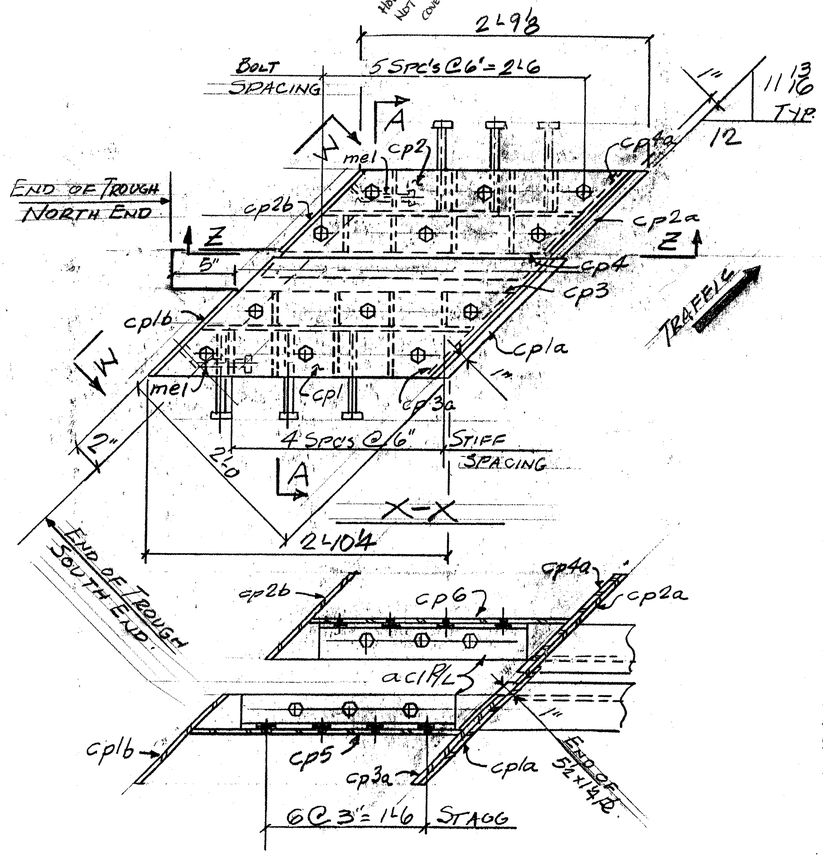
BRACKET ELEVATION



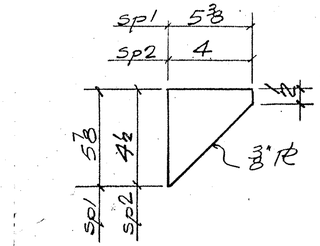
SHIPPING DEVICE
SPACED 5'-0" OC. MAX. (9 REQ'D) EA UNT.



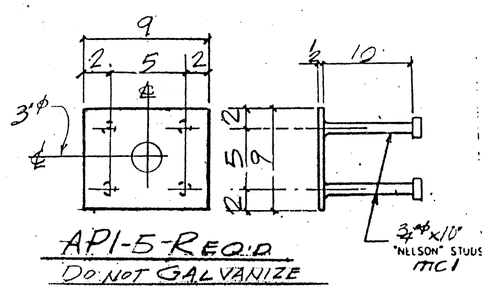
WASHER FOR BRACKET
W1



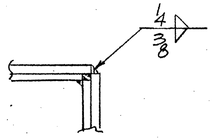
Y-Y (TROUGH NOT SHOWN)
NORTH END BRUSH CURB SHOWN
SOUTH END-OPP HAND



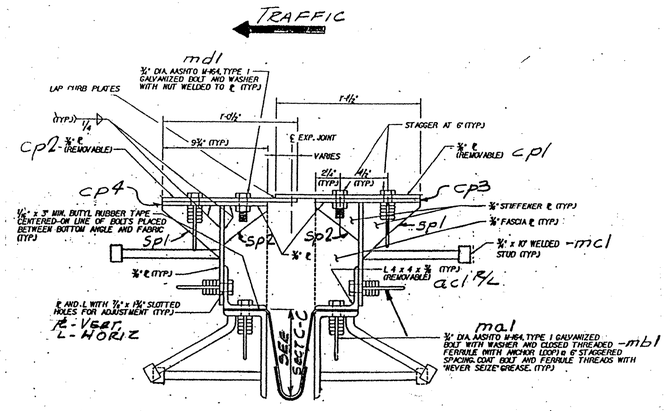
STIFF. DETAILS



API-5-REQ'D
DO NOT GALVANIZE



TYP. CORNER DET.



A-A

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat D. S-C
DATE: 2/13/01

WORK THIS DWG. W/ DWG. J1

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	1-26-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 435
MATERIAL: ~~AASHTO~~ M270 GR 36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT-ABUT. 1
JOB: BRIDGE-435
I 89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON VT
CUSTOMER: WINTERSET INC.

	DRAWN BY	DATE
	JPF	1-01
CHKD BY	EJ	
APPROV BY		
Q.A.		

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

JOB NO. 124-435 | DRG. NO. J1A | REV. ^

508 BS 435

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	DOWNSPOUT	50#		D435			—
37.69		1	TS 8x8x3/8	6	3±	+1		AASHTO M270 GR 50 AS REQ'D FOR A709 BEND	230.19
9.24		2	PL 3/8 x 7 1/4	1	7 1/8	hp1			24.06
14.3		1	PL 3/8 x 11 1/4	1	3	hp2			17.88
3.93		1	PL 3/8 x 3		11 1/4	hp3			3.59
16.2		1	L 6 x 4 x 1/2		3	K1			4.05
5.1		2	BAR 3 x 1/2	2	6±	SA1		BEND.	25.5
5.1		2	DO	1	4	SB1			13.6
1.044		4	5/8" ø THREADED ROD		9	TS1		PER SPEC 7408	
		8	5/8" HEX NUTS						4.0
		8	5/8" WASHERS						
		4	EPOXY GROUT					HILTI INC HIT-HY-150 SYSTEM	
		43	5 DOWN SPOUT						322.87

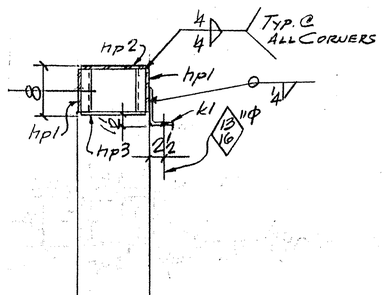
3.13 − .87

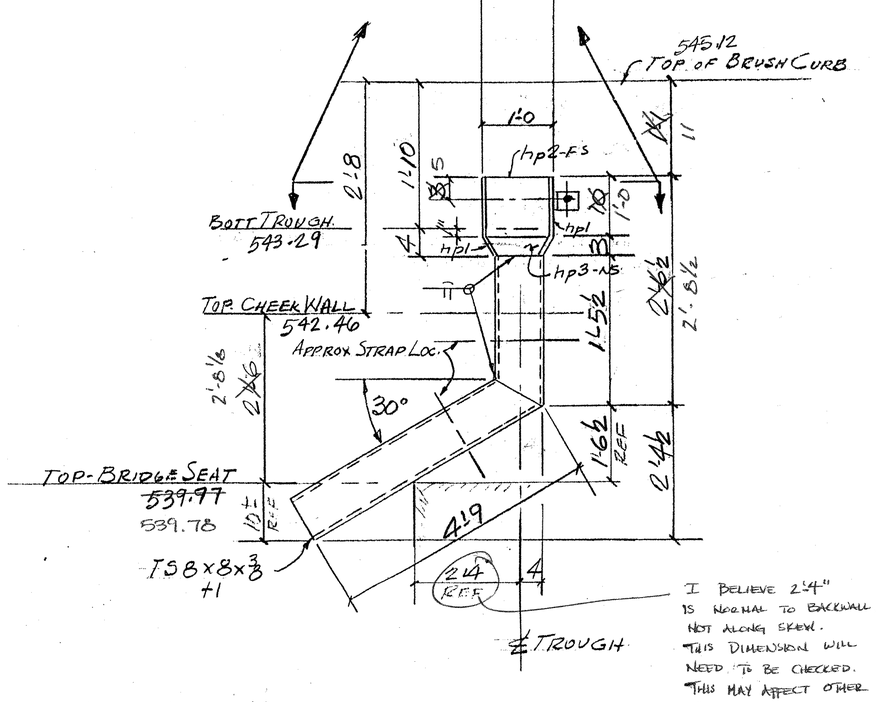
328#

327.37

323

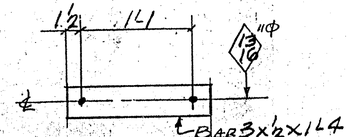
+4 1/5 lbs.



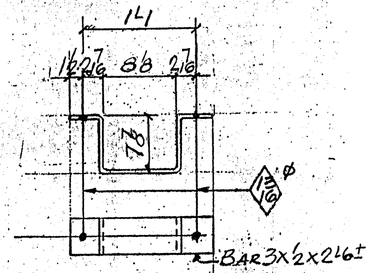


D435 - ONE REQ'D

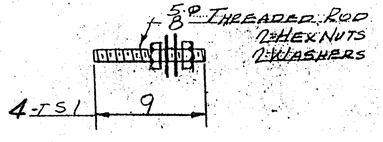
I BELIEVE 2'-4" IS NORMAL TO BACKWALL, NOT ALONG SKEW. THIS DIMENSION WILL NEED TO BE CHECKED. THIS MAY AFFECT OTHER DIMENSIONS FOR THE PROJECTING PORTION OF THE DOWNSPOUT.



SB1-2-REQ'D



SA1-2 REQ'D



PAY ITEM 506.60

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	1-26-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 435

MATERIAL: AASHTO M270-Gr36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:

SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB.

DESCRIPTION: DOWNSPOUTS - ABUT. 1

JOB: BRIDGE 435

I89 OVER U.S. ROUTE 2

MIDDLESEX-BOLTON VT

CUSTOMER: WINTERSET, INC.

DRAWN BY	DATE
JPF	1-01
CHKD BY	
EJ.	
APPROV BY	
Q.A.	
JOB NO.	DRG. NO.
124435	DS1
REV.	△

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

DS 509 435

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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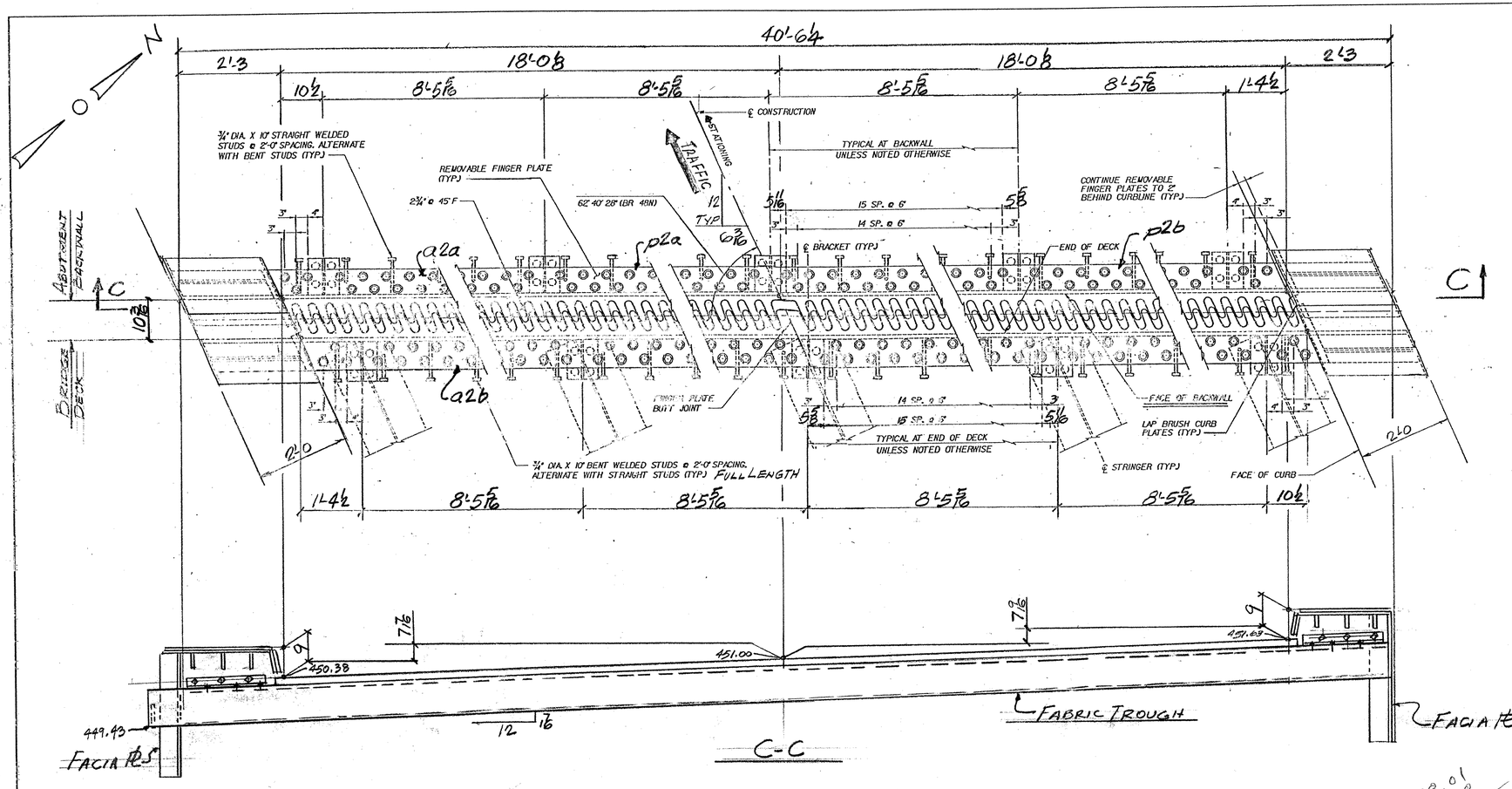
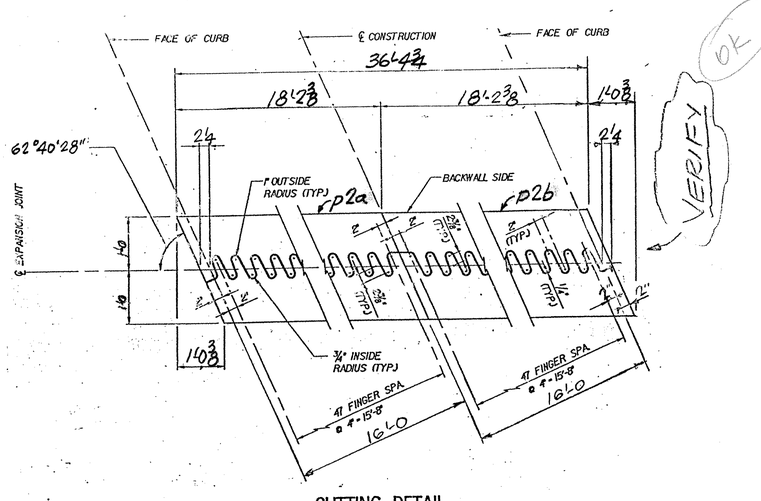
BY: Pat W. Ezt
DATE: 2/13/01



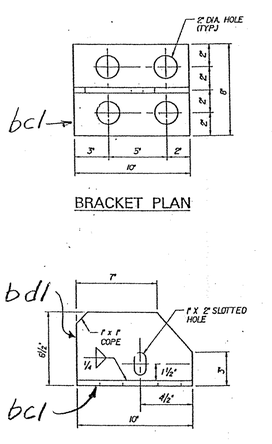
EJ2-N- ONE REQ'D (@ABUT. 2 - BRIDGE 48N)

18.01
-.08
-8.45
-8.44

ABM INFO		SHOP BILL						JOB NO. 12548N	DRG. NO. J2
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT ASSY	41	0±		EJ2-N		—
		1	PL 24x24	19	2¾	p2a		AASHTO M270 GR50	
		1	DO	19	2¾	p2b		DO	
		1	L 8x8x1'	40	8½	a2a			
		1	DO	40	9½	a2b			
		10	PL ½ x 8		10	bc1			
		10	PL ½ x 6		10	bd1			
		140	⅞"ϕ H.S. BOLTS		3½	ma1			
		140	⅞"ϕ GLOSET THREADED ANC FERRULES			mb1			
		78	¾"ϕ ANC STUDS		10	mc1			
		1	PREFORMED FIBER 9.23 x 2.0	43	0±	mf1		3 PLY PER SUBSET 707.07 ASSTD SPEC M-198-TYPE B	
		2	EXTRUDED RUBBER TAPER 1/16 x 3	41	0±				
		40	1"ϕ THREADED RODS		6		TS1		
		80	1"ϕ HEX NUTS						
		80	BAR 3 x 3/8		3	W1		WASHER	
		5	PL ½ x 9		9		API	NOT GALV.	
		20	¾"ϕ ANC STUDS			mc1			
		12	L 4x4x½	1	6±	sa1			
		12	⅞"ϕ H.S. BOLTS		4½			W/ WASH	
		CURBS							
		2	PL ¾ x 18	2	10	cp1			
		2	PL ½ x 64	1	8¼	cp1a			
		2	PL ½ x 12¾	2	0⅜	cp1b			
		2	PL ¾ x 18	2	8⅜	cp2			
		2	PL ½ x 5½	1	8¼	cp2a			
		2	PL ½ x 12¾	2	6⅜	cp2b			
		2	PL ¾ x 11 3/8	2	6⅜	cp3			
		2	PL ½ x 5½	1	0¾	cp3a			
		2	PL ¾ x 11 3/8	2	5⅜	cp4			
		2	PL ½ x 4¾	1	0¾	cp4a			
		2	PL ½ x 8½	2	1⅜	cp5			
		2	PL ½ x 7¾	2	0¼	cp6			
		16	⅞"ϕ H.S. BOLTS		3	mg1			
		36	⅞"ϕ GLOSET THREADED ANC FERRULES			mb1			
		12	¾"ϕ ANC STUDS		10	mc1			
		12	⅞"ϕ H.S. BOLTS		2½	md1			
		28	⅝"ϕ ANC STUDS		7	me1			
		4	L 5x3½x½	1	2	ad1			
		12	PL ½ x 5⅜		5⅜	sp1			
		12	PL ½ x 4½		5½	sp2			



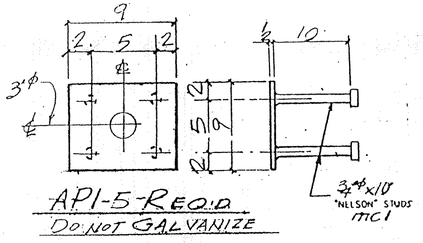
CUTTING DETAIL



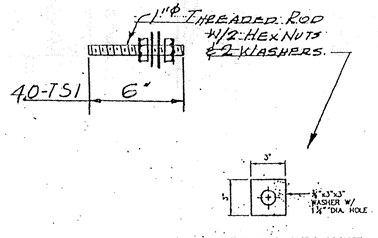
BRACKET PLAN

BRACKET ELEVATION

WORK THIS DWG. W/ DWG J2A



API-5 REQ'D
DO NOT GALVANIZE



WASHER FOR BRACKET
W1

TVGA
Engineering, Surveying, P.C.

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☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Sr
DATE: 4/9/01

PRIOR TO GALVANIZING ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO A 1/16" RADIUS.

ANCHOR FERRULE DETAIL

PAY ITEM 516.10

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-14	01								
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 48N
MATERIAL AASHTO M270-GR36&GR50 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS: ⅞" H.S.
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB. V.N.

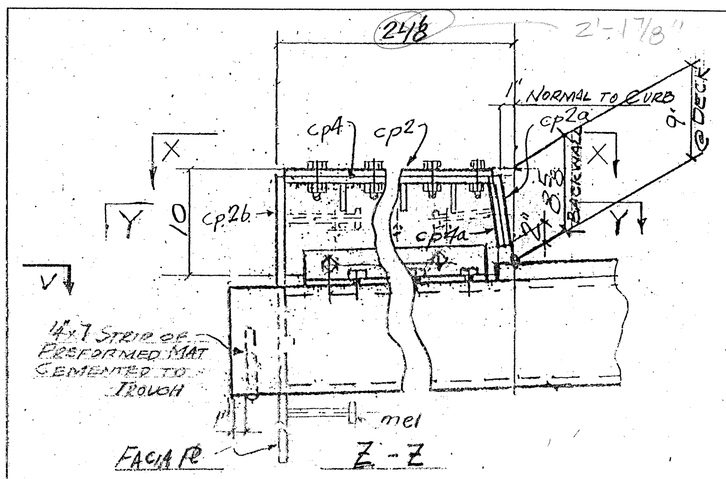
DESCRIPTION: EXP. JOINT - ABUT. 2	DRAWN BY	DATE
JOB: BRIDGE 48N	JPF	2-01
I89 OVER LITTLE RIVER	CHKD BY	
MIDDLESEX-BOLTON, VT.	APPROV BY	
	Q.A.	
CUSTOMER: WINTERSET INC.		

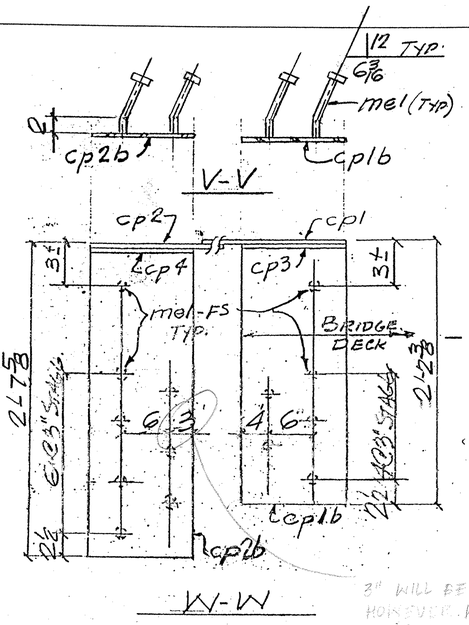
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 12548N DRG. NO. J2 REV. △

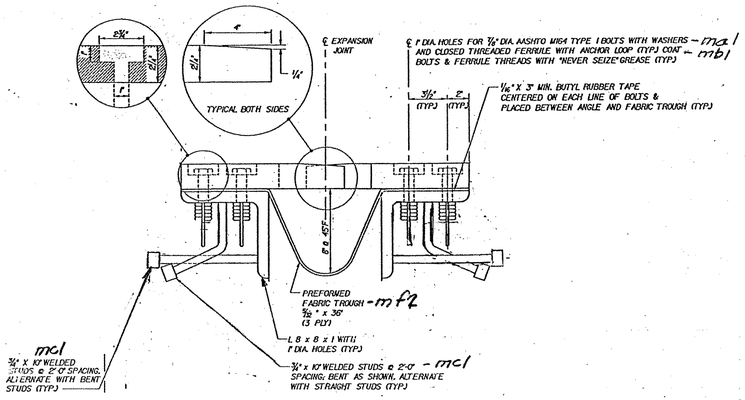
510 BJ 48N

JOB NO. 1254BN | DRG. NO. J2A

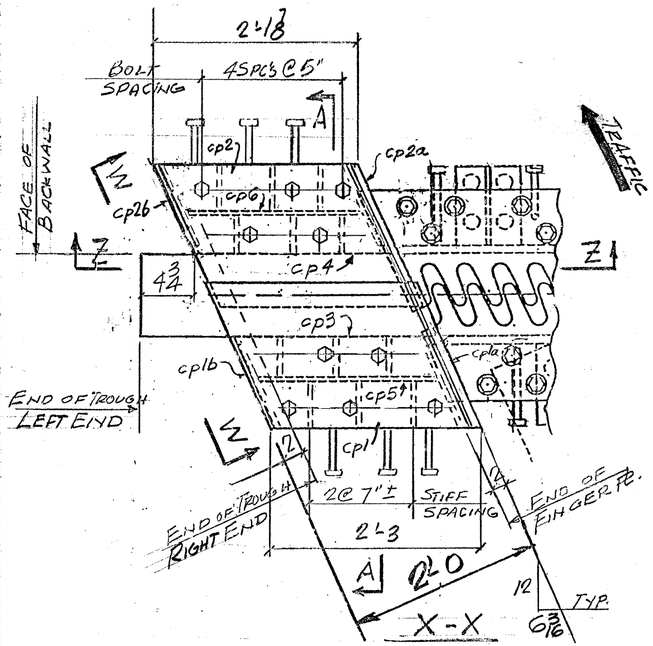


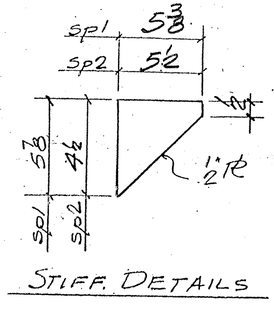


3" WILL BE OK @ SOUTH FACE HOWEVER WILL NOT PROVIDE ADEQUATE COVER @ NORTH FACE

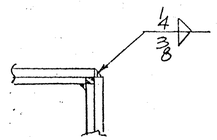


TYP. SECT. BETWEEN STRINGERS
(NORMAL TO ℄ BEARING)

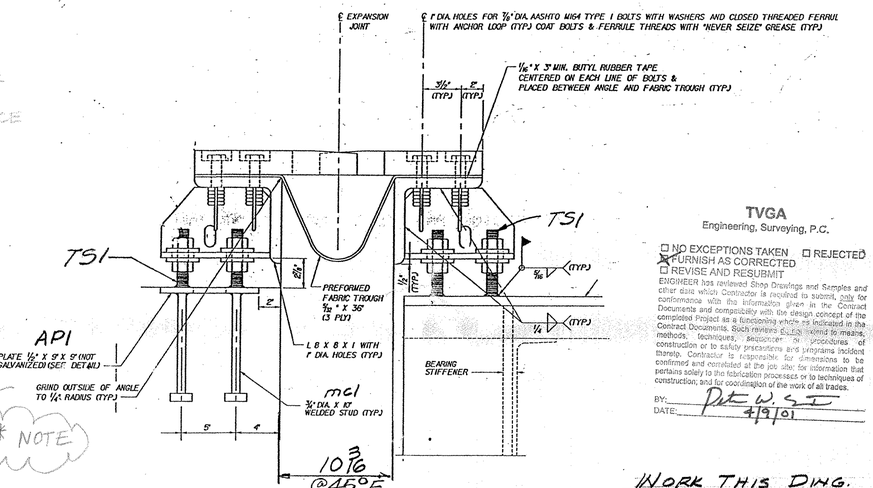




STIFF. DETAILS

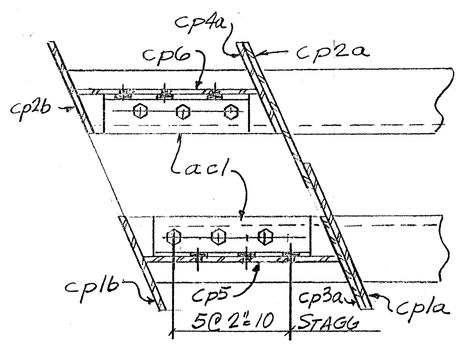


TYP. CORNER DET.



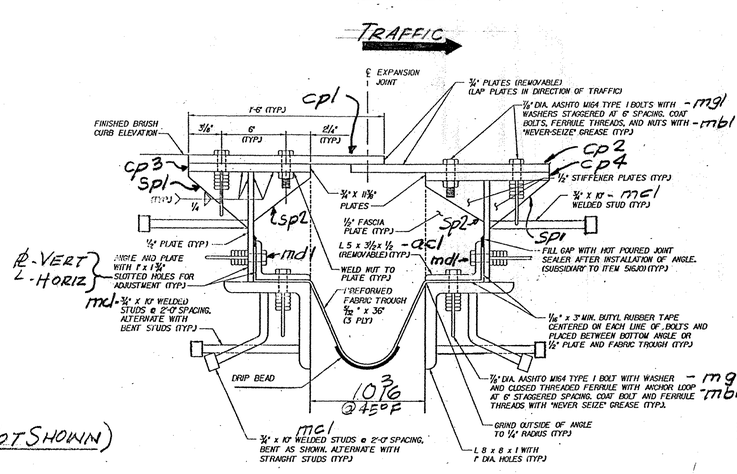
TYP. SECT. @ STRINGERS
(NORMAL TO ℄ BEARING)

WORK THIS DWG. W/ DWG. J2

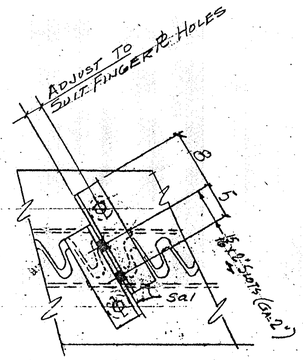


Y-Y (FINGER Rt & THROUGH NOT SHOWN)

LEFT END BRUSH CURB SHOWN
RIGHT END - OPP HAND



TYPICAL SECTION AT ARMORED BRUSH CURB
(NORMAL TO ℄ BEARING)



DETAIL @ SHIPPING DEVICES
SPACED 5'-0" ℄ MAX. (MIN. 6 PLACES)

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature] DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-14	01								
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 48N
MATERIAL: AASHTO M270-Gr.36&50 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS: 3/4" H.S.
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB. U.N.

DESCRIPTION: EXP. JOINT - ABUT. 2
JOB: BRIDGE 48N
I89 OVER LITTLE RIVER
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

	DRAWN BY	DATE
	JPF	2-01
CHKD BY		
APPROV BY		
Q.A.		
JOB NO.	DRG. NO.	
1254BN	J2A	
	REV.	△

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

510 BI48NA

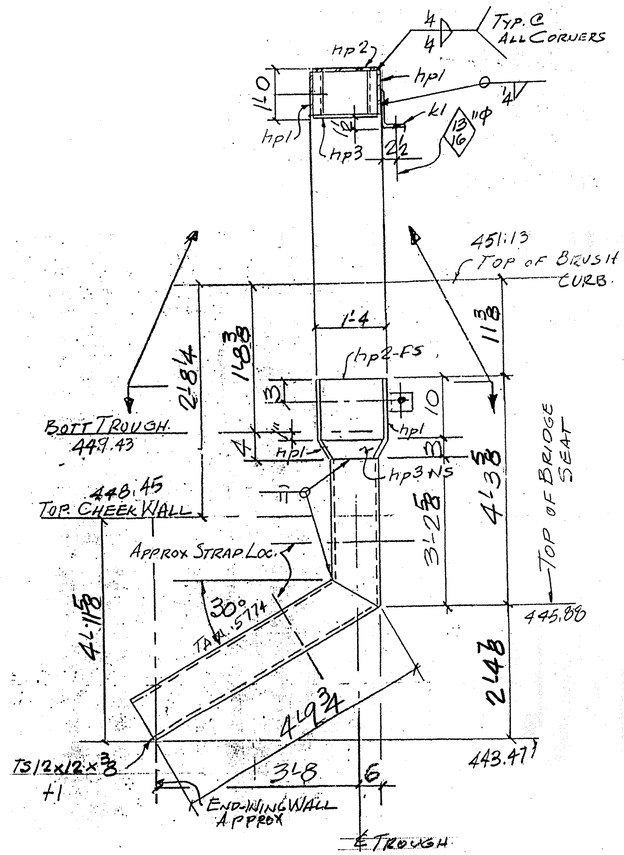
ABM INFO		SHOP BILL						JOB NO. 125-48N	DRG. NO. DS2
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	DOWNSPOUT				D48N		—
		1	TS 12X12X3/8	8	1	71		ASTM A500 OR 501	
		2	PL 3/8 X 11 1/4	1	1 1/8	hp1		BEND	
		1	PL 3/8 X 13	1	3/4	hp2			
		1	PL 3/8 X 3	1	3/4	hp3			
		1	L 6X6 X 1/2		3	K1			
		2	BAR 3 X 1/2	3	8±		SA1	BEND	
		2	DO	1	8		SB1		
		4	5/8" ø THREADED ROD		9		TS1	PER SUBSECT 719.08	
		8	5/8" ø HEXNUTS						
		8	5/8" ø WASHERS						
		4	EPOXY GROUT					HILTI INC. HIT HY 150 SYSTEM	

TVGA
Engineering, Surveying, P.C.

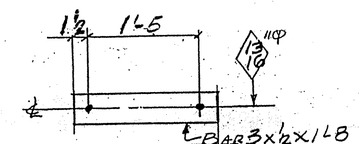
☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review shall not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

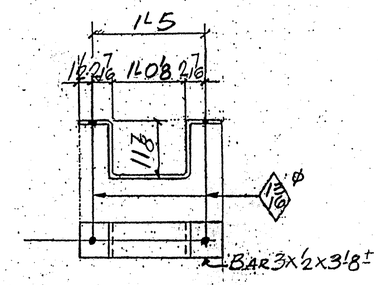
BY: Peter W. Sutton
DATE: 4/9/01



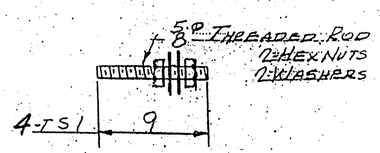
D48N-ONE REQ'D.



SB1-2-REQ'D



SA1-2-REQ'D



PAY ITEM 506.60

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-14-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 48N
MATERIAL AASHTO M270-Gr36 ELECTRODES: PER Proc HOLES: As Noted SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

DESCRIPTION: DOWNSPOUT. ABUT. 2
JOB: BRIDGE 48N
I89 OVER LITTLE RIVER
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

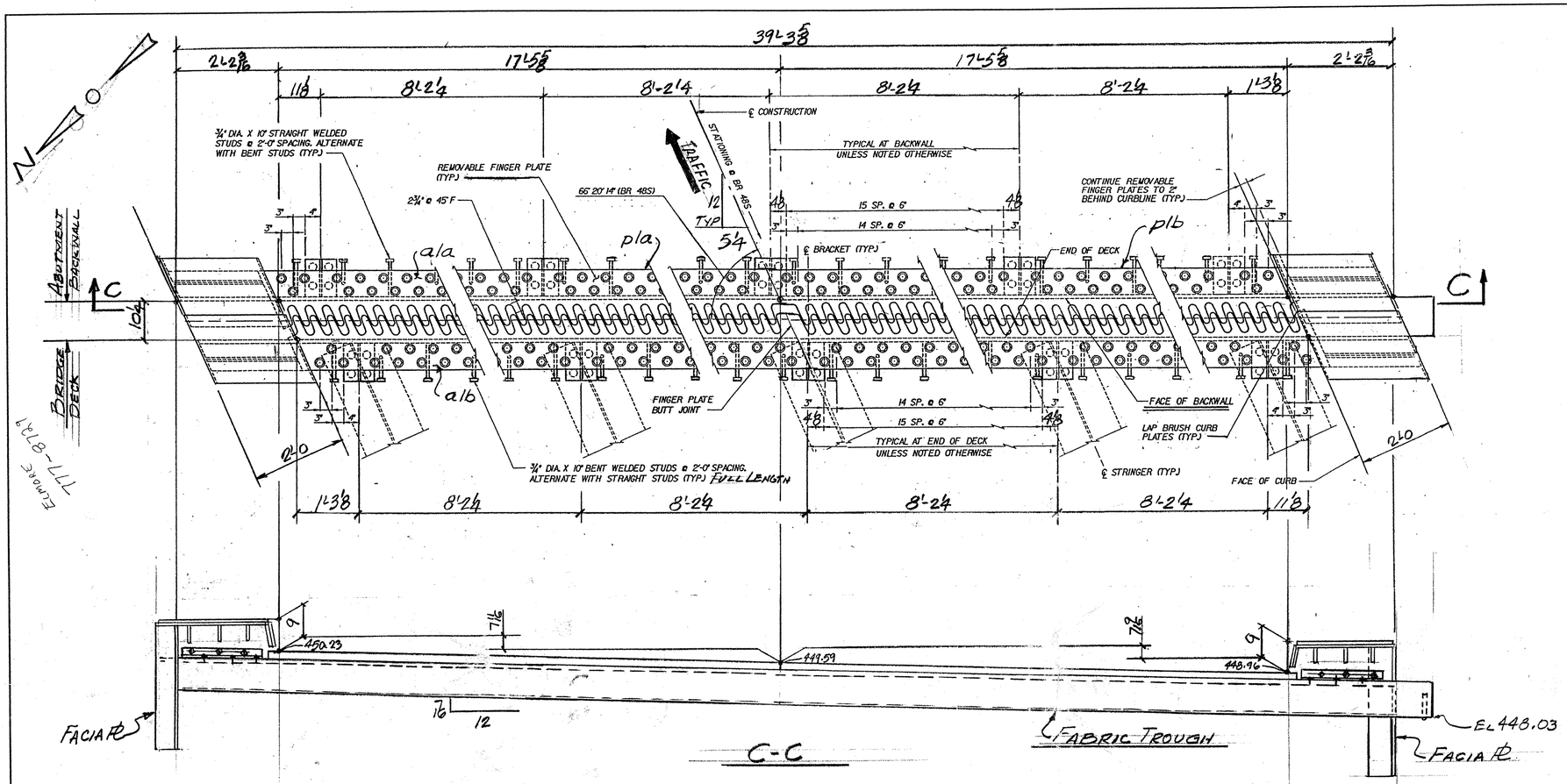
	DRAWN BY	DATE
	JPF	2-01
CHKD BY	EJ.	
APPROV BY		
Q.A.		

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

JOB NO.	DRG. NO.
125-48N	DS2
	REV. △

S10 DS 48N

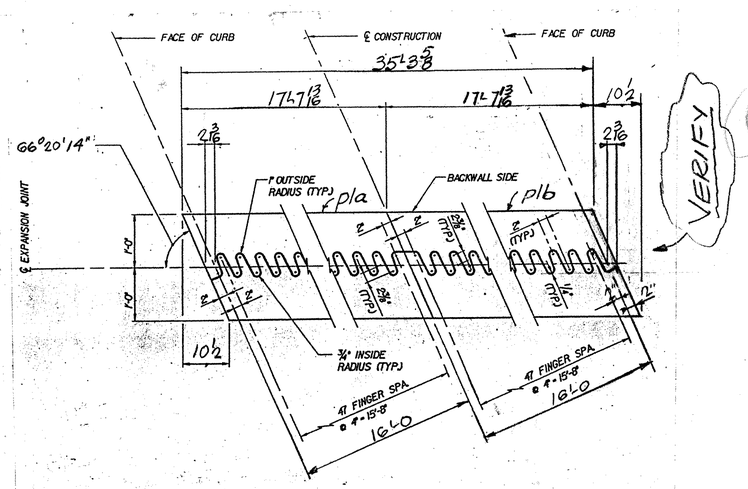
C.O.S. 9159



C-C

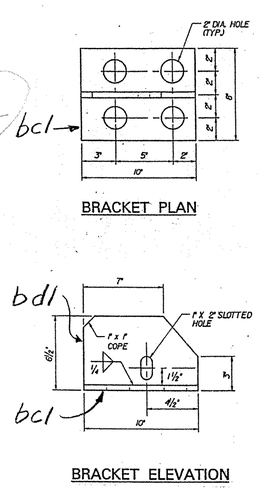
EJ1-S-ONE REQ'D-(@ ABUT. 1-BRIDGE 485)

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
								JOB NO. 125-485	DRG. NO. J1
		1	EXP. JNT ASSY	40	0±	EJ1-S			—
		1	℞ 24x24	18	6½	p1a		AASHTO M270 GR50	
		1	Do	18	6½	p1b		Do	
		1	L 8x8x1"	39	5⅜	a1a			
		1	Do	39	6⅜	a1b			
		10	℞ ½ x 8		10	bc1			
		10	℞ ½ x 6		10	bd1			
		140	¾"ø H.S. BOLTS		3½	ma1			
		140	¾"ø CLOSED THREADED ANC FERRULES			mb1			
		78	¾"ø ANC. STUDS		10	mc1			
		1	PREFORMED FIBER 3/32 x 36	42	0±	mf1		3 PLY PER SUBSET 707.07 AASHTO SPEC M-198-TYPE B	
		4	BUTYL RUBBER TAPE 1/16 x 3	40	0±				
	40		1"ø THREADED RODS		6		TS1		
	80		1"ø HEX NUTS						
	90		BAR 3 x ⅜		3	W1		WASHER	
	5		℞ ½ x 9		9		API	NOT GALV.	
	20		¾"ø ANC. STUDS			mc1			
	12		L 4x4x½	1	6±	sa1			
	12		⅞"ø H.S. BOLTS		4½			W/ WASH	
		CURBS							
		2	℞ ¾ x 18	2	7⅛	cp1			
		2	℞ ½ x 6'4	1	7½	cp1a			
		2	℞ ½ x 12	2	0⅛	cp1b			
		2	℞ ¾ x 18	2	6½	cp2			
		2	℞ ½ x 5½	1	7½	cp2a			
		2	℞ ½ x 12	2	6⅛	cp2b			
		2	℞ ¾ x 11⅜	2	3⅜	cp3			
		2	℞ ½ x 5½	1	0	cp3a			
		2	℞ ¾ x 11⅜	2	2¾	cp4			
		2	℞ ½ x 4¾	1	0	cp4a			
		2	℞ ½ x 8½	2	0½	cp5			
		2	℞ ½ x 7¾	1	11⅜	cp6			
		10	⅞"ø H.S. BOLTS		3	mg1			
		30	⅞"ø CLOSED THREADED ANC FERRULES			mb1			
		12	¾"ø ANC STUDS		10	mc1			
		12	⅞"ø H.S. BOLTS		2½	md1			
		28	⅞"ø ANC STUDS		7	me1			
		4	L 5x3½x½	1	2	oc1			
		12	℞ ½ x 5⅜		5⅜	sp1			
		12	℞ ½ x 4½		5½	sp2			



CUTTING DETAIL

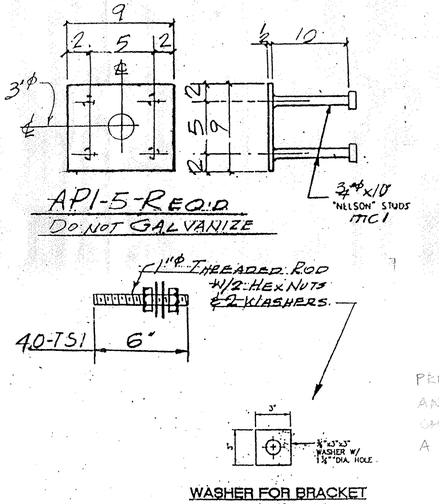
VERIFY OK



BRACKET PLAN

BRACKET ELEVATION

WORK THIS DWG. W/ DWG J1A



WASHER FOR BRACKET W1

ANCHOR FERRULE DETAIL

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Peter W. Tyler
DATE: 4/9/21

PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC., SHALL BE GROUND TO A 1/16" RADIUS

PAY ITEM 516.10

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-14-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 485
MATERIAL: AASHTO M270-Gr50/Gr50W ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS: ⅞" H.S.
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB. U.N.

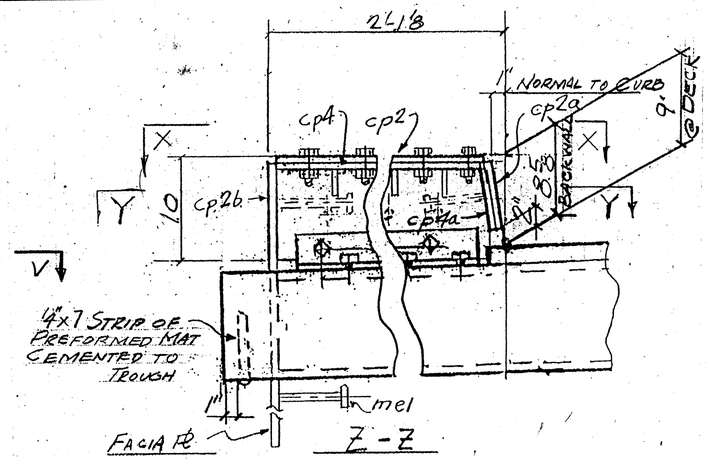
DESCRIPTION: EXP. JOINT - ABUT. 1
JOB: BRIDGE 485
I89 OVER LITTLE RIVER
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

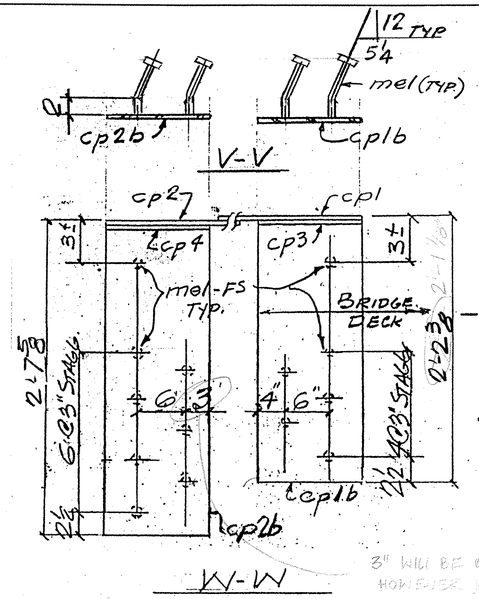
	DRAWN BY	DATE
	JPF	2-01
CHKD BY		
APPROV BY		
Q.A.		
JOB NO.	DRG. NO.	
125485	J1	
	REV.	△

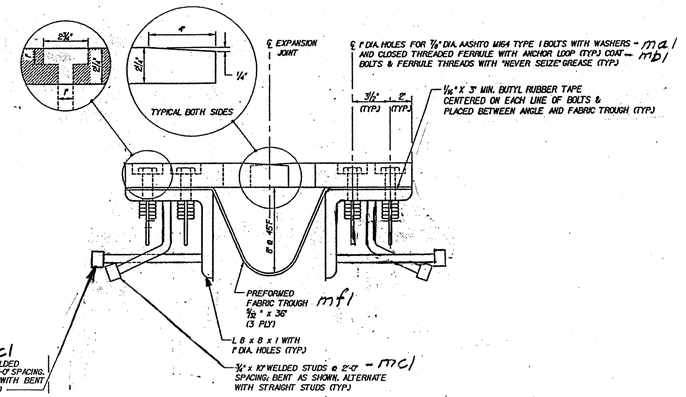
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

485
5/0

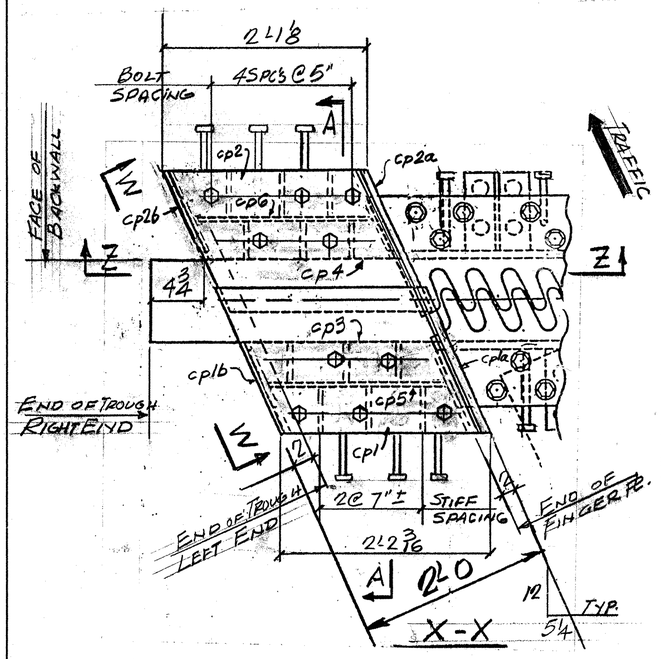
JOB NO.	DRG. NO.
125-485	J1A

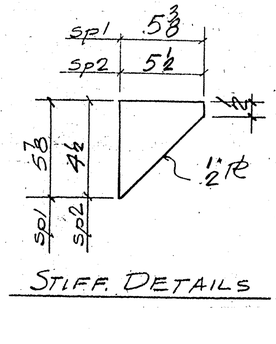




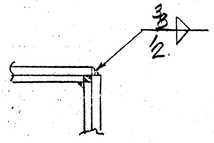


TYP. SECT. BETWEEN STRINGERS
(NORMAL TO ℄ BEARING)

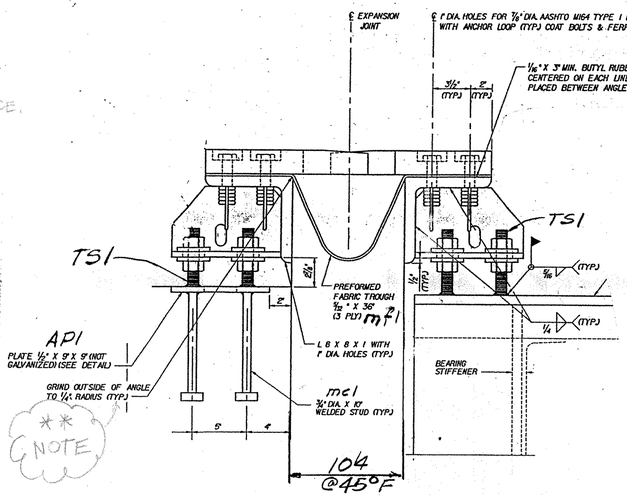




STIFF. DETAILS



TYP. CORNER DET.



TYP. SECT. @ STRINGERS
(NORMAL TO ℄ BEARING)

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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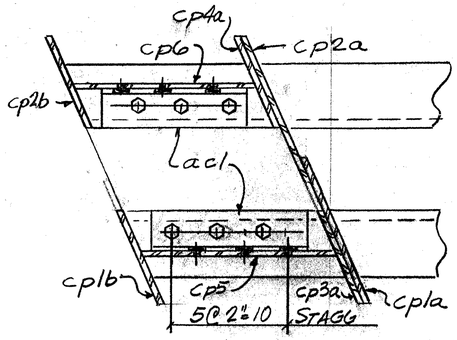
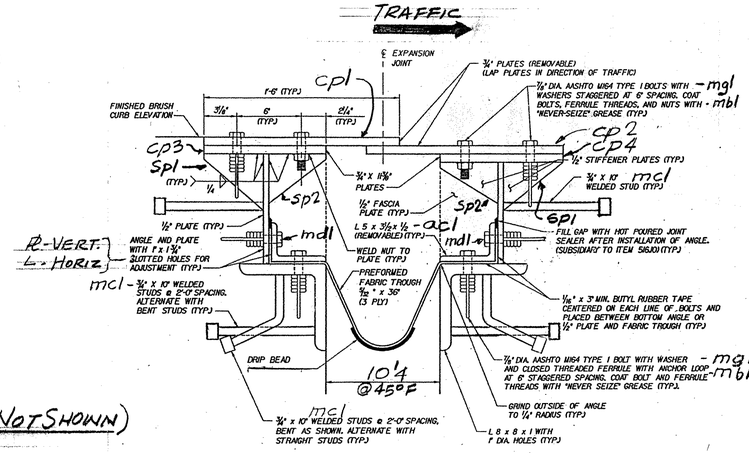
BY: Pat W. Gee
DATE: 4/9/01

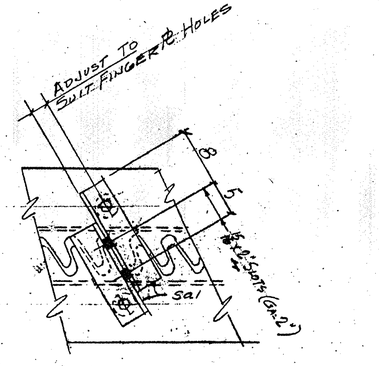
WORK THIS DWG W/ DWG J1



Y-Y (FINGER PL & THROUGH NOT SHOWN)
LEFT END BRUSH CURB SHOWN
RIGHT END - OPP HAND



TYPICAL SECTION AT ARMORED BRUSH CURB
(NORMAL TO ℄ BEARING)



DETAIL @ SHIPPING DEVICES
SPACED 5'-0" ± C. MAX. (MIN. 6 PLACES)

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-14	01								
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. FM-089-2(26) STATE BRIDGE NO. 485
MATERIAL: AASHTO M270 GR 36 HPS ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: 7/8" HPS.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB. U.N.

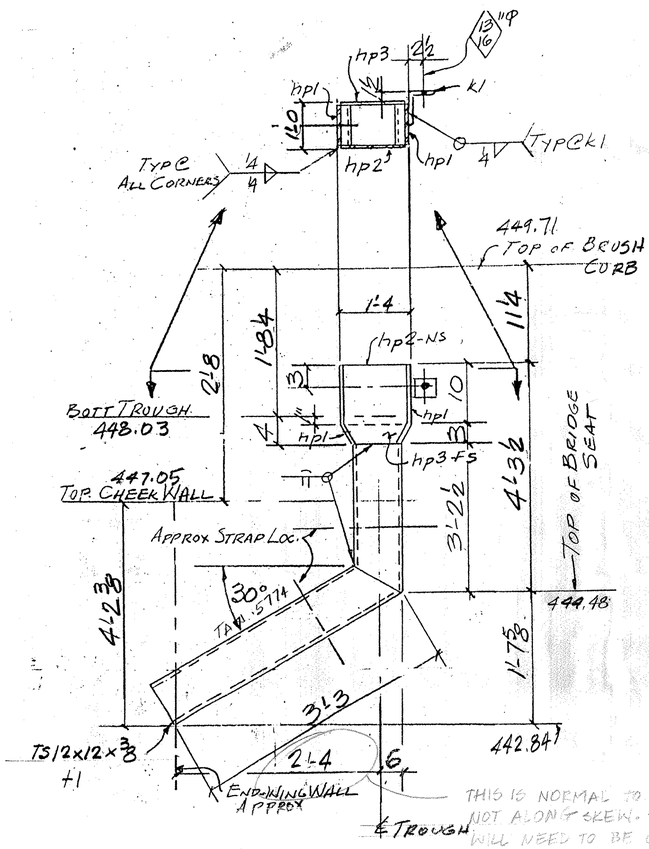
DESCRIPTION: EXP. JOINT - ABUT. 1	DRAWN BY	DATE
JOB: BRIDGE 485	JPF	2-01
I89 OVER LITTLE RIVER	CHKD BY	
MIDDLESEX - BOLTON, VT.	APPROV BY	
	Q.A.	
CUSTOMER: WINTERSET INC.		

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

JOB NO.	DRG. NO.
125.485	J1A
	REV. △

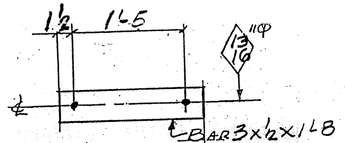
5 of 6 I 9854

ABM INFO		SHOP BILL							JOB NO. 12548S	DRG. NO. DS1
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK		REMARKS	WEIGHT
		1	DOWNSPOUT				D48S			—
			1 TS12x12x3/8	6	6±1				ASTM A500 OR A501	
			2 PL 3/8 x 11 1/4	1	1 3/8	hp1			BEND.	
			1 PL 3/8 x 13	1	3 1/4	hp2				
			1 PL 3/8 x 3	1	3 1/4	hp3				
			1 L6x6x1/2		3	K1				
		2	BAR 3x1/2	3	8±		SA1		BEND.	
		2	DO	1	8		SB1			
		4	5/8" THREADED ROD		9		TS1		PER SUBSECT 714.08	
		8	5/8" HEX NUTS							
		8	5/8" WASHERS							
		4	EPOXY GROUT						#ADTINE HIGH V 150 SYSTEM.	

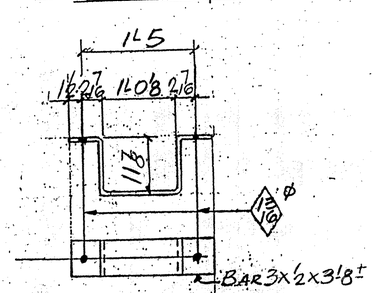


D48S - ONE REQ'D.

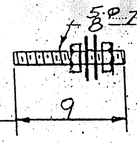
THIS IS NORMAL TO BACKWALL NOT ALONG SKEW. THIS DIMENSION WILL NEED TO BE CHECKED. THIS MAY AFFECT OTHER DIMENSIONS ON THE DOWNSPOUT.



SB1-2-REQ'D



SA1-2-REQ'D



TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Jeff W. Ertl
DATE: 2/9/01

PAY ITEM 506.60

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-14-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 48S
MATERIAL AASHTO M270 GR 36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:

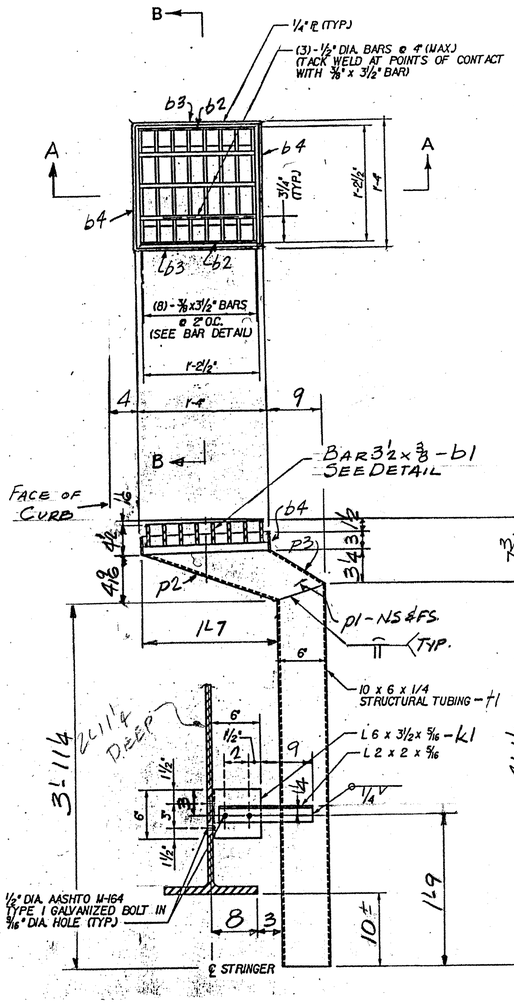
GALVANIZED AFTER FAB.

DESCRIPTION: DOWNSPOUT - ABUT. 1
JOB: BRIDGE 48S
I89 OVER LITTLE RIVER
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

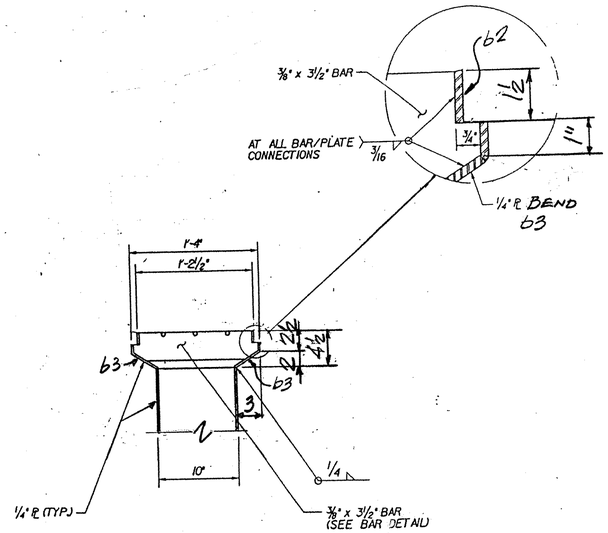
DRAWN BY	DATE
JPF	2-01
CHKD BY	
EJ	
APPROV BY	
Q.A.	
JOB NO.	DRG. NO.
12548S	DS1
	REV. △

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

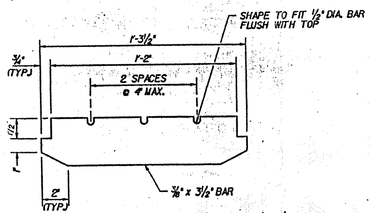
5 of 10 DS48S



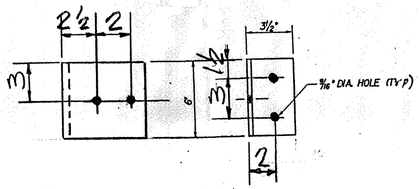
S48S - ONE REQ'D (@ BRIDGE 48S)
S48N - ONE REQ'D (@ BRIDGE 48N)



SECTION B–B



DETAIL - BAR b1



DETAIL - k1

SHOP BOLT TO k2 FOR SHIPMENT

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Sise
DATE: 4/19/01

ABM INFO PAGE	ABM INFO LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	SCUPPER	4	9±		S48S		—
		1	DO	4	9±		S48N		—
		2	TS 10X6X1/4	7	1 1/4	t1			
		16	BAR 3 1/2 X 3/8	1	3 1/2	b1			
		4	BAR 1 1/2 X 1/4	1	4	b2			
		4	BAR 4 1/2 X 1/4	1	4	b3		BEND	
		4	BAR 3 X 1/4	1	3 1/2	b4			
		6	1/2" ø BAR	1	2 1/2	r1			
		4	R 1/4 X 5 1/4	2	1	p1			
		2	R 1/4 X 9 1/4	1	7 1/2	p2			
		2	DO		9 1/2	p3			
		2	L 6 X 3 1/2 X 1/4		6	k1			
		2	L 2 X 2 X 5/16	1	3	k2			

PAY ITEM 506.55

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.
	OUT FOR APPROVAL	2-14-01				
	OUT FOR APPROVAL					
	ISSUED TO SHOP					
	FIELD & OFFICE					

NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 48S & 48N
MATERIAL AASHTO M270 Gr 36 ELECTRODES: E70 FCAW HOLES: AS NOTED SHOP BOLTS: 3/4" ø H.S.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

DESCRIPTION: SCUPPER DETAILS
JOB: BRIDGE 48S & 48N
I89 OVER LITTLE RIVER
MIDDLESEX-BOLTON, V.T.
CUSTOMER: WINTERSET INC.

DRAWN BY	DATE
JPF	2-01
CHKD BY	
EJ.	
APPROV BY	
Q.A.	
JOB NO.	DRG. NO.
1254SN	SC1
	REV. △

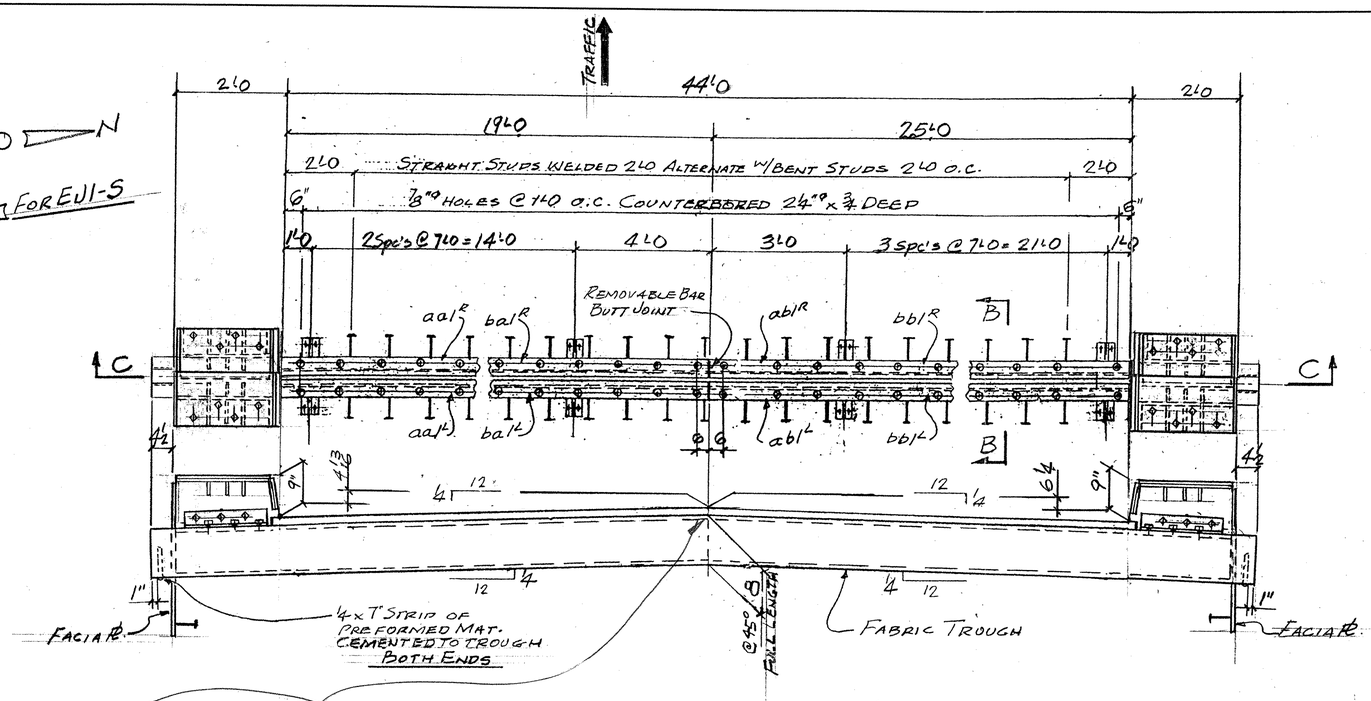
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

1" = 1'-0

5 of 8 S 48 S

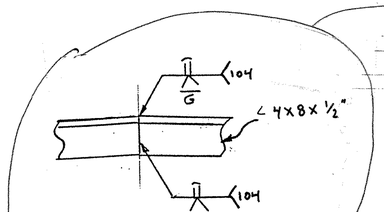
FOR EJI-N ▷ O ▷ N

N ◁ O ◁ FOR EJI-S

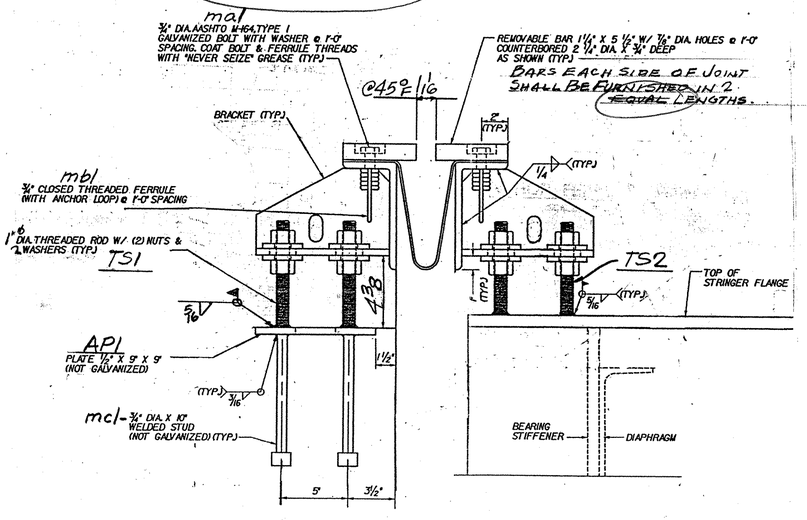


EJI-N - ONE REQ'D (@ ABUT. 2 - BRIDGE 49N)
EJI-S - ONE REQ'D (@ ABUT. 2 BRIDGE 49S)

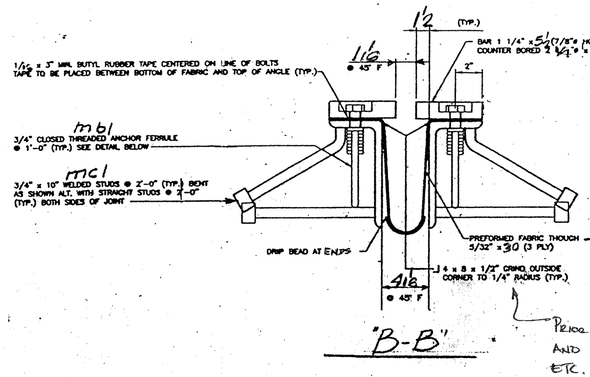
WORK THIS DWG. W/ DWG. J1A



WELDING DETAIL



TYP. SECTION @ ADUSTMENT BRACKETS.



"B-B"

PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF STEEL PLATES, SHAPES, ETC. SHALL BE GROUND TO A 1/16 INCH RADIUS.

ANCHOR FERRULE DETAIL - mb1

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. S. T.
DATE: 2/13/01

SHOP BILL

JOB NO. 126-49SN DRG. NO. J1

AEM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT. ASS'Y	48	9		EJI-N		—
		1	DO	48	9		EJI-S		—
		4	∠ 8 x 4 x 1/2	21	4 1/2	aa1 R/L			
		4	DO	27	4 1/2	ab1 R/L			
		4	BAR 5 1/2 x 1/4	19	1	ba1 R/L			
		4	DO	25	1	bb1 R/L			
		28	R 1/2 x 8	1	24	bc1			
		28	R 1/2 x 6	1	24	bd1			
		176	3/4" ø H.S. BOLTS		24	ma1			
		176	3/4" ø CLOSE THREADED ANC. FERRULES			mb1			
		164	3/4" ø ANC. STUDS		10	mc1			
		2	PREFORMED FABR. 5/32 x 30	50	0	mf1		3 PLY PER SUBSEC 707.07 AASHTO SPEC M-110-TYPE II	
		4	BUTYL RUBBER TAPE 1/8 x 3	49	0				
		56	1" ø THREADED RODS		7		TS1		
		56	DO		9		TS2		
		224	1" ø HEX NUTS						
		224	BAR 3 x 3/8		3	W1		WASHER	
		14	R 1/2 x 9		9		API	NOT GALV.	
		56	3/4" ø ANC STUDS		10	mc1			
		18	∠ 4 x 4 x 3/8	1	0	sa1			
		36	3/4" ø H.S. BOLTS		3			W/ 1 WASH.	
	CURBS								
		4	R 3/8 x 13 1/2	1	10 4	cp1			
		4	DO		6 3	cp1a			
		4	DO	2	9 4	cp1b			
		4	R 3/8 x 12 1/2	1	9 2	cp2			
		4	DO		6 4	cp2a			
		4	DO	2	3 4	cp2b			
		4	R 3/8 x 9 3/4	1	9 2	cp3			
		4	R 3/8 x 9 3/4		6 4	cp3a			
		4	R 3/8 x 9 3/4	1	8 3	cp4			
		4	R 3/8 x 9 3/4		5 8	cp4a			
		4	R 3/8 x 9	1	10 3	cp5			
		4	R 3/8 x 8 5/8	1	10	cp6			
		64	3/4" H.S. BOLTS		24	ma1			
		64	3/4" ø COLD THREADED ANC. FERRULES			mb1			
		24	3/4" ø ANC STUDS		10	mc1			
		16	3/4" H.S. BOLTS		24	md1		W/ NEXT	
		64	3/8" ø ANC STUDS		7	me1			
		8	∠ 4 x 4 x 3/8	1	8 4	ac1 R/L			
		24	R 3/8 x 5 3/8		5 8	sp1			
		24	R 3/8 x 4		4 2	sp2			

PAY ITEM 516.10

OUT FOR APPROVAL	01-11-01									
OUT FOR APPROVAL										
ISSUED TO SHOP										
FIELD & OFFICE										
REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO. IM-089-2 (26) STATE BRIDGE NO. 49S & 49N
MATERIAL: AASHTO M270-Gr 36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: 3/4" ø H.S.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

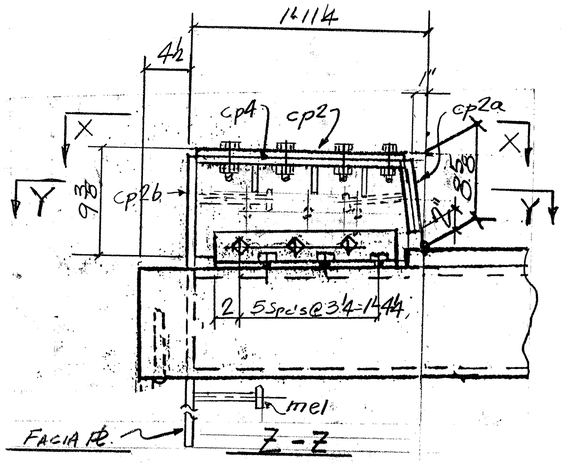
DESCRIPTION: EXP. JOINTS - ABUT. 2	DRAWN BY	DATE
JOB: BRIDGES 49S & 49N	JPF	1-01
I 89 - SB - OVER TH 7	CHKD BY	
MIDDLESEX - BOLTON, VT.	APPROV BY	
	Q.A.	
CUSTOMER: WINTERSET INC.		

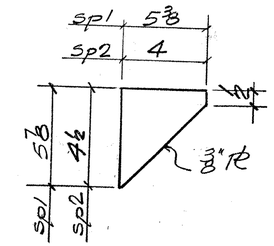
CASCO BAY STEEL STRUCTURES, INC.
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

JOB NO. 126-49SN DRG. NO. J1
REV. △ 5/0 B.S. 49

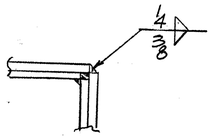
1" = 1'-0"

JOB NO.	DRG. NO.
126-495N	J1A

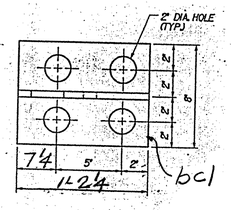




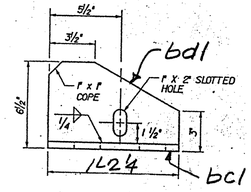
STIFF. DETAILS



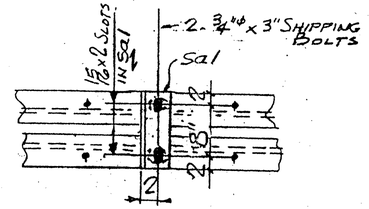
TYP. CORNER DET.



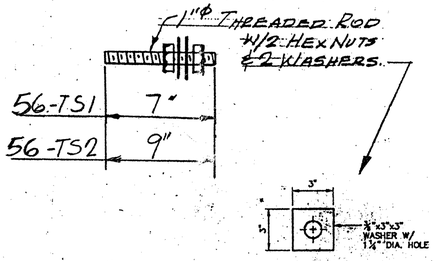
BRACKET PLAN



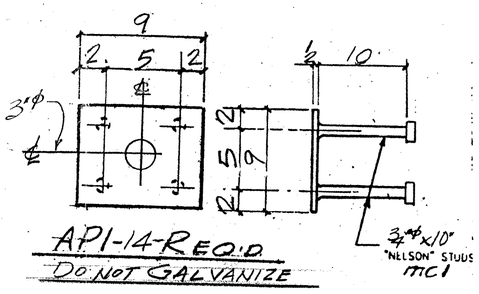
BRACKET ELEVATION



SHIPPING DEVICE
SPACED 5'-0" O.C. MAX. (9 REQ'D) EA. JNT.

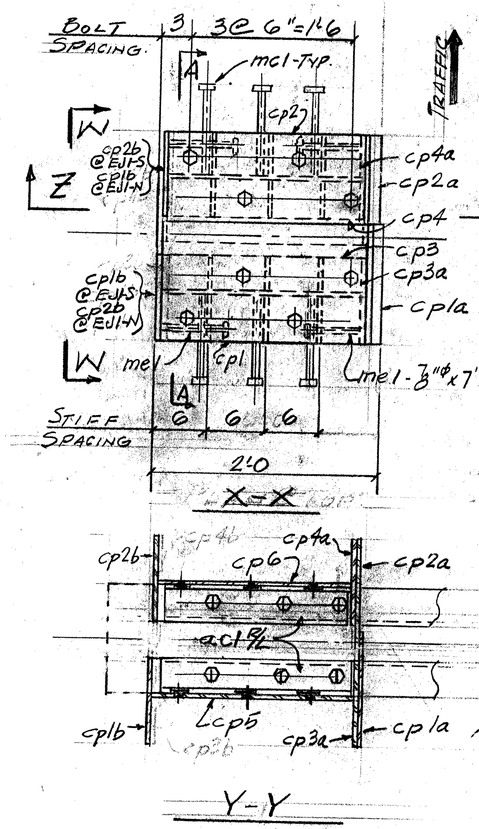


WASHER FOR BRACKET
W1

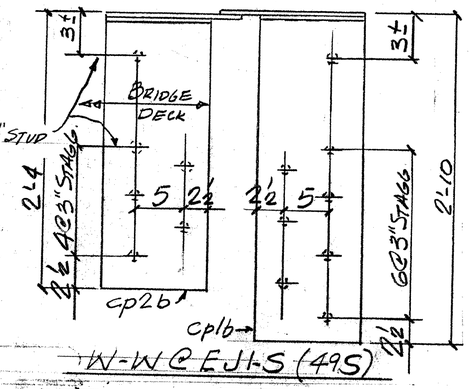


API-14-REQ'D
DO NOT GALVANIZE

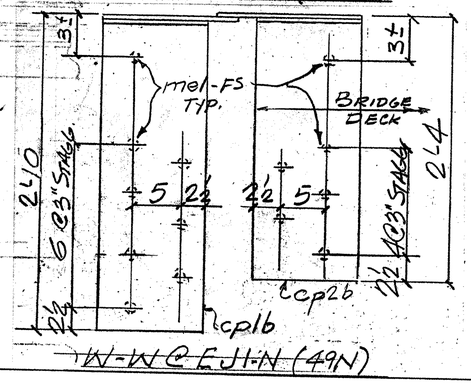
WORK THIS DWG. W/ DWG. J1



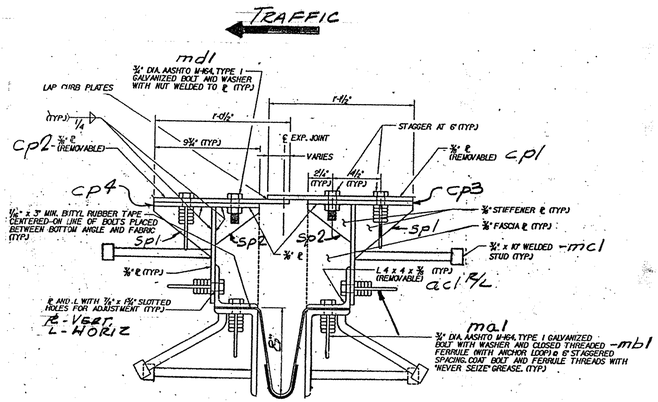
LEFT END BRUSH CURB SHOWN
RIGHT END - OPP HAND.



W - W @ EJ-S (49S)



W - W @ EJ-N (49N)



A-A

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 2/13/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	01-11-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2 (26) STATE BRIDGE NO. 495 & 49N
MATERIAL: AASHTO M270-Gr 36 ELECTRODES: Per Spec. HOLES: AS NOTED. SHOP BOLTS: 3/4" H.S.
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB.

DESCRIPTION: EXP. JOINTS - ABUT. 2
JOB: BRIDGES 495 & 49N
I 89 - SB - OVER TH 7
MIDDLESEX - BOLTON, VT.

CUSTOMER: WINTERSET INC.

	DRAWN BY	DATE
	JPF	1-01
	CHKD BY	
	APPROV BY	
	Q.A.	
JOB NO.	126495N	DRG. NO. J1A
		REV. 1

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

611 BS 49

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	DOWNSPOUT	6	0±		D49SL		—
		1	DO	6	0±		D49SR		—
		1	DO	6	0±		D49NL		—
		1	DO	6	0±		D49NR		—
37.69	36.83	4	PL 3/8 x 8 x 3 3/8 (37.69)	6	9±1			ASTM A709 GR A36	994.44
9.24		8	PL 3/8 x 7 1/4	1	7 3/8	hp1		BEND	96.25
14.3		4	PL 3/8 x 11 1/4	1	9	hp2			71.10
3.83		4	PL 3/8 x 3		11 1/4	hp3			14.26
16.12		4	L 6 x 4 x 1/2		3 (10 3/8)	k1			16.126
5.1		8	BAR 3 x 1/2	2	6 1/2	SA1		BEND.	162.08
5.1		8	DO	1	4	SB1			54.126
1.044		16	5/8" ø THREADED ROD		9	TS1		PER SUBSET 7408	16.00
		32	5/8" ø HEX NUTS						
		32	5/8" ø WASHERS						
		16	EPOXY GROUT					HILTI INC HIT HY-150 SYSTEM	
									1364.58
			1384.3# / 2 = 692# NBL SB						
			49 N/S DOWNSPOUTS 2 PER BRIDGE						1365

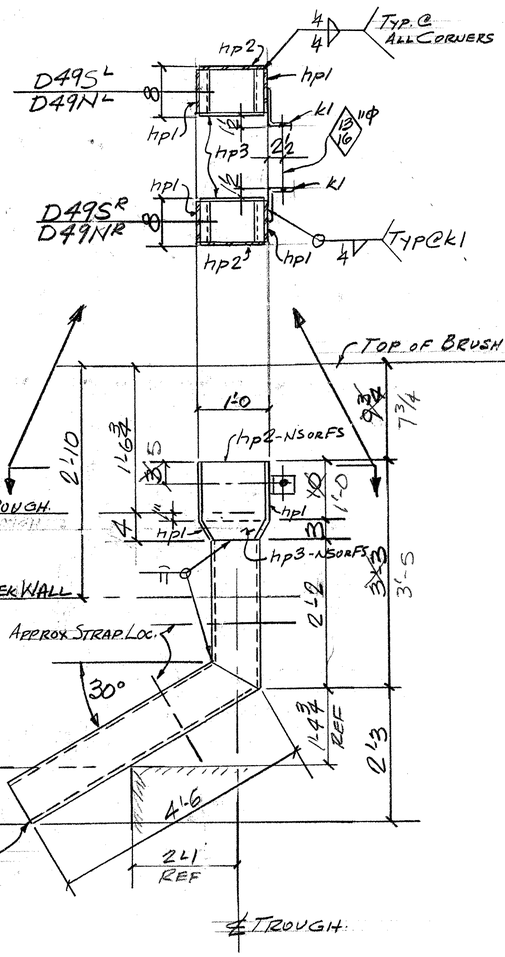
1,017.63 + 23.24 = 1,040.87

118.15 + 6.15 = 124.30

12.53 − 3.47 = 9.06

1,390.48 + 25 1/2 lbs.

1,389.88



D49SL - ONE REQ'D.
D49SR - ONE REQ'D.
D49NL - ONE REQ'D.
D49NR - ONE REQ'D

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
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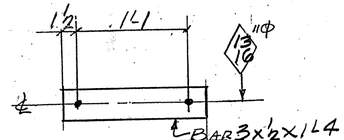
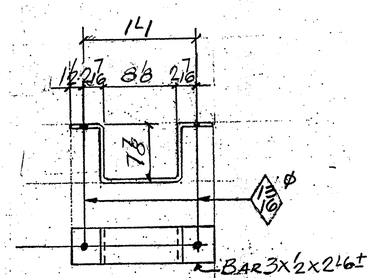
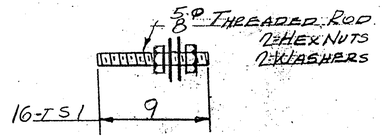
BY: PE D. S.C.
DATE: 2/12/01



SB1-8-REQ'D.



SA1-8-REQ'D



PAY ITEM 506.60

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	01-11-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO.
MATERIAL AASHTO M270-Gr36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

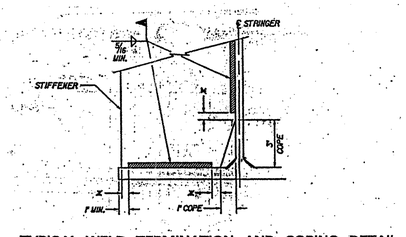
DESCRIPTION: DOWNSPOUTS - ABUT. 2
JOB: BRIDGES 49S & 49N
I 89 - SB - OVER T.H. 7
MIDDLESEX - BOLTON, VT.
CUSTOMER: WINTERSET INC.

DRAWN BY	DATE
JPF	1-01
CHKD BY	
EJ.	
APPROV BY	
Q.A.	

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

JOB NO.	DRG. NO.
12648N	DS1
	REV. △

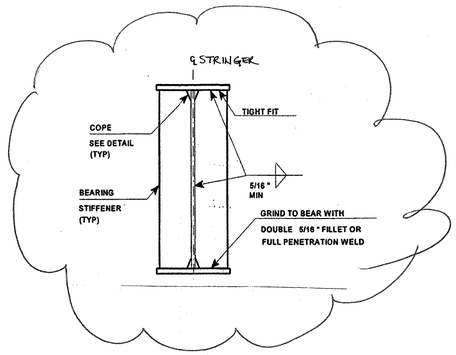
512 PS.99

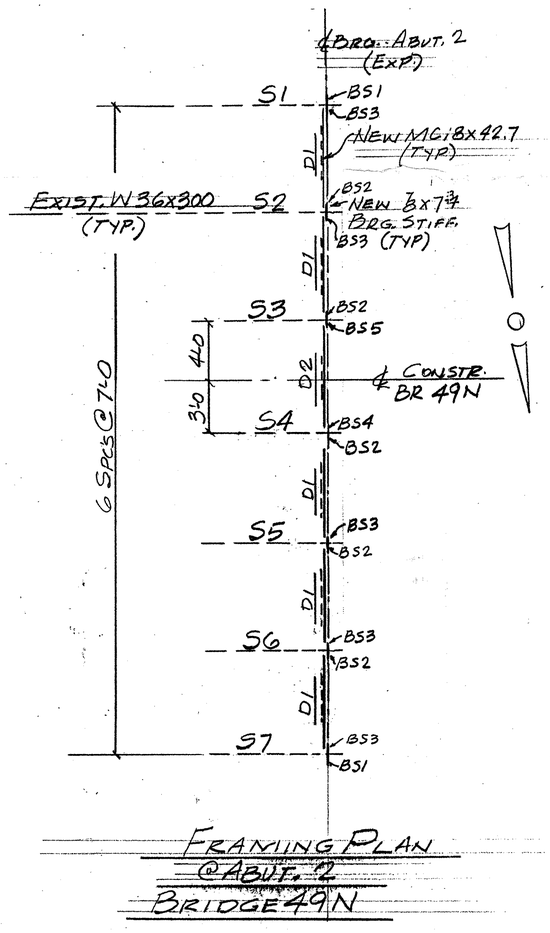


TYPICAL WELD TERMINATION AND COPING DETAIL

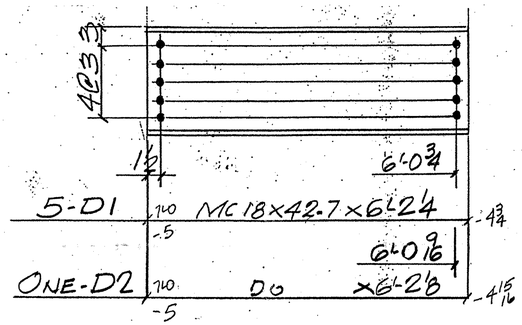
N.T.S.

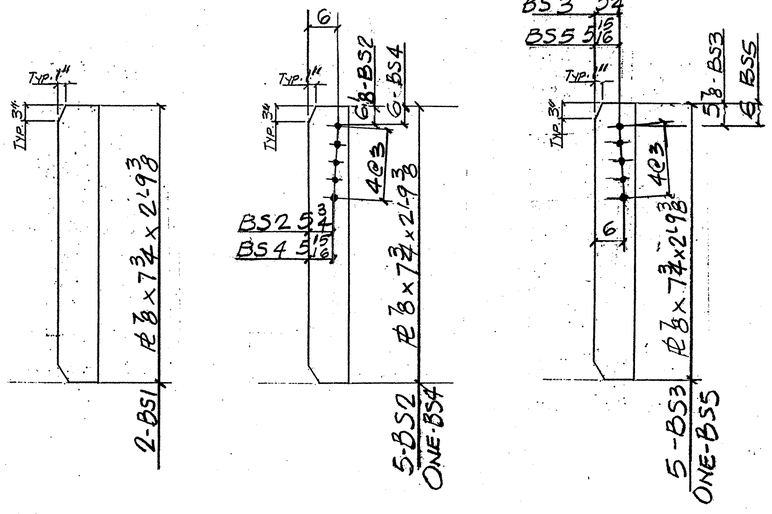
* NO WELD PLACED FOR 1/4" MIN. 1/2" MAX. EXCEPT MUST MAINTAIN P MINIMUM FROM EDGE OF FLANGE





FRAMING PLAN
@ABUT. 2
BRIDGE 49N





TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 3/26/01

ABM INFO

SHOP BILL

JOB NO. 121-49N
DRG. NO. S1-N

PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		5	MC18x42.7	6	2¼		D1		
		1	D0	6	2⅛		D2		
		2	PL 8x 7¾	2	9⅜		BS1		
		5	D0	2	9⅜		BS2		
		5	D0	2	9⅜		BS3		
		1	D0	2	9⅜		BS4		
		1	D0	2	9⅜		BS5		
		60	¾ø BOLTS		2¾		FIELD	A325-TYPE 3 W/N&W	

PAY ITEM 506.60

OUT FOR APPROVAL	1-2-01
OUT FOR APPROVAL 3rd	2-2-01
ISSUED TO SHOP	
FIELD & OFFICE	

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

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 49N
MATERIAL: AASHTO M270-50W ELECTRODES: HOLES: 15/16"ø SHOP BOLTS: —
SURFACE PREP. & PAINT:

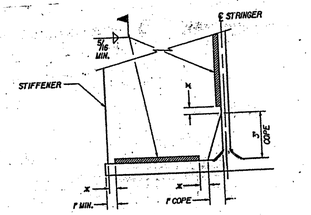
NO PAINT

DESCRIPTION: BRG. STIFFS. & DIAPHRAGMS
JOB: BRIDGE 49N
I89-NB-OVER TH 7
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

DRAWN BY: JPF — DATE: 12-00
CHKD BY: E.J. (E)
APPROV BY:
Q.A.

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

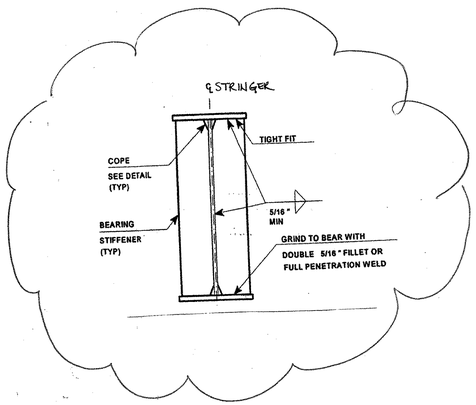
JOB NO. 121-49N DRG. NO. S1-N
514 BS 4½ REV. △

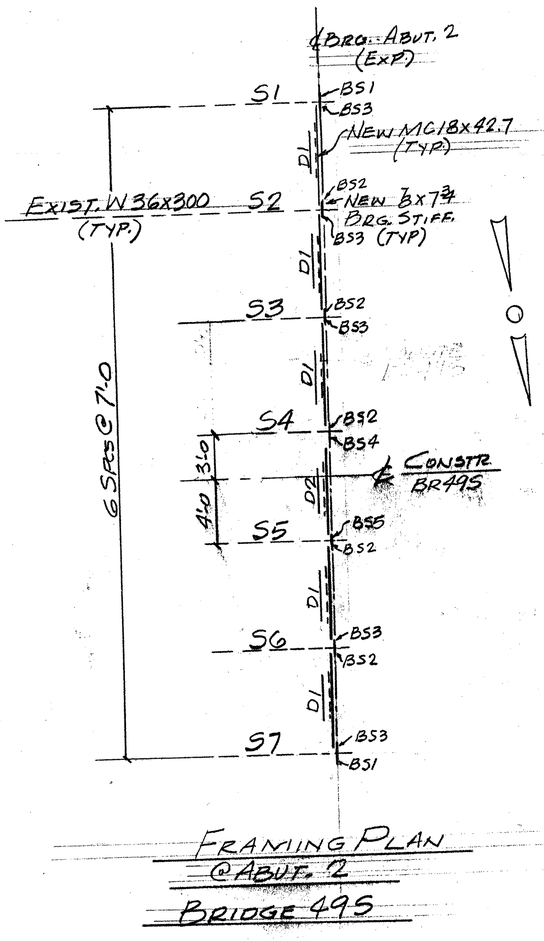


TYPICAL WELD TERMINATION AND COPING DETAIL

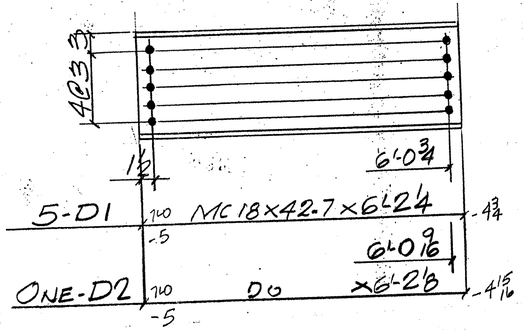
N.T.S.

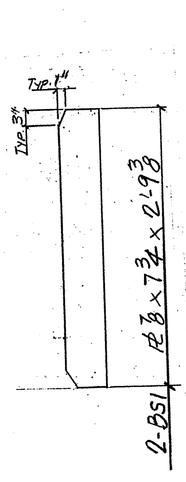
X NO WELD PLACED FOR 1/4" MIN. 1/2" MAX. (EXCEPT MUST MAINTAIN 1" MINIMUM FROM EDGE OF FLANGE)

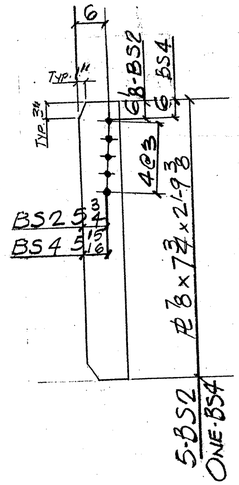


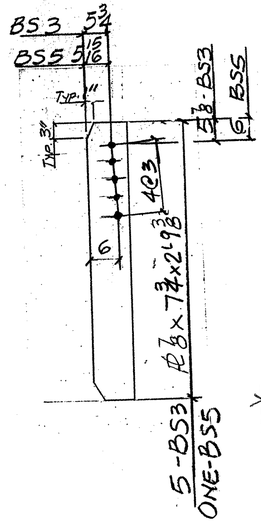


FRAMING PLAN @ ABUT. 2 BRIDGE 495









TVGA
Engineering, Surveying, P.C.

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BY: [signature]
DATE: 2/26/01

ABM INFO — PAGE / LINE

SHOP BILL

JOB NO. 120-495 — DRG. NO. S1-S

NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
5	MC18x42.7	6	2 4		D1		
1	DO	6	2 8		D2		
2	PL 8x7 3/4	2	9 3/8		BS1		
5	DO	2	9 3/8		BS2		
5	DO	2	9 3/8		BS3		
1	DO	2	9 3/8		BS4		
1	DO	2	9 3/8		BS5		
60	7/8" BOLTS		2 3/4		FIELD	A325-TYPE 3 W/ HEW.	

PAY ITEM: 506.60 SD

OUT FOR APPROVAL	12-01
OUT FOR APPROVAL 2ND	2-01
ISSUED TO SHOP	
FIELD & OFFICE	

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

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 495
MATERIAL AASHTO M270-50W ELECTRODES: — HOLES: 15/16"ø SHOP BOLTS: —
SURFACE PREP. & PAINT:

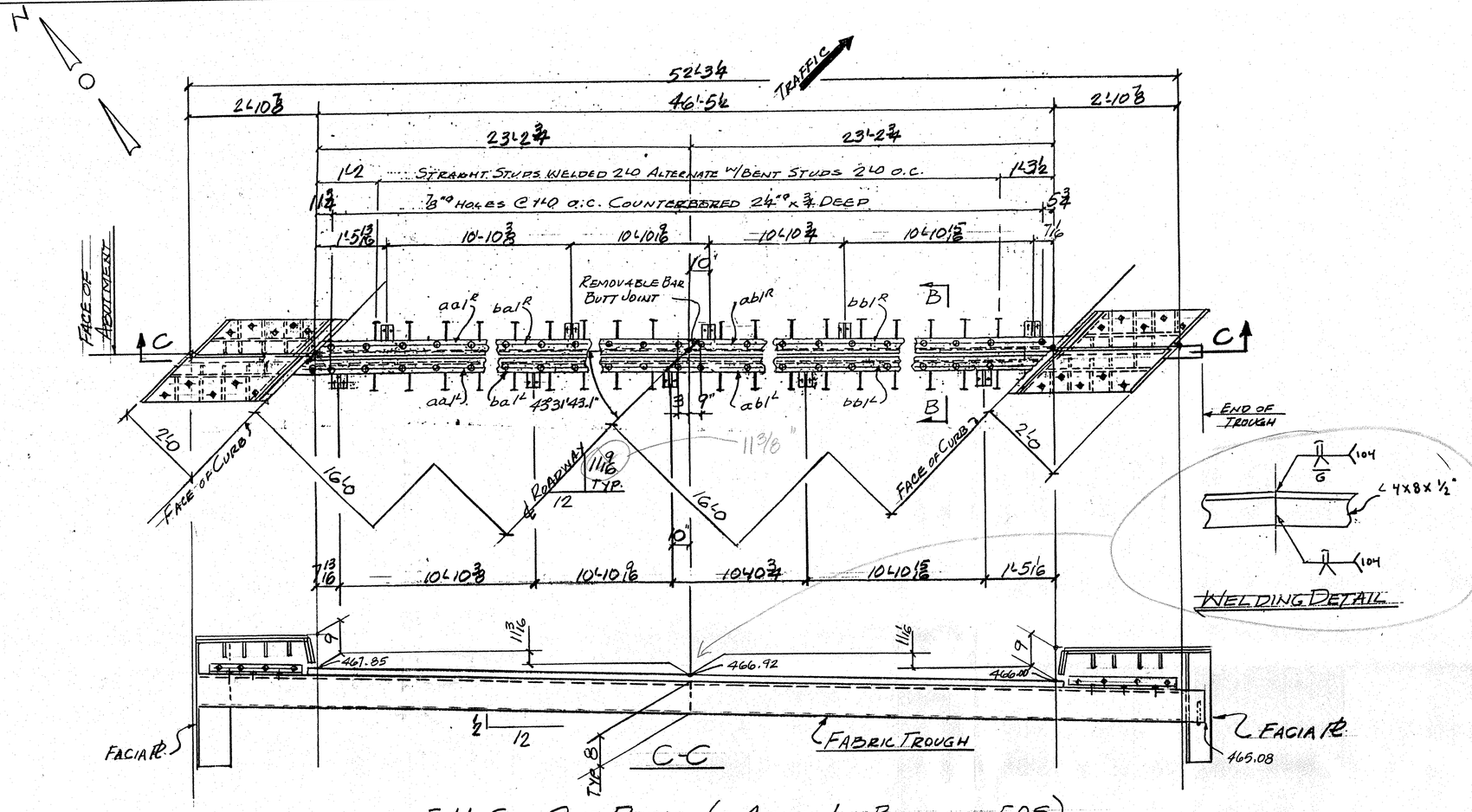
NO PAINT

DESCRIPTION: BRG. STIFFS & DIAPHRAGMS
JOB: BRIDGE 495
I 89 - SB - OVER TH 7
MIDDLESEX - BOLTON, VT.
CUSTOMER: WINTERSET INC.

	DRAWN BY	DATE
	JPF	12-00
CHKD BY	EJ	
APPROV BY		
Q.A.		
JOB NO.	120-495	DRG. NO. S1-S
		REV. △

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

S13 BS 495

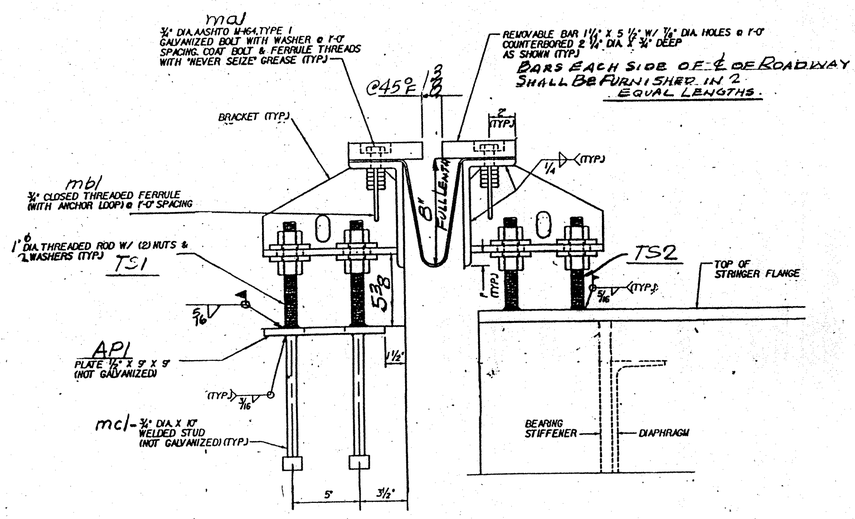


WELDING DETAIL

EJ1-S - ONE REQ'D (@ ABUT. 1 - BRIDGE -505)

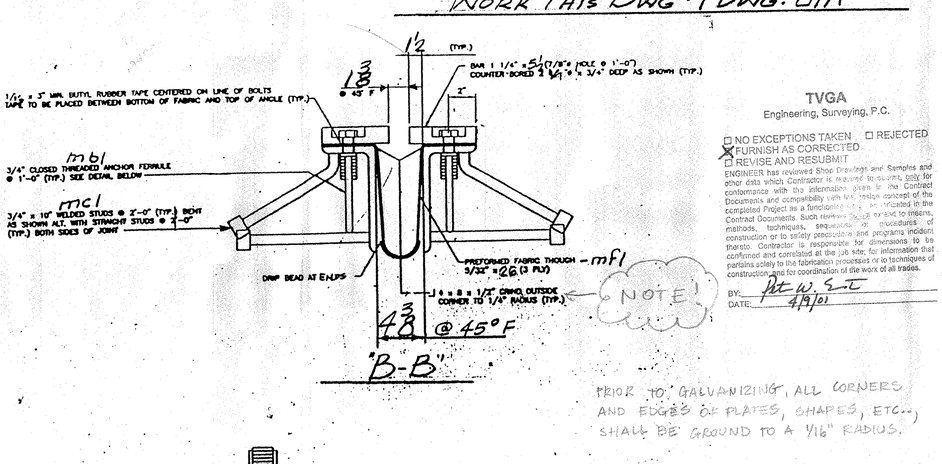
ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT. ASS'Y	53	0½		EJ1S		—
		2	L 8x4x½	26	6	aa1			
		2	DO	26	6	ab1			
		2	BAR 5½x14	24	0	bc1			
		2	DO	24	0	bb1			
		10	PL ½ x 8		10	bc1			
		10	PL ½ x 6		10	bd1			
		93	¾"ø H.S. BOLTS		24	ma1			
		93	¾"ø CLOSED THREADED ANC. FERRULES			mb1			
		104	¾"ø ANC STUDS		10	mc1			
		1	PREFORMED FABR.	54	0	mf1		SPLY PER SUBJECT TO 07 AASHTO SPEC MAR TYPE II	
		2	BUTYL RUBBER TAPE 1½ x ⅜	54	0				
		20	1"ø THREADED RODS		9		TS1		
		20	DO		7		TS2		
		80	1"ø HEX NUTS						
		80	BAR 3 x ⅜		3	W1		WASHER	
		5	PL ½ x 9		9		AP1	NOT GALV.	
		20	¾"ø ANC STUDS		10	mc1			
		9	L 4x4x⅜	1	0	sa1			
		9	¾"ø HS BOLTS		3			W/1 WASH	
			CURBS						
		2	PL ⅜ x 13½	3	9⅞	cp1			
		2	PL ⅜ x 6⅜	1	7	cp1a			
		2	PL ⅜ x 13¾	2	0¼	cp1b			
		2	PL ⅜ x 12½	3	7¼	cp2			
		2	PL ⅜ x 6¼	1	5¾	cp2a			
		2	PL ⅜ x 13¾	2	5⅞	cp2b			
		2	PL ⅜ x 9¾	3	5⅞	cp3			
		2	PL ⅜ x 6¼	1	1¾	cp3a			
		2	PL ⅜ x 9¾	3	4½	cp4			
		2	PL ⅜ x 5⅞	1	1¾	cp4a			
		2	PL ⅜ x 9	2	9⅜	cp5			
		2	PL ⅜ x 8⅞	2	8¼	cp6			
		28	¾"ø H.S. BOLTS		24	ma1			
		28	¾"ø CLOSED THREADED ANC. FERRULES			mb1			
		24	¾"ø ANC STUDS		10	mc1			
		24	¾"ø H.S. BOLTS		24	md1		W/NEW.	
		30	¾"ø ANC STUDS		7	me1			
		4	L 4x4x⅜	1	10½	oc1			
		16	PL ⅜ x 5⅜		5⅜	sp1			
		16	PL ⅜ x 4		4½	sp2			

PAY ITEM 516.10



TYP. SECTION @ ADJUSTMENT BRACKETS.

WORK THIS DWG W/ DWG. J1A



NOTE!

PRIOR TO GALVANIZING, ALL CORNERS AND EDGES OF PLATES, SHAPES, ETC.) SHALL BE GROUND TO A 1/16" RADIUS.

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BY: Pat W. Scott
DATE: 4/9/01

ANCHOR FERRULE DETAIL - mb1

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 505
MATERIAL: AASHTO M270-Gr36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: ¾"ø H.S.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT - ABUT. 1
JOB: BRIDGE 505
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

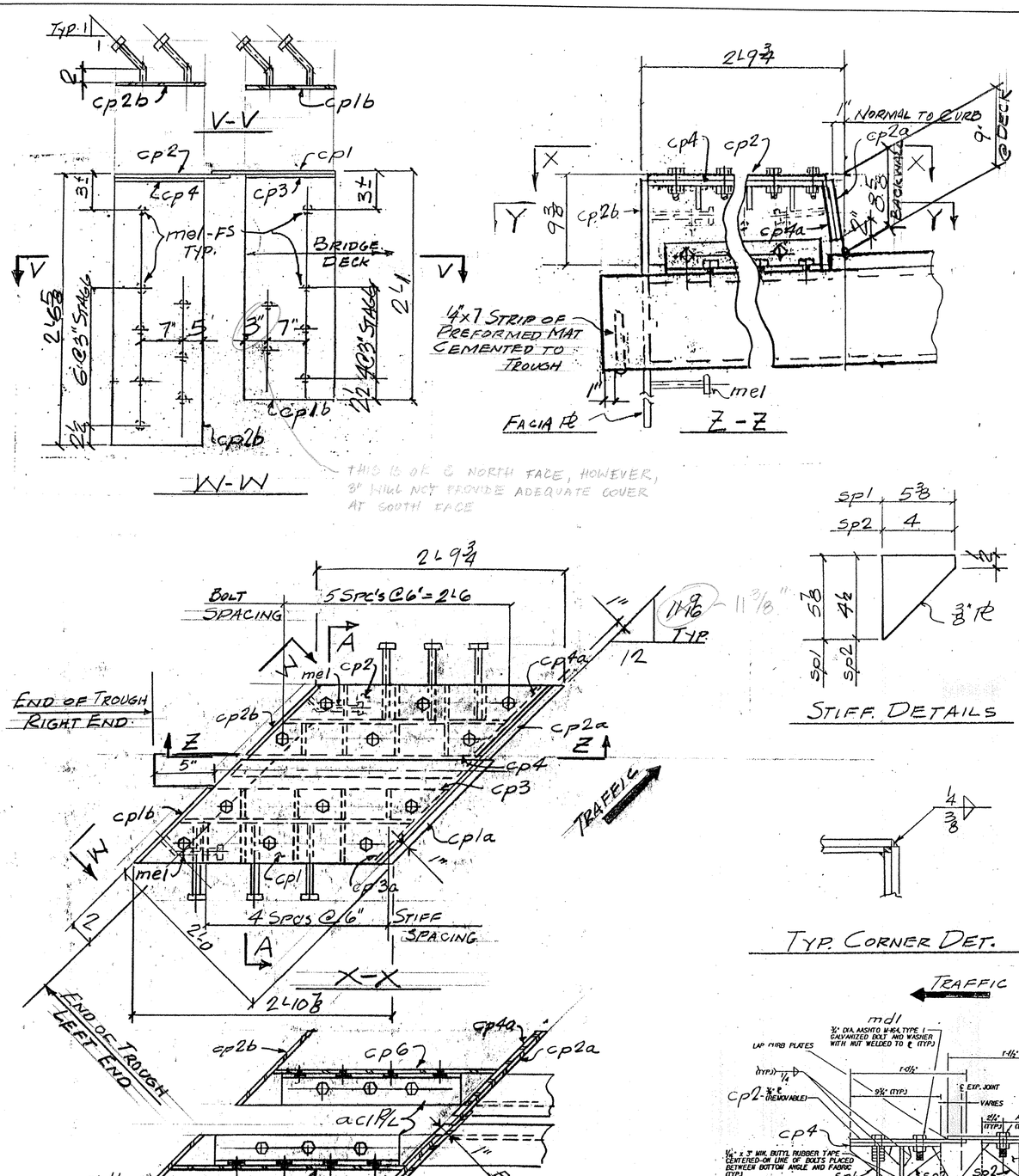
DRAWN BY: JPF DATE: 1-01
CHKD BY:
APPROV BY:
Q.A.

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

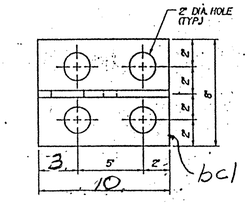
JOB NO. 127-505 DRG. NO. J1 REV. △

530 BJ 505

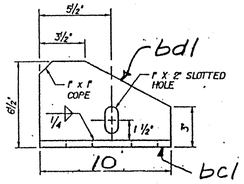
JOB NO. 127-505 | DRG. NO. J1A



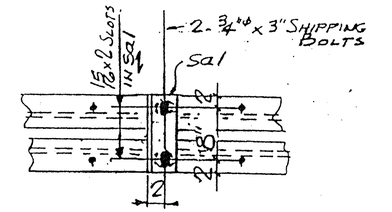
THIS IS OK @ NORTH FACE, HOWEVER, 3" WILL NOT PROVIDE ADEQUATE COVER AT SOUTH FACE



BRACKET PLAN

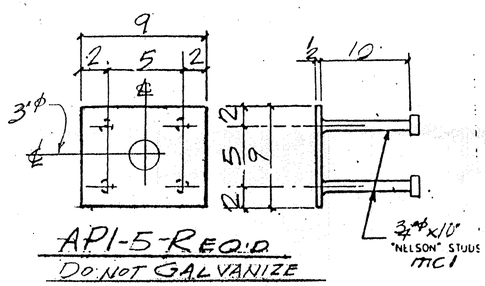


BRACKET ELEVATION

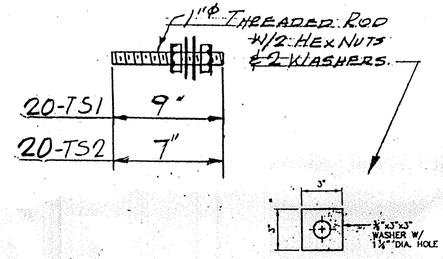


SHIPPING DEVICE
SPACED 5'-4" O.C. MAX. (9 REQ'D)

STIFF. DETAILS



API-5-REQ'D
DO NOT GALVANIZE

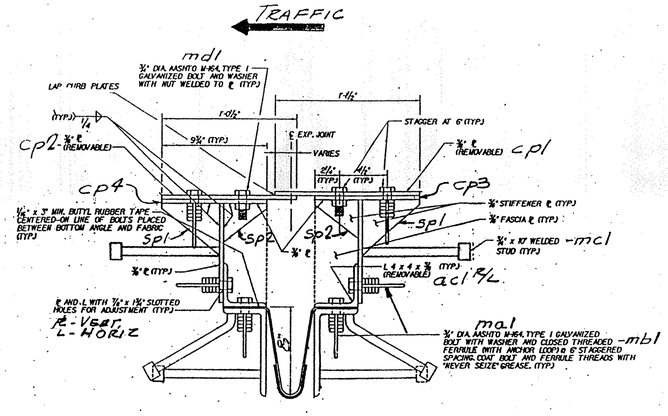


WASHER FOR BRACKET
W1

WORK THIS DWG. W/ DWG. J1

Y-Y (TROUGH NOT SHOWN)
LEFT END BRUSH CURB SHOWN
RIGHT END - OPP HAND

TYP. CORNER DET.



A-A

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Engineering, Surveying, P.C.

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BY: [signature] DATE: 2/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 505
MATERIAL AASHTO M270 GR 36 ELECTRODES: E70 PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT-ABUT. | DRAWN BY: dPF | DATE: 1-01
JOB: BRIDGE 505 | CHKD BY:
I 89 OVER U.S. ROUTE 2 | APPROV BY:
MIDDLESEX-BOLTON VT | Q.A.:
CUSTOMER: WINTERSET INC.

CASCO BAY STEEL STRUCTURES, INC. | JOB NO. 127-505 | DRG. NO. J1A | REV. A
75 SPRING HILL ROAD SACO, MAINE 04072
PHONE (207) 282-7360 FAX. (207) 282-1179

531 BS 505

ABM INFO		SHOP BILL						JOB NO. 127-505	DRG. NO. D51
PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	DOWNSPOUT	5	10±		D505		—
		1	PL 3/8 x 8 x 3'-3"	6	3±			ASTM A709 Gr 50W or A572 Gr 50	
		2	PL 3/8 x 7 1/4	1	1 3/8	hp1		BEND	
		1	PL 3/8 x 11 1/4	1	1	hp2			
		1	PL 3/8 x 3		11 1/4	hp3			
		1	L 6 x 4 x 1/2		3	k1			
		2	BAR 3 x 1/2	2	6±		SA1	BEND.	
		2	DO	1	4		SB1		
		4	5/8" ø THREADED ROD		9		TS1	PER SUBSECT 7.14.03	
		8	5/8" ø HEX NUTS						
		8	5/8" ø WASHERS						
		4	EPOXY GROUT				FIELD	HILTI INC HIT-HY-150 SYSTEM	

PAY ITEM 506.60

REV.	REMARKS	DATE	DWN	CHK	APP.	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO: IM-089-2(26) STATE BRIDGE NO. 505

MATERIAL: AASHTO M270-Gr 36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:

SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB.

DESCRIPTION: DOWNSPOUT - ABUT. 1

JOB: BRIDGE 505

I 89 OVER U.S. ROUTE 2

MIDDLESEX-BOLTON VT

CUSTOMER: WINTER SET INC.

DRAWN BY	DATE
JPF	1-01
CHKD BY	
EJ.	
APPROV BY	
Q.A.	
JOB NO.	DRG. NO.
127-505	D51
REV.	△

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

5328505

TVGA
Engineering, Surveying, P.C.
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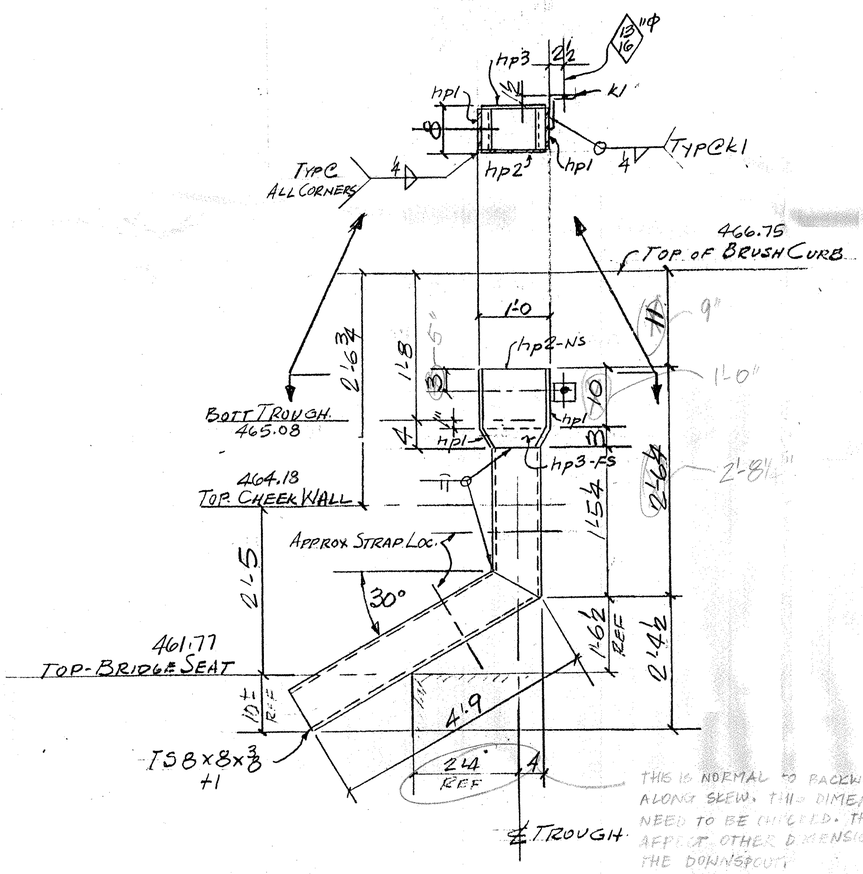
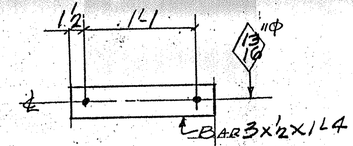
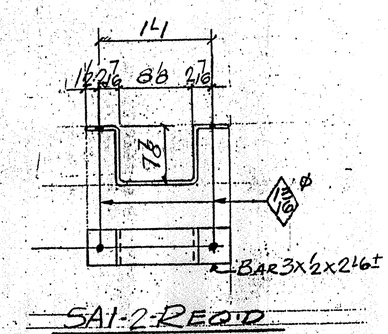
BY: PE U.S.C.
DATE: 7/9/01



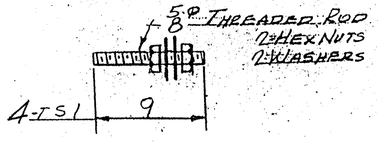
D505-ONE REQ'D

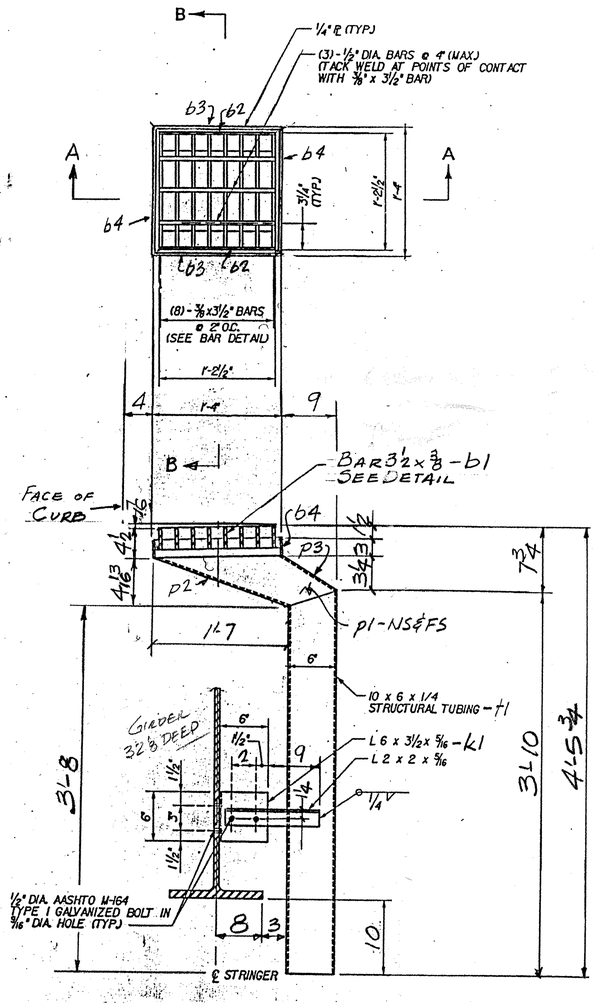


SB1-2-REQ'D

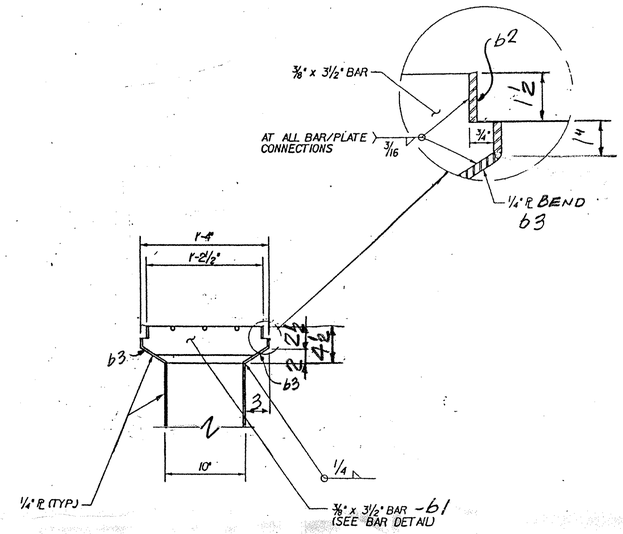


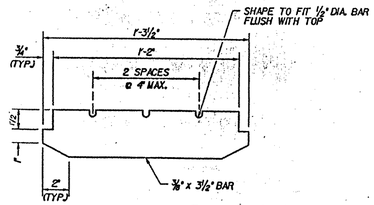
SA1-2-REQ'D



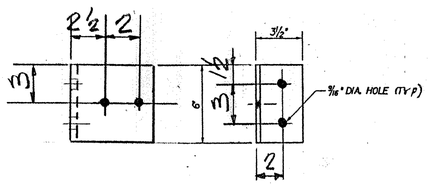


SECTION B–B





DETAIL - BAR b1



DETAIL - k1

SHOP BOLT TO k2 FOR SHIPMENT

550S - ONE REQ'D.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

BY: [signature]
DATE: 4/9/01

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	SCUPPER	4	6±		550S		—
		1	TS 10x6x1/4	3	10	t1			
		8	BAR 3 1/2 x 3/8	1	3 1/2	b1			
		2	BAR 1/2 x 1'4	1	4	b2			
		2	BAR 4 1/2 x 1/4	1	4	b3		BEND.	
		2	BAR 3 x 1/4	1	3 1/2	b4			
		3	1/2" ø BAR	1	2 1/2	r1			
		2	PL 1/4 x 5 1/4	2	1	p1			
		1	PL 1/4 x 9 1/2	1	7 1/2	p2			
		1	DO		9 1/2	p3			
		1	L 6 x 3 1/2 x 1/4		6	k1			
		1	L 2 x 2 x 5/16	1	3	k2			

PAY ITEM 506.55

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

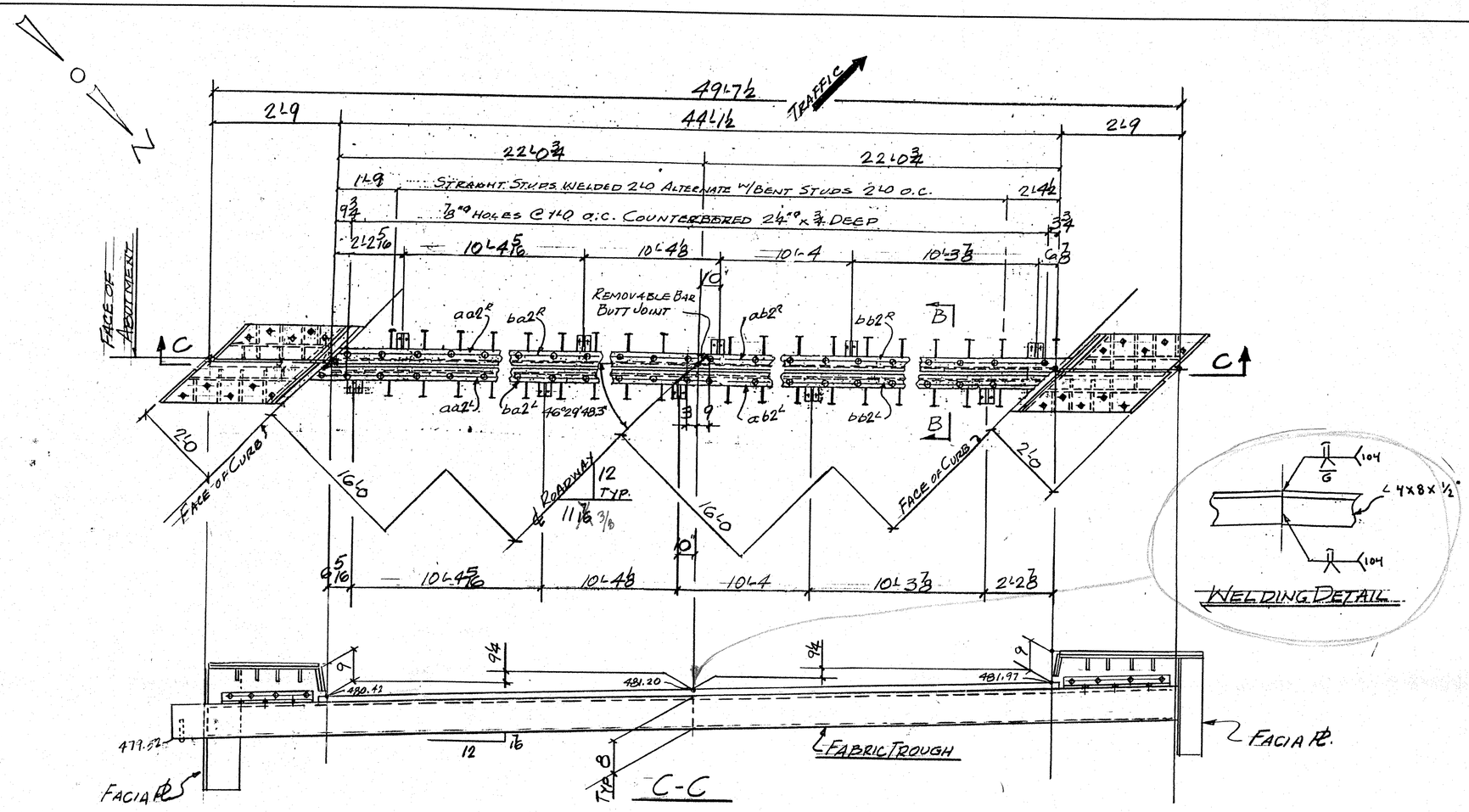
PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 505
MATERIAL: AASHTO M270 GR 36 ELECTRODES: PER PROC. HOLES: AS NOTED SHOP BOLTS: 3/4" HS.
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

DESCRIPTION: SCUPPER DETAILS
JOB: BRIDGE 505
I-89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTER SET INC.

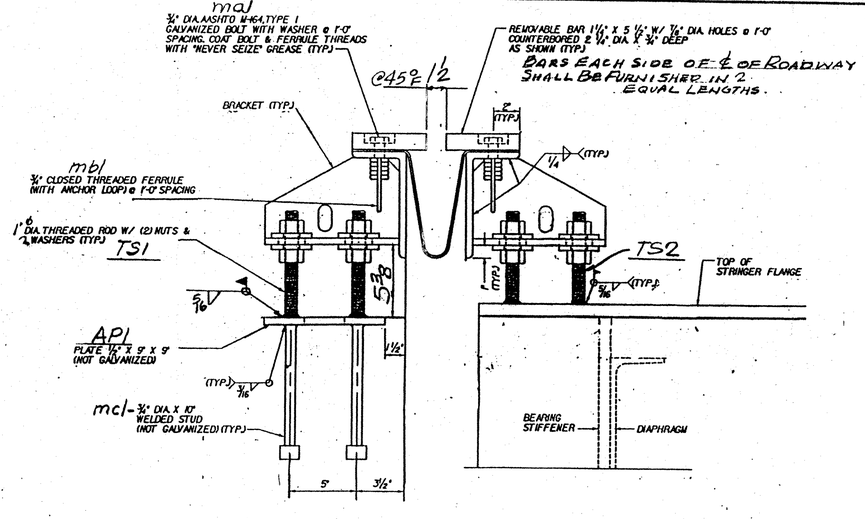
	DRAWN BY	DATE
	JPF	2-01
CHKD BY	EJ	
APPROV BY		
Q.A.		
JOB NO.	27-505	DRG. NO. SC1
REV.	△	

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

533 BS 505

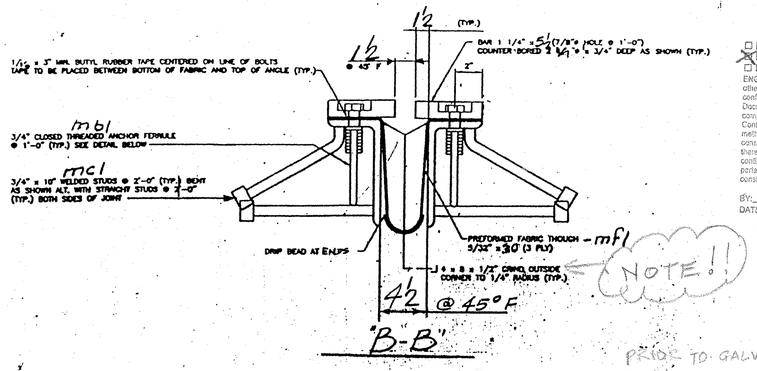


EJ2-N- ONE REQ'D (@ABUT. 2 - BRIDGE 50N)



TYP. SECTION @ ADJUSTMENT BRACKETS.

WORK THIS DWG W/ DWG. J2A



ANCHOR FERRULE DETAIL - mbl

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

BY: [signature]
DATE: 4/9/01

PAY ITEM S16.10

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	EXP. JNT. ASS'Y						—
		2	L 8x4x½	25	2	aa2R, aa2L			
		2	DO	25	2	ba2R, ba2L			
		2	BAR 5½x¼	22	9	bb2R, bb2L			
		2	DO	22	9	bb2R, bb2L			
		10	Pℓ ½ x 8		10	bc1			
		10	Pℓ ½ x 6		10	bd1			
		88	¾" ø HS BOLTS		24	ma1			
		80	¾" ø CLOSED THREADED ANC. FERRULES			mb1			
		100	¾" ø ANC STUDS		10	mc1			
		1	PREFORMED FAB. STRIP	52	0	mf1		SPLY PER SUBSECT. 707.07 AASHTO SPECIFICATION TYPE II	
		2	BUTYL RUBBER TAPE ½ x 3	50	0				
	20		¾" ø THREADED RODS		9		TS1		
	20		DO		7		TS2		
		80	¾" ø HEX NUTS						
		80	BAR 3 x ⅜		3	W1		WASHER	
		5	Pℓ ½ x 9		9		API	NOT GALV.	
		20	¾" ø ANC STUDS		10	mc1			
		9	L 4x4x⅜	1	0	sa1			
		9	¾" ø HS BOLTS		3			W/1 WASH	
			CURBS						
		2	Pℓ ⅜ x 13½	3	8	cp1			
		2	Pℓ ⅜ x 6⅝	1	7	cp1a			
		2	Pℓ ⅜ x 13¾	2	2¼	cp1b			
		2	Pℓ ⅜ x 12½	3	5⅜	cp2			
		2	Pℓ ⅜ x 6¼	1	5⅜	cp2a			
		2	Pℓ ⅜ x 13¾	2	6⅜	cp2b			
		2	Pℓ ⅜ x 9¾	3	3¾	cp3			
		2	Pℓ ⅜ x 6¼	1	1¾	cp3a			
		2	Pℓ ⅜ x 9¾	3	2⅝	cp4			
		2	Pℓ ⅜ x 5⅞	1	1¾	cp4a			
		2	Pℓ ⅜ x 9	2	7½	cp5			
		2	Pℓ ⅜ x 8⅜	2	6⅜	cp6			
		28	¾" ø HS BOLTS		24	ma1			
		28	¾" ø CLOSED THREADED ANC. FERRULES			mb1			
		12	¾" ø ANC STUDS		10	mc1			
		24	¾" ø HS BOLTS		24	md1		W/NEW.	
		32	⅝" ø ANC STUDS		7	me1			
		4	L 4x4x⅜	1	10	ac1			
		16	Pℓ ⅜ x 5⅜		5⅜	sp1			
		16	Pℓ ⅜ x 4		4½	sp2			

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-2-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

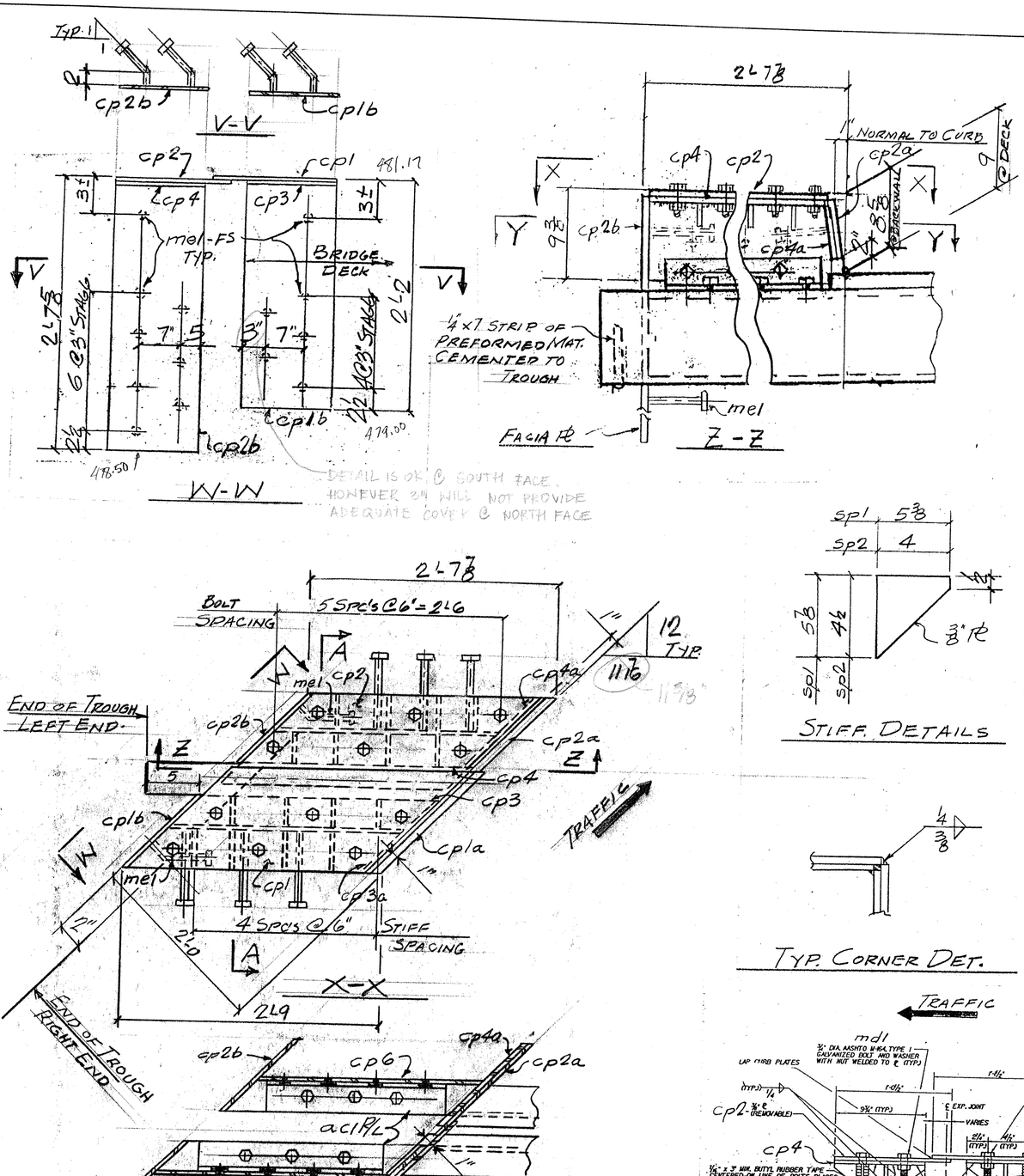
PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 50N
MATERIAL: AASHTO M270-Gr.36 ELECTRODES: E70XX HOLES: AS NOTED SHOP BOLTS: ¾" ø H.S.
SURFACE PREP. & PAINT:

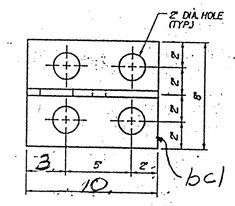
GALVANIZED AFTER FAB

DESCRIPTION: EXP. JOINT - ABUT. 2
JOB: BRIDGE 50N
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON, VT.
CUSTOMER: WINTERSET INC.

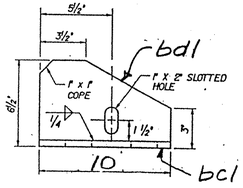
	DRAWN BY	DATE
	JPF	1-01
CHKD BY		
APPROV BY		
Q.A.		
JOB NO.	DRG. NO.	
127-50N	J2	
	REV.	△

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

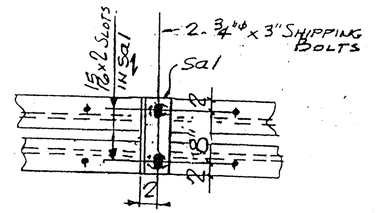




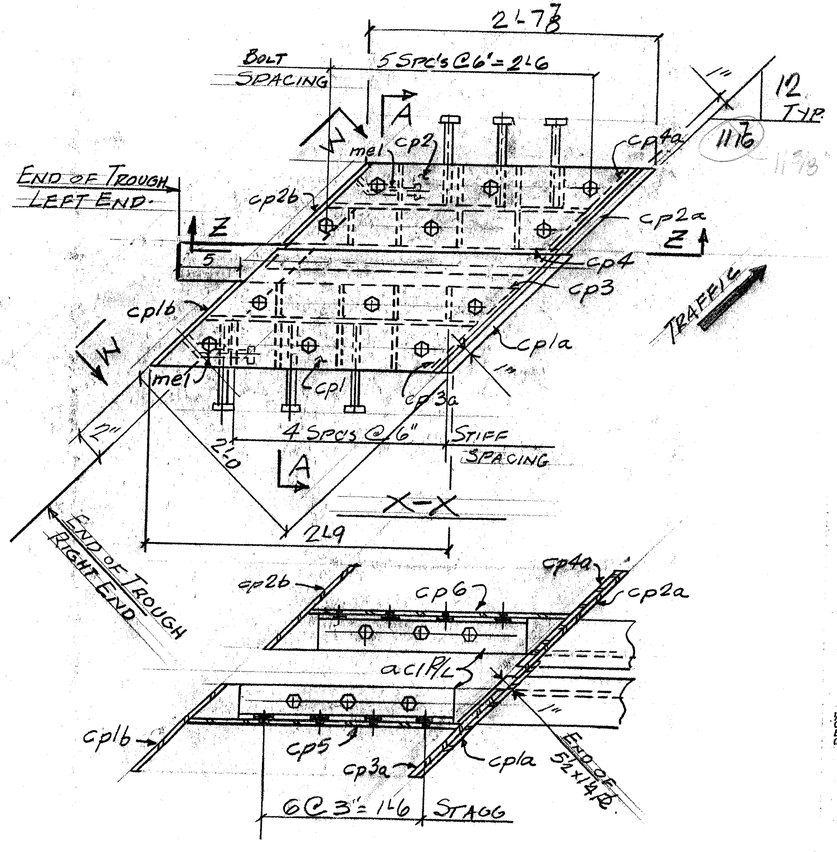
BRACKET PLAN



BRACKET ELEVATION



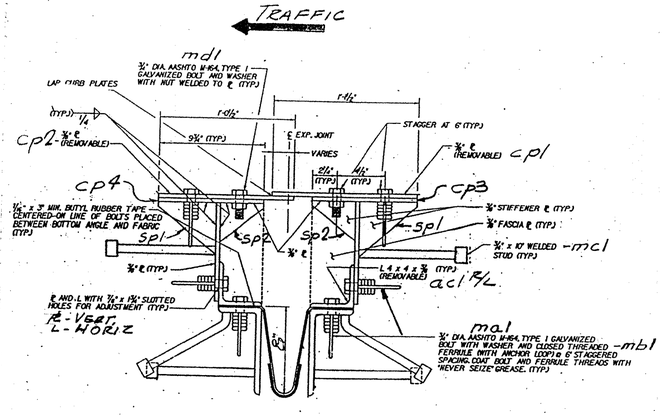
SHIPPING DEVICE
SPACED 5'-0" OC. MAX. (9 REQ'D)



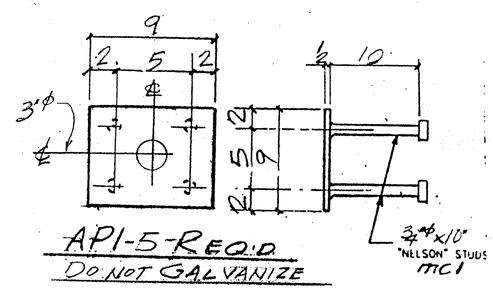
Y-Y
LEFT END BRUSH CURB SHOWN
RIGHT END - OPP HAND

STIFF. DETAILS

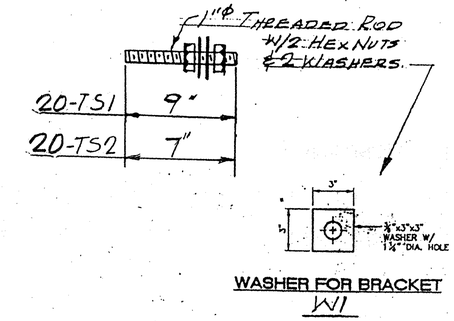
TYP. CORNER DET.



A-A



API-5-REQ'D
DO NOT GALVANIZE



WASHER FOR BRACKET
W1

WORK THIS DWG. W/ DWG. J2

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: RE W. GT
DATE: 4/9/01

REV.	REMARKS	DATE	DWN	CHK	APP	Q.A.	NO.	DIA.	LGT	TYPE	WASHER
	OUT FOR APPROVAL	2-8-01									
	OUT FOR APPROVAL										
	ISSUED TO SHOP										
	FIELD & OFFICE										

PROJECT NO. IM-089-2(26) STATE BRIDGE NO. 50N
MATERIAL: AASHTO M270 GR 36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:

GALVANIZED AFTER FAB

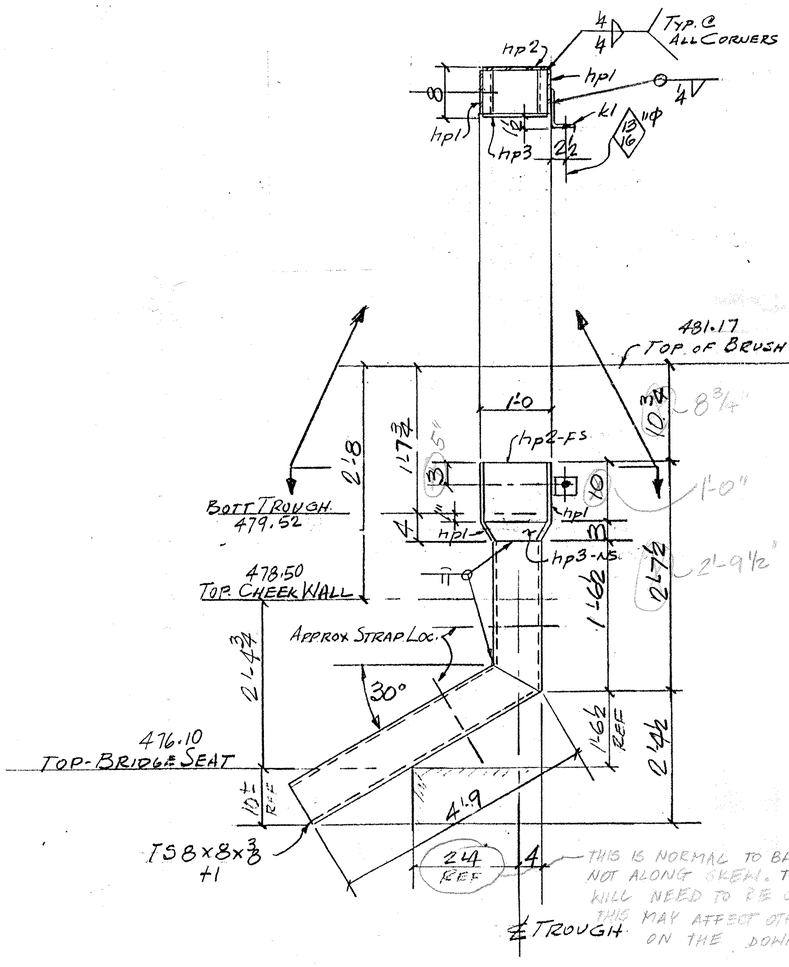
DESCRIPTION: EXP. JOINT-ABUT. 2
JOB: BRIDGE 50N
I89 OVER U.S. ROUTE 2
MIDDLESEX-BOLTON VT
CUSTOMER: WINTERSET INC.

	DRAWN BY	DATE
	dPF	1-01
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. V27-50N | DRG. NO. J2A | REV. △

ABM INFO PAGE	LINE	NO.	DESCRIPTION	FT	IN	ASSEM. MARK	SHIPPING MARK	REMARKS	WEIGHT
		1	DOWNSPOUT	5	11±		D50N		—
		1	PL ⅜ x 8 x 3⅜	6	4±	+1		ASTM A500 OR A501	
		2	PL ⅜ x 7¼	1	1⅜	hp1		BEND	
		1	PL ⅜ x 11¼	1	1	hp2			
		1	PL ⅜ x 3		11¼	hp3			
		1	L 6 x 4 x ½		3	k1			
		2	BAR 3 x ½	2	6±		SA1	BEND	
		2	DO	1	4		SB1		
		4	⅞" THREADED ROD		9		TS1	SEE SUBSET 7408	
		8	⅞" HEX NUTS						
		8	⅞" WASHERS						
		4	EPOXY GROUT					HILTI INC HIT HY-150 SYSTEM	



D50N-ONE REQ'D

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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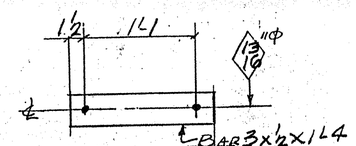
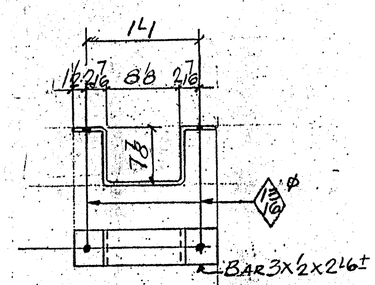
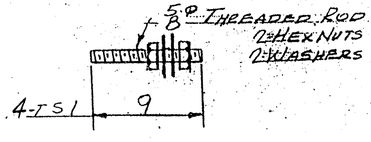
BY: Peter W. Sr E
DATE: 4/9/01



SB1-2-REQ'D



SA1-2-REQ'D



PAY ITEM 506.60

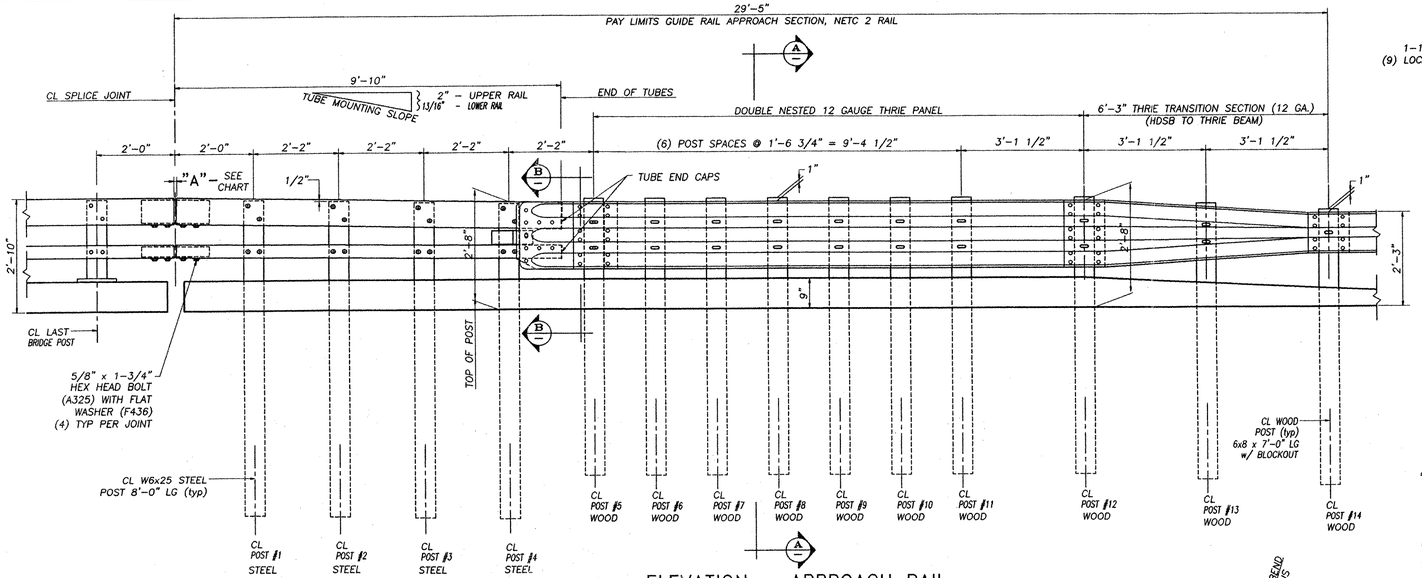
OUT FOR APPROVAL	2-2-01										
OUT FOR APPROVAL											
ISSUED TO SHOP											
FIELD & OFFICE											
REV.	REMARKS	DATE	DWN	CHK	APP.	Q.A.	NO.	DIA.	LGT	TYPE	WASHER

PROJECT NO: I M-089-2(26) STATE BRIDGE NO. 50N
MATERIAL: AASHTO M270-Gr36 ELECTRODES: PER PROC HOLES: AS NOTED SHOP BOLTS:
SURFACE PREP. & PAINT:
GALVANIZED AFTER FAB.

DESCRIPTION: DOWNSPOUTS - ABUT. 2
JOB: BRIDGE 50N
I 89 OVER U.S. ROUTE 2
MIDDLESEX - BOLTON VT
CUSTOMER: WINTERSET INC.

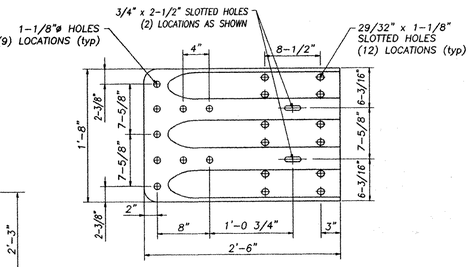
	DRAWN BY	DATE
	JPF	2-01
CHKD BY	EJ	
APPROV BY		
Q.A.		
JOB NO.	127-50N	
DRG. NO.	DS2	
REV	A	

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



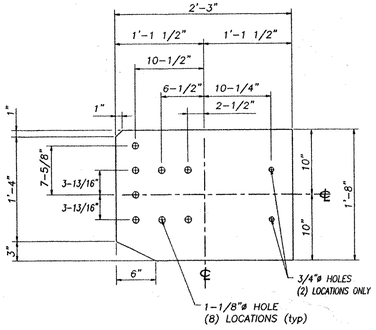
ELEVATION – APPROACH RAIL

TYPICAL (32) LOCATIONS



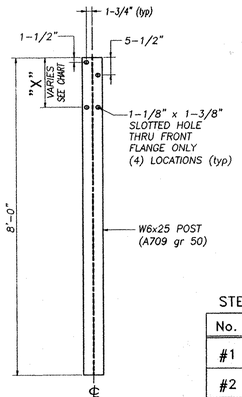
TERMINAL CONNECTOR

10 GAUGE (AASHTO M180 B2)



CONNECTION PLATE

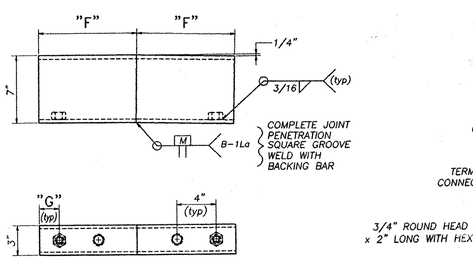
3/8" x 1'-8" x 2'-3" (A709 gr 36)



STEEL POST

STEEL POST CHART

No.	" X "
#1	1'-3 1/4"
#2	1'-3"
#3	1'-2 3/4"
#4	1'-2 1/2"



ANGLED SPLICE TUBE DETAIL

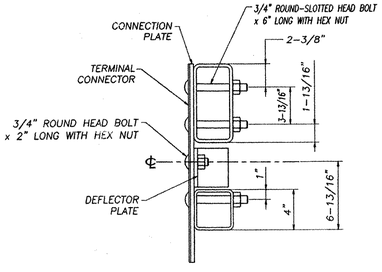
UPPER RAIL SPLICE SHOWN

SEE BRIDGE RAIL DETAILS (SHOP DRAWING #1237) FOR ADDITIONAL SPLICE TUBE FABRICATION & ASSEMBLY DETAILS

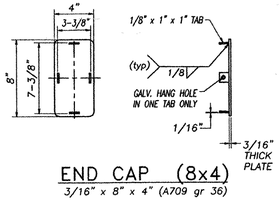
LOWER RAIL DOES NOT REQUIRE BENT SPLICE TUBE TO MATCH TUBE ANGLE – USE STRAIGHT SPLICE TUBE

SPLICE TUBE DIMENSIONS

No.	JOINT "A"	"F"	"G"
SP-1	3/4" SPLICE	10"	2"
SP-2	2-1/2" EXPANSION	10"	2"
~~SP-3~~	~~4" EXPANSION~~	~~11-7/8"~~	~~2-3/8"~~

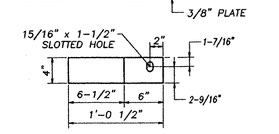


SECTION B–B



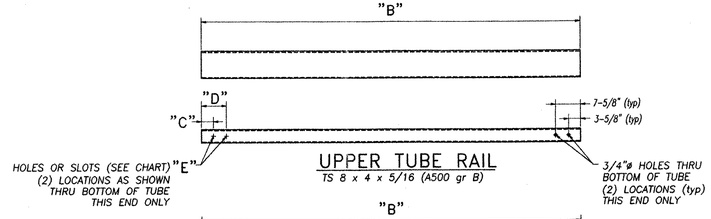
END CAP (8x4)

3/16" x 8" x 4" (A709 gr 36)



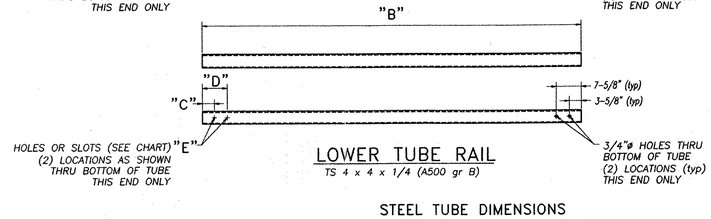
DEFLECTOR PLATE

3/8" x 4" PLATE (A709 gr 36)



UPPER TUBE RAIL

TS 8 x 4 x 5/16 (A500 gr B)



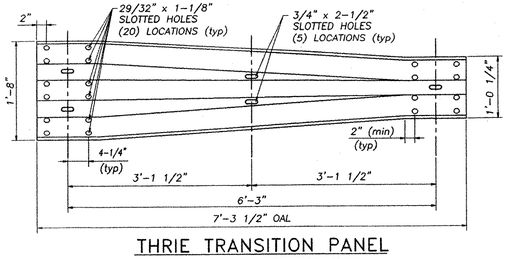
LOWER TUBE RAIL

TS 4 x 4 x 1/4 (A500 gr B)

STEEL TUBE DIMENSIONS

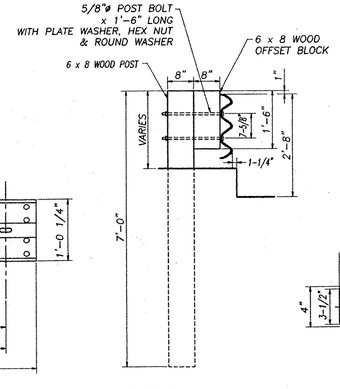
No.	JOINT "A"	OAL "B"	"C"	"D"	"E"
TU-1	3/4" SPLICE	9'-9 5/8"	3-5/8"	7-5/8"	3/4" DIA HOLES
TU-2	2-1/2" EXPANSION	9'-8 3/4"	2-3/4"	6-3/4"	3/4" x 2-1/2" SLOTTED HOLES
~~TU-3~~	~~4" EXPANSION~~	~~9' 8"~~	~~3 1/2"~~	~~7 1/2"~~	3/4" x 3-1/2" SLOTTED HOLES

SEE BRIDGE PLANS (SHOP DRAWING #1237) FOR LOCATIONS OF FIXED & EXPANSION JOINTS

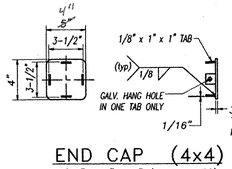


THRIE TRANSITION PANEL

12 GAUGE (AASHTO M180 A2)



SECTION A–A



END CAP (4x4)

3/16" x 4" x 4" (A709 gr 36)

BILL OF MATERIAL

Mk.	Qty.	Description	Material
	128	STEEL POST W6x25 x 8'-8" OAL	A709 gr 50
	320	WOOD POST 6x8 x 7'-0" OAL	
TU-1	16	RAIL (UPPER) TS 8x4x5/16 x 9'-9 5/8" (FIXED END)	A500 gr B
TU-2	16	RAIL (UPPER) TS 8x4x5/16 x 9'-8 3/4" (2-1/2" EXP END)	A500 gr B
~~TU-3~~	~~0~~	~~RAIL (UPPER) TS 8x4x5/16 x 9'-8" (4" EXP END)~~	~~A500 gr B~~
TU-1	16	RAIL (LOWER) TS 4x4x1/4 x 9'-9 5/8" (FIXED END)	A500 gr B
TU-2	16	RAIL (LOWER) TS 4x4x1/4 x 9'-8 3/4" (2-1/2" EXP END)	A500 gr B
~~TU-3~~	~~0~~	~~RAIL (LOWER) TS 4x4x1/4 x 9'-8"~~ (4" EXP END)	~~A500 gr B~~
	32	THRIE TRANSITION PANEL – 12 GA	M180 A2
	64	THRIE PANEL 12'-6" / 1'-6 3/4" (12 GA)	M180 A2
	32	THRIE FLAT LIP TERMINAL CONNECTOR (10 GA)	M180 B2
	32	END CAP FOR 8 x 4 TUBE RAIL	A709 gr 36
	32	END CAP FOR 4 x 4 TUBE RAIL	A709 gr 36
	32	DEFLECTOR PLATE	A709 gr 36
	32	CONNECTION PLATE 3/8" x 1'-8" x 2'-3"	A709 gr 36
	320	WOOD OFFSET BLOCK 6x8 x 1'-6" LONG	
	640	5/8" x 1'-6" LONG POST BOLT w/ PLATE WASHER, HEX NUT & ROUND WASHER	A307
	768	3/4" x 6" LONG ROUND-SLOTTED HEAD BOLT WITH ROUND WASHER & LOCK NUT	A325
	32	3/4" x 2" LONG ROUND HEAD BOLT WITH HEX NUT	A307
	1024	5/8" x 1-1/4" SPLICE BOLT w/ DOUBLE RECESSED NUT	A307
SP1 / ~~SP2~~	32	UPPER RAIL SPLICE TUBE (ANGLED) – TS 7x3x3/8 1'-8" OAL	A500 gr B
~~SP3~~	~~0~~	~~UPPER RAIL SPLICE TUBE (ANGLED) – TS 7x3x3/8 1'-11 3/4" OAL~~	~~A500 gr B~~
	32	LOWER RAIL SPLICE TUBE (STRAIGHT) – TS 3x3x51/6 1'-8" OAL	A500 gr B
	~~0~~	~~LOWER RAIL SPLICE TUBE (STRAIGHT) – TS 3x3x5/16 1'-11 3/4" OAL~~	~~A500 gr B~~
	256	5/8" x 1-3/4" HEX HEAD BOLT w/ ROUND WASHER	A325
	128	SPACER PIPE 3/4-in SCH 40 x 1/2" LONG	A53

GENERAL ERECTION NOTES

1) ALL BRIDGE RAIL APPROACH RAIL MATERIALS, DIMENSION SIZES, AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGERAIL UNLESS OTHERWISE NOTED.

2) CARRIAGE BOLTS SHALL BE ASTM A307 AND NUTS SHALL BE ASTM A563 GRADE A OR BETTER (GALVANIZED)

3) CUT & WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD B–L1A WITH BACKING BAR.

4) REFLECTORIZED ALUMINUM DELINEATION IS TO BE ERECTED EVERY 30 ft. (OR CLOSEST POST) WITH 2 NO. 8 x 3/4" SELF TAPPING SCREWS. DELINEATORS SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052–H32.

5) REFLECTIVE MATERIAL SHALL MEET THE REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE ENCAPSULATED LENS SILVER OR AMBER. AMBER IS TO BE INSTALLED ON THE DRIVERS LEFT AND SILVER ON THE RIGHT.

6. All work and materials shall conform to the provisions of Section 525 – Railings of the Vermont Standard Specifications for Construction.

7. Tubing & posts shall meet the requirements of Section 732 – Railing materials of the Standard Specifications for Construction.

8. All exposed cut or sheared edges shall be rounded to a 1/16" radius & be free of burrs.

9. Rail posts shall be set normal to grade.

10. Sections of rail bar shall be attached to a minimum of two (2) posts and preferably to at least four (4) posts.

11. Rail bar expansion joints shall be provided in any rail bay spanning a superstructure expansion joint. Expansion joint width shall be "X" at 45° F and will be adjusted in the field by the engineer.

12. All parts shall be galvanized after fabrication in accordance with AASHTO M111, except that hardware shall meet the requirements of AASHTO M232.

13. Rail bars shall be attached to steel posts using 3/4"ø full diameter body head bolts AASHTO M164 (Type–I) inserted through the face of the bar. Holes in post shall be 1/16" larger than the bolt size.

14. Holes in rails for attachment to posts will be field–drilled. Holes shall be coated with an approved zinc–rich paint prior to erection.

15. Radiused rails (if required) will be shop–curved. No field–bending of rail tubes.

16. The drop–weight tear test in section 732 shall not apply to the structure tubing on this standard.

17. The rail posts & base plates shall be tested for impact properties in accordance with ASTM A370 Charpy Impact Testing, using a type A specimen.

MATERIALS

Rail bars.....ASTM A500 GR B or ASTM A501
Rail posts.....ASTM A709 GR 50
All other shapes & plates.....ASTM A709 GR 36
Round–slotted head bolts for Rail–Post connections ..... M164 (type I)
Hex head bolts for tube splice joints ..... M164 (type 1)
All other bolts [unless noted].....ASTM A307

Nuts for ASTM A307 bolts & AASHTO M164 bolts shall comply with AASHTO M291. Nuts for anchor studs shall comply with ASTM A563.

washers shall comply with ASTM F436

1/8" pad shall comply with standard specification subsection 731.01 or 731.02 of Vermont Standard Specifications.

REVISIONS

No.	Remarks	Date
0	Initial submittal	4/2/01

TVGA
ENGINEERING, SURVEYING, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY BSC
DATE 5-15-01

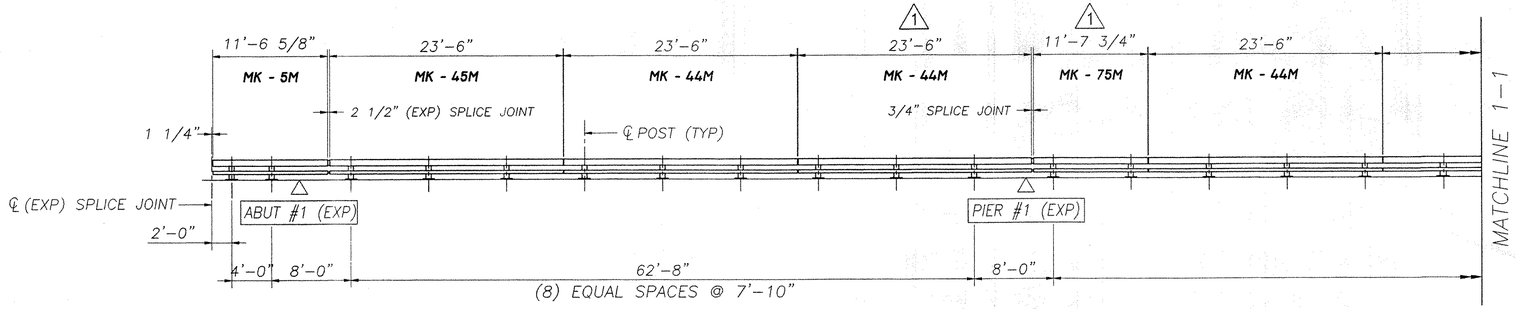
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

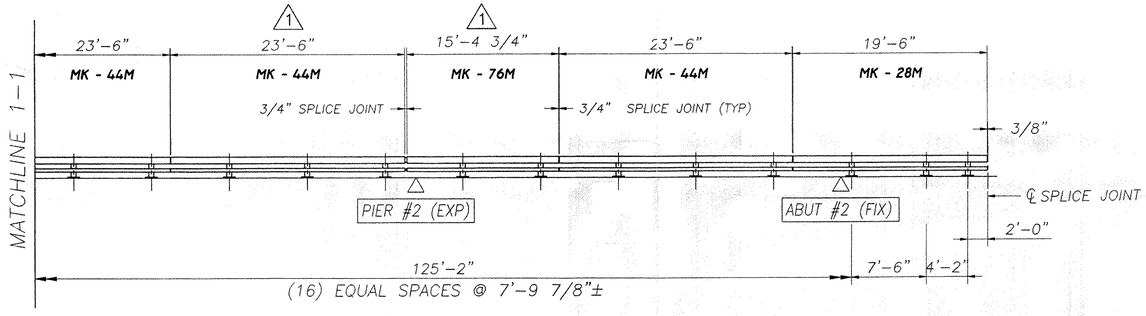
ITEM 621.72 - GUARDRAIL APPROACH SECTION - NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
INTERSTATE ROUTE 89

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE INC.

DRAWN P. Radice
CHECKED
DATE 3/30/01
SCALE NONE
HSC REFERENCE NO. 1250
SIZE D REVISION 0
SHEET NO. 1 of 1

600 BR





ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 43S

PAY LENGTH = 223'-6" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

BILL OF MATERIAL

	Mk.	Qty.	Description	Material	Total wgt.
		30	RAIL POST W6x25 WITH BASE PLATE		2790 lbs.
	*	30	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		810 lbs.
		10	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		395 lbs.
		10	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		185 lbs.
		30	1/8" THICK BEARING PAD		15 lbs.
		120	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		103.2 lbs.
		80	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		22.4 lbs.
1		8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
1	-44M	6	RAIL TUBE (UPPER) 8x4x5/16 23'-6" OAL		2303 lbs.
1	-45M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-6" (SLOTTED ONE END)		1727.25 lbs.
	-28M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-6" OAL		477.75 lbs.
1	-76M	1	RAIL TUBE (UPPER) 8x4x5/16 15'-4 3/5" OAL		373.63 lbs.
	-5M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-6 5/8" (SLOTTED BOTH ENDS)		283.03 lbs.
1	-75M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-7 3/4" OAL		281.75 lbs.
1	-44M	6	RAIL TUBE (LOWER) 4x4x1/4 23'-6" OAL		1203.2 lbs.
1	-45M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-6" (SLOTTED ONE END)		902.4 lbs.
	-28M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-6" OAL		249.6 lbs.
1	-76M	1	RAIL TUBE (LOWER) 4x4x1/4 15'-4 3/4" OAL		195.2 lbs.
	-5M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-6 5/8" (SLOTTED BOTH ENDS)		147.87 lbs.
1	-75M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-7 3/4" OAL		147.2 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review does not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Paul W. LeC
DATE: 6/21/01

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

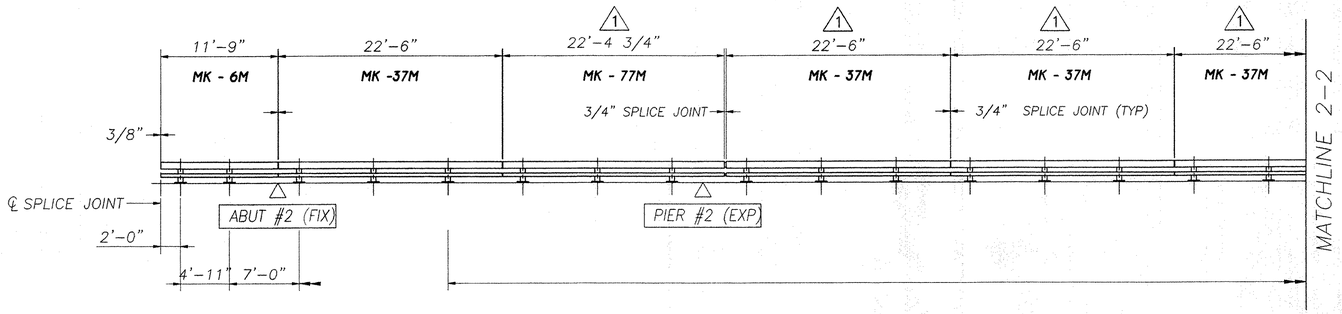
REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

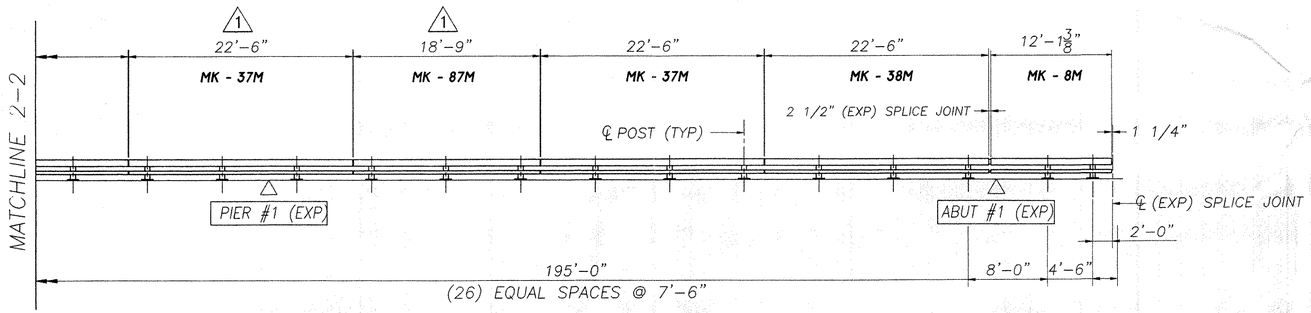
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 43S

DRAWN C.A. Leblanc
CHECKED
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
GENERAL CONTRACTOR WINTERSET, INC.
SUB CONTRACTOR F.R. LAFAYETTE, INC.
SIZE D REVISION 1
SHEET NO. 1 of 17

601BR43S





BILL OF MATERIAL

Mk.	Qty.	Description	Material	Total wgt.
	31	RAIL POST W6x25 WITH BASE PLATE		2883 lbs.
*	31	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		837 lbs.
⚠1	10	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		355.5 lbs.
⚠1	10	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		166.5 lbs.
	31	1/8" THICK BEARING PAD		15.5 lbs.
	124	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		106.64 lbs.
⚠	80	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		20.16 lbs.
⚠	8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
⚠ -87M	1	RAIL TUBE (UPPER) 8x4x5/16 18'-9" OAL		649.25 lbs.
⚠ -37M	6	RAIL TUBE (UPPER) 8x4x5/16 22'-6" OAL		1102.5 lbs.
⚠ -38M	1	RAIL TUBE (UPPER) 8x4x5/16 22'-6" (SLOTTED ONE END)		1102.5 lbs.
⚠ -77M	1	RAIL TUBE (UPPER) 8x4x5/16 22'-4 3/4" OAL		545.13 lbs.
-8M	1	RAIL TUBE (UPPER) 8x4x5/16 12'-1 3/8" (SLOTTED BOTH ENDS)		296.81 lbs.
-6M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-9" OAL		287.88 lbs.
⚠ -87M	1	RAIL TUBE (LOWER) 4x4x1/4 18'-9" OAL		339.2 lbs.
⚠ -37M	6	RAIL TUBE (LOWER) 4x4x1/4 22'-6" OAL		576 lbs.
⚠ -38M	1	RAIL TUBE (LOWER) 4x4x1/4 22'-6" (SLOTTED ONE END)		576 lbs.
⚠ -77M	1	RAIL TUBE (LOWER) 4x4x1/4 22'-4 3/4" OAL		284.8 lbs.
-8M	1	RAIL TUBE (LOWER) 4x4x1/4 12'-1 3/8" (SLOTTED BOTH ENDS)		155.07 lbs.
-6M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-9" OAL		150.4 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 43S

PAY LENGTH = 223'-5" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Gott
DATE: 6/27/01

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 43S

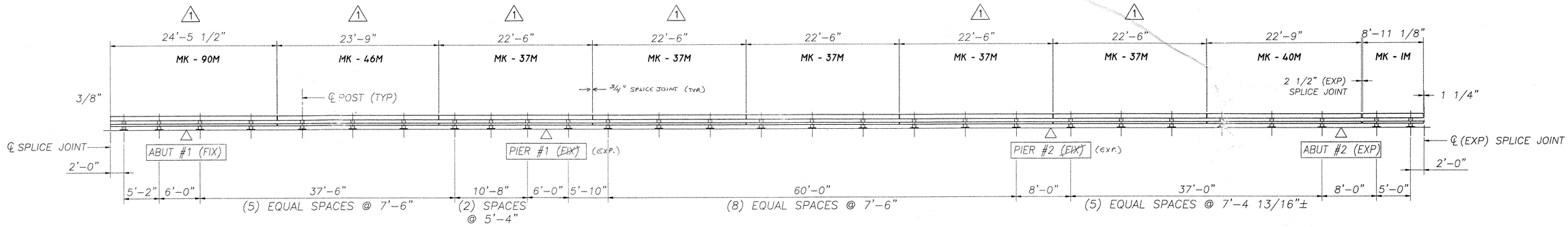
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN: C.A. Leblanc
CHECKED:
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D
REVISION: 1
SHEET NO.: 2 of 17

602 BR 43S

BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	28	RAIL POST W6x25 WITH BASE PLATE		2604 lbs.
*	28	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		756 lbs.
	8	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		316 lbs.
	8	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		148 lbs.
	28	1/8" THICK BEARING PAD		14 lbs.
	112	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		96.32 lbs.
	64	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		17.92 lbs.
	24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
-90M	1	RAIL TUBE (UPPER) 8x4x5/16 24'-5 1/2" OAL		599.23 lbs.
-46M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-9" OAL		581.88 lbs.
-40M	1	RAIL TUBE (UPPER) 8x4x5/16 22'-9" (SLOTTED ONE END)		557.38 lbs.
-37M	5	RAIL TUBE (UPPER) 8x4x5/16 22'-6" OAL		2756.25 lbs.
-1M	1	RAIL TUBE (UPPER) 8x4x5/16 8'-11 1/8" (SLOTTED BOTH ENDS)		218.71 lbs.
-90M	1	RAIL TUBE (LOWER) 4x4x1/4 24'-5 1/2" (SLOTTED ONE END)		313.07 lbs.
-46M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-9" OAL		304.0 lbs.
-40M	1	RAIL TUBE (LOWER) 4x4x1/4 22'-9" (SLOTTED ONE END)		291.2 lbs.
-37M	5	RAIL TUBE (LOWER) 4x4x1/4 22'-6" OAL		1440 lbs.
-1M	1	RAIL TUBE (LOWER) 4x4x1/4 8'-11 1/8" (SLOTTED BOTH ENDS)		218.71 lbs.

* - ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION - SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 43N

PAY LENGTH = 193'-2" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [signature]
DATE: 02-05-2002

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 - BRIDGE RAILING - NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 43N

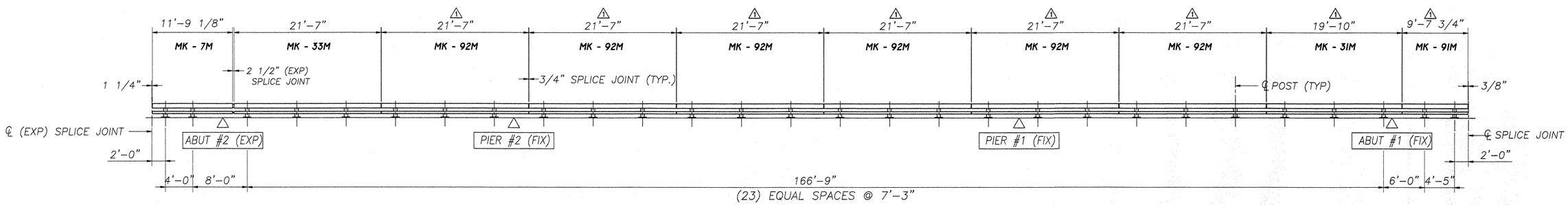
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A. Leblanc
CHECKED [signature]
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 3 of 17

603 BR 43N

BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	28	RAIL POST W6x25 WITH BASE PLATE		2604 lbs.
*	28	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		756 lbs.
⚠	9	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		316 lbs.
⚠	9	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		148 lbs.
	28	1/8" THICK BEARING PAD		14 lbs.
	112	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		96.32 lbs.
⚠	72	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		17.92 lbs.
	24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
⚠ -33M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-7" (SLOTTED ONE END)		528.79 lbs.
⚠ -92M	6	RAIL TUBE (UPPER) 8x4x5/16 21'-7" OAL		3172.75 lbs.
⚠ -31M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-10" OAL		485.92 lbs.
⚠ -91M	1	RAIL TUBE (UPPER) 8x4x5/16 9'-7 3/8" OAL		235.56 lbs.
-7M	1	RAIL TUBE (UPPER) 4x4x1/4 11'-9 1/8" (SLOTTED BOTH ENDS)		288.13 lbs.
⚠ -33M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-7" (SLOTTED ONE END)		276.27 lbs.
⚠ -92M	6	RAIL TUBE (LOWER) 4x4x1/4 21'-7" OAL		1657.62 lbs.
⚠ -31M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-10" OAL		253.87 lbs.
⚠ -91M	1	RAIL TUBE (LOWER) 4x4x1/4 9'-7 3/8" OAL		123.07 lbs.
-7M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-9 1/8" (SLOTTED BOTH ENDS)		150.53 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 43N

PAY LENGTH = 193'-2" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

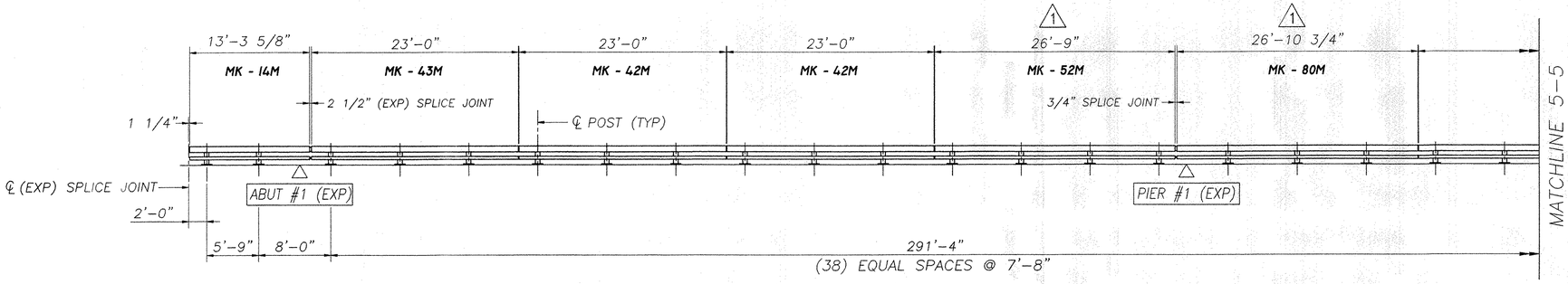
REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

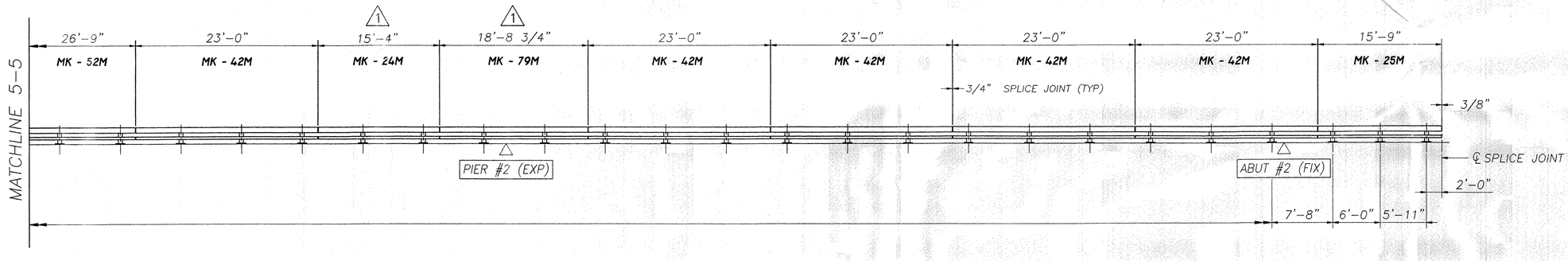
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 43N

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN: C.A. Leblanc
CHECKED:
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D
REVISION: ⚠1
SHEET NO.: 4 of 17





ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 48S

PAY LENGTH = 328'-8" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

BILL OF MATERIAL

	Mk.	Qty.	Description	Material	Total wgt.
		44	RAIL POST W6x25 WITH BASE PLATE		4092 lbs.
	*	44	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		1188 lbs.
		14	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		553 lbs.
		14	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		259 lbs.
		44	1/8" THICK BEARING PAD		22 lbs.
		176	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		151.36 lbs.
		112	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		31.36 lbs.
1		8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
1	-52M	2	RAIL TUBE (UPPER) 8x4x5/16 26'-9" OAL		655.36 lbs.
1	-24M	1	RAIL TUBE (UPPER) 8x4x5/16 15'-4" OAL		650 lbs.
	-42M	7	RAIL TUBE (UPPER) 8x4x5/16 23'-0" OAL		3944.5 lbs.
1	-43M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-0" (SLOTTED ONE END)		1127 lbs.
	-25M	1	RAIL TUBE (UPPER) 8x4x5/16 15'-9" OAL		385.88 lbs.
	-14M	1	RAIL TUBE (UPPER) 8x4x5/16 13'-3 5/8" (SLOTTED BOTH ENDS)		325.9 lbs.
1	-79M	1	RAIL TUBE (UPPER) 8x4x5/16 18'-8 3/4" OAL		267.46 lbs.
1	-80M	1	RAIL TUBE (UPPER) 8x4x5/16 26'-10 3/4" OAL		661 lbs.
1	-52M	2	RAIL TUBE (LOWER) 4x4x1/4 26'-9" OAL		342.4 lbs.
1	-24M	1	RAIL TUBE (LOWER) 4x4x1/4 15'-4" OAL		354.8 lbs.
	-42M	7	RAIL TUBE (LOWER) 4x4x1/4 23'-0" OAL		2060.8 lbs.
1	-43M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-0" (SLOTTED ONE END)		588.8 lbs.
	-25M	1	RAIL TUBE (LOWER) 4x4x1/4 15'-9" OAL		201.6 lbs.
	-14M	1	RAIL TUBE (LOWER) 4x4x1/4 13'-3 5/8" (SLOTTED BOTH ENDS)		170.27 lbs.
1	-79M	1	RAIL TUBE (LOWER) 4x4x1/4 18'-8 3/4" OAL		139.73 lbs.
1	-80M	1	RAIL TUBE (LOWER) 4x4x1/4 26'-10 3/4" OAL		330 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 6/21/01

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER LITTLE RIVER
BRIDGE No. 48S

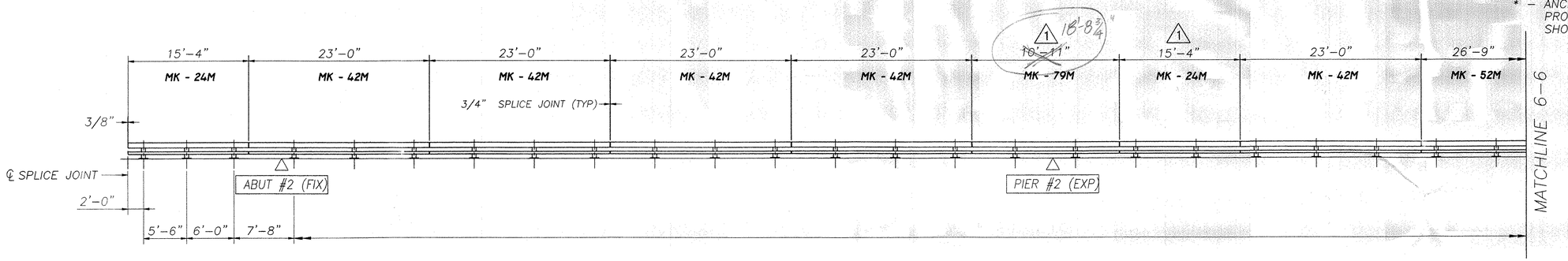
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

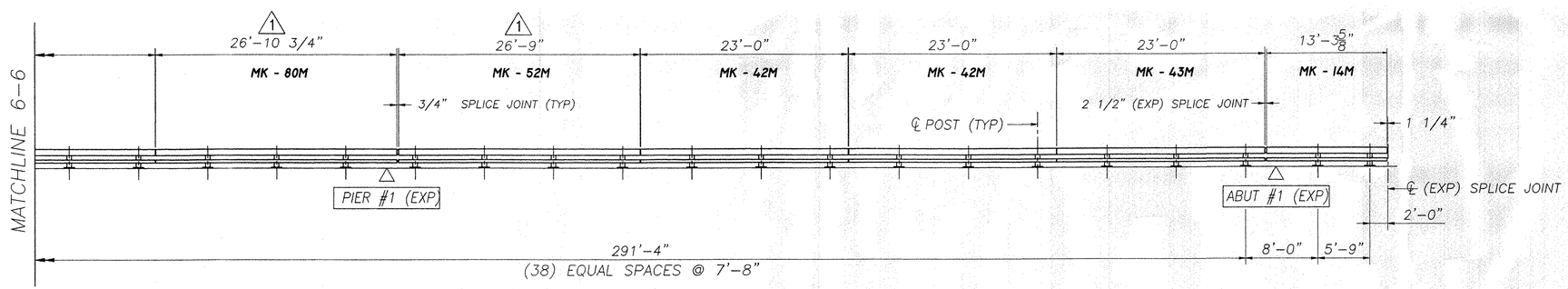
DRAWN C.A. Leblanc
CHECKED [signature]
DATE 08/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 5 of 17

6058R 485

BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	44	RAIL POST W6x25 WITH BASE PLATE		4092 lbs.
*	44	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		1188 lbs.
	14	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		553 lbs.
	14	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		259 lbs.
	44	1/8" THICK BEARING PAD		22 lbs.
	176	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		151.36 lbs.
	112	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		31.36 lbs.
	8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
-52M	2	RAIL TUBE (UPPER) 8x4x5/16 26'-9" OAL		655.38 lbs.
-79M	1	RAIL TUBE (UPPER) 8x4x5/16 10'-11" OAL		1310.75 lbs.
-42M	7	RAIL TUBE (UPPER) 8x4x5/16 23'-0" OAL		3944.5 lbs.
-43M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-0" (SLOTTED ONE END)		1127 lbs.
-24M	2	RAIL TUBE (UPPER) 8x4x5/16 15'-4" OAL		375.66 lbs.
-14M	1	RAIL TUBE (UPPER) 8x4x5/16 13'-3 5/8" (SLOTTED BOTH ENDS)		325.9 lbs.
-80M	1	RAIL TUBE (UPPER) 8x4x5/16 26'-10 3/4" OAL		267.46 lbs.
-52M	2	RAIL TUBE (LOWER) 4x4x1/4 26'-9" OAL		342.4 lbs.
-79M	1	RAIL TUBE (LOWER) 4x4x1/4 10'-11" OAL		684.8 lbs.
-42M	7	RAIL TUBE (LOWER) 4x4x1/4 23'-0" OAL		2060.8 lbs.
-43M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-0" (SLOTTED ONE END)		588.8 lbs.
-24M	2	RAIL TUBE (LOWER) 4x4x1/4 15'-4" OAL		196.27 lbs.
-14M	1	RAIL TUBE (LOWER) 4x4x1/4 13'-3 5/8" (SLOTTED BOTH ENDS)		170.27 lbs.
-80M	1	RAIL TUBE (LOWER) 4x4x1/4 26'-10 3/4" OAL		139.73 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.





ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 48S

PAY LENGTH = 328'-3" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 6/21/01

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

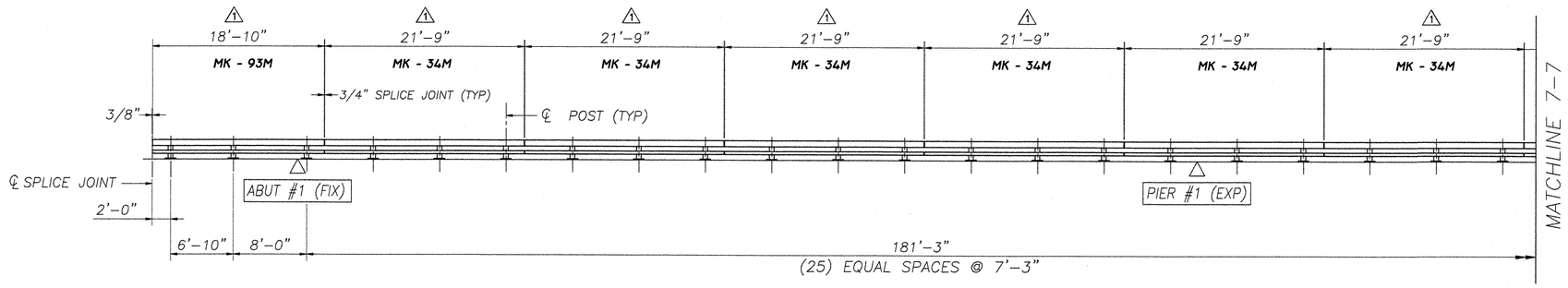
ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER LITTLE RIVER
BRIDGE No. 48S

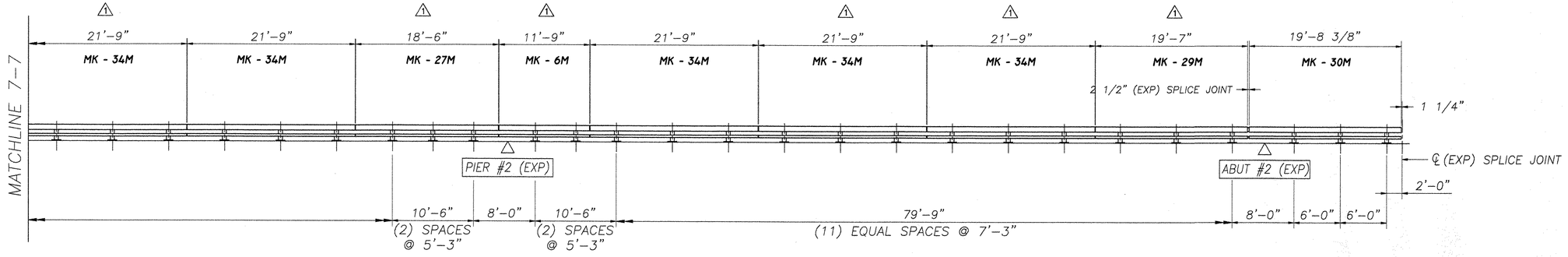
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN: C.A. Leblanc
CHECKED: [signature]
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D REVISION: 1
SHEET NO.: 6 of 17

606 BR 48S

BILL OF MATERIAL					
	Mk.	Qty.	Description	Material	Total wgt.
		47	RAIL POST W6x25 WITH BASE PLATE		4371 lbs.
	*	47	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		1269 lbs.
1		15	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		513.5 lbs.
1		15	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		240.5 lbs.
		47	1/8" THICK BEARING PAD		23.5 lbs.
		188	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		161.68 lbs.
1		120	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		29.12 lbs.
		24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
1	-34M	11	RAIL TUBE (UPPER) 8x4x5/16 21'-9" OAL		5861.68 lbs.
	-30M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-8 3/8" (SLOTTED BOTH ENDS)		482.6 lbs.
1	-29M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-7" (SLOTTED ONE END)		479.79 lbs.
1	-93M	1	RAIL TUBE (UPPER) 8x4x5/16 18'-10" OAL		461.42 lbs.
1	-27M	1	RAIL TUBE (UPPER) 8x4x5/16 18'-6" OAL		453.25 lbs.
1	-6M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-9" OAL		287.88 lbs.
1	-34M	11	RAIL TUBE (LOWER) 4x4x1/4 21'-9" OAL		3062.4 lbs.
	-30M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-8 3/8" (SLOTTED BOTH ENDS)		252.13 lbs.
1	-29M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-7" (SLOTTED ONE END)		288 lbs.
1	-93M	1	RAIL TUBE (LOWER) 4x4x1/4 18'-10" OAL		241.07 lbs.
1	-27M	1	RAIL TUBE (LOWER) 4x4x1/4 18'-6" OAL		236.8 lbs.
1	-6M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-9" OAL		150.4 lbs.





* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 48N

PAY LENGTH = 328'-10" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

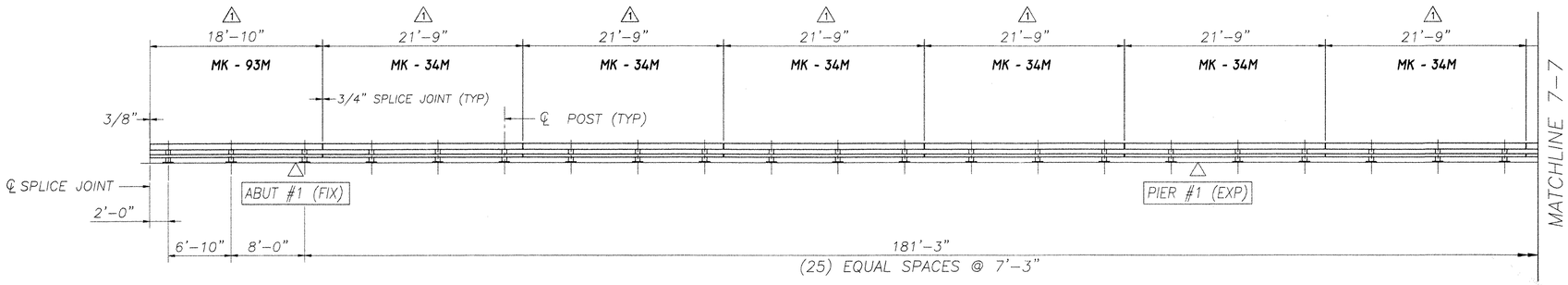
REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

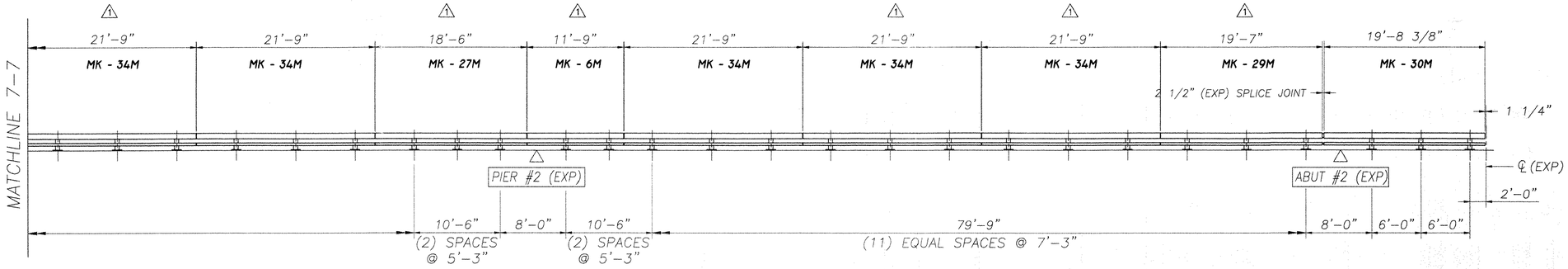
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER LITTLE RIVER
BRIDGE No. 48N

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A. Leblanc
CHECKED
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 7 of 17





ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 48N

PAY LENGTH = 328'-10" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

	BILL OF MATERIAL				
	Mk.	Qty.	Description	Material	Total wgt.
		47	RAIL POST W6x25 WITH BASE PLATE		4371 lbs.
	*	47	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		1269 lbs.
1		15	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		513.5 lbs.
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		47	1/8" THICK BEARING PAD		23.5 lbs.
		188	3/4" DIA x 8" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		161.68 lbs.
1		120	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		29.12 lbs.
		24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
1	-34M	11	RAIL TUBE (UPPER) 8x4x5/16 21'-9" OAL		5861.68 lbs.
	-30M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-8 3/8" (SLOTTED BOTH ENDS)		482.6 lbs.
1	-29M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-7" (SLOTTED ONE END)		479.79 lbs.
1	-93M	1	RAIL TUBE (UPPER) 8x4x5/16 18'-10" OAL		461.42 lbs.
1	-27M	1	RAIL TUBE (UPPER) 8x4x5/16 18'-6" OAL		453.25 lbs.
1	-6M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-9" OAL		287.88 lbs.
1	-34M	11	RAIL TUBE (LOWER) 4x4x1/4 21'-9" OAL		3062.4 lbs.
	-30M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-8 3/8" (SLOTTED BOTH ENDS)		252.13 lbs.
1	-29M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-7" (SLOTTED ONE END)		288 lbs.
1	-93M	1	RAIL TUBE (LOWER) 4x4x1/4 18'-10" OAL		241.07 lbs.
1	-27M	1	RAIL TUBE (LOWER) 4x4x1/4 18'-6" OAL		236.8 lbs.
1	-6M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-9" OAL		150.4 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 02-05-2002

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

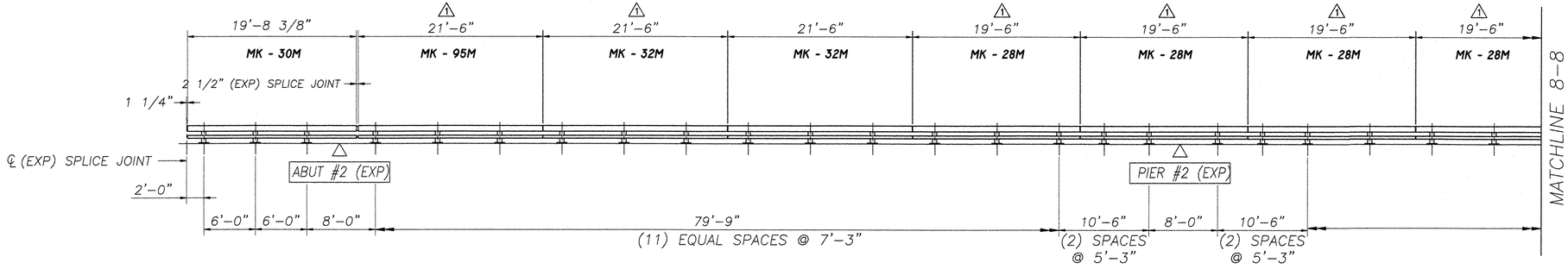
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

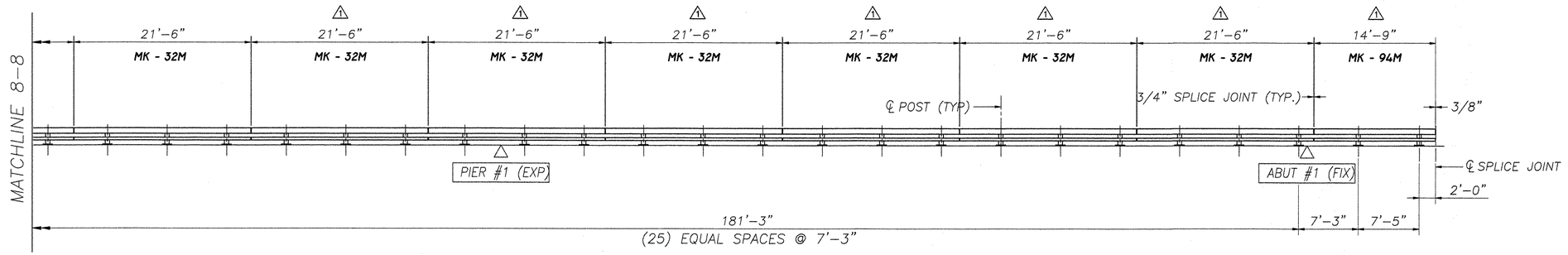
ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER LITTLE RIVER
BRIDGE No. 48N

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN: C.A. Leblanc
CHECKED: [signature]
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D
REVISION: 1
SHEET NO.: 7 of 17

607 Bridge





BILL OF MATERIAL

	Mk.	Qty.	Description	Material	Total wgt.
		47	RAIL POST W6x25 WITH BASE PLATE		4371 lbs.
	*	47	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		1269 lbs.
⚠1		15	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		513.5 lbs.
⚠1		15	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		240.5 lbs.
		47	1/8" THICK BEARING PAD		23.5 lbs.
		188	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		161.68 lbs.
⚠1		120	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		29.12 lbs.
		24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
⚠1	-32M	9	RAIL TUBE (UPPER) 8x4x5/16 21'-6" OAL		4740.75 lbs.
⚠1	-95M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" (SLOTTED ONE END)		526.75 lbs.
	-30M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-8 3/8" (SLOTTED BOTH ENDS)		482.6 lbs.
⚠1	-28M	4	RAIL TUBE (UPPER) 8x4x5/16 19'-6" OAL		1911.0 lbs.
⚠1	-94M	1	RAIL TUBE (UPPER) 8x4x5/16 14'-9" OAL		361.38 lbs.
⚠1	-32M	9	RAIL TUBE (LOWER) 4x4x1/4 21'-6" OAL		2476.8 lbs.
⚠1	-95M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" (SLOTTED ONE END)		275.2 lbs.
	-30M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-8 3/8" (SLOTTED BOTH ENDS)		252.13 lbs.
⚠1	-28M	4	RAIL TUBE (LOWER) 4x4x1/4 19'-6" OAL		998.4 lbs.
⚠1	-94M	1	RAIL TUBE (LOWER) 4x4x1/4 14'-9" OAL		188.8 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 48N

PAY LENGTH = 328'-8" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS

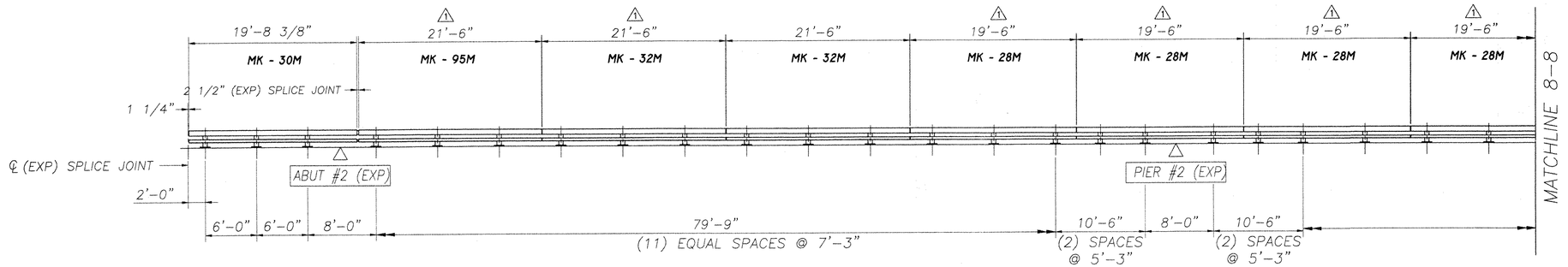
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

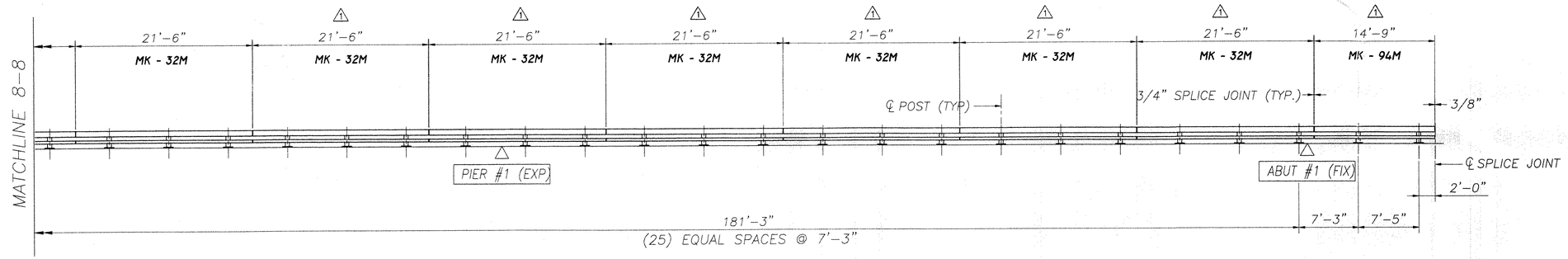
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER LITTLE RIVER
BRIDGE No. 48N

DRAWN C.A. Leblanc
CHECKED Mark R.
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION ⚠1
SHEET NO. 8 of 17

GENERAL CONTRACTOR WINTERSET, INC.
SUB CONTRACTOR F.R. LAFAYETTE, INC.





BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	47	RAIL POST W6x25 WITH BASE PLATE		4371 lbs.
*	47	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		1269 lbs.
⚠	15	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		513.5 lbs.
⚠	15	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		240.5 lbs.
	47	1/8" THICK BEARING PAD		23.5 lbs.
	188	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		161.68 lbs.
⚠	120	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		29.12 lbs.
	24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
⚠ -32M	9	RAIL TUBE (UPPER) 8x4x5/16 21'-6" OAL		4740.75 lbs.
⚠ -95M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" (SLOTTED ONE END)		526.75 lbs.
-30M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-8 3/8" (SLOTTED BOTH ENDS)		482.6 lbs.
⚠ -28M	4	RAIL TUBE (UPPER) 8x4x5/16 19'-6" OAL		1911.0 lbs.
⚠ -94M	1	RAIL TUBE (UPPER) 8x4x5/16 14'-9" OAL		361.38 lbs.
⚠ -32M	9	RAIL TUBE (LOWER) 4x4x1/4 21'-6" OAL		2476.8 lbs.
⚠ -95M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" (SLOTTED ONE END)		275.2 lbs.
-30M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-8 3/8" (SLOTTED BOTH ENDS)		252.13 lbs.
⚠ -28M	4	RAIL TUBE (LOWER) 4x4x1/4 19'-6" OAL		998.4 lbs.
⚠ -94M	1	RAIL TUBE (LOWER) 4x4x1/4 14'-9" OAL		188.8 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 48N

PAY LENGTH = 328'-8" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatability with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: _____
DATE: 02-05-2002

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER LITTLE RIVER
BRIDGE No. 48N

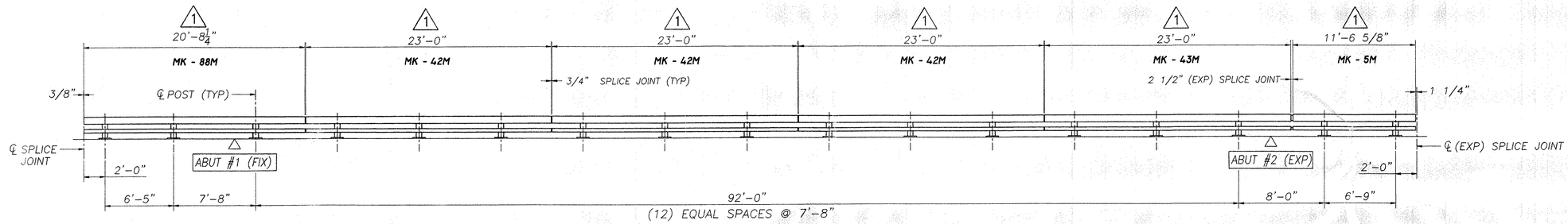
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN: C.A. Leblanc
CHECKED: Mark R.
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D
REVISION: 1
SHEET NO.: 8 of 17

608 BR 48N

BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	17	RAIL POST W6x25 WITH BASE PLATE		1581 lbs.
*	17	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		459 lbs.
	5	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		158 lbs.
	5	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		74 lbs.
	17	1/8" THICK BEARING PAD		8.5 lbs.
	68	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		58.48 lbs.
	40	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		8.96 lbs.
	8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		.56 lbs.
-05M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-6 5/8" OAL (SLOTTED BOTH ENDS)		715.86 lbs.
-43M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-0" OAL (SLOTTED ONE END)		661.5 lbs.
-42M	3	RAIL TUBE (UPPER) 8x4x5/16 23'-0" OAL		1018.79 lbs.
-88M	1	RAIL TUBE (UPPER) 8x4x5/16 20'-8 1/4" OAL		649.25 lbs.
-05M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-6 5/8" OAL (SLOTTED BOTH ENDS)		374 lbs.
-43M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-0" OAL (SLOTTED ONE END)		345.6 lbs.
-42M	3	RAIL TUBE (LOWER) 4x4x1/4 23'-0" OAL		532.27 lbs
-88M	1	RAIL TUBE (LOWER) 4x4x1/4 20'-8 1/4" OAL		339.2 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 49S

PAY LENGTH = 124'-10" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

X NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. Sut
DATE: 6/21/01

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER TH 7
BRIDGE No. 49S

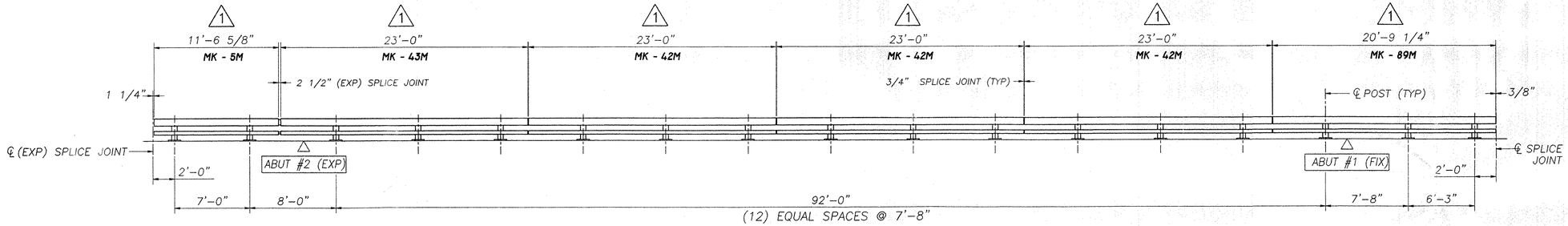
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A.Leblanc
CHECKED
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 9 of 17

604 BR 49S

BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	17	RAIL POST W6x25 WITH BASE PLATE		1581 lbs.
*	17	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		459 lbs.
	5	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		158 lbs.
	5	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		74 lbs.
	17	1/8" THICK BEARING PAD		8.5 lbs.
	68	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		58.48 lbs.
	32	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		8.96 lbs.
	8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		.56 lbs.
-43M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-0" OAL (SLOTTED ONE END)		711.78 lbs.
-42M	3	RAIL TUBE (UPPER) 8x4x5/16 23'-0" OAL		1024.9 lbs.
-89M	1	RAIL TUBE (UPPER) 8x4x5/16 20'-9 1/4" OAL		661.5 lbs.
-5M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-6 5/8" OAL (SLOTTED BOTH ENDS)		649.25 lbs.
-43M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-0" OAL (SLOTTED ONE END)		371.87 lbs.
-42M	3	RAIL TUBE (LOWER) 4x4x1/4 23'-0" OAL		535.5 lbs.
-89M	1	RAIL TUBE (LOWER) 4x4x1/4 20'-9 1/4" OAL		345.6 lbs.
-5M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-6 5/8" OAL (SLOTTED BOTH ENDS)		339.2 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 49S

PAY LENGTH = 124'-11" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. Sut
DATE: 6/21/01

CONSTRUCTION NOTE:
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NOTES:
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2. *CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.*

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER TH 7
BRIDGE No. 49S

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

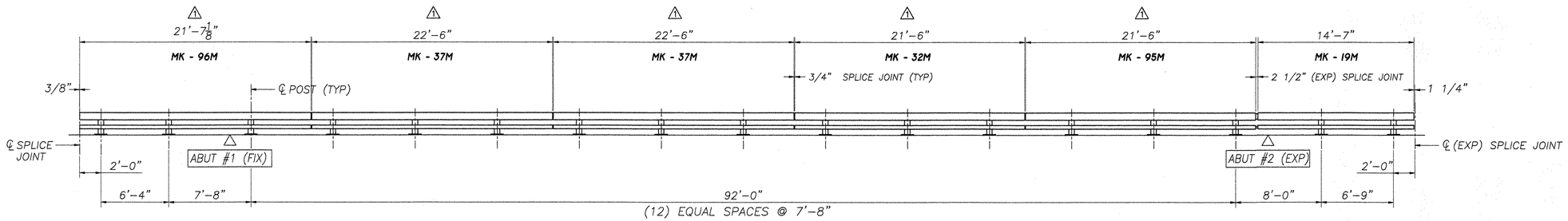
DRAWN: C.A.Leblanc
CHECKED:
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D
REVISION: 1
SHEET NO.: 10 of 17

610 BR 49S

BILL OF MATERIAL

	Mk.	Qty.	Description	Material	Total wgt.
		17	RAIL POST W6x25 WITH BASE PLATE		1581 lbs.
	*	17	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		459 lbs.
⚠		5	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		158 lbs.
⚠		5	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		74 lbs.
		17	1/8" THICK BEARING PAD		8.5 lbs.
		68	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		58.48 lbs.
⚠		40	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		8.96 lbs.
		8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		.56 lbs.
⚠	-37M	2	RAIL TUBE (UPPER) 8x4x5/16 22'-6" OAL		1102.5 lbs.
⚠	-96M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-7 1/8" OAL		529.05 lbs.
⚠	-95M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" (SLOTTED ONE END)		526.75 lbs.
⚠	-32M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" OAL		526.75 lbs.
	-19M	1	RAIL TUBE (UPPER) 8x4x5/16 14'-7" (SLOTTED BOTH ENDS)		357.29 lbs.
⚠	-37M	2	RAIL TUBE (LOWER) 4x4x1/4 22'-6" OAL		576.0 lbs.
⚠	-96M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-7 1/8" OAL		276.4 lbs.
⚠	-95M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" (SLOTTED ONE END)		275.2 lbs.
⚠	-32M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" OAL		275.2 lbs.
	-19M	1	RAIL TUBE (LOWER) 4x4x1/4 14'-7" (SLOTTED BOTH ENDS)		186.67 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 49N

PAY LENGTH = 124'-9" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

CONSTRUCTION NOTE:
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NOTES:
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2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS

No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

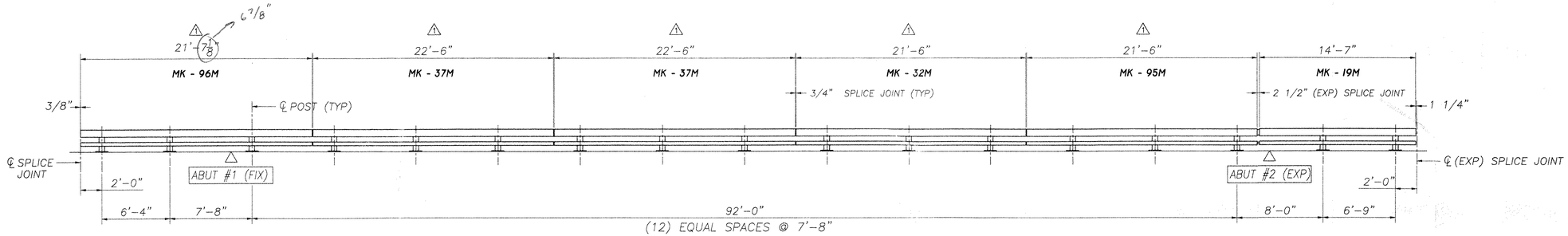
ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER TH 7
BRIDGE No. 49N

DRAWN C.A.Leblanc
CHECKED Paul K
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
GENERAL CONTRACTOR WINTERSET, INC.
SUB CONTRACTOR F.R. LAFAYETTE, INC.
SIZE D REVISION ⚠
SHEET NO. 11 of 17

BILL OF MATERIAL					
	Mk.	Qty.	Description	Material	Total wgt.
		17	RAIL POST W6x25 WITH BASE PLATE		1581 lbs.
	*	17	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		459 lbs.
⚠1		5	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		158 lbs.
⚠1		5	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		74 lbs.
		17	1/8" THICK BEARING PAD		8.5 lbs.
		68	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		58.48 lbs.
⚠1		40	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		8.96 lbs.
		8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		.56 lbs.
⚠1	-37M	2	RAIL TUBE (UPPER) 8x4x5/16 22'-6" OAL		1102.5 lbs.
⚠1	-96M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-7 1/8" OAL		529.05 lbs.
⚠1	-95M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" (SLOTTED ONE END)		526.75 lbs.
⚠1	-32M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" OAL		526.75 lbs.
	-19M	1	RAIL TUBE (UPPER) 8x4x5/16 14'-7" (SLOTTED BOTH ENDS)		357.29 lbs.
⚠1	-37M	2	RAIL TUBE (LOWER) 4x4x1/4 22'-6" OAL		576.0 lbs.
⚠1	-96M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-7 1/8" OAL		276.4 lbs.
⚠1	-95M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" (SLOTTED ONE END)		275.2 lbs.
⚠1	-32M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" OAL		275.2 lbs.
	-19M	1	RAIL TUBE (LOWER) 4x4x1/4 14'-7" (SLOTTED BOTH ENDS)		186.67 lbs.

UPPER TO 21'-6 7/8"

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 49N

PAY LENGTH = 124'-9" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 02-05-2002

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER TH 7
BRIDGE No. 49N

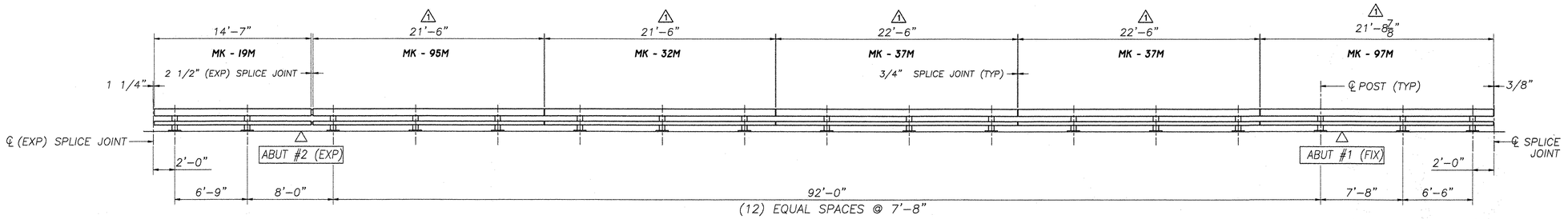
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A.Leblanc
CHECKED Paul L.
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 11 of 17

611 BRGN

BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	17	RAIL POST W6x25 WITH BASE PLATE		1581 lbs.
*	17	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		459 lbs.
⚠	5	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		158 lbs.
⚠	5	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		74 lbs.
	17	1/8" THICK BEARING PAD		8.5 lbs.
	68	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		58.48 lbs.
⚠	40	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		8.96 lbs.
	8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		.56 lbs.
⚠ -37M	2	RAIL TUBE (UPPER) 8x4x5/16 22'-6" OAL		1102.5 lbs.
⚠ -95M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" (SLOTTED ONE END)		526.75 lbs.
⚠ -32M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" OAL		526.75 lbs.
⚠ -97M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-8 7/8" OAL		532.62 lbs.
-19M	1	RAIL TUBE (UPPER) 8x4x5/16 14'-7" (SLOTTED BOTH ENDS)		357.29 lbs.
⚠ -37M	2	RAIL TUBE (LOWER) 4x4x1/4 22'-6" OAL		576.0 lbs.
⚠ -95M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" (SLOTTED ONE END)		275.2 lbs.
⚠ -32M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" OAL		275.2 lbs.
⚠ -97M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-8 7/8" OAL		278.27 lbs.
-19M	1	RAIL TUBE (LOWER) 4x4x1/4 14'-7" (SLOTTED BOTH ENDS)		186.67 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 49N

PAY LENGTH = 124'-11" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

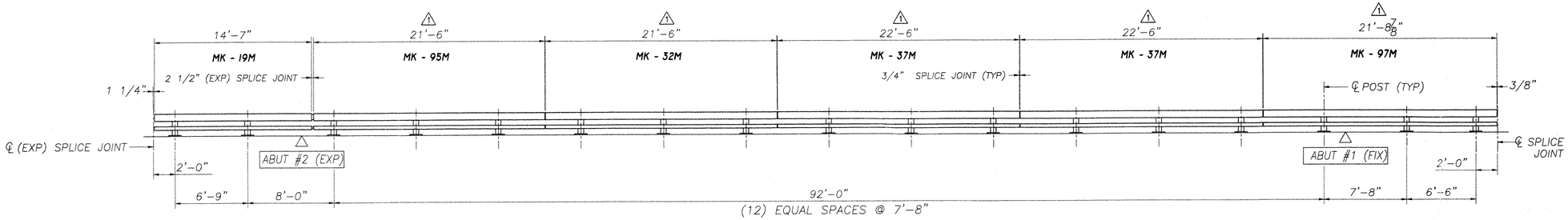
ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER TH 7
BRIDGE No. 49N

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A.Leblanc
CHECKED Mark
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION ⚠
SHEET NO. 12 of 17

BILL OF MATERIAL					
	Mk.	Qty.	Description	Material	Total wgt.
		17	RAIL POST W6x25 WITH BASE PLATE		1581 lbs.
	*	17	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		459 lbs.
1		5	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		158 lbs.
1		5	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		74 lbs.
		17	1/8" THICK BEARING PAD		8.5 lbs.
		68	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		58.48 lbs.
1		40	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		8.96 lbs.
		8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		.56 lbs.
1	-37M	2	RAIL TUBE (UPPER) 8x4x5/16 22'-6" OAL		1102.5 lbs.
1	-95M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" (SLOTTED ONE END)		526.75 lbs.
1	-32M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-6" OAL		526.75 lbs.
1	-97M	1	RAIL TUBE (UPPER) 8x4x5/16 21'-8 7/8" OAL		532.62 lbs.
	-19M	1	RAIL TUBE (UPPER) 8x4x5/16 14'-7" (SLOTTED BOTH ENDS)		357.29 lbs.
1	-37M	2	RAIL TUBE (LOWER) 4x4x1/4 22'-6" OAL		576.0 lbs.
1	-95M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" (SLOTTED ONE END)		275.2 lbs.
1	-32M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-6" OAL		275.2 lbs.
1	-97M	1	RAIL TUBE (LOWER) 4x4x1/4 21'-8 7/8" OAL		278.27 lbs.
1	-19M	1	RAIL TUBE (LOWER) 4x4x1/4 14'-7" (SLOTTED BOTH ENDS)		186.67 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 49N

PAY LENGTH = 124'-11" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: MAA
DATE: 02-05-2002

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

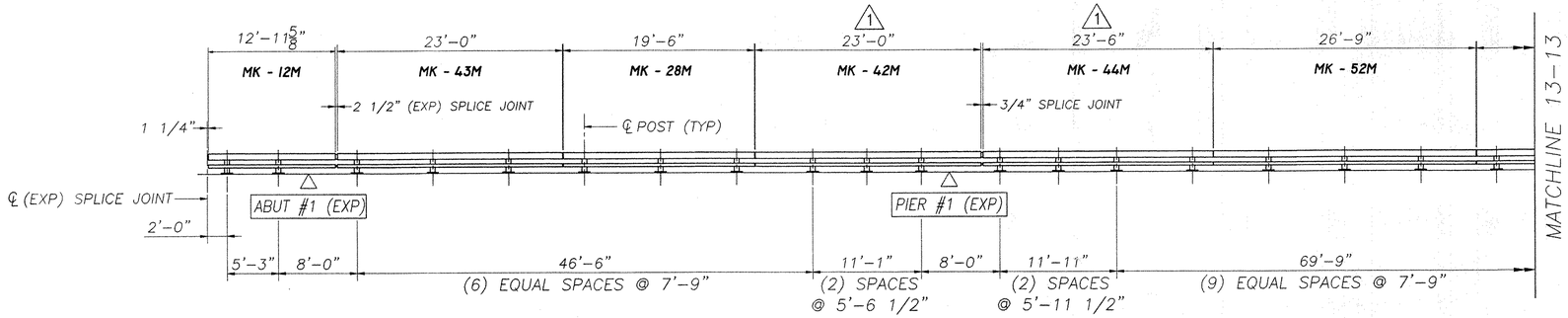
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

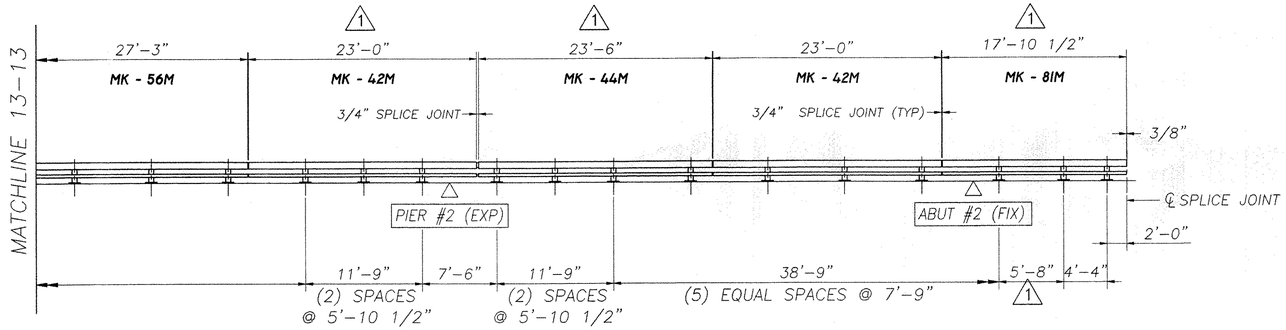
ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER TH 7
BRIDGE No. 49N

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A.Leblanc
CHECKED
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 12 of 17

612 BR 49N





ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY

BRIDGE No. 50S

PAY LENGTH = ~~245'-1~~ 244'-3" (THIS SHEET)

TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	35	RAIL POST W6x25 WITH BASE PLATE		3255 lbs.
*	35	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		945 lbs.
	10	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		395 lbs.
	10	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		185 lbs.
	35	1/8" THICK BEARING PAD		17.5 lbs.
	140	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		120.4 lbs.
	80	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		22.4 lbs.
⚠1	8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
-56M	1	RAIL TUBE (UPPER) 8x4x5/16 27'-3" OAL		667.63 lbs.
-52M	1	RAIL TUBE (UPPER) 8x4x5/16 26'-9" OAL		655.38 lbs.
⚠1 -44M	2	RAIL TUBE (UPPER) 8x4x5/16 23'-6" OAL		1151.5 lbs.
-43M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-0" (SLOTTED ONE END)		1127 lbs.
⚠1 -42M	3	RAIL TUBE (UPPER) 8x4x5/16 23'-0" OAL		1124 lbs.
-28M	1	RAIL TUBE (UPPER) 8x4x5/16 19'-6" OAL		477.75 lbs.
⚠1 -81M	1	RAIL TUBE (UPPER) 8x4x5/16 17'-10 1/2" OAL		453.25 lbs.
-12M	1	RAIL TUBE (UPPER) 8x4x5/16 12'-11 5/8" (SLOTTED BOTH ENDS)		317.74 lbs
-56M	1	RAIL TUBE (LOWER) 4x4x1/4 27'-3" OAL		348.8 lbs.
-52M	1	RAIL TUBE (LOWER) 4x4x1/4 26'-9" OAL		342.4 lbs.
⚠1 -44M	2	RAIL TUBE (LOWER) 4x4x1/4 23'-6" OAL		601.6 lbs.
-43M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-0" (SLOTTED ONE END)		588.8 lbs.
⚠1 -42M	3	RAIL TUBE (LOWER) 4x4x1/4 23'-0" OAL		587.7 lbs.
-28M	1	RAIL TUBE (LOWER) 4x4x1/4 19'-6" OAL		249.6 lbs.
⚠1 -81M	1	RAIL TUBE (LOWER) 4x4x1/4 17'-10 1/2" OAL		236.8 lbs.
-12M	1	RAIL TUBE (LOWER) 4x4x1/4 12'-11 5/8" (SLOTTED BOTH ENDS)		166 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

TVSA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such review is not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: Pat W. St T
DATE: 6/21/01

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

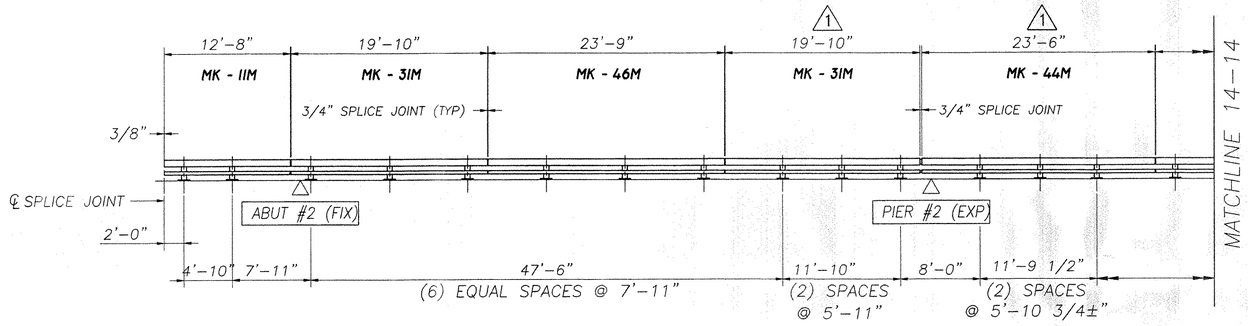
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 50S

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

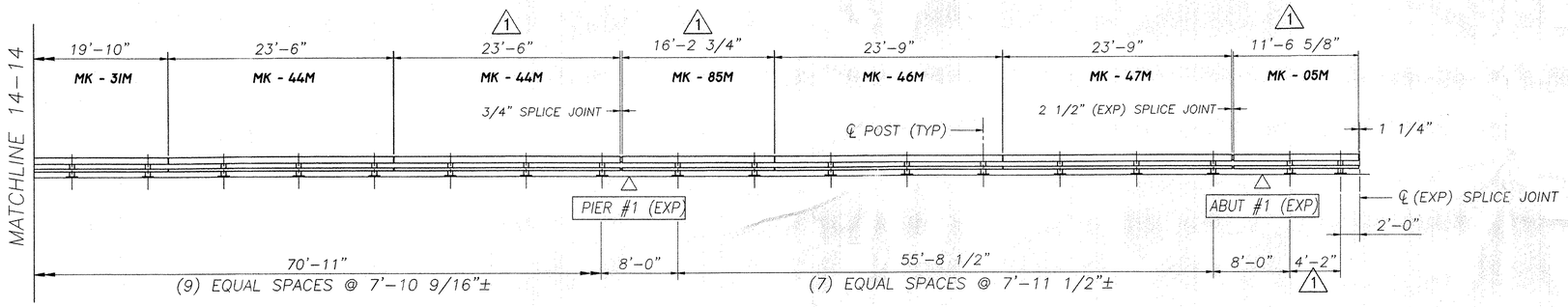
DRAWN: C.A. Leblanc
CHECKED: Pat L
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D
REVISION: 1
SHEET NO.: 13 of 17

613 BR 503



BILL OF MATERIAL				
Mk.	Qty.	Description	Material	Total wgt.
	33	RAIL POST W6x25 WITH BASE PLATE		3069 lbs.
*	33	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		891 bs.
	11	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		434.5 lbs.
	11	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		203.5 lbs.
	33	1/8" THICK BEARING PAD		16.5 lbs.
	132	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		113.52 lbs.
	88	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		24.64 lbs.
⚠1	8	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
-46M	2	RAIL TUBE (UPPER) 8x4x5/16 23'-9" OAL		1163.75 lbs.
-47M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-9" (SLOTTED ONE END)		581.88 lbs.
⚠1 -44M	3	RAIL TUBE (UPPER) 8x4x5/16 23'-6" OAL		964 lbs.
⚠1 -05M	1	RAIL TUBE (UPPER) 8x4x5/16 11'-6 5/8" (SLOTTED BOTH ENDS)		1151.5 lbs.
⚠1 -31M	3	RAIL TUBE (UPPER) 8x4x5/16 19'-10" OAL		1290 lbs
⚠1 -85M	1	RAIL TUBE (UPPER) 8x4x5/16 16'-2 3/4" OAL		479.79 lbs.
-11M	1	RAIL TUBE (UPPER) 8x4x5/16 12-8" OAL		310.33 lbs.
-46M	2	RAIL TUBE (LOWER) 4x4x1/4 23'-9" OAL		608 lbs.
-47M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-9" (SLOTTED ONE END)		304 lbs.
⚠1 -44M	3	RAIL TUBE (LOWER) 4x4x1/4 23'-6" OAL		503.1 lbs.
⚠1 -05M	1	RAIL TUBE (LOWER) 4x4x1/4 11'-6 5/8" (SLOTTED ONE END)		601.6 lbs.
⚠1 -31M	3	RAIL TUBE (LOWER) 4x4x1/4 19'-10" OAL		674 lbs.
⚠1 -85M	1	RAIL TUBE (LOWER) 4x4x1/4 16'-2 3/4" OAL		250.67 lbs.
-11M	1	RAIL TUBE (LOWER) 4x4x1/4 12-8" OAL		162.13 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.



TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

ENGINEER has reviewed Shop Drawings and Samples and other data which Contractor is required to submit, only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews do not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

BY: [signature]
DATE: 6/21/01

ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY

BRIDGE No. 50S

PAY LENGTH = ~~243'-8"~~ 242'-8" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS-BUILT REVISIONS	

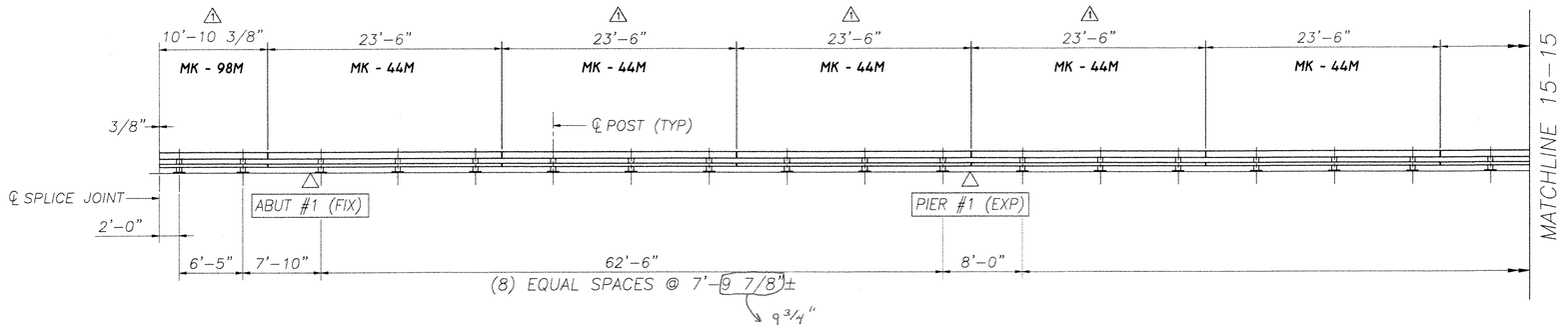
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

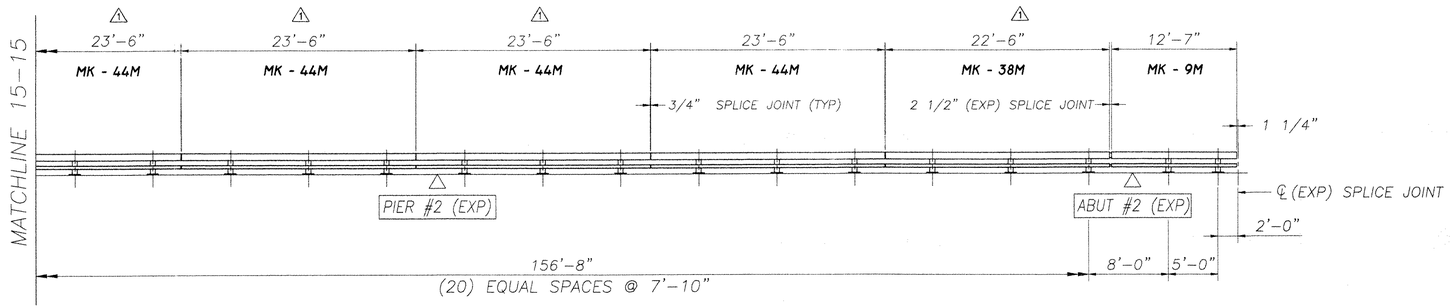
ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 50S

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN: C.A. Leblanc
CHECKED: [signature]
DATE: 03/30/01
SCALE: NONE
HSC REFERENCE NO.: 1237
SIZE: D
REVISION: 1
SHEET NO.: 14 of 17

64 BR 505





ELEVATION – SOUTH BRIDGE RAIL

FACING SOUTH FROM CENTER OF ROADWAY
BRIDGE No. 50N

PAY LENGTH = 258'-5" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

BILL OF MATERIAL					
	Mk.	Qty.	Description	Material	Total wgt.
		34	RAIL POST W6x25 WITH BASE PLATE		3162 lbs.
	*	34	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		918 lbs.
		11	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		434.5 lbs.
		11	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		203.5 lbs.
		34	1/8" THICK BEARING PAD		17 lbs.
		136	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		116.96 lbs.
		88	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		24.64 lbs.
		24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
1	-44M	9	RAIL TUBE (UPPER) 8x4x5/16 23'-6" OAL		5181.75 lbs.
1	-38M	1	RAIL TUBE (UPPER) 8x4x5/16 22'-6" (SLOTTED ONE END)		551.25 lbs.
1	-98M	1	RAIL TUBE (UPPER) 8x4x5/16 10'-10 3/8" OAL		266.18 lbs.
	-9M	1	RAIL TUBE (UPPER) 8x4x5/16 12'-7" (SLOTTED BOTH ENDS)		308.29 lbs.
1	-44M	9	RAIL TUBE (LOWER) 4x4x1/4 23'-6" OAL		2707.2 lbs.
1	-38M	1	RAIL TUBE (LOWER) 4x4x1/4 22'-6" (SLOTTED ONE END)		288.0 lbs.
1	-98M	1	RAIL TUBE (LOWER) 4x4x1/4 10'-10 3/8" OAL		139.07 lbs.
	-9M	1	RAIL TUBE (LOWER) 4x4x1/4 12'-7" (SLOTTED BOTH END)		161.07 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

TVGA
Engineering, Surveying, P.C.

☐ NO EXCEPTIONS TAKEN ☐ REJECTED
☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: [illegible]
DATE: 02-05-2002

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	11/30/02

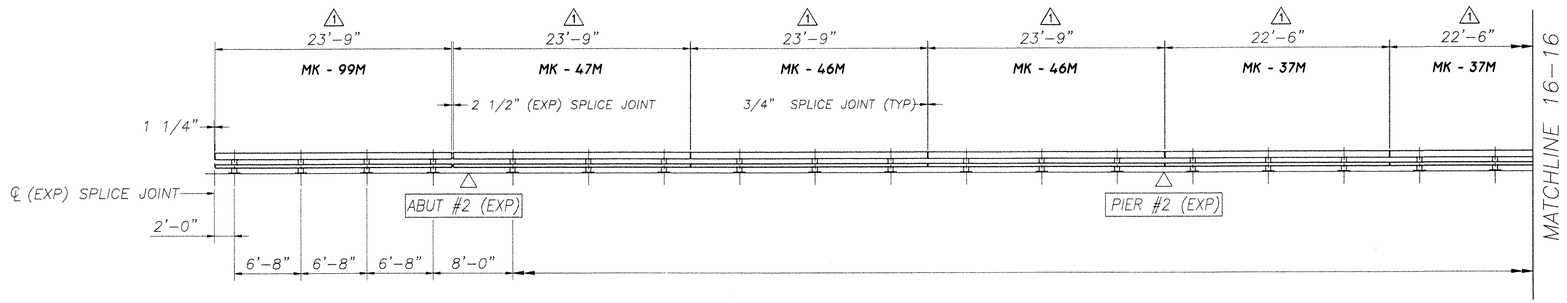
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

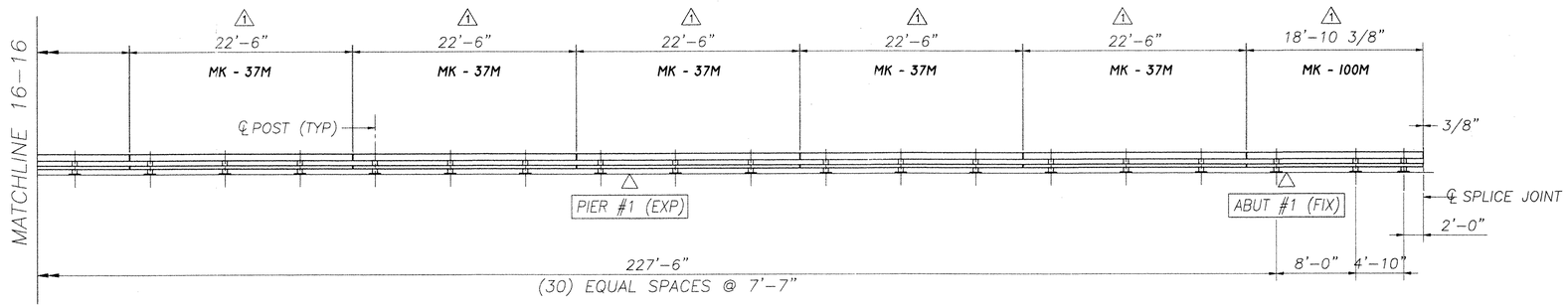
ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 50N

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A. Leblanc
CHECKED [illegible]
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 15 of 17

615 BR 50N





ELEVATION – NORTH BRIDGE RAIL

FACING NORTH FROM CENTER OF ROADWAY
BRIDGE No. 50N

PAY LENGTH = 272-4" (THIS SHEET)
TOTAL PAY LIMIT ITEM 525.33 (STEEL BRIDGE RAIL, NETC 2-RAIL) = 3730 LF

BILL OF MATERIAL

Mk.	Qty.	Description	Material	Total wgt.
	37	RAIL POST W6x25 WITH BASE PLATE		3441 lbs.
*	37	ANCHORAGE ASSEMBLY WITH PLATE (4) ANCHOR STUDS & HARDWARE *		999 lbs.
	11	UPPER RAIL SPLICE TUBE 7x3x3/8 (1'-8" OAL)		434.5 lbs.
	11	LOWER RAIL SPLICE TUBE 3x3x5/16 (1'-8" OAL)		203.5 lbs.
	37	1/8" THICK BEARING PAD		18.5 lbs.
	148	3/4" DIA x 6" LG. ROUND-SLOTTED HEAD BOLT WITH WASHER & LOCKNUT		127.28 lbs.
	88	5/8" DIA x 1 3/4" HEX HEAD BOLT WITH HARDENED WASHER		24.64 lbs.
	24	3/4" SCH 40 SPACER PIPE x 1/2" LONG		1.68 lbs.
-99M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-9" (SLOTTED BOTH ENDS)		581.88 lbs.
-47M	1	RAIL TUBE (UPPER) 8x4x5/16 23'-9" (SLOTTED ONE END)		581.88 lbs.
-46M	2	RAIL TUBE (UPPER) 8x4x5/16 23'-9" OAL		1163.76 lbs.
-37M	7	RAIL TUBE (UPPER) 8x4x5/16 22'-6" OAL		3858.75 lbs.
-100M	1	RAIL TUBE (UPPER) 8x4x5/16 18'-10 3/8" OAL		462.18 lbs.
-99M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-9" (SLOTTED BOTH ENDS)		304.00 lbs.
-47M	1	RAIL TUBE (LOWER) 4x4x1/4 23'-9" (SLOTTED ONE END)		304.00 lbs.
-46M	2	RAIL TUBE (LOWER) 4x4x1/4 23'-9" OAL		608.00 lbs.
-37M	7	RAIL TUBE (LOWER) 4x4x1/4 22'-6" OAL		2016.0 lbs.
-100M	1	RAIL TUBE (LOWER) 4x4x1/4 18'-10 3/8" OAL		241.47 lbs.

* – ANCHORAGE ASSEMBLY BY OTHERS, NOT PROVIDED BY HIGHWAY SAFETY CORP. SHOWN FOR REFERENCE ONLY.

TVGA
Engineering, Surveying, P.C.

☒ NO EXCEPTIONS TAKEN ☐ REJECTED
☐ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT
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BY: _____
DATE: 02-05-2003

CONSTRUCTION NOTE:
END OF WINGWALLS HAVE BEEN LOCATED APPROXIMATELY BY VAOT SURVEY. CONTRACTOR SHALL VERIFY REQUIRED RAIL LENGTHS PRIOR TO APPROVAL.

NOTES:
1. ALL DIMENSIONS HAVE BEEN DEVELOPED FROM CONTRACT PLANS ONLY.
2. CONTRACTOR MUST FIELD-VERIFY DIMENSIONS PRIOR TO APPROVAL.

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	MISC. CORRECTIONS	1/25/02

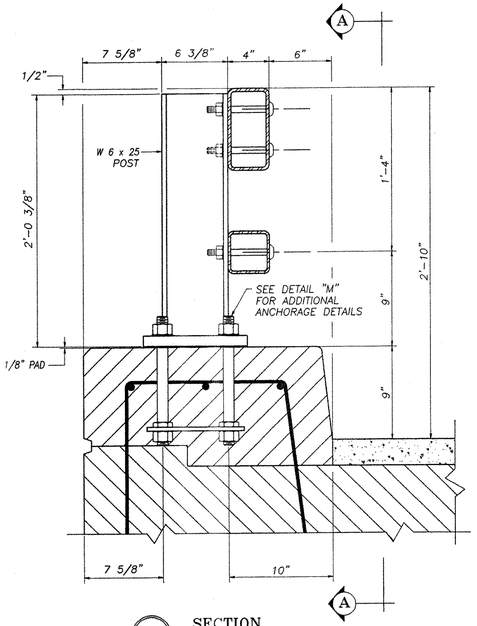
HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM-089-2(26)
TOWN OF MIDDLESEX & BOLTON
I-89 OVER U.S. 2
BRIDGE No. 50N

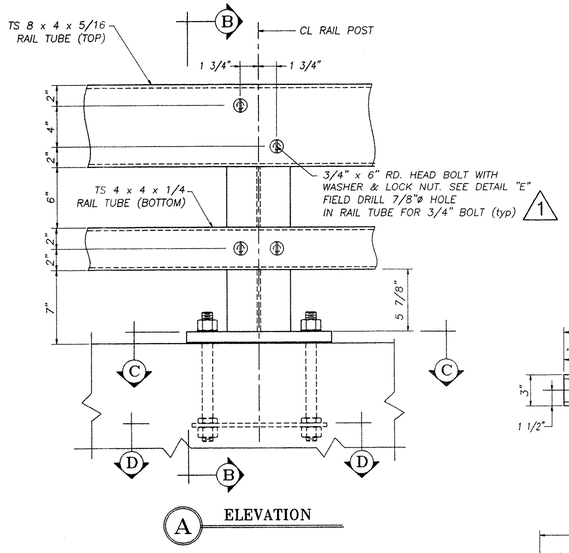
GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE, INC.

DRAWN C.A. Leblanc
CHECKED
DATE 03/30/01
SCALE NONE
HSC REFERENCE NO. 1237
SIZE D REVISION 1
SHEET NO. 16 of 17

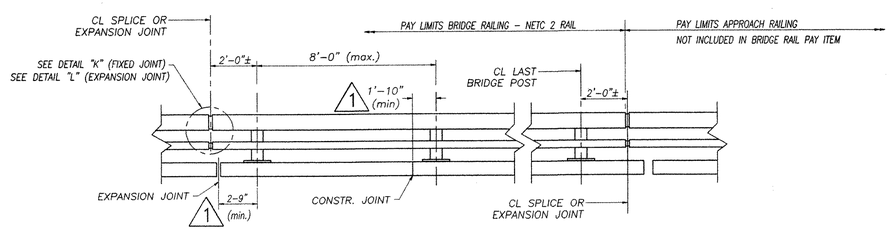
616 BRIDGE



B SECTION
POST & CURB

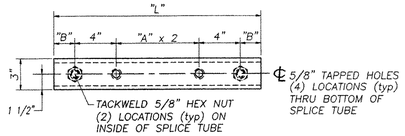


A ELEVATION

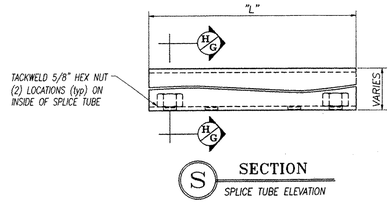


TYPICAL BRIDGE RAILING & TRANSITION ELEVATION

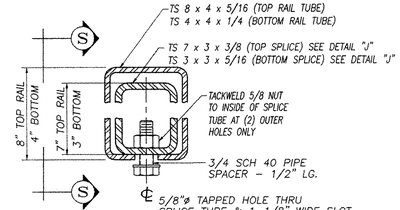
NOTE: SPLICE TUBES & HARDWARE FOR CONNECTION BETWEEN BRIDGE RAIL & BRIDGE APPROACH RAIL ARE INCLUDED IN APPROACH RAIL PAY ITEM. NOT INCLUDED UNDER BRIDGE RAIL ITEM 525.33



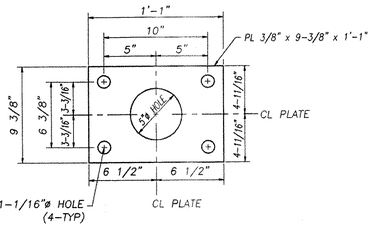
J DETAIL
SPLICE TUBE – BOTTOM VIEW
(SEE CHART FOR DIMENSIONS)



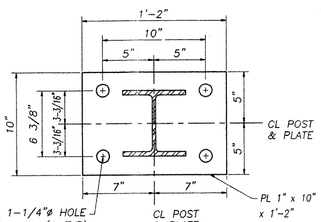
S SECTION
SPLICE TUBE ELEVATION



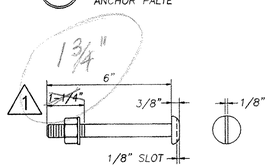
H SECTION
THRU EXPANSION SPLICE JOINT



D SECTION
ANCHOR PALTE

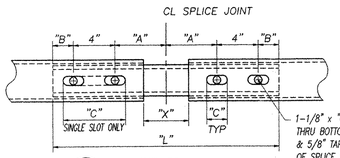


C SECTION
RAIL POST BASE PLATE
SEE DETAIL "F" FOR POST–BASE WELD

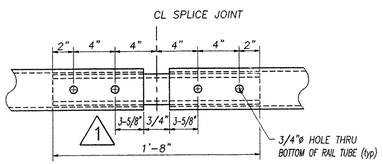


E DETAIL
POST BOLT

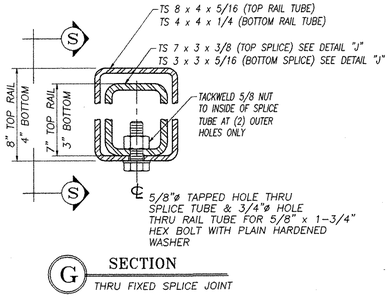
3/4"ø M164 (TYPE I) ROUND HEAD BOLT WITH WASHER & LOCKNUT (typ) FOR ALL RAIL TO POST CONNECTIONS, THRU "FIELD–DRILLED" 13/16"ø HOLES IN RAIL TUBE



L DETAIL
EXPANSION JOINT – BOTTOM VIEW
HARDWARE NOT SHOWN FOR CLARITY



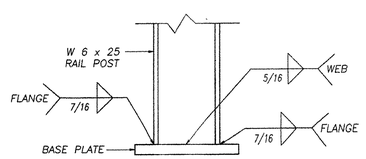
K DETAIL
SPLICE JOINT – BOTTOM VIEW
HARDWARE NOT SHOWN FOR CLARITY



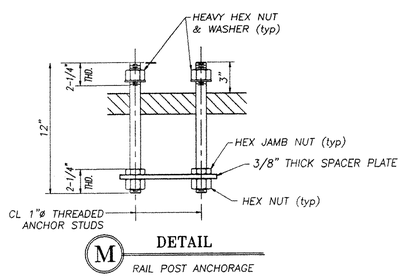
G SECTION
THRU FIXED SPLICE JOINT

SPLICE & EXPANSION JOINT TABLE					
"T"	"A"	"B"	"C"	"L"	"X"
SPLICE	4"	2"	--	20"	3/4"
≤4"	4"	2"	2–1/2"	20"	2–1/2"
~~>4" ≤ 6 1/2"~~	~~5 1/2"~~	~~2–3/8"~~	~~3 1/2"~~	~~23 3/4"~~	~~4"~~
~~>6 1/2" ≤ 9"~~	~~6 1/2"~~	~~3 3/8"~~	~~5"~~ *	~~27 3/4"~~	~~5"~~
~~>9" ≤ 13"~~	~~8 1/2"~~	~~4 3/8"~~	~~11"~~ *	~~33 3/4"~~	~~7"~~

"T" = TOTAL REQUIRED MOVEMENT * = SINGLE SLOT



F DETAIL
POST–BASE WELD



M DETAIL
RAIL POST ANCHORAGE

GENERAL ERECTION NOTES

1. *All work and materials shall conform to the provisions of Section 525 – Railings of the Vermont Standard Specifications for Construction.*
2. *Tubing & posts shall meet the requirements of Section 732 – Railing materials of the Standard Specifications for Construction.*
3. *All exposed cut or sheared edges shall be ground to a 1/16" radius & be free of burrs.*
4. *Rail posts shall be set normal to grade.*
5. *Sections of rail bar shall be attached to a minimum of two (2) posts and preferebly to at least four (4) posts.*
6. *Rail bar expansion joints shall be provided in any rail bay spanning a superstructure expansion joint. Expansion joint width shall be "X" at 45° F and will be adjusted in the field by the engineer.*
7. *All parts shall be galvanized after fabrication in accordance with AASHTO M111, except that hardware shall meet the requirements of AASHTO M232.*
8. *Rail posts anchoring nuts shall be tightened to a snug–tight fit and given an additional 1/8 turn.*
9. *Rail bars shall be attached using 3/4"ø full diameter body head bolts AASHTO M164 (Type–I) inserted through the face of the bar. Holes in post shall be 1/16" larger than the bolt size.*
10. *Holes in rails for attachment to posts will be field–drilled. Holes shall be coated with an approved zinc–rich paint prior to erection.*
11. *Radiused rails (if required) will be shop–curved. No field–bending of rail tubes.*
12. *The drop–weight tear test in section 732 shall not apply to the structure tubing on this standard.*
13. *The rail posts & base plates shall be tested for impact properties in accordance with ASTM A370 Charpy Impact Testing, using a type A specimen.*
14. *All welds are to be cleaned prior to galvanizing to ensure proper bonding of zinc to the welded area.*

MATERIALS

Rail bars.....ASTM A500 GR B or ASTM A501
Rail posts.....ASTM A709 GR 50
All other shapes & plates.....ASTM A709 GR 36
Anchor studs.....ASTM A449
All other bolts [unless noted].....AASHTO M164, TYPE I

1 *Nuts for ~~ASTM A307 bolts~~ & AASHTO M164 bolts shall comply with AASHTO M291. Nuts for anchor studs shall comply with ASTM A563.*

washers shall comply with ASTM F436

1/8" pad shall comply with standard specification subsection 731.01 or 731.02 of Vermont Standard Specifications.

TVGA
Engineering, Surveying, P.C.

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☒ FURNISH AS CORRECTED
☐ REVISE AND RESUBMIT

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BY: Pat W. St
DATE: 6/21/01

REVISIONS		
No.	Remarks	Date
0	Initial submittal	4/2/01
1	AS–BUILT REVISIONS	

HIGHWAY SAFETY CORP.
GLASTONBURY, CT

ITEM 525.33 – BRIDGE RAILING – NETC 2 RAIL
PROJECT No. IM–089–2(26)
TOWN OF MIDDLESEX & BOLTON
INTERSTATE ROUTE 89

DRAWN	C. A. Leblanc
CHECKED	Paul L
DATE	3/30/01
SCALE	NONE
HSC REFERENCE NO.	1237
SIZE	D
REVISION	1
SHEET NO.	17 of 17

GENERAL CONTRACTOR: WINTERSET, INC.
SUB CONTRACTOR: F.R. LAFAYETTE. INC.

617 BR