

**GENERAL NOTES**

**CONSTRUCTION SPECIFICATIONS**

ALL MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011 WITH LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 2012, AND ITS LATEST REVISIONS.

**MATERIAL SPECIFICATIONS**

- 1) ALL STEEL TO BE UNPAINTED AASHTO M270 (ASTM A709) GRADE 50W (UN).
- 2) MATERIAL NOTED "CVN" OR "T2" ON DETAIL DRAWINGS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF VERMONT STANDARD SPECIFICATIONS SECTION 714.01.
- 3) HIGH STRENGTH BOLTS:  
-ASTM A325 (AASHTO M164) TYPE 3 W/ A563 GRADE C3 NUTS, F959 (TYPE 3) DIRECT TENSION INDICATOR (DTI) & F436W WASHERS.  
BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED. DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.
- 4) DIRECT TENSION INDICATOR WASHERS CONFORMING TO ASTM F959 SHALL BE INSTALLED WITH ALL HIGH STRENGTH BOLTS.

**FABRICATION**

- 1) ALL HOLES SHALL BE PUNCHED OR DRILLED FULL SIZE UNLESS NOTED.
- 2) ALL FINS, SLIVERS AND TEARS SHALL BE REMOVED.
- 3) ALL ROUGH SURFACES SHALL BE GROUND SMOOTH.
- 4) FLAME CUT EDGES SHALL BE GROUND OVER THEIR ENTIRE SURFACE SUCH THAT ANY HARDENED SURFACE LAYER IS REMOVED.

**WELDING**

- 1) THE CONFIGURATION OF THE WELD JOINTS AND ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH THE CURRENT AASHTO/AWS D1.5 BRIDGE WELDING CODE AND IN ADDITION TO SPECIFICATIONS SHOWN ABOVE. ALL WELDING WILL BE DETAILED TO PRE-QUALIFIED JOINTS, UNLESS PROHIBITED BY THE DESIGNER.
- 2) WELDING OF MAIN LOAD CARRYING MEMBERS AND ATTACHMENTS SHALL BE PERFORMED USING THE AUTOMATIC SUBMERGED ARC & SHIELDED METAL ARC PROCESSES. ALL WELDS ARE CONTINUOUS U.N.
- 3) NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH THE REFERENCED SPECIFICATION.
- 4) SEE DETAIL "WTI" ON THIS DRAWING FOR WELD TERMINATION DETAIL.
- 5) SHOP APPLIED STUDS SHALL BE AUTO END WELDED. SEE DETAIL "SSI".

**WELD PROCEDURE**

THE FOLLOWING CASCO WELDING PROCEDURES SHALL BE USED:

	WELD DESCRIPTION	MAT'L GRADE	WP	CASCO WELD PROC.
GIRDERS	GIRDER WEB TO FLANGE FILLET WELD	M270-50W TO M270-H50W	WP1	201
	GIRDER STIFFENER TO WEB FILLET WELDING	M270-50W TO M270-H50W	WP4	250
	GIRDER STIFFENER TO FLANGE FILLET WELDING	M270-50W TO M270-H50W	WP5	470 or 480
	DRIP PLATES TO GIRDER FLANGE	M270-50W TO M270-H50W	WP6	470 or 610
	SOLE PLATE TO GIRDER FLANGE	M270-50W TO M270-H50W	WP8	470 or 610

No weld between Base Plate and Girder Flange

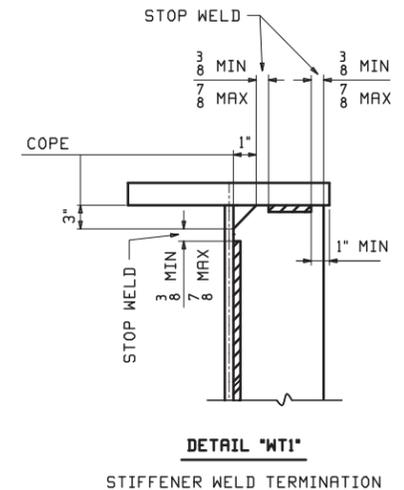
**CONNECTIONS**

- 1) ALL CONNECTIONS SHALL BE MADE WITH A-325 HS BOLTS, INSTALLED PER SECTION 506.19(c). BOLTED CONNECTIONS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS. REFER TO SECTION 506.19 OF THE GENERAL SPECIAL PROVISIONS. (SEE BOLT DETAILS THIS DRAWING).
- 2) BOLTS SHALL HAVE HEAVY HEX NUT, HEAVY HEX HEAD, DTI, AND AT LEAST ONE FLAT WASHER EACH. WASHER TO BE PLACED UNDER TURNED ELEMENT.
- 3) PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS.

**CLEANING & PAINTING:**

UNPAINTED STEEL SHALL BE BLAST CLEANED TO SSPC SP-10 TO ACHIEVE A UNIFORM WEATHERED APPEARANCE.

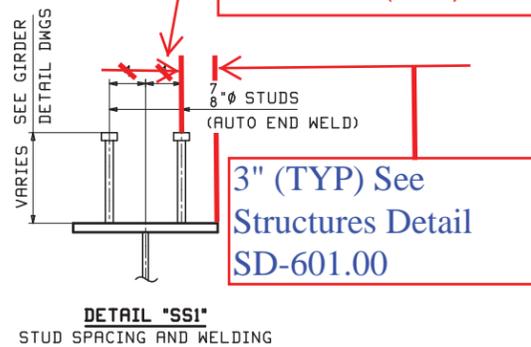
ALL STEEL SHALL BE UNPAINTED.



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

I don't think VT allows this.

5" from CL Girder to Shear Stud (TYP)



What is this?

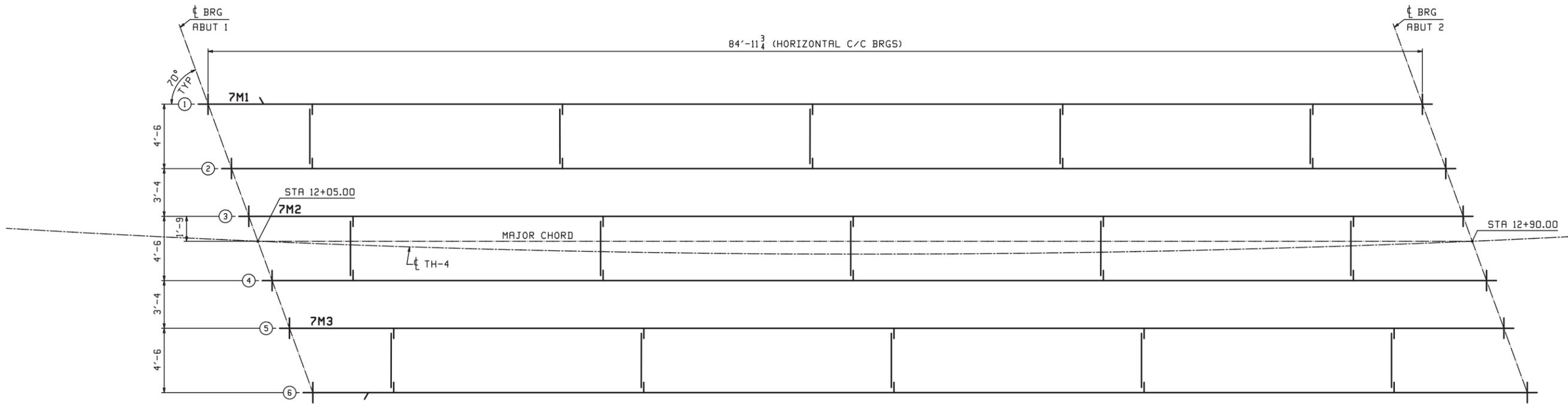
#470 is for non-weathering.

**DETAILS FOR POSITIONING DTI (LIW) WASHERS (PER ASTM F-959)**

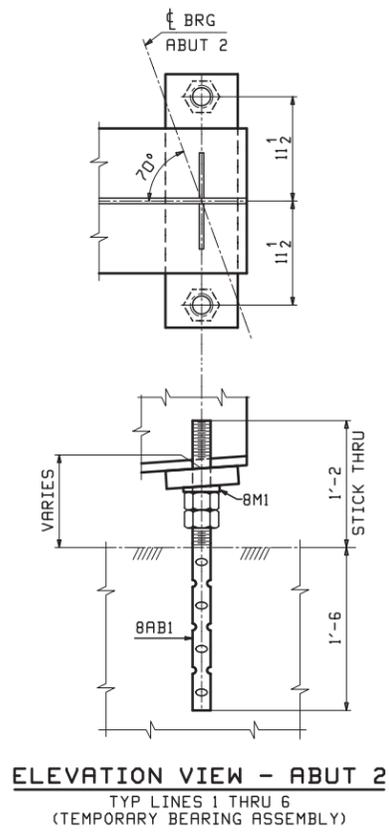
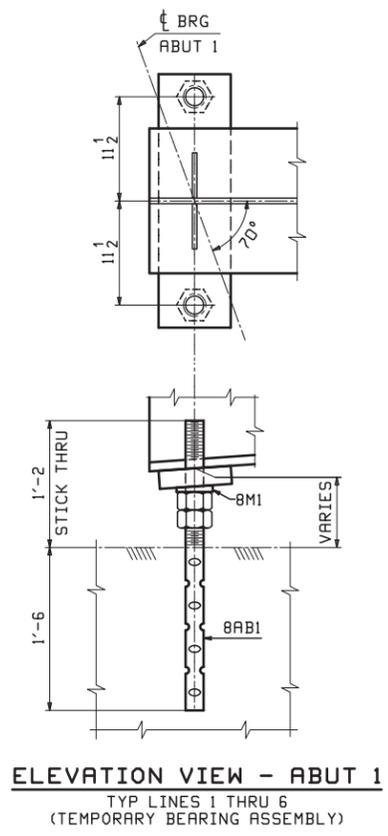
DTI UNDER HEAD - TURN NUT	DTI UNDER NUT - TURN NUT	DTI UNDER NUT - TURN HEAD	DTI UNDER HEAD - TURN HEAD
<p><b>BOLT DETAIL "DTI1"</b> THIS IS THE PREFERRED METHOD.</p>	<p><b>BOLT DETAIL "DTI2"</b> DTI UNDER NUT FOR VISIBILITY.</p>	<p><b>BOLT DETAIL "DTI3"</b> DTI UNDER NUT FOR VISIBILITY. 2 HARD FLAT WASHERS ARE REQ'D</p>	<p><b>BOLT DETAIL "DTI4"</b> DTI UNDER HEAD FOR VISIBILITY.</p>

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
DESCRIPTION: GENERAL NOTES						
			CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726			
STRUCTURE: TH-4 OVER WHITNEY BROOK				DRAWN: JTB	DATE: 02/25	
ROUTE NO: TH-4, RURAL MINOR COLLECTOR				CHKD: LWD	DATE: 03/02	
BRIDGE REPLACEMENT				COUNTY OF ORLEANS		
LOCATION: TOWN OF CRAFTSBURY, VERMONT			JOB NO. 649-1		DWG NO. GN1	
PROJ NO. BO 1449(34)			CUSTOMER: CCS CONSTRUCTORS INC.		REV.	

Vermont Agency of Transportation  
**RECEIVED**  
CK'D BY RSF/SMC/JDG OK'D BY WDL  
March 9, 2016  
RESUBMIT YES Rejected  
BY RSY DATE 3-29-2016



**FRAMING PLAN**



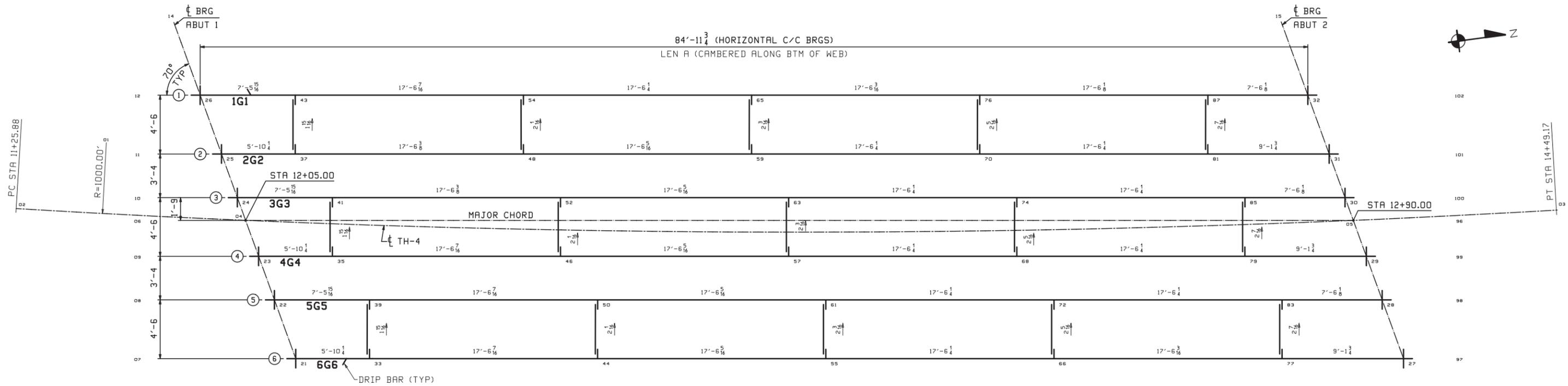
**ELEVATION VIEW - ABUT 1**  
TYP LINES 1 THRU 6  
(TEMPORARY BEARING ASSEMBLY)

**ELEVATION VIEW - ABUT 2**  
TYP LINES 1 THRU 6  
(TEMPORARY BEARING ASSEMBLY)

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0					
REV. DATE	REMARKS	DWN	CHK	APVL	SHOP
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:	
				SHOP BOLTS:	
DESCRIPTION: FRAMING PLAN					
CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726 					
STRUCTURE: TH-4 OVER WHITNEY BROOK		DRAWN:	DATE:		
ROUTE NO: TH-4, RURAL MINOR COLLECTOR		JTB	02/25		
BRIDGE REPLACEMENT		CHKD:	DATE:		
COUNTY OF ORLEANS		LWD	03/02		
LOCATION:	TOWN OF CRAFTSBURY, VERMONT	JOB NO.	DWG NO.		
PROJ NO.	BO 1449(34)	649-1	E1		
CUSTOMER:	CCS CONSTRUCTORS INC.	REV.	△		

JTB Rev. No. 2, 2016 01/10/16 11:05 AM /user/388/312/1/1 Rev 0

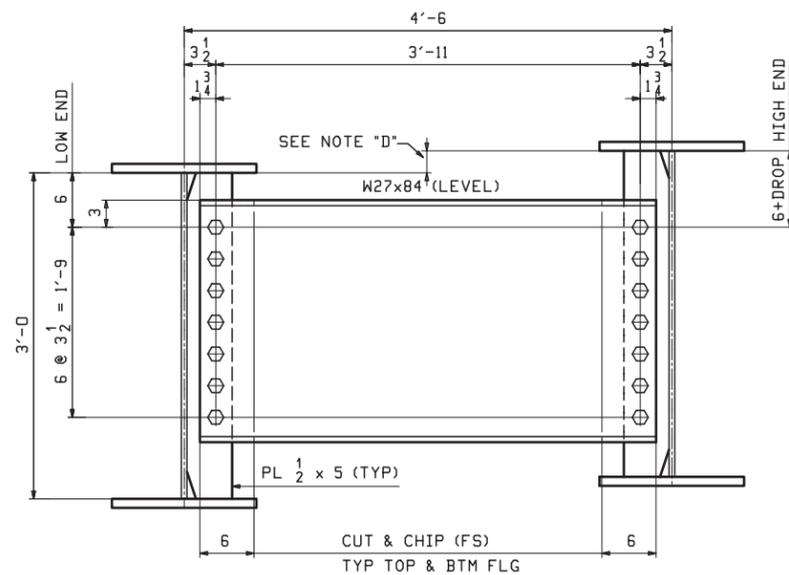


**CALCULATION PLAN**

Line	LEN A	GRADES	
		ABUT 1	ABUT 2
1	85'-1 <sup>1</sup> / <sub>16</sub>	0.0581	0.0581
2	85'-1 <sup>3</sup> / <sub>16</sub>	0.0587	0.0587
3	85'-1 <sup>1</sup> / <sub>4</sub>	0.0591	0.0591
4	85'-1 <sup>1</sup> / <sub>4</sub>	0.0597	0.0597
5	85'-1 <sup>5</sup> / <sub>16</sub>	0.0601	0.0601
6	85'-1 <sup>3</sup> / <sub>16</sub>	0.0607	0.0607

**\*\* 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.

- CALCULATION PLAN NOTES:**
- LONGITUDINAL DIMENSIONS ARE SLOPING ALONG BTM OF GIRDERS WITH CORRECTIONS MADE FOR DL CAMBER, V.C. & GRADE (UN).
  - TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE (UN).
  - ARROW POINTS TOWARD LOW END OF MEMBER.
  - ENDS OF GIRDERS & BRGS STIFF'S ARE VERTICAL AFTER DL ROTATION.
  - DIAPHRAGM STIFFENERS ARE NORMAL TO GRADE.
  - BOTTOM POINT NUMBERS = TOP POINT NUMBERS + 500.
  - COMBINE DIAPHRAGMS FOR DIFFERENCE IN DROPS OF +/- 1/8".
  - FOR LAYOUTS SEE "TD" DRAWING.



**TYP. INT. DIAPHRAGMS**  
 (LOOKING UP-STATION)  
 15 REQ'D

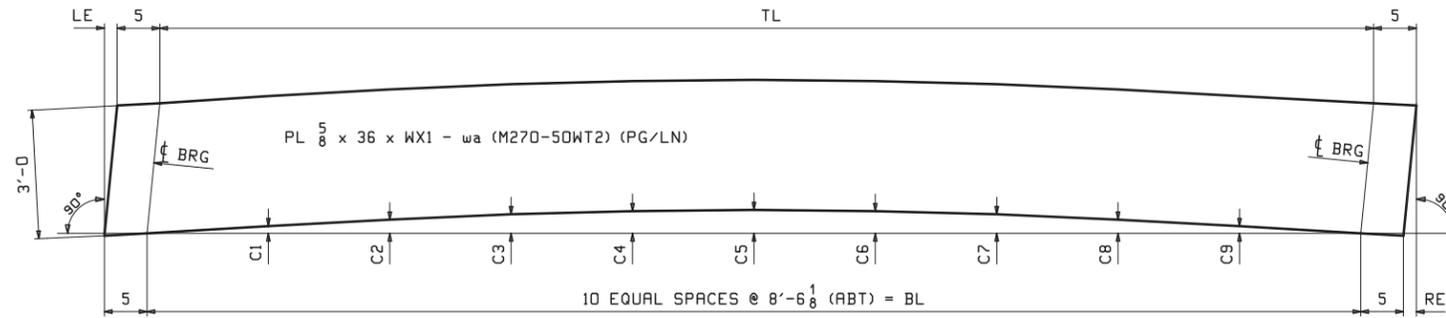
- NOTES:**
- DIAPHRAGMS & CONN. PLATES SHALL BE ASTM A709 GRADE 50W.
  - ALL BOLT HOLES SHALL BE 15/16" Ø FOR 7/8" Ø HSB.

**NOTE "D"**  
 DROP VARIES IN MAGNITUDE.

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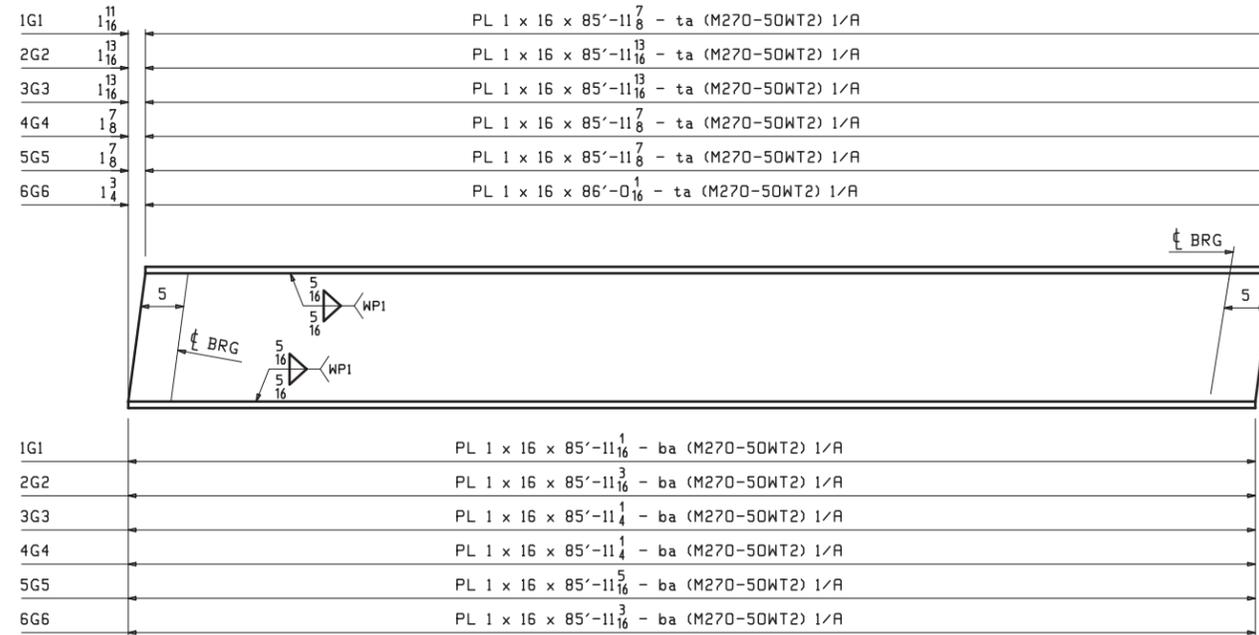
REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270-50WT2		SEE DWG GNI		15/16" Ø		7/8" Ø HSB
DESCRIPTION: CALCULATION PLAN & LAYOUTS						
STRUCTURE:			TH-4 OVER WHITNEY BROOK	ROUTE NO:	TH-4, RURAL MINOR COLLECTOR	COUNTY OF ORLEANS
DRAWN:			JTB	DATE:	02/25	
CHKD:			LWD	DATE:	03/02	
LOCATION:			TOWN OF CRAFTSBURY, VERMONT	JOB NO.	649-1	DWG NO. WS1
PROJ NO.			BO 1449(34)	CUSTOMER:	CCS CONSTRUCTORS INC.	REV. 1

**CASCO BAY STEEL STRUCTURES, INC.**  
 1 WALLACE AVE. SOUTH PORTLAND, ME 04106  
 PHONE (207) 780-6722 FAX. (207) 780-6726  
 TENSOR 9367



**CAMBER DIAGRAM FOR 1G1, 2G2, 3G3, 4G4, 5G5, 6G6**

MARK	TL	BL	LE	RE	WX1	C1	C2	C3	C4	C5	C6	C7	C8	C9	PG/LN
1G1	85'- $\frac{7}{8}$	85'- $\frac{1}{16}$	$\frac{11}{16}$	$2\frac{1}{2}$	86'- $\frac{9}{16}$	$\frac{3}{16}$	$2\frac{1}{4}$	$3\frac{1}{8}$	$3\frac{5}{8}$	$3\frac{13}{16}$	$3\frac{5}{8}$	$3\frac{1}{8}$	$2\frac{1}{4}$	$\frac{3}{16}$	1/C
2G2	85'- $\frac{13}{16}$	85'- $\frac{3}{16}$	$\frac{13}{16}$	$2\frac{7}{16}$	86'- $\frac{5}{8}$	$\frac{13}{16}$	$\frac{9}{16}$	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{1}{2}$	$2\frac{1}{8}$	$\frac{9}{16}$	$\frac{13}{16}$	1/E
3G3	85'- $\frac{13}{16}$	85'- $\frac{1}{4}$	$\frac{13}{16}$	$2\frac{3}{8}$	86'- $\frac{5}{8}$	$\frac{13}{16}$	$\frac{9}{16}$	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{1}{2}$	$2\frac{1}{8}$	$\frac{9}{16}$	$\frac{13}{16}$	1/E
4G4	85'- $\frac{7}{8}$	85'- $\frac{1}{4}$	$\frac{7}{8}$	$2\frac{1}{2}$	86'- $\frac{3}{4}$	$\frac{13}{16}$	$\frac{9}{16}$	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{1}{2}$	$2\frac{1}{8}$	$\frac{9}{16}$	$\frac{13}{16}$	1/E
5G5	85'- $\frac{7}{8}$	85'- $\frac{5}{16}$	$\frac{7}{8}$	$2\frac{7}{16}$	86'- $\frac{3}{4}$	$\frac{13}{16}$	$\frac{9}{16}$	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{1}{2}$	$2\frac{1}{8}$	$\frac{9}{16}$	$\frac{13}{16}$	1/E
6G6	85'- $\frac{1}{16}$	85'- $\frac{3}{16}$	$\frac{3}{4}$	$2\frac{5}{8}$	86'- $\frac{13}{16}$	$\frac{3}{16}$	$2\frac{1}{4}$	$3\frac{1}{8}$	$3\frac{5}{8}$	$3\frac{13}{16}$	$3\frac{5}{8}$	$3\frac{1}{8}$	$2\frac{1}{4}$	$\frac{3}{16}$	1/C



**FLANGE DIAGRAM FOR 1G1, 2G2, 3G3, 4G4, 5G5, 6G6**

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March 9, 2016

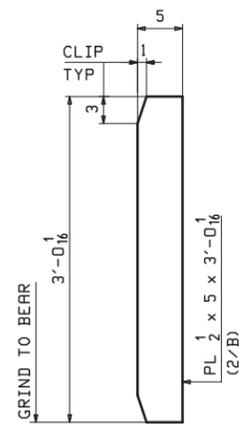
RESUBMIT YES Rejected  
BY RSY DATE 3-29-2016

**NOTES:**

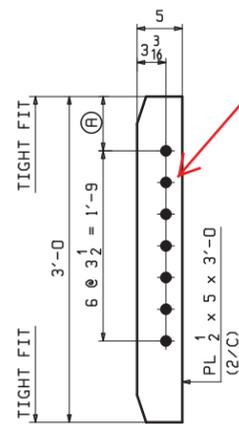
- FOR GENERAL NOTES SEE DRAWING GNI.
- "T2" DENOTES MATERIAL SUBJECT TO CHARPY V-NOTCH TEST AT H FREQ. FOR ZONE 2

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270-50WT2		SEE DWG GNI				
DESCRIPTION: CAMBER & FLANGE DIAGRAMS						
STRUCTURE:		ROUTE NO:		CHKD:	DATE:	
TH-4 OVER WHITNEY BROOK		TH-4, RURAL MINOR COLLECTOR		LWD	03/02	
BRIDGE REPLACEMENT		COUNTY OF ORLEANS				
LOCATION:		JOB NO.		DWG NO.		
TOWN OF CRAFTSBURY, VERMONT		BO 1449(34)		649-1		C1
CUSTOMER:		REV.				
CCS CONSTRUCTORS INC.		C1				

**CASCO BAY STEEL STRUCTURES, INC.**  
1 WALLACE AVE. SOUTH PORTLAND, ME 04106  
PHONE (207) 780-6722 FAX. (207) 780-6726  
TENSOR 9367



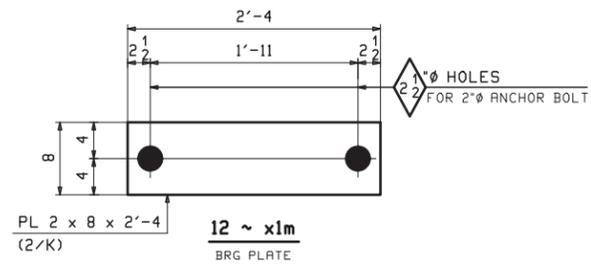
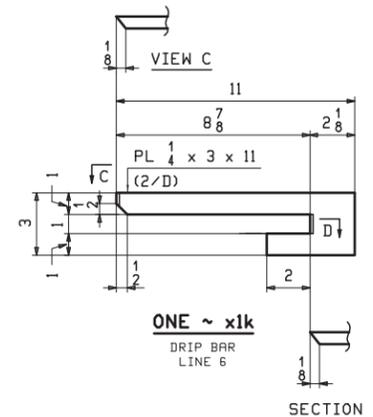
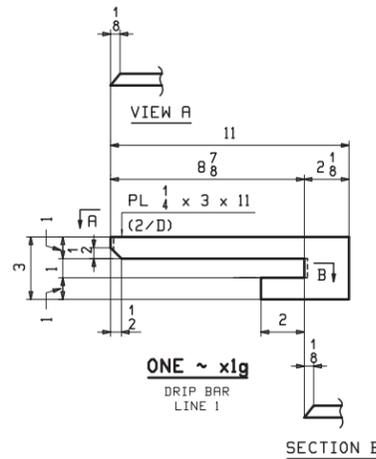
**24 ~ x1a**  
ABUT BRG STIFFENER



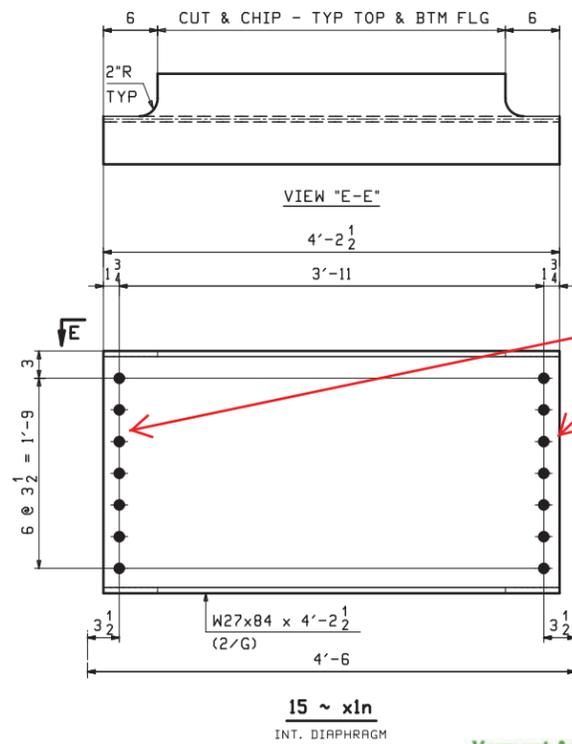
**MARK "A"**  
INT DIAPHY CONN PL

label diameter

MARK "A"	QTY	(A)	
x1b	15	6	LOW END
x1c	6	8	DROPS 1 1/16 & 2 1/16
x1d	3	8 3/16	DROP 2 3/16
x1f	6	8 3/8	DROP 2 5/16 & 2 7/16



**12 ~ x1m**  
BRG PLATE



label diameter

NOTE:  
FOR GENERAL NOTES SEE DRAWING GNI.

REV.	DATE	REMARKS	DWN	CHK	APVL	SHOP
0						
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270-50W		SEE DWG GNI		15 1/16" Ø		NONE
DESCRIPTION: STANDARD DETAILS						
CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. SOUTH PORTLAND, ME 04106 PHONE (207) 780-6722 FAX. (207) 780-6726 						
STRUCTURE: TH-4 OVER WHITNEY BROOK ROUTE NO: TH-4, RURAL MINOR COLLECTOR BRIDGE REPLACEMENT COUNTY OF ORLEANS			DRAWN:	DATE:		
			JTB	02/25		
			CHKD:	DATE:		
			LWD	03/02		
LOCATION: TOWN OF CRAFTSBURY, VERMONT			JOB NO.	DWG NO.		
PROJ NO. BO 1449(34)			649-1	X1		
CUSTOMER: CCS CONSTRUCTORS INC.			REV.	△		

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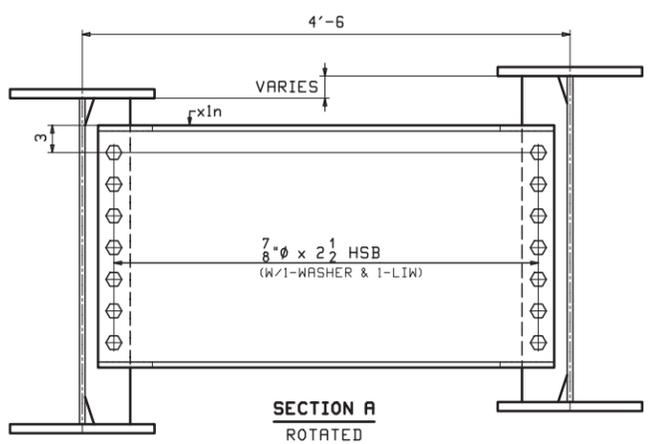
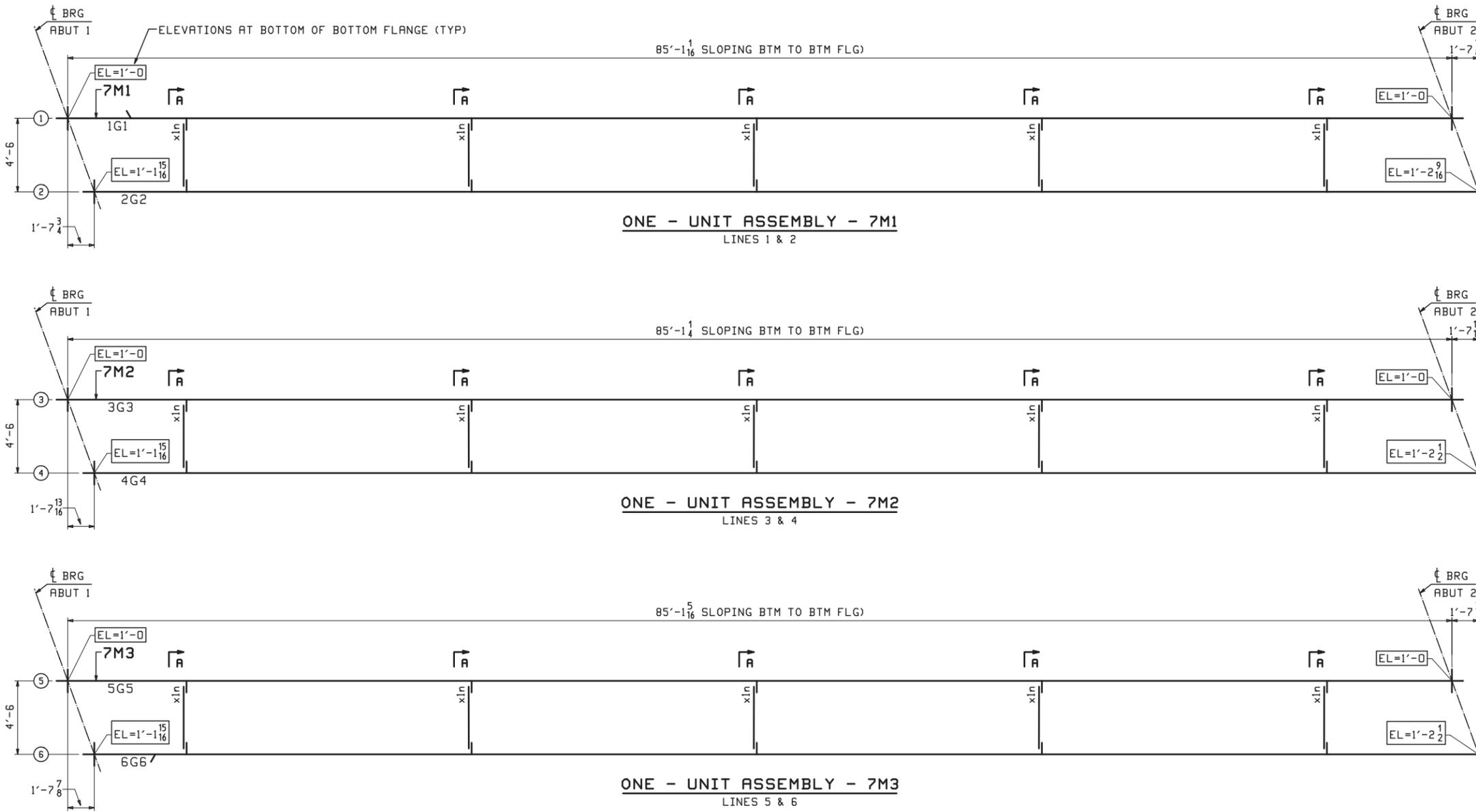












NOTES:  
 1. ALL ELEVATIONS AND DIMENSIONS ARE GIVEN TO THE BOTTOM OF THE BOTTOM FLANGE.  
 2. FOR GENERAL NOTES SEE DRAWING GNI.

ABM INFO		BILL OF MATERIAL				JOB NO.	DRAWING NO.	REV.		
PAGE	LINE	MARK	QTY	MARK	MATERIAL	LENGTH FT	INCHES	REMARKS	WT	PROCUREMENT NOTES
		7M1	1		UNIT ASSEMBLY				34950	
				1	1G1 GIRDER SUB-ASSEMBLY			SEE DWG 1	16559	
				1	2G2 GIRDER SUB-ASSEMBLY			SEE DWG 2	16557	
2	G		5	x1n	W 27x84	4	2 1/2		354	
3	G		70		7/8 HSB	0	2 1/2	R325-3	0.80	
3	J		70		7/8 HSW			F436-3	0.07	
3	K		70		LOAD IND. 7 WASH FOR 8 HSB			F959	0.07	
		7M2	1		UNIT ASSEMBLY				34950	
				1	3G3 GIRDER SUB-ASSEMBLY			SEE DWG 3	16557	
				1	4G4 GIRDER SUB-ASSEMBLY			SEE DWG 4	16559	
2	G		5	x1n	W 27x84	4	2 1/2		354	
3	G		70		7/8 HSB	0	2 1/2	R325-3	0.80	
3	J		70		7/8 HSW			F436-3	0.07	
3	K		70		LOAD IND. 7 WASH FOR 8 HSB			F959	0.07	
		7M3	1		UNIT ASSEMBLY				34955	
				1	5G5 GIRDER SUB-ASSEMBLY			SEE DWG 5	16559	
				1	6G6 GIRDER SUB-ASSEMBLY			SEE DWG 6	16562	
2	G		5	x1n	W 27x84	4	2 1/2		354	
3	G		70		7/8 HSB	0	2 1/2	R325-3	0.80	
3	J		70		7/8 HSW			F436-3	0.07	
3	K		70		LOAD IND. 7 WASH FOR 8 HSB			F959	0.07	

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0						
MATERIAL:		SURFACE PREP. & PAINT:		HOLES:		SHOP BOLTS:
M270-50W (UN)		SEE DWG GNI		AS NOTED		AS NOTED
DESCRIPTION:		UNIT ASSEMBLIES				
		CASCO BAY STEEL STRUCTURES, INC. 1 WALLACE AVE. PHONE (207) 780-6722 SOUTH PORTLAND, ME 04106 FAX. (207) 780-6726 				
STRUCTURE:		TH-4 OVER WHITNEY BROOK		DRAWN:	DATE:	
ROUTE NO:		TH-4, RURAL MINOR COLLECTOR		JTB	02/25	
BRIDGE REPLACEMENT		COUNTY OF ORLEANS		CHKD:	DATE:	
				LWD	03/02	
LOCATION:		TOWN OF CRAFTSBURY, VERMONT		JOB NO.	DWG NO.	
PROJ NO.		BO 1449(34)		649-1	7	
CUSTOMER:		CCS CONSTRUCTORS INC.			REV.	

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