

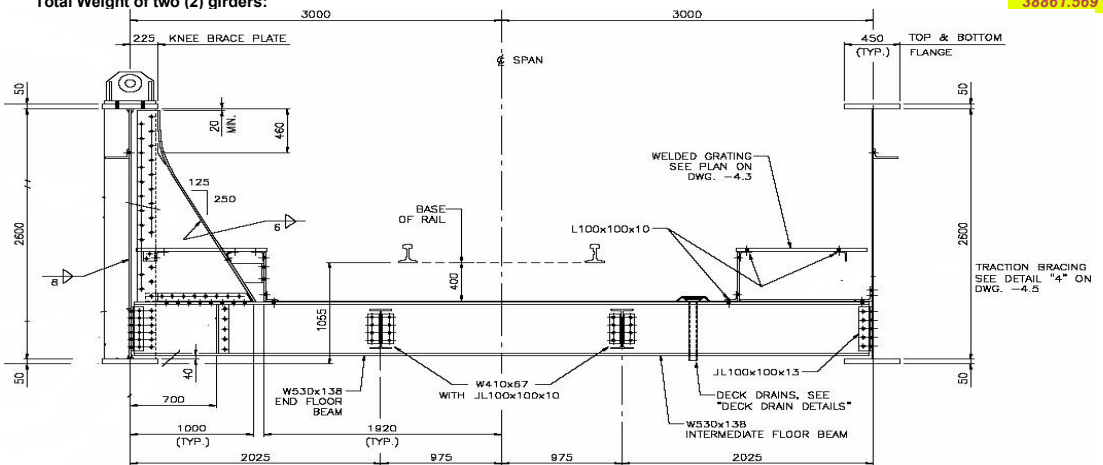


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PROJECT NAME: TELKWA 62.2 BULKLEY RIVER CROSSING, WIDENING OF 24.0m SPAN, TPG BRIDGE	JOB NUMBER:	CNRAIL0802
TASK: 6. SUPERSTRUCTURE ANALYSIS AND DESIGN	DESIGNED	CHECKED
SUBTASK: 6.1. TPG GEOMETRY AND MATERIALS	DGT	
	DATE:	DATE:
	5-Aug-08	

**6.1.1. GEOMETRY, MAIN GIRDER, TPG (one girder)**

DIMENSIONS	AREA(mm²:m)	L=	c.g. Axc.g.	I,self	Istat	Itot
1 TOP FLANGE WIDTH 450 .mm	22500	23.93	2875	60187500		
2 TOP FLANGE THCK 50 .mm						
3 BOTTOM FLANGE WIDTH 450 .mm	22500	25	562500			
4 BOTTOM FLANGE THCK 50 .mm						
5 WEB HEIGHT 2600 .mm	41600	1350	56160000			
6 WEB THCK 16 .mm						
7 INTERMEDIATE STIFF, L200X100X13, AREA 3710	2523.809524					
8 INTERMEDIATE STIFF, SPACING 1470 .mm						
9 LONGITUDINAL STIFF, L200X100X13, AREA 3710	3710					
<b>TOTAL DEPTH OF SECTION 2700 .mm</b>				102.4E+9	7.94E+07	1.03E+11
<b>TOTAL AREA (mm²) GROSS SECTION 86600</b>			116910000			
<b>TOTAL AREA (mm²) FOR WEIGHT (INCLUDES STIFF.PL) 92833.8095</b>			<b>c.g. 1350</b>			
AREA OF HOLES IN WEB 6 25 16 -2400					-2.87E+09	-2.87E+09
C.G. OF HOLES IN WEB FROM BOTTOM 287.5 .mm			287.5	-690000		
<b>AREA OF NETT SECTION 84200</b>			116220000			
<b>C.G.OF NETT SECTION 1380.29</b>						
<b>SECT. MODULUS, Sx-x,bott 7.22E+07 .mm³</b>						9.97E+10
<b>SECT. MODULUS, Sx-x,top 7.55E+07 .mm³</b>						
<b>MOMENT OF INERTIA, NETT 9.97E+10 .mm⁴</b>						
Weight of TPG (kg/m) 728.7454048						
Joining material (bolts+gussets, etc.) @ 10% 72.87454048						
<b>Gross Weight of TPG (kN/m) 7.86389166</b>						
<b>Total Weight of one girder (kg) 19182.7653 KG</b>						
Lifting plates, 460x32x406+300x25x380+190diax19+19x300x356 (.46*32/1000*.406+.3*25/1000*.38+.1962/4*3.14159819/1000+19/1000*.3*.356)			7850	2	0.01101	172.850962
Lifting angle L200x150x20x324x2x...58kg/m						75.168
<b>Total lifting Weight per One Girder (without bearings) 248.018962</b>						
<b>Total Weight of two (2) girders: 19430.7843</b>						
						<b>38861.569</b>

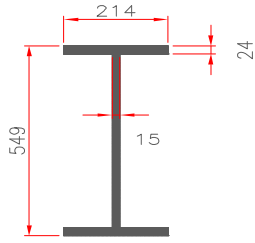


**6.1.2. MATERIAL, MAIN GIRDER, FLOOR BEAMS, STIFFENER PLATES OF TPG**

**(FRACTURE CRITICAL MEMBERS)**  
 STRUCTURAL STEEL TO CAN-CSA G40.21-FOR PLATES AND WELDED SHAPES  
 MATERIAL GRADE: 350AT ATMOSPHERIC CORROSION-RESISTANT WELDABLE NOTCH-TOUGH STEEL  
 TENSILE STRENGTH, Fu= 480-650 Mpa  
 YIELD STRENGTH 350 Mpa  
 MAXIMUM SHAPE SIZE 5  
 STANDARD IMPACT ENERGY FOR CATEGORY 3, 27J, -30 C

**FLOOR BEAMS (W530X138) - BILL OF MATERIAL**

W 530X138.....6000mm LONG	33 PIECES
=33X138x6=	27324 KG
10% ON JOINT MATERIAL	2732.40 KG
<b>TOTAL FLOOR BEAMS</b>	<b>30056.40 KG</b>



Area=	1.76E+04 .mm²
Ix-x=	8.61E+08 .mm⁴
Sx-x=	3.14E+06 .mm³
.rx=	2.21E+02 .mm
Zx-x=	3.61E+06 .mm³
Iy-y=	3.87E+07 .mm⁴
Sy=	3.62E+05 .mm³
J=	2.50E+06 .mm⁴
Cw=	2.67E+12 .mm⁶
.ry=	46.9 .mm

**30056.4**



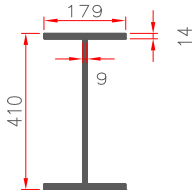
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**6.1.3. MATERIAL, STIFFENER ANGLES, DECK PLATES, DIAPHRAGMAS, KNEE BRACES (NON-FRACTURE CRITICAL MEMBERS)**

STRUCTURAL STEEL TO CAN-CSA G40.21-FOR PLATES AND WELDED SHAPES  
 MATERIAL GRADE: 350A ATMOSPHERIC CORROSION-RESISTANT WELDABLE STEEL  
 TENSILE STRENGTH, Fu= 480-650 Mpa  
 YIELD STRENGTH, Fy=350 Mpa  
 MAXIMUM SHAPE SIZE

**STRINGER, W 410X67**



Area=	8.60E+03 .mm2
Ix-x=	2.46E+08 .mm4
Sx-x=	1.20E+06 .mm3
.rx=	1.69E+02 .mm
Zx-x=	1.36E+06 .mm3
Iy-y=	1.38E+07 .mm4
Sy=	1.54E+05 .mm3
J=	4.69E+05 .mm4
Cw=	5.40E+11 .mm6
.ry=	40 .mm

**STRINGERS- BILL OF QUANTITIES**

Weight of W 410x67, L=23.47m	2	67 X	23.47	<b>3144.98</b> Kg
joining material (bolts+gussets, etc.) @ 9%	9.00%			283.0482 Kg
				3428.0282 Kg

**3428.0282**

**DECK PLATES, DIAPHRAGMAS TRACTION AND KNEE BRACES-BILL OF MATERIALS**

16mm THICK PLATE, 3840 WIDE				=	<b>11319.7 KG</b>
16	3840	23470 X	7850		
Traction brace, L=sqrt((4x735)^2+1072^2)=3130mm					
16	3130	8	200	7850	629.0048
Knee brace, plates 16mm L=240x16x2210=530400mm2+ stiffener-1500x1000+225x520=717250mm2, and 16mm					
16	1247650		7850		18
Ballast plate 16mmx550mm-2 sides					2820.6871
16	2	550	23470	7850	=
Total in deck plate, braces and ballast retainer					3242.6152
Joining material (bolts+gussets, etc.) @ 10%					18011.982
					1801.1982
					19813.18

**19813.18**

**92159.2**

**6.1.4. TOTAL STEEL IN TPG SUPERSTRUCTURE**

