



PROJECT NAME: TELKWA 62.2
 BULKLEY RIVER CROSSING, WIDENING OF 24.0m SPAN, TPG BRIDGE
 TASK: 6. SUPERSTRUCTURE ANALYSIS AND DESIGN
 SUBTASK: 6.2. LOAD ANALYSIS

JOB NUMBER: CNRAIL0802
 DESIGNED: CHECKED
 DGT:
 DATE: 5-Aug-08
 DATE:

BRIDGE SPAN (L) = **23.13 .m**
75.88582677 Feet

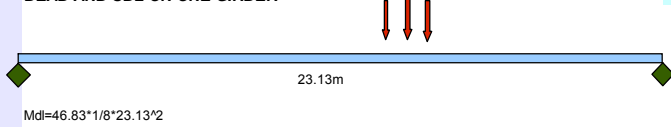
REFERENCES:

1 DEAD LOADS

DEAD WEIGHT OF TPG SUPERSTRUCTURE:

Walkway	92159.1769 KG	=	904.0815254 Kn	=	39.08696608 .kN/m
Rails-tracks					1.2 kN/m
Total superstructure=					3 kN/m
					43.28696608 kN/m
Ballast, 28" max	0.711 X	18.7	3.788	=	50.3641116 kN/m
TOTAL DEAD AND SDL LOAD ON TPG					93.65107768 kN/m
DEAD AND SDL ON ONE GIRDER					46.8255388 kN/m

6.1.1--6.1.4.

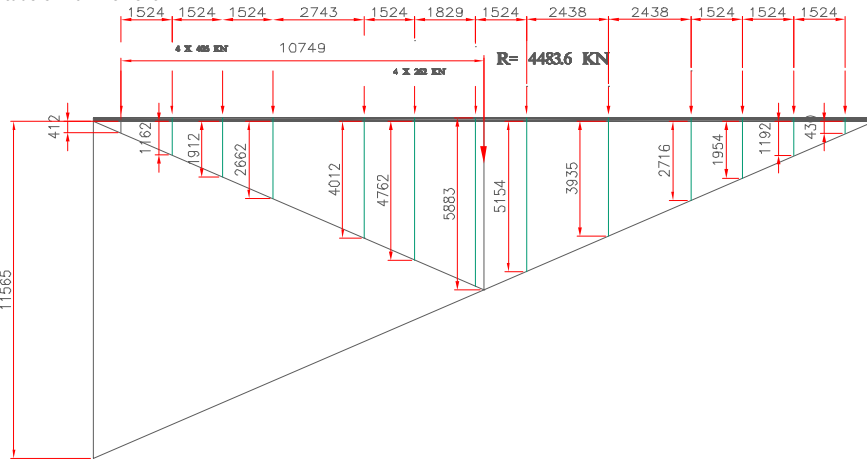


AREMA, CHAPTER 15

2 LIVE LOAD, E-90

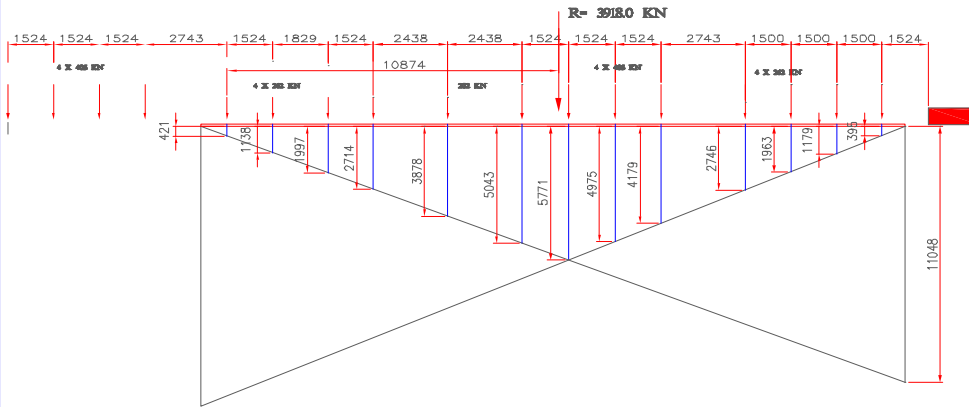
2.1. As per § 1.3.4.2.4 b) no longitudinal distribution shall be considered for the design of girders

2.1.1 Magnitude of max moment



§ 17.

AT X=SPAN/2=11.565m
 $M_{max}=405 \times (4.12 + 1.162 + 1.912 + 2.662 + 2.716 + 1.954 + 1.192 + 4.3) + 262 \times (4.012 + 4.762 + 5.883 + 5.154) + 202 \times 3.935 = 11023.552 \text{ KN-m}$



AT X=SPAN-11.048= 12.082 .m
 $M_{max}=405 \times (5.043 + 5.771 + 4.975 + 4.179) + 262 \times (0.421 + 1.138 + 1.997 + 2.714 + 2.746 + 1.963 + 1.179 + 0.395) + 202 \times 3.878 = 12159.282 \text{ KN-m}$
Per one Girder 0.5 X 12159.282 = 6079.641 KN-m

As per § 1.3.5. Impact Load , c)

$$\text{Impact} = \frac{40 - 3L}{1600} = \frac{40 - 10.79748507}{1600} = 29.20\%$$

As per § 1.3.5. Impact Load , b) impact can be reduced to 90% for ballasted deck, but we shall be conservative and carry over 100% of impact.

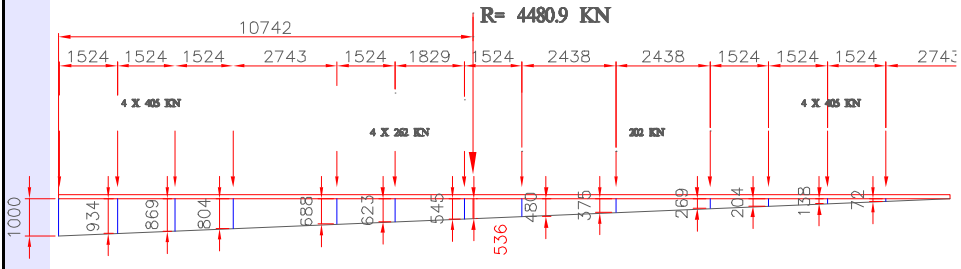


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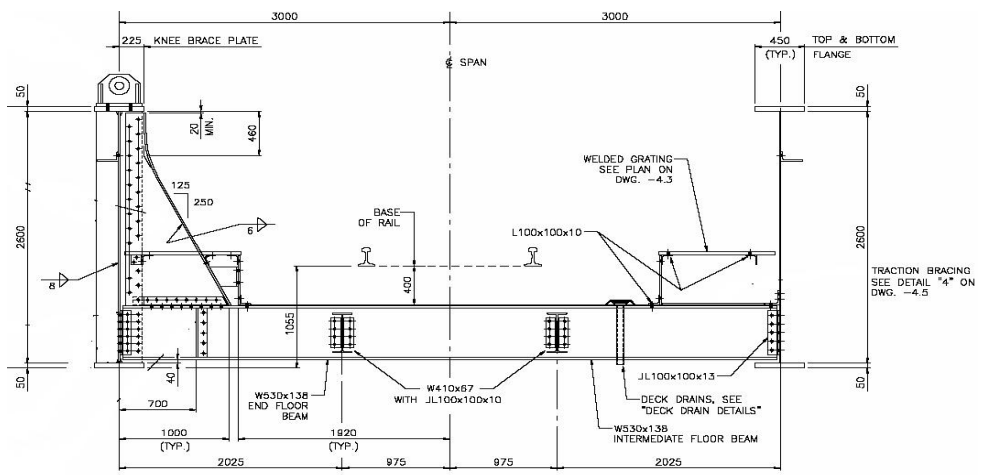
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$M_{max(1+LLI)} = 6079.641 \times (1 + 29.20\%) = 7855.049 \text{ KN-m}$

2.2. Magnitude of max SHEAR



Max Shear $R_{II} = 4480.9 \times 5.36 = 2401.7624 \text{ KN}$
Per one Girder $0.5 \times 2401.7624 = 1200.8812 \text{ KN}$
 $V_{max(1+LLI)} = 1200.8812 \times (1 + 29.20\%) = 1551.569 \text{ KN}$





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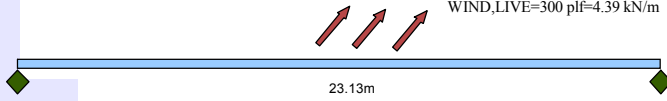
FATIGUE LOAD

WIND FORCES

WIND FORCES on LOADED STRUCTURE

WIND_{strr_loaded} = 30x8.86 = 266.75 plf = 3.902 kN/m

WIND_{LIVE} = 300 plf = 4.39 kN/m



WIND_{LIVE} = 300 plf = 4.39 kN/m

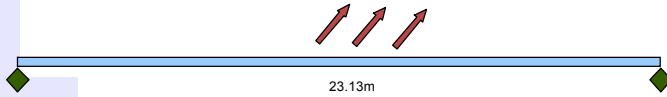


WIND_{strr_loaded} = 30x8.86 = 266.75 plf = 3.902 kN/m

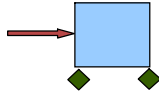
-WIND _{str} acts at c.l. Of girder depth =		1.35 .m	
-WIND _{live} acts 8 feet above B.R. Which is = 1.055 + 2.44m =		3.50 .m	
c.c. Of bearing is		6 .m	
-reactions per linear m	=(4.39*3.5 + 3.902*1.35)/6	+-	3.438783333 kN/m Vertical
	=(4.39 + 3.902)/2	+-	4.146 kN/m Horizontal

WIND ON UN-LOADED STRUCTURE

WIND_{strr_unloaded} = 50x8.86 = 443 plf = 6.48 kN/m



WIND_{strr_loaded} = 50x8.86 = 443 plf = 6.48 kN/m



-WIND _{str} acts at c.l. Of girder depth =		1.35 .m	
c.c. Of bearing is		6 .m	
-reactions per linear m	=(6.48*1.35)/6	+-	1.458 kN/m Vertical
	=6.48/2	+-	3.24 kN/m Horizontal

§ 1.3.7. Wind Loads
 § 3.2. this calculations