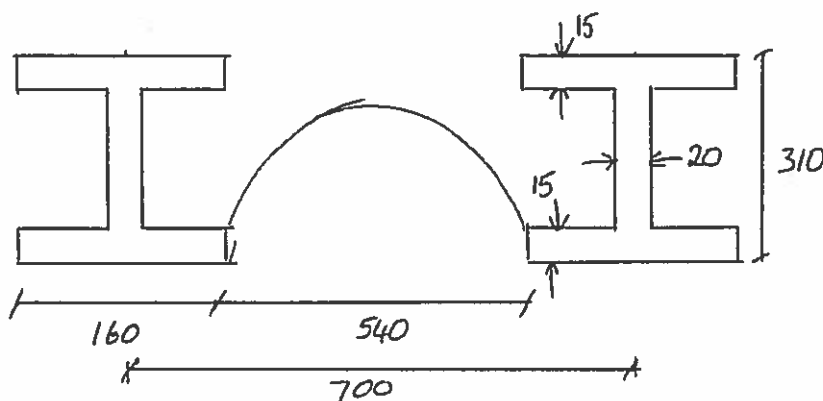






Project: <i>Cloddach Bridge</i>		Part of structure / scheme and status: <i>Assessment</i>		Job ref:	
Department: Direct Services	Service: Consultancy	Calculations by: [Redacted]	Checked by: [Redacted]	Date: 17/10/19	Page: 2

Code Ref	Calculations	Output/Remarks
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From existing Assessment;

Table 5/1

carriageway width = 3.9m ∴ 1 national lane
lane factor $\beta = 0.274 b_L \times 1.0$
 $= 1.0.$

effective span $L_e = 6.777m.$

HA loading

$$W = 336 \left(\frac{1}{6.77} \right)^{0.67} \beta = 93.23 \text{ kN/m / lane.}$$


$$UDL = 0.7 / 3.65 \times 93.23 = 17.88 \text{ kN/m / beam}$$

$$KEL = 0.7 / 2.5 \times 120 = 23.01 \text{ kN/beam.}$$

Assessment live load. $\delta_{f1} = 1.5, \delta_{f3} = 1.1$

$$UDL = 29.5 \text{ kN/m / beam}$$

$$KEL = 37.97 \text{ kN/m / beam}$$

	Project: Cloddach Bridge		Part of structure / scheme and status: Assessment		Job ref:	
	Department: Direct Services	Service: Consultancy	Calculations by: <div style="background-color: black; width: 50px; height: 20px;"></div>	Checked by: <div style="background-color: black; width: 50px; height: 20px;"></div>	Date: 17/10/19	Page: 3
Code Ref	Calculations				Output/Remarks	
	<p>From Existing Assessment;</p> <p>Assessment dead load Moment $M_{OL} = 67 \text{ kJ}$ 54.25 kNm.</p> <p>Assessment live load Moment $M_{LL} = 141.74 \text{ kNm}$</p> <p>Total Assessment Moment $M_{Ass} = 196 \text{ kNm}$</p> <p><u>Beam Resistance Moment</u></p> <p>Design Moment $M_0 = 174.49 \text{ kNm}$</p> <p>Condition Factor $F_c = 0.5$</p> <p>\therefore Design Moment $M_{0.5} = 87.24 \text{ kNm/beam}$.</p> <p><u>Reduction Factor for HA</u></p> <p>Resistance Moment for live load = 87.24 - 54.25 = 32.99 kNm</p> <p><u>Resistance Moment for live load</u> Assessment Moment for live load. $= \frac{32.99}{141.74} = 0.23$</p> <p>Assuming low traffic flow, good surface.</p> <p>Equivalent = <u>3 tonnes</u></p>				<p>(From Existing)</p> <p>At Lg and Lp K = 0.20 at 3.0 Tonnes.</p>	
Fig 5.19f						

