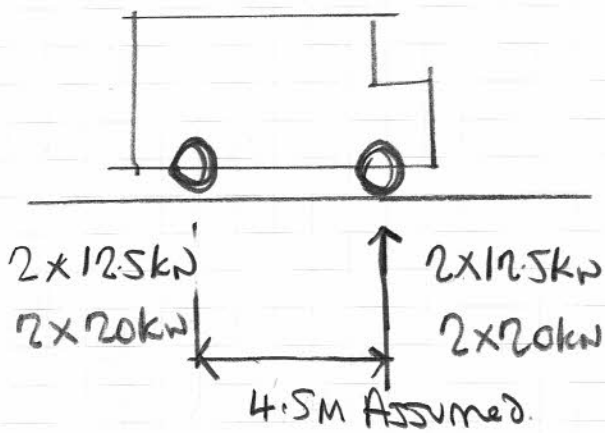
STRUCTURAL CALCULATION SHEET

Page No. P1

Project	Date	Contract No.
1 BRACKEN HALL FARM PRIVATE VEHICLE BRIDGE	MAY 22.	7927
	By PB	

LOADING.

Say 4tonne Vehicle.
4M wheel base.
F.O.S say 2.0 (1.6x1.25) (dynamic)



Including 25% dynamic effect

(working SLS)
(Design ULS)

Revision A:	Revision B:	Checked

STRUCTURAL CALCULATION SHEET

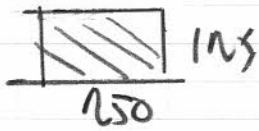
Page No. P2

Project		Date MAY 22	Contract No. 2917
		By PB	

SLEEPERS. (CLEAR SPAN = ~~600~~ - 203 < 600MM)

W ↓

Edge loading to limit bending to 50% Utilised.



Try 250 x INS sleeper (say CR4)

FROM COMPUTER OUTPUT

Adopt 250 x INS CR4 SLEEPERS

(CLEAR SPAN = 600 MM)

62% for short term →
- 44% bending
- 93% shear
- 25% deflection
- 35% bearing

} long term.

(Deflection = 0.45MM.)

Revision A:	Revision B:	Checked

STRUCTURAL CALCULATION SHEET

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Project		Date MAY 22	Contract No. 2927
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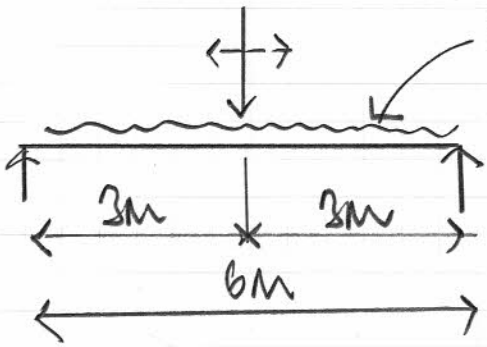
BRIDGING BEAMS 800MM nominal centres

10X1.25 = 12.5kN (wheel)

0.8 X 4.2kN/M² X 0.125
= 0.42 → 0.5kN/M
DECKING.



Limit wheel load deflection to $\frac{\text{SPAN}}{500}$ = 12MM

FROM COMPUTER OUTPUT

Adopt 203X203X46 UC (S355)

(32% bending
50% deflection)

Revision A:	Revision B:	Checked

STRUCTURAL CALCULATION SHEET

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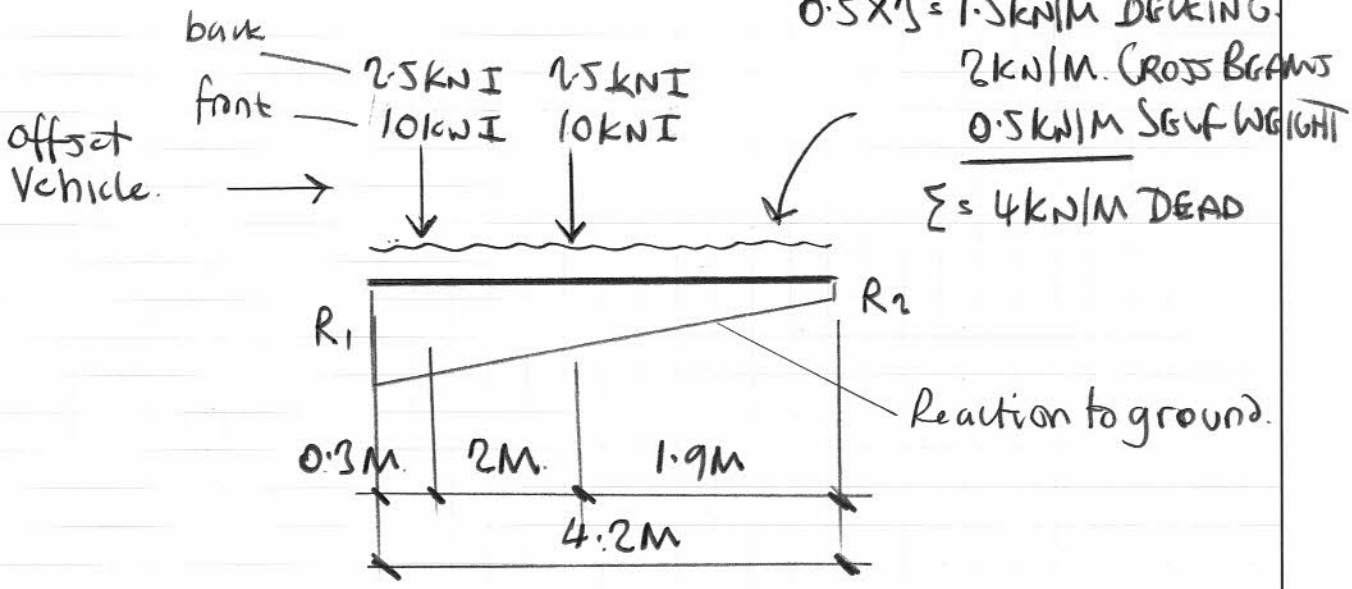
Project		Date MAY 22	Contract No. 2927
		By PB	

ABUTMENT BEAMS



$$R\,\underset{(R1)}{Max} = 4\,kN/M + \frac{25kN}{4.2} \pm \frac{25 \times 0.8 \times 6}{4.2^2}$$

$$= 4 + 6 \pm 6.8 = \begin{matrix} 16.8\,kN/M\ Max \\ 3.2\,kN/M\ Min \end{matrix} \Big\} \text{short term}$$

4kN/M long term

Using 203X203X46 UC spreader

Max ground pressure = 16.8/0.2 = 84kN/M²

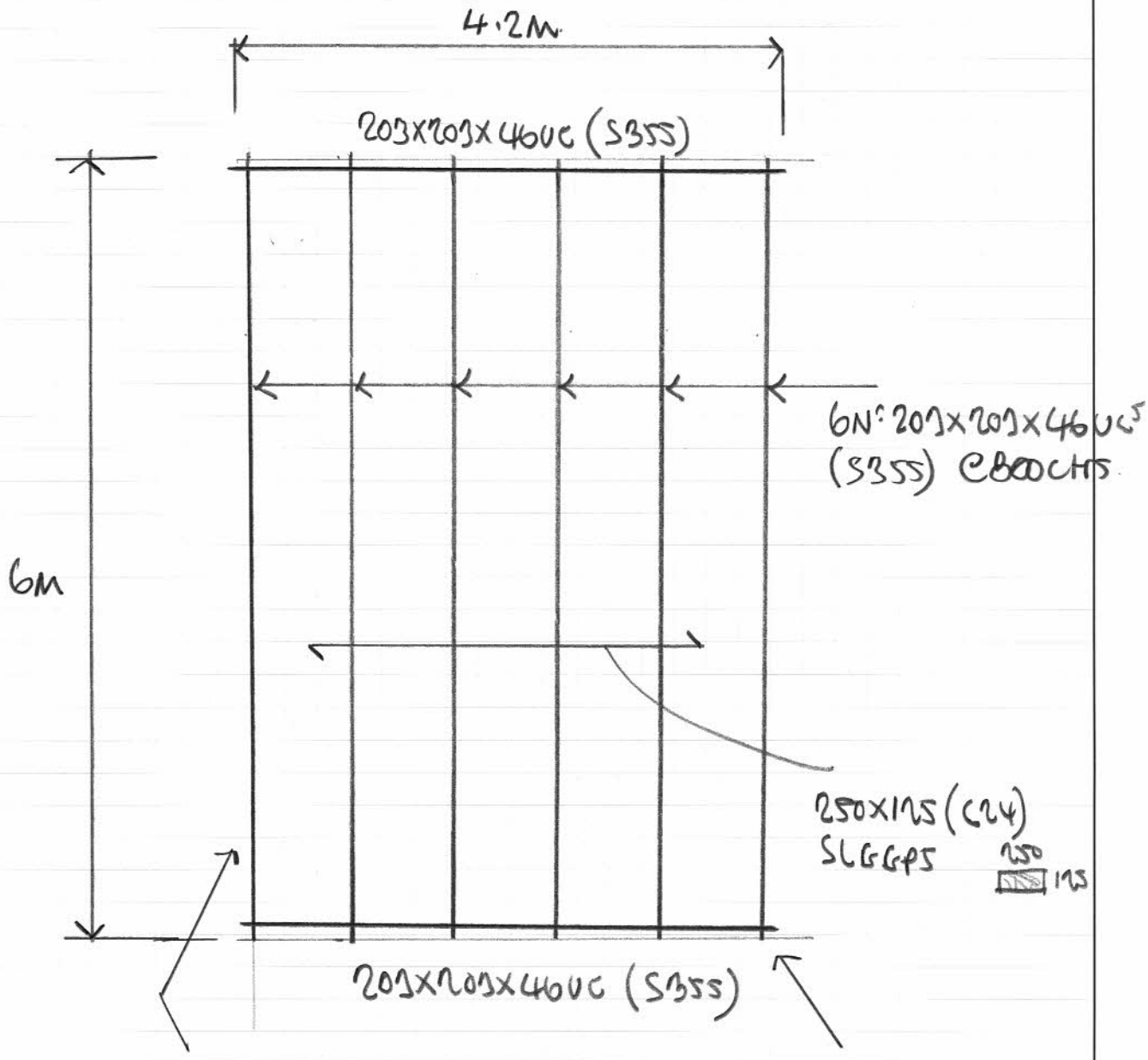
Revision A:	Revision B:	Checked

STRUCTURAL CALCULATION SHEET

Page No. SK P1

Project		Date	MAY 22	Contract No.
		By	PB	2927

PLAN VIEW



Revision A:	Revision B:	Checked

2927-SK P2

120X120X8 RSA S275JR each end.

The bridge design below has been successfully used where the stream banks are firm enough to prevent erosion and support the abutments. No concrete is needed. The stringers are welded to the steel abutment members that sit directly on the soil. Appropriately designed bridge foundation can also be gabion abutment, footings or logs set into rock or firm stable soil.

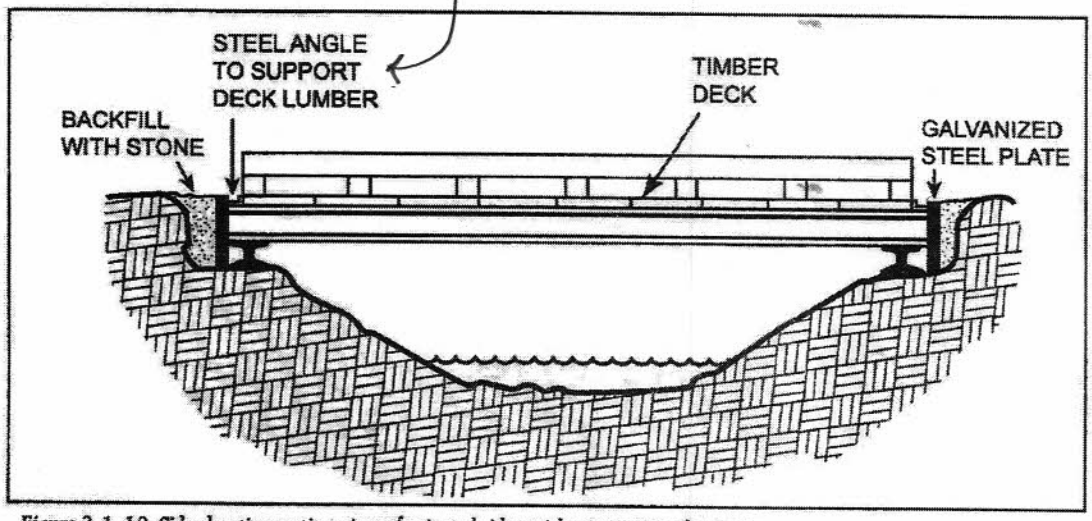
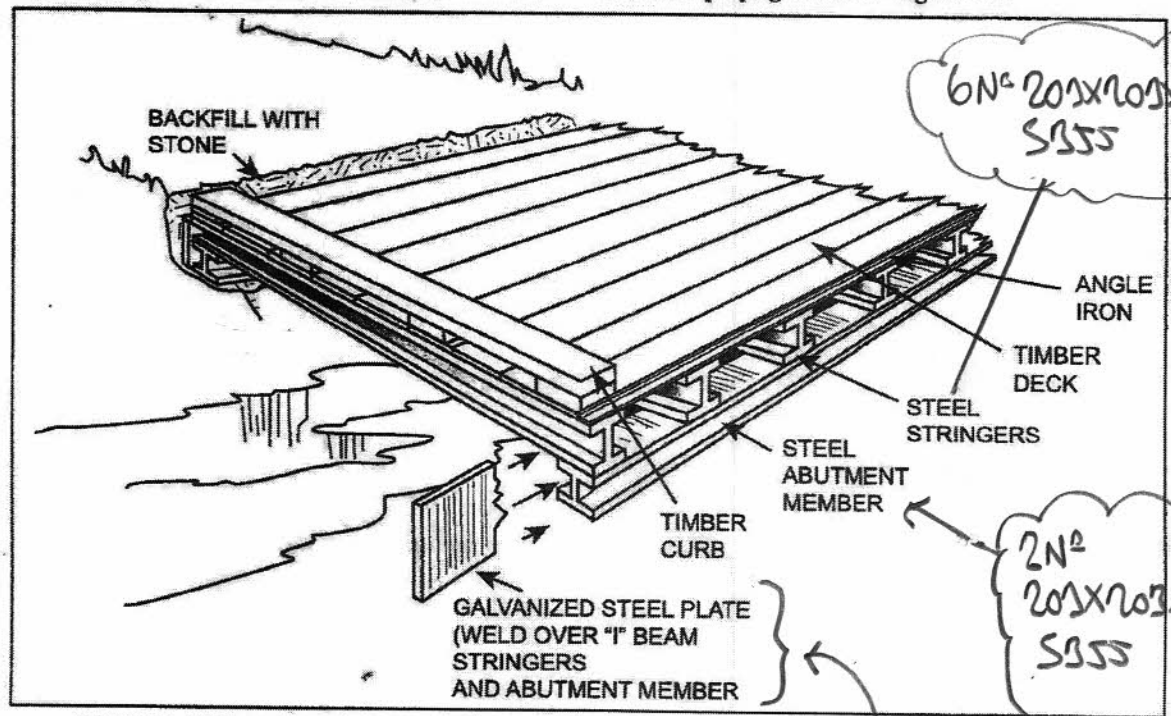


Figure 3.1-10. Side elevation section view of private bridge without concrete abutments

The deck slab or stringers should be set above the expected high water level to allow for debris and storm flow passage. Add protection against sour, such as riprap, gabions or vegetation.



6Nº 203X203X46UC S355

2Nº 203X203X46UC S355

Figure 3.1-11. Perspective and section view of private bridge without concrete abutments

6MM thick continuous flat (S275JR) each end of bridge.