

Structural Design Certificate CR-19-01

BigRiver Structural Girders

Client : BigRiver Group

Trenayr Road Junction Hill, Grafton NSW

I certify that I have undertaken a structural analysis of the BigRiver Structural girders as detailed below and consider that they are structurally adequate to act as a direct replacement for the rounds used timbers in bridges as defined in the table below. The analysis was carried out using principles of structural mechanics, Australian Structural Timber code AS1720.1 and meeting the requirements of the National Construction Code of Australia.

LVL	BigRiver Girder		F22 Round
	d (mm)	b (mm)	Dia (mm)
450PR22	450	360	457
405PR22	405	400	431
405PR22	405	300	406
360PR22	360	360	381
360PR22	360	300	355
315PR22	315	300	330
315PR22	315	300	330
270PR22	270	240	279
225PR22	225	300	254

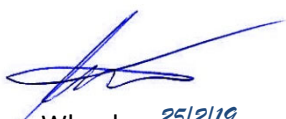
The design is based on the assumption that bending capacity and stiffness of the Timber rounds is exceeded by the equivalent Big River Girder. The design is based on Section 8 of the AS1720 and utilising the material properties as defined in AS1720.1 and presented below that have been verified through independent testing carried out at Griffith University.

$$f'_b \quad 50 \text{ MPa}$$

$$f'_s \quad 5.3 \text{ MPa}$$

$$E \quad 13,200 \text{ MPa}$$

This design certificate is limited to the direct replacement of the F22 rounds acting as girders, headstocks or corbels with the designated size of BigRiver structural girder, on the assumption that loading of the Rounds does not exceed those determined using the material properties and design clauses as specified in AS1720.1 for round timbers.



Andrew Wheeler 25/2/19
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