



- NOTES:**
- PRECAST PLANKS to be manufactured to MRTS72.
  - DESIGN LOADING: This plank shall only be used for recreational boating situations. The maximum design load is for a dual axle trailer – 2 tonnes per axle at 750 centres.
  - CONCRETE to be in accordance with MRTS70. Concrete to be S50/20, exposure classification C.
  - GLASS FIBRE REINFORCED POLYMER (GFRP) REINFORCEMENT to be in accordance with CSA S807 and have the following properties:

Rupture strain	$\geq 1.2\%$
Transverse coefficient of thermal expansion	$\leq 40 \times 10^{-6}/^{\circ}\text{C}$
Bar surface profile factor (k5) (defined in CSA S806)	$\leq 1.05$

Size and grades of reinforcement bar are defined in the format: nn Ga-E-D1, Dmax, Af, where:

nn	Effective bar diameter (nominal)
G	Glass fibre reinforced polymer
a	Minimum guaranteed tensile strength (MPa)
E	Modulus of Elasticity (GPa)
D1	Durability designation (as defined in CSA S807)
Dmax	Maximum diameter (including bar surface profile)
Af	Effective cross-sectional area (mm <sup>2</sup> )

Minimum cover shall be 30 unless shown otherwise.

- STAINLESS STEEL to be in accordance with ASTM A276. Stainless Steel flat bar Grade 316. All work shall be neatly finished with sharp edges removed.
- TRAFFICABLE SURFACE FINISH: The aggregate shall be lightly or medium exposed and level with or slightly above the concrete matrix to achieve a non-slip finish.
- MASS of RG4000 FRP Precast Plank is 2000kg. The mass of the plank shall be clearly and permanently marked on a side surface.
- M20 Ferrules shall be stainless steel Grade 316 Elephant Foot Ferrules with the following capacities:

Ferrule	Length	Minimum Working Load Limit
M20	95mm (TENSION)	26.6kN for concrete strength of 32MPa

- LIFTING TRANSPORTATION AND STORAGE shall be in accordance with MRTS72. Planks shall not be moved before attaining a minimum strength of 32MPa.
- DIMENSIONS are in millimetres unless shown otherwise.

Departmental Specifications:  
MRTS70 Concrete  
MRTS72 Manufacture of Precast Elements

Australian and International Standards:  
ASTM A276 Standard Specification for Stainless Steel Bars and Shapes  
CSA S806 Design and Construction of Building Structures with Fibre-Reinforced Polymers.  
CSA S807 Specification for Fibre-Reinforced Polymers.

**SCHEDULE**

REINFORCEMENT						
Bar Mark	Size and Grade	Dmax	Minimum Af (mm <sup>2</sup> )	Length	Quantity	Centres
15A1	15 G1105-60-D1	20	199	3930	10	-
13A2	13 G1312-60-D1	15	127	930	28	240
13A3	13 G1312-60-D1	15	127	880	8	-

Department of Transport and Main Roads

**PRECAST PLANKS FOR BOAT RAMP**

**TYPE RG4000 FRP**

Standard Drawing No **4003**  
Date 11/18

Not to Scale

A3