

NOTE TO DESIGNERS:
 This drawing shows general FRP Pump Station details. Specific Pump Station details such as incoming sewer diameter, overflow location, level and diameter, discharge pipework diameter, rising main diameter and orientation, workings levels etc. are to be added to suit site parameters. FRP Pump Station product approval to be obtained from Townsville Water. RPEQ design & product manufacture inspections & certification by a Composite Engineer to be provided for all FRP Pump Stations prior to manufacture and delivery to site, including ballast calculations. Layout & reinforcement requirements for FRP top concrete slab to be confirmed & certified by RPEQ structural engineer.

- FOUNDATIONS**
- F1. All excavations to be inspected and approved by Superintendent before FRP pump station is installed
 - CONCRETE
 - C1. Minimum clear cover (mm) as found on site to all reinforcement to be as shown on drawings.
 - C2. No holes, chases or embedment of pipes other than those shown on the drawings to be made in concrete members without prior approval of the Superintendent.
 - C3. Construction joints to be properly formed and used only where shown or specifically approved by the Superintendent.
 - C4. Exposed edges to be chamfered 20mm.
 - C5. Concrete components and quality to be as follows:
- | Element | F'c MPa | Slump | Max Aggregate |
|---------|---------|-------|---------------|
| All | N32 | 80mm | 20mm |
- C6. Curing (a) Initial Curing - commence curing immediately after finishing. Keep concrete continuously wet by ponding or continuous spraying for 2 days.
 (b) Final Curing - prevent concrete from drying out for a further 14 days.
 - C7. A 75mm thick blinding course of grade N15 concrete to be provided below base level if directed by Superintendent.
 - C8. Cored holes to be infilled with approved non-shrink mortar after installation of pipework.
- REINFORCEMENT**
- R1. Reinforcement is represented diagrammatically and not necessarily shown in true projection.
 - R2. Laps in mesh to be spacing of transverse wires plus 25mm unless otherwise shown.
 - R3. Welding of reinforcement is not to be performed without the approval of the Superintendent.
 - R4. All reinforcement to be supported in its correct position during concreting by approved bar chairs, spacers or support bars.
 - R5. Reinforcement symbols:
 R Grade 230 plain round bar to AS1302
 SL Hard drawn steel wire reinforcing mesh to AS1304
 N Grade 410 deformed bar to AS1302
 - R6. Cogs and hooks to be standard unless shown otherwise.
 - R7. Reinforcement to be cut or bent to clear cored holes.

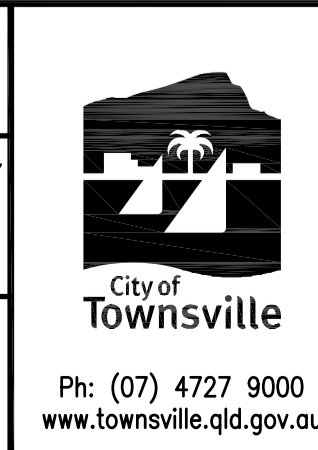
- NOTES**
- GENERAL**
- G1. All dimensions to be checked by the Contractor before construction.
 - G2. Workmanship and materials shall be in accordance with the relevant current Australian Standards & WSAA codes including all amendments, and the requirements of the relevant Statutory Authorities.
 - G3. All dimensions are in millimetres unless noted otherwise.
 - G4. All dimensions marked thus \blacksquare to be confirmed as part of pump station design to suit the sewer catchment, pumps, pipework and control equipment to be installed.
 - G5. Cable conduit openings to be cast in as shown to suit the pumps etc. to be installed. Conduits to terminate 50mm above finished surface level.
 - G6. Valves and fittings to be coated internally and externally with fusion bonded nylon or epoxy. Refer Specification.
 - G7. If pump station to be located in road reserve then lid to be structurally designed to account for potential vehicle loads.
 - G8. Proprietary Fibre Reinforced Plastic (FRP) wet well sewage pump stations to be manufactured in accordance with Townsville Water & Waste approved specifications
 - G9. Wet well installation in accordance with manufacturer's installation instructions, with crusher dust or sand backfill for excavated area under top slab.
 - G10. Volume of ballast concrete to be confirmed with manufacturer to ensure no floatation of well.
 - G11. All bolts, nuts, washers in well to be grade 316 stainless steel.
 - G12. Concrete thrust blocks should not induce any vertical stress on the manifold or valve pit due to the thrust block movement. Concrete thrust blocks to TCC standards required for manifold pipework outside valve pit.
 - G13. All FRP pipe connections to be integrally cast into the walls of the pump station and/or valve pit
 - G14. Hooks to be located to keep pump cables clear of guide rails. Instrument cable hooks to hold level sensor away from pumps. All hooks are to be easily accessible

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A	04/03/2014	ORIGINAL ISSUE	
REVISIONS			

NOTES : ALL LEVELS IN MILLIMETRES UNLESS NOTED OTHERWISE.

Full Size A1
 Not to Scale

DRAWN: DESIGN OFFICE
 CHECKED: D. MOSELEY
 Design Engineer Approved: Original signed by DESMOND MOSELEY
 Date: 04/03/2014
 Manager Approved: Original Signed by STEVE GRAY
 Date: 04/03/2014



**SEWERAGE PUMP STATIONS
 PACKAGE FIBRE REINFORCED PLASTIC**

**STANDARD
 DRAWING
 SEWERAGE**

SD-421 A