

Our Ref: 34845_6

22 May 2019

Dewcape
33-35 Saunders St
Pyrmont NSW 2009

Attention: Mr. Brendan Cadden

PICK STATION, BLOWN MATERIAL CAGE, RAINWATER STORAGE TANKS SLAB, PUMP ROOM ENCLOSURE & FIRE TANK SLAB AT 50 WYLIE RD, KEMBLA GRANGE - STRUCTURAL CERTIFICATE

PICK STATION

We hereby certify that Cook and Roe have carried out the structural design and inspections of the slab/footing concrete walls structural inspections during the construction of the pick-station at the abovementioned project (Refer Cook and Roe design certificate with Ref: 34845_2 and inspection certificate with Ref: 34845_3).

In addition, we note that an unauthorised enclosed structure has been constructed on top of the pick station as seen in Figure 1 below. An inspection of the existing pick-station was completed by Cook and Roe on the 6th of February 2019 to complete a review of the structure above the suspended slab level.



Figure 1: Pick-station constructed at 50 Wylie Rd, Kemplra Grange

We note the following information has been utilised when completing our review based on the information collected from our site inspection and information supplied by Dewcape:

- Wall panels used are 75mm Askin EPS (expanded polystyrene).

- Roof panels used are 100mm Askin EPS.
- 75mm Aluminium base channel, 2mm thick was screwed to the steel floor every 400mm.
- Panels were secured to the base channel with 5-32 rivets every 400mm.
- Wall panels lock together with male/female slip joints and are riveted together.
- The roof is sat onto the wall and riveted with 40mm x 40mm x 1.6mm aluminium angle internally and 70mm x 40mm x 1.6mm aluminium angle externally.
- Wall panels are mitred in the corners and riveted with 40 x 40 x 1.6mm aluminium angle internally and externally.
- Vertical columns are 250PFC's with 150PFC wind beam.
- The columns appear to have been stitch welded to the wall armouring PFC's on one side of the structure and anchor studs epoxy grouted into the concrete wall on the other side.
- The roof plan framing is constructed utilising 250UB26 beams.
- The ac unit above the roof weighs up to 833kg excluding ductwork.
- Some minor corrosion was evident to the exposed steelwork.

We have completed a review of the unauthorised structure in accordance with the following standards and specifications:

- AS/NZS 1170.0 Structural design actions – General principles
- AS/NZS 1170.1 Structural design actions – Permanent, imposed & other actions
- AS/NZS 1170.2 Structural design actions – Wind actions
- AS3600 Concrete structures
- AS 4100 Steel structures
- Askin Product Specification sheet (dated October 2018)

From our review, we have concluded that the existing building will be structurally adequate to resist the relevant design loads in accordance with the standards noted above. We note that deflection is not considered to be critical for this structure, hence higher deflections have been deemed acceptable in a high wind event.

In addition to the above, we note that some minor surface corrosion was evident to some of the steelwork at the time of our inspection. Therefore, ongoing maintenance of the corrosion protection system applied to the steelwork will be necessary for the life of the structure to ensure structural adequacy of the steelwork and associated connections is maintained.

PICK STATION STAIRS

We certify that Cook and Roe have carried out the structural design of the structural steel stairs as shown on Cook and Roe Drawing No. 34945-S.30 Revision A (Refer Cook and Roe Structural Design Certificate with Ref:34845_2).

Further to the above, we advise that Cook and Roe have completed an inspection of the staircase and confirm that the structural steelwork was found to conform with the intent of the design detailed on the abovementioned drawing.



(a)

(b)

Figure 2 (a) & (b): Pick Station Stairs

BLOWN MATERIAL CAGE AND SLABS

We certify that Cook and Roe have carried out the structural design of the footings/slabs/walls for the Blown Material Cage area as shown on Cook and Roe Drawing No. 34945-S.11 Revision C and 34945-S.12 Revision A (Refer Cook and Roe Structural Design Certificate with Ref:34845_2).

Further to the above, we advise that Cook and Roe have completed an inspection and reviewed photos of the reinforcement installation and confirm that the work was found to conform with the intent of the design detailed on the abovementioned drawings.

RAINWATER STORAGE TANKS SLAB

We understand that a 200mm thick slab has been installed with SL82 mesh provided in the top and bottom of the slab. Furthermore, photos have been provided to our office, illustrating the installation of the reinforcement in the top and bottom of the slab which confirms two layers of reinforcement has been installed with a plastic membrane installed underneath the slab.

Based on the information above, it is our opinion that the slab installed will be structurally adequate to support the loads from the rainwater storage tanks subject to the slab being founded on ground with an allowable bearing capacity of 100kPa as advised in the geotechnical report prepared by Benviron Group (Ref: G277 Rev 0).



(a)



(b)

Figure 3 (a) & (b): Reinforcement to Rainwater Storage Tanks Slab

FIRE TANK AND PUMP ROOM SLAB

We note that we have not prepared a structural design nor have we inspected the slab installation associated with this construction.

We have been informed that the slab was constructed as a raft slab as shown in Figures 4 and 5. If this is the case and assuming that the slab has been constructed on soils with an allowable bearing capacity of not less than 100kPa similar to that noted for the rainwater storage tanks, it is our opinion that the slab and footings will be adequate for its intended purpose. Furthermore, it is important to note that movement of this slab is unlikely to lead to a catastrophic failure in the event that yielding of the soil or slab did occur and would more likely lead to maintenance issues where the movement could be identified and addressed as required. Therefore, it is our opinion that the slab and footings on ground supporting the fire and tanks are a low risk element in a safety in design point of view.

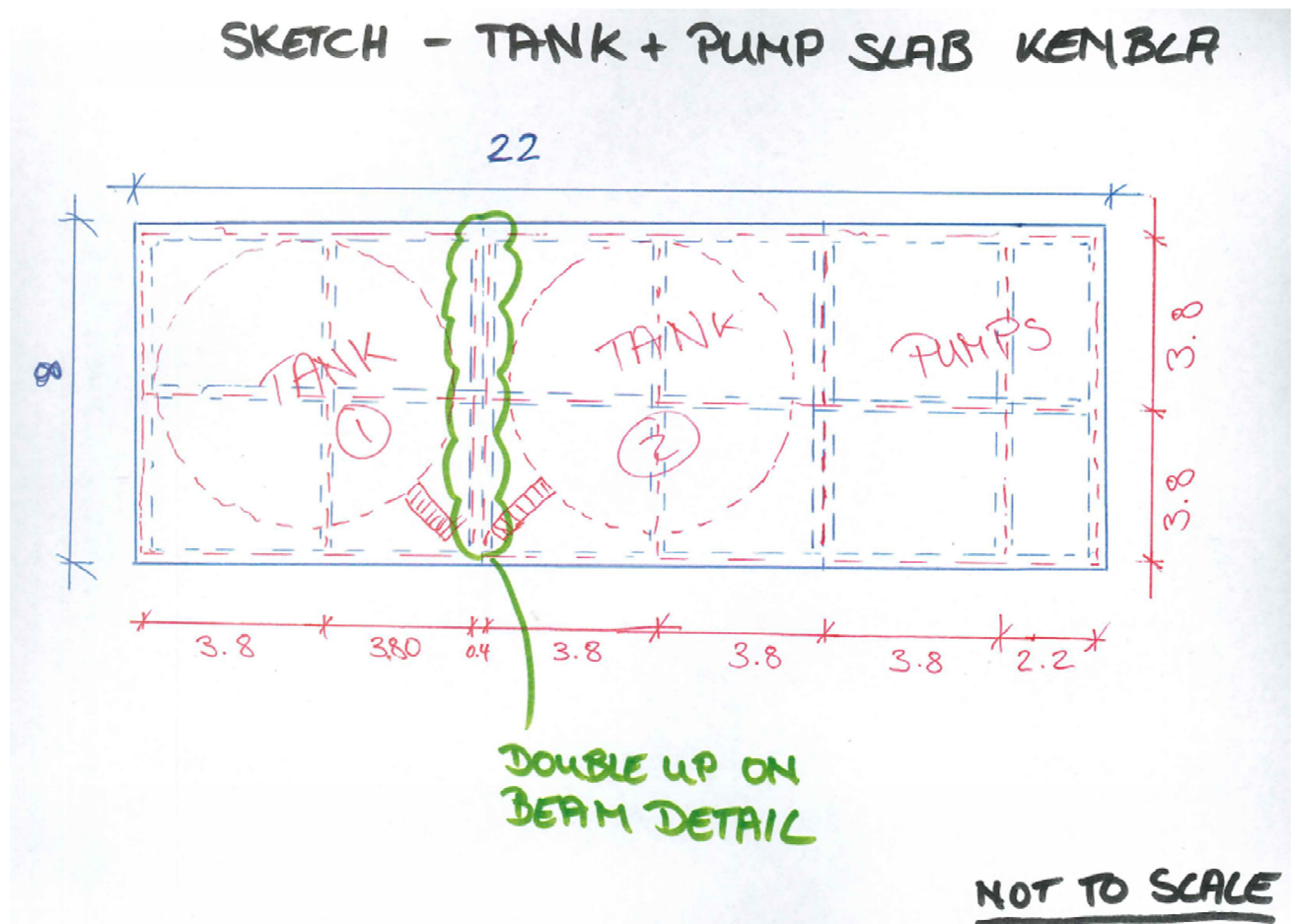


Figure 4: Footing/Slab advised for the Fire Tanks and Pump Room Enclosure

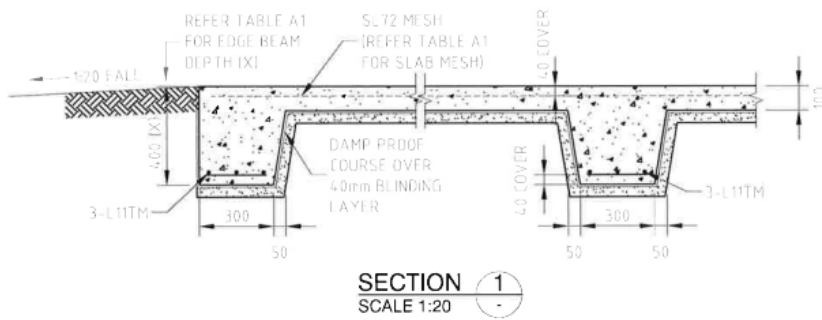
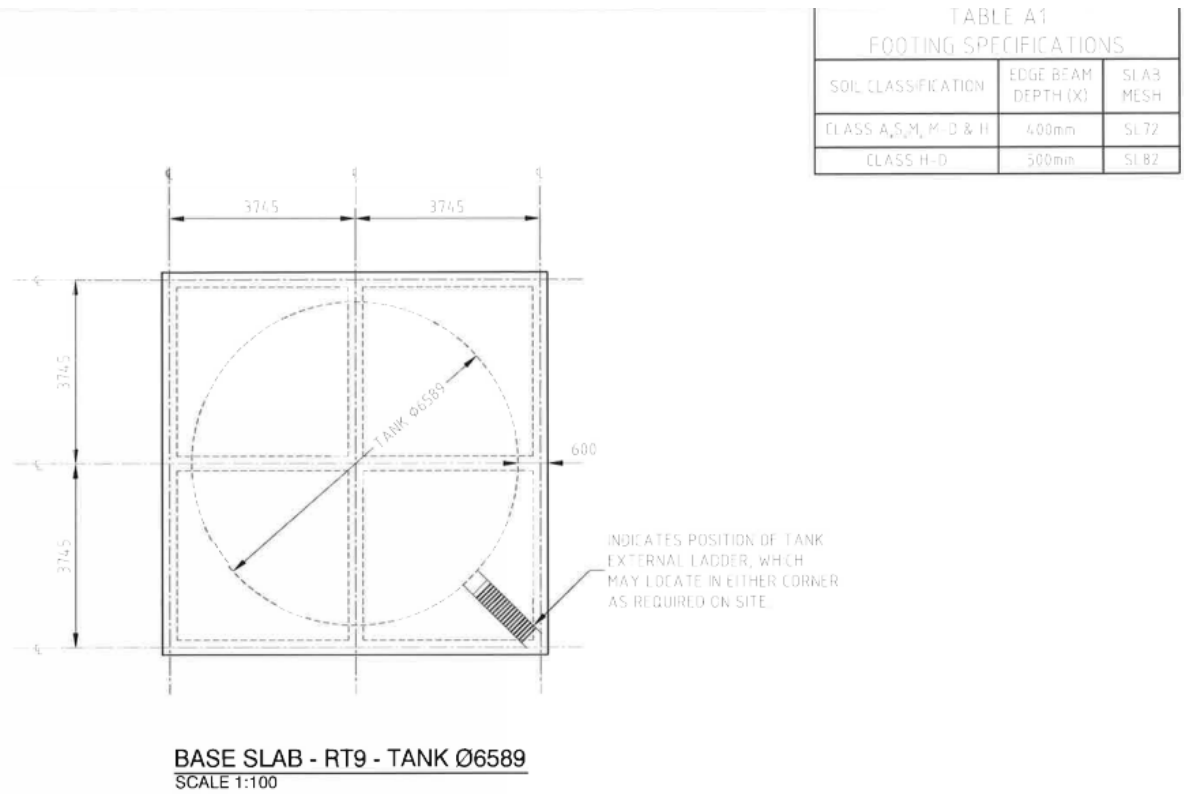


Figure 5: Extract from Altanks Standard Slab Foundation (Drawing No. RT-SL-RT9-01, Rev 0)

PUMP ROOM ENCLOSURE

We have reviewed a number of photographs and information provided to our office of the construction of the pump room enclosure.

We note the following design parameters when completing our review and drawing our conclusions:

- The pump room enclosure is approximately 4m wide, 6.8m long, and an internal clearance between 2.2 to 2.55m to underside of the rafters (approximately 5 degree roof pitch).
- The wall framing is constructed from 90x45 Radiata pine with studs at 600mm nominal centres. Furthermore, it appears that nominal fixings have been provided at 1200mm centres to the wall framing, securing the bottom plate of the wall to the slab.
- The rafters are constructed from 190x35 radiata pine.
- Pryda speed bracing has been installed to the roof and the walls to brace the structure.
- 70x35 radiata pine battens have been installed to both the walls and the roof for the installation of the metal cladding.



Figure 4 – Pump Room Enclosure

We have completed a review of the enclosure utilising the following Australian Standards and specifications:

- AS/NZS 1170.0 Structural design actions – General principles
- AS/NZS 1170.1 Structural design actions – Permanent, imposed & other actions
- AS/NZS 1170.2 Structural design actions – Wind actions
- AS 1684.2 Residential timber-framed construction- Non-cyclonic areas
- AS 1720.1 Timber structures – Design methods

From our review, we have concluded that the existing building will be structurally adequate to resist the relevant design loads in accordance with the standards noted above.

This certification shall not be construed as relieving any other party of their responsibilities, liabilities or contractual obligations.

We trust that this information meets your requirements. Please do not hesitate to contact the undersigned should you require any further information.

Yours faithfully,
COOK AND ROE



Wayne Roe
Senior Structural Engineer
BE (Civil), MIE Aust, RBP (Vic), RBP (NT)