

13 November 2023

QD143-01F02 Acoustic Letter (r0).docx

Nick Todd

McNab Relationship Builders

Level 5, Tower 2, Kon Tiki Building

55-59 Plaza Parade

Maroochydore QLD 4558

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2021/1251/3

Date: 6 December 2023



Dear Nick

Maroochydore Private Hospital - Acoustic comments for re-location of generator

Renzo Tonin & Associates have been invited to provide comment on the proposed re-location of the genset from Level 10 down to the Ground Level.

Renzo Tonin & Associates have previously prepared a noise impact assessment for this project [RT&A Reference: QC310-01F02 Noise Report (r4) dated 1 December 2022].

Our report investigated potential noise emissions from various plant and impact on the nearest noise sensitive receivers.

We understand the emergency generator will be re-located from the rooftop down to Ground level.

Figures 1, 2 and 3 present the general layout on ground level.

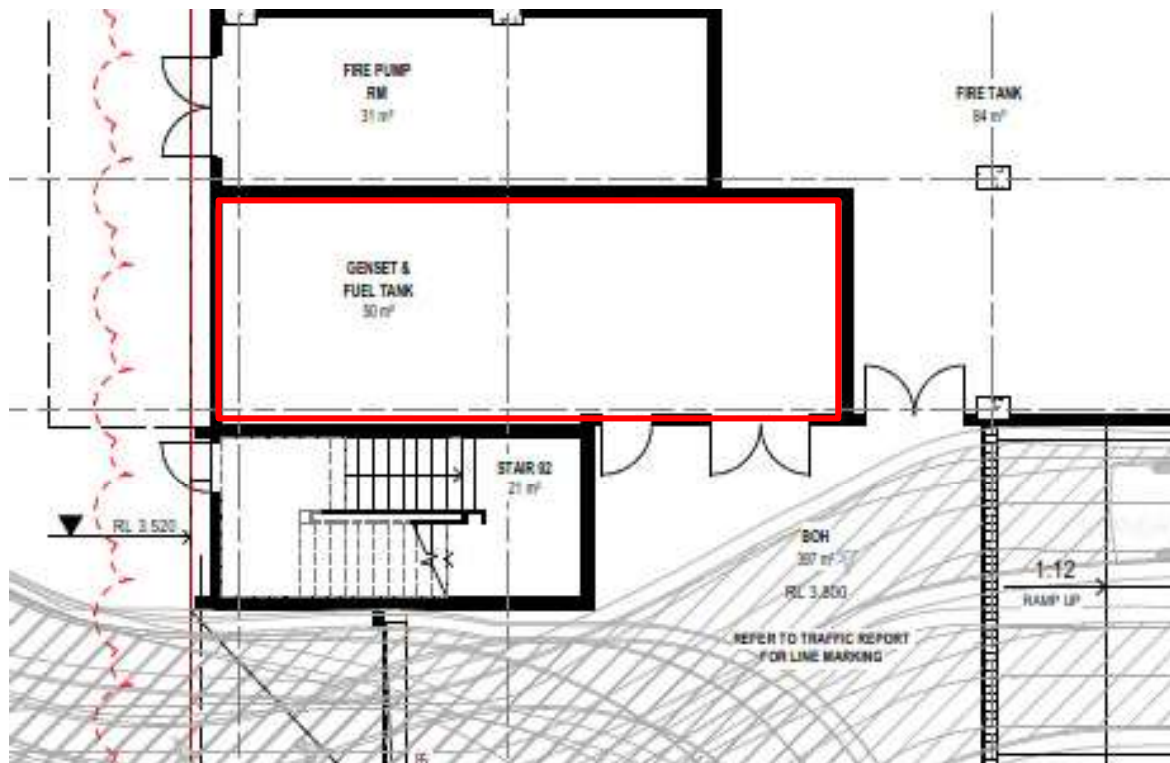


Figure 1 – Generator plantroom floor plan ground level



Figure 2 – Generator plantroom Western elevation

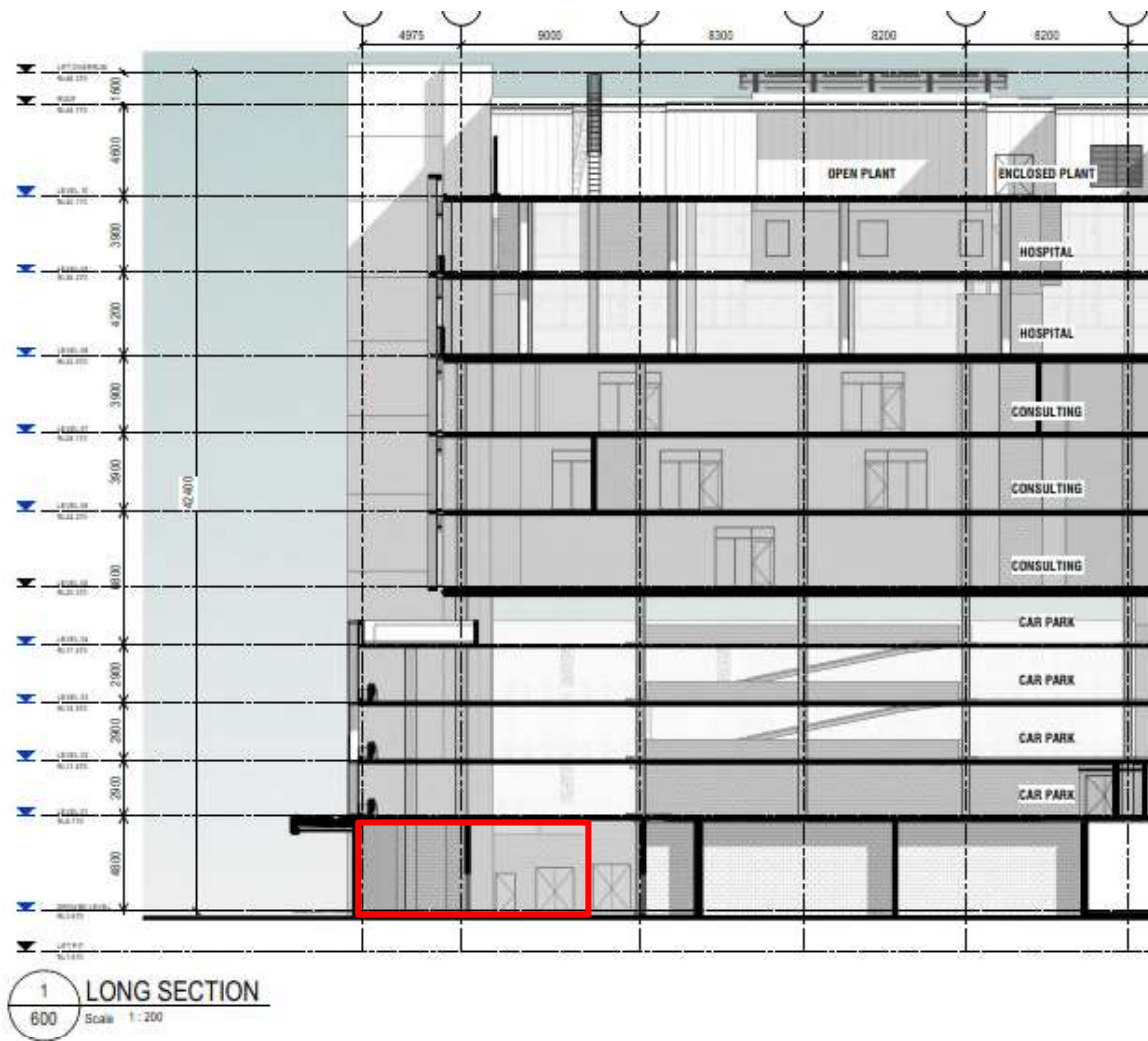


Figure 3 – Generator plantroom section through building

We have reviewed the location of the generator plantroom.

Typically noise emission calculations from the plantroom to the nearest noise sensitive receivers are conducted once all design inputs are unknown. This normally occurs during the detailed design stage of the project, when the electrical engineer selects a suitable generator model that satisfies the project design requirements. The design is in the early project stages and as such selection of a suitable generator has not been completed.

The previous rooftop design was based on a packaged generator unit open to the atmosphere. The generator to be housed within the ground level plantroom will most likely be selected as an unpackaged unit.

Based on our past experience with generator plantrooms we envisage the following noise control treatment will be necessary:

1. Air discharge attenuator or silencer

2. Air intake attenuator or silencer
3. Residential class muffler
4. Acoustic rated doors
5. Absorptive lining to the plantroom soffit and walls.

The model, type and size of the attenuators or silencers and other treatment can only be recommended once the actual generator model and type is selected by the electrical engineer.

Once the generator model and associated noise data are known we shall conduct noise emission calculations to confirm the five noise control items previously listed.

Section 7.7 of our previous noise report [Reference: QC310-01F02 Noise Report (r4) dated 1 December 2022] nominated the following noise criteria for day, evening and night time periods:

Noise emissions from the emergency generator should not substantially increase ambient noise levels at the nearest residential receivers. In this instance we recommend an increase of background noise levels by no more than 10dB due to the infrequent use of the emergency generator.

$$L_{eq,adj,T} = L_{90} \text{ (RBL from Table 5)} + 10 = 51 + 10 = 61\text{dBA daytime periods (7am to 6pm)}$$

$$L_{eq,adj,T} = L_{90} \text{ (RBL from Table 5)} + 10 = 45 + 10 = 55\text{dBA evening periods (6pm to 10pm)}$$

$$L_{eq,adj,T} = L_{90} \text{ (RBL from Table 5)} + 10 = 39 + 10 = 49\text{dBA night time periods (10pm to 7am)}$$

Noise compliance at the nearest noise sensitive receivers is achievable provide suitable noise control treatment is installed. Further, noise compliance tests will be conducted at the commissioning stage of the project to verify compliance.

Regards,



Paul Johnson

Director

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