GEOTECHNIQUE® PTY LTD

ABN 64 002 841 063

Job No: 20219/1
Our Ref: 20219/1-AC
5 July 2023

Opal Health Care
c/- Cyre Projects Pty Ltd
Level 8, Suite 18, 100 Walker Street
NORTH SYDNEY NSW 2060
Email: marlon@cyreprojects.com.au

Attention: Mr M Zunac

Dear Sir

re: **Proposed Narwee Parkland Care Community**
59-67 Karne Street North, Narwee
Geotechnical/Groundwater Investigation

This Addendum Geotechnical/Groundwater Investigation report has been prepared to support the Response to Submission Report for the Narwee Parklands Care Community State Significant Development Application (SSD-45024776) located at 59-67 Karne Street North, Narwee. The NSW Department of Planning and Environment (DPE) placed the Environmental Impact Statement (EIS) and the accompanying technical documentation on public exhibition from 14 February 2023 until 13 March 2023. During the exhibition, a total of 22 submissions were received in response to the public exhibition of the EIS. These included submissions made by the State and Local Government agencies, authorities, as well as the general public.

This report provides a response to matters relating to geotechnical engineering and groundwater and it should be read in conjunction with the EIS and all supporting documentation originally submitted with the SSDA. The table below identifies the specific matter raised by the relevant agencies and where this matter has been responded to.

Agency / Organisation	Agency Reference	Comment from Agency / Organisation	Section reference / Response
Department of Planning and Environment	OUT23/5555	Depth to Groundwater Level	This Report

Geotechnique completed a geotechnical investigation for proposed Parkland Care Community development at the above site and submitted Report No 20219/1-AA Updated 2 dated 18 November 2022. The development includes construction of a new building with three storey above ground and one level of basement. Basement excavation is anticipated to be about 4.5m to 6.5m deep.

The geotechnical investigation included drilling of six boreholes across the site to depths ranging from 5.0m to 5.5m from existing ground surface. The depth to shale bedrock across the site varies from about 1.3m to 2.7m from existing ground surface. No groundwater seepage or level was encountered up to borehole termination depths of 5.5m from existing ground surface.

The shale bedrock up to borehole termination depths did not show any significant fracturing and jointing. Therefore, shale bedrock at the site is unlikely to store and transmit groundwater. Residual soils overlying bedrock were clayey soils with no signs of seepage and perched groundwater level.

Website of Department of Primary Industries Office of Water shows no registered groundwater bore data within a radius of 500.0m of the site. Therefore, it is unlikely shallow aquifer is present within and in the vicinity of the site.

As bedrock shale and overlying residuals soils at the site are of very low permeability with no capacity to store and transmit groundwater and there are no evidence of shallow aquifer in the vicinity of the site, it is our assessment that the depth to groundwater level at the proposed development site is more than 6.5m and therefore proposed basement excavation to depth of 6.5m is unlikely to encounter groundwater.

Furthermore, we do not anticipate fluctuation in groundwater level at the site to be more than 0.5m and groundwater level at depths exceeding basement level is unlikely to impact the proposed development or vice versa. Therefore, drilling of 10.0m deep borehole is deemed unnecessary. However, as contingency to deal with potential but unlikely groundwater inflow, we recommend the following.

- Provide strip drainage at back of retaining walls around basement excavation to divert groundwater to a ditch drain around the base of basement.
- Divert water in ditch drain to a sump constructed at the lowermost portion of the basement excavation.
- Pump out groundwater collected in sump to a stormwater system in a controlled manner.

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECHNIQUE PTY LTD

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Principal Geotechnical Engineer