

MWH COMMENTS

We have assessed the application in relation to the hazard register, street files and available aerial photography. We have not visited the site.
We have the following comments to make regarding the application.

Proposal

The proposed activity is to construct 2 dwellings on an undersized Lot.

Hazards

This land is recorded in the hazards register as within the south Dunedin area susceptible to increased amplitude shaking during a seismic event. This is a loading condition normally considered at Building Consent.

The site is recorded on the GNS Assessment of Liquefaction hazards in Dunedin City, dated May 2014, as within:

- Domain C. The ground is predominantly underlain by poorly consolidated marine or estuarine sediments with a shallow groundwater table. There is considered to be a moderate to high likelihood of liquefaction-susceptible materials being present in some parts of the areas classified as Domain C.

Much of south Dunedin is actively pumped during storm events. The South Dunedin area was affected by widespread and prolonged flooding as a result of the rainfall which fell on 3 June

The Otago Regional Council completed a report on the Coastal Otago Flood event 3 June 2015, Report Number: 2015/1008. Confirming the extents of ponding water during this super-design event.

Global Setting

The property is low-lying ground on alluvial sediments

Discussion

The last 5 years has had a number of rain-driven flood events that have affected low-lying parts of Dunedin

Are there are general potential instabilities of concern associated with development in the South Dunedin area resulting from local ponding during storm water events.

The proposal must address the potential associated risks this or adjacent properties.

Sea level rise and increased storm event intensity and frequency are hot topics at present, and we appreciate that the ORC has submitted a position that this development be declined on the grounds of these hazards. We are not convinced that this is an appropriate way to manage the DCC position on the future continued development of South Dunedin, but we are happy to discuss the matter with the DCC and the ORC as and when requested.

Advice

We recommend that advice be made to the effect:-

Underlying soils have a potential for amplified movement and liquefaction during a significant seismic event. The cases for seismic loading are normally addressed at building control stage.

- The Dunedin City Council Building Control Authority will ask for verification that the site is 'good ground' in accordance with NZS3604, Section 3.1. This verification may require site investigation in accordance with the standard, potentially including dynamic cone testing to 10m depth to quantify the potential for liquefaction for each dwelling.

- Specific foundation design may subsequently be required, or if the assessed potential movement is significant; specifically designed ground improvement works may be more cost effective.

The property is in a low-lying part of Dunedin

- Minimum floor levels must ensure that any development meets Building Act requirements to avoid potential inundation (including flooding, overland flow, storm surge, tidal effects, and ponding) on the land on which the building work is to be carried out or adjacent landowner's property. This level should reasonably account for potential effects of sea level rise, if applicable.
- Normal building requirements exist to ensure that overland storm water flows are not interrupted and the dwelling should be situated to avoid any adverse effects from local ponding during storm rainfall events.
- The proposed floor and ground levels must therefore address the potential for egress of water from the property via secondary flow paths, ensure that construction is not proposed in low-lying areas and that the path of storm water is not displaced from ephemeral flow paths into neighbouring properties.
- Building Control may be satisfied with the dwelling minimum floor level set 200mm above any local ponding levels. This must be confirmed with them.

If these risks cannot be safely mitigated with reasonable on-ground construction then the applicant might choose to adopt a suspended floor structure, to allow for re-leveling, raising and or relocation of the building in the future.

Regards

Lee

Lee Paterson

Geotechnical Engineer, Dunedin

Level 3, John Wickliffe House,
265 Princes Street, Dunedin 9016

Postal Address:

PO Box 13052

Christchurch 8141

Phone: +64 3 474 3973

Mobile: +64 27 503 9515

Lee.paterson@mwhglobal.com



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