073

Lianne Darby

From: Z1649206 MWH Hazards Team <SM-AP-NZ-MWHHazardsTeam@mwhglobal.com>
Sent: Thursday, 23 February 2017 04:44 p.m.
To: Lianne Darby
Cc: Z1649206 MWH Hazards Team
Subject: SUB-2017-5 & LUC-2017-52 25 Ashton Street Mosgiel

Hello Lianne

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 subdivide the site into three lots of 2.7ha, 3.8ha and 3.1ha.
Site investigation reports have not been provided in the application.
Plans for the proposal are not provided within the application.

Hazards
The site is recorded on the GNS Assessment of Liquefaction hazards in Dunedin City, dated May 2014, as within Domain B and a small portion of the western boundary (into proposed lot 2) as Domain C.
Domain B is classed as the ground is predominantly underlain by poorly consolidated river or stream sediments with a shallow groundwater table. There is considered to be a low to moderate likelihood of liquefaction-susceptible materials being present in some parts of the areas classified as Domain B.
Domain C is classed as the ground is predominantly underlain by poorly consolidated river or stream sediments with a shallow groundwater table, with a moderate to high likelihood of liquefaction-susceptible materials being present.
The site is subject to the following hazards:
10106 – Alluvial Fans-active floodwater
10111 – Seismic – likely amplification
11582 Flood Hazard Area 19 – Classified as 'Hazard 3' in 2GP.

The ORC Lower Taieri Floodplain hazards (September 2006) identify the property within zone I – where "Existing protection is provided to a 100 year (1% AEP) flood level, and floors are to be set 200mm above flood level."
This 200mm flooding relates to local ponding, and the dwelling should be set 200mm above any known local ponding levels.

This report was revised and updated by the Otago Regional Council Report on Natural Hazards on the Taieri Plains, Otago, Engineering and Hazards Committee, July 2012. Figure 4.10 of this report places the property within Area 19 – Mosgiel, with the flood hazard characteristics defined for this area as follows.

This area east of the East Taieri Lower Pond is exposed to flood hazard from the Silver Stream, the Owhiro Stream and the hill catchments to the south and from internal runoff. Because of it elevation it is not affected by the flood hazard of the Taieri River. The area lies within the East Taieri Drainage Scheme which provides land drainage to a rural standard (ORC, 2012c).

The floodbanks along the southern side of the Silver Stream contain flows of 260m3.s (the assessed peak flow of the April 2006 event) or more. There are no floodbanks next to this part of the Owhiro Stream but the stream channel has been modified in the past so as to increase its capacity. Despite that, extensive flooding of Gladstone Road South occurred in the April 2006 flood making the road impassable to vehicles and pedestrians.

This report was further updated by ORC report: Flood hazard on the Taieri Plain, Review of Dunedin City District Plan: Natural hazards First revision: August 2015; with the following description:

Internal runoff is the predominant source of flooding in this area, although it is also exposed to flooding from Silver Stream20 and Owhiro Stream (ORC, 2013) (Figure 49). The southern part of this area was affected by flood flows in the Owhiro Stream in April 2006, making Gladstone Road south impassable to vehicles and pedestrians. Scheduled drains and other overland flow paths provide an important function by conveying floodwater downslope to Area 17 (Figure 49). Structures and earthworks can impede or redirect this flow of water. It is noted that drains that form part of the East Taieri Drainage Scheme provide land drainage to a rural standard.

The depth of water can range from 0.25m in smaller and wider overland flow paths, through to 2m in some drains. Velocity of runoff tends to be relatively slow, although higher speeds can occur due to water overtopping adjacent floodbanks and in the larger drains.

Global Setting
Flat alluvial plains of Mosgiel

Earthworks / Excavations / Retaining Structures
There are no earthworks anticipated with this subdivision.

Discussion
The proposal will not create or exacerbate instabilities on this or adjacent properties
There are requirements for specific foundation design in the event of potential liquefaction, and minimum floor levels that will be required for Building Consent.

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 applicant should confirm whether or not Building Control will require a liquefaction assessment on this property.

At the time of the subdivision, the developer must, for each potential Lot / Title:

- Confirm a minimum floor level to ensure that any development meets Building Act requirements to avoid potential inundation (including flooding, overland flow, and ponding).

Kind Regards,

Jon Kemp

Civil Engineer
Level 3, John Wickliffe House,
265 Princes Street, Dunedin 9016
Postal Address:
PO Box 13052
Christchurch 8141
Phone: +64 3 474 3954
Jonathon.kemp@mwhglobal.com

MWH Stantec

MWH, now part of Stantec
Please visit www.stantec.com to learn more about how Stantec designs with community in mind.