27 November 2019

Hughes Developments Ltd
Christchurch

Attn: Kelvin Back

RE: Geotechnical Summary Letter - Faringdon South East, Rolleston, Christchurch
(Our Reference: 12903.000.000_74)

1 Introduction

ENGEO Ltd was requested by Hughes Developments Ltd to provide a geotechnical summary letter for the property at Faringdon Southeast, Rolleston, Christchurch. The purpose of the letter is to support several geotechnical reports previously completed by ENGEO. This document should be considered supplementary to the reports outlined below and the full reports should be consulted for further detail.

2 Site Description

We understand that the Faringdon Southeast development is the area bordered by Selwyn and Springston Rolleston Roads, southeast of the existing Faringdon Development. The approximate site location is shown in Appendix 1 of this report. ENGEO has previously completed the following geotechnical reports within this site:

- 694 Selwyn Road & 417 Springston Rolleston Road dated 12 December 2016.
- 728 Selwyn Road dated 23 May 2017
- 700 Selwyn Road dated 8 May 2018.
- 708 & 710 Selwyn Road dated 3 October 2019.

3 Geotechnical Investigation Summary

Our geotechnical investigations comprised of machine excavated test pits and hand augers with associated Scala penetrometer tests. The investigations revealed subsurface conditions across the site are consistent with the published geological mapping. Broadly, the subsurface conditions were topsoil overlying sandy gravel. In some testing locations, silt and sand deposits were encountered that are inferred to be in filled in paleo channels where they have not remained as channel features.

Based on surrounding ECan boreholes, groundwater was typically recorded at over 5 m deep and up to approximately 12 m deep.

In none of the subsurface investigations completed to date or ECan boreholes reviewed, did we encounter any ground conditions inconsistent with the rest of the site. Therefore, based on the scope of testing completed to date, we consider that the site can be assessed as a large block with no specific areas of concern.

4 Geotechnical Recommendations Summary

Based on our site investigation and observations, and owing to the nature of the subsurface materials and depth to groundwater at the site, we consider the potential for liquefaction and lateral spreading on the site to be very low.

We therefore consider the site of the proposed subdivision to have Technical Category 1 (TC1) future land performance whereby future land damage from liquefaction unlikely, and ground settlements are expected to be within normally accepted tolerances.

Site specific testing will be required for Building Consent, to confirm the bearing materials and capacity. For preliminary design, we anticipate that a geotechnical Ultimate Bearing Capacity of 300 kPa may be assumed for foundations bearing on natural silt, sandy gravel or engineered fill, below any topsoil.

5 Limitations

i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Hughes Developments Ltd, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.

ii. The recommendations in this report are based on the ground conditions indicated from published sources, site assessments and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the Client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it should be appreciated that actual conditions could vary from the assumed model.

iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.

iv. This Limitation should be read in conjunction with the Engineering NZ / ACENZ Standard Terms of Engagement.

v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on (03) 328 9012 if you require any further information.

Report prepared by

Jed Watts

Engineering Geologist

Report reviewed by

Greg Martin, CMEngNZ (PEngGeol)

Principal Engineering Geologist

Attachments:

- *Site plan*

ENGEO

Christchurch Office
124 Montreal Street
Sydenham, Christchurch 8023
Tel: 03 328 9012
www.engeo.co.nz

Title: Farington Site Plan - South East

Aerial: LINZ and Eagle Technology, CC-BY-3.0-NZ.
Map image: LINZ NZTopo Series, CC-BY-3.0-NZ.

PROJECTION: NZGD 2000 New Zealand Transverse Mercator

Land Information New

Client: Hughes Developments

Project: South East Faringdon Rolleston

Designed: NF
Drawn: NF
Checked: DR
Date: Nov 19

Proj No: 12903.000.000

Scale: 1:4,000

Figure No: 1

Size: A3

Revision: A

PATH: Z:\Projects\12901 to 13000\12903 - Farr

ORIGINAL FIGURE PRINTED IN COLOUR

9 September 2020

Hughes Developments Ltd
Christchurch

Attn: Kelvin Back

RE: Geotechnical Summary Letter - Faringdon West, Rolleston, Christchurch
(Our Reference: 12903.000.000_100)

1 Introduction

ENGEO Ltd was requested by Hughes Developments Ltd to provide a geotechnical summary letter for the property at Faringdon West, Rolleston, Christchurch. The purpose of the letter is to support several geotechnical reports previously completed by ENGEO. This document should be considered supplementary to the reports outlined below and the full reports should be consulted for further detail.

2 Site Description

We understand that the Faringdon West development is the area bordered by East Maddisons Road, Selwyn Road and Goulds Road, southwest of the existing Faringdon Development. The approximate site location is shown in Appendix 1 of this report. ENGEO has previously completed the following geotechnical reports within this site:

- 583 East Maddisons Road dated 6 December 2017.
- 523 East Maddisons Road dated 18 May 2018.
- 533 East Maddisons Road & 870 Goulds Road dated 21 August 2018.
- 503 East Maddisons Road dated 23 November 2018.
- 830 Selwyn Road dated 12 December 2018.
- 479 East Maddisons Road dated 16 May 2019
- 844 Selwyn Road dated 18 July 2019.
- 858 Selwyn Road dated 19 August 2020.

3 Geotechnical Investigation Summary

Our geotechnical investigations comprised of machine excavated test pits and hand augers with associated Scala penetrometer tests. The investigations revealed subsurface conditions across the site are consistent with the published geological mapping. Broadly, the subsurface conditions were topsoil overlying sandy gravel. In some testing locations, silt and sand deposits were encountered that are inferred to be in filled paleo channels where they have not remained as channel features.

Based on surrounding ECan boreholes, groundwater was typically recorded at over 5 m deep and up to approximately 10 m deep.

In none of the subsurface investigations completed to date or ECan boreholes reviewed, did we encounter any ground conditions inconsistent with the rest of the site. Therefore, based on the scope of testing completed to date, we consider that the site can be assessed as a large block with no specific areas of concern.

4 Geotechnical Recommendations Summary

Based on our site investigation and observations, and owing to the nature of the subsurface materials and depth to groundwater at the site, we consider the potential for liquefaction and lateral spreading on the site to be very low.

We therefore consider the site of the proposed subdivision to have Technical Category 1 (TC1) future land performance whereby future land damage from liquefaction unlikely, and ground settlements are expected to be within normally accepted tolerances.

Site specific testing will be required for Building Consent, to confirm the bearing materials and bearing capacity. For preliminary design, we anticipate that a geotechnical Ultimate Bearing Capacity of 300 kPa may be assumed for foundations bearing on native sandy gravel or engineered fill, below any topsoil. All topsoil shall be stripped from within building footprints.

5 Limitations

i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Hughes Developments Ltd, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.

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Report prepared by

Jed Watts
Engineering Geologist

Report reviewed by

Greg Martin, CMEngNZ (PEngGeol)
Principal Engineering Geologist

Attachments:

- *Site plan*

ENGEO

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Sydenham, Christchurch 8023
Tel: 03 328 9012
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Map image: LINZ NZTopo Series, CC-BY-3.0-NZ.

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