ENGEO

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Geotechnical Investigation

Faringdon South Subdivision

23 Dynes Road

Rolleston

Submitted to:

Hughes Developments Ltd

Canterbury

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ENGEO Document Control:

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1 Introduction

ENGEO Ltd was requested by Hughes Developments Ltd to undertake a Geotechnical Investigation for the proposed Faringdon South Subdivision, at the section currently denoted as 23 Dynes Road, Rolleston, outlined in our variation proposal (ref. P2016.000.248, dated 9 December 2016).

The purpose of this investigation was to determine a geological model of the site, assess the likely future land performance, comment on the suitability of the site for residential subdivision, address the requirements of Section 106 of the Resource Management Act (RMA), and provide recommendations for subdivision works and foundations for typical timber framed residential dwellings.

Our scope of works included the following:

- Complete a desktop study of relevant available geotechnical and geological publications, including the NZ Geotechnical and Environment Canterbury Databases;
- Undertake a geotechnical site walkover;
- Undertake up to four hand augers and Scala Penetrometer tests to a maximum depth of approximately 0.7 m below ground level to assess the near surface material types and strength characteristics;
- Organise and technically supervise the excavation of up to four test pits to a maximum depth of 2.2 m, including geotechnical logging of the exposed soils; and
- Preparation of this report outlining our findings on the ground conditions and the suitability of the site for residential subdivision. This will include geotechnical advice on the likely foundation Technical Category, conceptual foundation recommendations for typical timber framed residential dwellings, and address likely geohazards as required by Section 106 of the RMA.

2 Site Description

The two sites proposed to be subdivided are located approximately 2 km southeast of Rolleston town centre and are bound to the north by Dynes Road and farmland on all other sides (Figure 1).

The site comprises approximately 1 ha of relatively flat ground currently occupied by two residential dwellings, with associated gardens and lawn areas, several barn and shed structures. The remainder of the site is currently used for grazing.

There are no significant watercourses in the area and the site is outside of any ECan defined flood zones as indicated in the Selwyn District Council (SDC) Operative District Plan (SDC, 2015).

CERA has categorised the site as ‘N/A Rural & Unmapped’, meaning future development can proceed following normal consenting processes.

Figure 1: Site Location

Image obtained from Canterbury Maps. Not to scale.

3 Proposed Development

It is understood the site is to be subdivided into approximately 15 to 20 residential lots (to be confirmed).

4 Geological Model

4.1 Regional Geology

The site has been regionally mapped by GNS (Forsyth et al., 2008) as being underlain by brownish grey river alluvium.

4.2 Geomorphology

The site comprises relatively flat ground, with gentle undulations and depressions in some areas. As evident on aerial imagery (Canterbury Maps, 2016) and observed during our site walkover conducted on 21 December 2016, undulating and depressed ground can be attributed to paleo-channels, which traverse the site in a general northwest to southeast trend. Based on observations, silt deposits with variable thickness (up to 0.7 m) are expected to have in-filled the paleo-channels. Inferred paleo-channels have been mapped to give an indication of areas with potential channel in-fill (Appendix 1).

4.3 Geohazards

4.3.1 Seismicity

There are no known or mapped faults in the immediate area of the site, however the site may be at risk of ground shaking induced by movement of proximal or distal faults.

The site is located between two recently discovered fault systems, the Greendale Fault and the Port Hills Fault, the ruptures of which initiated the ongoing Canterbury Earthquake Sequence (CES). The Greendale Fault has been mapped approximately 9 km northwest / west of the site and trends roughly east-west with a surface rupture of approximately 28 km (GNS, 2015), while the Port Hills Fault remains unmapped as the fault did not rupture at the surface. Movement on the Port Hills Fault is believed to have occurred at a depth of 1 km to 2 km below ground surface.

Large regional areas of faulting (GNS, 2015) namely the Ashley Fault, Porters Pass-Amberley Fault Zone, and the Hope and Alpine Faults, are further afield but present a high seismic hazard to the Christchurch area due to the anticipated size of earthquakes generated. The largest of these faults is the Alpine Fault, which has a return period of 250-300 years and is expected to produce a M8 earthquake. The last rupture on the Alpine Fault is believed to have occurred in 1717 (Pettinga et al., 2001).

4.3.2 Liquefaction and Lateral Spreading

The site is located within an area mapped as ‘damaging liquefaction unlikely’ (CGD Map 5140, 2014).

Aerial photography available on the CGD and taken in the days following the September 2010 seismic event shows no sign of any ejected sand and silt at the site and surrounding areas.

4.4 Site Investigation

Site investigations to assess the shallow subsurface material types and strength characteristics were undertaken by ENGEO on 20 December 2016. The investigations comprised of 4 hand augers and Scala Penetrometer tests, and logging of materials from 4 machine excavated test pits.

The investigations revealed subsurface conditions across the site are consistent with the published geological mapping, as summarised in Table 1.

Investigations undertaken within or adjacent to inferred paleo-channels revealed deeper silt deposits to depths up to 0.7 m.

Table 1: Generalised Summary of Subsurface Conditions

Soil Type	Depth to top of layer (m)	Layer Thickness (m)	Density / Consistency	Comment
Topsoil	0.0	0.2 – 0.3	Stiff	-
SILT	0.2 – 0.3	0.1 – 0.4	Stiff to Hard	Not encountered in all test pits
Sandy GRAVEL	0.2 – 0.8	Unknown	Very Dense	-

"Good ground" (as defined in NZS 3604:2010) under static conditions was typically encountered immediately beneath the topsoil layer (typically 0.2 m) and at a maximum depth of 0.3 m below ground level.

Test Locations are shown on Figure 1, Appendix 1. Test pit and hand auger hole logs, showing detailed soil descriptions are presented in Appendix 2.

4.5 ECan Boreholes

A review of a deep ECan borehole log approximately 150 m northeast of the site has been conducted. The log from this hole is presented in Appendix 3 and indicates the site is underlain by a mixture sandy gravels to depths of at least 35 m below ground level.

Figure 2: Nearby ECan Borehole Locations

All images sourced from Canterbury Maps. Not to scale.

4.6 Groundwater

Groundwater is recorded in the surrounding boreholes between approximately 10 and 12 m depth.

4.7 Site Seismic Class

In accordance with NZS 1170.5:2004, Class D applies to this particular site, defining it as a 'deep soft soil site'.

5 Liquefaction Assessment

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 where by future land damage from liquefaction is unlikely, and ground settlements are expected to be within normally accepted tolerances.

6 RMA Section 106 Requirements and Suitability to Subdivide

Section 106 of the Resource Management Act 1991 states a consent authority may refuse to grant a subdivision consent, or may grant a consent subject to specific consent conditions if the land is likely to be subject to the following:

- Erosion, including surface and subsurface erosion, associated with water and wind.
- Falling debris, including rockfall that could impact the site from upslope sources.
- Subsidence, which involves the removal of underlying support by natural or artificial means.
- Slippage, which is defined as the downslope transfer of materials by sliding and / or flowage.
- Inundation, which may be sourced from streams, coastal processes or excess precipitation.

Based on our observations and the nature of the site, its performance during the CES, and the site's distance from the nearest significant watercourse, we consider it is unlikely for the site to be subject to any of the above hazards and as such, the site is considered suitable for subdivision from a geotechnical perspective.

7 Geotechnical Recommendations

7.1 Earthworks

Earthworks carried out for the subdivision shall be in accordance with NZS 4404:2010, Land Development and Subdivision Infrastructure and NZS 4431:1989, Code of Practice for Earthfilling for Residential Development. In particular, any areas to receive fill should be stripped of any vegetation, topsoil, non-engineered fill, soft or organic soils prior to fill placement.

Fill may comprise clean natural sandy gravel or silty soils, or clean imported soils and/or granular fill, compacted to achieve no less than 95% of maximum dry density. Filling should be limited to no more than 600 mm above existing ground level without referring the matter back to ENGEO. Although unlikely, where any springs or groundwater seeps are encountered they should be intercepted with suitable drainage and discharged to a Council approved outlet.

All unretained batters of pond and stormwater drains constructed with the native sandy gravel material should be at an inclination of 1V:3H, with protection schemes in place to control erosion of the formed batters within the waterways.

A comprehensive earthworks specification should be provided to the earthworks contractor prior to starting excavations and an inspections/testing regime agreed, along with a robust erosion and sediment control plan.

7.2 Subdivision Roading

Vegetation, any organic or deleterious material, topsoil and non-engineered fill should be removed from the site under pavement areas prior to aggregate placement. Based on our observations during testing we consider the natural ground below the topsoil at the site should provide an adequate subgrade for the proposed pavement areas.

7.3 Stormwater Control

Concentrated stormwater flows from all impermeable areas must be collected and carried in sealed pipes to the Council system or an alternative disposal point subject to approval from Council. Uncontrolled stormwater must not be allowed to saturate the ground as this will potentially affect future foundation performance both statically and during future seismic activity.

7.4 Foundations

Foundations for future proposed residential dwellings within the subdivision may comprise pad, strip or slab foundations designed in accordance with the provisions of NZS 3604 Timber Framed Buildings.

An Ultimate Bearing Capacity of 300 kPa may be assumed for foundations bearing on natural sandy gravel or engineered fill, below any topsoil or non-engineered fill.

8 References

Canterbury Earthquake Recovery Authority. (2016). Canterbury Geotechnical Database. Retrieved April 2016, from https://canterburyrecovery.projectorbit.com/cgd

Forsyth, P., Barrell, D. J., & Jongens, R. (2008). Sheet 16 - Geology of the Christchurch Area 1:250,000. Lower Hutt: Institute of Geological and Nuclear Sciences.

GNS Science, Earthquake Commission. (n.d.). Aftershocks. Retrieved 2013, from Geonet: www.geonet.org.nz/canterbury-quakes/aftershocks

GNS Science (2015). New Zealand Active Faults Database. Retrieved 2016, from http://data.gns.cri.nz /af/

NZS 1170.5:2004. Structural Design Actions Part 5: Earthquake Actions – New Zealand.

NZS 3604:2010. Timber Framed Buildings.

NZS 4404:2010. Land Development and Subdivision Infrastructure.

NZS 4431:1989. Code of Practice for Earthfilling for Residential Development

Pettinga J.R., Yetton M.D., Van Dissen R.J., & Downes G. (2001). Earthquake Source Identification and Characterisation for the Canterbury Region, South Island, New Zealand. Bulletin of the New Zealand Society for Earthquake Engineering, Vol 34, No. 4, pp 282-317

Selwyn District Council (2015), Selwyn District Council Operative District Plan. Retrieved 2016, from http://www.selwyn.govt.nz/services/planning/district-plan

The Ministry of Business, Innovation, and Employment. (2012). Guidance-Repairing and rebuilding houses affected by the Canterbury earthquakes. Christchurch: The Ministry of Business, Innovation, and Employment.

We also acknowledge the New Zealand GeoNet project and its sponsors EQC, GNS Science and LINZ, for providing data used in this report.

9 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 IPENZ / 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

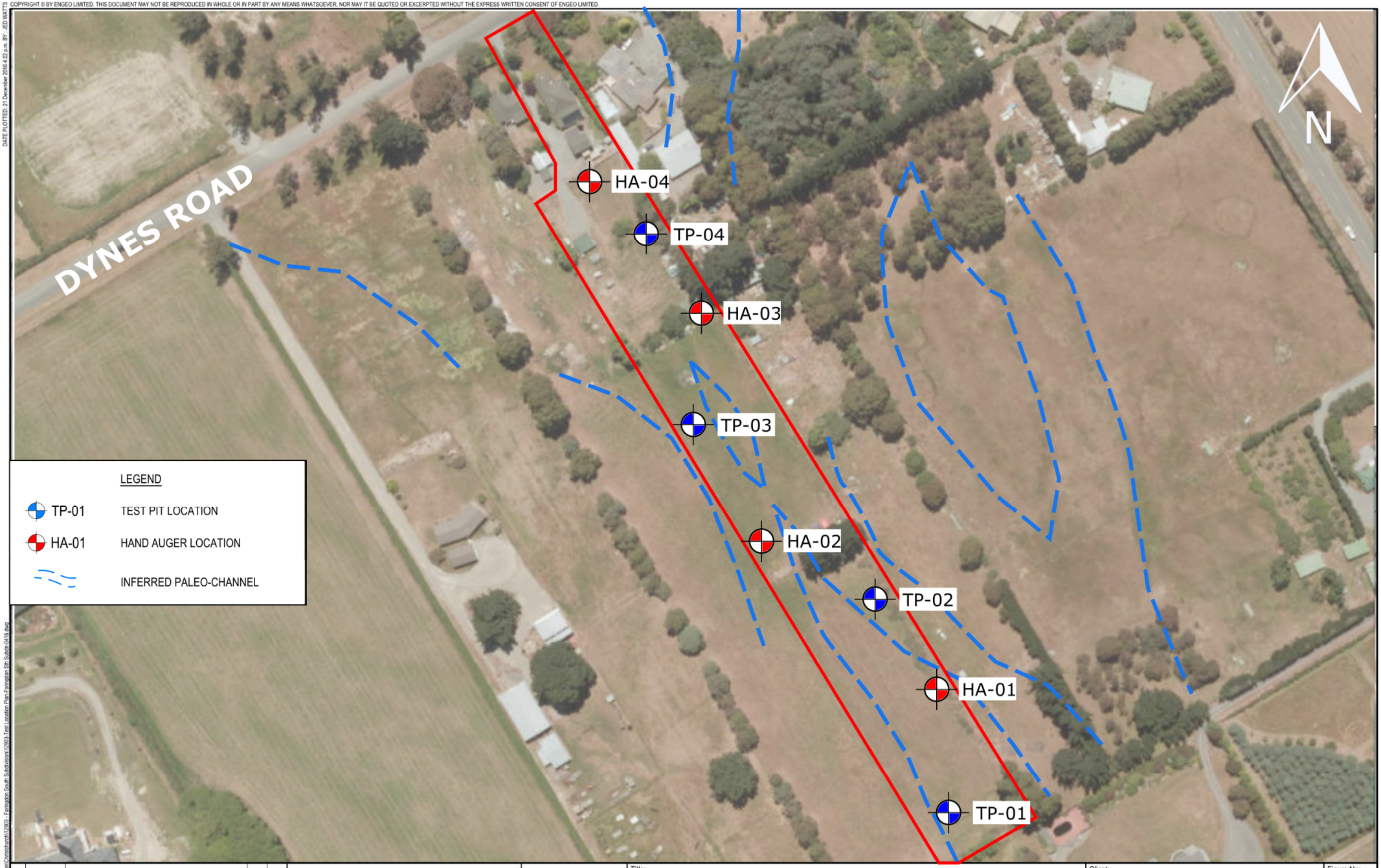
Greg Martin, PEngGeol

Principal Engineering Geologist

APPENDIX 1:

Test Location Plan

DATE PLOTTED: 21 December 2016 4:22 p.m. BY: JED WATTS



XREFs: canterbury-04mm-rural-aerial-photos-2012-2013
CAD File: G:\ENGEO CAD\Jobs Im working on\Christchurch\12903 - Faringdon South Subdivision\12903 Test Location Plan-Faringdon Site Subdiv0418.dwg

Rev	Date	Description	Drwn	Chkd
-				

ENGEO
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Title: TEST LOCATION PLAN

Client:	HUGHES DEVELOPMENTS		Figure No: 1
Project:	FARINGDON SUBDN 23 DYNES ROAD ROLLESTON	Designed: JW Drawn: JW Checked: - Date: 21.12.16	Size: A3
Proj No:	12903.000.000	Scale: 1:4000	Rev: 0

ORIGINAL FIGURE PRINTED IN COLOUR

APPENDIX 2:

Test Pit and Hand Auger Hole Logs

LOG OF TEST PIT TP01

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Development Ltd
Date : 20/12/16
Max Test Pit Depth : 2.2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 6T 1.3 m bucket

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	Excavatability (Relative Scale) Easier / Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm (2 4 6 8 10 12)
0.0	TS		ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity [TOPSOIL].				St		
0.5	ALLUVIUM		GW	Sandy fine to coarse GRAVEL with minor cobbles; brownish grey. Well graded, subrounded. Sand, fine to coarse, well graded. Pit walls are vertical and tightly packed. Trace rootlets encountered from 0.2 m to 0.5 m depth.			M	D		>>
1.0										
1.5										
2.0				Depth of Excavation: 2.2 m Termination Condition: Target depth						
2.5										

Test pit met target depth t 2.2 m
Scala Penetrometer met practical refusal
Standing groundwater was not encountered

TS = TOPSOIL

LOG OF TEST PIT TP02

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Development Ltd
Date : 20/12/16
Max Test Pit Depth : 2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 6T 1.3 m bucket

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	Excavatability (Relative Scale) Easier–Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
0	TS		ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity [TOPSOIL].				St		
0.5	ALLUVIUM		GW	Sandy fine to coarse GRAVEL with minor cobbles; brownish grey. Well graded, subrounded. Sand, fine to coarse, well graded. Pit walls are vertical and tightly packed. Trace rootlets encountered from 0.2 m to 0.5 m depth.			M	D		
1.0										
1.5			SW	Fine to coarse SAND with trace gravel; greyish brown. Well graded. Pit walls are vertical and tightly packed.			W			
			GW	Sandy fine to coarse GRAVEL with minor cobbles; brownish grey. Well graded, subrounded. Sand, fine to coarse, well graded. Pit walls are vertical and tightly packed.						
2.0				Depth of Excavation: 2 m Termination Condition: Target depth						
2.5										

Scala Penetrometer: Blows per 100mm — 2 4 6 8 10 12 (>>)

Test pit met target depth at 2.0 m.
Scala Penetrometer met practical refusal
Standing groundwater was not encountered

TS = TOPSOIL

LOG OF TEST PIT TP03

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Development Ltd
Date : 20/12/16
Max Test Pit Depth : 2.2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 6T 1.3 m bucket

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	Excavatability (Relative Scale) Easier – Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
0	TS		ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity [TOPSOIL].				S-St		
0.5	ALLUVIUM		ML	SILT with trace sand; yellowish brown. Low plasticity.			M	H		
			GW	Sandy fine to coarse GRAVEL with minor cobbles; brownish grey. Well graded, subrounded. Sand, fine to coarse, well graded. Pit walls are vertical and tightly packed. Trace rootlets encountered from 0.8 m to 0.9 m depth. Becomes wet from 1.0 m depth.				D		
1.0										
1.5							W			
2.0				Depth of Excavation: 2.2 m Termination Condition: Target depth						
2.5										

Scala Penetrometer: Blows per 100mm — 2 4 6 8 10 12 (>>)

Test pit met target depth t 2.2 m
Scala Penetrometer met practical refusal
Standing groundwater was not encountered

TS = TOPSOIL

GEOSCIENCE TEST PIT LOG HA TEMPLATE - BLANK.GPJ NZ MASTER DATA TEMPLATE.GDT 21/12/16

LOG OF TEST PIT TP04

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Development Ltd
Date : 20/12/16
Max Test Pit Depth : 2 m
Digger Type/Size : Bucket Excavator
Bucket Type/Size : 6T 1.3 m bucket

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	Excavatability (Relative Scale) Easier–Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm
0	TS		ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity [TOPSOIL].				St		
	ALLUVIUM		ML	SILT with trace sand and rootlets; yellowish brown. Low plasticity.				VSt		
0.5				Sandy fine to coarse GRAVEL with minor cobbles; brownish grey. Well graded, subrounded. Sand, fine to coarse, well graded. Pit walls are vertical and tightly packed.			M	D		
1.0			GW	Becomes wet from 1.0 m depth.			W			
1.5										
2.0				Depth of Excavation: 2 m Termination Condition: Target depth						
2.5										

Scala Penetrometer: Blows per 100mm — 2 4 6 8 10 12 (>>)

Test pit met target depth at 2.0 m.
Scala Penetrometer met practical refusal
Standing groundwater was not encountered

TS = TOPSOIL

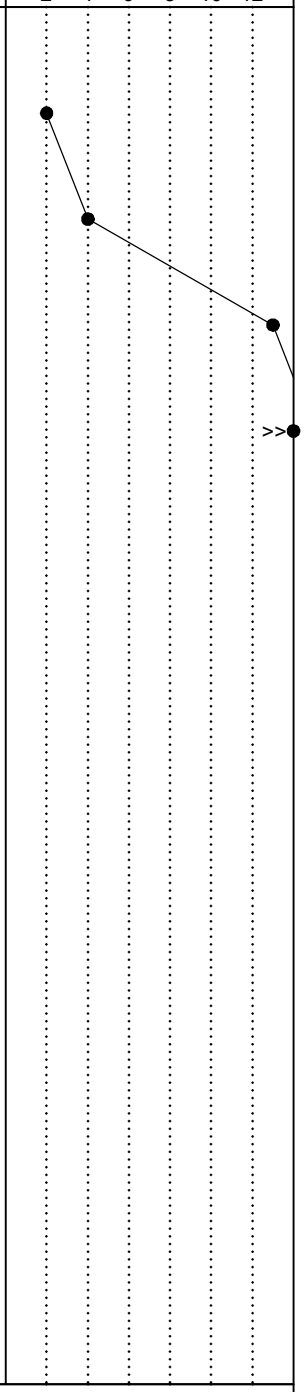
LOG OF AUGER HA01

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Developments Ltd
Client Ref. : 12903
Date : 20/12/16
Hole Depth : 0.2 m
Hole Diameter : 50 mm

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Scala Penetrometer Blows per 100mm
	TOPSOIL	ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity. Sand, fine, poorly graded [TOPSOIL].			M	S-St		
			End of Hole Depth: 0.2 m Termination Condition: Practical refusal						



0.5

1.0

Hand auger met practical refusal at 0.2 m depth on inferred gravel.
Scala Penetrometer met practical refusal at 0.4 m depth.
Standing groundwater was not encountered

LOG OF AUGER HA02

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Developments Ltd
Client Ref. : 12903
Date : 20/12/16
Hole Depth : 0.2 m
Hole Diameter : 50 mm

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Scala Penetrometer Blows per 100mm
0	TOPSOIL	ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity. Sand, fine, poorly graded [TOPSOIL].			M	St-H		2 4 6 8 10 12
			End of Hole Depth: 0.2 m Termination Condition: Practical refusal						>>
0.5									
1.0									

Hand auger met practical refusal at 0.2 m depth on inferred gravel.
Scala Penetrometer met practical refusal at 0.3 m depth.
Standing groundwater was not encountered

LOG OF AUGER HA03

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Developments Ltd
Client Ref. : 12903
Date : 20/12/16
Hole Depth : 0.7 m
Hole Diameter : 50 mm

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded
	TOPSOIL	ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity. Sand, fine, poorly graded [TOPSOIL].				St	
	ALLUVIUM	ML	SILT; greyish brown. Low plasticity.			M	St-VSt	
0.5		SM	Silty fine to medium SAND; greyish brown. Poorly graded.				MD-D	
			End of Hole Depth: 0.7 m Termination Condition: Practical refusal					
1.0								

Scala Penetrometer

Blows per 100mm

2 4 6 8 10 12

>>

Hand auger met practical refusal at 0.7 m depth on inferred gravel.
Scala Penetrometer met practical refusal at 0.7 m depth.
Standing groundwater was not encountered

GEOSCIENCE HAND AUGER HA TEMPLATE - BLANK.GPJ NZ DATA TEMPLATE 2.GDT 21/12/16

LOG OF AUGER HA04

Faringdon Subdivision
23 Dynes Road
Rolleston
12903

Client : Hughes Developments Ltd
Client Ref. : 12903
Date : 20/12/16
Hole Depth : 0.5 m
Hole Diameter : 50 mm

Shear Vane No :
Logged By : RB
Reviewed By : JW
Latitude :
Longitude :

Depth (m)	Material	USCS Symbol	DESCRIPTION	Graphic Symbol	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded
	TOPSOIL	ML	SILT with some sand, trace gravel and rootlets; brown. Low plasticity. Sand, fine, poorly graded [TOPSOIL].			M	S-F	
	ALLUVIUM	ML	SILT; greyish brown. Low plasticity.				St	
0.5			End of Hole Depth: 0.5 m Termination Condition: Practical refusal					
1.0								

Scala Penetrometer

Blows per 100mm

2 4 6 8 10 12

>>

Hand auger met practical refusal at 0.5 m depth on inferred gravel.
Scala Penetrometer met practical refusal at 0.6 m depth.
Standing groundwater was not encountered

APPENDIX 3:

ECan Boreholes

Bore or Well No: M36/7565
Well Name:
Owner: Mr & Mrs T & N Buhrs

Environment Canterbury
Your regional council

Street of Well:
File No:
Locality: Rolleston
Allocation Zone: Selwyn-Waimakariri
NZTM Grid Reference: BX23:51067-71240 QAR 4
CWMS Zone: Selwyn - Waihora
NZTM X-Y: 1551067 - 5171240
Location Description:
Uses: Domestic Supply
ECan Monitoring:
Well Status: Active (exist, present)

Drill Date: 01 Jan 2004
Water Level Count: 0
Well Depth: 35.00m -GL
Strata Layers: 6
Initial Water Depth: -12.50m -MP
Aquifer Tests: 0
Diameter: 150mm
Yield/Drawdown Tests: 2

Measuring Point Ait: 42.15m MSD QAR 4
Highest GW Level:
GL Around Well: 0.00m -MP
Lowest GW Level:
MP Description:
First Reading:
Last Reading:
Driller: Dynes Road Drilling
Calc. Min. (Below MP): -11.60m -MP
Drilling Method: Cable Tool
Last Updated: 08 Nov 2013
Casing Material: STEEL
Last Field Check:
Pump Type:
Yield: 6 l/s
Aquifer Type:
Drawdown: 10 m
Aquifer Name: Linwood Gravel
Specific Capacity: 0.37 l/s/m

Screens:

Screen No.	Screen Type	Top (m)	Bottom (m)	Diameter (mm)	Leader Length (mm)	Slot Size (mm)	Slot Length (mm)
1	Stainless steel	33	35				

Step Tests:

Step Test Date	Step	Yield (l/s)	Drawdown	Duration (mins)
01 Jan 2004	1	3.4	9.14	120
01 Jan 2004	2	5.7	10.36	180

Aquifer test date(s) where this is an observation bore

Borelog for well M36/7565

Grid Reference (NZTM): 1551067 mE, 5171240 mN
Location Accuracy: 50 - 300m
Ground Level Altitude: 42.2 m +MSD Accuracy: < 0.5 m
Driller: Dynes Road Drilling
Drill Method: Cable Tool
Borelog Depth: 35.0 m Drill Date: 01-Jan-2004

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha