

Submitted to:

Hughes Developments Ltd
Christchurch

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1 Introduction

ENGEO Ltd was requested by Hughes Developments Ltd to undertake a geotechnical investigation of the property at 597 East Maddisons Road, Rolleston, Christchurch, as outlined in our variation proposal (ref: P2020.001.804_01).

The purpose of this assessment is to develop a conceptual 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 includes 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 29 hand auger boreholes with associated Scala penetrometer tests to assess the near surface material types and strength characteristics.
- Organise and observe the excavation of 26 test pits, including geotechnical logging of the exposed soils.
- Preparation of this report outlining our findings on the ground conditions and comment on the suitability of the site for residential subdivision, including the provision of the likely foundation Technical Category, conceptual foundation recommendations for typical timber framed residential dwellings, and discuss likely geohazards as required by Section 106 of the RMA.

2 Site Description

The site comprises of one property with a total area of four hectares and the following legal description (Canterbury Maps):

LOT 1 DP 57004 BLK III

The site is located approximately 3 km south of Rolleston town centre and is bound on all sides by rural properties (Figure 1).



Figure 1: Site Location Plan



 $Images\ sourced\ from\ Canterbury\ Maps\ and\ ``©\ OpenStreetMap\ contributors".\ Not\ to\ scale.$



3 Geological Model

3.1 Regional Geology

The site has been regionally mapped by GNS (Forsyth et al., 2008) as being underlain by brownish grey river alluvium (Q2a).

3.2 Geomorphology

The site comprises relatively flat ground, with gentle undulations and depressions in some areas. As evident on aerial imagery (Canterbury Maps, 2019) and observed during our site walkover conducted on 25 August 2020, undulating and depressed ground can be attributed to paleo-channels, which traverse the site in a general northwest to southeast direction (Figure 2). Based on observations, sandy silt deposits with variable thickness are expected to have in-filled the paleo-channels where they have not remained as channel features. Inferred paleo-channels have been mapped to give an indication of areas with potential channel in-fill (Appendix 1).

Figure 2: Historical Aerial Photo - 1970 - 1974

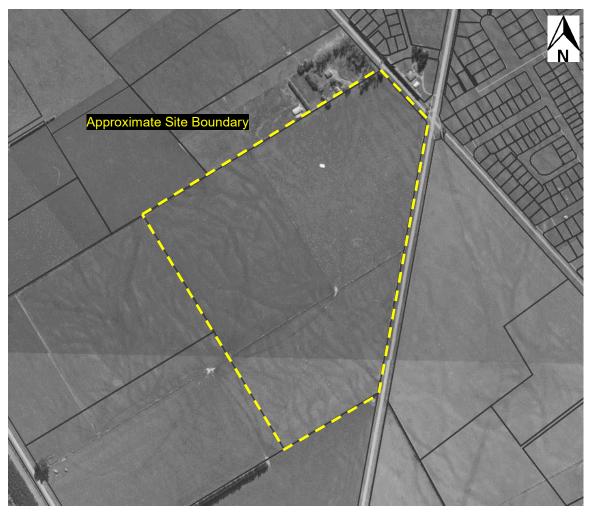


Image sourced from Canterbury Maps. Not to scale.



3.3 Geohazards

3.3.1 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 6 km north / northwest of the site and trends roughly east-west with a surface rupture length 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 extended to within 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).

3.3.2 Liquefaction and Lateral Spreading

The site is located in an area mapped where "damaging liquefaction is unlikely" (NZGD Map CGD5140, 2012), and a "zone of very low liquefaction potential" (GNS, 2006).

3.4 Site Investigation

Site investigations to assess the shallow subsurface material types and strength characteristics were undertaken by ENGEO on 27 and 28 August 2020. Twenty-six test pits and 29 hand auger investigations with associated Scala penetrometer tests were completed to a maximum depth of 2.2 m below ground level.

The investigations revealed subsurface conditions across the site are consistent with the published geological mapping, as summarised in Table 1. Hand auger and test pit logs are attached as Appendix 2.

Table 1: Summary of Subsurface Investigations

Soil Type	Depth to Top of Layer (m)	General Layer Thickness (m)	Density / Consistency	Additional Comments
TOPSOIL	0.0	0.1 – 0.3	Stiff to Very Stiff	-
Sandy GRAVEL	0.3	Unknown	Medium Dense to Very Dense	Tightly packed and consistent across the site



3.5 ECan Boreholes

A review of five, deep ECan borehole logs was conducted. The first (M36/4346), is located on-site, and appear to be water wells providing the properties irrigation and domestic supply. The other boreholes are located to the east (M36/4891), north (M36/5041), south (M36/4449) and west (M36/7512) of the site.

Well logs from the five holes of interest are attached as Appendix 3 and summarised in Table 2.

Table 2: Generalised Summary of ECan Boreholes

ECan Borehole	Total Depth (m)	Water Level Below Ground Level (m)	Generalised Borelog as Logged by Driller
M36/4346	28.5	9.71	Gravel with silt and sand to 28.5 m depth. A layer of silt recorded from 6 to 8 m depth.
M36/4891	26.7	9.81	Gravel to 26.7 m depth.
M36/5041	34	9.73	Gravel with silt and sand to 34 m depth.
M36/4449	24.2	9.27	Gravel to 24.2 m depth.
M36/7512	29	9.32	Sandy gravel to 21.3 m depth.

Figure 3: Nearby ECan Borehole Locations



Aerial photograph sourced from Canterbury Maps. Not to scale.



3.6 Groundwater

Groundwater is recorded in the surrounding ECan boreholes at approximately 9 to 10 m depth.

3.7 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'.

4 Liquefaction Analysis

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 future land performance to be in line with Technical Category 1 (TC1), whereby future land damage from liquefaction is unlikely, and ground settlements are expected to be within normally accepted tolerances.

5 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 it considers that:

- There is a significant risk from natural hazards; or
- Sufficient provision has not been made for legal or physical access to each allotment to be created by the subdivision.

An assessment of the risk from natural hazards as required by the RMA includes the following:

- The likelihood of natural hazards occurring (whether individually or in combination);
- The material damage to land in respect of which the consent is sought, other land, or structures that would result from natural hazards; and
- Any likely subsequent use of the land in respect of which the consent is sought that would accelerate, worsen, or result in material damage of the kind referred to in paragraph (b).

We have assessed the risk of natural hazards at the site in accordance with Section 106 of the Resource Management Act (RMA) and considered the risk to the site from rockfall, inundation (debris), slope stability, subsidence, flooding and tsunami. 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 natural hazards such as rockfall, inundation (debris), slope stability, subsidence, flooding and tsunami. As such, the site is considered suitable for subdivision from a geotechnical perspective.



6 Geotechnical Recommendations

6.1 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 Earth filling for Residential Development. In particular, any areas to receive fill should be stripped of all vegetation, topsoil, non-engineered fill, soft or organic soils prior to fill placement.

Fill may comprise clean native (site won) sandy gravel or silty soils, or clean imported soils and / or granular fill, compacted to achieve no less than 95% of maximum dry density. Fill faces steeper than 1V:1H and higher than 600 mm should be retained and referred 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 no steeper than 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 inspection / testing regime agreed, along with a robust erosion and sediment control plan.

6.2 Subdivision Roading

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

6.3 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.

6.4 Foundations

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

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 native sandy gravel or engineered fill, below any topsoil. All topsoil shall be stripped from within building footprints. We anticipate building pad excavations to be typically 0.3 m depth based on our subsurface investigations.



6.5 Additional Considerations

The following should also be considered in further stages of the development:

- Development of an earthworks specification addressing site grading.
- Review of the geotechnical aspects of the site grading and foundation plans.
- Geotechnical observations and testing during construction.
- Lot specific geotechnical reports.

7 References

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- The Ministry of Business, Innovation, and Employment (2016). New Zealand Geotechnical Database. Retrieved August 2020, from https://www.nzgd.org.nz.



8 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

Report reviewed by

Jed Watts

Engineering Geologist

Don Bruggers, CMEngNZ (CPEng)

Principal Engineer





APPENDIX 1:

Site Plan and Inferred Paleo Channels







APPENDIX 2:

ENGEO Hand Auger and Test Pit Logs





Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 1.95 m Reviewed By : JRW Latitude: 172.37761

Digger Type/Size : Bucket Excavator Longitude : -43.62372 Bucket Type/Size : 500 mm

Excavatability (Relative Scale) DESCRIPTION SITY fine to medium SAND with trace gravel and rootlets; brown. Peorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. Depth of Excavation: 1.95 m Termination Condition: Target depth								Bucket Type/Size :	500 mm					Longitud	∋ : -43	.623	12	
Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Depth of Excavation: 1.95 m	Depth (m BGL)	Material	(Relative	Scal	e) .	USCS Symbol	DESC	CRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Blo	ows	per 1	
1.5 - Depth of Excavation: 1.95 m	- - - 0.5 -						gravel and rootlets [TOPSOIL]. Sandy fine to coar cobbles; greyish b subrounded to rou coarse.	rse GRAVEL with minor rown. Well graded, inded. Sand, fine to	7 34 V			М						•
Depth of Excavation: 1.95 m	- - 1.0— - -	ALLUVIUM			G	SW							Tightly Packed					
Depth of Excavation: 1.95 m Termination Condition: Target depth	- 1.5 - - - -											w						
	2.0 - - -						Depth of Excavation Termination Cond	on: 1.95 m ition: Target depth										
	Tes	t pit	met targe	et dep	th at	t 1.9	5 m.											



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2 m Reviewed By : JRW

Digger Type/Size : Bucket Excavator Latitude: 172.37648 Longitude: -43.62369 Bucket Type/Size : 500 mm

Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed	Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed W W							Bucket Type/Size :	500 mm					Longitud	e : -4	3.62	369		
Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed	Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Depth of Excavation: 2 m	Depth (m BGL)		(Relativ	atabi ⁄e Sc	ale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	В	lows	per	100m	nm
1.0 — WOUNTIEN GW 1.5 — WOUNTIEN GW	GW Solution: 2 m	- - - 0.5 -				-		gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	\$ \frac{1}{2} \fra			M			•	•			
1.5 -	Depth of Excavation: 2 m	- - - 1.0—	LUVIUM				GW	Rootlets encountered up to 0.6 m depth.					Tightly Packed						
2.0 Depth of Excavation: 2 m	Depth of Excavation: 2 m	- 1.5 - - -	AL									w							
- Termination Condition: Target depth		2.0— - - -						Depth of Excavation: 2 m Termination Condition: Target depth											
		Sca	ıla Pe	met tarç	eter	met	practi	n. cal refusal at 0.3 m depth. cencountered											



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Max Test Pit Depth : 1.9 m Reviewed By : JRW Latitude: 172.37681

Digger Type/Size : Bucket Excavator Bucket Type/Size : 500 mm Longitude : -43.62288

				123	00	Bucket Type/Size : 5	00 mm					Longitude	: -4	3.62	288		
Depth (m BGL)	Material	Excav (Relati	vatab ve So	Harder Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Е	Blows	s per	100	
	TOPSOIL	Ш		±	SM	Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL].		Ш	>	2	L	ш.	2	4	6	8 1	0 12
- 0.5 - -						Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.				М					•		\ \ !
-	-					Rootlets encountered up to 0.6 m depth.											
1.0 - -	ALLUVIUM				GW						Tightly Packed						
- - 1.5 -										w							
-																	
2.0 - -	-					Depth of Excavation: 1.9 m Termination Condition: Target depth											
_													-		<u>:</u>		
Sca Sta	ic pit ala Pe nding	rnet tar enetron g groun	get d neter	epth met ter wa	at 1.9 practi as not) m. ical refusal at 0.5 m depth. : encountered											



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2 m Reviewed By : JRW Digger Type/Size : Bucket Excavator Latitude: 172.37574

Longitude : -43.62268 Bucket Type/Size : 500 mm

						Bucket Type/Size .	000 111111					Longitude	7 . - 4·	3.02	200		
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- - 0.5 - - -	Т					Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.5 m depth.				M							/^
- 1.0— - -	ALLUVIUM				GW						Tightly Packed						
- 1.5 - - - -										W							
2.0 - - -		;	; 	;		Depth of Excavation: 2 m Termination Condition: Target depth											
Tes	t pit :	met ta	arget (depth	at 2 r	n. ical refusal at 0.3 m depth.											



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2 m Reviewed By: JRW Latitude: 172.37715

Digger Type/Size : Bucket Excavator Longitude: -43.62459 Bucket Type/Size : 500 mm

Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor								Bucket Type/Size . 3	וווווו טטכ					Longitude	-	13.02	245	5		
Sitty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.5 m depth. M Tightly Packed Depth of Excavation: 2 m	a	cav ativ	vat ive	itab e S	Sca	le)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	E	Зlow	/s pe	er 10	00m	m
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2.0 Depth of Excavation: 2 m							GW						Tightly Packed							•
Depth of Excavation: 2 m												W								
					•			Depth of Excavation: 2 m Termination Condition: Target depth	,••											
	O	ron	me	ete	er m	net	at 2 r pract as not	m. ical refusal at 0.3 m depth. t encountered												



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd:

Date: 27/08/2020

Max Test Pit Depth: 2.1 m

Digger Type/Size: Bucket Excavator

Shear Vane No: N/A

Logged By: JC/RB/JW

Reviewed By: JRW

Latitude: 172.37715

Digger Type/Size: Bucket Excavator

Bucket Type/Size: 500 mm

Latitude: 172.37715

Longitude: -43.62459

				Bucket Type/Size . 3	00 111111					Longitude	43	.024	J		
Depth (m BGL)	Material	Excavatability (Relative Scale	Symbo	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Blo	ows p	er 1		ım
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0.5	-			Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.5 m depth.				М			•			····/	\/\>\
1.0-	ALLUVIUM		GW						Tightly Packed						
1.5	-							W							
2.00	-			Depth of Excavation: 2.1 m Termination Condition: Target depth	X										



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2.1 m Reviewed By: JRW Digger Type/Size : Bucket Excavator Latitude: 172.37798

		129	903	Bucket Type/Size : 5			.01			Longitude	: -43.62		
Depth (m BGL)	Material	cavatability ative Scale) Depte	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Blows	s per	ım
-	TOPSOIL		SM	Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL].	1/ · 2/ · 1/ 1/ · 2/ · 1/				L-MD		•		
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1.5 -	-			Lens of loosely packed coarse gravel with limited fines approximately 100 mm thick encountered at 1.7 m depth.				W					
-				Depth of Excavation: 2.1 m Termination Condition: Target depth									



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date: 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2.1 m Reviewed By: JRW Latitude: 172.37998

Digger Type/Size : Bucket Excavator Longitude: -43.62481 Bucket Type/Size : 500 mm

Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL].		ket Type/Size . 500 i	11111				43.0240	· I
Sity fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. GW Tightly Packed Depth of Excavation: 2.1 m	ve Scale)	TION C	Graphic Symbol Elevation (mRL)	Water Level Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Blows po	er 100mm
Subrounded to rounded. Sand, fine to coarse. GW Tightly Packed N Depth of Excavation: 2.1 m	Silty fine to medium SAN gravel and rootlets; brown [TOPSOIL]. Sandy fine to coarse GR.	n. Poorly graded	₹. 77 ₹. 74				•	
Tightly Packed Depth of Excavation: 2.1 m	subrounded to rounded.	Sand, fine to		M				
Depth of Excavation: 2.1 m	GW				Tightly Packed			
Depth of Excavation: 2.1 m				W				
	Depth of Excavation: 2.1 Termination Condition: Ta	m arget depth	6					
	neter	epth at 2.1 m. met practical refusal at 0.3 m depth er was not encountered	met practical refusal at 0.3 m depth.					



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date: 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2.1 m Reviewed By: JRW Latitude: 172.37847

Digger Type/Size : Bucket Excavator Longitude: -43.62461 Bucket Type/Size : 500 mm

Excavatability (Relative Scale) Part P	Harder Nambo	Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	S. S. S. Graphic Symbol	Elevation (mRL)	Water Level		L-MD	Shear Vane Peak/Remolded (KPa)	Blows	s per 1	00mm
SM Sitty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. GW Tightly Packed Depth of Excavation: 2.1 m		gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)			M	L-MD				
Cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. GW Tightty Packed Debth of Excavation: 2.1 m	GW	cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to			_	M					
GW Tightly Packed 2.0 Depth of Excavation: 2.1 m	GW				-						
Depth of Excavation: 2.1 m							Tightly Packed				
Depth of Excavation: 2.1 m						W					
		Depth of Excavation: 2.1 m Termination Condition: Target depth									
			target depth at 2.1 m.	target depth at 2.1 m.	target depth at 2.1 m.	target depth at 2.1 m.	target depth at 2.1 m.	target depth at 2.1 m.	target depth at 2.1 m. rometer met practical refusal at 0.4 m depth. undwater was not encountered	target depth at 2.1 m.	target depth at 2.1 m.



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd:

Date: 27/08/2020

Max Test Pit Depth: 2.2 m

Digger Type/Size: Bucket Excavator

Shear Vane No: N/A

Logged By: JC/RB/JW

Reviewed By: JRW

Latitude: 172.37831

Digger Type/Size: Bucket ExcavatorLatitude: 172.37831Bucket Type/Size: 500 mmLongitude: -43.62379

					Bucket Type/Size : 5	UU mm					Longitude	3 : -43.62379
Depth (m BGL)	Material	Excavatabilit (Relative Scal	USCS Symbol	DES	CRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm 2 4 6 8 10 12
-	TOPSOIL		SM	gravel and rootlet [TOPSOIL].	m SAND with trace s; brown. Poorly graded m SAND with trace					L-MD		
_	٢		SM		vn with orange mottles.					MD		
1.0	ALLUVIUM		GW	Sandy fine to coa cobbles; greyish to subrounded to rot coarse.	rse GRAVEL with trace brown. Well graded, unded. Sand, fine to acked coarse gravel with eximately 100 mm thick				W	Tightly Packed		
-				encountered at 2. Depth of Excavati		, •						
-				Termination Cond	lition: Target depth							
											ı	<u> </u>

Test pit met target depth at 2.2 m.

Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2.1 m Reviewed By: JRW Latitude: 172.37929

Digger Type/Size : Bucket Excavator Bucket Type/Size : 500 mm Longitude: -43.62371

				120		Bucket Type/Size : 5	500 mm					Longitude	: -4	3.62	371		
Depth (m BGL)	aterial	Exca (Relati	vatab ive S	y (ella)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	В	Blows	Penet	100m	nm
	TOPSOIL Material	Ш	:	エ	SM	Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL].	1/ · ½·//	Ш	5	Σ	L-MD	ш	2 :	4	6 8	3 10) 12
- - 0.5 - - -	<u>О</u> Т					Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.				М				/		······································	
- 1.0 - -	ALLUVIUM				GW						Tightly Packed						
- 1.5 - - -										W							
- 2.0—																	
- -		;	•	;		Depth of Excavation: 2.1 m Termination Condition: Target depth											
Tesi Sca Star	t pit i ila Pe	met ta enetror g grour	rget o	depth met	at 2.1 practi	I m. ical refusal at 0.3 m depth. t encountered											



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2.1 m Reviewed By: JRW Latitude: 172.37963

Digger Type/Size : Bucket Excavator Bucket Type/Size : 500 mm Longitude : -43.62408

						Bucket Type/Size :	500 mm					Longitude	e : -4:	3.62	408		
Depth (m BGL)	Material	Excava (Relative	tability e Scale Larger Hauder	Į Ķ	DES	CRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	В	lows	Penet	100m	nm
-	Τ_	ш : : :		SM	Silty fine to mediu gravel and rootlets [TOPSOIL].	m SAND with trace s; brown. Poorly graded		ш	>	2	L-MD		:	4	6 8	3 10	12
0.5 -					cobbles; greyish b	rse GRAVEL with trace brown. Well graded, unded. Sand, fine to	TO THE PROPERTY OF THE PROPERT			M						\	
- 1.0 - -	ALLUVIUM			GW							Tightly Packed						
- 1.5 - - -										W							
2.0							は										
-					Depth of Excavati Termination Cond	on: 2.1 m lition: Target depth											
Test Sca	t pit i	met targe enetrome	et depth eter me	n at 2.º t pract	1 m. ical refusal at 0.3 n t encountered	n depth.											



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2 m Reviewed By: JRW

Digger Type/Size : Bucket Excavator Latitude: 172.38028 Longitude : -43.62302 Bucket Type/Size : 500 mm

			120	.00	Bucket Type/Size	500 mm					Longitude	: -4	3.62	302		
Depth (m BGL)	aterial	Excavatal (Relative S	y tarder Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)				tromet	
0.5 -	TOPSOIL Material		当 	§∩ ∖SMJ	Silty fine to medium SAND with trace gravel and rootlets; brown. Poorly graded [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.	JO A WAY	ä	M	M	MD MD	<u>a</u> .	2	4	6 8	3 10	12
- 1.0 - -	ALLUVIUM			GW						Tightly Packed						
- 1.5 - - - -									w							
2.0— - - -					Depth of Excavation: 2 m Termination Condition: Target depth											
Sca	la Pe	met target enetromete	r met	practi	ical refusal at 0.2 m depth	= TOPS(OII									



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 1.9 m Reviewed By: JRW Latitude: 172.37768

Digger Type/Size : Bucket Excavator Longitude: -43.62311 Bucket Type/Size : 500 mm

SCS Symbo (m BG Schear Van eak/Remol/ (RPa) (RPa)	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Depth of Excavation: 1.9 m							Bucket Type/Size :	000 mm					Longitude	e: -43.6	2311		
SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, submitted to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Depth of Excavation: 1.9 m	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Depth of Excavation: 1.9 m	Depth (m BGL)	Material	(Relative	Scale)	USCS Symbol	DES	CRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Blow	/s per	100	mm
Depth of Excavation: 1.9 m	Depth of Excavation: 1.9 m	- - - 0.5 - -					Sandy fine to coa cobbles; greyish to subrounded to rou coarse.	rse GRAVEL with minor rown. Well graded, unded. Sand, fine to				М						
Depth of Excavation: 1.9 m	Depth of Excavation: 1.9 m	- 1.0— - -	ALLUVIUM			GW							Tightly Packed					
Depth of Excavation: 1.9 m 2.0— Termination Condition: Target depth	Depth of Excavation: 1.9 m Termination Condition: Target depth	- 1.5 - - -										W						
		- 2.0— - -					Depth of Excavati Termination Cond	on: 1.9 m lition: Target depth										
		Sca	ıla Pe	met targe	er met	pract) m. ical refusal at 0.3 n t encountered	n depth.										



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A

Date: 27/08/2020 Logged By: JC/RB/JW

Max Test Pit Depth: 1.9 m Reviewed By: JRW

Digger Type/Size: Bucket Excavator Latitude: 172.37693

Digger Type/Size : Bucket Excavator Latitude : 172.37698

Bucket Type/Size : 500 mm Longitude : -43.6222

				Bucket Type/Size . 30	50 111111					_ong.taat	5 . -4 3.0222
Depth (m BGL)	Material	Excavatability (Relative Scale) Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm 2 4 6 8 10 12
0.5 -	TOPSOIL		ML	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth.				М	St-VSt		*
1.0 - - - - - 1.5 -	ALLUVIUM		GW					w	Tightly Packed		
2.0				Depth of Excavation: 1.9 m Termination Condition: Target depth							

Test pit met target depth at 1.9 m. Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd:

Date: 27/08/2020

Max Test Pit Depth: 1.9 m

Digger Type/Size: Bucket Excavator

Shear Vane No: N/A

Logged By: JC/RB/JW

Reviewed By: JRW

Latitude: 172.37714

Bucket Type/Size: 500 mm Latitude: 172.37/14

Latitude: 172.37/14

Latitude: 43.62138

				Bucket Type/GIZE : 00							. 10.0 <u>2</u> 100	<u> </u>
Depth (m BGL)	Material	Excavatability (Relative Scale) Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Pen Blows pe	
-	TOPSOIL		ML	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with minor cobbler; gravish brown. Well graded					St-VSt			
0.5 -				cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth.	XXXX			M				>>
1.0	ALLUVIUM		GW						Tightly Packed			
1.5 -					XXX			W				
2.0		1 ; ; ;		Depth of Excavation: 1.9 m Termination Condition: Target depth								

Test pit met target depth at 1.9 m. Scala Penetrometer met practical refusal at 0.4 m depth. Standing groundwater was not encountered



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 27/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 1.9 m Reviewed By: JRW **Latitude**: 172.378

Digger Type/Size : Bucket Excavator Bucket Type/Size : 500 mm Longitude: -43.62249

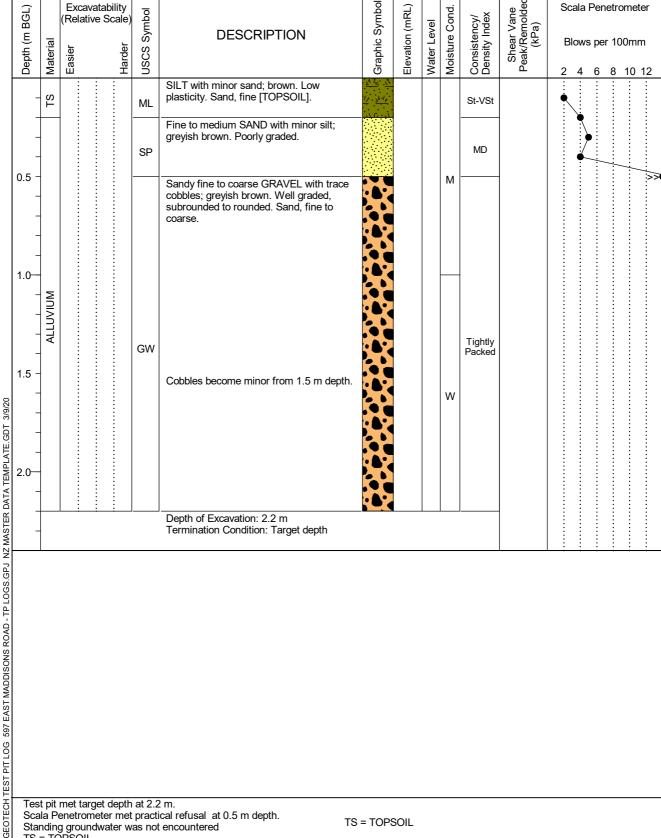
			120		Bucket Type/Size : 5	ou mm					Longitude	: -4	·3.02	.249		
Depth (m BGL)	Material	Excava (Relative	tability e Scale) Harder	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Е	Blows	s per	100	
	TOPSOIL			ML	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL].	1/2 3 1/2 3	ш	>	2	St-VSt	_	2	4	6	8 1	0 12
- 0.5 - - -					Sandy fine to coarse GRAVEL with minor cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth.	S S S S S S S S S S S S S S S S S S S			M							
- 1.0 - -	ALLUVIUM			GW						Tightly Packed						
- 1.5 - - -									W							
- 2.0— - - -			<u> </u>		Depth of Excavation: 1.9 m Termination Condition: Target depth											
												<u>:</u>		<u>:</u>		



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 28/08/2020 Logged By : JC/RB/JW Max Test Pit Depth : 2.2 m Reviewed By: JRW Latitude : 172 38001 Digger Type/Size · Bucket Excavator

129	03	Bucket Type/Size : 50			iOi				e : -43.62263
Excavatability (Relative Scale)	nbol	•	ymbol	mRL)	el	Sond.	cy/ dex	/ane nolded a)	Scala Penetr





Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd:

Date: 28/08/2020

Max Test Pit Depth: 2 m

Digger Type/Size: Bucket Excavator

Shear Vane No: N/A

Logged By: JC/RB/JW

Reviewed By: JRW

Latitude: 172.37898

Digger Type/Size: Bucket ExcavatorLatitude: 172.37898Bucket Type/Size: 500 mmLongitude: -43.62251

				Bucket Type/OIZC : of						. 5	
Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Scala Penetrometer Blows per 100mm 2 4 6 8 10 12
	OPSOIL		ML	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL].	\(\bar{1}\) \(\bar				VSt		•
1.0-	ALLUVIUM TC		GW	Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth.				M	Tightly Packed		
2.0-				Depth of Excavation: 2 m Termination Condition: Target depth							

Test pit met target depth at 2 m.

Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd:

Date: 28/08/2020

Max Test Pit Depth: 2 m

Digger Type/Size: Bucket Excavator

Reviewed By: JC/RB/JW

Reviewed By: JRW

Latitude: 172.38064

		129	03		Bucket Type/Size			.Oi				• : -43.622	
Depth (m BGL)	Material	avatability ative Scale) Harder Harder	USCS Symbol	DES	CRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Blows p	per 100mm
-	TOPSOIL		ML	SILT with minor s plasticity. Sand, fi		1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2				St-VSt			
-			SP	Fine to medium S greyish brown. Po	AND with minor silt; orly graded.					MD			
0.5 1.0	ALLUVIUM		GW	cobbles; greyish be subrounded to rou coarse.	rse GRAVEL with trace vrown. Well graded, unded. Sand, fine to ered up to 0.6 m depth.				M	Tightly Packed			À
1.5 -	-			Depth of Excavation Cond	on: 2 m lition: Target depth				W				

Test pit met target depth at 2 m.

GEOTECH TEST PIT LOG 597 EAST MADDISONS ROAD - TP LOGS.GPJ NZ MASTER DATA TEMPLATE.GDT 3/9/20

Scala Penetrometer met practical refusal at 0.6 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Date: 28/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth: 2.1 m Reviewed By: JRW Digger Type/Size : Bucket Excavator Latitude: 172.38041

Longitude : -43.62195

Bucket Type/Size : 500 mm

	BGL)		Excavatal (Relative S	oility scale)	Symbol		ymbol	(mRL)	/el	Cond.	ncy/	Vane molded a)	Scala Penetrometer
	Depth (m BGL)	Material	Easier	Harder	USCS Sy	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)	Blows per 100mm 2 4 6 8 10 12
_		TOPSOIL			ML	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL].	1/ . 1/ . 1/	ш		2	St-VSt		• 0 0 10 12
	-				SP	Fine to medium SAND with minor silt; greyish brown. Poorly graded.					L-MD		
	0.5 - - - -					Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.				M			>>
	1.0 - - -	ALLUVIUM			GW					w	Tightly Packed		
3/9/20	- 1.5 - - - -					Sand lens from 1.6 m to 1.8 m depth observed in the side wall of the test pit.							
АТА ТЕМР	2.0-					Depth of Excavation: 2.1 m	好						
MASTER D	-	- Termination Condition: Target depth											
GEOTECH TEST PIT LOG 597 EAST MADDISONS ROAD - TP LOGS.GPJ NZ MASTER DATA TEMPLATE.GDT													
GEOTECH 1	Sca	ala Pe	met target e enetromete g groundwa	r met	practi	l m. ical refusal at 0.5 m depth. ∈encountered							



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Date : 28/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2 m Reviewed By : JRW Digger Type/Size : Bucket Excavator Latitude: 172.3809

Longitude: -43.621 Bucket Type/Size : 500 mm

Company Comp	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Cobbles become minor from 1.5 m depth.	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	Gepth (m BG Gepth (m BG	(Relative Scale) Harder USCS Symbo	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.		Elevation (mRL)	Water Level	Moisture Cond.		Shear Vane Peak/Remolded (KPa)	Е	Blows	s per	100	mm
SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbies; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Cobbles become minor from 1.5 m depth. W Depth of Excavation: 2 m	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Cobbles become minor from 1.5 m depth.	0.5	ML	Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.				-			•				
Cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. Tightly Packed Cobbles become minor from 1.5 m depth.	Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.6 m depth. GW Tightly Packed Cobbles become minor from 1.5 m depth.	1.0 - WILLUM		cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.	1333			ľ				•	:	*	
GW Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	GW 1.5 - Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	GW Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	ALLUVIUM 1:22			4			M							
Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	Cobbles become minor from 1.5 m depth. Depth of Excavation: 2 m	- - - -	GW				-		Tightly Packed						
Depth of Excavation: 2 m	Depth of Excavation: 2 m	Depth of Excavation: 2 m	2.0		Cobbles become minor from 1.5 m depth.				w							
					Depth of Excavation: 2 m Termination Condition: Target depth											



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date: 28/08/2020 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2 m Reviewed By : JRW Latitude: 172.3783

Digger Type/Size : Bucket Excavator Bucket Type/Size : 500 mm

eg

Longitude : -43.62165

Depth (m BGL)	Material	Excavatability (Relative Scale)	USCS Symbol	DESCRIPTION	Graphic Symbo	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolde (kPa)	Scala Penetrometer Blows per 100mm 2 4 6 8 10 12
-	OPSOIL		ML	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL].	11. 71.11. 71. 71.11.				L-MD		•
0.5	F		GW	Sandy fine to coarse GRAVEL with trace rootlets; brownish grey. Well graded, subrounded to rounded. Sand, fine to coarse.	XXX			M	Tightly Packed		*
_			SP	Fine to medium SAND with trace silt; greyish brown. Poorly graded.					MD-D		
1.0 - - - - - 1.5 -	ALLUVIUM		GW	Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse.				W	Tightly Packed		
2.0-	-			Depth of Excavation: 2 m Termination Condition: Target depth							

Test pit met target depth at 2 m. Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 28/08/2020 $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2.2 m Reviewed By : JRW Latitude: 172.37851

Digger Type/Size : Bucket Excavator Bucket Type/Size : 500 mm **Longitude**: -43.6208

			12			Bucket Type/Size :	500 mm					Longitude	e : -4:	3.620)8	
Depth (m BGL)	Material	Excava (Relative	tability e Scale	Symbo	DES	CRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Peak/Remolded (kPa)				ometer
<u>ă</u>	TS	ш	Ĩ	ML	SILT with minor s plasticity. Sand, fi	and; brown. Low ne [TOPSOIL].	<u> </u>	ш	×	Σ	St-VSt	<u>а</u>	:	4	6 8	10 12
0.5 -					cobbles; greyish to subrounded to roo coarse.	rse GRAVEL with trace brown. Well graded, unded. Sand, fine to ered up to 0.6 m depth.				M			•			
- - 1.0 -	ALLUVIUM			GW							Tightly Packed					
- 1.5 - - -	ALI									w						
- 2.0-																
			•	,	Depth of Excavati Termination Cond	on: 2.2 m lition: Target depth										
Scal	la Pe	met targ	eter me	et prac	2 m. tical refusal at 0.4 r tt encountered	n depth.	S = TOPS	SOIL								



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 28/08/2020 $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2.1 m Reviewed By : JRW

Digger Type/Size : Bucket Excavator Latitude: 172.37952 Bucket Type/Size : 500 mm Longitude: -43.62084

Ocon (Relative Scale) OESCENDION Sym Ocon Ocon	per 100mm
SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy SILT; greyish brown. Low plasticity. Sand, fine to medium. ML Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	3 8 10
Sand, fine to medium. ML Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	
cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	· : ·
1.0—	
GW 1.5 -	
Depth of Excavation: 2.1 m Termination Condition: Target depth	



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Shear Vane No: N/A Date : 28/08/2020 $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Max Test Pit Depth : 2 m Reviewed By : JRW

Digger Type/Size : Bucket Excavator Latitude: 172.38036 Longitude: -43.61991 Bucket Type/Size : 500 mm

SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. M Rootlets encountered up to 0.8 m depth. GW Tightly Packed	Depth (m BG) Material Easier Span	lative Scale) Harder NSCS Sympo	SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	Graphic Symbol	Elevation (mRL)	Moisture Cond.		Shear Vane Peak/Remolded (RPa)	Blow	s per 1	
SILT with minor sand; brown. Low plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. Rootlets encountered up to 0.8 m depth. GW Tightly Packed	- - - - -		plasticity. Sand, fine [TOPSOIL]. Sandy fine to coarse GRAVEL with trace cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to	0 x	<u> </u>	S N		Δ.	2 4	6 8	·
cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to coarse. M Rootlets encountered up to 0.8 m depth. Tightly Packed W Tightly Packed	0.5 -		cobbles; greyish brown. Well graded, subrounded to rounded. Sand, fine to								
GW Tightly Packed W	-					М					
	1.0— WINNING PARTITION ARTERNATION ARTERNA	GW	Rootlets encountered up to 0.8 m depth.				Tightly Packed				
	1.5 -					w					
Depth of Excavation: 2 m Termination Condition: Target depth	2.0		Depth of Excavation: 2 m Termination Condition: Target depth								



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth: 0.3 m

Shear Vane No : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By : JRW **Latitude**: 172.37683

			12903	Hole De Hole Diame	pth : 0. e ter : 50	3 m 0 mm					atitude: 172 ngitude: -43			
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Blows	per 1	ometer	
0.1 -		<u>ס</u>	Silty fine to medium SAND with tra rootlets; brown. Poorly graded [TO	ace gravel and PSOIL].		Ш	W	M	00	2	2 4	6 8	10	12
0.2 -	TOPSOIL	SM			7 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4			M	MD					
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	efusal	<u> </u>					-				
0.4 -														
0.5 -														
0.6 -														
0.7 -														



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 27/08/2020 Hole Depth: 0.3 m

Reviewed By : JRW Latitude: 172.37732

			12903	Hole De Hole Diame	pth : 0. eter : 50	3 m 0 mm						de : 1 de : -				
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded					omet	
De	Ma	SN	SILT with some sand, trace gravel	and rootlets:	<u>7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7, 7</u>	Ш	We	Mo	<u>ē</u> S	L L Q g	2	<u>4</u>	6	8	10	12
).1 -	TOPSOIL	ML	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine [ropsoil].				M	St-VSt		•					
0.2 -	L															
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	efusal									\	\		
															· · · · · · · · · · · · · · · · · · ·	\
0.4 -																
0.5 -	_															
0.6 -	_															
0.7 -																



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 27/08/2020 Reviewed By : JRW Hole Depth: 0.3 m

Latitude: 172.37643

			12903	Hole De Hole Diame	pth : 0. eter : 50	3 m 0 mm						de : 1 de : -4				
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scala			ometo	
<u>ă</u>	M	<u> </u>	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine [and rootlets; FOPSOIL].	19 34 34 34 34 34 34 34 34 34 34 34 34 34	<u>ū</u>	W	M	33	5 % 6	2	4	6	8	10	12
0.1 -	TOPSOIL	ML						M	St-VSt							
0.2 -	TOP	IVIL														
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	efusal									•			
0.4 -																
0.5 -	_															
0.6 -																
0.7 -	_															



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020

Shear Vane No : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By : JRW Latitude: 172.37611

Hole Depth : 0.3 m

			12903	Hole Diameter						Lor	gituc				ı	
ש (BGL		ymbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	ivel	Cond.	ncy/ ndex	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Sca	la Pe	enetro	omet	er
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		raphic	levatior	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Indraine Strengt Peak/Re	•				00mn	
0.1 -		_ ר	Silty fine to medium SAND with tra rootlets; brown. Poorly graded [TO			ш	>	2	011		2	4	6	8	10	12
0.2 -	TOPSOIL	SM		<u> </u>	\$\frac{\delta}{\delta} \frac{\delta}{\delta}			M	MD				\			
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	fusal	(). (1),											
0.4 -																\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
0.5 -	_															
0.6 -	-															
0.7 -																
												:				



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth: 0.3 m

Shear Vane No : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By : JRW Latitude: 172.37525

			12903	Hole De _l Hole Diame	pth : 0. ter : 50	3 m) mm				Lor		le : 17 le : -4				
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded				netror er 100		
0.1 -		ח	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine [and rootlets; FOPSOIL].	9 11/2/1/2/1/2/2/2/2/2/2/2/2/2/2/2/2/2/2/	Ш	W	M	00	2.7.1	2	4	6	8	10	12
0.2 -	TOPSOIL	ML						М	St-VSt		·					
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	efusal	<u> </u>											
0.4 –																·/······
0.5 -																
0.6 -	-															
0.7 -																



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth: 0.2 m

Shear Vane No : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By : JRW **Latitude**: 172.38023

			12903	Hole De Hole Diame	pth : 0. eter : 50	.2 m 0 mm				Loi			72.38 43.62			
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded			la Per ws pe	r 100	mm	
۵	Ĕ	Ď	SILT with trace sand, gravel and ro Low plasticity [TOPSOIL].	ootlets; brown.	Θ	Ü	×	Š	٥ă	504	2	2 4	6	8	10	12 :
0.1 -	TOPSOIL	ML	Low plasticity [TOPSOIL].					М	St-VSt		•					
0.2 -			End of Hole Depth: 0.2 m Termination Condition: Practical re	fusal	<u>V. V</u> V.						•	· · · · · · · · · · · · · · · · · · ·				
0.3 -	_															
0.4 –	_															
0.5 -	_															
0.6 -	_															
0.7 -	-															
														:		:



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903 Client : Hughes Developments Ltd
Client Ref. : N/A
Date : 27/08/2020
Hole Depth : 0.2 m

Shear Vane No : N/A Logged By : JC/RB/JW Reviewed By : JRW Latitude : 172.37854

12903 Hole Diameter: 50 mm Longitude: -43.62532 Undrained Shear Strength (kPa) Peak/Remolded Graphic Symbol Elevation (mRL) Depth (m BGL) **JSCS Symbol** Moisture Cond. Shear Vane Consistency/ Density Index Scala Penetrometer Water Level **DESCRIPTION** Material Blows per 100mm 8 10 12 SILT with trace sand, gravel and rootlets; brown. Low plasticity [TOPSOIL]. 0.1 St-VSt Μ ML 0.2 End of Hole Depth: 0.2 m Termination Condition: Practical refusal 0.3 0.4 0.5 0.6 0.7

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

GEOTECH HAND AUGER 597 EAST MADDISONS ROAD - HA LOGS.GPJ NZ DATA TEMPLATE 2.GDT 3/9/20



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 27/08/2020

Reviewed By: JRW

			Faringdon 12903	Hole De Hole Diame		.2 m	0_0				atitud	le : 17 le : -4	72.37		
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	2	Blov	vs pei	etrom 100r 8	nm
	TOPSOIL	ML	SILT with trace sand, gravel and re Low plasticity [TOPSOIL].	potlets; brown.	6 47 47 47 47 47 47 47 47 47 47 47 47 47			М	St-VSt		•	\ \ \			
0.2			End of Hole Depth: 0.2 m Termination Condition: Practical re	efusal	<u>1</u> . <u>V</u> V.										
0.3 -															
0.4 -															
0.5 -															
0.6 -															
0.7 -															



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth : 0.3 m

Shear Vane No : N/A $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Reviewed By : JRW

			Faringdon 12903	Hole Depti Hole Diamete									72.379 3.6238		
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	2		s per	tromete 100mm 8 10	
0.1 -	TOPSOIL	ML	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine	and rootlets; rOPSOIL].	6. 70 7. 77 7. 77 6. 70 7.			M	St-VSt			•			
0.2 -)T		End of Hole Depth: 0.3 m	<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>4</u>											
			Termination Condition: Practical re	efusal											
0.4 -															
0.5 -															
0.6 -															
0.7 -															



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth: 0.2 m

Shear Vane No : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By: JRW **Latitude**: 172.37909

			12903	Hole De Hole Diame	pth : 0. eter : 50	2 m) mm				Lor		de: 17 de: -4			
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Blow	s per	etromei 100mi	m
Δ	Σ	<u> </u>	SILT with trace sand, gravel and ro Low plasticity [TOPSOIL].	potlets; brown.	D (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)		M	M	ÖĞ		2	! 4	6	8 10) 12
0.1 -	TOPSOIL	ML			\$\frac{1}{2}\frac{1}{2			М	St-VSt			•			
0.2 -			End of Hole Depth: 0.2 m Termination Condition: Practical re	efusal											
0.3 -															
0.4 -															
0.5 -															
0.6 -															
0.7 -															:



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 27/08/2020 Reviewed By: JRW Hole Depth : 0.2 m

Latitude: 172.37797

			12903	Hole De Hole Diame						Lor	atitude ngitude				
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	E		per 1	romete	
0.1 -	TOPSOIL	ML	SILT with trace sand, gravel and re Low plasticity [TOPSOIL].	potlets; brown.	7 37 37 37 37 37 37 37 37 37 37 37 37 37		M	M	St-VSt	2%4	2	4 6	6 8	3 10	12
0.2 -			End of Hole Depth: 0.2 m Termination Condition: Practical re	fusal											>>
0.4 -	_														
0.5 -															
0.4 - 0.5 - 0.6 - 0.6 - 0.7 - 0.8															
0.8															

Hand auger met practical refusal at 0.2 m depth on inferred gravel.

Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth : 0.2 m

 $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Reviewed By: JRW Latitude : 172 37868

Shear Vane No : N/A

		12903	Hole Depth Hole Diameter					Lor		de : 172 de : -43			
Depth (m BGL) Material	USCS Symbol	DESCRIPTION		Graphic Symbol Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	2		s per	100m	
10 - 0.1 - 1.0 LOSOIL	ML	SILT with trace sand, gravel and re Low plasticity [TOPSOIL].		2 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3		M	St-VSt			•			<u> </u>
0.2 -		End of Hole Depth: 0.2 m Termination Condition: Practical re	fusal										
0.4 -													
0.5 -													
0.6 -													
0.7 -													



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 27/08/2020 Reviewed By : JRW Hole Depth : 0.2 m

Latitude: 172.38005

			12903	Hole Diamet						Lor		de : -43				
ι BGL)		ymbol	DESCRIPTION		Symbol	(mRL)	wel	Cond.	ndex	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scala	Pene	etrome	eter	_
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Undraine Strengt Peak/Re	2	Blows			ım 0 1:	2
0.1 -	TOPSOIL	ML	SILT with trace sand, gravel and ro Low plasticity [TOPSOIL].	ootlets; brown.	\$\frac{\delta}{2}\frac{\delta}	_		М	St-VSt			•				
0.2 -			End of Hole Depth: 0.2 m Termination Condition: Practical re	fusal	<u>'</u> . <u> </u>											
0.3 -																\ >
0.5 -																
0.6 -																
0.5 - 0.6 - 0.7 - Ha Sc Sta																



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

le Diameter : 50 mm Lon

				12903	Hole Diame	eter : 50	0 mm				Lor	ngitude : -43.62349
	Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Scala Penetrometer Blows per 100mm
	Sept	/ate	SC			- 3rap	ie v	Vate	Aois	Sons Jens	Str	·
	0.1 -	TOPSOIL	ML	SILT with trace sand, gravel and re Low plasticity [TOPSOIL].	potlets; brown.			N	M	St-VSt		2 4 6 8 10 12
	0.2 -			Fnd of Hole Depth: 0.2 m								
	0.3 -			End of Hole Depth: 0.2 m Termination Condition: Practical re	fusal							>>
E 2.GDT 3/9/20	0.4 -											
GPJ NZ DATA TEMPLAT	0.5 -											
DISONS ROAD - HA LOGS	0.6 -	-										
IGER 597 EAST MA	0.7 -											

Hand auger met practical refusal at 0.2 m depth on inferred gravel. Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Date : 27/08/2020 Hole Depth : 0.3 m Reviewed By: JRW Latitude : 172 3774

			12903	Hole Depti Hole Diamete						Lor		le : 17 le : 43				
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scala	s pe	r 10	0mm	
О	M	<u> </u>	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine [and rootlets; rOPSOIL].	9	E	\$	M	00	274	2	4	6	8	10	12
0.1 -	TOPSOIL	ML		(<u>)</u> (<u>)</u> (<u>)</u> (<u>)</u>	77. 4.18 77. 7.19 77. 7.19 77. 7.19 77. 7.19 77. 7.19			М	St-VSt							
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	fusal												·/
0.4 -																
0.5 -																
0.6 -																
0.7 -																



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 27/08/2020 Reviewed By: JRW Hole Depth: 0.3 m

Latitude: 172.37647

			12903	Hole De Hole Diame							atitude: 1 ngitude: -			
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	Blo	a Penet	00mm	
0.1 -		ML	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine [and rootlets; FOPSOIL].			<u> </u>	M	St-VSt		2 4	6 8	3 10	12
0.3			End of Hole Depth: 0.3 m Termination Condition: Practical re	efusal	r									>>
0.5	_													
0.6	-													
0.6 - 0.7 - 0.8 -	_													

Hand auger met practical refusal at 0.3 m depth on inferred gravel.

Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth: 0.3 m

Logged By: JC/RB/JW Reviewed By: JRW Latitude: 172.37759

Shear Vane No: N/A

Hole Diameter: 50 mm Longitude: -43.62193 Shear Vane Undrained Shear Strength (kPa) Peak/Remolded Graphic Symbol Elevation (mRL) Moisture Cond. Depth (m BGL) **JSCS Symbol** Consistency/ Density Index Scala Penetrometer Water Level **DESCRIPTION** Material Blows per 100mm 6 8 SILT with some sand, trace gravel and rootlets; brown. Low plasticity. Sand, fine [TOPSOIL]. 0.1 St-VSt ML0.2 0.3 End of Hole Depth: 0.3 m Termination Condition: Practical refusal 0.4 GEOTECH HAND AUGER 597 EAST MADDISONS ROAD - HA LOGS.GPJ NZ DATA TEMPLATE 2.GDT 3/9/20 0.5 0.6 0.7

Hand auger met practical refusal at 0.3 m depth on inferred gravel.

Scala Penetrometer met practical refusal at 0.4 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 27/08/2020 Hole Depth : 0.3 m

Shear Vane No : N/A $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Reviewed By: JRW Latitude : 172 3784

			12903	Hole Dep Hole Diamet						Lor	ngitu	de : 17 de : -4				
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded			/s pe	er 10	0mm	1
	M	Π	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine	and rootlets; TOPSOIL].	Φ \(\frac{1}{2}\), \(\frac{1}{2}\), \(\frac{1}\), \(\frac{1}{2}\), \(\frac{1}\), \(\frac{1}{2}\), \(Ш	W	<u> </u>	00	2	2	2 4	6	8	10	12
0.1 -	TOPSOIL	ML						М	St-VSt					······/	······································	
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	∍fusal	· <u>·</u> ··································											\
0.4 –																
0.5 –																
0.6 -	-															
0.7 -																



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020 Hole Depth : 0.2 m

 $\textbf{Logged By}: \mathsf{JC/RB/JW}$ Reviewed By: JRW

Shear Vane No : N/A

			12903	Hole De Hole Diame								le : 17 le : -4			
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	2		a Pen vs per 6	1001	
	TOPSOIL	ML	SILT with trace sand, gravel and re Low plasticity [TOPSOIL].	potlets; brown.	7 × 7 × 7 × 7 × 7 × 7 × 7 × 7 × 7 × 7 ×			M	St-VSt		•				
0.2 -			End of Hole Depth: 0.2 m Termination Condition: Practical re	efusal											 ·····/
0.4 -															
0.5 -															
0.7 -															



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 28/08/2020 Reviewed By : JRW Hole Depth : 0.2 m Latitude: 172.38005

			12903	Hole Diame						Lor			3.621		
Depth (m BGL)	al	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scala	a Pene	tromet	ter
Depth	Material	JSCS			Graphi	∃levati	Nater	Moistu	Sonsis Densit	She Undra Stren Peak/	2	Blow 4		100mr 8 10	
	TOPSOIL	ML	SILT with trace sand, gravel and re Low plasticity [TOPSOIL].	potlets; brown.				М	St-VSt		•				
0.2			End of Hole Depth: 0.2 m Termination Condition: Practical re	efusal	<u>1</u> . <u>V U</u>						•				
0.3 -															<u></u>
0.4 -															
0.5 -															
0.6 -															
0.7 -															
Sca	ala P	enetro	net practical refusal at 0.2 m depth of practical refusal at 0.3 multiple at 0		⁄el.										



 $\textbf{Logged By} : \mathsf{JC/RB/JW}$

Reviewed By : JRW

Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020

Hole Depth: 0.5 m Latitude: 172.37925 **Longitude**: -43.62172 Hole Diameter : 50 mm

			noie Dialite		7 1111111					igituc		0.02	12	
Depth (m BGL)	Material	SS Symbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded				etrome	
Dep	Mat	nscs		Gra	Ele\	Wat	Moj	Con	S ST TS S	2		6		0 12
0.1 -	TOPSOIL	ML	SILT with trace sand, gravel and rootlets; brown. Low plasticity [TOPSOIL].					St-VSt		•				
0.2 -	_		Sllty fine to medium SAND; greyish brown.				М			•				
0.4 -	ALLUVIUM	SM	Poorly graded.					MD		•		·····		
0.5 -			End of Hole Depth: 0.5 m Termination Condition: Practical refusal											> ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `
0.6 - 0.7 - 0.8 Hassa														
0.8 Ha So St	cala F	Penetro	net practical refusal at 0.5 m depth on inferred grav ometer met practical refusal at 0.5 m depth. undwater was not encountered	el.					I	· :	: -	·	: ;	;



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020 Hole Depth : 0.5 m

 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By : JRW Latitude: 172.37934

Shear Vane No : N/A

			12903	Hole Diamet						Lon	gitud	le : -4	3.622			
BGL)		mbol			Graphic Symbol	Elevation (mRL)	/el	Cond.	ncy/	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scala	Pen	etron	nete	·r
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		phic S	/ation	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Iraine rength		Blow	s pei	r 100	mm	
Dep	Mat	OSC	0.7		G. 37	Ele	Wat	Moi	Con	Str. Onc.	2	4	6		10	
0.1 -			SILT with trace sand, gravel and r Low plasticity [TOPSOIL].	ootlets; brown.							•					
0.2 -	TOPSOIL	ML		7				M	St-VSt		•					
0.3 -	ALLUVIUM	SP	Fine to medium SAND with minor brown. Poorly graded.	silt; greyish					MD							
0.5 -			End of Hole Depth: 0.5 m Termination Condition: Practical re	efusal								•				
0.6 -	-															<u></u>
0.7 -	_															
			net practical refusal at 0.5 m depth ometer met practical refusal at 0.6		el.										:	



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020 Hole Depth : 0.4 m

 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By : JRW Latitude: 172.37975

Shear Vane No : N/A

			12903	Hole Diameter					Lor	gitud	le : 1 le : -4				
n BGL)		ymbol	DESCRIPTION	Graphic Symbol	Elevation (mRL)	evel	Cond.	ncy/ Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scal	a Pe	netron	nete	r
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION	iraphic	levatior	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Indraine Strengt				er 100		
	V	<u> </u>	SILT with trace sand, gravel and ro Low plasticity [TOPSOIL].		1) 11 11 11 11 11 11 11 11 11 11 11 11 1	>	2	00		2	4	6	8	10	12
0.1 -	TOPSOIL	ML		7 3 4 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		М	St-VSt		•	\				
0.3 -	ALLUVIUM	SP	Fine to medium SAND with minor brown. Poorly graded.	silt; greyish	, , , , , ,			MD						······································	·····/
0.4 -			End of Hole Depth: 0.4 m Termination Condition: Practical re	fusal	·1										
0.6 -															
0.7 –															



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020 Hole Depth: 0.2 m

Shear Vane No : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By: JRW

Latitude: 172.37866

			12903	Hole De Hole Diame						Lor		2.3786 3.6220		
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded	2	s per ′	romete	
0.1	OIL	ML	SILT with trace sand, gravel and re Low plasticity [TOPSOIL].	potlets; brown.			7	M	St-VSt	-	•			
0.2			End of Hole Depth: 0.2 m Termination Condition: Practical re	efusal	<u> </u>									
0.3														>>•
0.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	_													
OAD - HA LOGS.GPJ	_													
AND AUGER 597 EAST MADDISONS ROAD - HALOGS.GPJ 0.0 2.0 6.0 9.0 9.0														
0.8												 <u>:</u>		

Hand auger met practical refusal at 0.2 m depth on inferred gravel.

Scala Penetrometer met practical refusal at 0.3 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon

Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020 Hole Depth: 0.3 m

Shear Vane No : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By : JRW Latitude: 172.37789

			12903	Hole De Hole Diame						Lor		de : 1 de : -)	
ו BGL)		Symbol	DESCRIPTION		Symbol	ר (mRL)	evel	Cond.	ndex	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scal	a Pe	enetro	mete	er
Depth (m BGL)	Material	uscs s	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Undraine Strengt Peak/Re	2		ws p	er 10 8		າ 12
0.1 -	TOPSOIL	ML	SILT with some sand, trace gravel brown. Low plasticity. Sand, fine	and rootlets; FOPSOIL].				М	St-VSt		•					
0.2 -	TC															
0.3 -			End of Hole Depth: 0.3 m Termination Condition: Practical re	efusal	r vi							•	\			
																\
0.4 -																
).5 -																
).6 -																
													:			
).6 -).7 - Ha Sc Sta																
										1	1 :	:	:	•		



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020 Hole Depth: 0.2 m

 $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Reviewed By: JRW Latitude: 172.37891

		12903	Hole De Hole Diame	pth : 0. eter : 50	2 m) mm				Lor		le : 17 le : -4			
Depth (m BGL) Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Blow	s per	tromete	
ŎŽ	<u> </u>	SILT with trace sand, gravel and ro Low plasticity [TOPSOIL].	ootlets; brown.		ū	W	Ň	<u> </u>	2 2 4	2	4	6	8 10	12
O.1 - TOPSOIL	ML			2 34 34 34 34 34 34 34 34 34 34 34 34 34			M	St-VSt						
0.2		End of Hole Depth: 0.2 m Termination Condition: Practical re	fusal	<u>v</u> <u>v</u> v										
0.3 -														· · · · · · · · · · · · · · · · · · ·
0.4 -														
0.5 -														
0.6 -														
0.7 -														
0.8 Hand a	uger n	net practical refusal at 0.2 m depth o	on inferred grav	el.										



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903 Client : Hughes Developments Ltd
Client Ref. : N/A
Date : 28/08/2020
Hole Depth : 0.4 m

Logged By: JC/RB/JW Reviewed By: JRW Latitude: 172.37915

Shear Vane No : N/A

			12903	Hole Diame						Lor		de : -43				
BGL)		mbol			ymbol	(mRL)	le/	Cond.	ncy/ ndex	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded		Scala	Pene	trome	ter	
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear ' Idraine Itrength		Blows	s per	100m	m	
De	Me	S	SILT with trace sand, gravel and re	ootlets: brown	Q	ä	Š	Ĭ	ပိဝိ	7 2 8 8	2	2 4	6	8 1) 12	2
0.1 -	TOPSOIL	ML	Low plasticity [TOPSOIL].		元 27 27 27 27 27 27 27 27 27 27 27 27 27			М	St-VSt							
0.3 -			Fine to medium SAND with minor	silt; greyish												
	ALLUVIUM	SP	brown. Poorly graded.						MD							
0.4 -			End of Hole Depth: 0.4 m Termination Condition: Practical re	efusal												
0.5 -												•				<u></u>
0.0 -																
0.7 - 0.8																

Hand auger met practical refusal at 0.4 m depth on inferred gravel.

Scala Penetrometer met practical refusal at 0.6 m depth.



Geotechnical Investigation 597 East Maddisons Road Faringdon

Shear Vane No : N/A Client: Hughes Developments Ltd Client Ref. : N/A $\textbf{Logged By} : \mathsf{JC/RB/JW}$ Date : 28/08/2020 Reviewed By : JRW Hole Depth: 0.2 m Latitude: 172.38012

			12903	Hole De Hole Diame						Lon		de: 172 de: -43			
Depth (m BGL)	Material	USCS Symbol	DESCRIPTION		Graphic Symbol	Elevation (mRL)	Water Level	Moisture Cond.	Consistency/ Density Index	Shear Vane Undrained Shear Strength (kPa) Peak/Remolded			per 1	100mm	1
	TOPSOIL	ML	SILT with trace sand, gravel and ro Low plasticity [TOPSOIL].	potlets; brown.			\	M	St-VSt	ר (ר ז	2	4	6 8	o 10	12
0.2			End of Hole Depth: 0.2 m Termination Condition: Practical re	fusal	<u> </u>										
0.3 -															
0.4 -															
0.5 -															
0.6 -															
0.7 -															



Geotechnical Investigation 597 East Maddisons Road Faringdon 12903

Client: Hughes Developments Ltd Client Ref. : N/A Date : 28/08/2020 Hole Depth: 0.2 m

Shear Vane No: N/A Logged By: JC/RB/JW Reviewed By: JRW Latitude: 172.37978

Hole Diameter: 50 mm Longitude: -43.62013 Undrained Shear Strength (kPa) Peak/Remolded Graphic Symbol Elevation (mRL) Depth (m BGL) **JSCS Symbol** Moisture Cond. Shear Vane Consistency/ Density Index Scala Penetrometer Water Level **DESCRIPTION** Material Blows per 100mm 8 SILT with trace sand, gravel and rootlets; brown. Low plasticity [TOPSOIL]. 0.1 St-VSt Μ ML 0.2 End of Hole Depth: 0.2 m Termination Condition: Practical refusal 0.3 0.4 GEOTECH HAND AUGER 597 EAST MADDISONS ROAD - HA LOGS.GPJ NZ DATA TEMPLATE 2.GDT 3/9/20 0.5 0.6 0.7

Hand auger met practical refusal at 0.2 m depth on inferred gravel.

Scala Penetrometer met practical refusal at 0.3 m depth.



APPENDIX 3:

ECan Borelogs



Bore or Well No	M36/4346
Well Name	CNR MADDISONS & GOULDS RDS
Owner	MAIN M.R.



Well Number	M36/4346	File Number	
Owner	MAIN M.R.	Well Status	Active (exist, present)
Street/Road	CNR MADDISONS & GOULDS RDS	NZTM Grid Reference	BX23:49967-69900
Locality	ROLLESTON	NZTM X and Y	1549967 - 5169900
Location Description		Location Accuracy	50 - 300m
CWMS Zone	Selwyn - Waihora	Use	Domestic Supply,
Groundwater Allocation Zone	Selwyn-Waimakariri	Water Level Monitoring	
Depth	26.80m	Water Level Count	0
Diameter	150mm	Initial Water Level	
Measuring Point Description		Highest Water Level	
Measuring Point Elevation	39.12m above MSL (Lyttelton 1937)	Lowest Water Level	
Elevation Accuracy	< 2.5 m	First reading	
Ground Level	0.00m above MP	Last reading	
Strata Layers	15	Calc Min 80%	9.71m below MP (Estimated)
Aquifer Name	Riccarton Gravel	Aquifer Tests	0
Aquifer Type	Unknown	Yield Drawdown Tests	1
Drill Date	01 Apr 1991	Max Tested Yield	6 l/s
Driller	Dynes Road Drilling	Drawdown at Max Tested Yield	5 m
Drilling Method	Cable Tool	Specific Capacity	1.33 l/s/m
Casing Material	STEEL	Last Updated	08 Nov 2013
Pump Type	Unknown	Last Field Check	
Water Use Data	No		

Borelog for well M36/4346

Grid Reference (NZTM): 1549968 mE, 5169901 mN

Location Accuracy: 50 - 300m

Ground Level Altitude: 39.1 m +MSD Accuracy: < 2.5 m

Driller: Dynes Road Drilling Drill Method: Cable Tool

Borelog Depth: 28.5 m Drill Date: 01-Apr-1991



	Water Level Depth(m)	Full Drillers Description	Formation Code
П		No Log No Log No	Not logged	RI
		og No Log No Log I		
Н		No Log No Log No		
		No Log No Log No		
Н		No Log No Log No		
		No Log No Log No		
Н		g No Log No Log I		
		No Log No Log No		
Ш	4.00m	No Log No Log No		
		0==0==0	Large to medium gravel, small amount	RI
; <u> </u>			of silt	
		12222		
	6.00m	D==0==q		
П			Silt	RI
Н				
- 1	8.00m			
		0==0==0==	Gravel and silt	RI
		0 0 0		
o 📗		00		
ĭП		==0==0		
		Q = Q = Q		
Н		000		
	11.50m	- [5-25-5-2] -	Very tight clay, small shingle	RI
Н		F0=0=0=0=	very light day, small shingle	Ki
		0		
Ш		5 <u>~5</u> ~6 <u>~6</u> ~6		
П		O = O = O = O =		
	14.00m	PEDECECED		
П		000000	Tight clay and shingle	RI
_		00000		
5		D D D D D D D D		
		33253		
Н	16.00m	-10-80-80-01	Tight day and arred	RI
		<u> </u>	Tight clay, small gravel	KI
		0 = 0 = 0 = 0 = 0 0 = 0 0 = 0 0 = 0 0 = 0 0		
		5 <u>~5~6</u>		
	18.00m	= 0 = 0 = 0 = 0 =		
	18.50m	000000	Clay and gravel, not as tight	RI
	19.00m	00000000	Gravel, some water	RI
Н	10.00	000000	Tight clay gravel	RI
		000000		
20		000000		
		20000		
Н	21.00m	1222 222 1	Tight clay and small to medium gravel,	
		000000	some amount of water	RI
Ц	22.00m			
		000000000	Open medium gravel	RI
Ш		000000000		
П		000000000		
	24.00m	000000000		
Н	24.00111	000000000	Small to medium gravel	RI
_		00000000d		[
5		DOOOOOOO		
	26.00m	000000000		
		00000000000	Small gravel	RI
		m000000000000		
Ī		000000000000		
		500000000000		
	28.00m	MANAMAMAM		l l

Bore or Well No	M36/4891
Well Name	CNR MADDISONS & GOULDS ROAD
Owner	Mr & Ms B N & J A Stevens & Gray



Well Number	M36/4891	File Number	CO6C/06015
Owner	Mr & Ms B N & J A Stevens & Gray	Well Status	Active (exist, present)
Street/Road	CNR MADDISONS & GOULDS ROAD	NZTM Grid Reference	BX23:50117-70000
Locality	ROLLESTON	NZTM X and Y	1550117 - 5170000
Location Description		Location Accuracy	50 - 300m
CWMS Zone	Selwyn - Waihora	Use	Domestic and Stockwater,
Groundwater Allocation Zone	Selwyn-Waimakariri	Water Level Monitoring	
Depth	25.25m	Water Level Count	0
Diameter	150mm	Initial Water Level	7.38m below MP
Measuring Point Description		Highest Water Level	
Measuring Point Elevation	39.15m above MSL (Lyttelton 1937)	Lowest Water Level	
Elevation Accuracy	< 2.5 m	First reading	
Ground Level	0.00m above MP	Last reading	
Strata Layers	6	Calc Min 80%	9.81m below MP (Estimated)
Aquifer Name	Riccarton Gravel	Aquifer Tests	0
Aquifer Type	Unknown	Yield Drawdown Tests	1
Drill Date	05 May 1995	Max Tested Yield	8 l/s
Driller	Clemence Drilling Contractors	Drawdown at Max Tested Yield	4 m
Drilling Method	Unknown	Specific Capacity	2.25 l/s/m
Casing Material	UNKNOWN	Last Updated	08 Nov 2013
Pump Type	Unknown	Last Field Check	
Water Use Data	No		

Borelog for well M36/4891

Grid Reference (NZTM): 1550118 mE, 5170001 mN

Location Accuracy: 50 - 300m

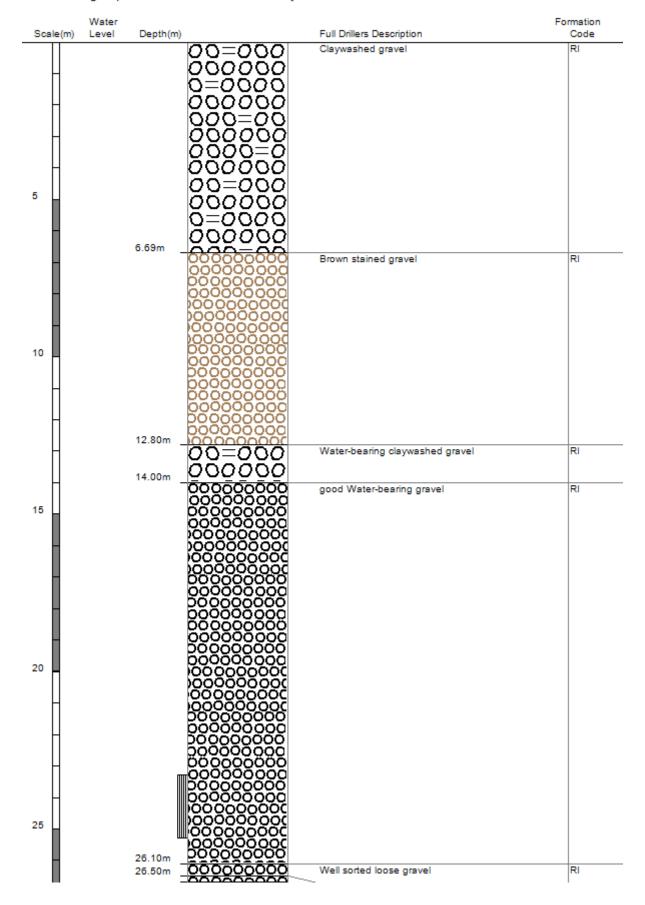
Ground Level Altitude: 39.2 m +MSD Accuracy: < 2.5 m

Driller: Clemence Drilling Contractors

Drill Method: Unknown

Borelog Depth: 26.7 m Drill Date: 05-May-1995





Bore or Well No	M36/5041		
Well Name	DUNNS CROSSING ROAD		
Owner KAJENS TRADING DEVELOPMENT LTD			



Well Number	M36/5041	File Number	CO6C/10302
Owner	KAJENS TRADING DEVELOPMENT LTD	Well Status	Active (exist, present)
Street/Road	DUNNS CROSSING ROAD	NZTM Grid Reference	BX23:49507-69990
Locality	ROLLESTON	NZTM X and Y	1549507 - 5169990
Location Description		Location Accuracy	50 - 300m
CWMS Zone	Selwyn - Waihora	Use	Domestic Supply,
Groundwater Allocation Zone	Selwyn-Waimakariri	Water Level Monitoring	
Depth	32.00m	Water Level Count	0
Diameter	150mm	Initial Water Level	6.80m below MP
Measuring Point Description		Highest Water Level	
Measuring Point Elevation	40.47m above MSL (Lyttelton 1937)	Lowest Water Level	
Elevation Accuracy	< 2.5 m	First reading	
Ground Level	0.00m above MP	Last reading	
Strata Layers	10	Calc Min 80%	9.73m below MP (Estimated)
Aquifer Name		Aquifer Tests	0
Aquifer Type	Unknown	Yield Drawdown Tests	1
Orill Date	01 Feb 1997	Max Tested Yield	5 l/s
Driller	Dynes Road Drilling	Drawdown at Max Tested Yield	13 m
Drilling Method	Cable Tool	Specific Capacity	0.40 l/s/m
Casing Material	STEEL	Last Updated	08 Nov 2013
Pump Type	Unknown	Last Field Check	
Water Use Data	No		

Screens

Screen No.	Screen Type	Top (m)	Bottom (m)	Slot Size (mm)	Slot Length (mm)	Diameter (mm)	Leader Length (mm)
1	Stainless steel	30	32				

Step Tests

Step Test Date	Step	Yield	Yield GPM	DrawDown	Step Duration
01 Feb 1997	1	5.1	67.31074	12.8	2

No comments for this well

Borelog for well M36/5041

Grid Reference (NZTM): 1549508 mE, 5169991 mN

Location Accuracy: 50 - 300m

Ground Level Altitude: 40.5 m +MSD Accuracy: < 2.5 m

Driller: Dynes Road Drilling Drill Method: Cable Tool

Borelog Depth: 34.0 m Drill Date: 01-Feb-1997



Coole (m)	Water	Donath (n-)		Full Dillog Description	Formation
Scale(m)	Level	Depth(m)	*** *** *** *** ***	Full Drillers Description	Code
			0.0.0.0.0	Small medium gravel very sandy	
Н			0.0.0.0.0		
		2.00			
Н		2.00m	000000000	Small medium gravel siltbound	
				Sinaii medidin graver siilbound	
Н			000000000		
			000000000		
Н			00000000		
5 📙					
Ĭ		5.40m	000000000		
			0.0.0.0.0	Small medium gravel sand	
			0.0.0.0.0		
			0.0.0.0		
			0.0.0.0.0		
		8.19m	せっさいさいさいりょ		
		-	000000000	Small medium gravel siltbound, tight	
Н			00000000		
10			000000000		
			000000000		
Н			00000000		
Н			00000000		
		12.80m	00000000		
Н			000000000	Small medium gravel silt wash gravel	
			000000000	brown	
П			00000000		
15					
			000000000		
			000000000		
- 11		16.79m	000000000		
		10.75111	0 • • 0 • 0 • •	Small medium gravel sand traces of	
- 11			0 • 0 • • 0 •	yellow silt	
- H			. 0 0	•	
- 11			• • • • • • • • • • • • • • • • • • • •		
- н			00.0		
II			0.0.0.		
20			.0.0.0		
		21.00m	.0.0		
Н		21.00111	0.0.0.0.0	Small medium gravel sandy driving	
			1.0.0.0.0.1		
Н			0.0.0.0.0		
			0.0.0.0.0		
П			D•.0.•0•.0•.0		
Ш			.0.0.0.0.		
			0.0.0.0.0		
25		05.40	.0.0.0.0.0		
		25.40m	200000000	Carallaradiona annual tarana altumata	
				Small medium gravel traces silt water	
			000000000		
H			000000000		
- 11					
			000000000		
			000000000		
H			00000000		
. [30.00m			
30		III	 0.0.0.0.0.0	Small medium gravel gravel small	
			0.0.0.0	almost sand	
Н			0.0.0.0.0		

П		32.59m	p.o.o.o.o		
			000000000	Small gravel siltboundwater	
П			00000000	dropping off	
		34.00m			1

Bore or Well No	M36/4449	
Well Name	DUNNS CROSSING RD	
Owner	TYACK GJ & FR	



Well Number	M36/4449	File Number	CO6C/02046
Owner	TYACK GJ & FR	Well Status	Not Used
Street/Road	DUNNS CROSSING RD	NZTM Grid Reference	BX23:49508-69470
Locality	ROLLESTON	NZTM X and Y	1549508 - 5169470
Location Description	LOT 1	Location Accuracy	50 - 300m
CWMS Zone	Selwyn - Waihora	Use	Irrigation,
Groundwater Allocation Zone	Selwyn-Waimakariri	Water Level Monitoring	
Depth	24.20m	Water Level Count	0
Diameter	150mm	Initial Water Level	
Measuring Point Description		Highest Water Level	
Measuring Point Elevation	38.81m above MSL (Lyttelton 1937)	Lowest Water Level	
Elevation Accuracy	< 2.5 m	First reading	
Ground Level	0.00m above MP	Last reading	
Strata Layers	9	Calc Min 80%	9.27m below MP (Estimated)
Aquifer Name	Riccarton Gravel	Aquifer Tests	0
Aquifer Type	Unknown	Yield Drawdown Tests	1
Drill Date	09 Jun 1992	Max Tested Yield	6 l/s
Driller	Dynes Road Drilling	Drawdown at Max Tested Yield	5 m
Drilling Method	Cable Tool	Specific Capacity	1.36 l/s/m
Casing Material		Last Updated	08 Nov 2013
Pump Type	Unknown	Last Field Check	
Water Use Data	No		

Borelog for well M36/4449

Grid Reference (NZTM): 1549508 mE, 5169471 mN

Location Accuracy: 50 - 300m

Ground Level Altitude: 38.8 m +MSD Accuracy: < 2.5 m

Driller: Dynes Road Drilling Drill Method: Cable Tool

Borelog Depth: 24.2 m Drill Date: 09-Jun-1992



Scale(m)	Water Level	Depth(m)		Full Drillers Description	Formation Code
5		8.00m	00000000 00000000 00000000 00000000 0000	Medium-small gravel	
10		10.00m	00000000 00000000 00000000 000000000 0000	Medium-small gravel, very open	
		12.00m	000000000 000000000 000000000 00000000	Medium-small gravel	
		14.00m	000000 000000	Claybound small-medium gravel	
15				Small to large sandy gravel	
20		18.00m	000000000 000000000 00000000 000000000	Medium gravel, Water-bearing	
		22.00m	000000000 000000000 000000000 00000000	Small-medium gravel,clean,open	
		24.00m	000000000 000000000 000000000 00000000	Small to medium gravel,stained	

Bore or Well No	M36/7512
Well Name	East Maddisons Road
Owner	Mr & Mrs A S & M M Baxter



Well Number	M36/7512	File Number	CO6C/21054
Owner	Mr & Mrs A S & M M Baxter	Well Status	Active (exist, present)
Street/Road	East Maddisons Road	NZTM Grid Reference	BX23:50237-69431
Locality	Rolleston	NZTM X and Y	1550237 - 5169431
Location Description		Location Accuracy	50 - 300m
CWMS Zone	Selwyn - Waihora	Use	Domestic and Stockwater,
Groundwater Allocation Zone	Selwyn-Waimakariri	Water Level Monitoring	
Depth	29.00m	Water Level Count	0
Diameter	150mm	Initial Water Level	8.10m below MP
Measuring Point Description		Highest Water Level	
Measuring Point Elevation	34.85m above MSL (Lyttelton 1937)	Lowest Water Level	
Elevation Accuracy	< 5 m	First reading	
Ground Level	0.00m above MP	Last reading	
Strata Layers	6	Calc Min 80%	9.32m below MP (Estimated)
Aquifer Name		Aquifer Tests	0
Aquifer Type		Yield Drawdown Tests	2
Drill Date	01 Dec 2003	Max Tested Yield	5 l/s
Driller	Dynes Road Drilling	Drawdown at Max Tested Yield	10 m
Drilling Method	Cable Tool	Specific Capacity	0.41 l/s/m
Casing Material	STEEL	Last Updated	08 Nov 2013
Pump Type		Last Field Check	
Water Use Data	No		

Screens

Screen No.	Screen Type	Top (m)	Bottom (m)	Slot Size (mm)	Slot Length (mm)	Diameter (mm)	Leader Length (mm)
1	Stainless steel	27	29				

Step Tests

Step Test Date	Step	Yield	Yield GPM	DrawDown	Step Duration
01 Dec 2003	1	1.5	19.7972755	3.65	2
01 Dec 2003	2	4.9	64.6711044	10.36	3

No comments for this well

Borelog for well M36/7512

Grid Reference (NZTM): 1550238 mE, 5169431 mN

Location Accuracy: 50 - 300m

Ground Level Altitude: 34.9 m +MSD Accuracy: < 0.5 m

Driller: Dynes Road Drilling Drill Method: Cable Tool

Borelog Depth: 29.0 m Drill Date: 01-Dec-2003



