Appendix D 2012 CPT Logs

aurecon Leading. Vibrant. Global.

CPT ANALYSIS NOTES

Soil Type

Interpretation using chart of Robertson & Campanella (1983). This is a simple but well proven interpretation using cone tip resistance (q_c) and friction ratio (f_R) only. No normalisation for overburden stress is applied. Cone tip resistance measured with the piezocone is corrected with measured pore pressure (u_c).

sand (and gravel)
silt-sand
silt
clay-silt
clay
peat

Liquefaction Screening

The purpose of the screening is to highlight susceptible soils, that is sand and silt-sand in a relatively loose condition. This is not a full liquefaction risk assessment which requires knowledge of the particular earthquake risk at a site and additional analysis. The screening is based on the chart of Shibata and Teparaksa (1988).

high susceptibility
medium susceptibility
low susceptibility

High susceptibility is here defined as requiring a shear stress ratio of 0.2 to cause liquefaction with D_{50} for sands assumed to be 0.25 mm and for silty sands to be 0.05 mm.

Medium susceptibility is here defined as requiring a shear stress ratio of 0.4 to cause liquefaction with D_{50} for sands assumed to be 0.25 mm and for silty sands to be 0.05 mm.

Low susceptibility is all other cases.

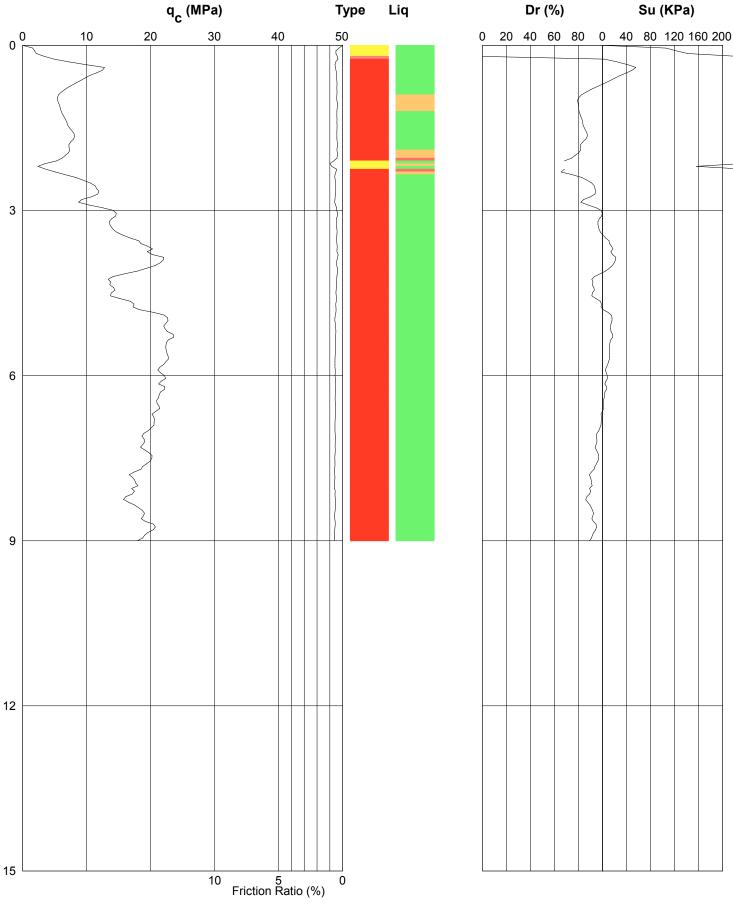
Relative Density (D_R)

Based on the method of Baldi et. al. (1986) from data on normally consolidated sand.

Undrained Shear Strength (S_U)

Derived from the bearing capacity equation using $S_U = (q_C - \sigma_{VO})/15$.





Job No: CPT No:

Project:

10071

CPT101

Aurecon NZ Ltd

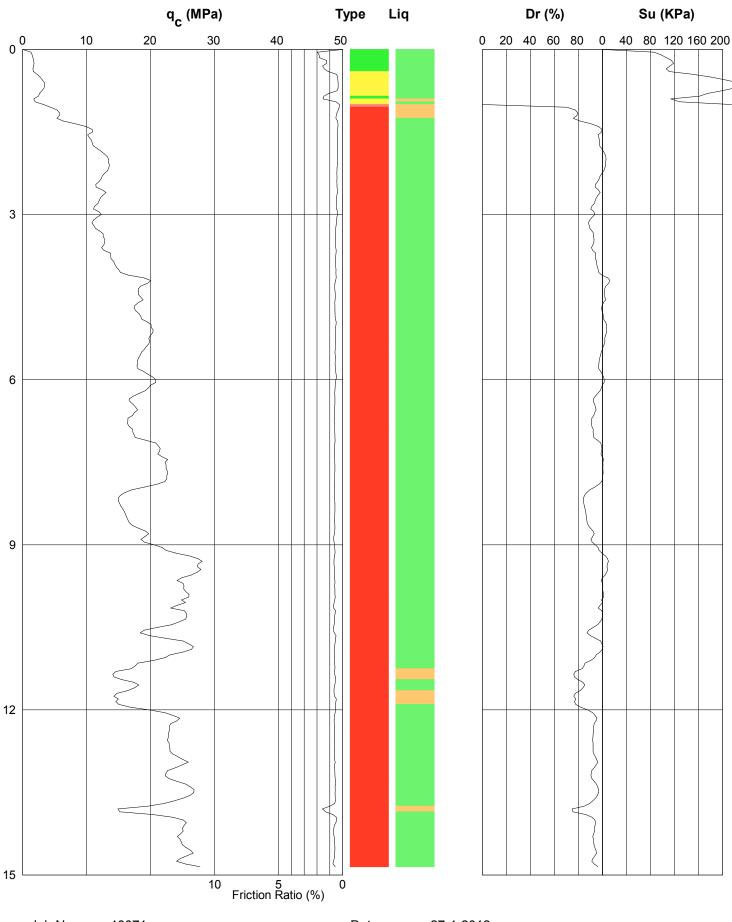
Location: Prestons Subdivision, Christchurch

Date: 2-02-2012

Operator: N Barnes

Remark: Effective Refusal





Job No:

10071

CPT No:

CPT102

Project:

Location:

Aurecon NZ Ltd

Prestons Subdivision, Christchurch

Date:

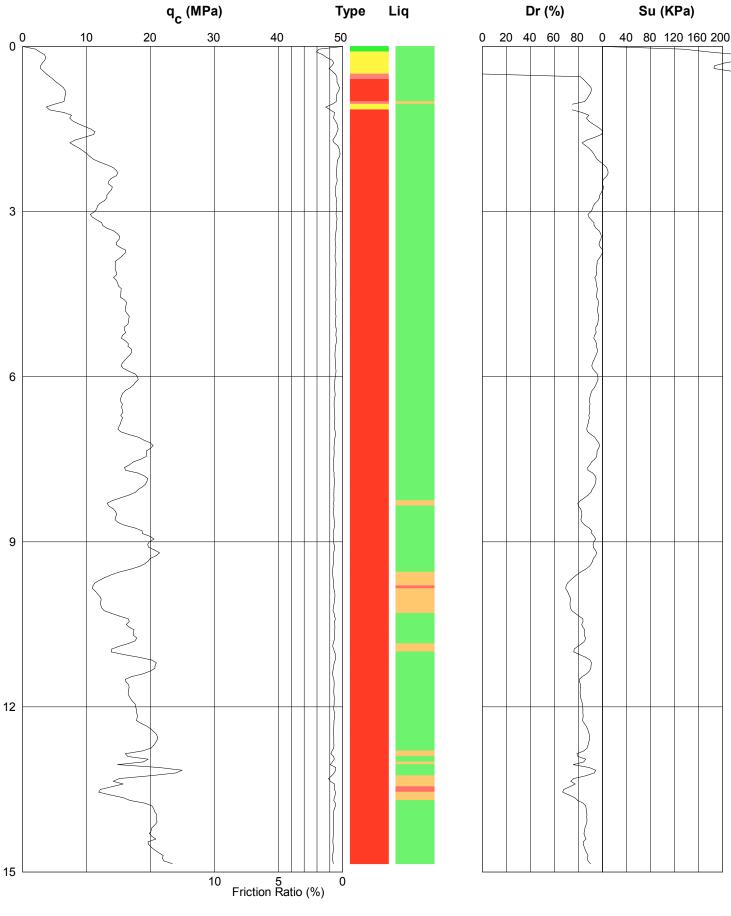
27-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT103

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

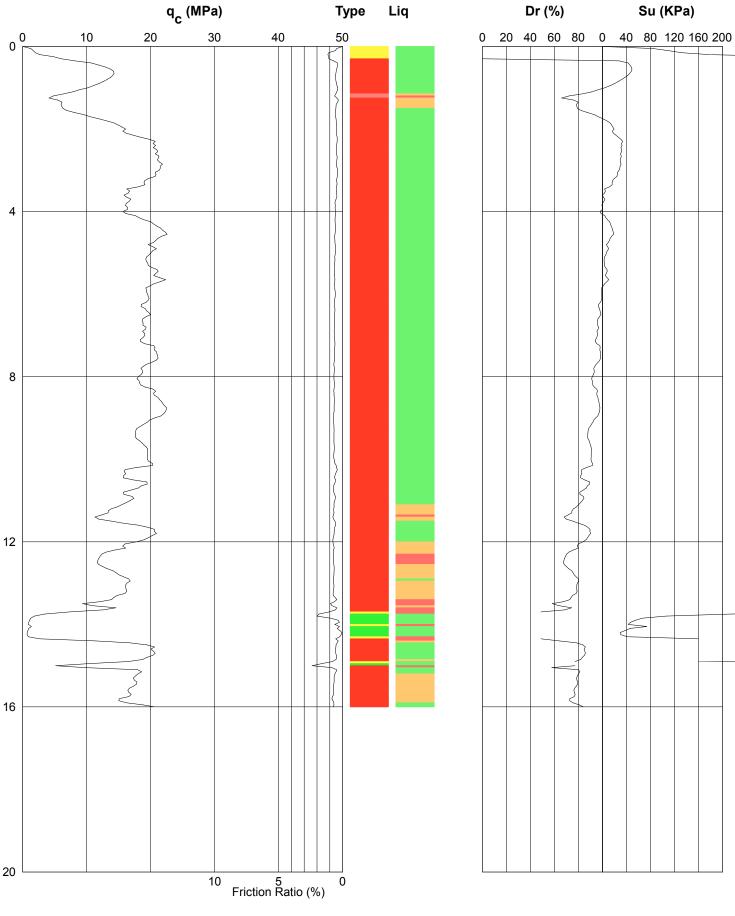
30-1-2012

Operator:

N Barnes

Remark:





Job No: CPT No: 10071

CPT104

Project:

Aurecon NZ Ltd

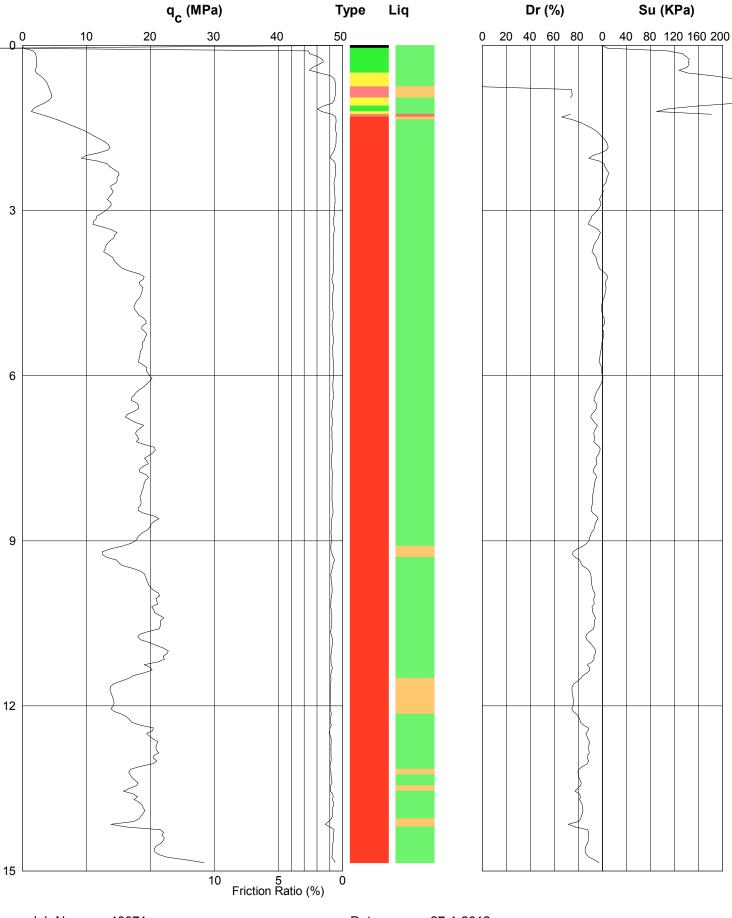
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Effective Refusal





Job No:

10071

CPT No:

CPT105

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

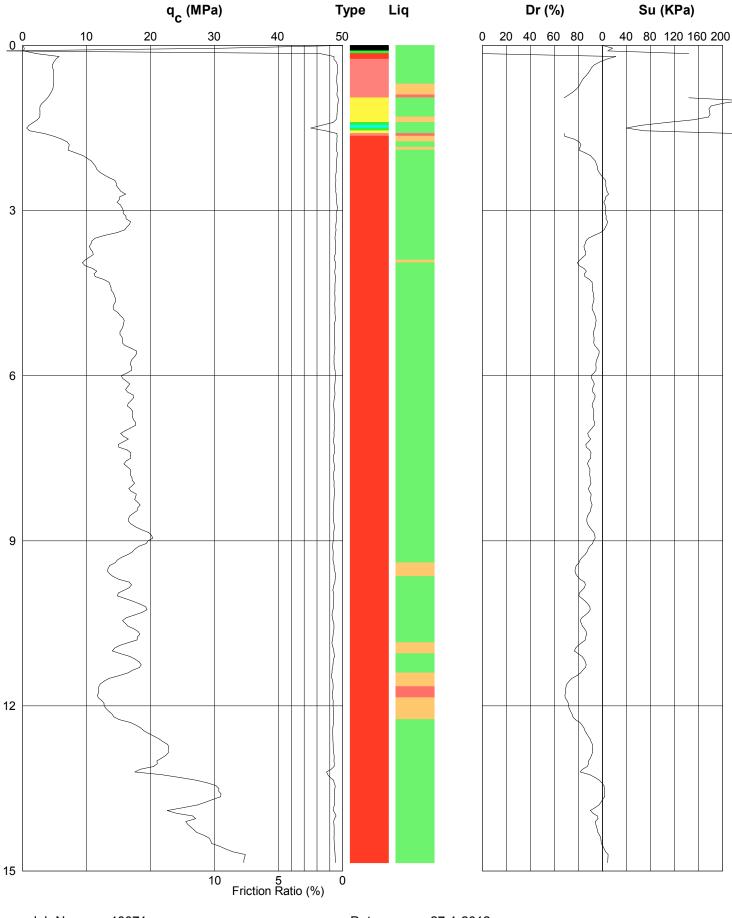
27-1-2012

Operator:

H Pardoe

Remark:





Job No:

10071

CPT No:

CPT106

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

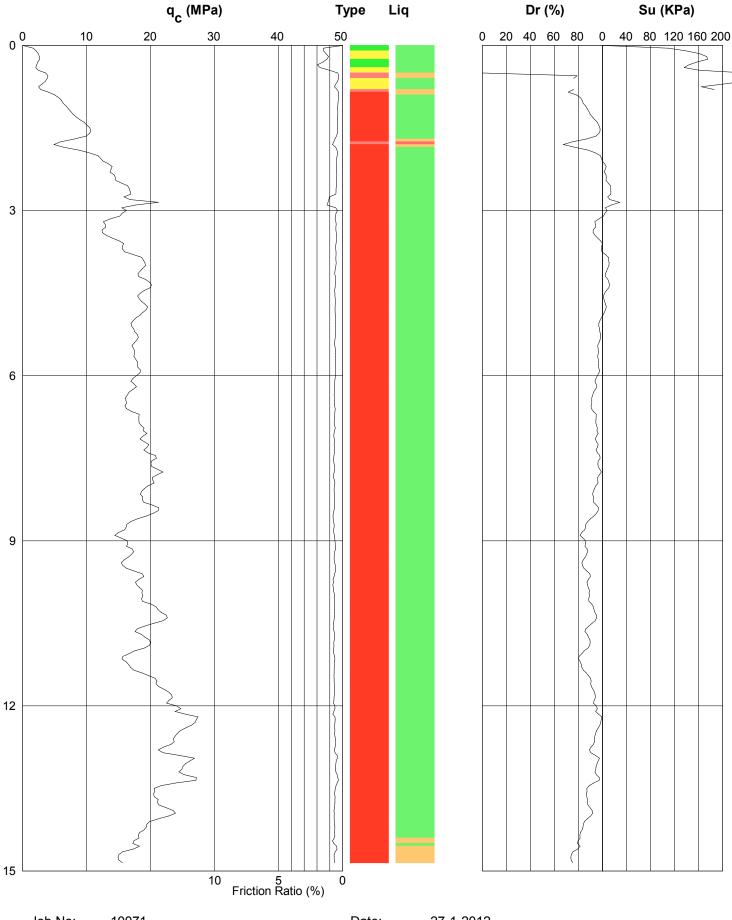
27-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT107

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

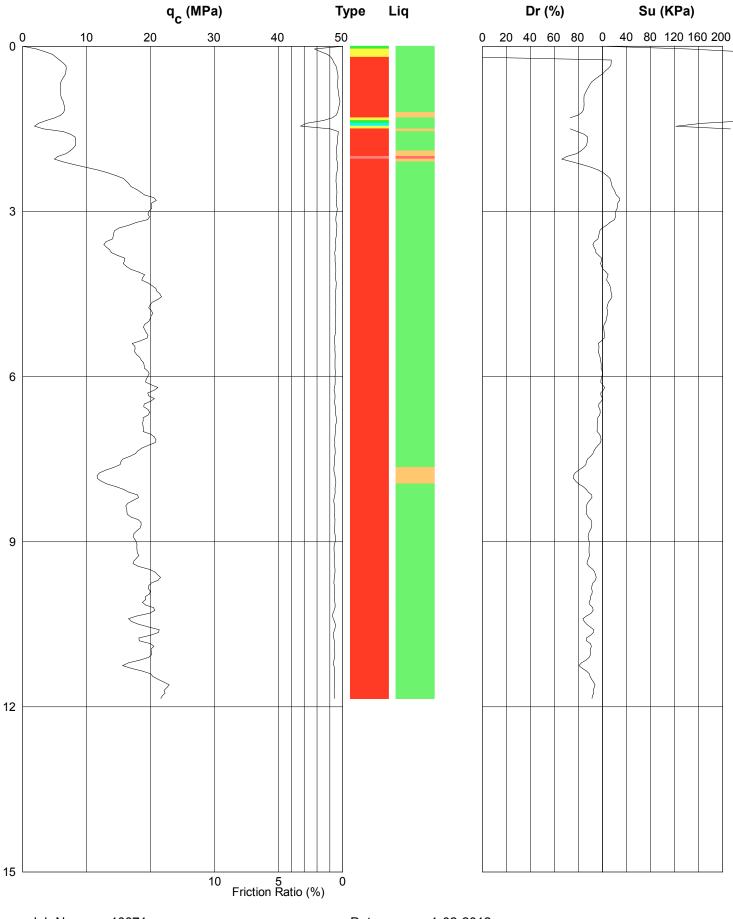
27-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT108

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

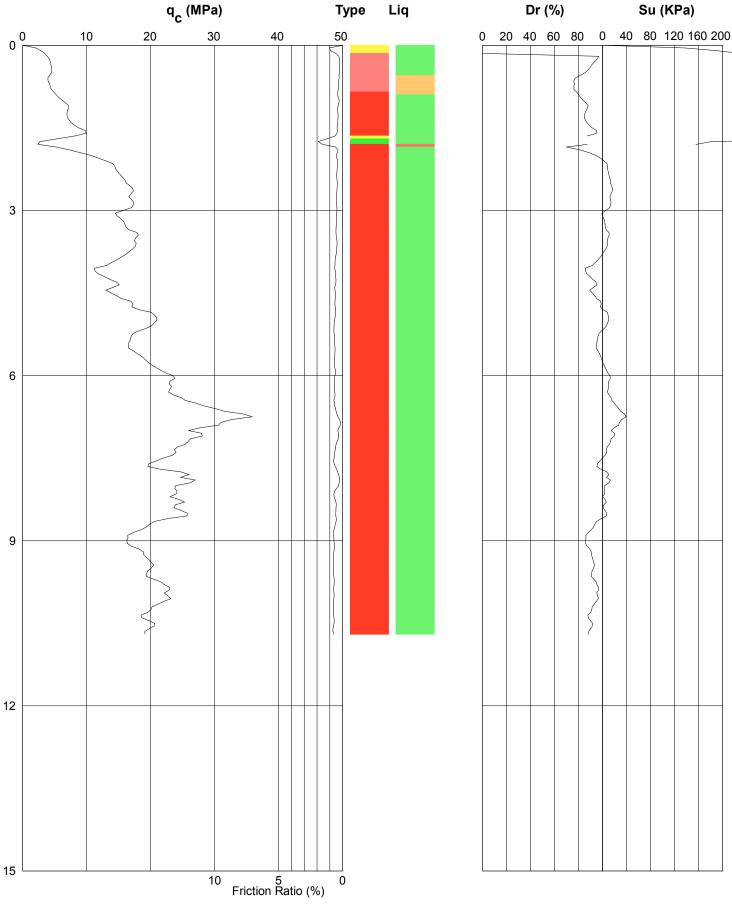
1-02-2012

Operator:

N Barnes

Remark:





Job No: CPT No: 10071

CPT109

Project:

Location:

Aurecon NZ Ltd

Prestons Subdivision, Christchurch

Date:

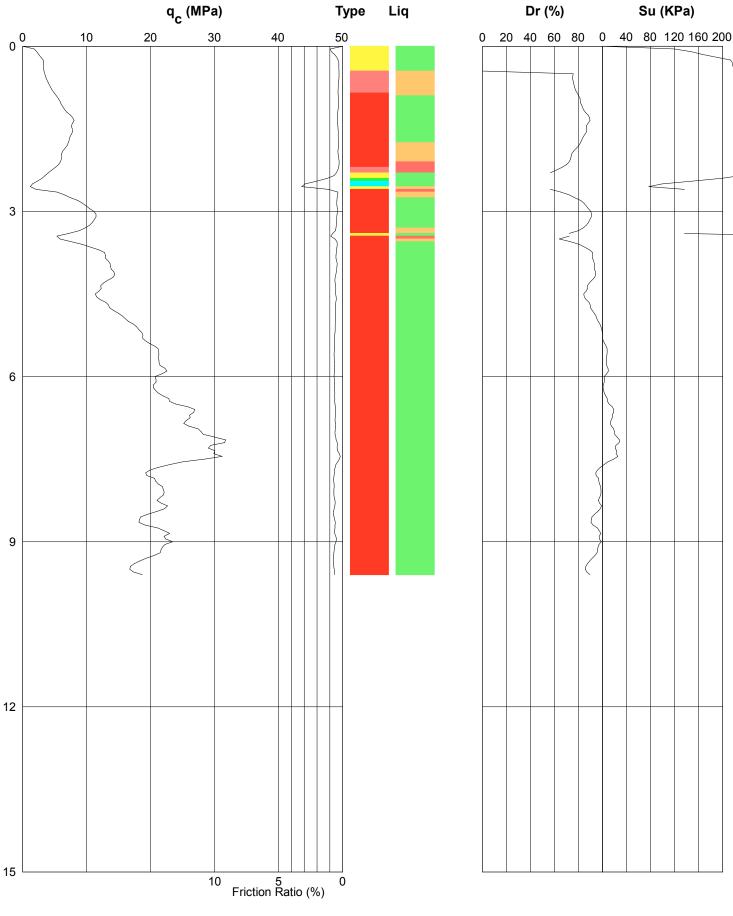
1-02-2012

Operator:

N Barnes

Remark:





Job No: CPT No: 10071

CPT110

Project:

Location:

Aurecon NZ Ltd

Prestons Subdivision, Christchurch

Date:

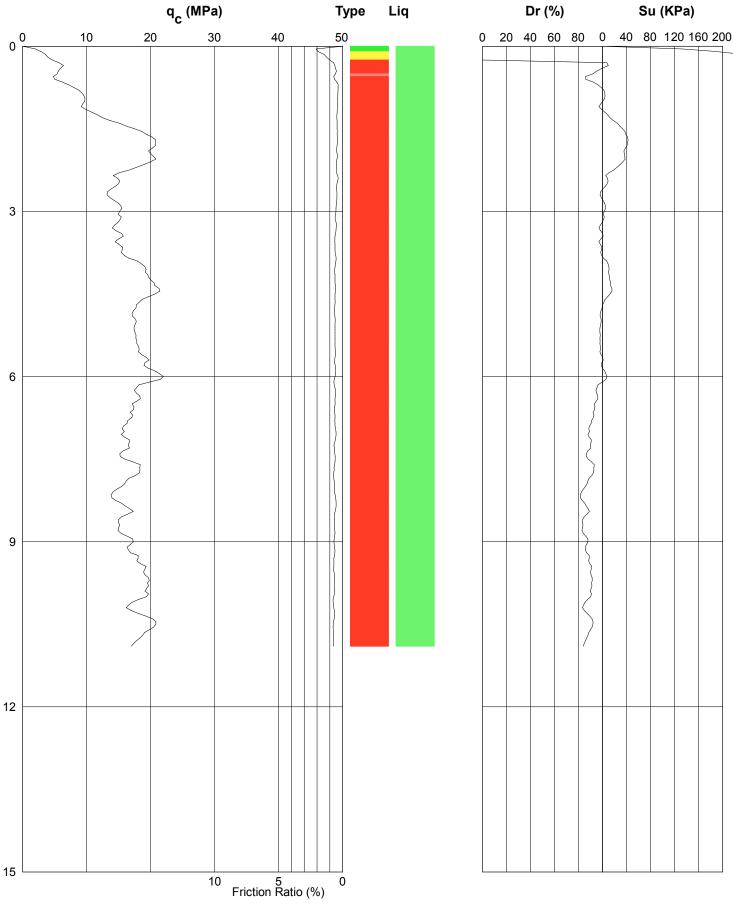
2-02-2012

Operator:

N Barnes

Remark:





Job No: CPT No: 10071

CPT111

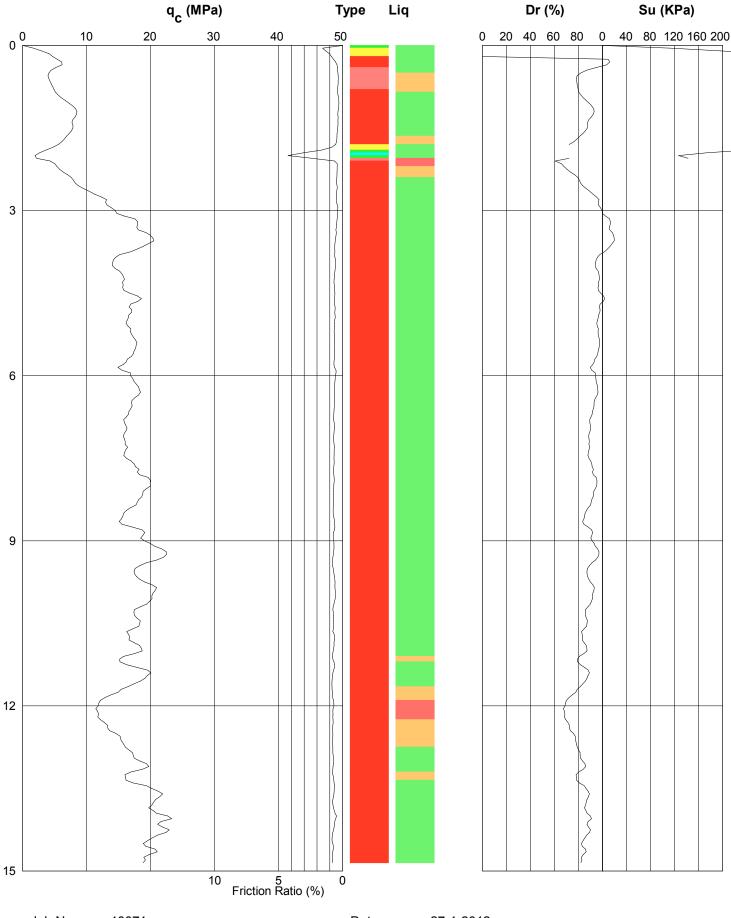
Project:

Aurecon NZ Ltd

Remark:

Location: Prestons Subdivision, Christchurch

2-02-2012 Date: Operator: N Barnes



Job No:

10071

CPT No:

CPT112

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

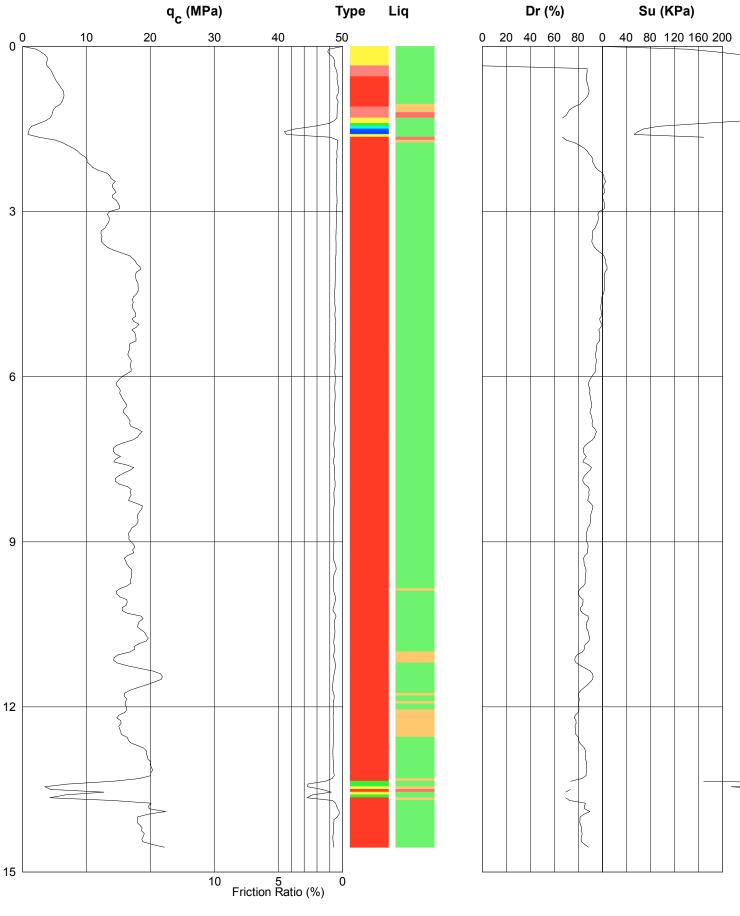
27-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT113

Project:

Aurecon NZ Ltd

Location:

Adiccon NZ Eta

Prestons Subdivision, Christchurch

Date:

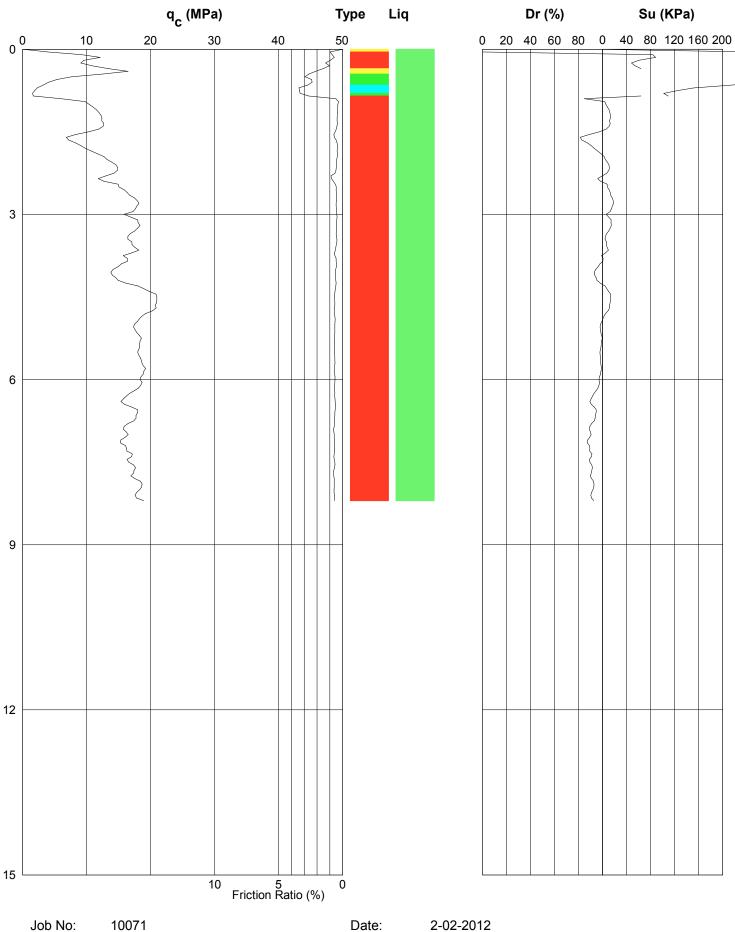
31-1-2012

Operator:

N Barnes

Remark:





Job No: CPT No: 10071

CPT114

Project:

Aurecon NZ Ltd

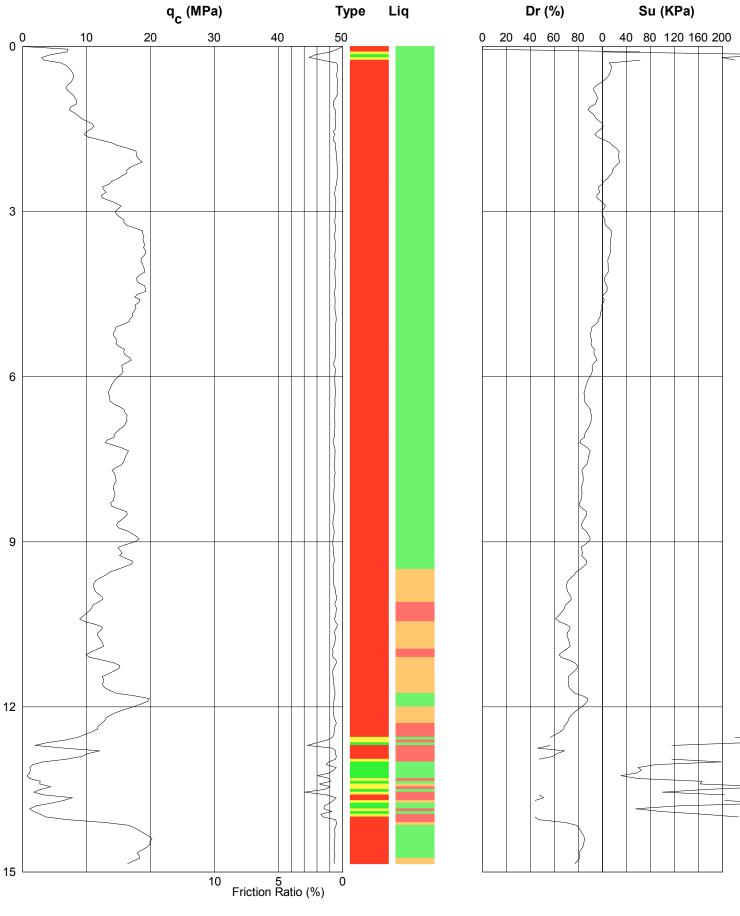
Operator: Remark:

Effective Refusal

N Barnes

Location: Prestons Subdivision, Christchurch





Job No:

10071

CPT No:

CPT115

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

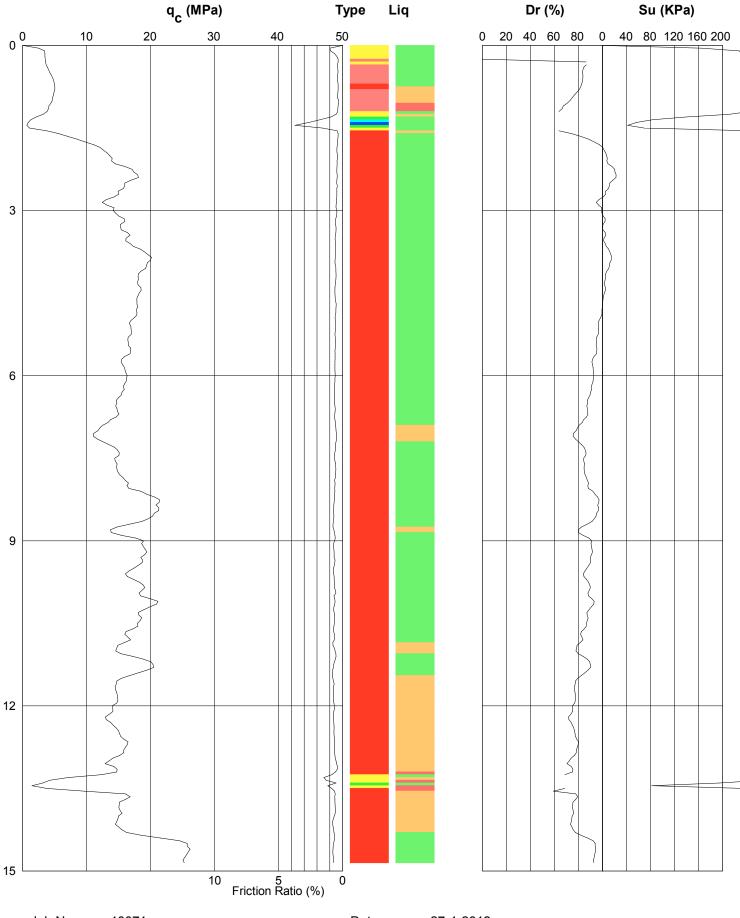
30-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT116

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

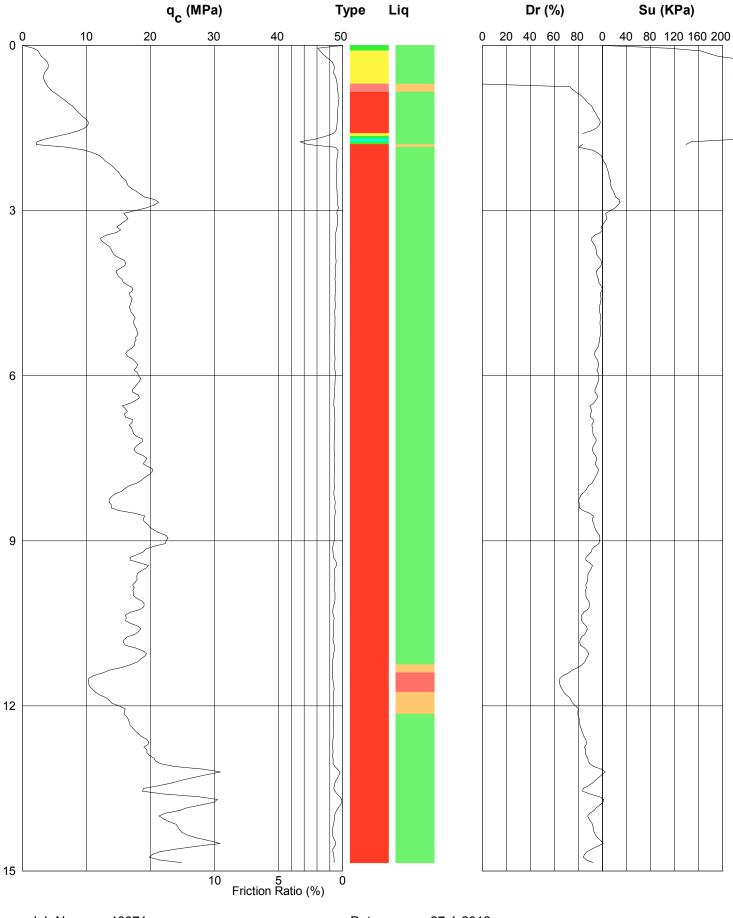
27-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT117

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

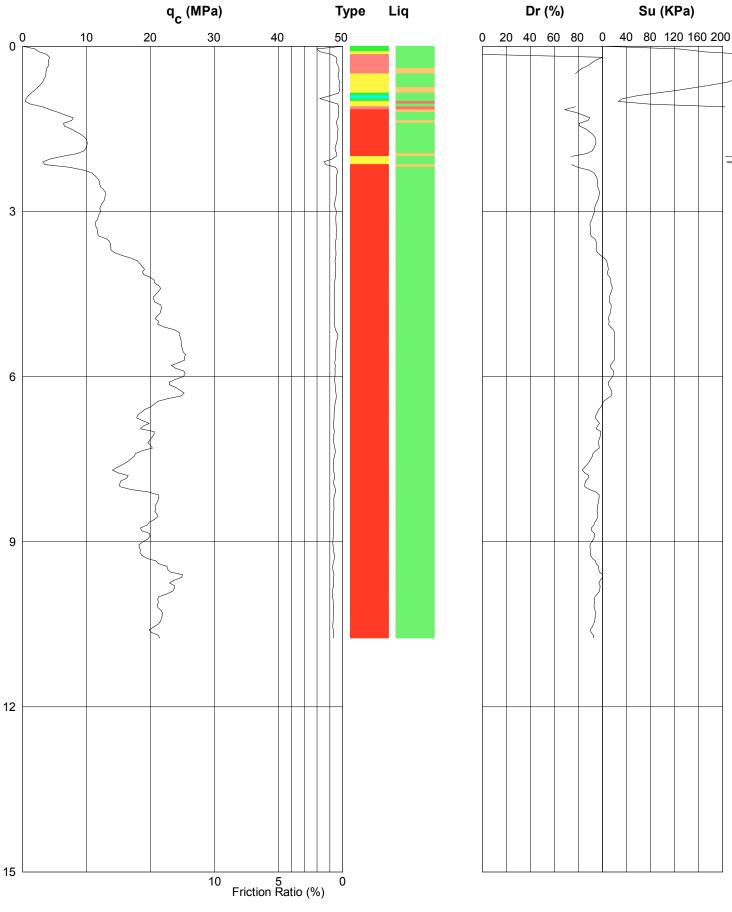
27-1-2012

Operator:

N Barnes

Remark:





Job No: CPT No:

Project:

Location:

10071

CPT118

Aurecon NZ Ltd

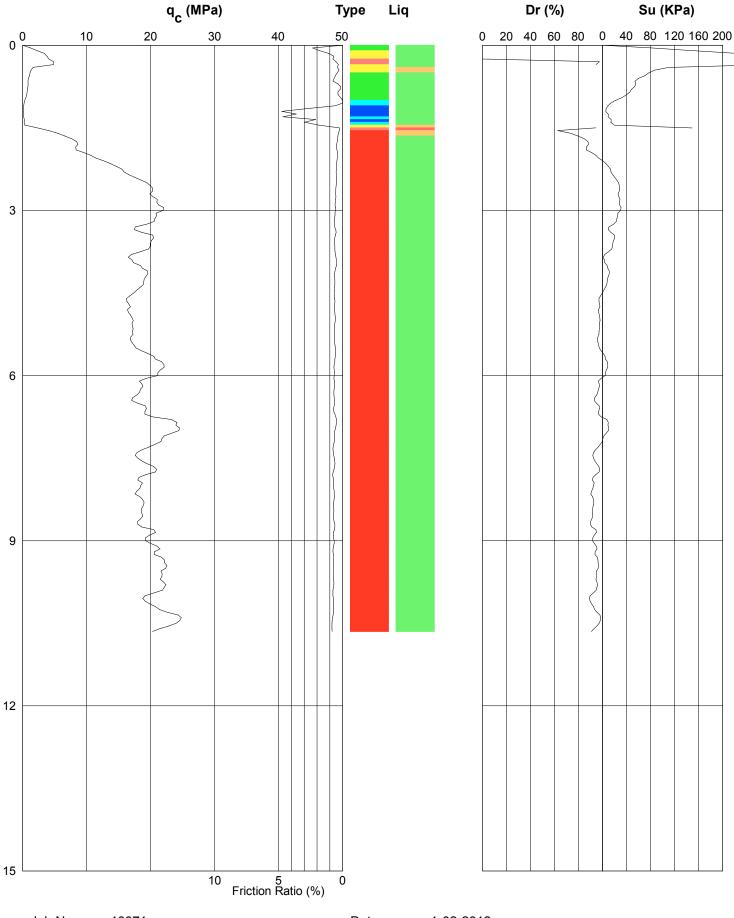
Prestons Subdivision, Christchurch

Date: 1-02-2012

Operator: N Barnes

Remark: Effective Refusal





Job No:

10071

CPT No: CF

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CPT119

Project:

Aurecon NZ Ltd

Location: Prestons Subdivision, Christchurch

Date:

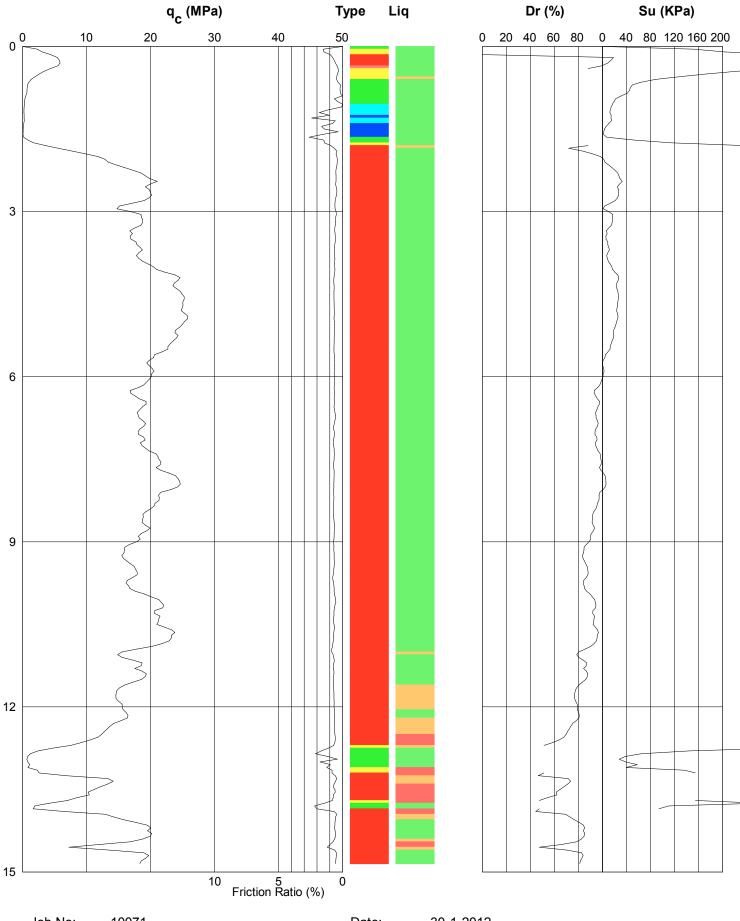
1-02-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

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Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

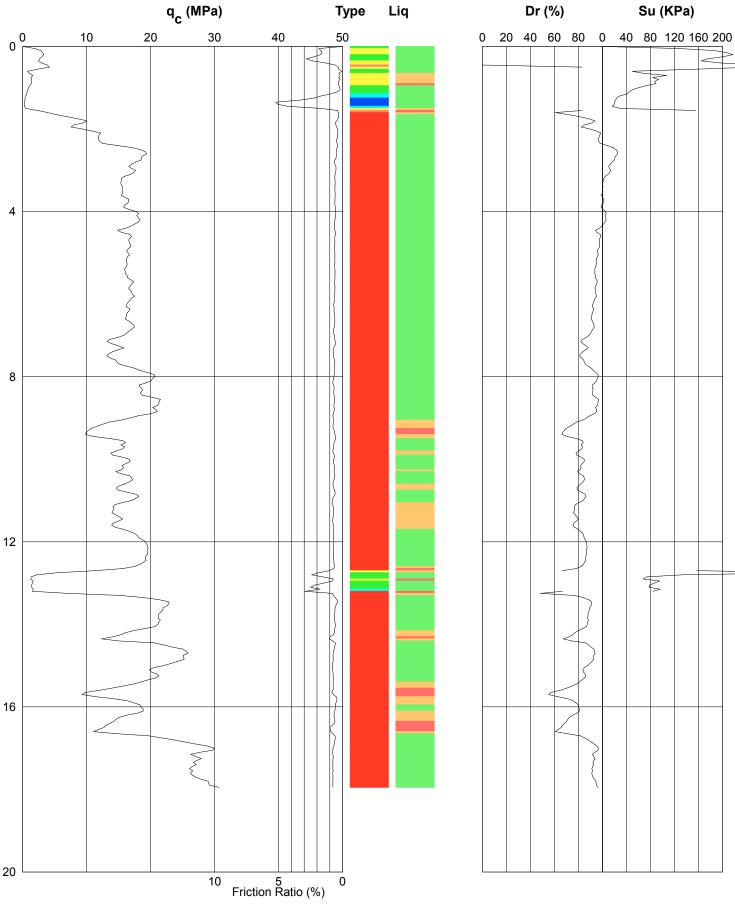
30-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No: CPT121

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

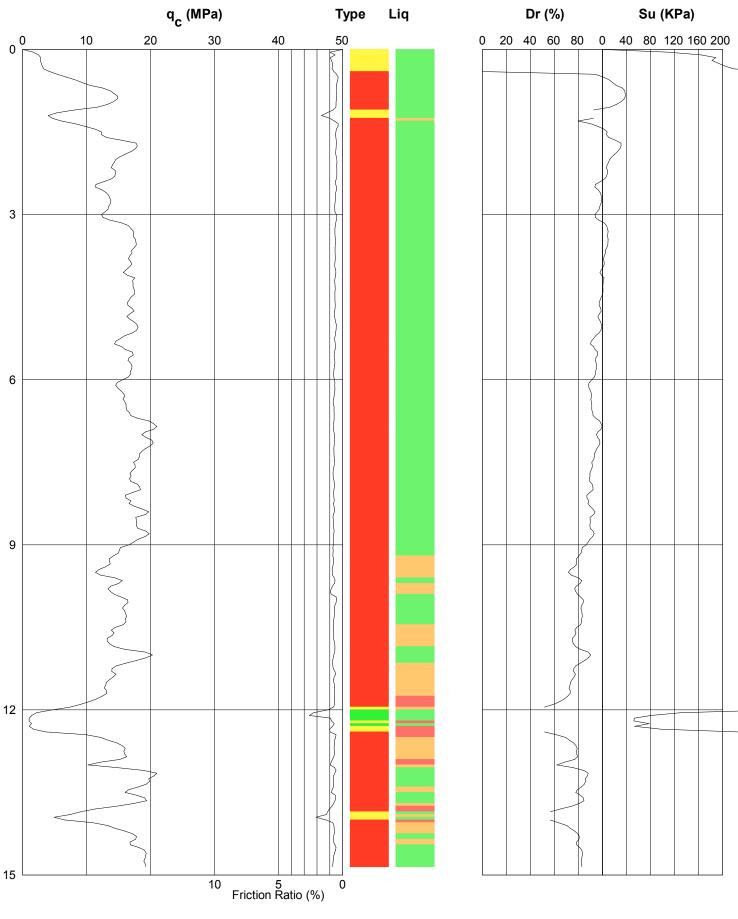
30-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

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Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

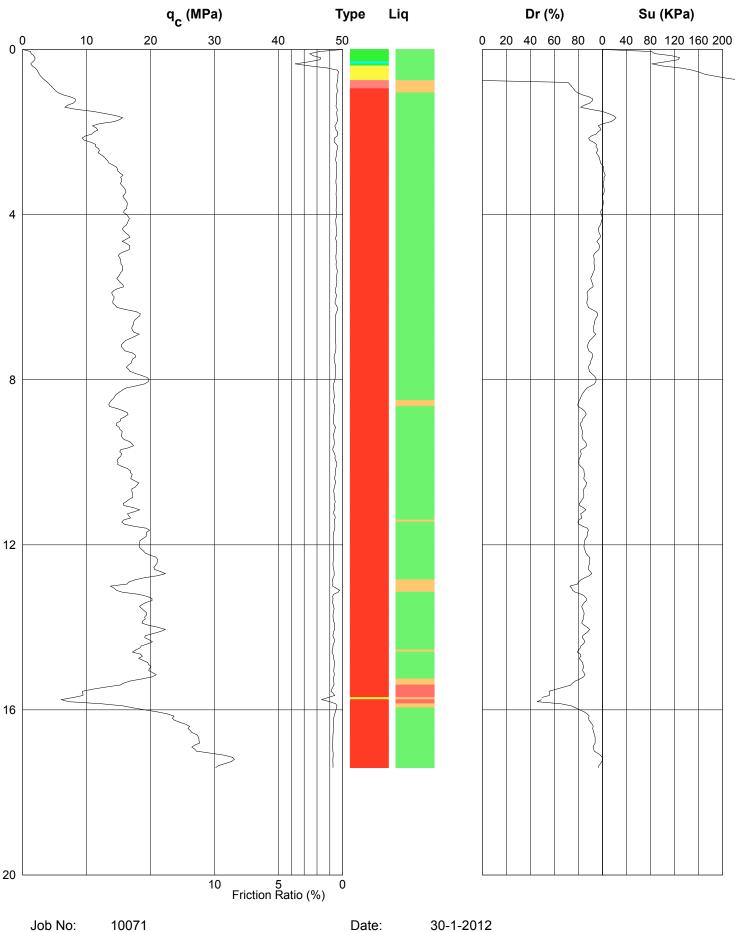
30-1-2012

Operator:

N Barnes

Remark:





Job No: CPT No: 10071

CPT123

Project:

Aurecon NZ Ltd

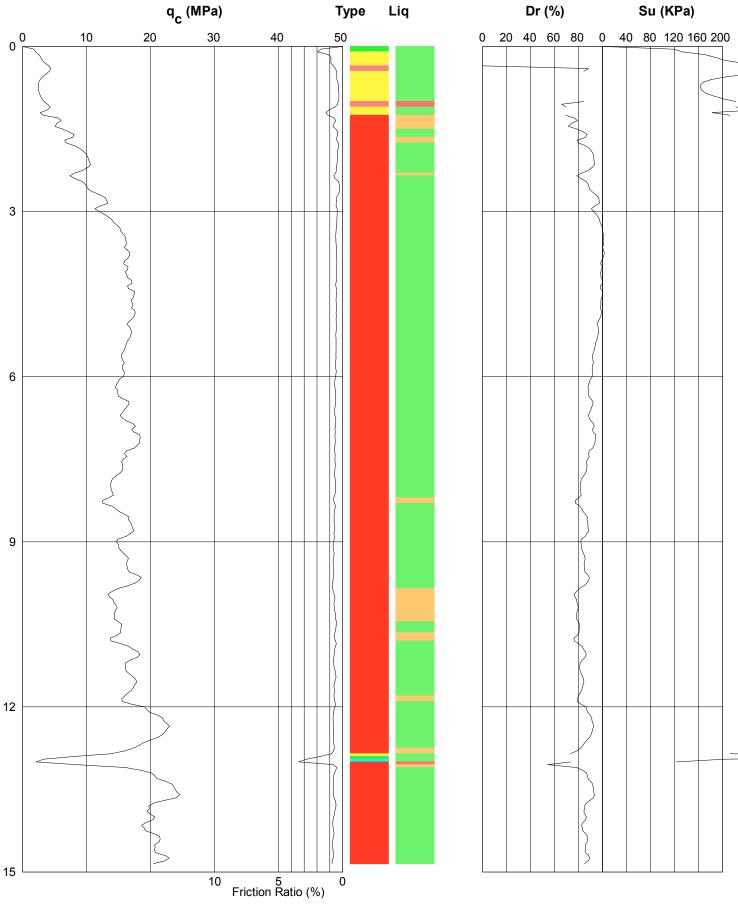
Location: Prestons Subdivision, Christchurch Date:

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT124

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

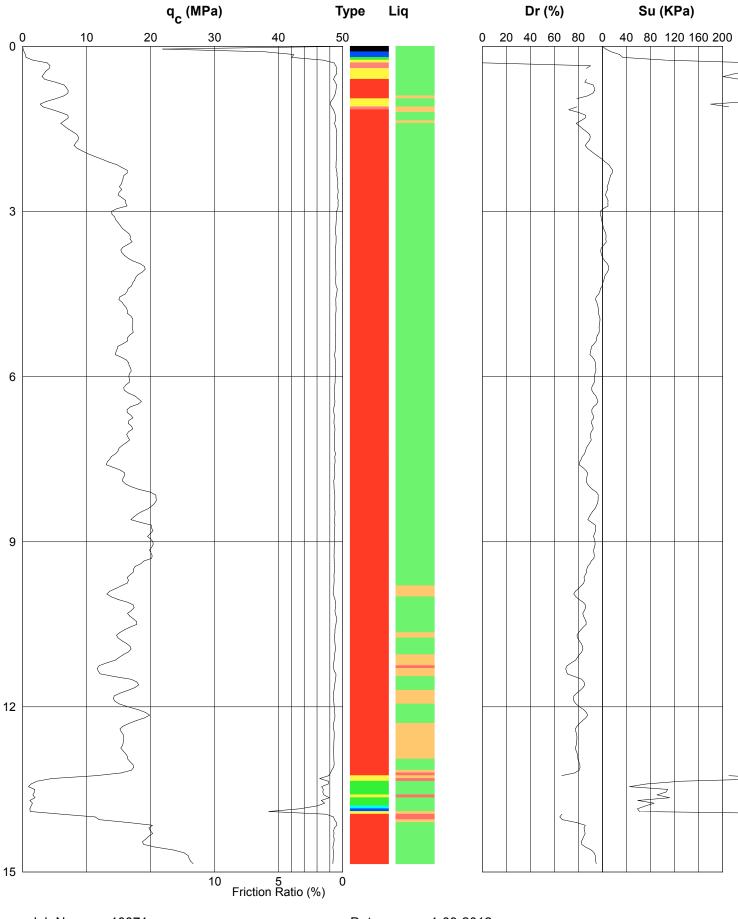
30-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

CPT125

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

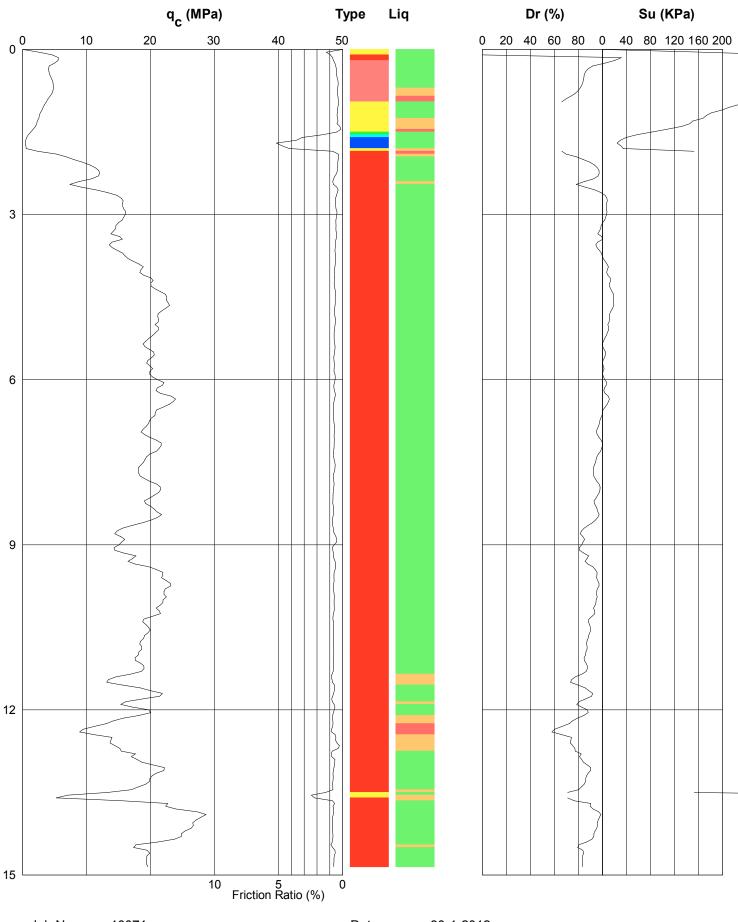
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No:

CPT126

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

Date:

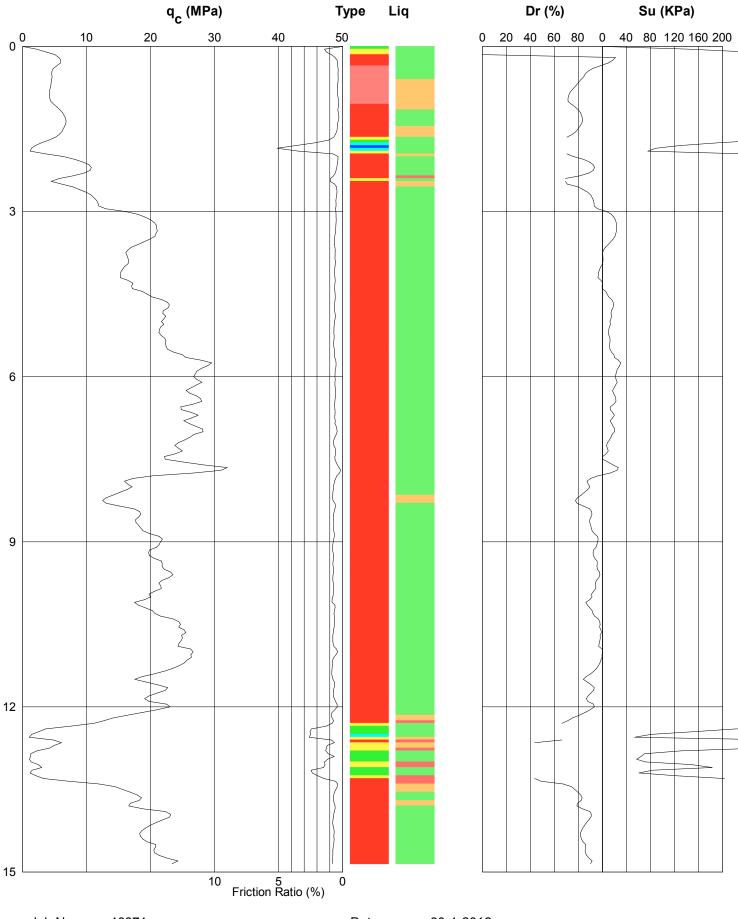
30-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

CPT No:

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Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Christchurch

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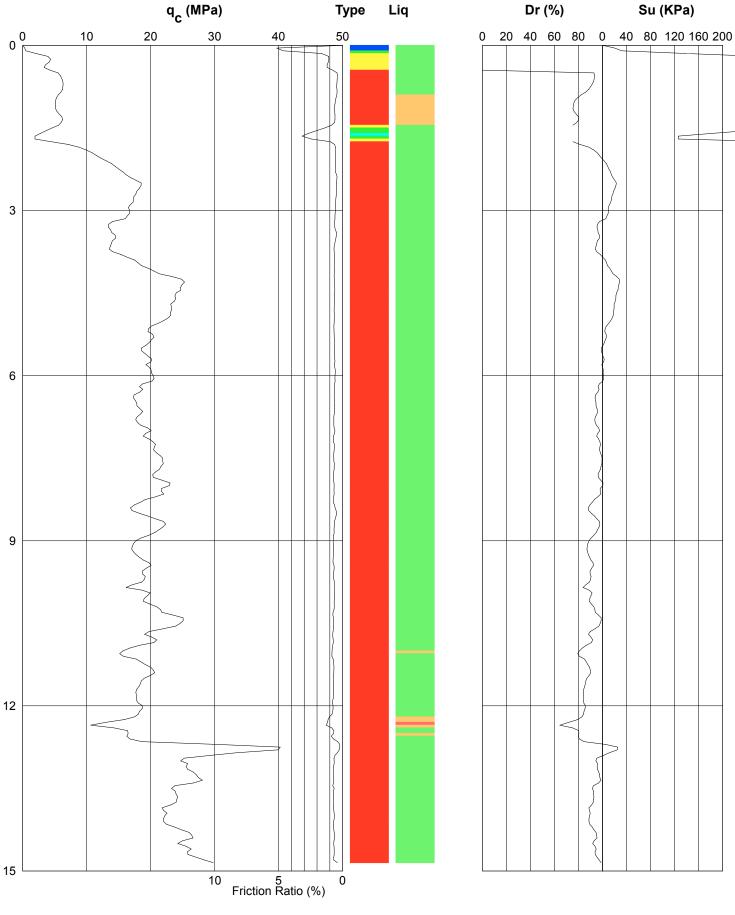
30-1-2012

Operator:

N Barnes

Remark:





Job No:

10071

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Project:

Aurecon NZ Ltd

Location:

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Date:

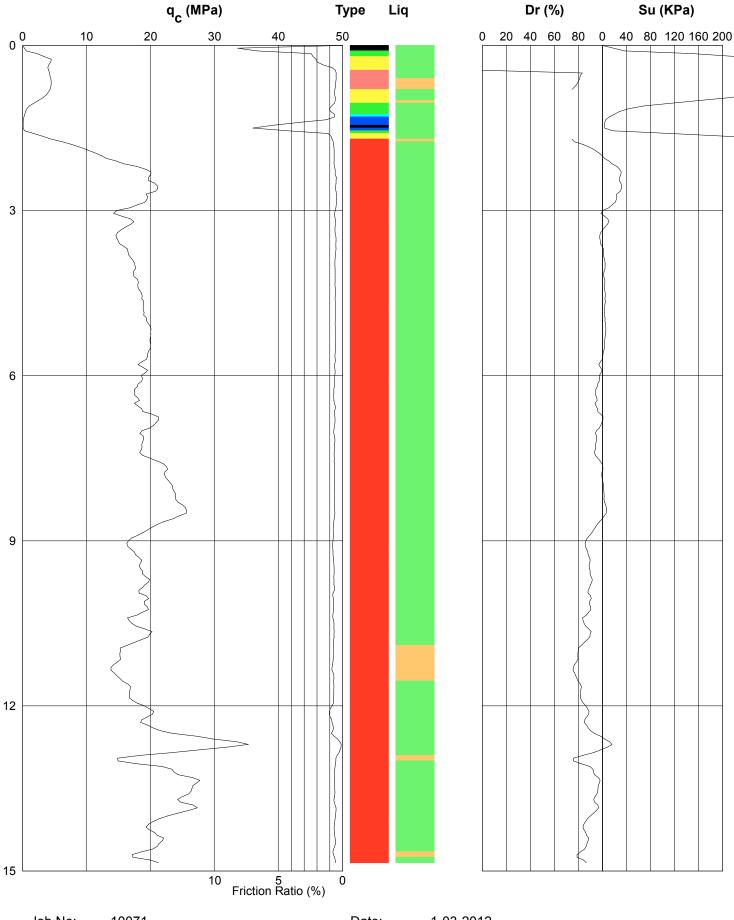
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No: C

Project:

CPT129

Aurecon NZ Ltd

Location: Prestons Subdivision, Chistchurch

Date:

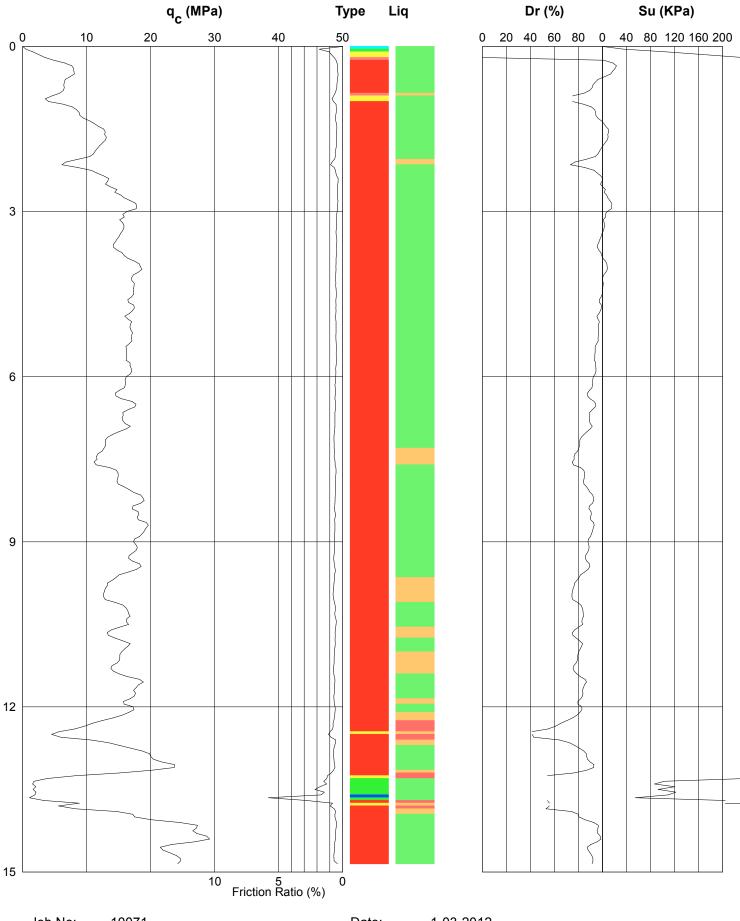
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No:

CPT130

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Chistchurch

Date:

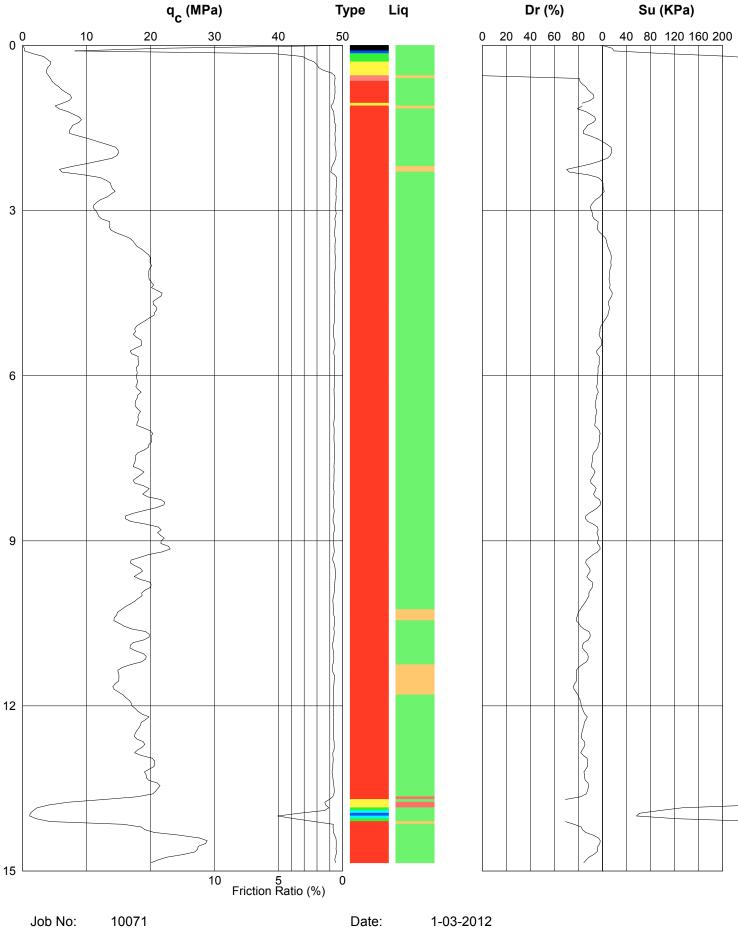
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No:

CPT131

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Chistchurch

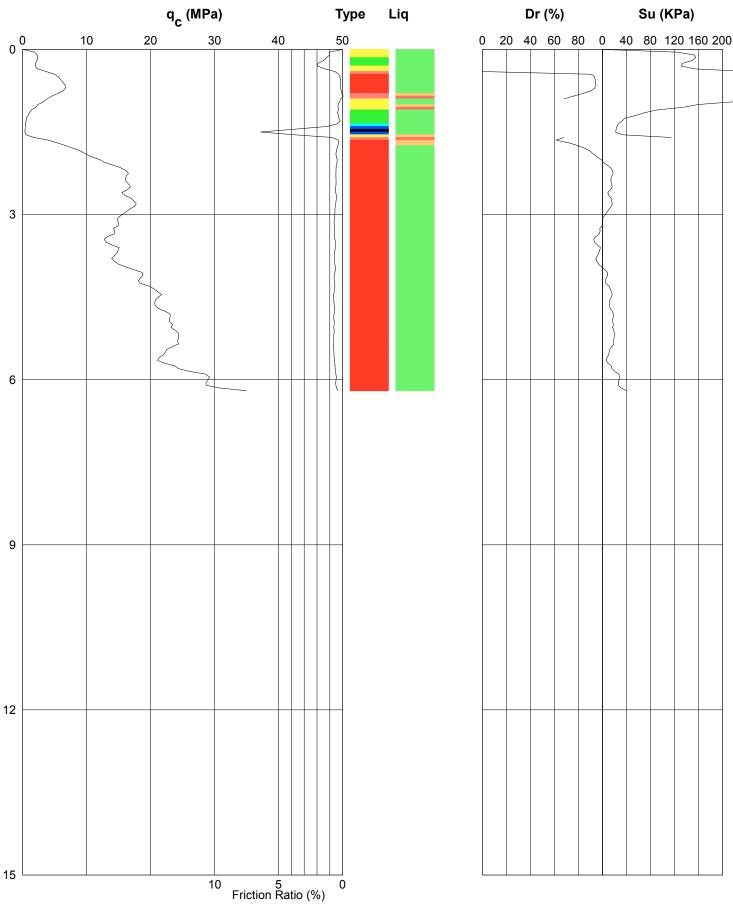
1-03-2012

Operator:

B. Powell

Remark:





Job No: CPT No: 10071

CPT132

Project:

Location:

Aurecon NZ Ltd

Prestons Subdivision, Christchurch

Date:

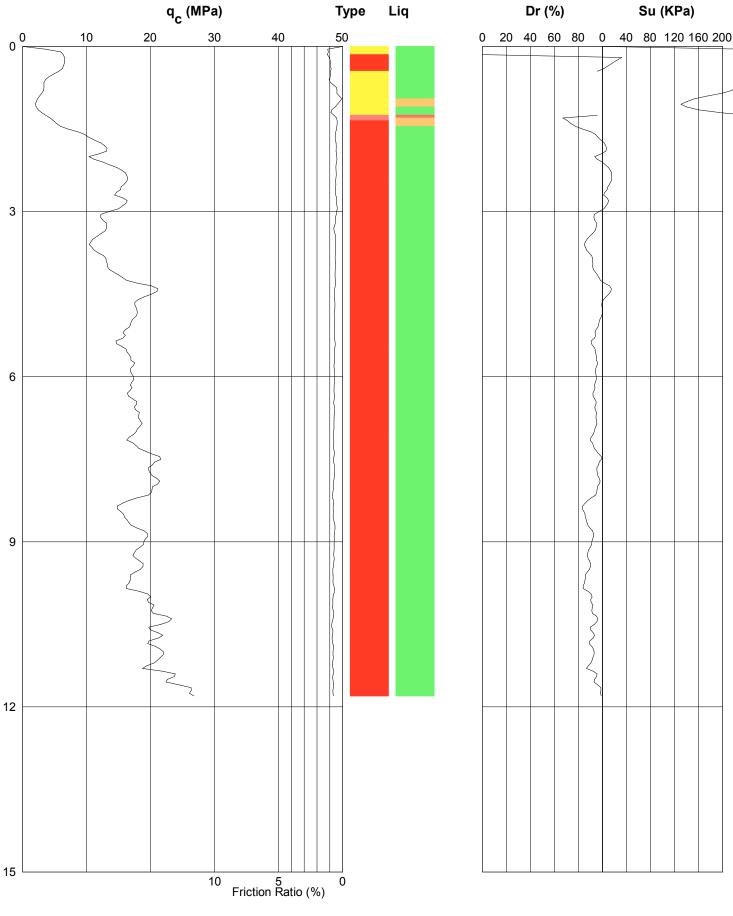
30-1-2012

Operator:

N Barnes

Remark:





Job No: CPT No: 10071

CPT133

Project:

Location:

Aurecon NZ Ltd

Prestons Subdivision, Christchurch

Date:

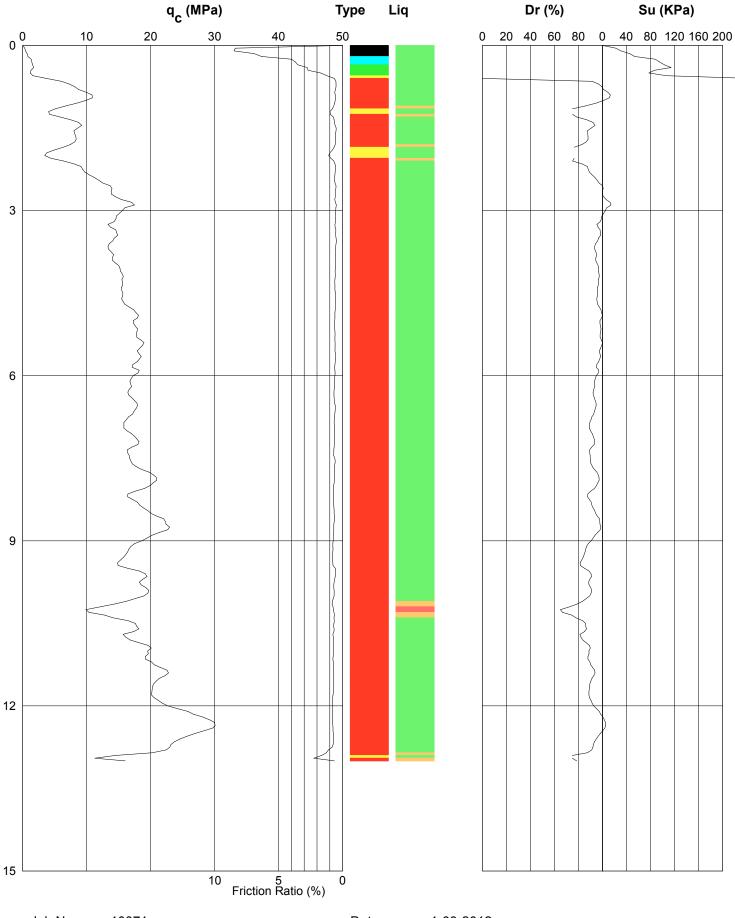
30-1-2012

Operator:

N Barnes

Remark:





Job No: CPT No:

Project:

10071

CPT134

Aurecon NZ Ltd

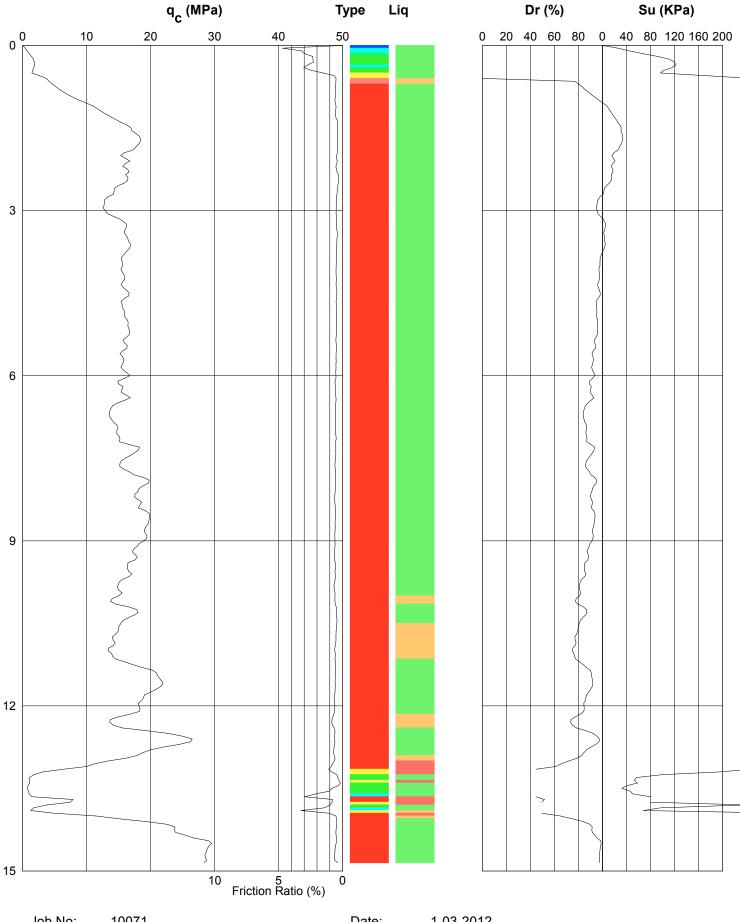
Location: Prestons Subdivision, Chistchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Effective Refusal





Job No:

10071

CPT No:

CPT135

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Chistchurch

Date:

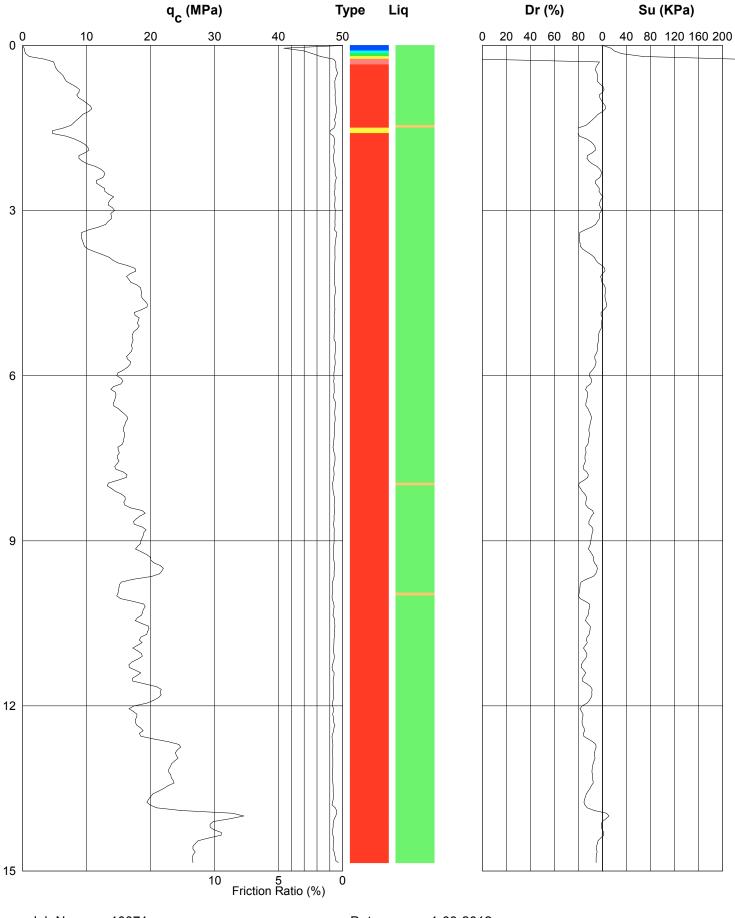
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No: CPT136

Project:

Aurecon NZ Ltd

Location: Prestons Subdivision, Chistchurch

Date:

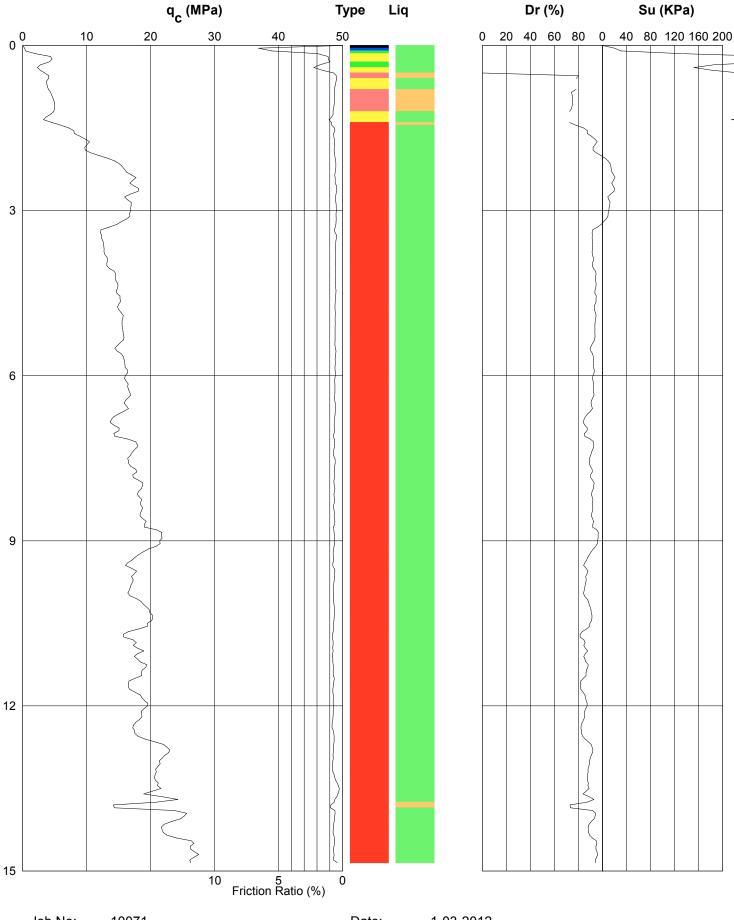
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No:

CPT137

Project:

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Location:

Aurecon NZ Ltd

Aurecon NZ Eta

Prestons Subdivision, Christchurch

Date:

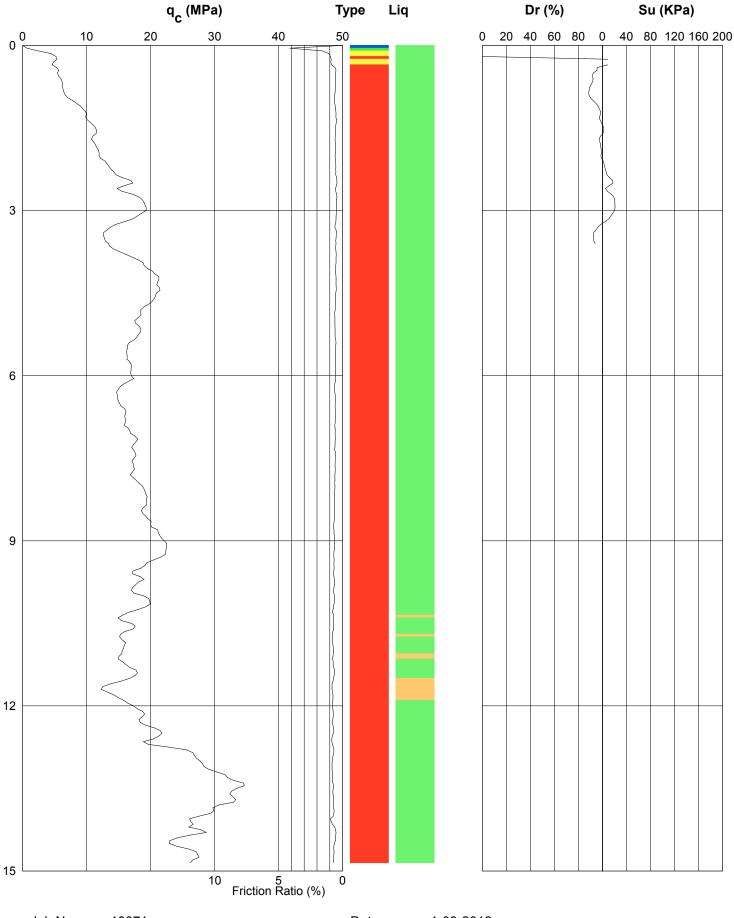
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No:

CPT138

Project:

Location:

Aurecon NZ Ltd

Prestons Subdivision, Chistchurch

Date:

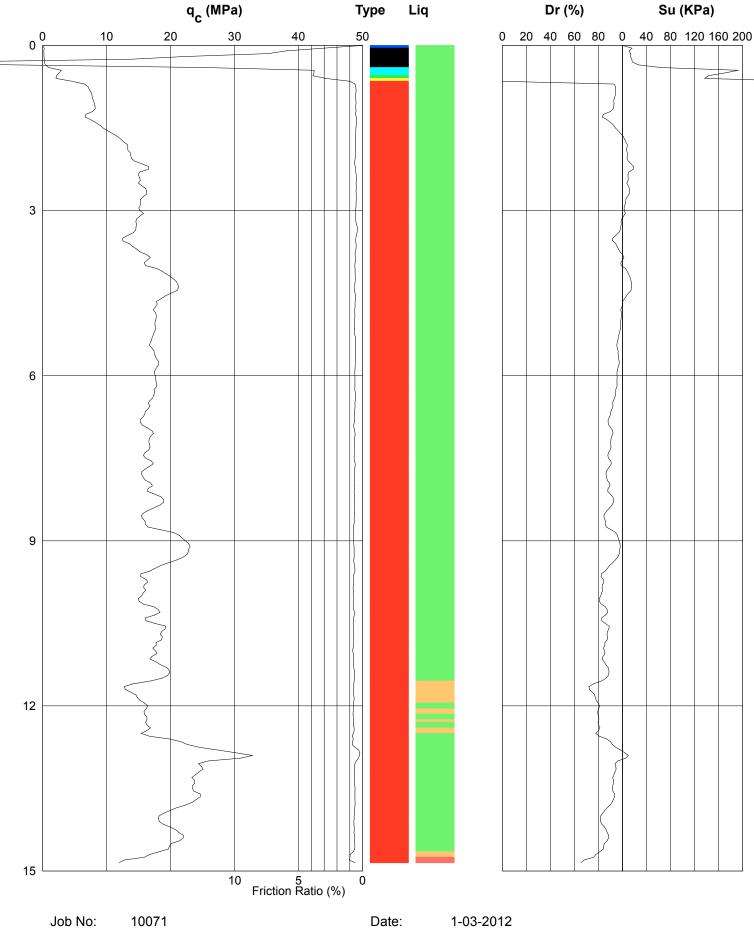
1-03-2012

Operator:

B. Powell

Remark:





Job No:

10071

CPT No:

CPT139

Project:

Aurecon NZ Ltd

Location:

Prestons Subdivision, Chistchurch

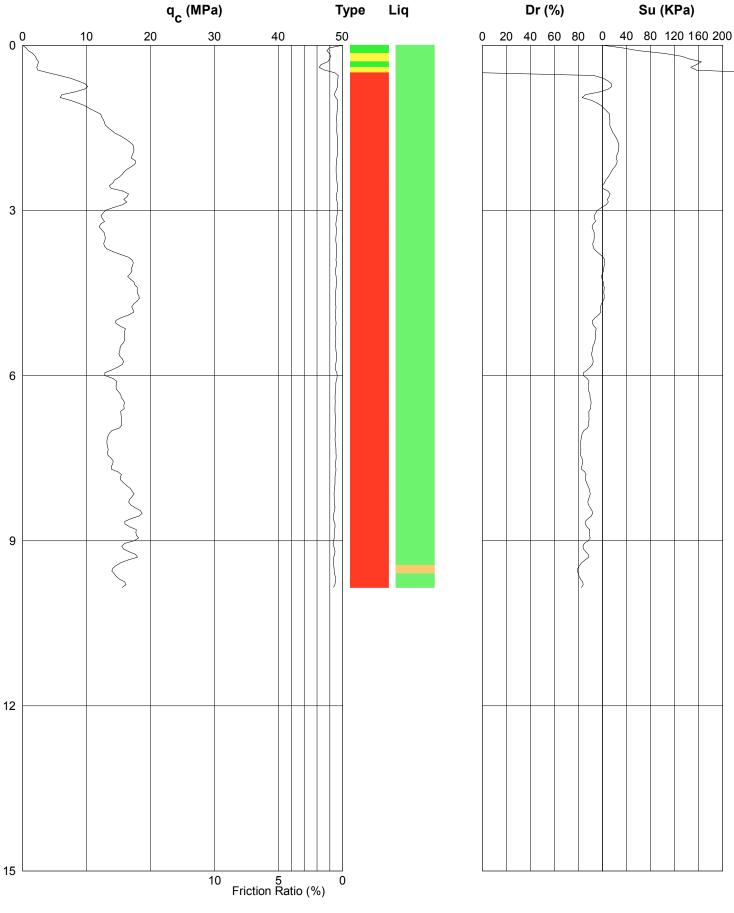
1-03-2012

Operator:

Remark:

B. Powell





Job No: CPT No: 10071

CPT140

Project:

Aurecon NZ Ltd

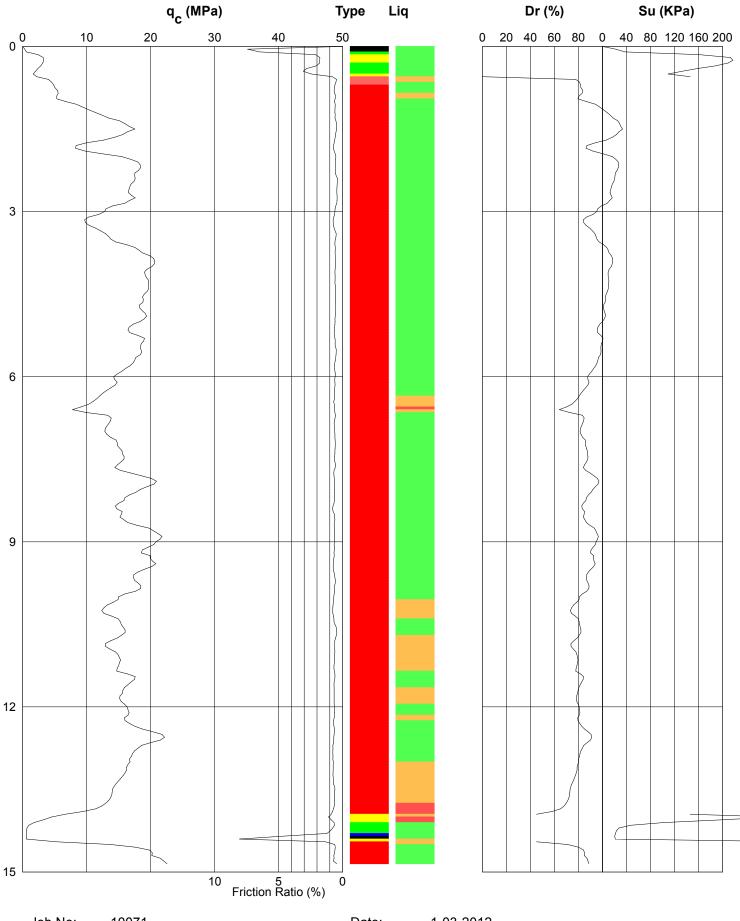
Location: Prestons Subdivision, Christchurch

Date: 2-02-2012

Operator: N Barnes

Remark: Effective Refusal





Job No:

10071

CPT No:

CPT141

Project:

O.

Location:

Aurecon NZ Ltd

Prestons Subdivision, Christchurch

Date:

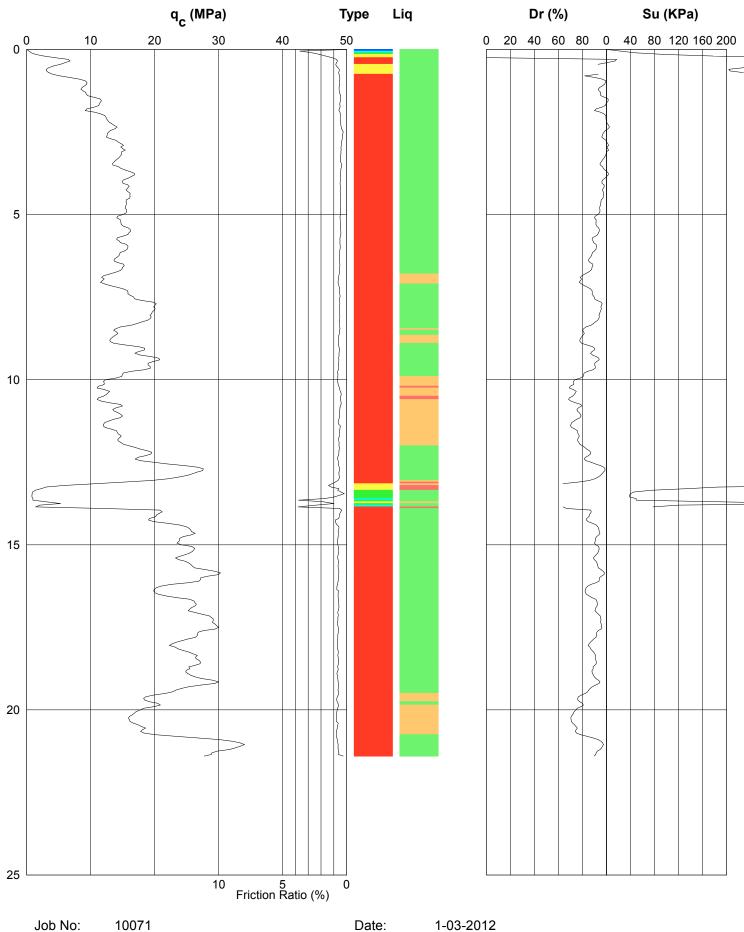
1-03-2012

Operator:

B. Powell

Remark:





Job No: CPT No: 10071

CPT179

Project:

Aurecon NZ Ltd

Remark:

Operator:

Effective Refusal

B. Powell

Location: Prestons Subdivision, Chistchurch



CIVIL CONSTRUCTION OVERVIEW

- 5 x Piling Rigs (20 to 80 tonne);
- 4 x Tieback/Micro-Piling Rigs (0.5 to 20 tonne);
- Sheet Piling & Injection Grouting;
- Dewatering;
- 26 x Drilling Rigs Company wide.

A NEW ZEALAND FIRST METHOD - INTRODUCED TO THE MARKET BY MCMILLAN'S:

Provisionally Patented Vibration Free Stone Column Method:



- Can be used next to sensitive buildings;
- No mess (dry);
- Cost effective (minimal setup times);
- Further savings possible for building construction i.e. ground beams, deep rafts, pile starters, boxing to piles;
- No corrosion issues, all natural materials;
- Reliance on individual piles, and the risk of differential settlement is reduced.

Fully Instrumented Continuous Flight Auger / Displacement Auger Piling:



- Cost effective;
- Sizes 350mm to 900mm and 19m depth;
- Fast (150m of 600mm diameter reinforced concrete pile can be installed per day);
- Lateral load capacity of RC piles exceed some other piling methods;
- Quiet & vibration free;
- Fully reinforced concrete piles, with no corrosion issues.

McMILLAN'S ALSO OFFER THE FOLLOWING SERVICES:

- Screw Piles;
- Conventional Bored Concrete Piles;
- Mini & Micro Piles;
- Retaining Walls;
- Sheet Piling;
- Anchors & Tiebacks.

Please contact us to find out more information or visit our website www.drilling.co.nz



Appendix E Test Pit Logs

aurecon Leading. Vibrant. Global.

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com

TP01

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573076 m
Northing: 5185204 m
Ground Level: 11.75 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

(m)	l (F					
Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
_		<u> </u>			TOPSOIL with some rootlets. Dark Brown. Moist. Low plasticity.	-
0.5 -		\(\lambda \lambda \lambd			SILT with minor roots and tree matter; Light grey. Moist. Firm. Low plasticity. Tree branch @ 0.5m. SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - - - - - 11
1.0	Ā					_ _ _ _ _
1.5 -						- - -10 -
2.5 –						- - - - -
3.0	Ā				SAND; Light brown grey. Dense. Wet. Fine to medium grained. @ 3.0m Groundwater table End of Test Pit at 3m (Pit Collapse)	-9 - - - -
3.5 -						- - - - - 8
4.0						- - - -
4.5						- - - - -7
Remarks: Tree branch @ Groundwater se Groundwater ta	epage er	acounted @	1.2m.		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	<u> </u>

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com Location: See Location Plan **TP02**

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573276 m
Northing: 5185220 m
Ground Level: 13.53 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-			<u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>			TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity.	-
0.5 –			<u> </u>			SAND with minor rootlets; Light brown grey with orange and brown mottling. Loose to medium dense. Moist. Fine to medium grained.	- - - - 13
1.0 —							-
1.5 – - -			<u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>			1.60 1.70 PEAT silty with some roots and rootlets; Light brown. Firm. Wet. Low plasticity. SAND; Light blue grey. Dense. Wet. Fine to medium grained.	- - -12 - -
2.0 —		Ī					- - -
2.5 – - -							- - -11 -
3.0 —						3.30	- - -
3.5 -						End of Test Pit at 3.3m (Pit Collapse)	- - -10 -
4.0 —							- - -
- 4.5 – - -							- - -9 -
Bulk sar	water see	വ <i>ര</i> 15 r	counted @ : m. ughly 3.3m	2.1m.		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK Sheet	1 of 1

Aureco (New Zealand) Limited Unit 1,150 Cavendish Rd Po BOX 1061 Christchurch 8140 New Zealand Telephone: +64 3 366 0821 New Aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

TP03

Sheet 1 of 1

TEST PIT INFORMATION	CO-ORDINATES NZTM	Date Started: 4/08/2011	Logged by: MHD
Excavator Type: 25t Excavator	Easting: 1573168 m	Date Completed: 4/08/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5185312 m	·	Checked by: JSM
Contractor:	Ground Level: 16.23 m		Verified by: JK

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5			<u> </u>			TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity. SAND with minor rootlets; Light brown yellow with orange brown mottling. Loose. Moist. Fine to medium grained.	- - - - - - - -
1.0 —							- - - - -15
1.5 -							- - - -
2.0 —						SAND; Light brown grey. Loose. Moist. Fine to medium grained.	- - - - 14
2.5 -							- - - -
3.0 —						End of Test Pit at 3m (Pit Collapse)	- - -13
3.5 -							- - - -
4.0 —							- - -12 -
-							- - - -
Remark No grou	s: ndwater e	encounte	ered			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK Sheet	- 15 15 14 13 12 12

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Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

TP04

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573367 m
Northing: 5185328 m
Ground Level: 13.59 m Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions: Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -			71/ 71/ 3			TOPSOIL with some rootlets; Dark brown. Moist. O330 SAND; Light brown grey. Medium dense. Moist. Fine to medium grained.	- - - - - - 13 - -
1.0 —			<u> </u>			1.70 1.80 PEAT sandy silt with some roots; Dark Brown. Moist. Low plasticity.	- - - - - - -12
2.0 — - - - - - 2.5 —			<u> </u>			SAND with some silt; Light blue grey. Moist. Fine to medium grained. PEAT sandy with some roots and rootlets; Dark brown. Firm. Low Plasticity. Fibrous. SAND; Light brown grey. Moist. Fine to medium grained.	- - - - - - - -
3.0 —						End of Test Pit at 3.3m (Pit Collapse)	- - - - - -
3.5 — 4.0 — -							- 10 - - - - -
4.5 -							- - - -9 - -
Remark No grou	s: ndwater e	ncounte	ered			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK Sheet	1 of 1

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Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

Location: See Location Plan

TP05

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573567 m
Northing: 5185343 m
Ground Level: 13.59 m TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions: Date Started: 4/08/2011 Date Completed: 4/08/2011 Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK

		<u> </u>					
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-						TOPSOIL with some rootlets and minor medium sand; Dark brown. Moist. Low plasticity	- - -
).5 –			1			SAND with minor rootlets; Light brown yellow with orange brown mottling. Loose. Moist. Fine to medium grained.	- - 13 -
1.0						SAND; Light blue grey with some light brown mottling. Medium dense. Moist. Fine to medium grained.	- - - -
.5 -							- - 12 -
2.0 —						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - -
2.5 – - -							- - 11 -
3.0							- - -
3.5 – -						End of Test Pit at 3.5m (Pit Collapse)	- 10
1.0 —							- - - -
4.5 – -							- - -9 -
Remarks	s: ndwater e	encounte	ered			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	
						Sheet 1	l of 1

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Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

TP06

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573061 m
Northing: 5185404 m
Ground Level: 18.14 m Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions: Date Started: 4/08/2011 Date Completed: 4/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -			\(\lambda \lambda \lambd			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity. SAND with minor rootlets; Light brown yellow. Loose. Moist. Fine to medium grained.	- 18 - - - - -
1.0 —							- - -17 -
1.5 - 2.0 -							- - - -
2.5 —							16 - - - - -
3.0 —						End of Test Pit at 3m (Pit Collapse)	- - - - 15 -
3.5 – - -							- - - -
4.0 — - - - 4.5 —							- 14 - - -
-							- - - -
Remarks Bulk Sar	s: mple take	n @ 1.0	m			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK Sheet	1 of 1

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:
Contractor:

CO-ORDINATES NZTM
Easting: 1573260 m
Northing: 5185417 m
Ground Level: 13.2 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

Contractor:					Ground Level:	10.2 111		Verified by: J	IX.
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests		Soil Description		Elevation (m)
0.5						0.30	ootlets; Dark brown. Moist. Low Pla		- -13 -
1.0						1.00			-
1.5		_	<u> </u>			\Plasticity.	and tree matter; Brown grey. Wet and rootlets; Light blue grey. Den		-12 -
2.0 —			\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\			2.10 PFAT with some tree r	oots and branches; Brown. Wet. F	irm Fibrous	
2.5						SAND; Light blue grey.	Dense. Wet. Fine to medium grai	ned.	11 - - - - -
3.0									- - - - -10
3.5						End of Test Pit at 3.6m	(Pit Collapse)		
4.0									- - - -9
4.5									-
Remarks:	ter seepa	age en	counted @	1.5m				Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	-

Client: Ngai Tahu Property and CDL Project Name: Prestons Road Subdivision

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573459 m
Northing: 5185417 m
Ground Level: 13.11 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
	-		<u> </u>			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	- 13
0.5 -	-		\ <u>\</u> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			SAND; Light brown grey. Loose to medium dense. Moist. Fine to medium grained.	- - - -
1.0 —	-	Ī	<u>\\</u> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			1.00 1.10 PEAT with some roots and rootlets; Dark brown. Wet. Low plasticity. Fibrous. SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	- 12 12 11
1.5 -	-						- - - -
2.0 —	-						- - 11 -
2.5 -	-	Ţ					- - -
3.0 —		Ī					- - -10
3.5 -	-					End of Test Pit at 3.5m (Pit Collapse)	- - -
4.0 —	1 -						- - - -9 -
4.5							- - - -
Ground	lwater see	page en	counted @ counted @ m	1.0m 2.7m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK Sheet	1 of 1

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP09

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573152 m
Northing: 5185511 m
Ground Level: 13.3 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5			1/2 1/2 2 1/2 1/2 2/2 2/2 1/2 3/2			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity. SAND with some rootlets; Brown. Loose. Moist. Fine to medium grained.	- - - - 13 - - -
1.0 —			77 77 7 77 77 77 7			PEAT silty with some rootlets; Light brown. Soft. Wet. Low plasticity. SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	12
1.5 -							- - - - -
2.5 —		Ţ					- -11 - - -
3.0 — - - - - -						3.50	- - - - -10
4.0 —						End of Test Pit at 3.5m (Pit Collapse)	- - - -
4.5 —							- -9 - - - -
Remark: Groundv Standpip	water seep	page en d @ rou	counted @ ughly 3.5m	2.4m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK Sheet	<u> </u>

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP10

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573350 m
Northing: 5185527 m
Ground Level: 13.47 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m) Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-		<u>i, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,</u>			TOPSOIL with some rootlets and minor sand; Dark brown. Moist. Low plasticity.	- - -
0.5 -					SAND; Light brown grey. Loose to medium dense. Moist. Fine to medium grained.	- 13 - - -
1.0 — B		<u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>			1.20 1.30 PEAT with some roots and rootlets and minor silt; Dark brown grey. Moist. \[\text{Low plasticity.} \]	-
1.5					SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	12
2.0						- - - -
2.5					SAND; Brown grey. Medium dense. Moist. Fine to medium grained.	11 - - -
3.0	Ā					- - - -
3.5					End of Test Pit at 3.5m (Pit Collapse)	10 - - - -
4.0						- - - -
4.5						-9 - - -
Remarks: Groundwater se	eepage er en @ 1.0	ncounted @ 3	3.2		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	<u> </u>

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573551 m
Northing: 5185543 m
Ground Level: 12.82 m Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions: Date Started: 4/08/2011 Date Completed: 4/08/2011 Contractor:

	1				I		
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
			1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	
).5 –						SAND; Light brown grey. Loose to medium dense. Moist. Fine to medium grained.	- - - -
.0 —			× × × × × × × × × × ×			Silty SAND with some roots. Red brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	- 12 -
.5 -			× * × * · · · · · · · · · · · · · · · ·			PEAT with some tree branches and roots and minor silt; Brown. Wet. Low plasticity. SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - -
2.0 —		Ţ					- - 11 -
.5 –							- - -
							- - -10
3.0 —							- - -
.5 -						End of Test Pit at 3.5m (Pit Collapse)	- - -
 0 -							-9 - - -
1.5 –							- - -
- - -							- -8 -
Remark Ground Standpi	water see	page en	acounted @ aughly 3.5m	2.0m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	
						Sheet	1 of 1

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP12

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573144 m
Northing: 5185611 m
Ground Level: 13.47 m Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions: Date Started: 4/08/2011 Date Completed: 4/08/2011

	1			1		
Depth (m) Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-		77.77.7			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	_
0.5 -		1. 31. 31. 3			SAND with minor rootlets; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	- - 13 - -
1.0						 - - -
1.5 – B		<u>\\</u> \\\ \\			1.40 1.50 PEAT with some roots; Light brown. Soft. Wet. Low plasticity. SAND; Light blue grey. Wet. Fine to medium grained.	- 12 - -
2.0						
2.5 –	Ī					11 - -
3.0						 - - -
3.5 –					3.80 End of Test Pit at 3.8m (Pit Collapse)	10
4.0					End of restrict at 5.5m (int Comapse)	_ _ _ _
4.5 –						- 9 - -
Remarks: Bulk Sample tal Groundwater Se	en @ 1.5 epage @	5m) 2.5m			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	

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Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision

Location: See Location Plan
Project Reference: 223488

TP13

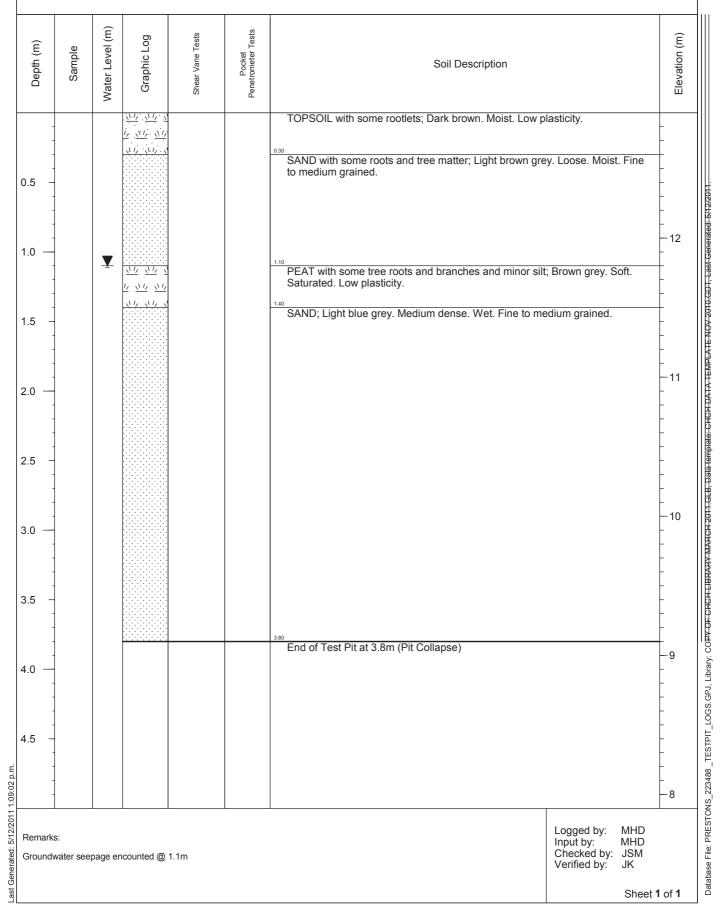
Sheet 1 of 1

TEST PIT INFORMATION

Excavator Type: 25t Excavator
Test Pit Dimensions:

Northing: 5185619 m
Contractor:

CO-ORDINATES NZTM
Easting: 1573244 m
Date Started: 4/08/2011
Date Completed: 4/08/2011
Date Completed: 4/08/2011
Date Completed: 4/08/2011
Date Completed: 4/08/2011
Date Started: 4/08/201



Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP14

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573443 m
Northing: 5185637 m
Ground Level: 12.65 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Contracto	л.			Oit	Juliu Level.	12.00 III Verilled by. 5/K	
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
			<u> </u>			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	Ė
-	_		<u> </u>			SAND; Light grey brown. Medium dense. Moist. Fine to medium grained.	-
).5 –							-
).o –							- 12
-							
1.0 —	-	_					-
-	_	Ī	<u> </u>			PEAT with some roots with minor silt; Dark brown. Firm. Wet. Low plasticity.	-
-			<u> </u>			SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	-
1.5 –		T					-
-							11
-							-
.0 —							-
-							-
2.5 –	_						
-							-10
-							-
3.0 —	_						-
-						End of Test Pit at 3.2m (Pit Collapse)	<u> </u>
-							-
3.5 – -							- 9
-							-
.0 —							F
-							-
-							-
1.5 –							-
-							-8 -
-							-
Remark:	water see	page en	ncounted @	1.1m	•	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	1
Ground	water see	page en	counted @	1.6m			
						Sheet	1 of 1

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Client: Ngai Tahu Property and CDL Project Name: Prestons Road Subdivision

Location: See Location Plan

TP15

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573037 m
Northing: 5185703 m
Ground Level: 13.48 m Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions: Date Started: 4/08/2011 Date Completed: 4/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some gravel and minor rootlets; Dark brown. Moist. Gravel fine grained GRAVEL with some sand and minor cobbles; Brown grey. Dense. Moist. Sand medium grained. Gravel fine grained and sub-rounded. SAND with some gravel; Light brown. Very dense. Moist. Sand fine to medium grained. Gravel fine grained. Sub rounded. SAND with some gravel; Light brown grey with orange brown mottling. Moist. Dense. Sand fine to medium grained. Gravel fine grained and sub-rounded.	- - - - - 13
1.0 —						1.60	- - - - -12
2.0 —			7/			PEAT with some tree roots and minor silt; Dark brown. Saturated. Organic. Low Plasticity. Fibrous. 1.90 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - - - -
2.5 -		Ā	77 77 77 77 77 77 77 77 7			PEAT with some tree roots and minor silt; Dark brown. Medium dense. Saturated. Low Plasticity. Fibrous. Organic. SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- 11 - - - - - -
3.5 -						End of Test Pit at 3.6m (Pit Collapse)	- - - - - - - - -
4.5 -							- - - - 9 -
Remarks Ground		oage en	counted @ :	2.5m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	1 of 1

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP16

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573137 m
Northing: 5185711 m
Ground Level: 13.03 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

Contracto					Juliu Level.	15.05 III	
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
			7.11. 7.11. 7			TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity.	- 13
0.5 -						SILT with some rootlets; Light grey brown. Dry. Very stiff. Non Plastic. Friable. SAND; Light brown grey with orange brown mottling. Loose to medium dense. Moist. Fine to medium grained.	
1.0		Ţ	<u> </u>			PEAT with some tree roots and minor silt; Brown grey. Wet. Organic. Low Plasticity. Fibrous. SAND with some roots and tree branches; Light blue grey. Medium dense. Wet. Fine to medium grained.	_ - -12 -
1.5 -							- - - -
2.0 —		Ţ	77 77 77 77 77 77			PEAT with some tree roots and minor silt; Dark brown. Wet. Organic. Low Plasticity. Fibrous.	- 11 - -
2.5 -		Ţ				SAND; Light blue grey. Medium dense. Wet. Fine to medium grained. 3.00 End of Test Pit at 3m (Pit Collapse)	- - - - - - - 10
3.5 -							- - - -
4.0 —							- - -9 -
4.5 - - -							- - - -
Ground	water see	page en	acounted @ acounted	0.9m 2.2m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	- of 1

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573336 m
Northing: 5185726 m
Ground Level: 12.92 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-			71/ 71/ 71/ 7			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	-
).5 –			<i>(</i> , , <i>t</i> , , , <i>t</i>)			SAND with some rootlets; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	
1.0 —		Ī	<u> </u>			PEAT with some roots and minor silt; Dark brown. Wet. Low plasticity.	-12 - -
1.5 -			1, 11, 11,			SAND with minor rootlets; Light blue grey. Wet. Medium dense. Fine to medium grained.	- - - - -
2.0 —							- -11 - - -
2.5 -							- - - -
3.0							-10 - - -
3.5 –		Ī				End of Test Pit at 3.5m (Pit Collapse)	
ł.0 —							-9 - -
1.5 –							- - - -
Remarks		epage er	ncounted @ 3	3.5m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	-8
						Sheet	4 - 6 4

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com

TP18

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573436 m
Northing: 5185734 m
Ground Level: 13.43 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Contracto	r:			Gro	ound Level:	13.43 m Ventied by: JK	
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-			<u> </u>			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	-
).5 –						SILT; Light grey brown. Hard. Dry. Non Plastic. Friable. 0.80 SAND; Light brown grey with orange brown mottling. Medium Dense. Moist.	- - -13 -
						Fine to medium grained.	-
1.0 —	В						- - - -
.5 -						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	-12
		Ī	<u> </u>			PEAT with some roots with minor silt; Dark brown. Firm. Wet. Low plasticity.	<u> -</u> -
2.0			<u> </u>			SAND: Grey light brown. Medium dense. Wet. Fine to medium grained.	- - - -
-							_
2.5 -							11 - - -
3.0 —							- - - -
3.5 –						3.70	10
]						End of Test Pit at 3.7m (Pit Collapse)	-
1.0							- - -
1.5 –							- - -9 -
-							- - -
Remarks Bulk san Groundv	s: nple take vater See	n @ 1 -2 epage @	?m : 1.7m			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	Γ
						Sheet '	1 of 1

Client: Ngai Tahu Property and CDL Project Name: Prestons Road Subdivision

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573635 m
Northing: 5185750 m
Ground Level: 12.93 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m)	[E]					1
_	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-		1, 11, 11, 1			TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity.	-
		× × × × ×			SILT; Grey Light Brown. Dry. Friable. Non plastic.	 -
.5		× ^ × ^			SAND; Light brown grey. Medium dense. Moist. Fine to medium grained.	- - - -
.0 —					SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	- -12 -
5 –		N/-N/-N			TEST PEAT with some roots with minor silt; Dark brown. Firm. Wet. Low plasticity.	- - - -
0 —	Ā				Fibrous. Very thin 0.05m. SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - 11 - -
5 -						- - - -
0 -						10
.5 –					End of Test Pit at 3.7m (Pit Collapse)	 - - -
.0 —					,	- -9 -
5 –						 - - -
						- - -8
demarks: sulk sample ta deizo installed Groundwater S	ken @ 2.0 at roughly	lm v 3.7m d 2.2m		1	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	'

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP20

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573834 m
Northing: 5185765 m
Ground Level: 11.8 m Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions: Date Started: 3/08/2011 Date Completed: 3/08/2011 Contractor:

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			TOPSOIL with some roots and rootlets; Dark brown. Moist. Low plasticity. Output Description: SAND; Light grey brown with orange brown mottling. Medium dense. Moist. Fine to medium grained.	-
1.0						SAND; Light grey brown. Firm. Medium dense. Moist. Fine to medium grained.	- - -11 -
1.5	В	Ā	<u> </u>			130 140 PEAT sandy with some roots and tree branches; Brown. Wet. Low plasticity. SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	- - - -
2.0 —							- 10 - - -
2.5 -							- - - - - -9
3.0 —						End of Test Pit at 3m (Pit Collapse)	_ _ _ _
3.5 -							- - - - -8
4.0 —							_ 0 _ _ _ _
4.5 -							- - - - -7
Remarks Bulk sar Ground	s: mple taker water See	n @ 1.5r page @	m : 1.4m			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	l of 1

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP21

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573129 m
Northing: 5185810 m
Ground Level: 13.22 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	- - -13
0.5 -						SAND with some rootlets; Light grey brown with oranage brown mottling. Medium dense. Moist. Fine to medium grained.	- - - -
1.0							- - - -12
1.5 -		_	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			PEAT silty with some roots; Dark brown. Firm. Moist. Low plasticity. Fibrous.	- - - -
2.0 —						SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	- - - - 11
2.5 -		Ā					- - - -
3.0							- - - -10
3.5 -						End of Test Pit at 3.6m (Pit Collapse)	- - - - -
4.0							- - - -9
4.5 -							- - - -
Remarks: Groundw Groundw	ater seep	page en	counted @ counted @	1.8m 2.5m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP22

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573328 m
Northing: 5185826 m
Ground Level: 12.78 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Contracto	<i>n</i> .			0.0	Duriu Levei.	Verified by.	
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-			1, 11, 11, 1 1, 11, 11, 1			TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity.	-
0.5 —			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			SAND; Light brown grey with orange brown mottling. Medium Dense. Moist. Fine to medium grained.	- - - -
-							-12
1.0 —	В					SAND; Light blue grey. Medium dense. Wet. Fine to medium grained	-
1.5 –		Y				PEAT with some roots with minor silt; Dark brown. Firm. Wet. Low plasticity. Fibrous.	
-		_₹				SAND; Light blue grey. Medium dense. Wet. Fine to medium grained	-11 -11
2.0 —							- - -
2.5 —							- - -
3.0 —							10
3.5 –						End of Test Pit at 3.5m (Pit Collapse)	- - - -
-							- -9
4.0 —							- - -
4.5 –							- - -
-							- 8 -
Remark: Bulk Sar Peizo in:	s: mple take stalled at	n @ 1.0 roughly	- 1.5m 3.5m		ı	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	F
						Sheet	1 of 1

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Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

Location: See Location Plan

TP23

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573727 m
Northing: 5185857 m
Ground Level: 12.27 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
			<u></u>			0.10 TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity	-
0.5 -			<u> </u>			PEAT with some roots with minor silt; Dark brown. Soft. Wet. Low plasticity. Fibrous. SAND; Light brown grey with orange brown mottling. Moist. Medium dense. Fine to medium grained.	- -12 - - - -
1.0 —						1.00 1.10 PEAT; Dark brown. tree branches and roots. SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - -
		Ī					-11
1.5 -						PEAT with some roots and tree branches; Dark brown. Soft. Wet. Low plasticity. Fibrous.	[- - -
2.0 —						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - - - -10
2.5 -							- 10 - - - -
3.0 —							- - - - -9
3.5 -						350	
						End of Test Pit at 3.5m (Pit Collapse)	-
4.0 —							-
4.5 –							
							-
Remark Ground		I page en	acounted @	1.2m	ı	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	F
						Sheet	1 of 1

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573827 m
Northing: 5185863 m
Ground Level: 12.09 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Contractor	r:			Gro	ound Level:	12.09 m		Verified by:	JK
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests		Soil Description		Elevation (m)
						TOPSOIL with some roots and i	minor silt; Dark brown. N	Noist. Low plasticity.	12
0.5 -			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			SAND with some roots; Light br dense. Moist. Fine to medium g	rown grey with orange br grained.	rown mottling. Mediu	m _
1.0 —	В		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			PEAT with some roots and tree Low plasticity.	matter and minor silt. D	ark brown grey. Wet.	- - -11
1.5 –			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			SAND; Light blue grey. Medium	n dense. Wet. Fine to me	dium grained.	- - - - -
2.0 —									- - 10 -
2.5									-
3.0 —						End of Test Pit at 3m (Pit Collar	pse)		- -9 -
3.5 –									- - - -
4.0 —									- - -8 -
4.5 –									- - - -
_									
Remarks No grour	s: ndwater e	enconter	red					Logged by: MHE Input by: MHE Checked by: JSM Verified by: JK)
								Jile	

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573221 m
Northing: 5185918 m
Ground Level: 12.94 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -			10 10 10 10 10 10 10 10 10 10 10 10 10 1			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity. Output SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	- - - - - - - - - 12
.5 -		Ţ	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			PEAT with some tree roots and minor silt; Dark brown. Soft. Saturated. Low Plasticity. Spongey. 150 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - - - - - -
.0 — .5 —							- - - -
.0 —						End of Test Pit at 3m (Pit Collapse)	- -10 - - -
.5 -							- - - - - - 9
.5 —							- - - - -
emarks		page er	counted @	1.5m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	-8

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 5t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573420 m
Northing: 5185933 m
Ground Level: 12.77 m

Date Started: 24/08/2011 Date Completed: 24/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-			71/ 71/ 1 1/ 71/ 71/			TOPSOIL with some silty sand; Dark brown. Wet. Low plasticity.	-
).5 – - - -		Ţ	<i>(, (, ()</i>			SAND; Light grey brown with orange brown mottling. Loose to medium dense. Moist. Fine to medium grained.	- - - - -12
1.0 — - - -						SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	- - - -
1.5 — - -							- - - - -11
2.0 — - -							- - - -
2.5 – - -						End of Test Pit at 2.7m (Pit Collapse)	- - - - -10
3.0 —							- - -
3.5 –							- - - - -9
4.0 —							
4.5 – - -							- - - 8
Remark Ground		page er	acounted @ 0).4m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	_

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com

TP27

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573213 m
Northing: 5186017 m
Ground Level: 13.06 m

Date Started: 3/08/2011 Date Completed: 3/08/2011

Depth (m) Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-	i,	<u> </u>			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	-13 -
0.5 -	<u>v</u>	<u> </u>			SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	- - - - -
.0 —						- - - 12 -
.5 – -	<u>▼</u>	<u> </u>			PEAT with some tree roots and minor silt; Brown grey. Soft. Wet. Low plasticity. Spongey. SAND with minor roots and rootlets; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - - - -
2.0	<u>▼</u> 100 100 100 100 100 100 100 100 100 10	<u> </u>			2.30 2.40 PEAT with some roots and tree branches; Dark brown. Wet. Low Plasticity	- 11 -
2.5 –					SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	_ _ _ _ _
3.0						- 10 - -
3.5					End of Test Pit at 3.5m (Pit Collapse)	-
1.0						- - - -9
4.5 –						- - - -
Remarks: Groundwater se	epage enco	unted @ 1.5 unted @ 2.3	im im		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	<u> </u>

Client: Ngai Tahu Property and CDL Project Name: Prestons Road Subdivision Aurecon (New Zealand) Limited
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TP28

Location: See Location Plan

Sheet 1 of 1

RMATION
5t Excavator
5t Excavator ions:

CO-ORDINATES NZTM
Easting: 1573312 m
Northing: 5186986 m
Ground Level: 13.32 m

Date Started: 24/08/2011 Date Completed: 24/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 –						TOPSOIL with some silty sand; Dark brown. Firm. Wet. Organic. Low plasticity SAND; Light grey brown with orange brown mottling. Loose. Wet. Fine to medium grained.	- - -13 - -
.0 —						© 0.9m PEAT with some silt; Dark brown grey. Firm. Wet. Low plasticity. 20mm thick. SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	- - - - -12
.5 -			77 77 77 77 77 77 77 77 77 77 77 77 77			PEAT with some tree roots and minor silt; Dark brown. Firm. Moist. Low plasticity.	- - - - -
.5 – .5 -						SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	11
.0 — - - - .5 –						End of Test Pit at 3m (Pit Collapse)	- - - 10 -
.0 —							- - - -
- - - - -							-9 - - - -
Remarks	s: ndwater e	enconter	ed			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	<u> </u>

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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TP29

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 5t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573512 m
Northing: 5186041 m
Ground Level: 12.76 m

Date Started: 24/08/2011 Date Completed: 24/08/2011

Contractor:				011	ound Level:	12.76 m Ventied by: JK	
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -		<u></u>	77 77 7 7 77 77 7 77 77 7 77 77			TOPSOIL with some silty sand; Dark Brown. Wet. Organic. Low plasticity. SAND; Light grey brown with orange brown mottling. Loose to medium dense. Wet. Fine to medium grained. 1.00 PEAT with some tree branches and tree roots; Dark brown. Firm. Wet. Low plasticity.	
1.5 -						SAND; Dark grey blue. Medium Dense. Wet. Fine to medium grained.	- - - - -11 - -
2.5 -		,				End of Test Pit at 2.8m (Pit Collapse)	- - - - - - 10 - -
3.5 -							- - - - - - - -
4.5 -							- - - - - - -8
Remarks: Groundwa Groundwa	ater seep	page en	counted @ (counted @ 2).5m 1.1m	l	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	of 1

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

Location: See Location Plan

TP30

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 5t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573604 m
Northing: 5186148 m
Ground Level: 12.41 m

Date Started: 24/08/2011 Date Completed: 24/08/2011

Depth (m)	Water Level (m)	c Log	ests	sts		
-	Wat	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -					TOPSOIL with silty SAND and some rootlets; Dark brown. Saturated. Sand medium grained. Low plasticity. SILT with some rootlets and minor sand; Dark brown. Firm. Moist. Friable. Non plastic. SAND; Light brown grey with orange brown mottling. Medium dense. Wet. Fine to medium grained.	- - - - - 12 - -
1.0 —	<u></u>				@ 0.8m Tree roots. SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	- - - -
1.5 -						11 11
2.0 —						- - - -
2.5 -					2.90	10
3.0					End of Test Pit at 2.9m (Pit Collapse)	- - - -
3.5						-9 - - -
4.0						-
4.5						-8 - - -
Remarks: Groundwater se	epage er	ncountered @	⊉ 1.2m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573006 m
Northing: 5186101 m
Ground Level: 13.53 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -			<u> </u>			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity. SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	- - - - - 13
1.5 -		Ā	77 77 77 77 77 77			PEAT some tree roots and minor silt; Dark brown. Wet. Low plasticity. Fibrous. Organic. 190 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - - - - 12
2.0 —		Ā				S. W.D., Eight blue grey. Wedium dense. Wet. I me to medium gramod.	- - - - - 11 -
3.0 —						End of Test Pit at 3.3m (Pit Collapse)	- - - - - - - 10
4.0 — 4.5 -							- - - - - - 9
	water seep		counted @ counted @			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK Sheet	1 of 1

Client: Ngai Tahu Property and CDL Project Name: Prestons Road Subdivision

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com Location: See Location Plan **TP32**

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573105 m
Northing: 5186109 m
Ground Level: 12.99 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
			7.1/. 7.1/. 7			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	_
0.5 -			1, 81, 81, 8			SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	- - - -
1.0 —							- 12 -
1.5 -		Ţ	<u> </u>			1.30 1.40 PEAT with some tree roots and minor silt; Dark brown. Wet. Soft. Low	- - - -
2.0 —						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- 11 - - -
2.5 -							_ _ _ _ _
3.0 —							- 10 - -
3.5 -						End of Test Pit at 3.5m (Pit Collapse)	- - -
4.0 —							- - -9 -
4.5 –							- - - -
	-						- -
Remark Ground Standpi	water see	page en	countered (② 1.3m		Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	
						Sheet 1	of 1

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

Aurecon (New Zealand) Limited
Unit 1,150 Cavendish Rd
PO 80X 1081
Christchurch 8140
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Telephone: +643 3966 0821
www.aurecongroup.com
Telephone: +643 3796 0821
Fassimile: +643 3796 0821
Project Name: Prestons F
Location: See Location Pla
Project Reference: 223488 Location: See Location Plan **TP33**

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573416 m
Northing: 5186133 m
Ground Level: 12.83 m TEST PIT INFORMATION
Excavator Type: 5t Excavator
Test Pit Dimensions:

Date Started: 24/08/2011 Date Completed: 24/08/2011

			Touriu Levei.		
Depth (m) Sample	Water Level (m) Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-	<u>i, 117</u>	<u>11/2</u>		TOPSOIL minor sitly sand; Dark brown. Moist. Organic. Sand fine to medium grained. Low plasticity. SAND; Light grey brown with orange brown mottling. Medium dense. Wet. Fine to medium grained.	-
5 -	T				- - - -12
0 —				@1.5m Tree branches.	- - - -
5 -				1.80	-
0 —				SAND; Dark grey blue. Medium dense. Moist. Fine to medium grained.	-11 - - - -
5 -					-
0 —		1444		End of Test Pit at 2.8m (Pit Collapse)	10
5 -					_
0 —					- -9 -
.5 –					- - -
					_ - -8
	epage encounte			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	
ree branches e	ncounted @ 1.5	m		Sheet '	I of 1

Client: Ngai Tahu Property and CDL
Project Name: Prestons Road Subdivision
Location: See Location Plan

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com

TP34

Sheet 1 of 1

CO-ORDINATES NZTM
Easting: 1573297 m
Northing: 5186225 m
Ground Level: 13.27 m Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK TEST PIT INFORMATION
Excavator Type: 5t Excavator
Test Pit Dimensions: Date Started: 24/08/2011 Date Completed: 24/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			TOPSOIL silty with some sand; Dark brown. Moist. Sand medium grained. Low plasticity 0.40 SAND; Light grey brown. Medium dense. Wet. Fine to medium grained.	- - -13
.0 —							- - - -
.5 -			<u>\\</u>			120 1.30 PEAT with some silt; Dark brown grey. Firm. Wet. Low plasticity SAND; Dark grey blue. Medium dense. Fine to medium grained.	- - -12 -
2.0							- - - -
.5 -							- 11 - - -
.0 —						End of Test Pit at 2.8m (Pit Collapse)	- - - -
.5 –							10
.0 —							- - - -
.5 -							-9 - - - -
- Remarks	s: ndwater (enconte	red			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	- - -
							1 of 1

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision

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Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 25t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573189 m
Northing: 5186316 m
Ground Level: 13.23 m

Date Started: 4/08/2011 Date Completed: 4/08/2011

Contractor	:			G	round Level:	13.23 m Verified by: JK	
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-			71/ 71/ 7 1/ 71/ 71/ 7			TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	- - -13
0.5 -			/			SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	- - - -
1.0							- - -
I.5 –	В		<u>\\\</u> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			PEAT with some tree roots and minor silt; Dark brown. Wet. Soft. Low	12
2.0			<u> </u>			plasticity. SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	-
5 —							11 - - - -
3.0						End of Test Pit at 3.2m (Pit Collapse)	- - - - - -10
5.5 -							- - -
1.0 —							- - - - -9
4.5 –							- - -
-							-
Remarks Bulk Sam		n @ 1.5	m			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	
						Sheet '	1 of 1

Ngai Tahu Property and CDL Client: Project Name: Prestons Road Subdivision **TP36**

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com Location: See Location Plan

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 5t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573389 m
Northing: 5186332 m
Ground Level: 12.49 m

Date Started: 24/08/2011 Date Completed: 24/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
- - -			717 717 7 1 717 717 7			TOPSOIL with some sand and minor silt; Dark brown. Wet. Saturated at 0.3m. Sand medium grained. Low plasticity. 0.40 SAND with some tree branches and organics; Light grey brown. Wet. Medium	- - -
.5 – - -						dense. Fine to medium grained.	12
.0 —						SAND with some tree braches and roots; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - -
.5 –							11 - - -
.0 — 							- - -
.5 – .5 -							- 10 - -
0 —						End of Test Pit at 2.9m (Pit Collapse)	- - - -
.5 –							- -9 - -
.0 —							- - - -
I.5 –							- -8 - -
Remarks	s: ndwater e	enconte	red			Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	
						Sheet 1	l of 1

Client: Ngai Tahu Property and CDL Project Name: Prestons Road Subdivision

Arrecon (New Zealand) Limited Unit 1, 150 Cawendish Rd Pro BOX 1061 Christchurch 8140 Christchurch 8140 New Zealand Www.aurecongroup.com Fassimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com Location: See Location Plan **TP37**

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 5t Excavator
Test Pit Dimensions:

CO-ORDINATES NZTM
Easting: 1573181 m
Northing: 5186416 m
Ground Level: 13.45 m

Date Started: 24/08/2011 Date Completed: 24/08/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
						TOPSOIL with silty SAND and some rootlets; Dark brown. Firm. Moist. Low plasticity. Output SAND; Light grey brown with orange brown mottling. Medium dense. Moist. Fine to medium grained.	-13
.0 —		Ī	<u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>			PEAT silty with some roots and rootlets; Dark brown. Stiff. Wet. Low plasticity. Fibrous.	- - - - - 12 - -
.0 — .0			<u> </u>			SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	- - - - - - - 11
.0 —						End of Test Pit at 3m (Pit Collapse)	- - - -
.5 –							- -10 - - -
.0 —							- - - -
5 — 							-9 - - -
Remarks		page en	icounted at 1	.7m	1	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	1

Aurecon (New Zealand) Limited Unit 1, 150 Cavendish Rd PO BOX 1061 Christchurch 8140	Client: Ngai Tahu Property and CDL Project Name: Prestons Road Subdivision Location: See Location Plan	TP38	
www.aurecongroup.com Facsimile: +64 3 379 6955 Email: christchurch@ap.aurecongroup.com	ct Reference: 223488 Sheet 1 of 1		
TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Date Started: 3/08/2011 Easting: 1573205 m Date Completed: 3/08/2011 Northing: 5186117 m 5186117 m 3/08/2011 Ground Level: 13.38 m 3/08/2011 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK	

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	-
1.5 –			, , , , , , , , , , , , , , , , , , ,			SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	13 - -
.0 —			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			PEAT some tree roots and minor silt; Light brown. Soft. Wet. Low plasticity. 1.10 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - -
.5 –						170	- - -12 - -
.0 —			\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			PEAT some tree roots and minor silt; Dark brown. Soft. Wet. Low plasticity. 200 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	- - - -
.5 -							- 11 - -
.0 —						End of Test Pit at 3m (Pit Collapse)	- - - - -
.5 –							- 10 -
.0 —							 - - -
5 -							- -9 -
-							-
Remarks: Bulk Sample taken @ 1.5m Logged by: MHD MHD Checked by: JSM Verified by: JK							
						Sheet	4 - 6 4