

Appendix D

2012 CPT Logs

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.

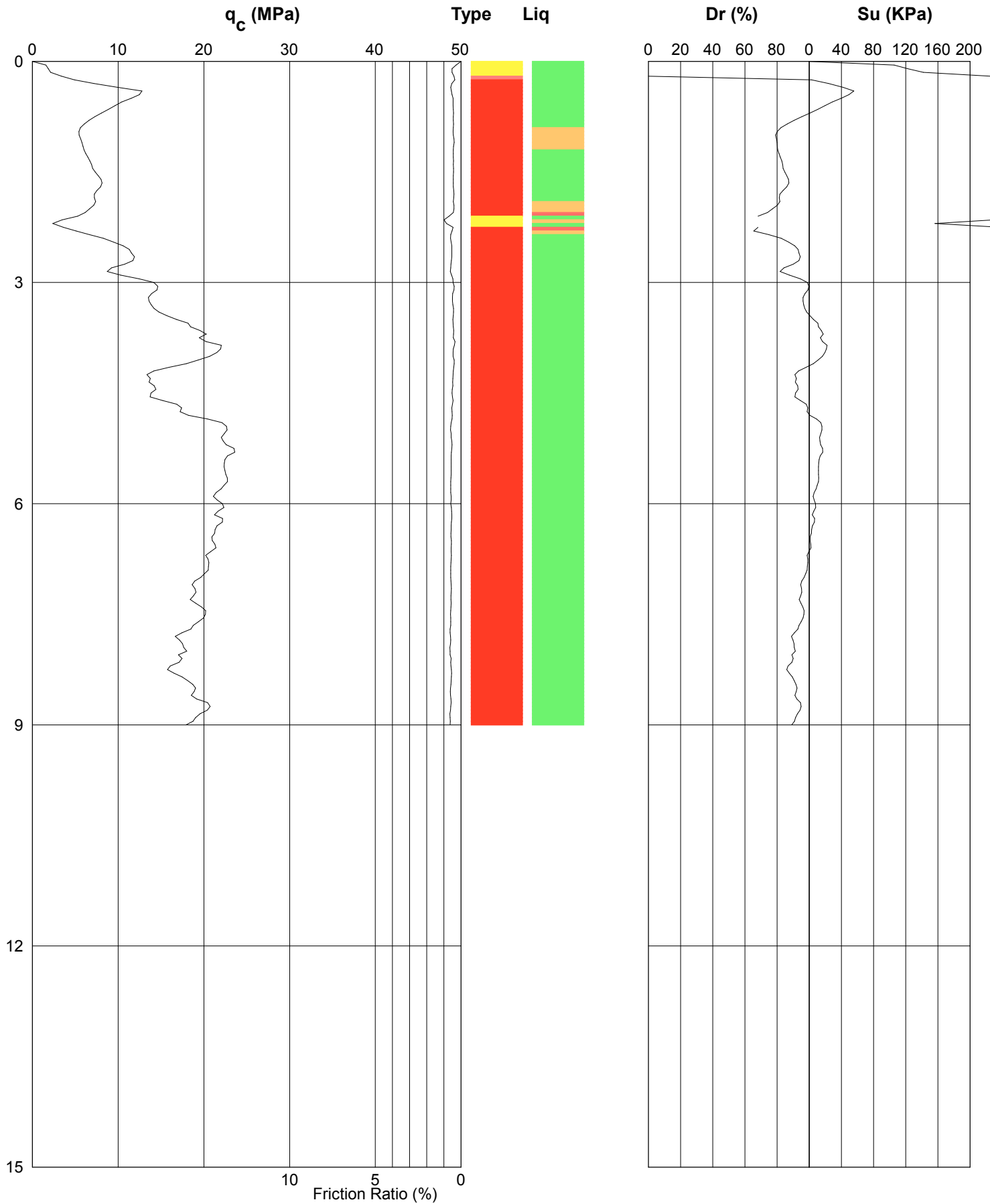
Relative Density (D_R)

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 $S_u = (q_c - \sigma_{vo})/15$.

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT101

Project: Aurecon NZ Ltd

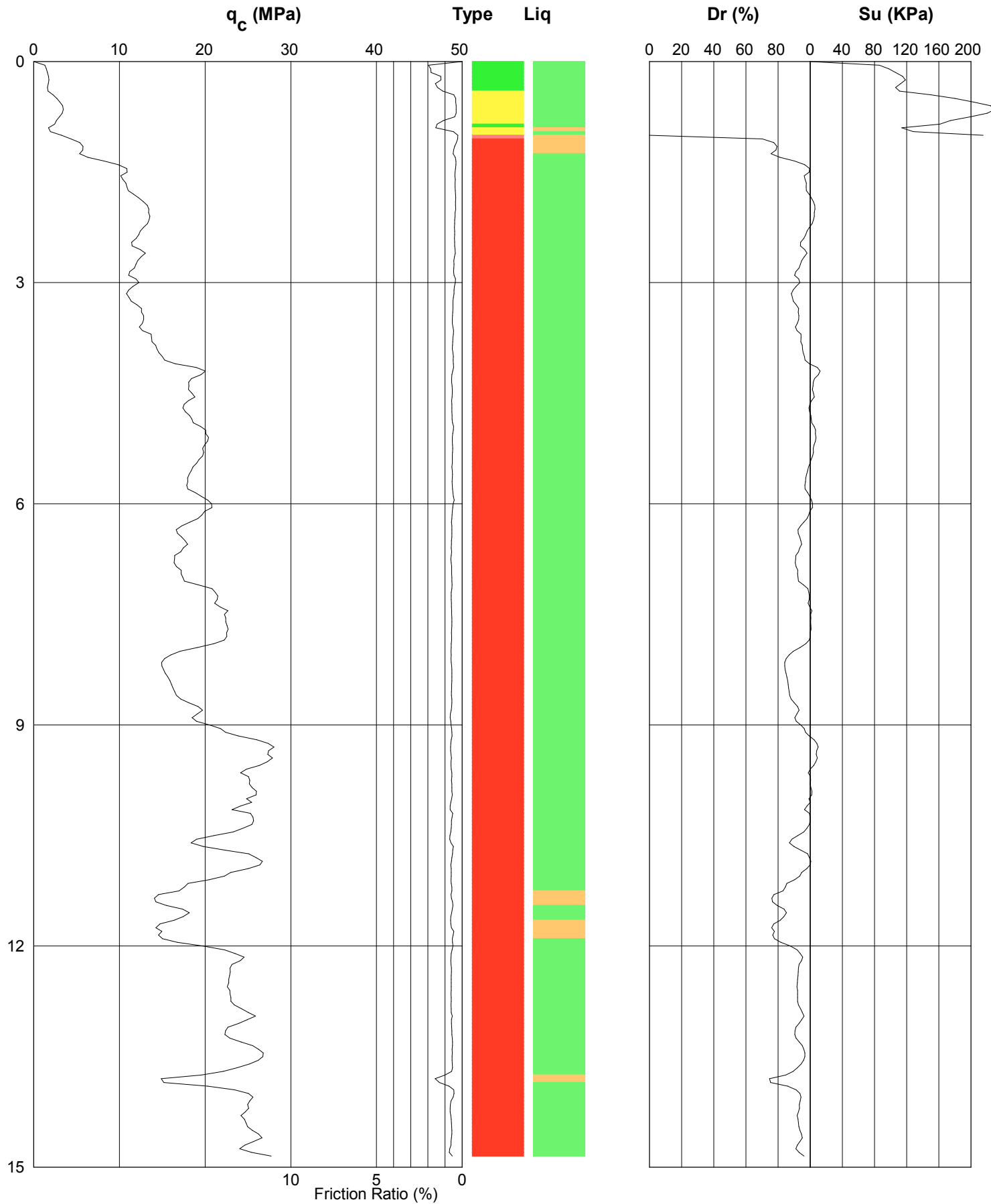
Location: Prestons Subdivision, Christchurch

Date: 2-02-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT102

Project: Aurecon NZ Ltd

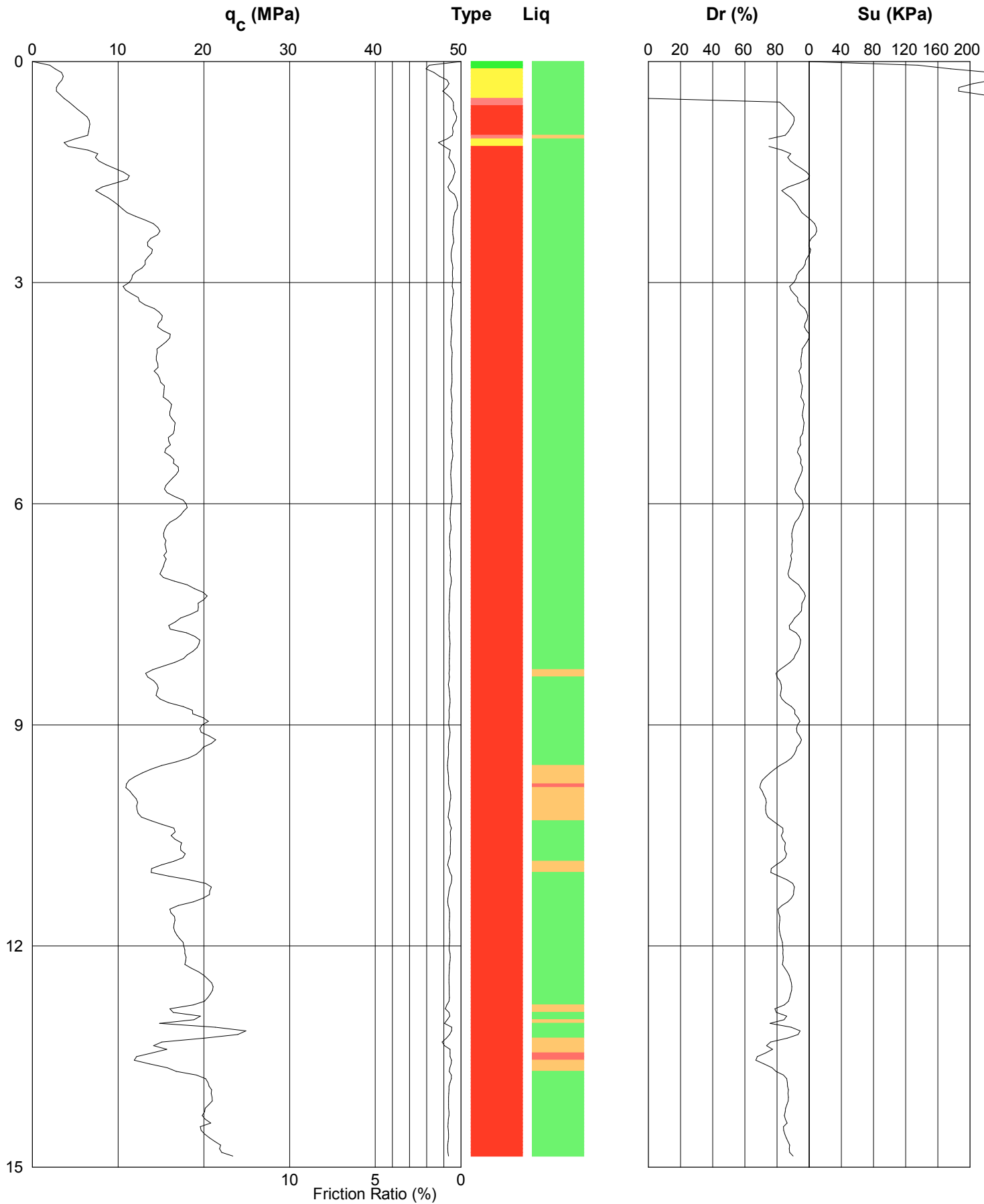
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT103

Project: Aurecon NZ Ltd

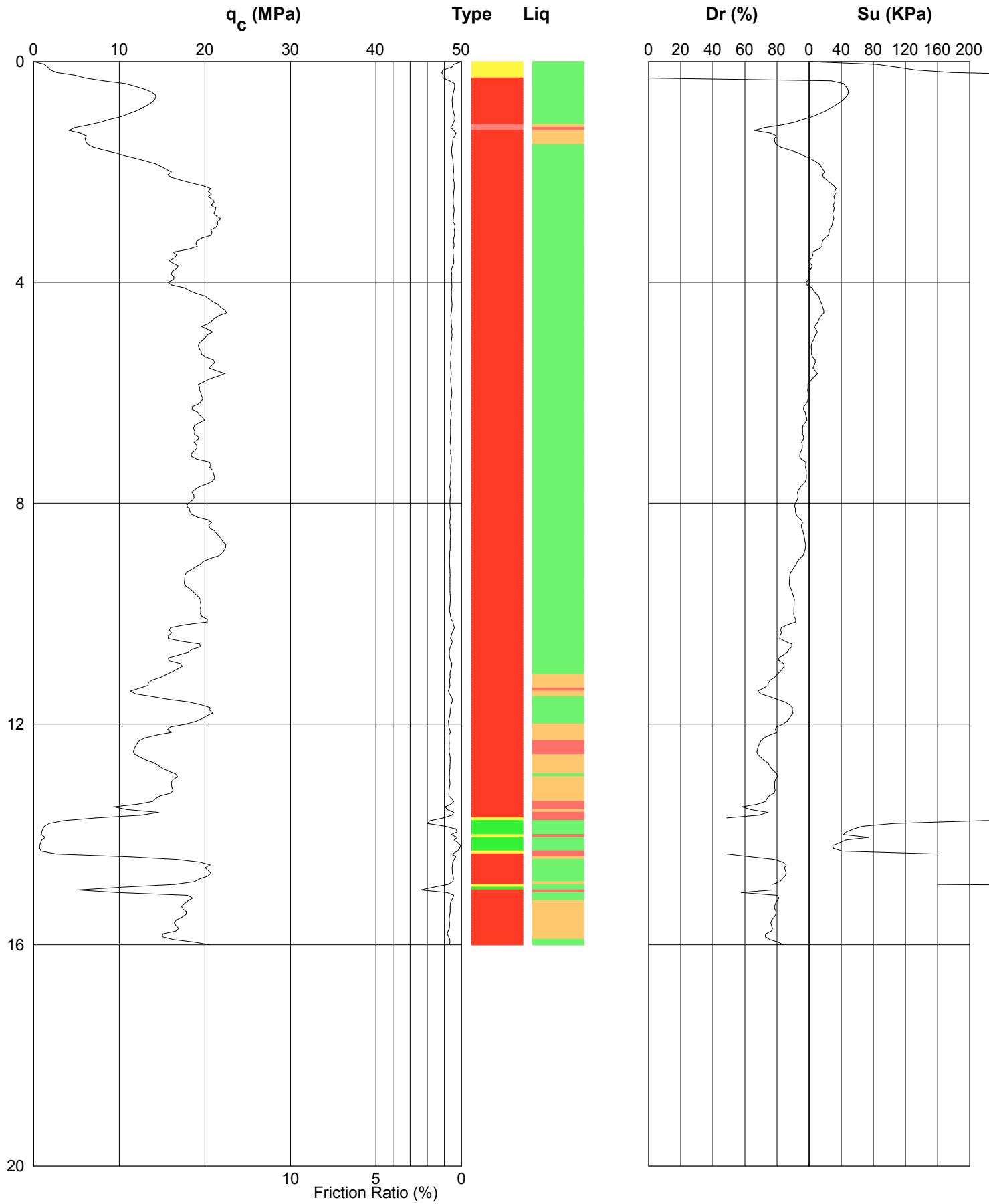
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT104

Project: Aurecon NZ Ltd

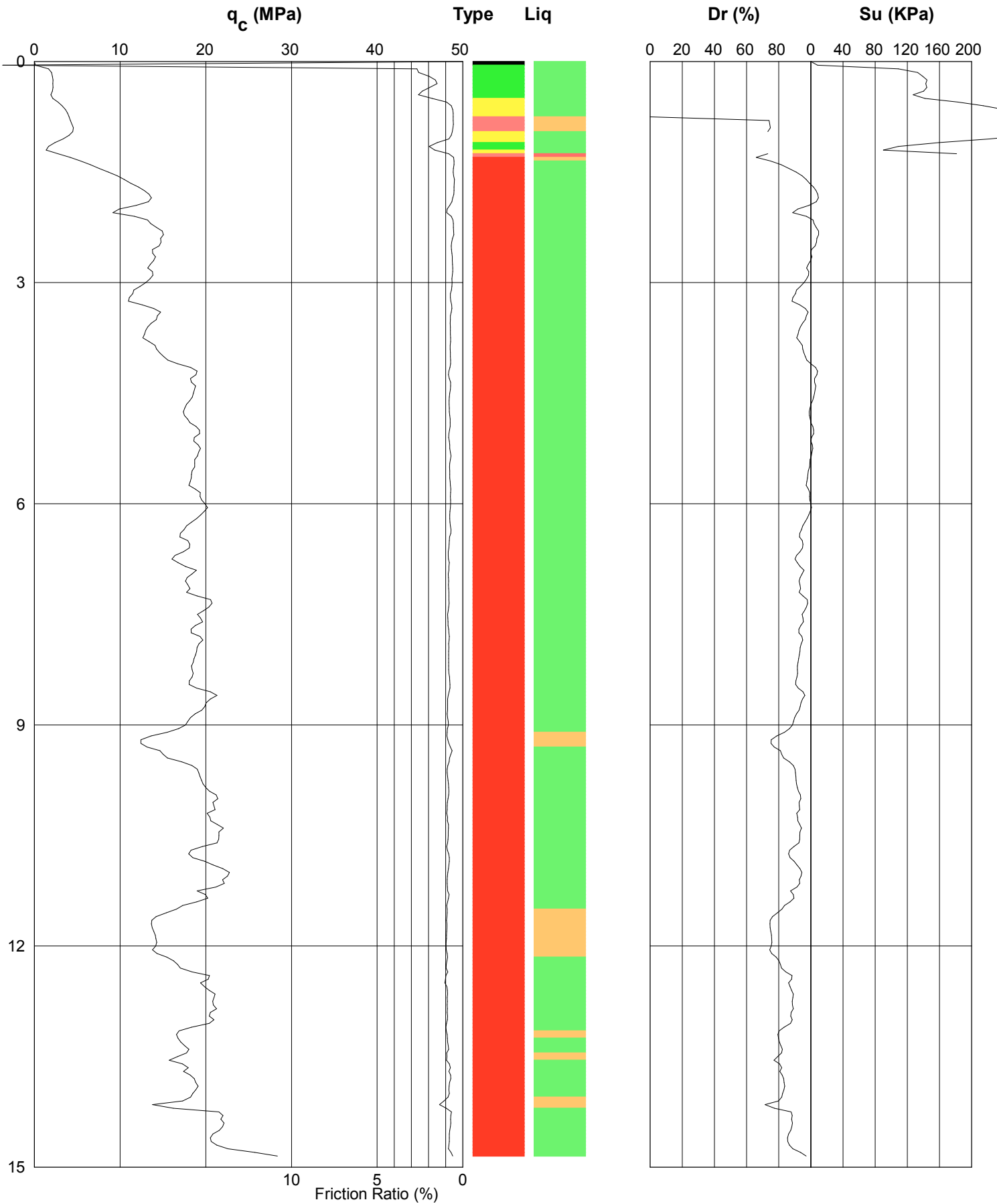
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT105

Project: Aurecon NZ Ltd

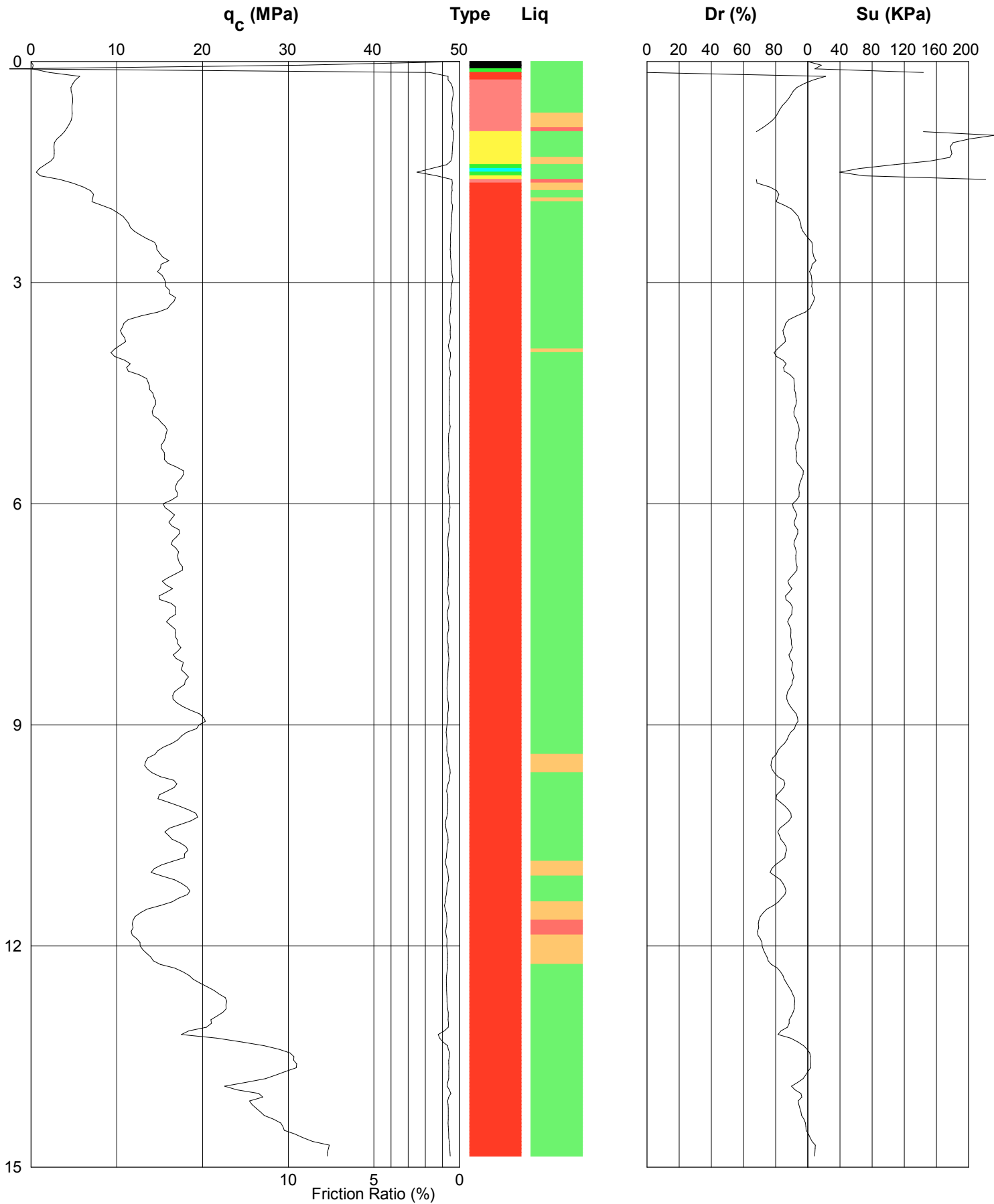
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: H Pardoe

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT106

Project: Aurecon NZ Ltd

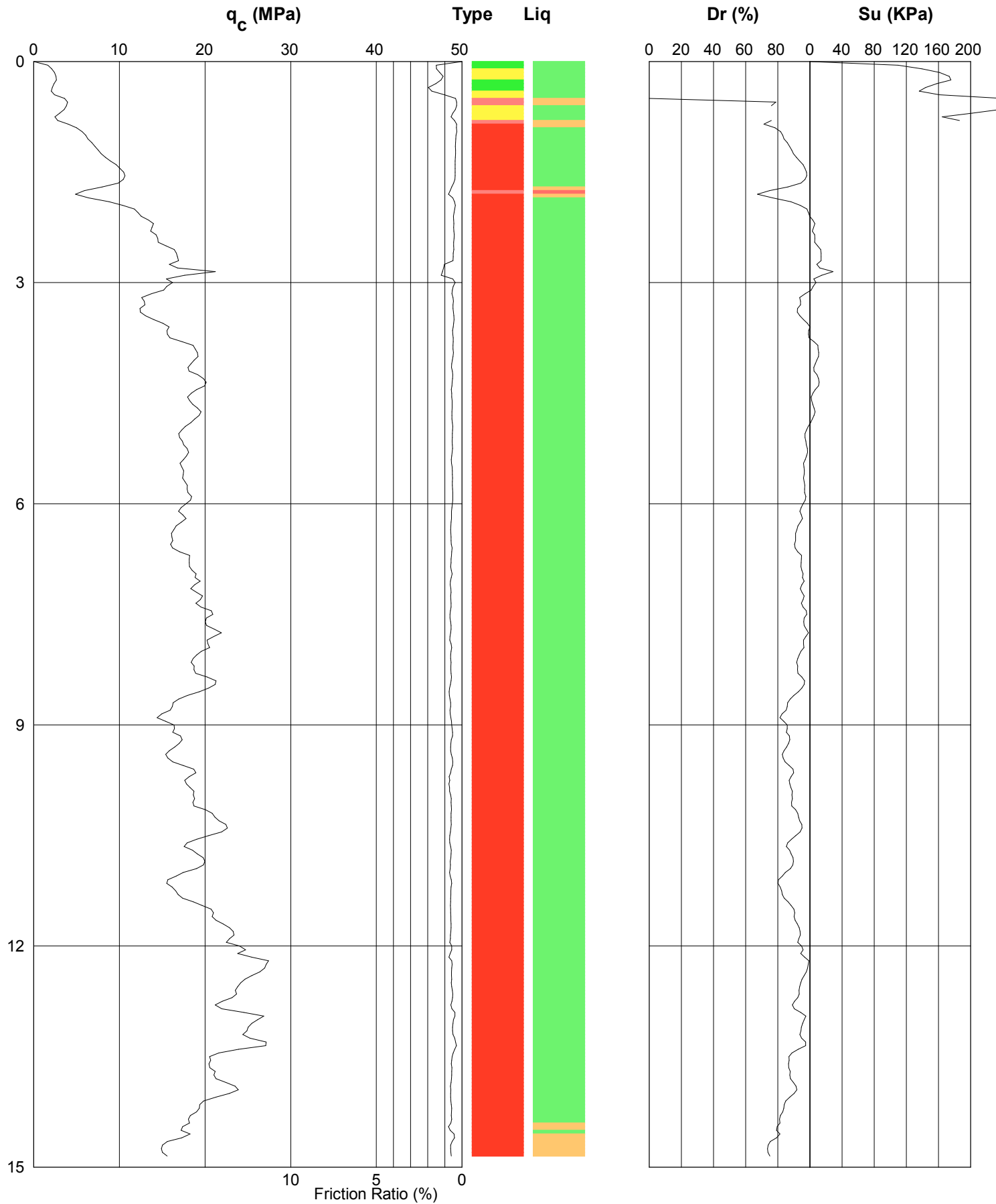
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT107

Project: Aurecon NZ Ltd

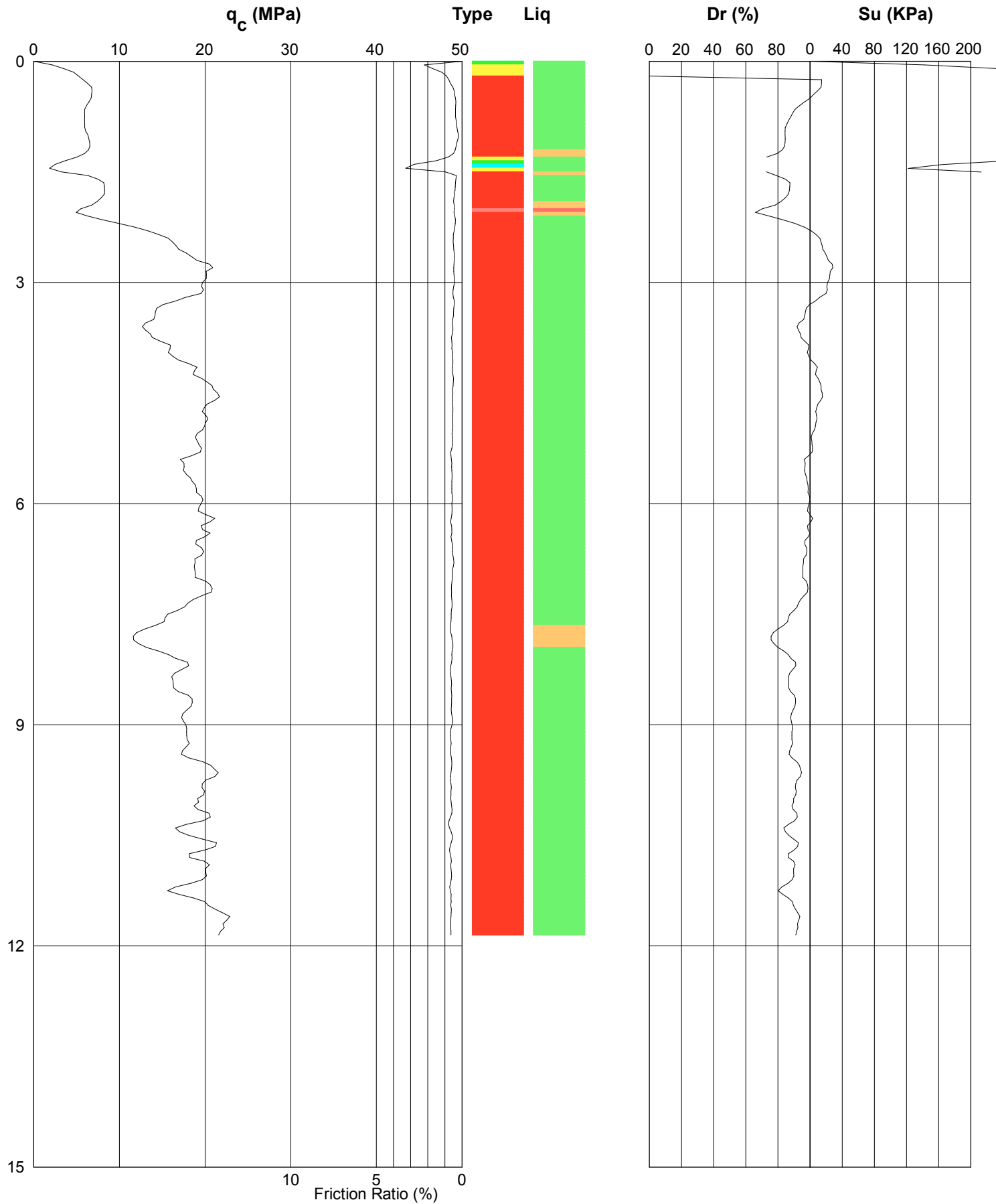
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT108

Project: Aurecon NZ Ltd

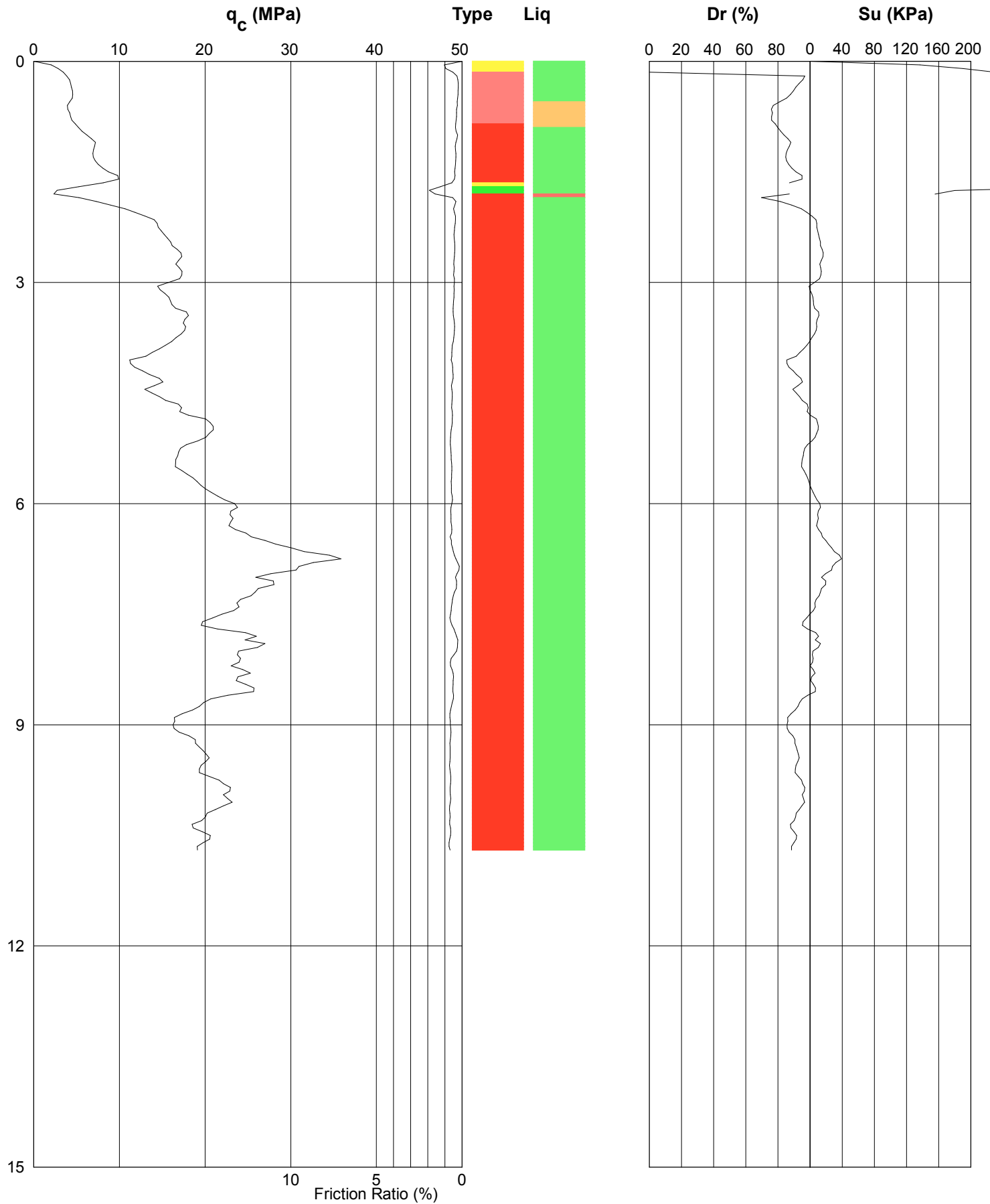
Location: Prestons Subdivision, Christchurch

Date: 1-02-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT109

Project: Aurecon NZ Ltd

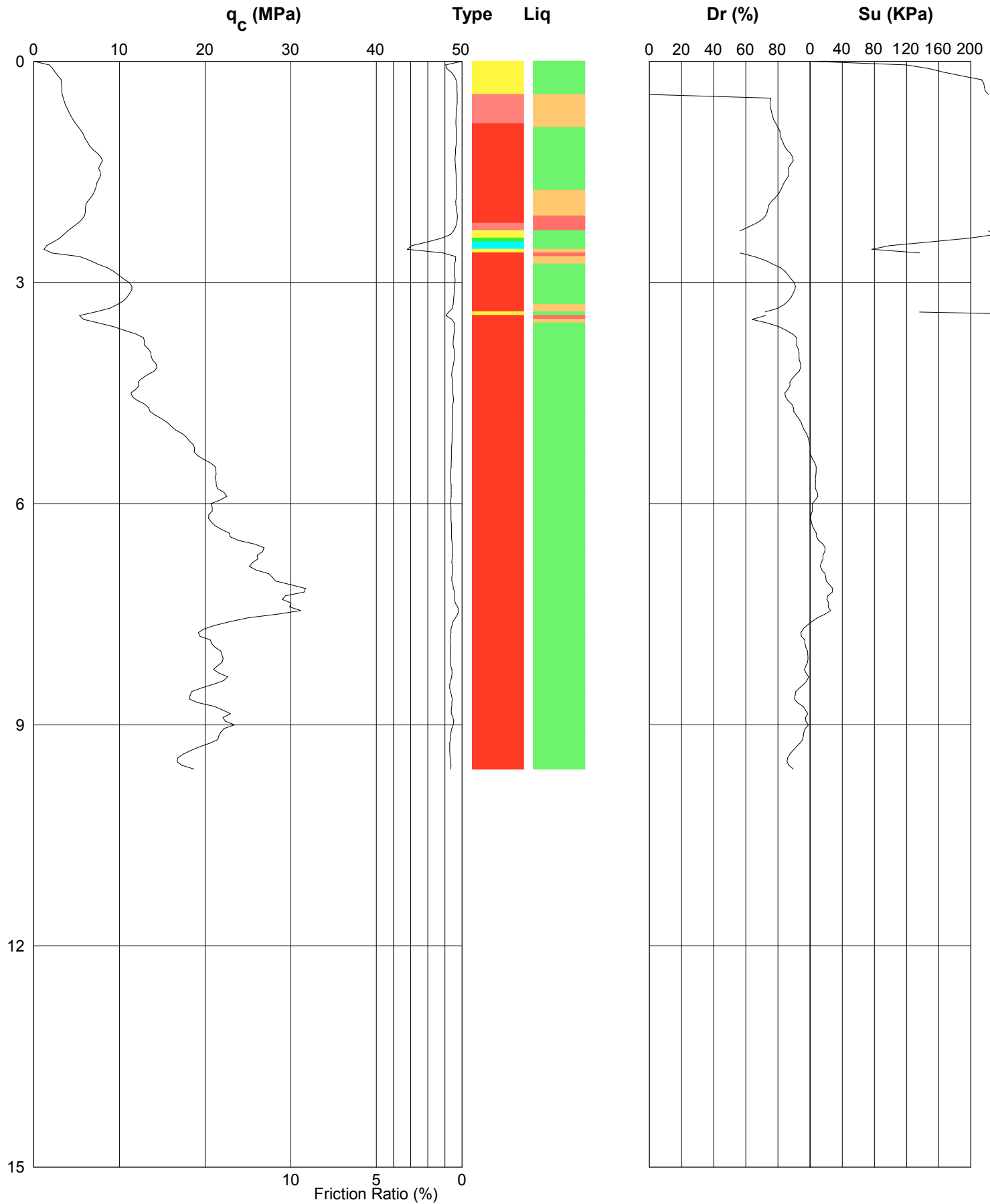
Location: Prestons Subdivision, Christchurch

Date: 1-02-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT110

Project: Aurecon NZ Ltd

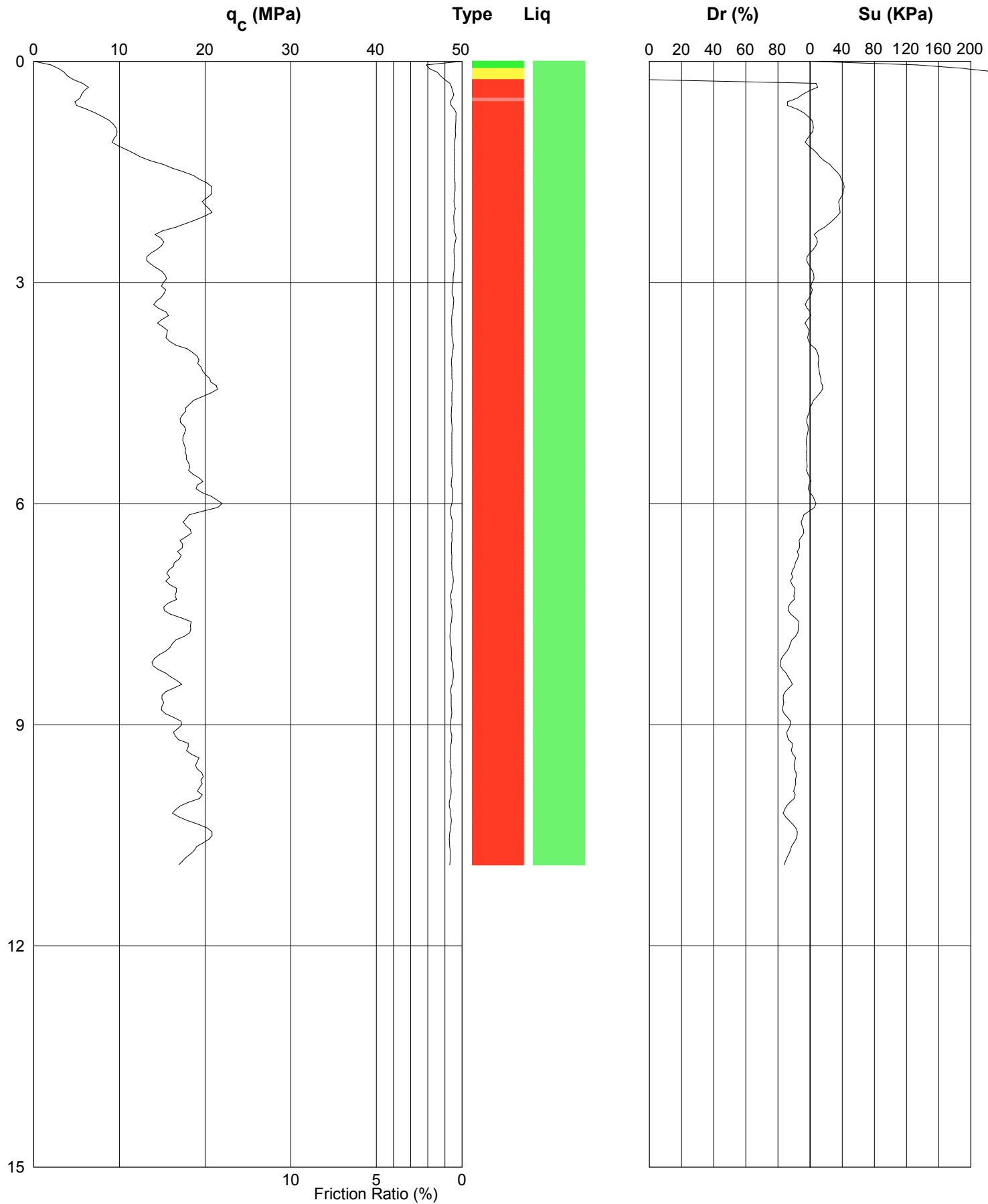
Location: Prestons Subdivision, Christchurch

Date: 2-02-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT111

Project: Aurecon NZ Ltd

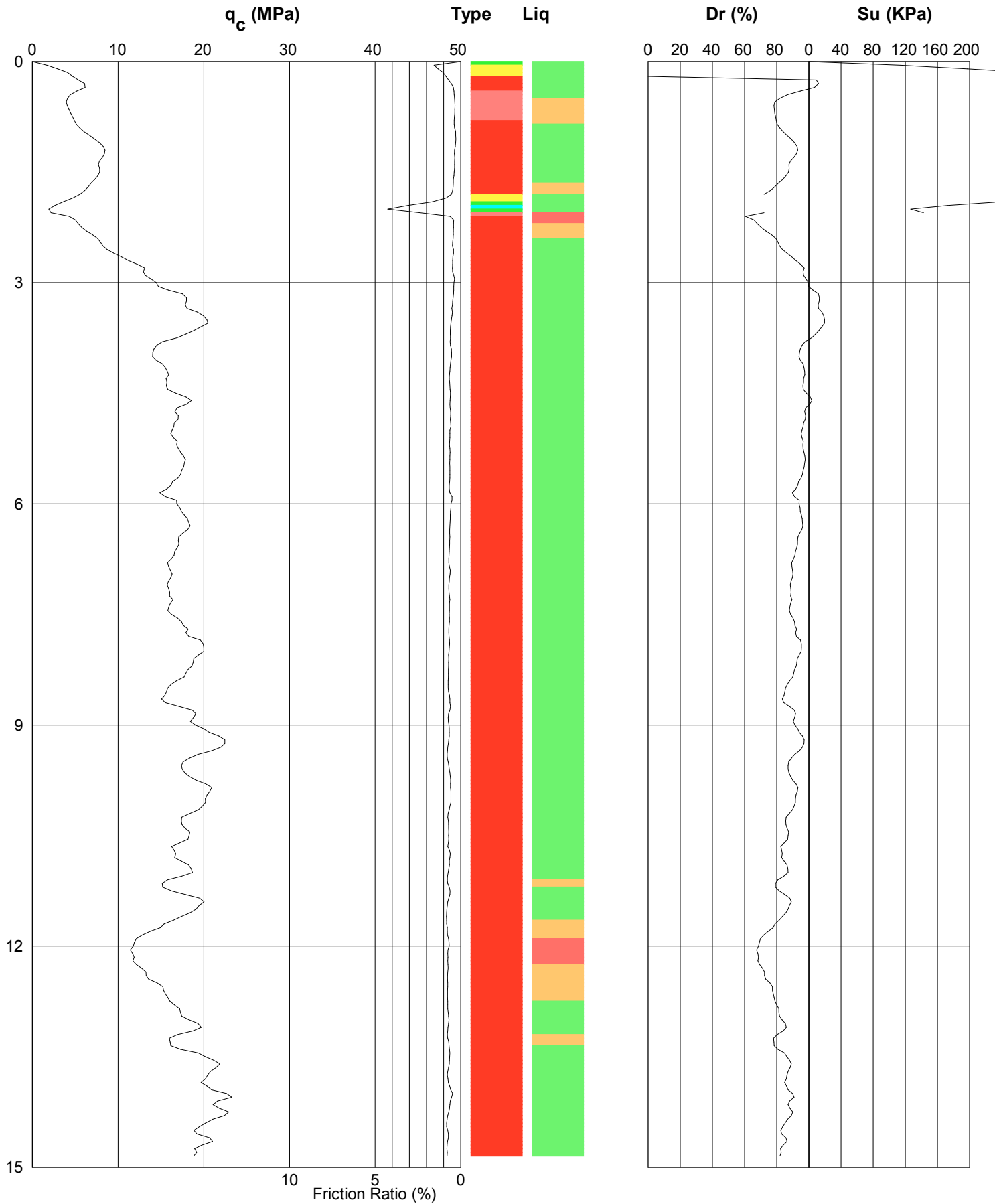
Location: Prestons Subdivision, Christchurch

Date: 2-02-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT112

Project: Aurecon NZ Ltd

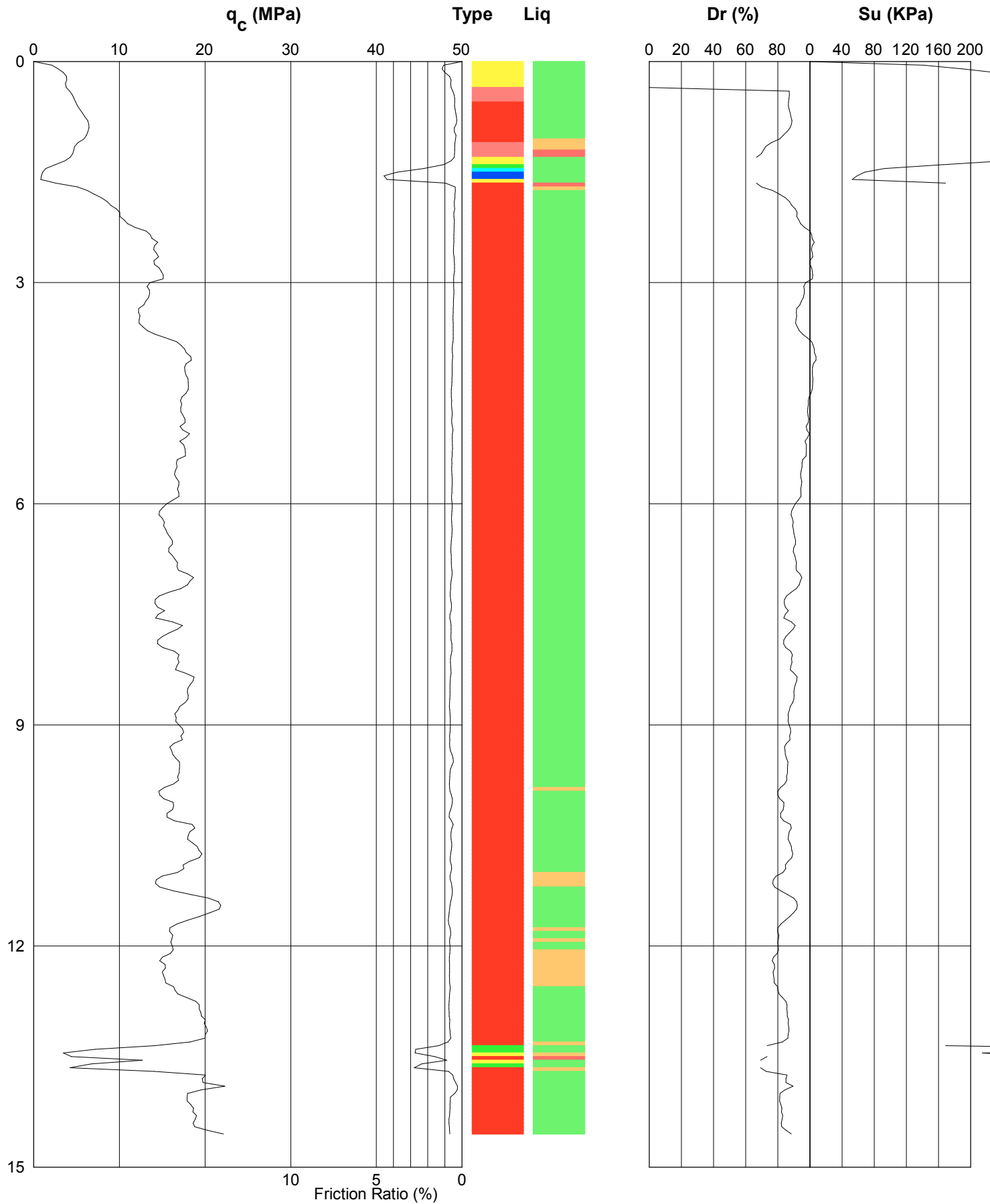
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT113

Project: Aurecon NZ Ltd

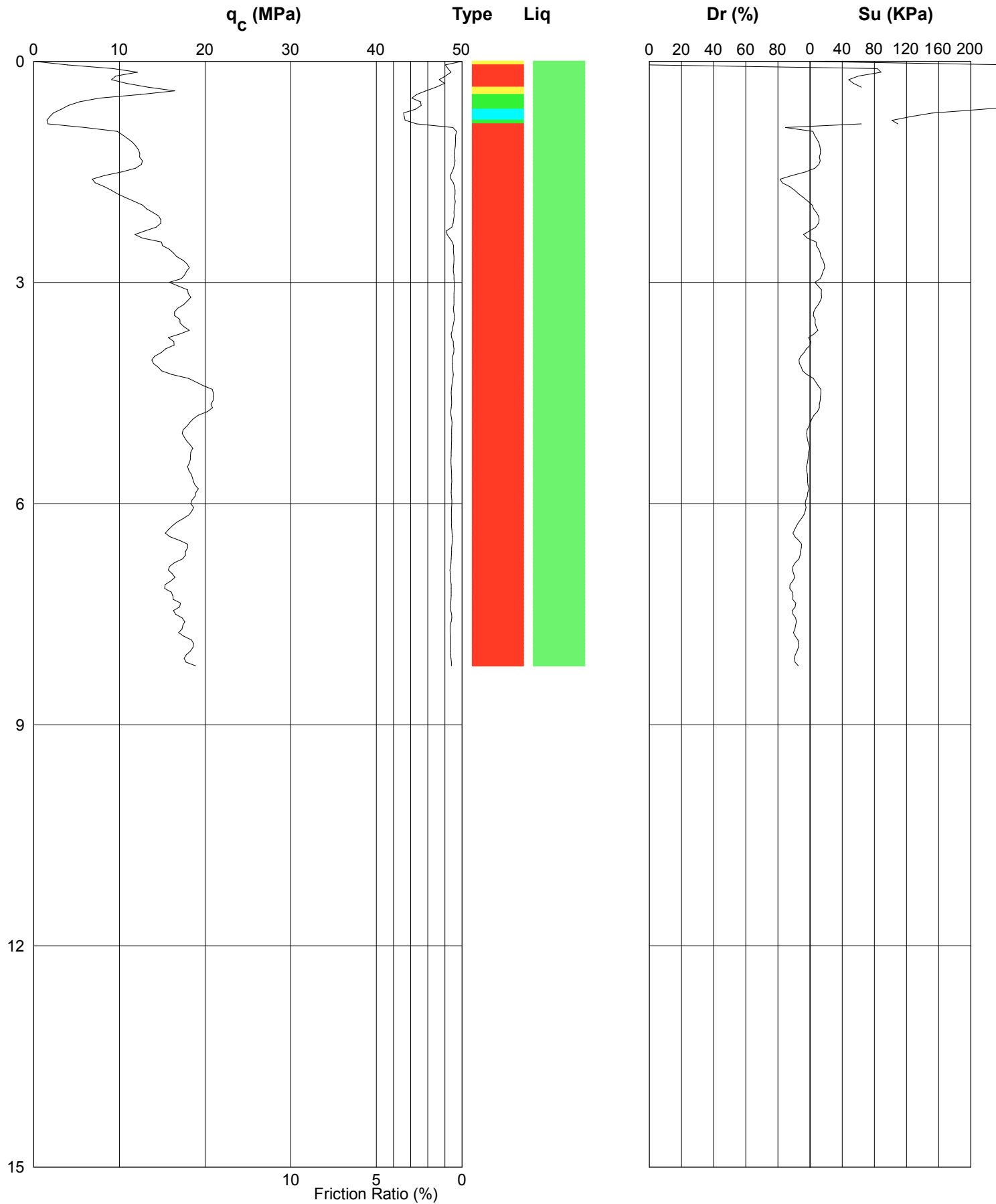
Location: Prestons Subdivision, Christchurch

Date: 31-1-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT114

Project: Aurecon NZ Ltd

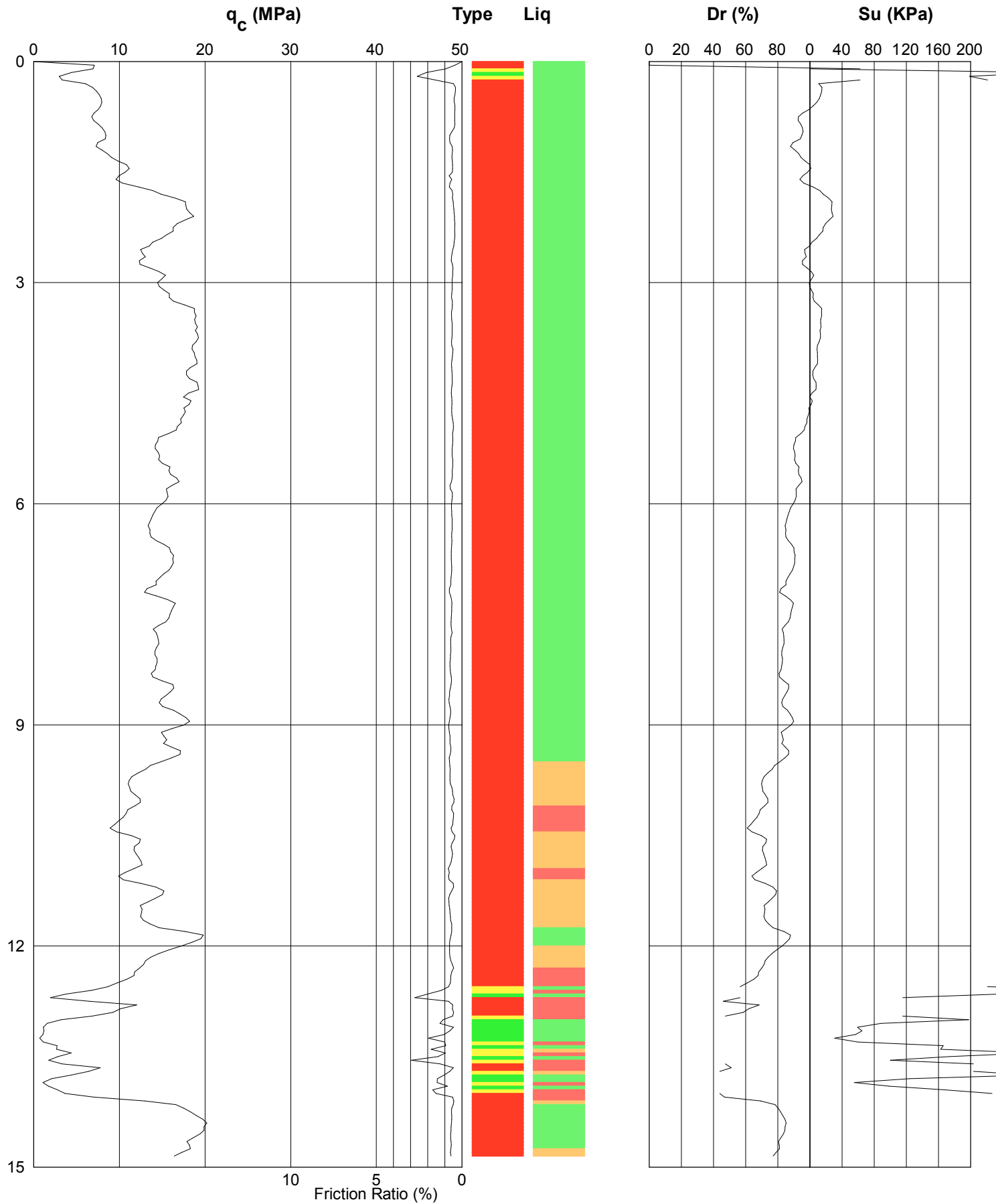
Location: Prestons Subdivision, Christchurch

Date: 2-02-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT115

Project: Aurecon NZ Ltd

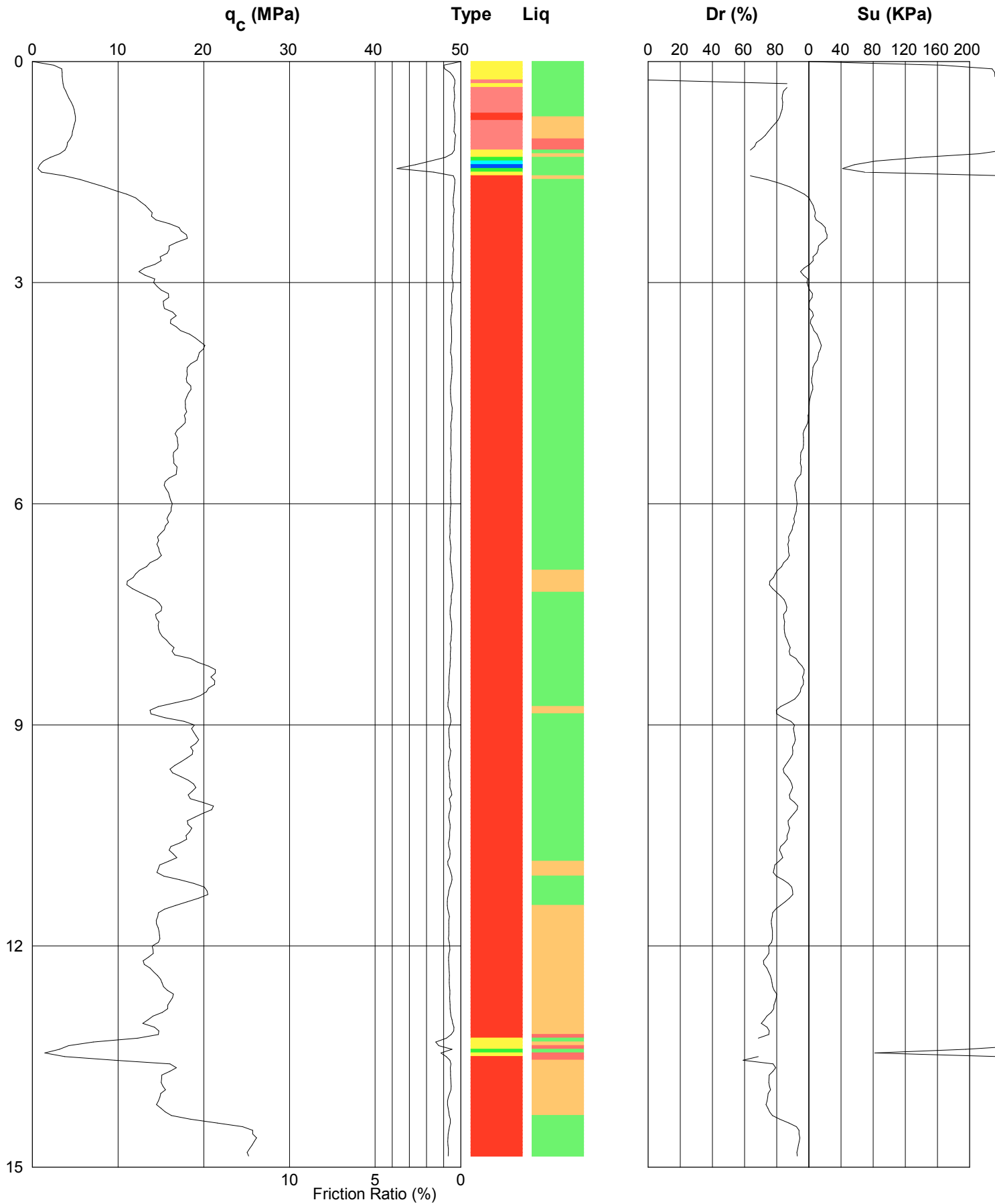
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT116

Project: Aurecon NZ Ltd

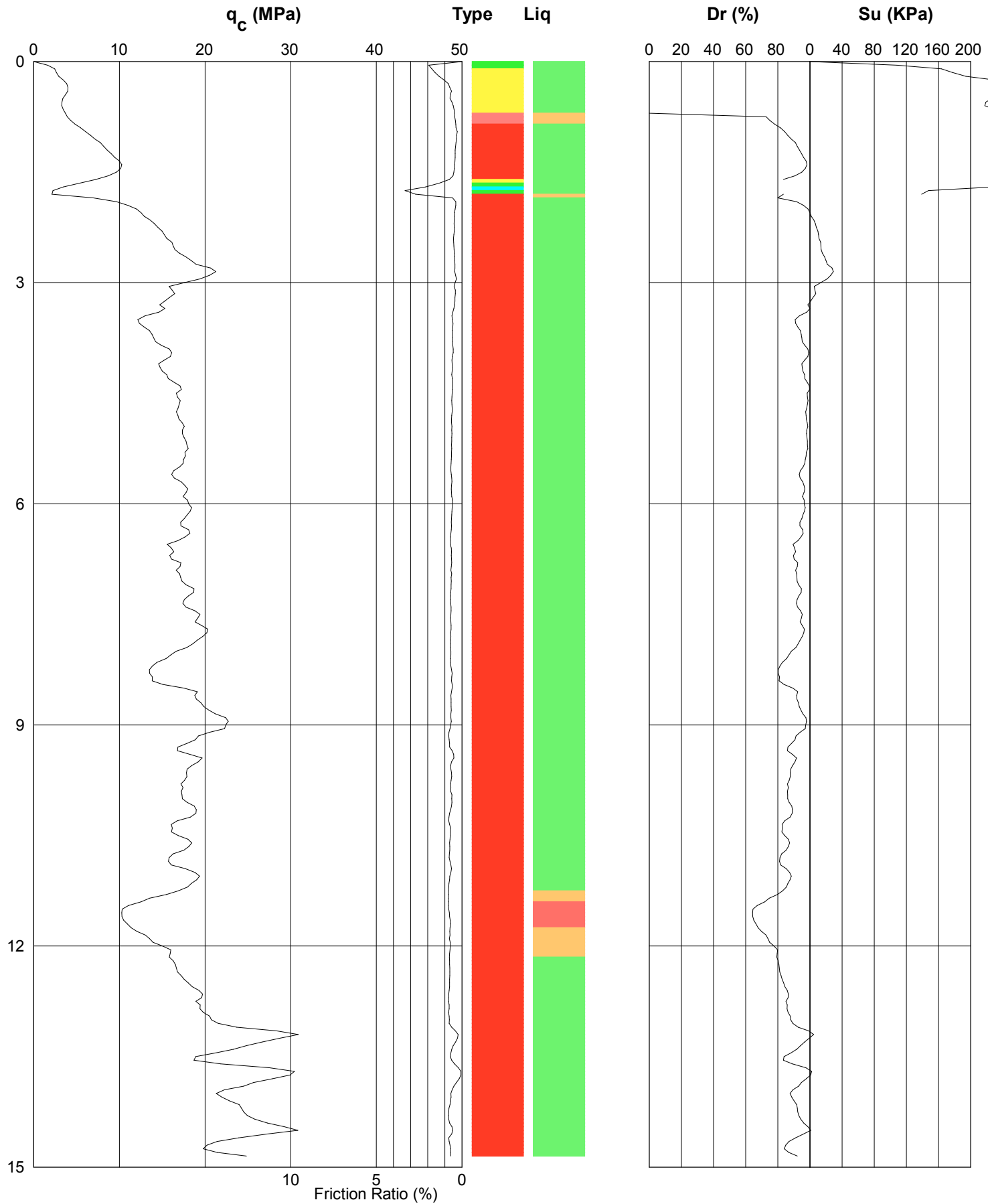
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT117

Project: Aurecon NZ Ltd

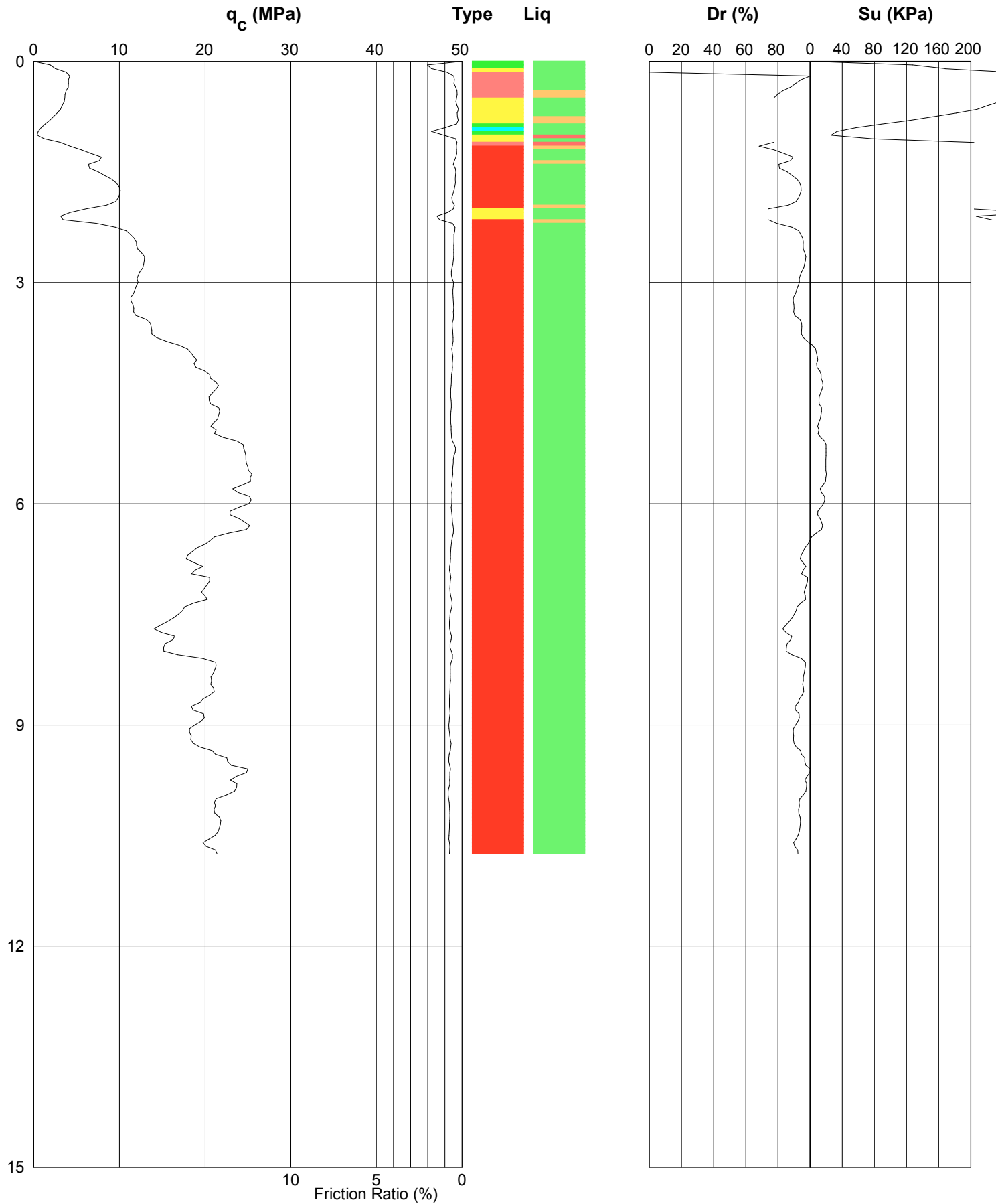
Location: Prestons Subdivision, Christchurch

Date: 27-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT118

Project: Aurecon NZ Ltd

Location: Prestons Subdivision, Christchurch

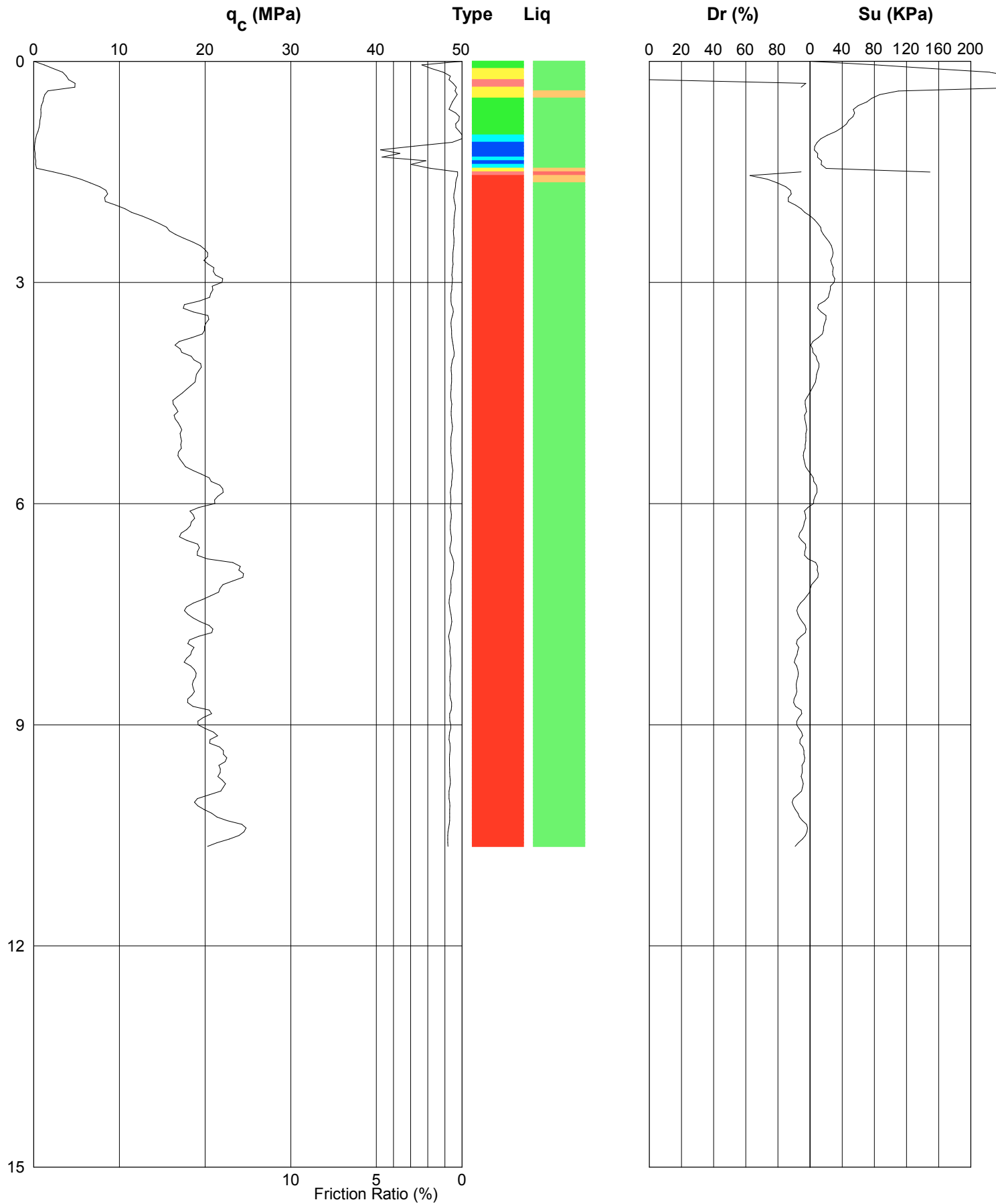
Date: 1-02-2012

Operator: N Barnes

Remark: Effective Refusal



PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT119

Project: Aurecon NZ Ltd

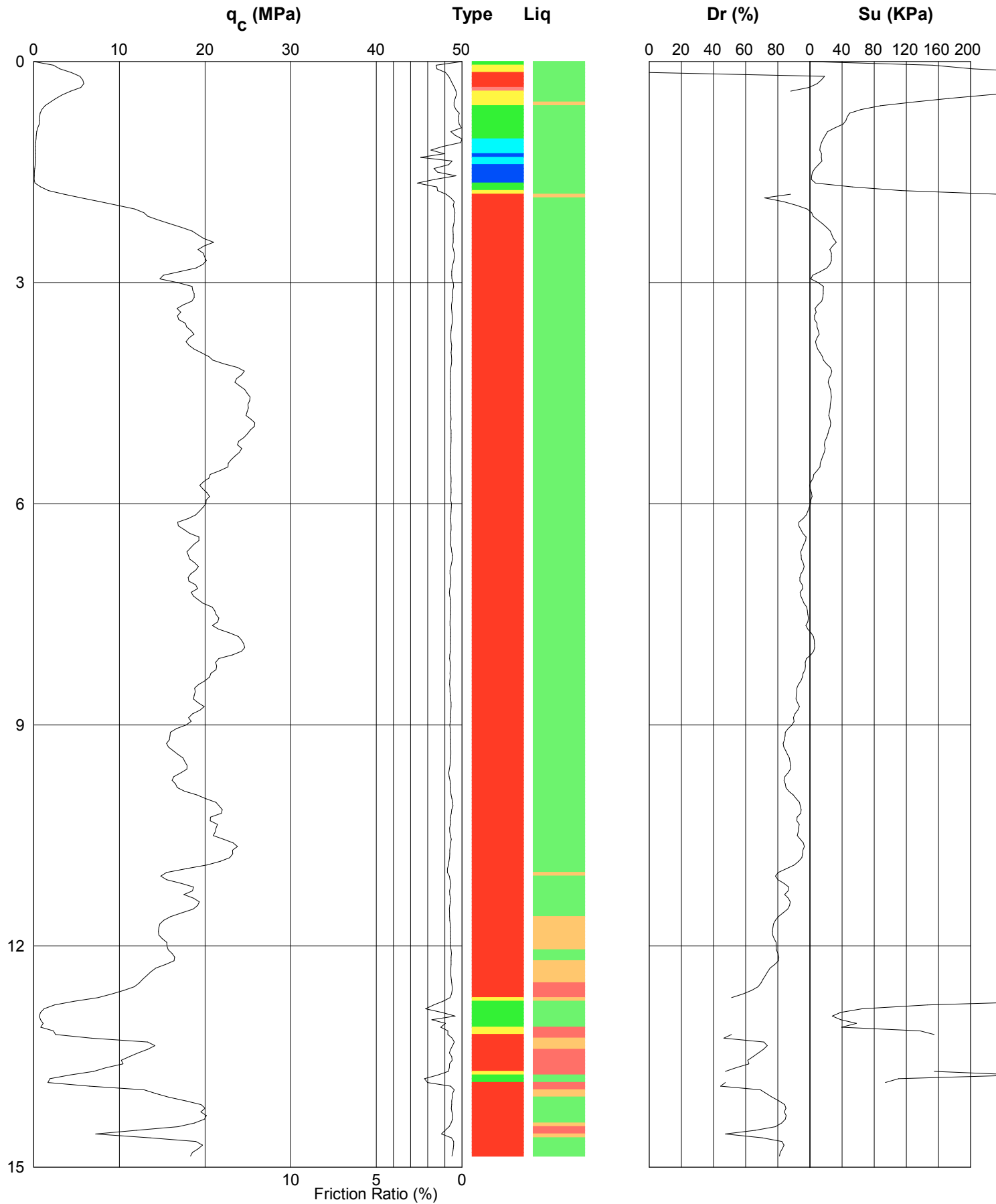
Location: Prestons Subdivision, Christchurch

Date: 1-02-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT120

Project: Aurecon NZ Ltd

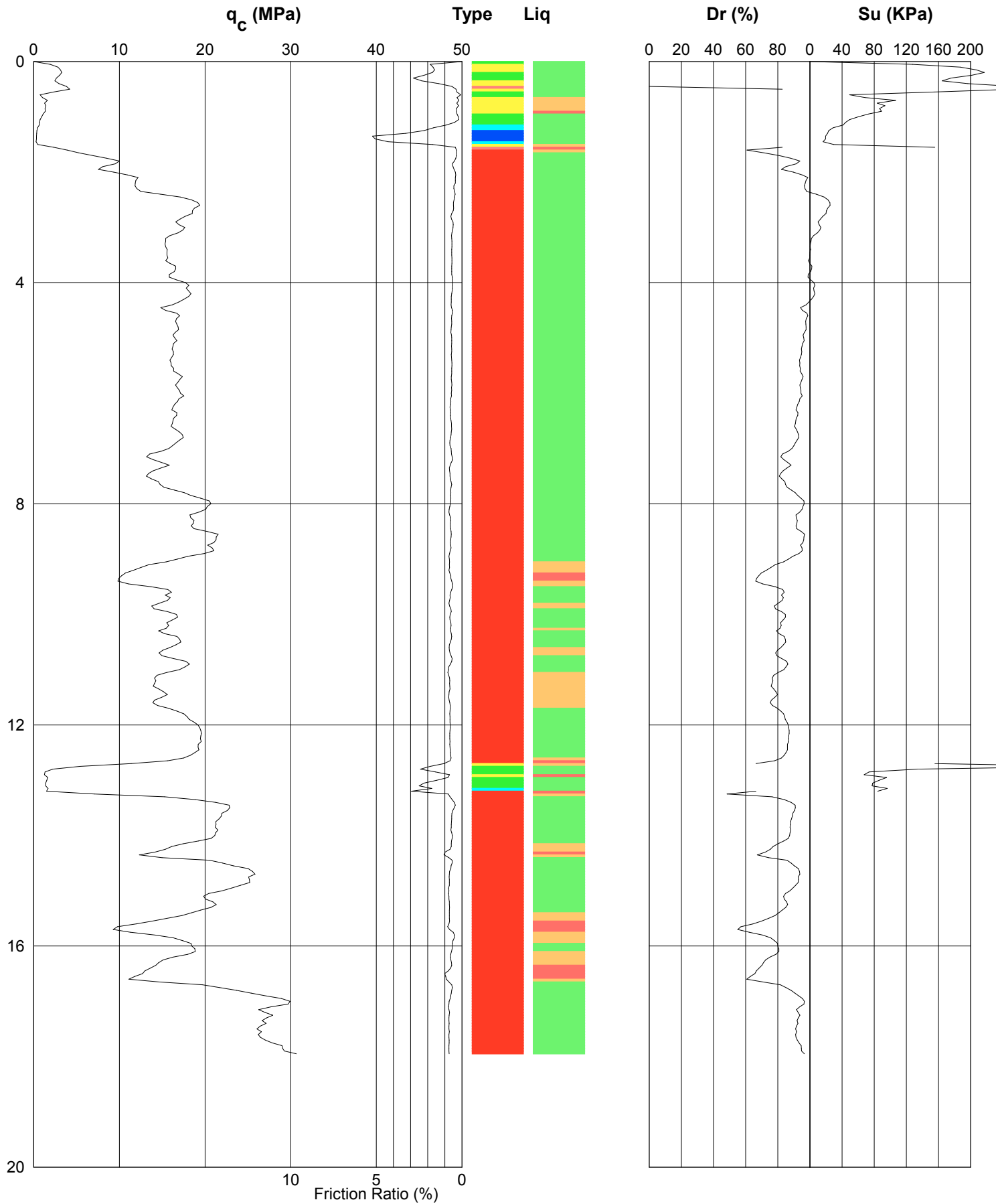
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT121

Project: Aurecon NZ Ltd

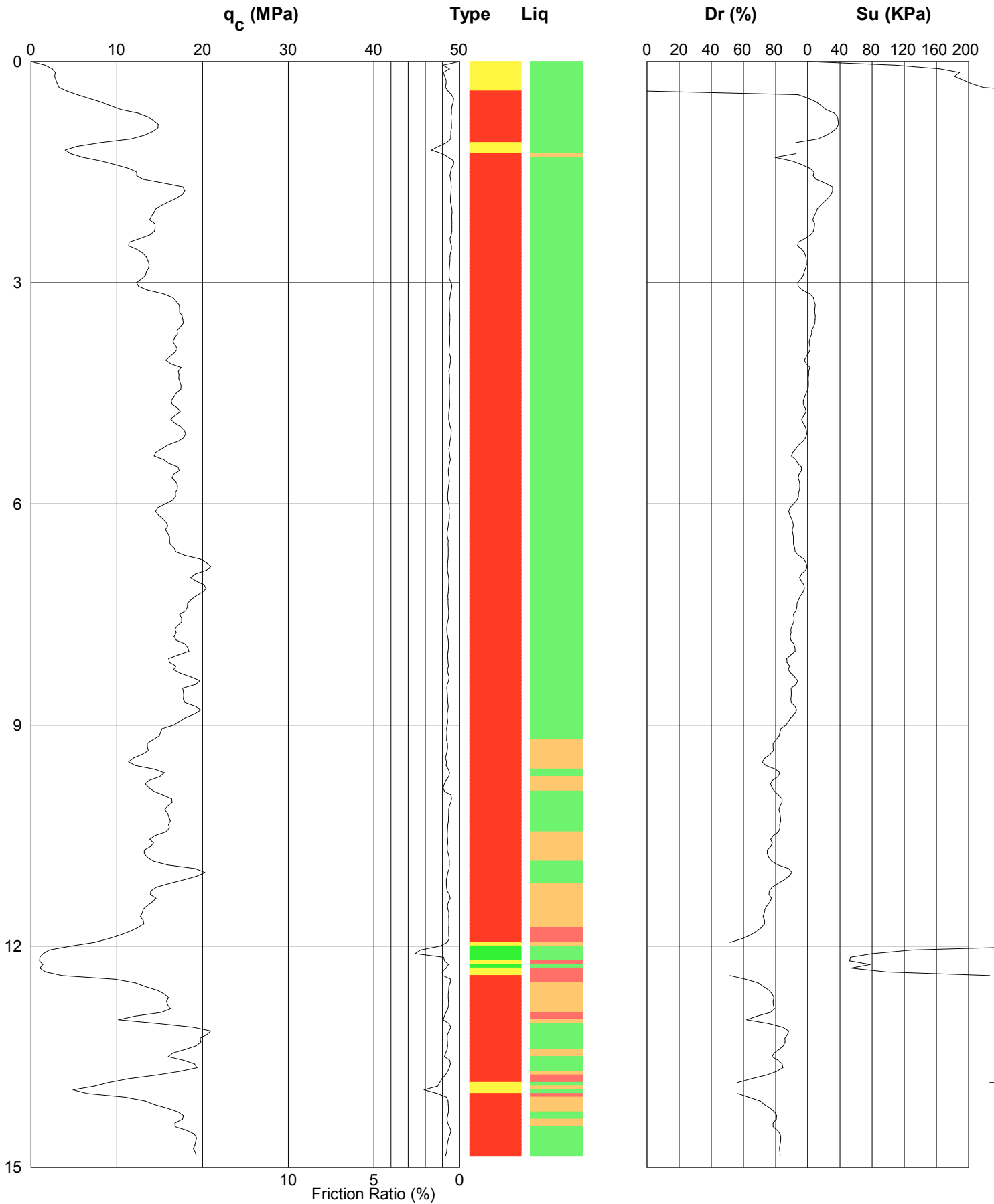
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT122

Project: Aurecon NZ Ltd

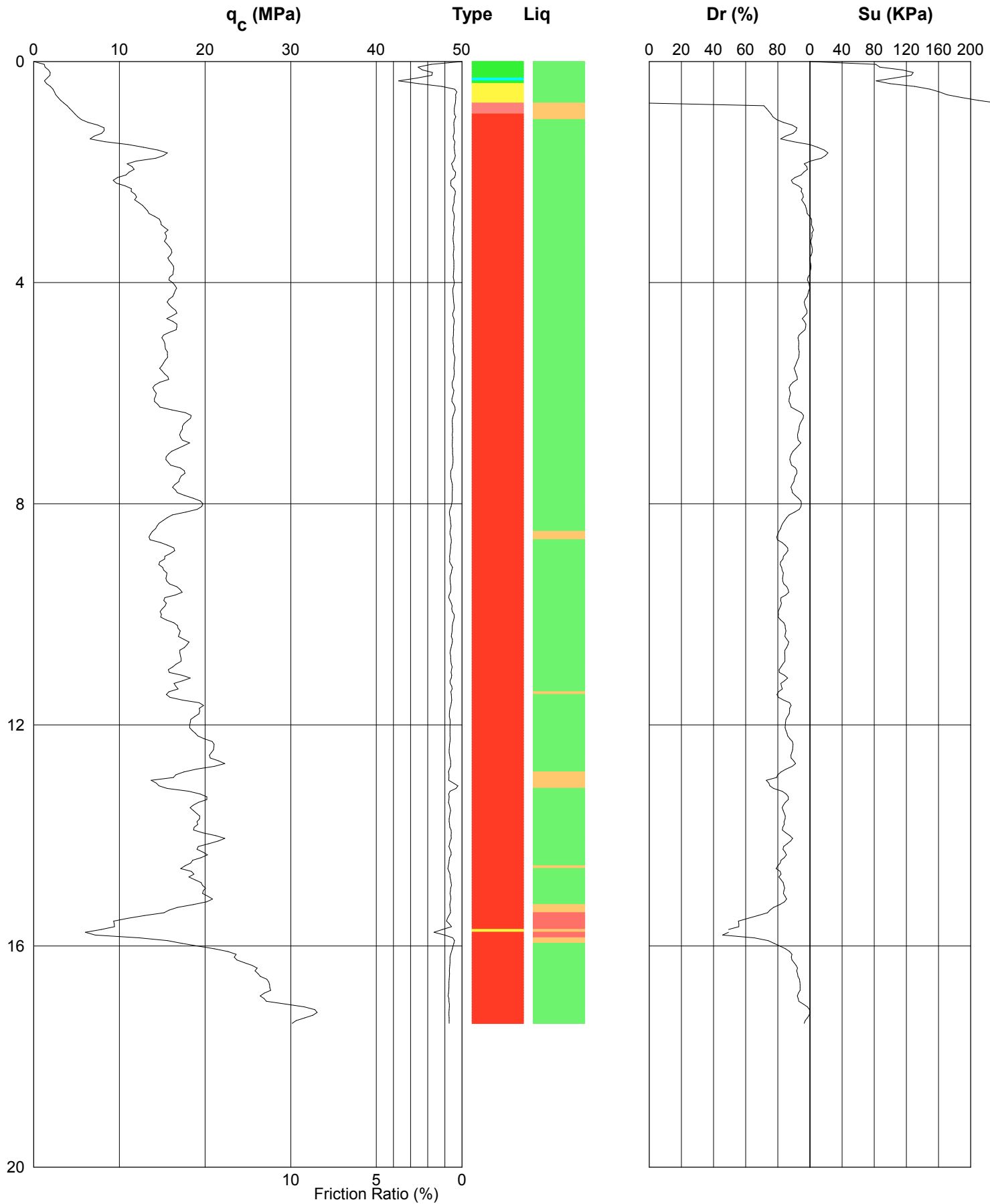
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT123

Project: Aurecon NZ Ltd

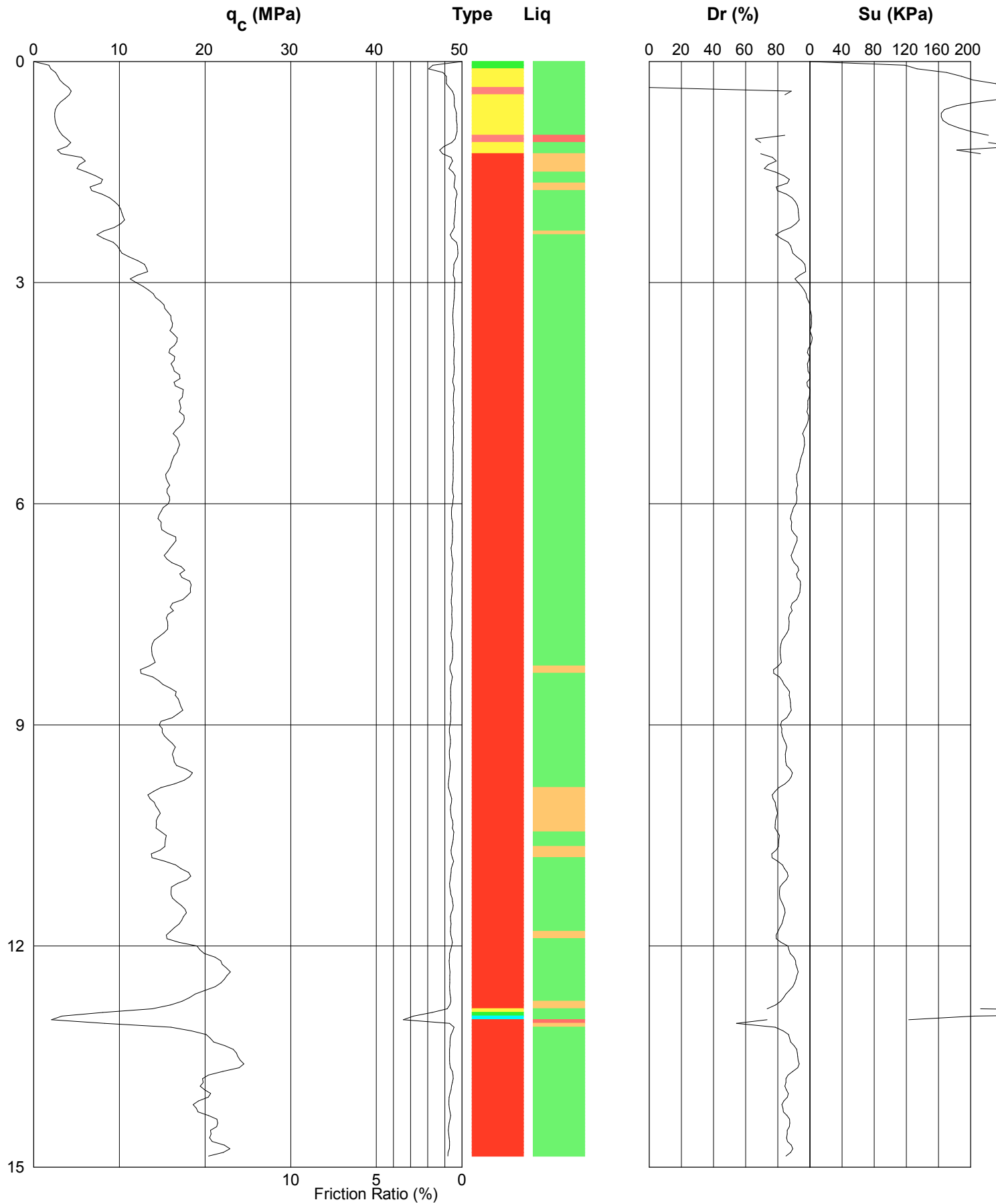
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT124

Project: Aurecon NZ Ltd

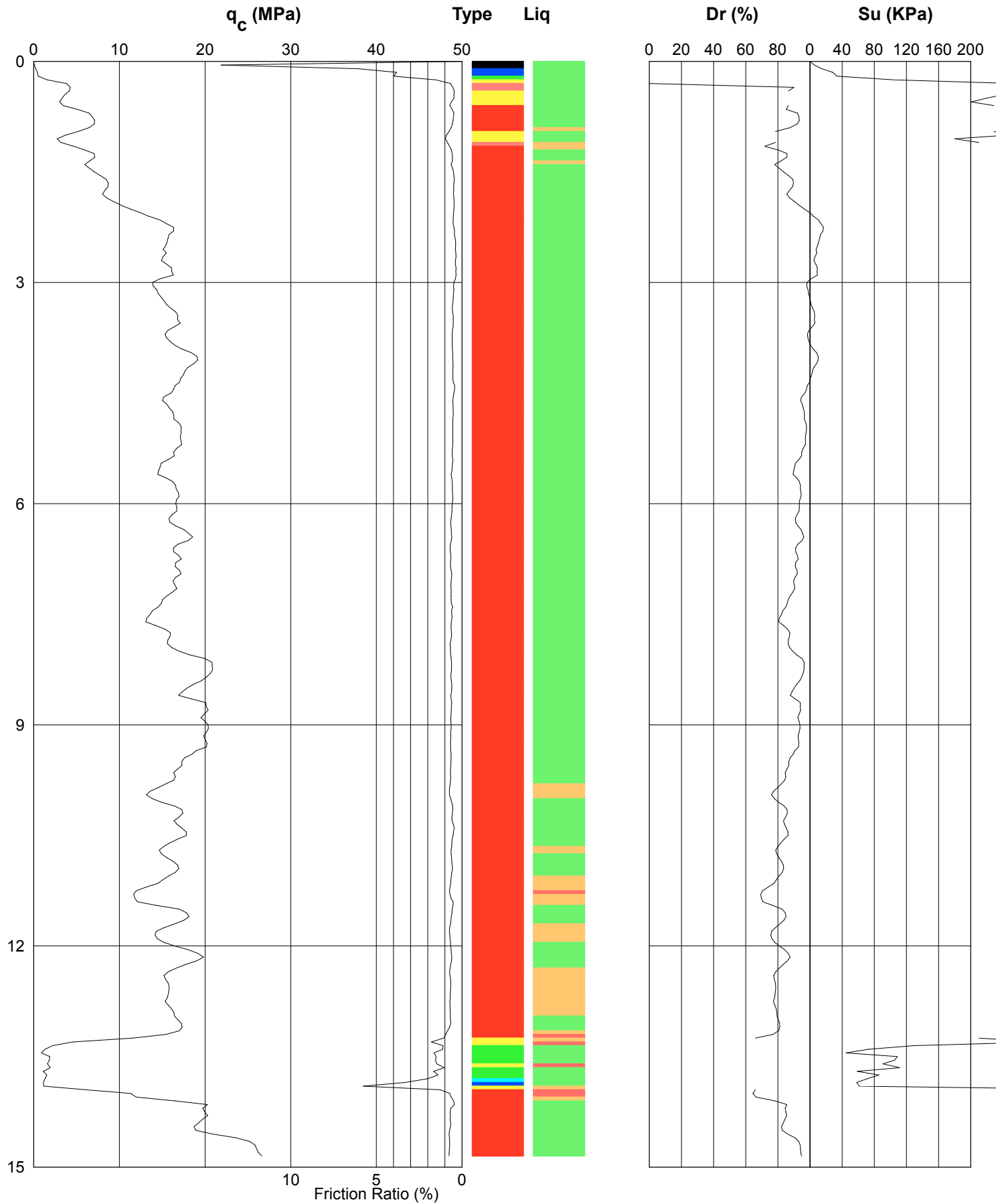
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT125

Project: Aurecon NZ Ltd

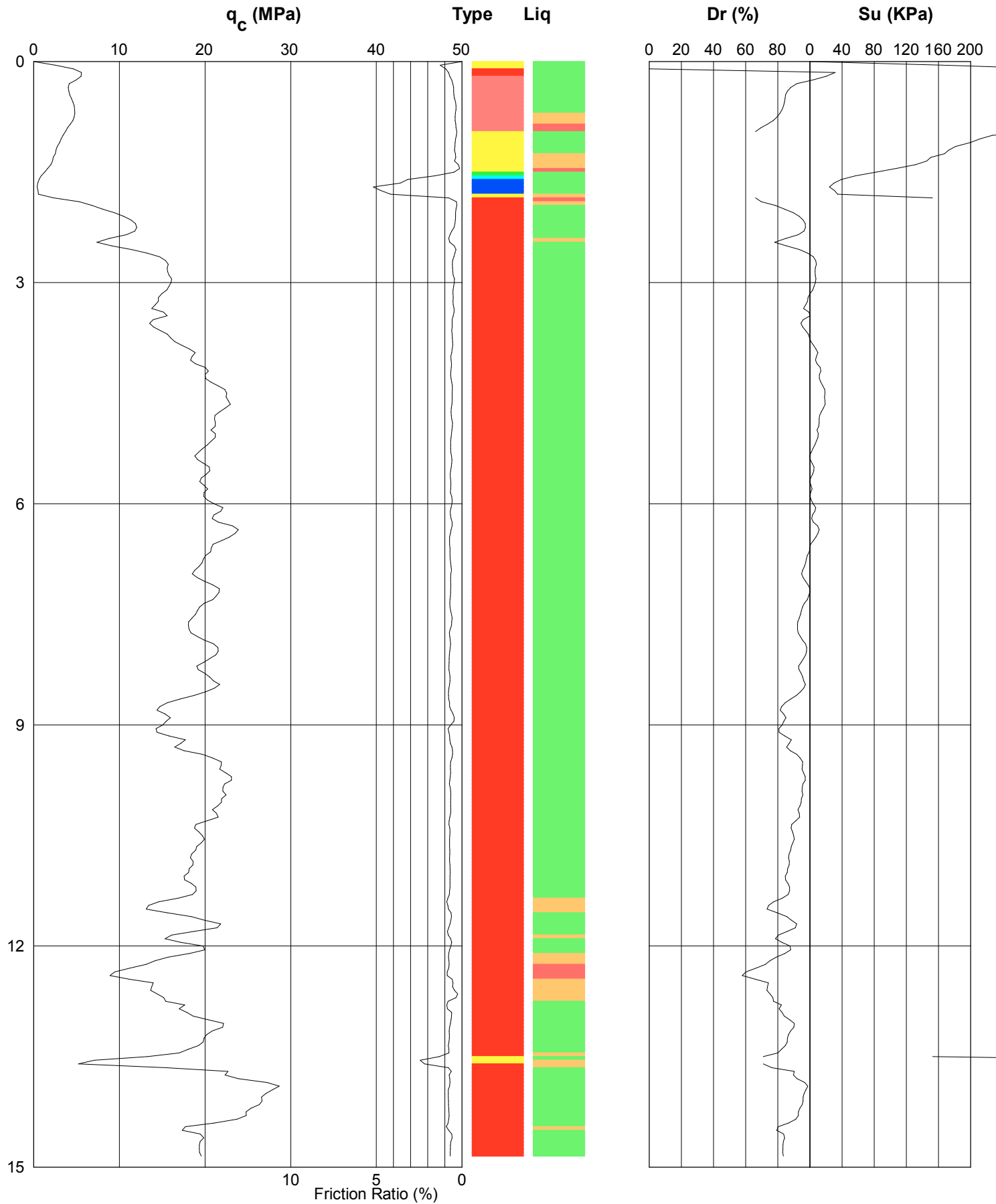
Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

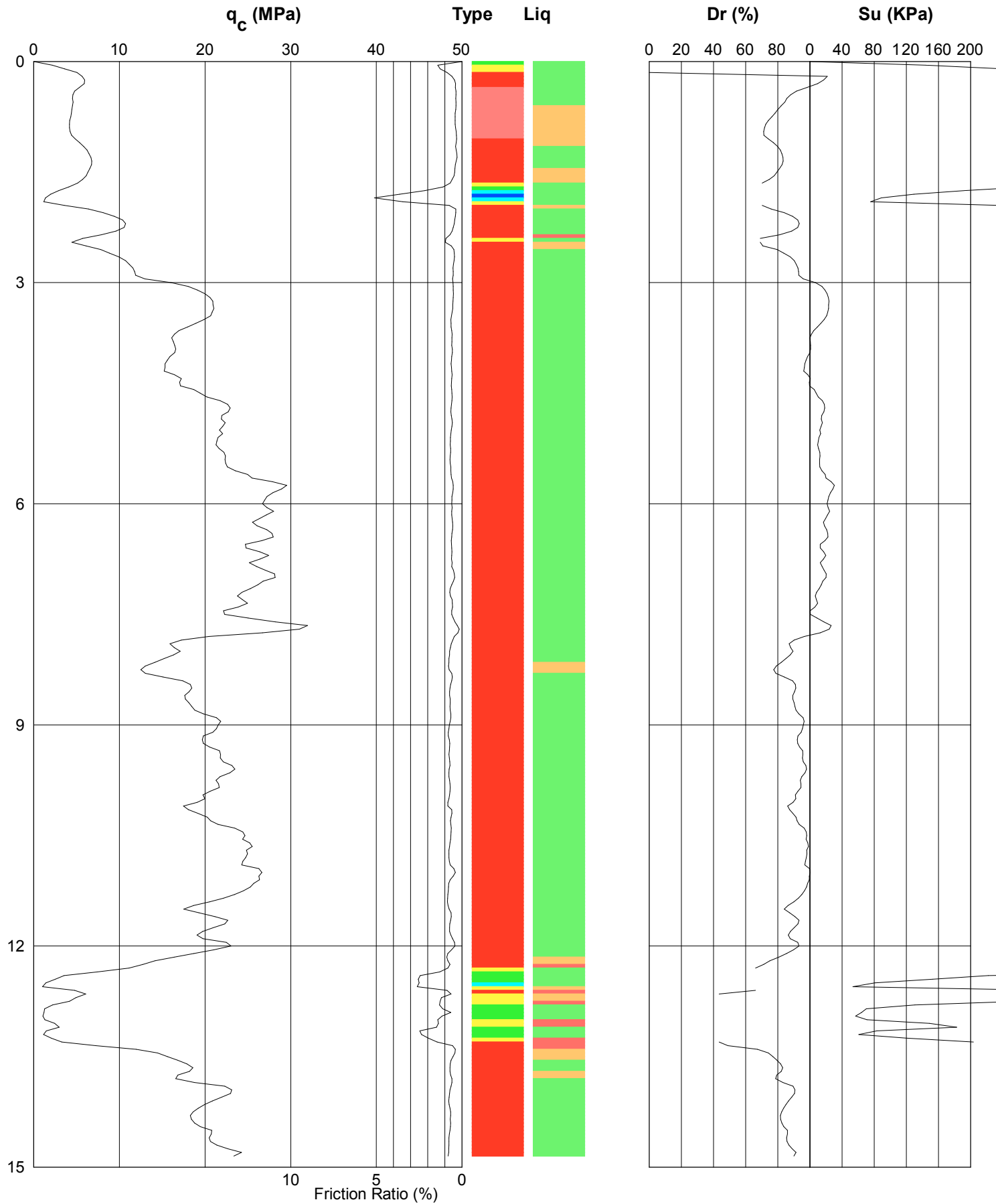
PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071
 CPT No: CPT126
 Project: Aurecon NZ Ltd
 Location: Prestons Subdivision, Christchurch

Date: 30-1-2012
 Operator: N Barnes
 Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT127

Project: Aurecon NZ Ltd

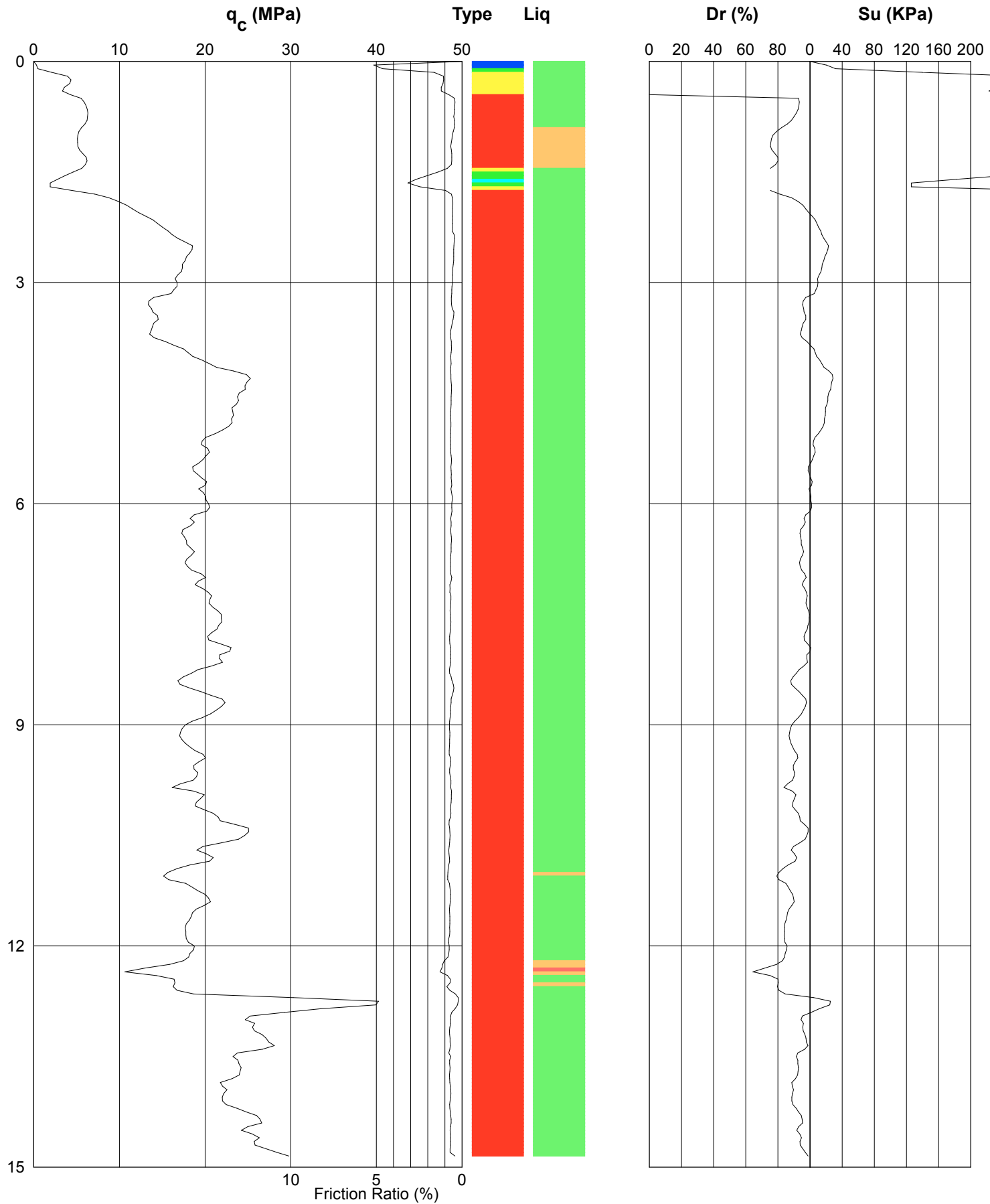
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT128

Project: Aurecon NZ Ltd

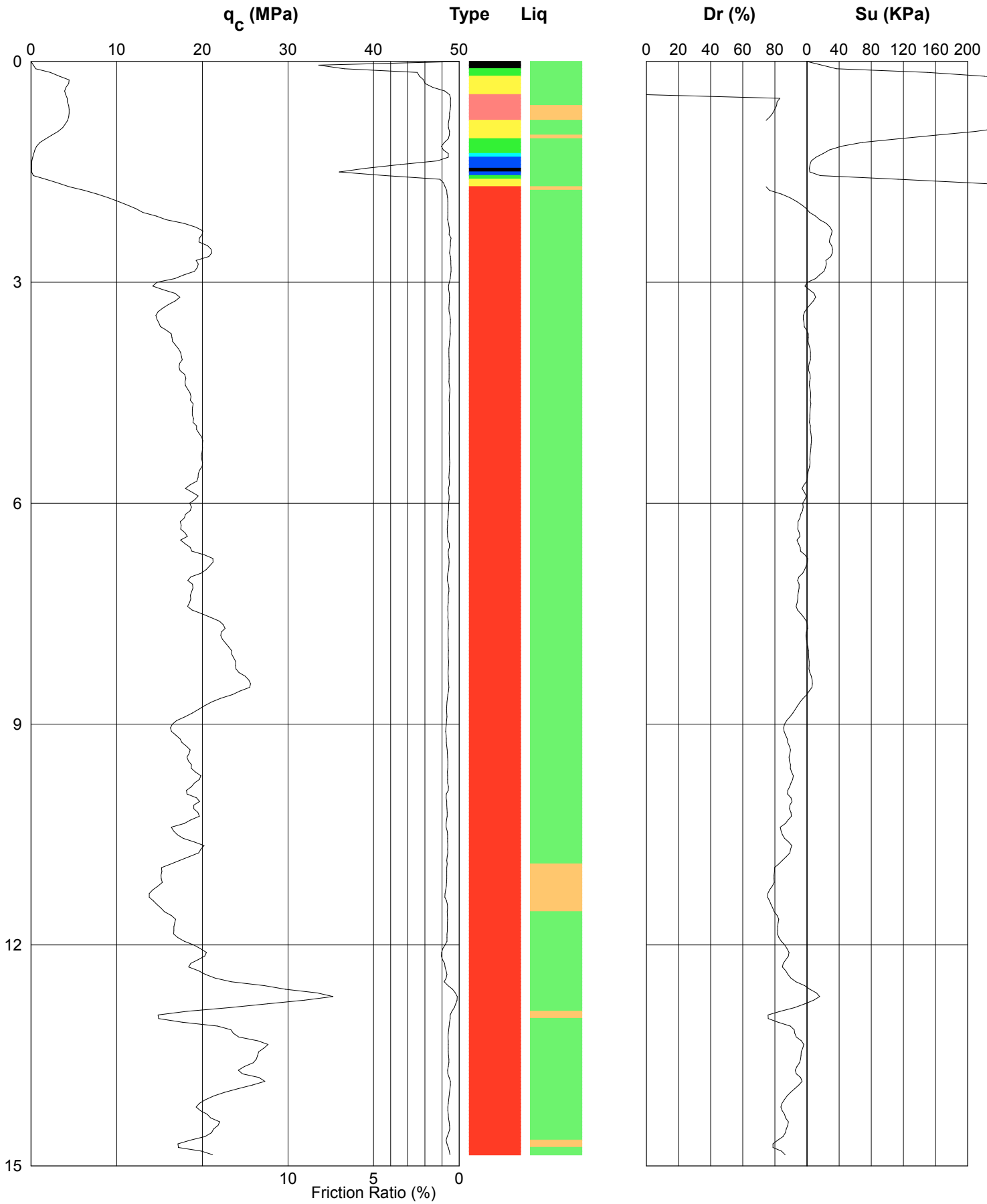
Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT129

Project: Aurecon NZ Ltd

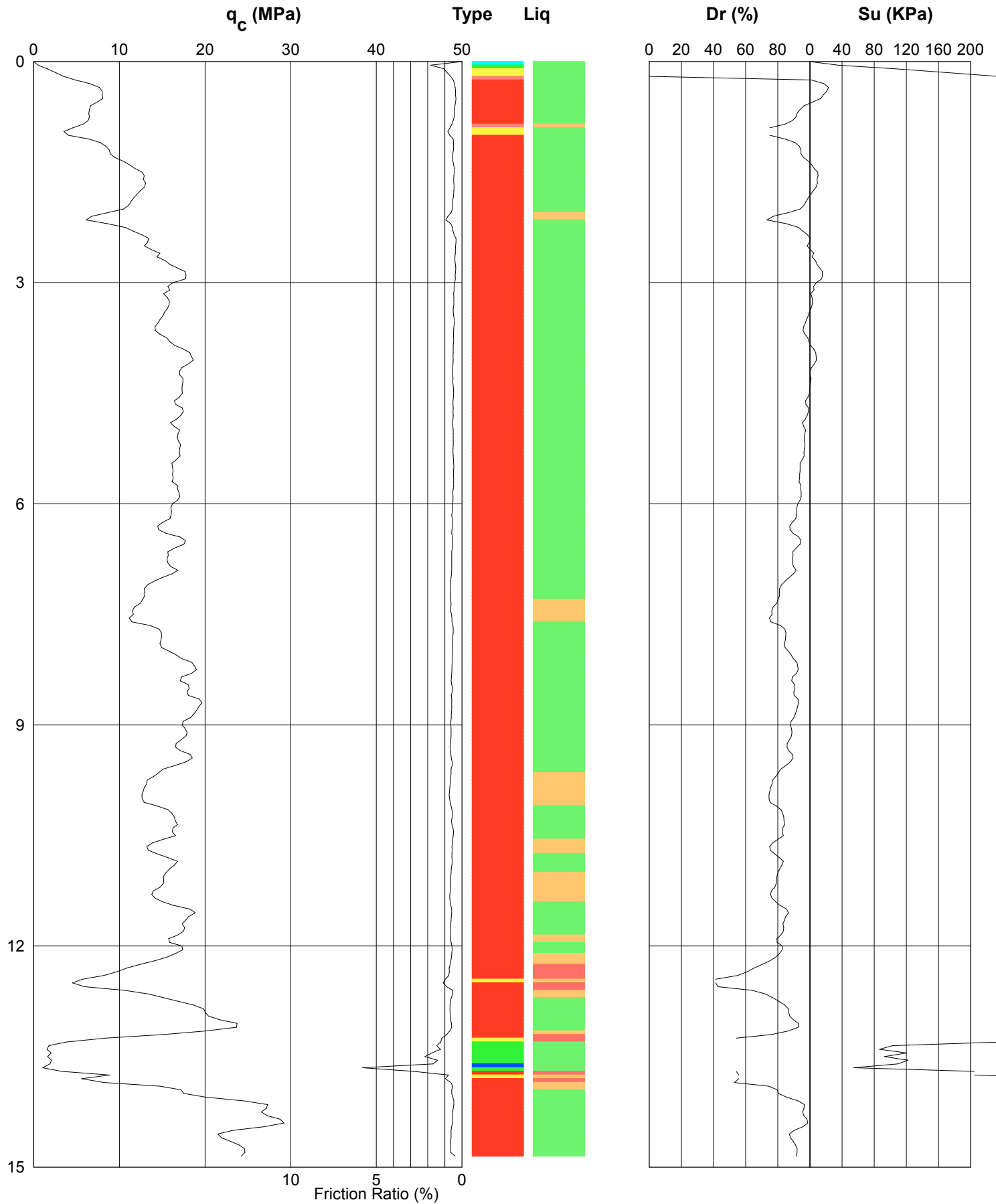
Location: Prestons Subdivision, Chistchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT130

Project: Aurecon NZ Ltd

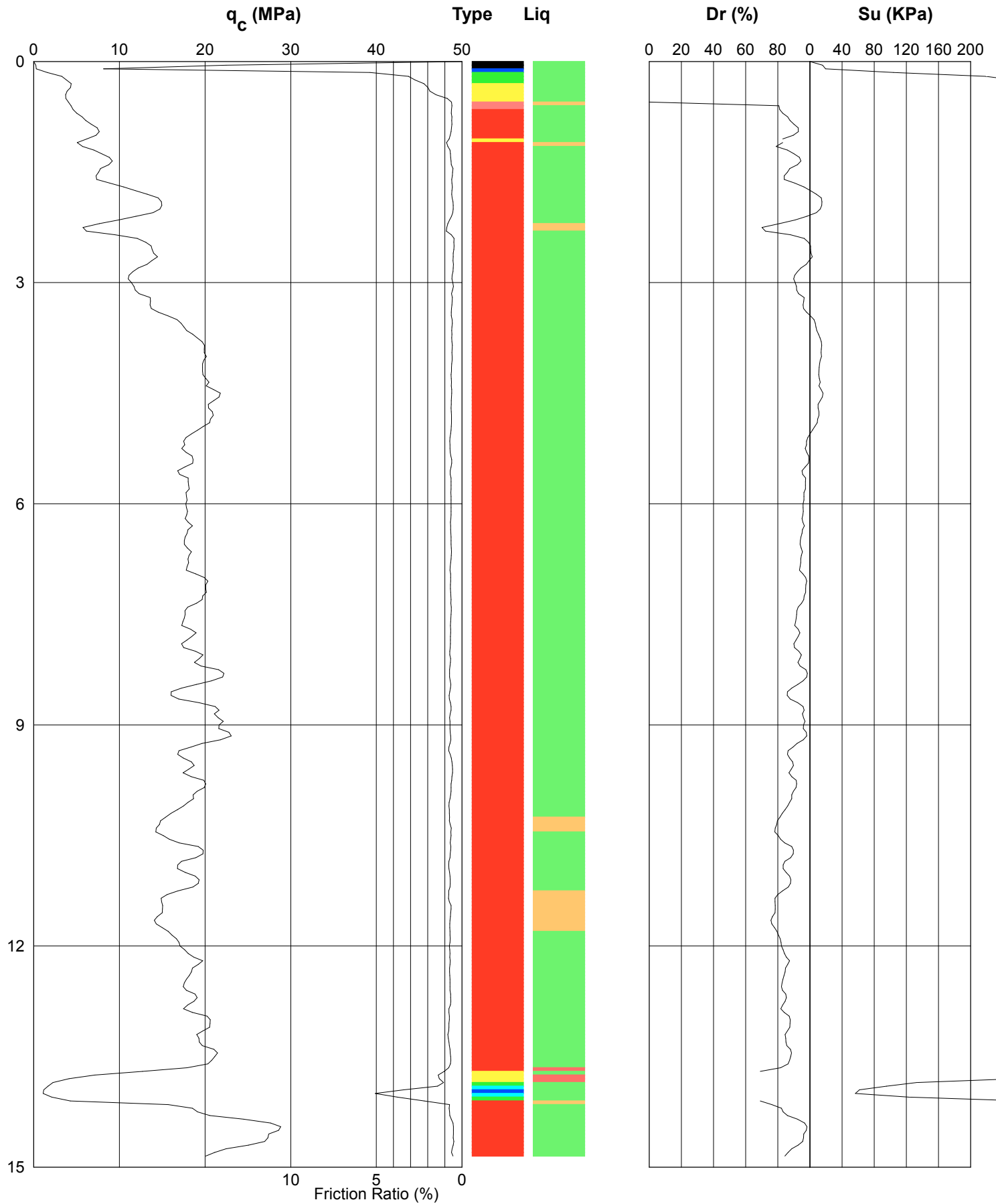
Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT131

Project: Aurecon NZ Ltd

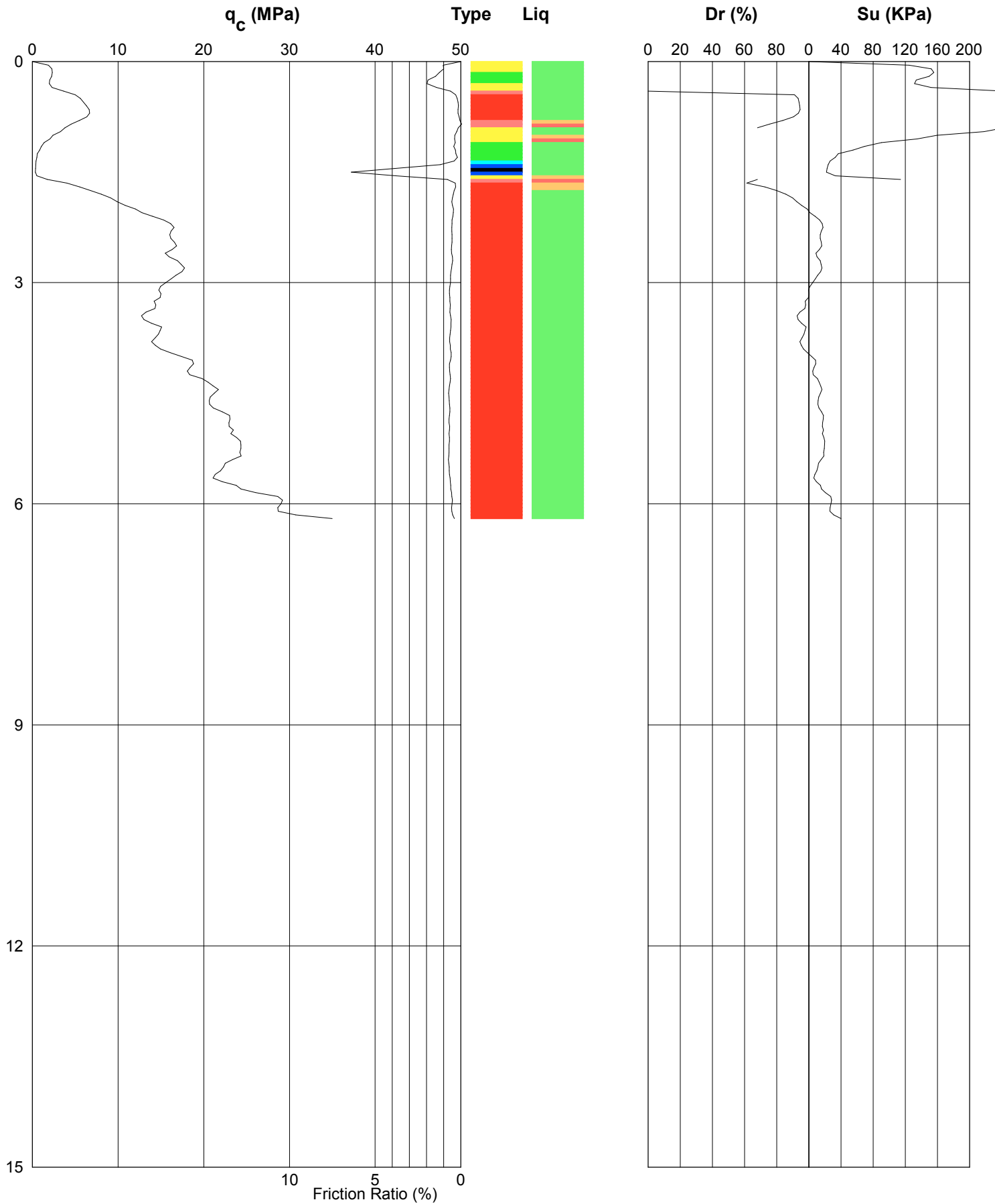
Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT132

Project: Aurecon NZ Ltd

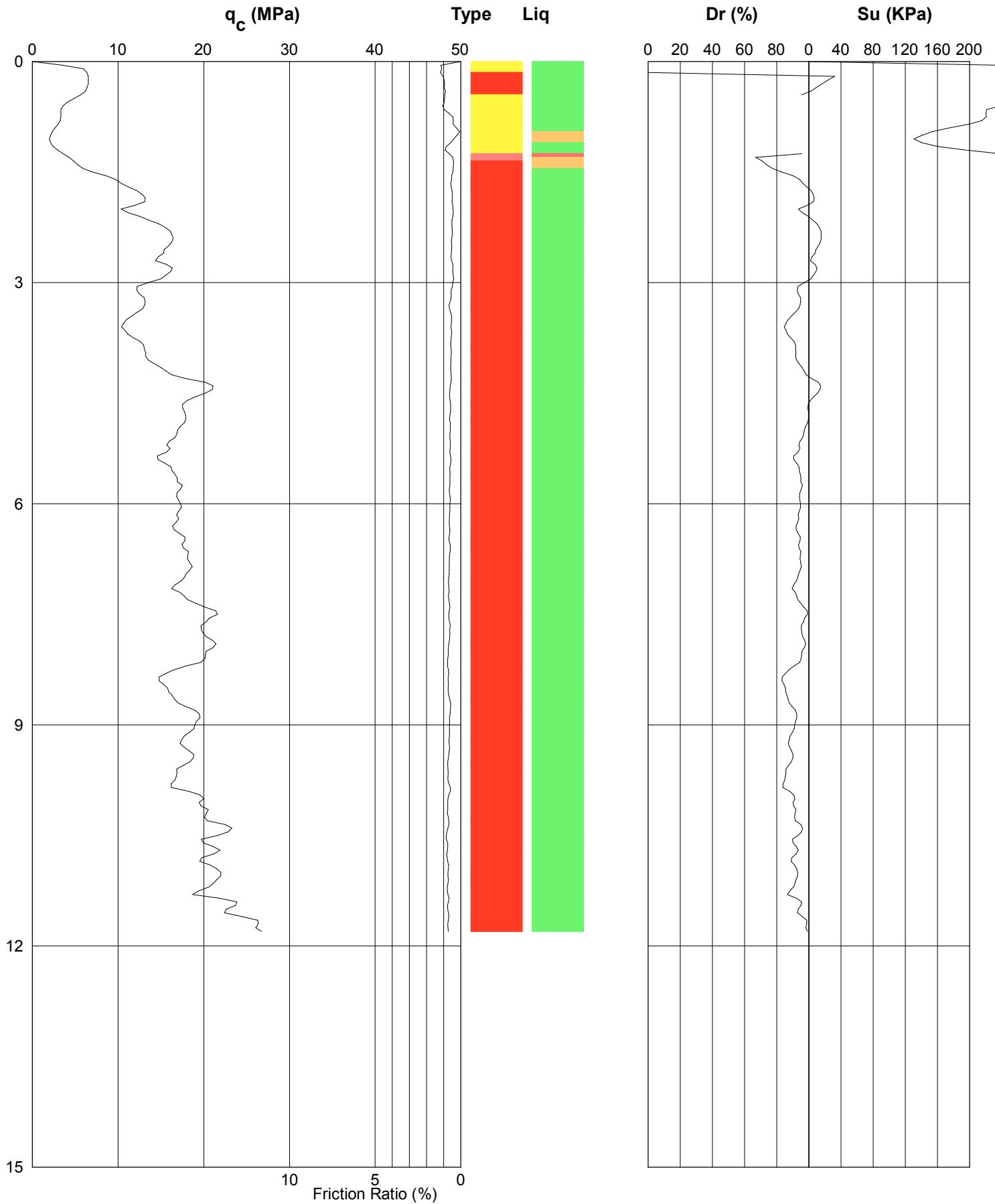
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT133

Project: Aurecon NZ Ltd

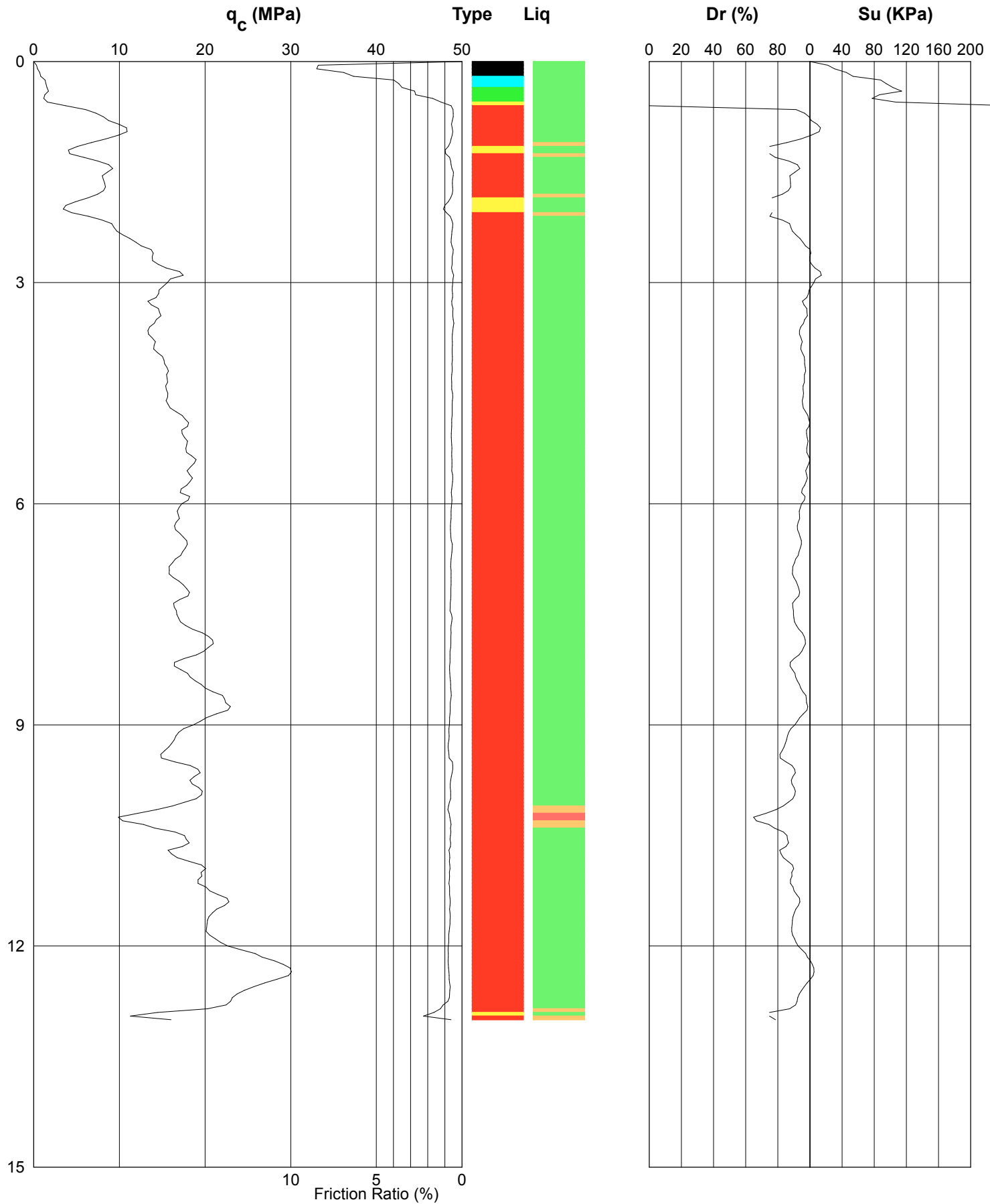
Location: Prestons Subdivision, Christchurch

Date: 30-1-2012

Operator: N Barnes

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT134

Project: Aurecon NZ Ltd

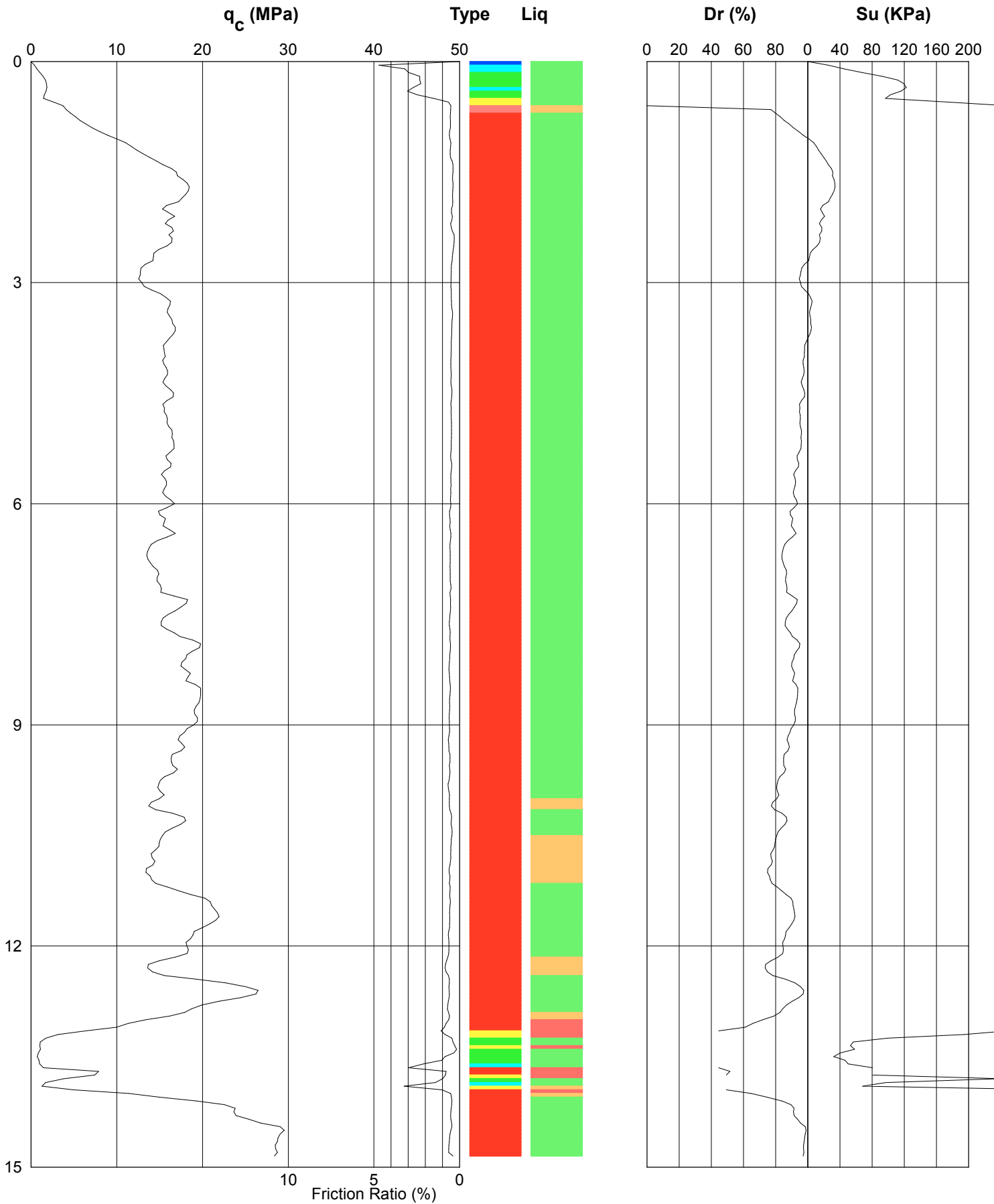
Location: Prestons Subdivision, Chistchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Effective Refusal

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT135

Project: Aurecon NZ Ltd

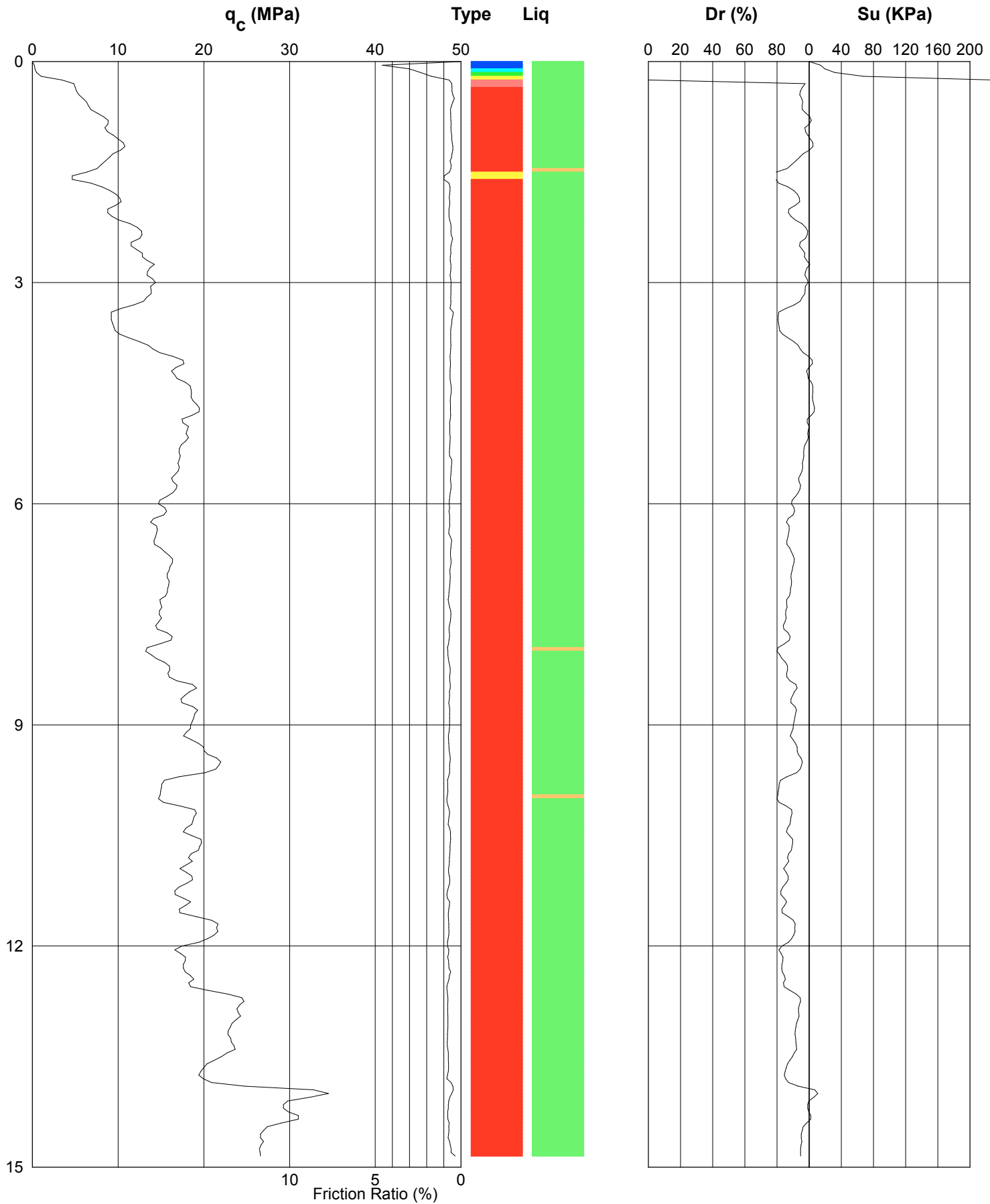
Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT136

Project: Aurecon NZ Ltd

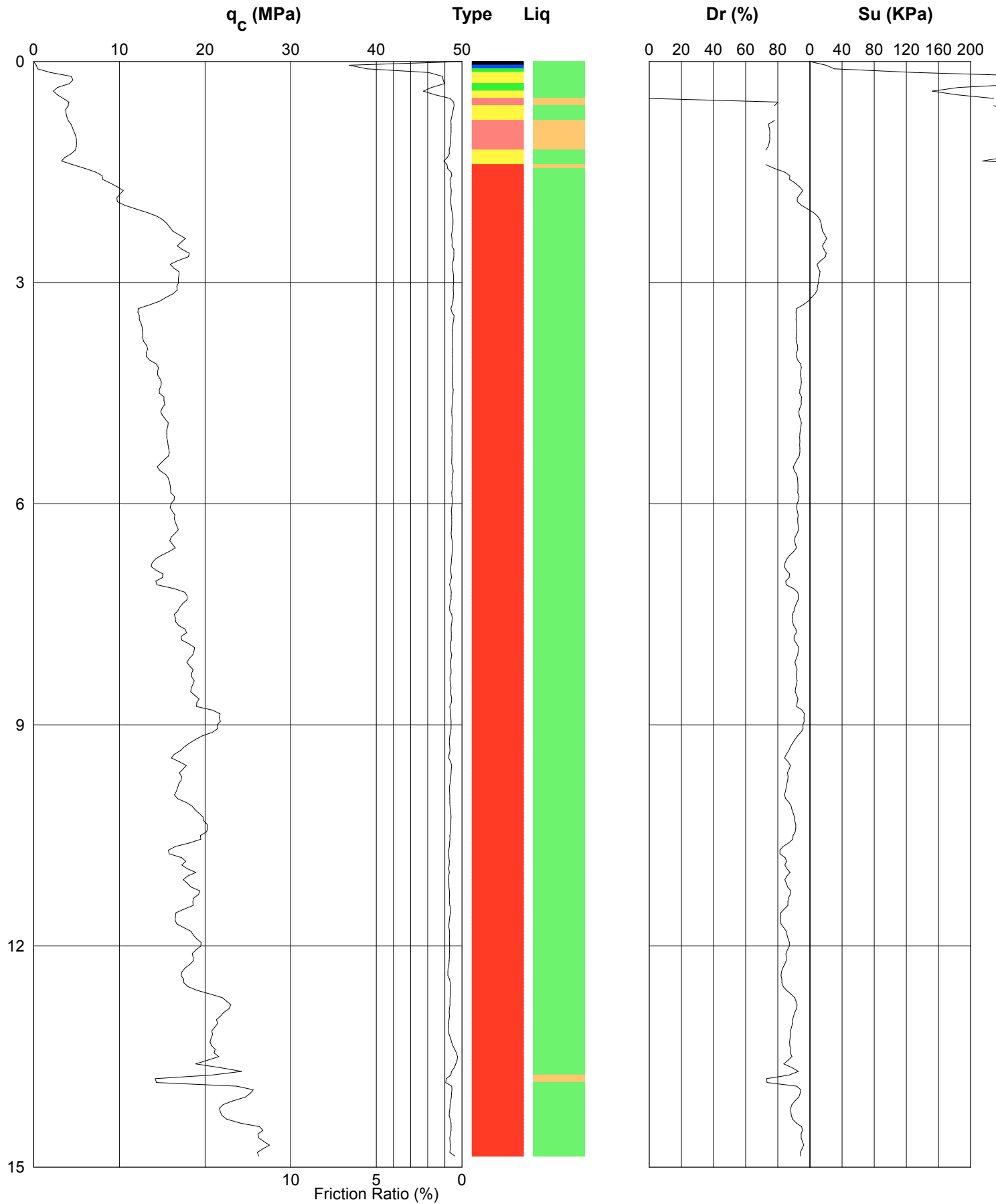
Location: Prestons Subdivision, Chistchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT

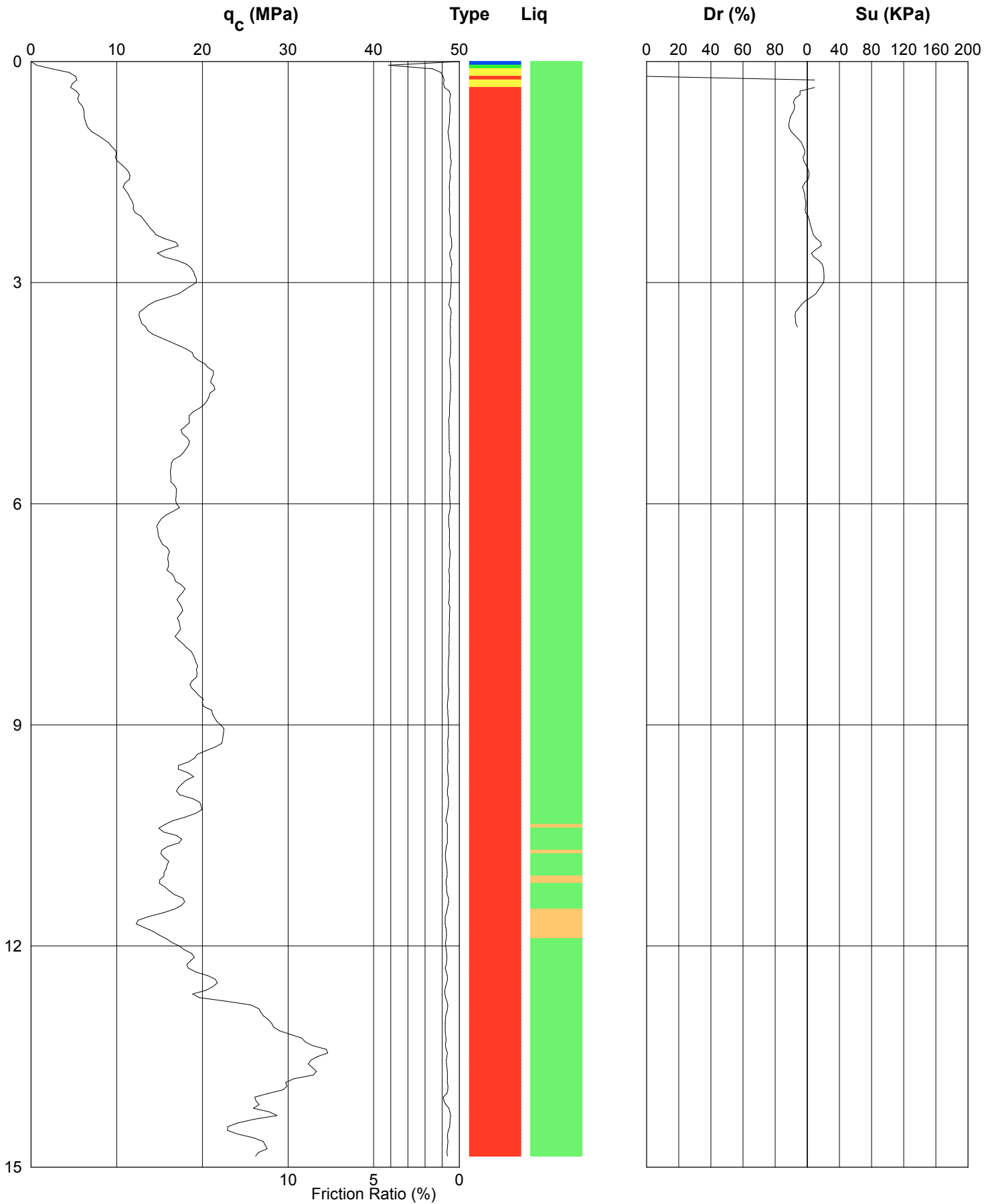


Job No: 10071
 CPT No: CPT137
 Project: Aurecon NZ Ltd
 Location: Prestons Subdivision, Christchurch

Date: 1-03-2012
 Operator: B. Powell
 Remark: Target Depth



PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT138

Project: Aurecon NZ Ltd

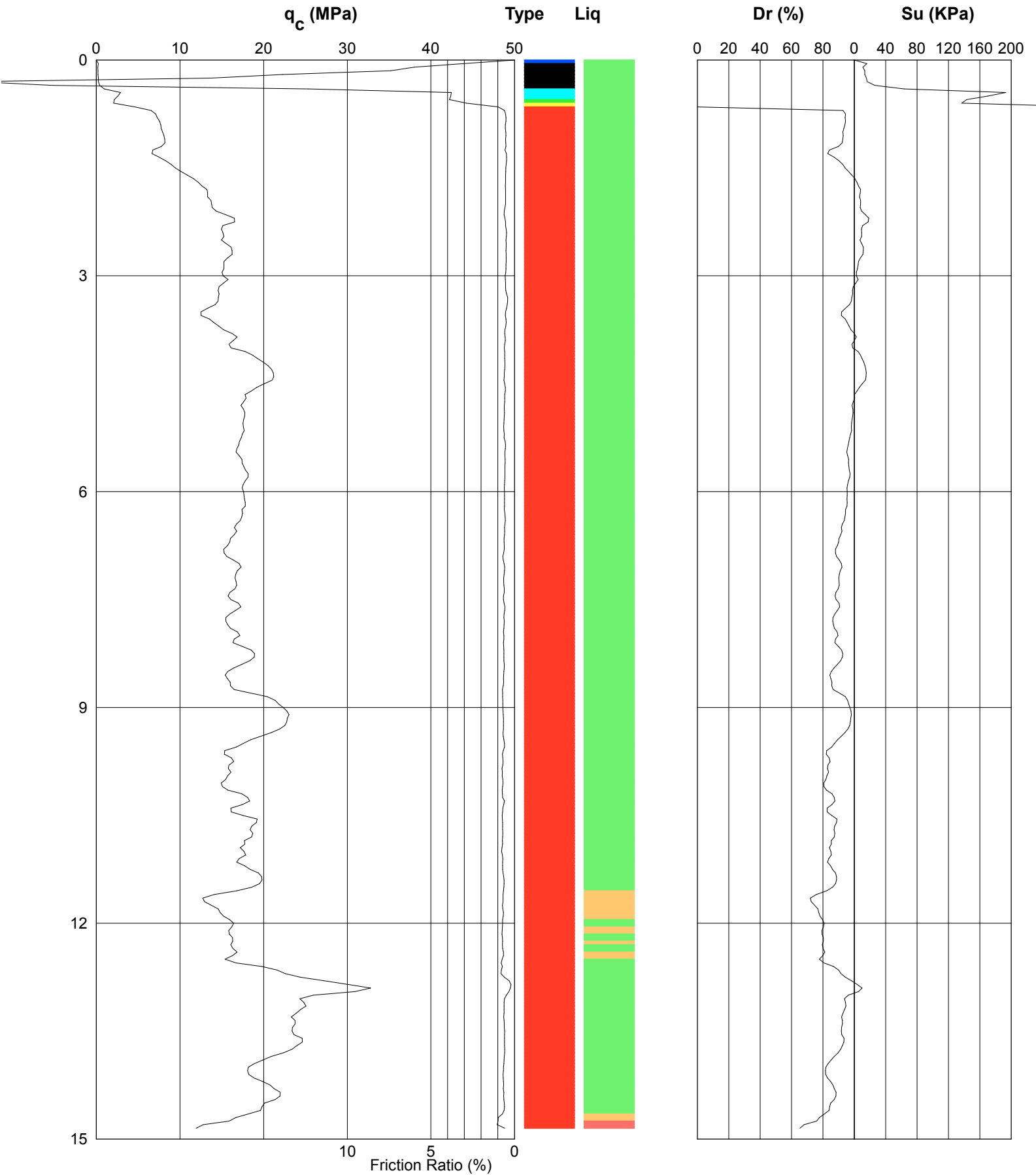
Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT139

Project: Aurecon NZ Ltd

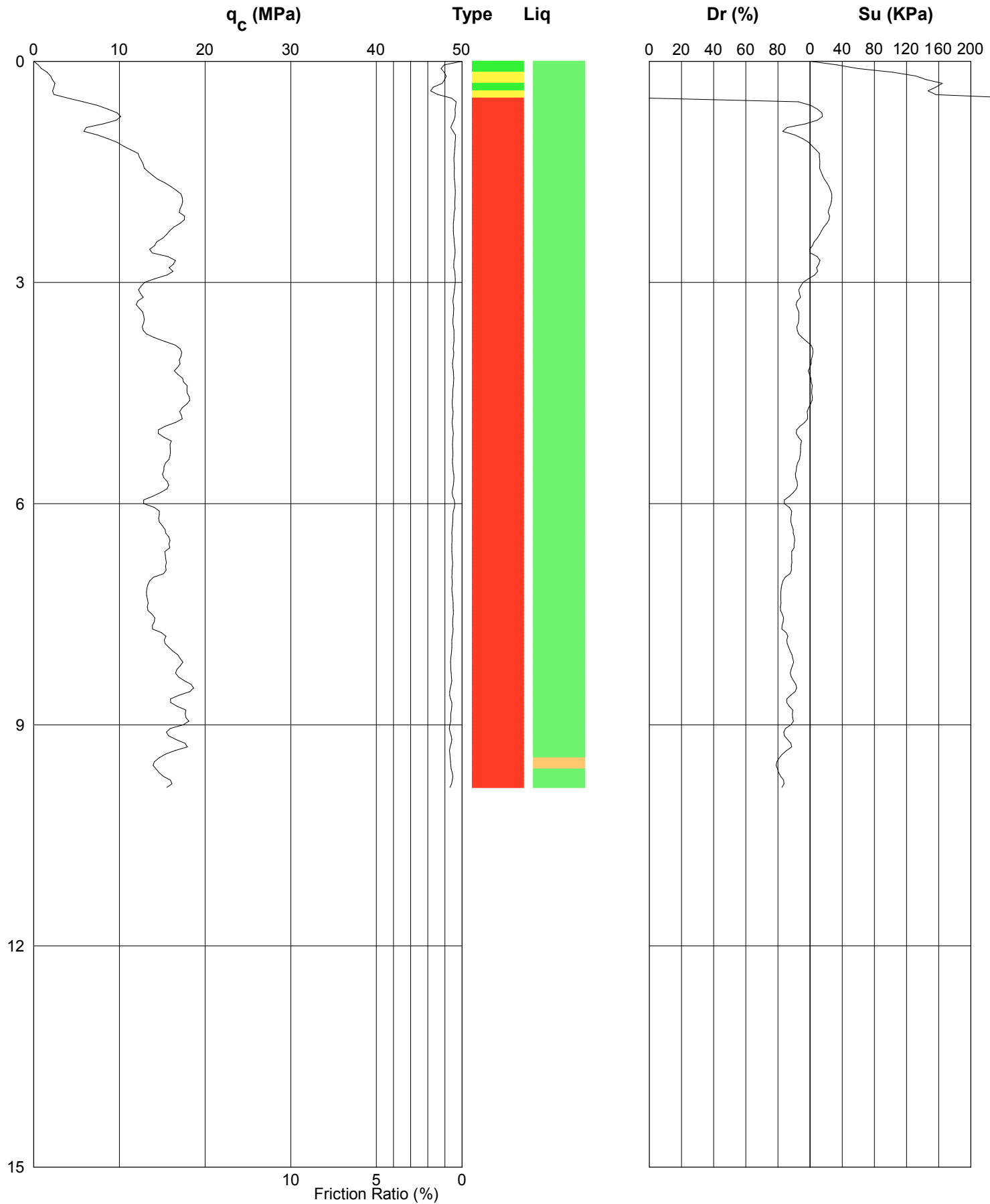
Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT140

Project: Aurecon NZ Ltd

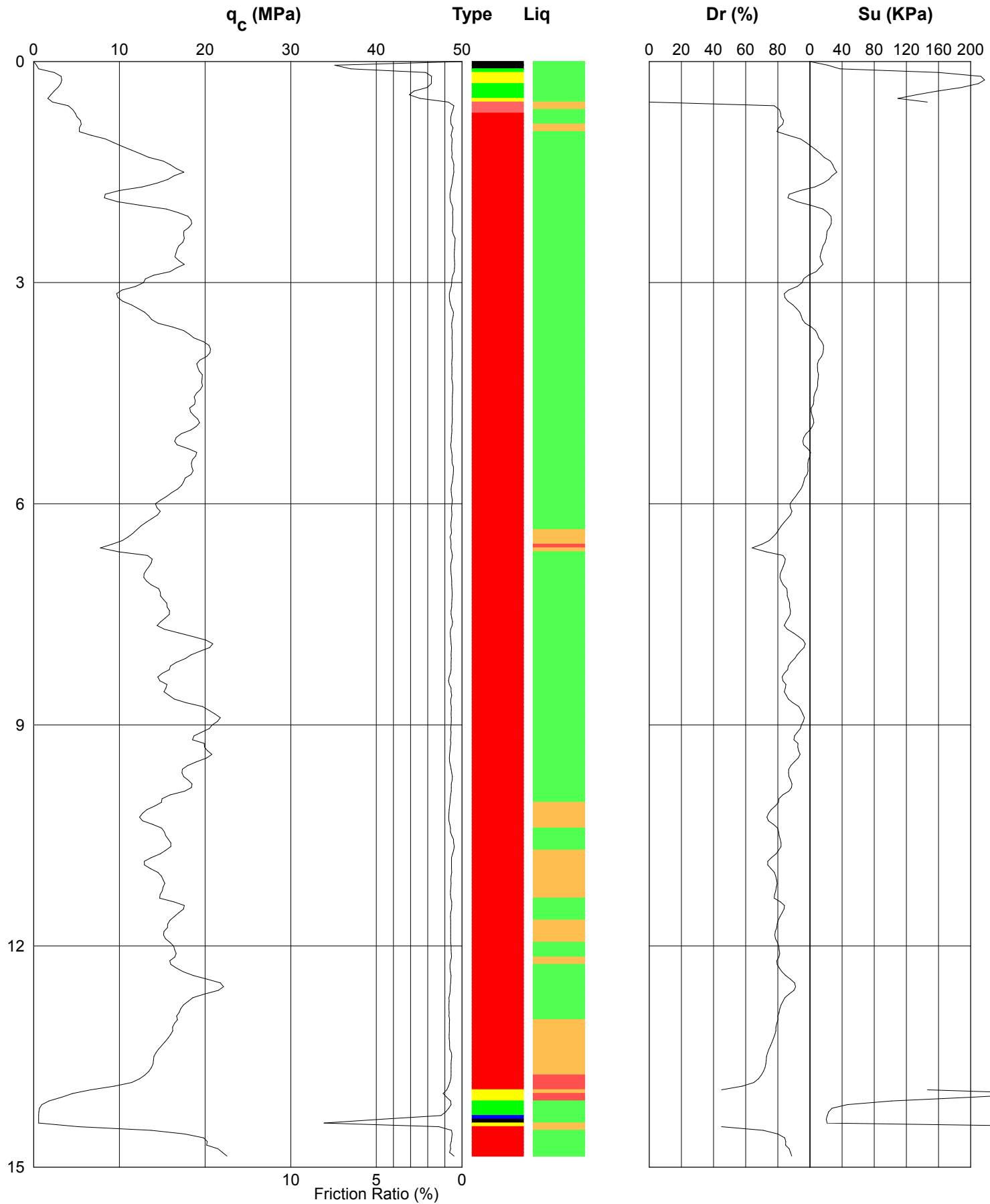
Location: Prestons Subdivision, Christchurch

Date: 2-02-2012

Operator: N Barnes

Remark: Effective Refusal

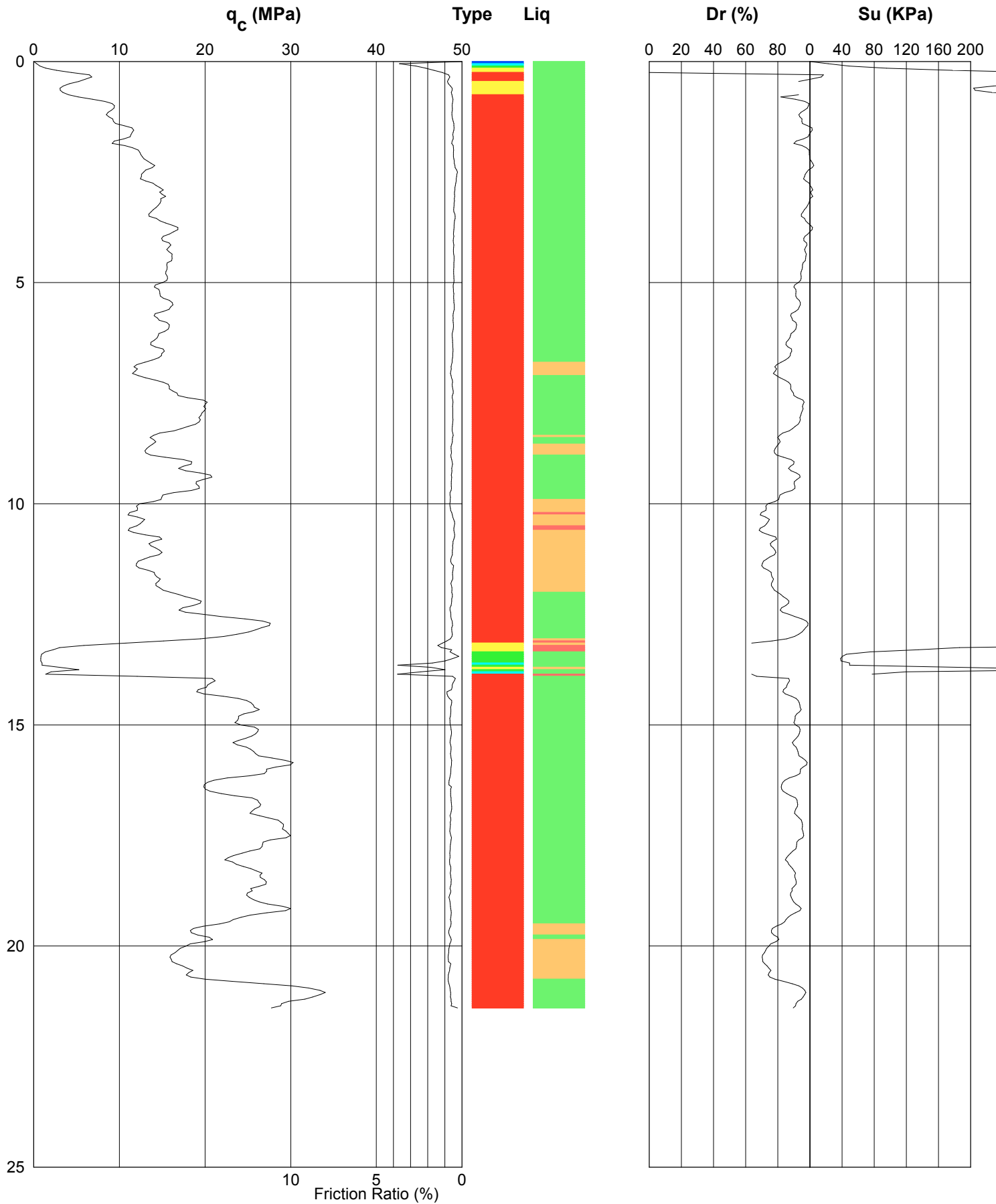
PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071
 CPT No: CPT141
 Project: Aurecon NZ Ltd
 Location: Prestons Subdivision, Christchurch

Date: 1-03-2012
 Operator: B. Powell
 Remark: Target Depth

PIEZOCONE PENETROMETER TEST (CPTU) INTERPRETIVE REPORT



Job No: 10071

CPT No: CPT179

Project: Aurecon NZ Ltd

Location: Prestons Subdivision, Christchurch

Date: 1-03-2012

Operator: B. Powell

Remark: Effective Refusal

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:

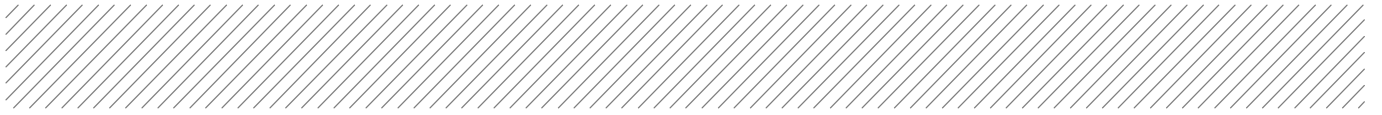


- Cost effective;
- Sizes 350mm to 900mm and 19m depth;
- Fast (150m of 600mm diameter reinforced concrete pile can be installed per day);
- Lateral load capacity of RC piles exceed some other piling methods;
- Quiet & vibration free;
- Fully reinforced concrete piles, with no corrosion issues.

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

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573076 m Northing: 5185204 m Ground Level: 11.75 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets. Dark Brown. Moist. Low plasticity.	
						0.50 SILT with minor roots and tree matter; Light grey. Moist. Firm. Low plasticity. Tree branch @ 0.5m.	11
1.0						0.80 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	
1.5							10
2.0							
2.5							
3.0						2.80 SAND; Light brown grey. Dense. Wet. Fine to medium grained. @ 3.0m Groundwater table	9
						3.00 End of Test Pit at 3m (Pit Collapse)	
3.5							8
4.0							
4.5							7

Remarks:
 Tree branch @ 0.5m.
 Groundwater seepage encountered @ 1.2m.
 Groundwater table @ 3.0m

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573276 m Northing: 5185220 m Ground Level: 13.53 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity.	
1.0						0.50 SAND with minor rootlets; Light brown grey with orange and brown mottling. Loose to medium dense. Moist. Fine to medium grained.	13
1.5						1.60 PEAT silty with some roots and rootlets; Light brown. Firm. Wet. Low plasticity.	12
2.0		▼				1.70 SAND; Light blue grey. Dense. Wet. Fine to medium grained.	
3.0						3.30 End of Test Pit at 3.3m (Pit Collapse)	

Remarks:

Groundwater seepage encountered @ 2.1m.
 Bulk sample taken @ 1.5m.
 Standpipe installed @ roughly 3.3m

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573168 m Northing: 5185312 m Ground Level: 16.23 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity.	16
1.0						SAND with minor rootlets; Light brown yellow with orange brown mottling. Loose. Moist. Fine to medium grained.	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							
4.5							

Remarks:
No groundwater encountered

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573367 m Northing: 5185328 m Ground Level: 13.59 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist.	13
1.0						SAND; Light brown grey. Medium dense. Moist. Fine to medium grained.	12
1.5							
2.0						PEAT sandy silt with some roots; Dark Brown. Moist. Low plasticity.	
2.5						SAND with some silt; Light blue grey. Moist. Fine to medium grained.	
3.0						PEAT sandy with some roots and rootlets; Dark brown. Firm. Low Plasticity. Fibrous.	
3.5						SAND; Light brown grey. Moist. Fine to medium grained.	11
4.0						End of Test Pit at 3.3m (Pit Collapse)	10
4.5							9

Remarks:
No groundwater encountered

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK







TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573567 m Northing: 5185343 m Ground Level: 13.59 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets and minor medium sand; Dark brown. Moist. Low plasticity	
						0.40 SAND with minor rootlets; Light brown yellow with orange brown mottling. Loose. Moist. Fine to medium grained.	13
1.0						1.00 SAND; Light blue grey with some light brown mottling. Medium dense. Moist. Fine to medium grained.	
1.5							12
2.0						2.00 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	
2.5							11
3.0							
3.5						3.50 End of Test Pit at 3.5m (Pit Collapse)	10
4.0							
4.5							9

Remarks:
No groundwater encountered

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573061 m Northing: 5185404 m Ground Level: 18.14 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	18
1.0						SAND with minor rootlets; Light brown yellow. Loose. Moist. Fine to medium grained.	17
1.5							16
2.0							15
2.5							14
3.0						End of Test Pit at 3m (Pit Collapse)	13
3.5							12
4.0							11
4.5							10

Remarks: Bulk Sample taken @ 1.0m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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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	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low Plasticity.	13
						0.30 SAND; Light brown grey. Loose. Moist. Fine to medium grained.	
1.0						1.00 PEAT with minor roots and tree matter; Brown grey. Wet. Very soft. High Plasticity.	12
						1.10 SAND with some roots and rootlets; Light blue grey. Dense. Wet. Fine to medium grained.	
1.5		▼					
2.0						2.10 PEAT with some tree roots and branches; Brown. Wet. Firm. Fibrous.	11
						2.20 SAND; Light blue grey. Dense. Wet. Fine to medium grained.	
2.5							
3.0							
3.5						3.60 End of Test Pit at 3.6m (Pit Collapse)	
4.0							9
4.5							

Remarks:
Groundwater seepage encountered @ 1.5m

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573459 m Northing: 5185417 m Ground Level: 13.11 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	13
						0.40 SAND; Light brown grey. Loose to medium dense. Moist. Fine to medium grained.	
1.0		▼				1.00 PEAT with some roots and rootlets; Dark brown. Wet. Low plasticity. Fibrous.	12
						1.10 SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	
2.5		▼					
3.0		▼					
3.5						3.50 End of Test Pit at 3.5m (Pit Collapse)	
4.0							9
4.5							

Remarks: Groundwater seepage encountered @ 1.0m Groundwater seepage encountered @ 2.7m Groundwater table @ 3.0m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573152 m Northing: 5185511 m Ground Level: 13.3 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	13
1.0						SAND with some rootlets; Brown. Loose. Moist. Fine to medium grained.	12
1.5						PEAT silty with some rootlets; Light brown. Soft. Wet. Low plasticity.	11
2.0						SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	10
2.5		▼					9
3.0							8
3.5						End of Test Pit at 3.5m (Pit Collapse)	7
4.0							6
4.5							5

Remarks: Groundwater seepage encountered @ 2.4m Standpipe installed @ roughly 3.5m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573551 m Northing: 5185543 m Ground Level: 12.82 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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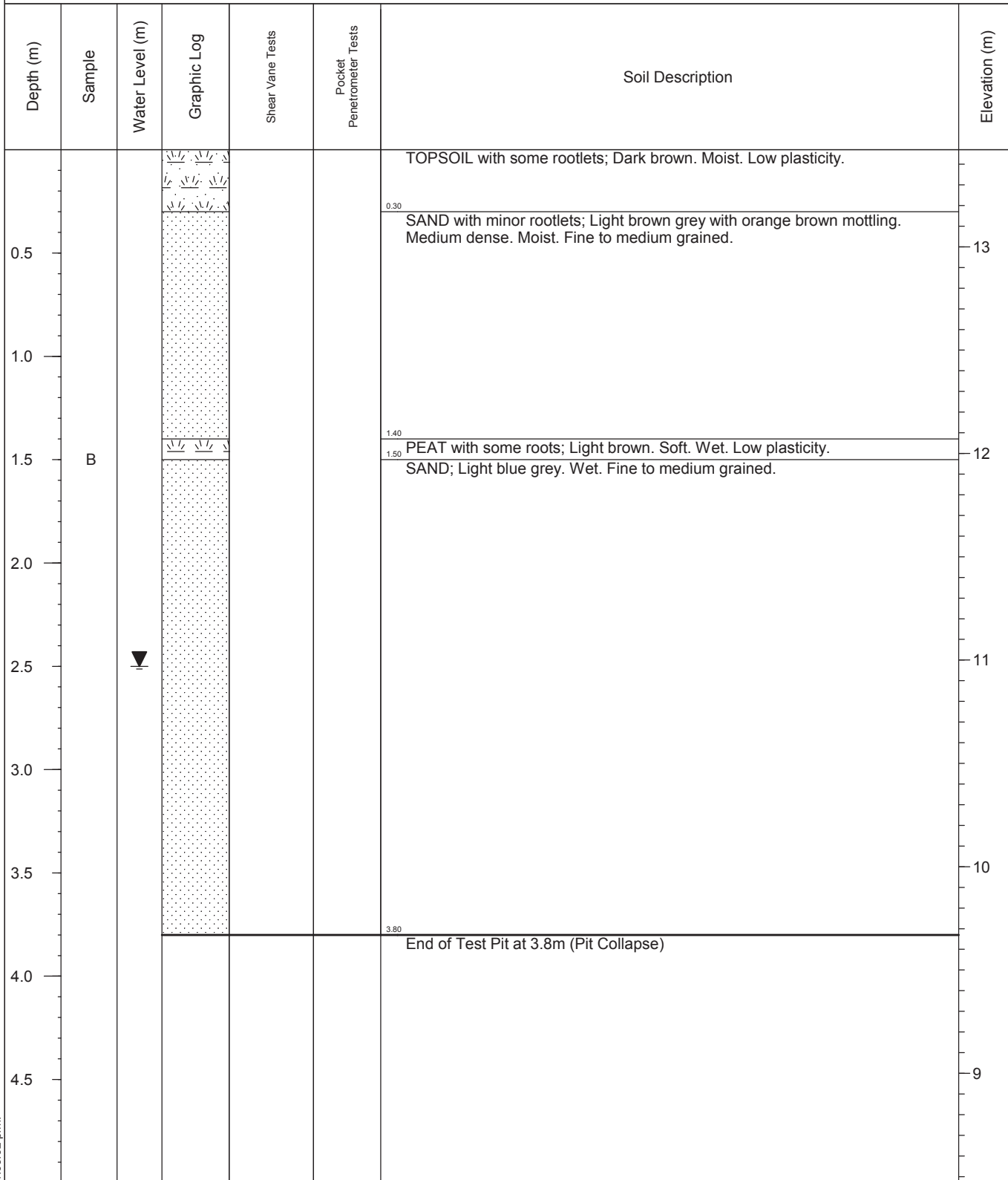
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	12
0.90						SAND; Light brown grey. Loose to medium dense. Moist. Fine to medium grained.	
1.0						Silty SAND with some roots. Red brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	
1.30						PEAT with some tree branches and roots and minor silt; Brown. Wet. Low plasticity.	
1.50						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	11
2.0		▼					
3.5						End of Test Pit at 3.5m (Pit Collapse)	9
4.0							
4.5							8

Remarks:

Groundwater seepage encountered @ 2.0m
 Standpipe installed @ roughly 3.5m

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573144 m Northing: 5185611 m Ground Level: 13.47 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Remarks: Bulk Sample taken @ 1.5m Groundwater Seepage @ 2.5m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573244 m Northing: 5185619 m Ground Level: 12.9 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	12
1.0		▼				SAND with some roots and tree matter; Light brown grey. Loose. Moist. Fine to medium grained.	11
1.5						PEAT with some tree roots and branches and minor silt; Brown grey. Soft. Saturated. Low plasticity.	10
2.0						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	9
3.0							
3.5							
4.0						End of Test Pit at 3.8m (Pit Collapse)	8

Remarks: Groundwater seepage encountered @ 1.1m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573037 m Northing: 5185703 m Ground Level: 13.48 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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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.	13
1.0						SAND with some gravel; Light brown. Very dense. Moist. Sand fine to medium grained. Gravel fine grained. Sub rounded.	12
1.5						SAND with some gravel; Light brown grey with orange brown mottling. Moist. Dense. Sand fine to medium grained. Gravel fine grained and sub-rounded.	
2.0						PEAT with some tree roots and minor silt; Dark brown. Saturated. Organic. Low Plasticity. Fibrous.	
2.5		▼				SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	11
3.0						PEAT with some tree roots and minor silt; Dark brown. Medium dense. Saturated. Low Plasticity. Fibrous. Organic.	
3.5						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	10
4.0						End of Test Pit at 3.6m (Pit Collapse)	9

Remarks: Groundwater seepage encountered @ 2.5m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573137 m Northing: 5185711 m Ground Level: 13.03 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity. 0.20 SILT with some rootlets; Light grey brown. Dry. Very stiff. Non Plastic. Friable. 0.50 SAND; Light brown grey with orange brown mottling. Loose to medium dense. Moist. Fine to medium grained. 0.90	13
1.0						PEAT with some tree roots and minor silt; Brown grey. Wet. Organic. Low Plasticity. Fibrous. 1.10 SAND with some roots and tree branches; Light blue grey. Medium dense. Wet. Fine to medium grained. 2.20	12
2.0						PEAT with some tree roots and minor silt; Dark brown. Wet. Organic. Low Plasticity. Fibrous. 2.40 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained. 3.00	11
3.0						End of Test Pit at 3m (Pit Collapse)	10

Remarks: Groundwater seepage encountered @ 0.9m Groundwater seepage encountered @ 2.2m Groundwater Table @ 3.0m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573336 m Northing: 5185726 m Ground Level: 12.92 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	
1.0		▼				0.40 SAND with some rootlets; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	12
1.5						1.10 PEAT with some roots and minor silt; Dark brown. Wet. Low plasticity.	
2.0						1.30 SAND with minor rootlets; Light blue grey. Wet. Medium dense. Fine to medium grained.	11
3.5		▼				3.50 End of Test Pit at 3.5m (Pit Collapse)	9
4.0							8

Remarks:
Groundwater seepage encountered @ 3.5m

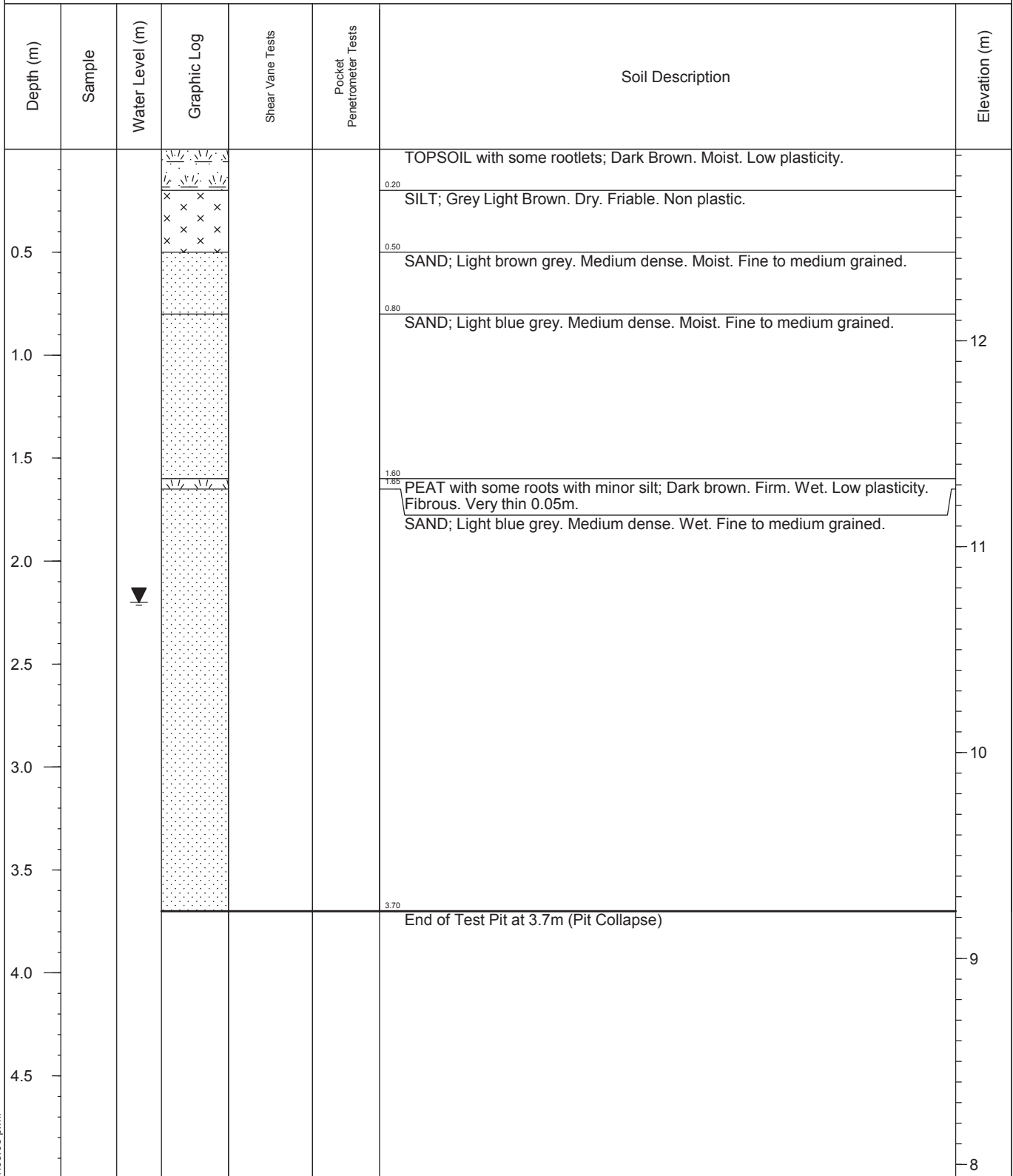
Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573436 m Northing: 5185734 m Ground Level: 13.43 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)	
0.5	B	▼				TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity. 0.30 SILT; Light grey brown. Hard. Dry. Non Plastic. Friable. 0.60	13	
1.0						SAND; Light brown grey with orange brown mottling. Medium Dense. Moist. Fine to medium grained.		
1.5						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	1.50	12
2.0						PEAT with some roots with minor silt; Dark brown. Firm. Wet. Low plasticity. Fibrous. 1.70 SAND: Grey light brown. Medium dense. Wet. Fine to medium grained. 1.90		
2.5								11
3.0								10
3.70						End of Test Pit at 3.7m (Pit Collapse)	9	

Remarks: Bulk sample taken @ 1-2m Groundwater Seepage @ 1.7m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573635 m Northing: 5185750 m Ground Level: 12.93 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Remarks: Bulk sample taken @ 2.0m Peizo installed at roughly 3.7m Groundwater Seepage @ 2.2m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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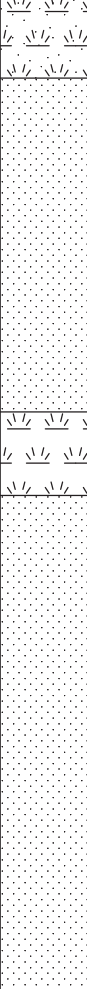
TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573834 m Northing: 5185765 m Ground Level: 11.8 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (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.	
						0.40 SAND; Light grey brown with orange brown mottling. Medium dense. Moist. Fine to medium grained.	11
1.0						0.90 SAND; Light grey brown. Firm. Medium dense. Moist. Fine to medium grained.	
1.5	B					1.30 PEAT sandy with some roots and tree branches; Brown. Wet. Low plasticity. 1.40 SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	10
2.0							
2.5							
3.0						3.00 End of Test Pit at 3m (Pit Collapse)	9
3.5							8
4.0							7
4.5							

Remarks:
 Bulk sample taken @ 1.5m
 Groundwater Seepage @ 1.4m

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573129 m Northing: 5185810 m Ground Level: 13.22 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	13
1.0						SAND with some rootlets; Light grey brown with orange brown mottling. Medium dense. Moist. Fine to medium grained.	12
1.5						PEAT silty with some roots; Dark brown. Firm. Moist. Low plasticity. Fibrous.	11
2.0						SAND; Light blue grey. Medium dense. Moist. Fine to medium grained.	10
2.5							
3.0							
3.5							
4.0						End of Test Pit at 3.6m (Pit Collapse)	9
4.5							

Remarks: Groundwater seepage encountered @ 1.8m Groundwater seepage encountered @ 2.5m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573328 m Northing: 5185826 m Ground Level: 12.78 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5	B					TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity.	12
1.0						SAND; Light brown grey with orange brown mottling. Medium Dense. Moist. Fine to medium grained.	
1.5						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained	
2.0						PEAT with some roots with minor silt; Dark brown. Firm. Wet. Low plasticity. Fibrous.	
2.5						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained	11
3.5						End of Test Pit at 3.5m (Pit Collapse)	9


Remarks: Bulk Sample taken @ 1.0 - 1.5m Peizo installed at roughly 3.5m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573727 m Northing: 5185857 m Ground Level: 12.27 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						0.10 TOPSOIL with some rootlets; Dark Brown. Moist. Low plasticity	12
						PEAT with some roots with minor silt; Dark brown. Soft. Wet. Low plasticity. Fibrous.	
						0.40 SAND; Light brown grey with orange brown mottling. Moist. Medium dense. Fine to medium grained.	
1.0						1.00	
						1.10 PEAT; Dark brown. tree branches and roots.	
						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	11
1.5						1.40	
						PEAT with some roots and tree branches; Dark brown. Soft. Wet. Low plasticity. Fibrous.	
2.0						2.00	
						SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	10
2.5							
3.0							
3.5						3.50	
						End of Test Pit at 3.5m (Pit Collapse)	9
4.0							8
4.5							

Remarks: Groundwater seepage encountered @ 1.2m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573827 m Northing: 5185863 m Ground Level: 12.09 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5	B					TOPSOIL with some roots and minor silt; Dark brown. Moist. Low plasticity.	12
1.0						0.30 SAND with some roots; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	
1.5						1.00 PEAT with some roots and tree matter and minor silt. Dark brown grey. Wet. Low plasticity.	11
2.0						1.30 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	10
3.0						3.00 End of Test Pit at 3m (Pit Collapse)	9
3.5							8
4.0							8
4.5							8

Remarks: No groundwater encountered	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573221 m Northing: 5185918 m Ground Level: 12.94 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	
0.5						0.40 SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	12
1.0						1.20 PEAT with some tree roots and minor silt; Dark brown. Soft. Saturated. Low Plasticity. Spongy.	
1.5		▼				1.50 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	11
2.0							10
2.5							
3.0						3.00 End of Test Pit at 3m (Pit Collapse)	8
3.5							
4.0							9
4.5							

Remarks:
Groundwater seepage encountered @ 1.5m

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573420 m Northing: 5185933 m Ground Level: 12.77 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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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. Wet. Low plasticity.	12
						0.40 SAND; Light grey brown with orange brown mottling. Loose to medium dense. Moist. Fine to medium grained.	
1.0						1.20 SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	11
1.5						2.70 End of Test Pit at 2.7m (Pit Collapse)	10
2.0							
2.5							
3.0							
3.5							
4.0							
4.5							

Remarks: Groundwater seepage encountered @ 0.4m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573312 m Northing: 5186986 m Ground Level: 13.32 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>TOPSOIL with some silty sand; Dark brown. Firm. Wet. Organic. Low plasticity</p> <p>0.30</p> <p>SAND; Light grey brown with orange brown mottling. Loose. Wet. Fine to medium grained.</p> <p>0.80</p> <p>SAND; Dark brown. Loose. Saturated. Fine grained.</p> <p>0.90</p> <p>@ 0.9m PEAT with some silt; Dark brown grey. Firm. Wet. Low plasticity. 20mm thick.</p> <p>SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.</p>	13
1.0							12
2.0						<p>2.00</p> <p>PEAT with some tree roots and minor silt; Dark brown. Firm. Moist. Low plasticity.</p> <p>2.20</p> <p>SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.</p>	11
3.0						<p>3.00</p> <p>End of Test Pit at 3m (Pit Collapse)</p>	10

Remarks:
No groundwater encountered

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573512 m Northing: 5186041 m Ground Level: 12.76 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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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. Wet. Organic. Low plasticity.	
						0.50 SAND; Light grey brown with orange brown mottling. Loose to medium dense. Wet. Fine to medium grained.	12
1.0		▼				1.00 PEAT with some tree branches and tree roots; Dark brown. Firm. Wet. Low plasticity.	
						1.10 SAND; Dark grey blue. Medium Dense. Wet. Fine to medium grained.	11
2.80						End of Test Pit at 2.8m (Pit Collapse)	10

Remarks: Groundwater seepage encountered @ 0.5m Groundwater seepage encountered @ 1.1m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573604 m Northing: 5186148 m Ground Level: 12.41 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	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.	12
1.0						SAND; Light brown grey with orange brown mottling. Medium dense. Wet. Fine to medium grained. @ 0.8m Tree roots.	
1.5						SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	11
2.0							10
2.5							9
3.0						End of Test Pit at 2.9m (Pit Collapse)	8

Remarks: Groundwater seepage encountered @ 1.2m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573006 m Northing: 5186101 m Ground Level: 13.53 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	13
1.0						0.30 SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	
1.5		▼				1.60 PEAT some tree roots and minor silt; Dark brown. Wet. Low plasticity. Fibrous. Organic.	12
2.0						1.90 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	
2.5		▼					11
3.0						3.30 End of Test Pit at 3.3m (Pit Collapse)	10
3.5							9
4.0							
4.5							

Remarks:

Groundwater seepage encountered @ 1.6m
 Groundwater seepage encountered @ 2.5m





Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK

TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573105 m Northing: 5186109 m Ground Level: 12.99 m	Date Started: 4/08/2011 Date Completed: 4/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	
1.0						0.30 SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	12
1.5						1.30 1.40 PEAT with some tree roots and minor silt; Dark brown. Wet. Soft. Low plasticity. SAND with some roots and rootlets; Light blue grey. Medium dense. Wet. Fine to medium grained.	
2.0						2.00 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	11
3.5						3.50 End of Test Pit at 3.5m (Pit Collapse)	

Remarks: Groundwater seepage encountered @ 1.3m Standpipe installed @ roughly 3.5m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573416 m Northing: 5186133 m Ground Level: 12.83 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL minor silty sand; Dark brown. Moist. Organic. Sand fine to medium grained. Low plasticity.	
0.5						0.30 SAND; Light grey brown with orange brown mottling. Medium dense. Wet. Fine to medium grained.	
1.0		▼				@1.5m Tree branches.	12
1.5						1.80 SAND; Dark grey blue. Medium dense. Moist. Fine to medium grained.	11
2.0							
2.5							
3.0						2.80 End of Test Pit at 2.8m (Pit Collapse)	10
3.5							
4.0							9
4.5							8

Remarks: Groundwater seepage encountered at 0.9m Tree branches encountered @ 1.5m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573297 m Northing: 5186225 m Ground Level: 13.27 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL silty with some sand; Dark brown. Moist. Sand medium grained. Low plasticity	13
						0.40 SAND; Light grey brown. Medium dense. Wet. Fine to medium grained.	
1.0						1.20 PEAT with some silt; Dark brown grey. Firm. Wet. Low plasticity	12
						1.30 SAND; Dark grey blue. Medium dense. Fine to medium grained.	
1.5							
2.0							
2.5							
3.0						2.80 End of Test Pit at 2.8m (Pit Collapse)	
3.5							
4.0							
4.5							

Remarks: No groundwater encountered	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573389 m Northing: 5186332 m Ground Level: 12.49 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some sand and minor silt; Dark brown. Wet. Saturated at 0.3m. Sand medium grained. Low plasticity.	12
1.0						SAND with some tree branches and organics; Light grey brown. Wet. Medium dense. Fine to medium grained.	11
1.5						SAND with some tree branches and roots; Light blue grey. Medium dense. Wet. Fine to medium grained.	10
2.0						End of Test Pit at 2.9m (Pit Collapse)	9
2.5							8
3.0							7
3.5							6
4.0							5
4.5							4

Remarks: No groundwater encountered	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 5t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573181 m Northing: 5186416 m Ground Level: 13.45 m	Date Started: 24/08/2011 Date Completed: 24/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with silty SAND and some rootlets; Dark brown. Firm. Moist. Low plasticity.	13
1.0						0.40 SAND; Light grey brown with orange brown mottling. Medium dense. Moist. Fine to medium grained.	12
1.5						1.70 PEAT silty with some roots and rootlets; Dark brown. Stiff. Wet. Low plasticity. Fibrous.	11
2.0						2.00 SAND; Dark grey blue. Medium dense. Wet. Fine to medium grained.	9
2.5							
3.0						3.00 End of Test Pit at 3m (Pit Collapse)	
3.5							
4.0							
4.5							

Remarks: Groundwater seepage encountered at 1.7m	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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TEST PIT INFORMATION Excavator Type: 25t Excavator Test Pit Dimensions: Contractor:	CO-ORDINATES NZTM Easting: 1573205 m Northing: 5186117 m Ground Level: 13.38 m	Date Started: 3/08/2011 Date Completed: 3/08/2011	Logged by: MHD Input by: MHD Checked by: JSM Verified by: JK
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Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						TOPSOIL with some rootlets; Dark brown. Moist. Low plasticity.	13
						0.40 SAND; Light brown grey with orange brown mottling. Medium dense. Moist. Fine to medium grained.	
1.0						0.90 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.	12
1.5						1.70 PEAT some tree roots and minor silt; Dark brown. Soft. Wet. Low plasticity.	
2.0						2.00 SAND; Light blue grey. Medium dense. Wet. Fine to medium grained.	11
2.5							
3.0						3.00 End of Test Pit at 3m (Pit Collapse)	10
3.5							
4.0							
4.5							9

Remarks:
Bulk Sample taken @ 1.5m

Logged by: MHD
 Input by: MHD
 Checked by: JSM
 Verified by: JK