Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Project Reference: 224926 Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP31

Sheet 1 of 1

CO-ORDINATES OD New Zealand TM Easting: 1548399 m Northing: 5172058 m Ground Level: N/A TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

Date Started: 9/28/2011 Date Completed: 9/28/2011

SILT minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, molet, low plasticity, rootlets to sandy GRAVEL with minor sit, sand is fine to coarse grained and well graded, grave is fine to coarse grained, subrounded to rounded and well graded, grave is fine to coarse grained, subrounded to rounded and well graded, grave and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. 1.0 -	Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
becomes brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit. becomes with cobbles present in the soil matrix to the base of the test pit.	0.5						sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding.	
1.5 -	1		- And Control of the				becomes brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit.	
Emarks: Concept Conce	2.0							
End of Test Pit at 4m (TARGET DEPTH ACHIEVED) Semarks: Logged by: RS Input by: RS Checked by: RJH	-							
End of Test Pit at 4m (TARGET DEPTH ACHIEVED) 5 - Logged by: RS Input by: RS Checked by: RJH	.5 -							
Remarks: Logged by: RS Input by: RS Checked by: RJH	.0 —			7			End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
Input by: RS Water Table Not Encountered Checked by: RJH	·.5 –					777777777777777777777777777777777777777		Andrews
1 5			I	ered	***************************************		Input by: RS Checked by: RJH	1

Aureon (Hew Zealand) Limited
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Email: drinkfulturch@ap.aurezongroup.com

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston Sheet 1 of 1

Enter PTT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easling: 1548361 m Northing: 5172034 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH

TP32

Depth (m)	Sample Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt.	
.0 —				1	becomes brownish grey becomes with cobbles present in the soil matrix to the base of the test pit.	
5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
.0 –						
.5 -						110000
.0 —	***************************************					
.5 -						
.0 -					End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
1.5 -						
Remarks: Water Tab	ele Not Enc	ountered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
					verified by. There	

Aurecon (New Zasland) Limited
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Telephone: 164 3 366 0831
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CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

TP33

Sheet 1 of 1

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

Ground Level: N/A

CO-ORDINATES OD New Zealand TM Easting: 1548273 m Northing: 5171976 m Date Started: 9/28/2011 Date Completed: 9/28/2011

Logged by: RS Input by: RS Checked by: RJH

 $\widehat{\mathbf{E}}$ ests Elevation (m) Vane Tests Graphic Log \mathbb{E} Water Level Pocket Penetrometer T Soil Description Depth (Shear SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke 0.5 gravels. becomes greyish brown. becomes with cobbles present in the soil matrix to the base of the test pit. 1.0 1.5 2.0 2.5 3.0 Database File: 224926_TESTPITS.GPJ, Library: COPY OF CHCHLIBRARY MARKS 3,5 4.0 End of Test Pit at 4m (TARGET DEPTH ACHIEVED) 4.5 11/1/2011 9:34:10 AM Logged by: RS Input by: Checked by: RS RJH Generated: Water Table Not Encountered Verified by: **RJH**

CDL NZ Land Development Ltd Client:

Arrecon (New Zealand) United Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston
Project Reference: 224926
Email: districtorial plant arrecomprosprosp.com

Sheet 1 of 1

TP34

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548356 m Northing: 5171910 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -					-100	SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt.	7
.0 -						becomes greyish brown.	
5 -							
0 -							
5 -	1						
.0 -							
.5							
.0 —						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
1.5			en de la companya de				
Remarks: Water Tal		Encoun	tered	1		Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Project Reference: 224926

CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP35

Sheet 1 of 1

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548434 m Northing: 5171877 m Ground Level: N/A

Date Started: 9/28/2011 Date Completed: 9/28/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5		and the state of t	で 000000000000000000000000000000000000			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
1.5 -					4	becomes with cobbles present in the soil matrix to the base of the test pit. becomes brownish grey.	and the second s
1.5	a processor	1000			===0014		
i.0 —	, and the state of						
0.· 	- Included a second and a second a seco					End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5 —	Total Control of the	a constitution	The state of the s				
Remark Water T	ks:	Encour	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

Aurecon (New Zealand) Limited Unit 1, 150 Cavendish Rd PO 80X 1061

Client: CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

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Project Reference: 224926
CO-ORDINATES OD New Zealan

Sheet 1 of 1

TP36

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548409 m Northing: 5171802 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH Verified by:

Depth (m) Sample	Water Level (m) Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -				SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
5 -		The state of the s		becomes with cobbles present in the soil matrix to the base of the test pit. becomes brownish grey. Cobbles present to the base of the test pit.	1
.0.					
.5					
.0 -					
3.5					
1.0	0.000	a		End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5	And the second s				
1					

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Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Chiadhush 8140

New Zeeland

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Fassinie: +64 3 396 0825

Emait: christ-hurch@ap.aurecongroup.com **CDL NZ Land Development Ltd**

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP37

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548494 m Northing: 5171752 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011 9/29/2011

Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests		Soil Description		Elevation (m)
.5 -						dium grained poorly graded sand ravels, dark brown, moist, low plac ninor silt, sand is fine to coarse gra to coarse grained, subrounded to packed, moist, sub-horizontal be		
0 —					Brownish grey. Cobble	es present in the soil matrix to the	base of the test pit.	
5 -								
5 -								
.0 -								
.0 —					4.00 End of Test Pit at 4m	(TARGET DEPTH ACHIEVED)	lego.	
.5					and the state of t			
Remarks:							Logged by: RS Input by: RS Checked by: RJH	

Client: CDL NZ Land Development Ltd
Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Chiedarch 6140
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Email: chiedarch@go.aurcomgoup.com
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Telephone: 464

TP38

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548466 m Northing: 5171645 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Depth (m) Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
).5 -					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.3m. (TOPSOIL) sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
1.0					becomes brownish grey.	*****
1.5					becomes with cobbles present in the soil matrix to the base of the test pit.	
2.0	00000000					
2.5						
3.0						e della dell
3.5				***************************************		
4.0 —					End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5	001107					
Remarks:					Logged by: RS Input by: RS Checked by: RJH	

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Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP39

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548410 m Northing: 5171706 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
5			0000 0000 0000 0000			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.3m. (TOPSOIL) sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
.0						becomes brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit.	
.5					177		
.0 —							***************************************
2.5 - -							Alternative Control of the Control o
3.0 —							
3.5 -							
4.0 —	-					End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	
4.5 -			-				
Remark	ks:	t Encou	ntered		es es constantes de la constante de la constan	Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
=,						Verified by: Run Sheet	

Aureon (New Zealand) Limited
Und 1,190 Capendarh Rd
Project Name: Brookside
Location: Cnr Burnham Sc
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CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP40

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548344 m Northing: 5171833 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
1.5						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with minor silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
0						becomes with cobbles present in the soil matrix. becomes brownish grey.	eleccional dela della
5 -	and the control of th				mar variante de la companya de la co	becomes minor sand with no cobbles to 2.3m	
5 -						becomes sandy	as West and American
0					***************************************		
5 -					4		Massaddom:
0 -					- CALDINICOS AT THE THE	4.30 End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	
.5 -			**************************************				
temarks: Vater Tal		Encount	ered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

Aurecon (New Zealand) Limited
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Location: Cnr Burnham Sc
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Email: christchurch@sp.surrecongroup.com

Client: **CDL NZ Land Development Ltd**

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548498 m Northing: 5171846 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH

TP41

Depth (m)	Sample Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.3m. (TOPSOIL) sandy GRAVEL with minor to some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
0 -					becomes minor silt, brownish grey. becomes with cobbles present in the soil matrix to the base of the test pit.	
5 -						
o <u> </u>						
5 -						***************************************
.0 -	- Annahaya					
.5						
.0 —					End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
i.5 –	e de la lace			a strategy		
Remarks: Water Table	∋ Not Enco	untered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
					volling by. Trent	

Aurecon (New Zealand) Limited
Unit 1, 190 Casendish Rel
Project Name: Brookside
Location: Cnr Burnham Sc
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New Zealand
Telephone: 464 3 379 8955
Emait: dissichuschiglissau econyospi.com

CO-ORDINIATES OD New Zealand

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP42

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548605 m Northing: 5171721 m Ground Level: N/A

Date Started; 9/29/2011 Date Completed; 9/29/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
).5 –						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with minor to some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt.	
I.O —		- vi-				becomes with cobbles present in the soil matrix to the base of the test pit.	
1.5 -							
2.0 - - -							
2.5 -							
3.0 —	-						
3.5 -		- Victoria			*****		- Total Wall
4.0	-					End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	
4.5	-	***************************************					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Remarl	ks: Table Not	Encour	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	<u></u>
i						1	

Aureon (New Zealand) Limited
Und 1,190 Caendish Rd
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New Zealand
Telephone: #64 3 366 0021
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Client: **CDL NZ Land Development Ltd**

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP43

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548576 m Northing: 5171788 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
2.5 -						SILT, minor fine to medium grained poorty graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.3m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt, brownish grey, cobbles present in the soil matrix to the base of the test pit.	
4.5 -	T Treatment T	· · molecule				End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	
Remark Water T		t Encoun	tered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	•

Client: CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision

Aurocon (New Zealand) Unified
Unit 1, 150 Casendari Re
PO 807 1061
Chrischurch 8140
New Zealand
United United B140
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Project Name: Brooks Inde
Location: Cnr Burnham Sc
Project Reference: 224926
Project Reference: 224926

CO-ORDINATES OD New Zealand
1548642 m Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP44

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548642 m Northing: 5171737 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Sample Sample Water Level (m) Graphic Log	Pocket Penetrometer Tests	Soil Description	Elevation (m)
	SILT, minor fine to me grained subrounded of 0.5m. (TOPSOIL) sandy GRAVEL with graded, gravel is fine graded, brown. Tightle	edium grained poorly graded sand and trace fine gravels, dark brown, moist, low plasticity, rootlets to some silt, sand is fine to coarse grained and well to coarse grained, subrounded to rounded and well by packed, moist, sub-horizontal bedding, greywacke	
	becomes minor silt, becomes with cobble	prownish grey es present in the soil matrix to the base of the test pit.	
5 -			***************************************
5			
	420 End of Test Pit at 4.	2m (TARGET DEPTH ACHIEVED)	
4.0	End of Test Pit at 4.	2m (TARGET DEPTH ACHIEVED)	
4.0 — 6.0 0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	End of Test Pit at 4.	2m (TARGET DEPTH ACHIEVED) Logged by: R Input by: R	-S

Client: **CDL NZ Land Development Ltd** Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

Sheet 1 of 1

TP45

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548708 m Northing: 5171830 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Sample	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5	1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.5m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt.	
.0 —			4	becomes with cobbles present in the soil matrix to the base of the test pit. becomes brownish grey.	1.000
1.5					
2.0					
3.0 —					harter
3.5 -					
4.0		· · · · · · · · · · · · · · · · · · ·		End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	
4.5					
Remarks:				Logged by: RS Input by: RS Checked by: R	3

Aurecon (New Zealaud) Limited
Unit 1, 150 Casendish Rd
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Contactauch 8140
New Zealand
Telephone: 464 3 366 0821
Frecincle: 464 3 366 0825
Email: christchurch@up.aurecongroup.com
Frecincle: 464 3 378 6855

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP46

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548814 m Northing: 5171995 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

		Ī							
Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests		Soil Description		Elevation (m)
0.5 -		The state of the s				candu CDAVEL with some	grained poorly graded sand ans, dark brown, moist, low plastic silt, sand is fine to coarse grain arse grained, subrounded to rou ted, moist, sub-horizontal beddi	ed and well	1
1.0 —							ent in the soil matrix to the base	e of the test pit.	
1.5 -	and the state of t					becomes brownish grey.			
2.0 —						becomes minor sand and r	no cobbles to 2.4m.		
2.5 - -	· · · · · · · · · · · · · · · · · · ·					becomes sandy			1
3.0 —									· · · · · · · · · · · · · · · · · · ·
3.5 -					3330004				
4.0 —	-					End of Test Pit at 4.1m (TA	ARGET DEPTH ACHIEVED)		-
4.5 -	The second secon	**************************************							(Action)
Remarl Water i	ks: Table Not	t Encou	ntered					Logged by: RS nput by: RS Checked by: RJH /erified by: RJH	
								Sheet	1 of 1

Aurecon (New Zeelland) Limited
Linit 1, 150 Caendols Rd
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Christchurch 8140
New Zeelland
www.aurecongroup.com
Email: christchurch@ep.aurecongroup.com

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

Telephone: 164 3 366 0821 Facsimile: 164 3 379 6955 Project Reference: **224926**

Sheet 1 of 1

TP47

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548745 m Northing: 5171946 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Depth (m)	Sample Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -					SiLT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt. becomes with cobbles present in the soil matrix to the base of the test pit. becomes brownish grey. becomes minor sand and no cobbles to 3m. becomes sandy	
4.0					End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5						
				<u> </u>	Logged by: RS Input by: RS	

Aurecon (Now Zeafend) Umited Unit 1, 150 Cavendish Rd PO BOX 1061

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston Project Reference: 224926

TP48

Sheet 1 of 1

GRY, 194 Celement Pro Box 10 Contracture h 614 0 140 Contracture h 614 0 Telephone +64 0 366 0821 Mev Zeelle of Prescrible +64 0 369 0821 Email: offsidorunt/@pop.aurecongrague.com

TEST PIT INFORMATION

Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548664 m Northing: 5171923 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
).5 -						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.22 0.5m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt and cobbles present to the base of the test pit. becomes brownish grey.	
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.0		484649V-F			- Application of the Control of the		
.5 -							***************************************
.0 —			· () · ^ ; •	• • • • • • • • • • • • • • • • • •	Atlanta	End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	Lawania -
l.5 –							
Remark Water T		t Encour	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
							et 1 of 1

PO BOX 1061 Christchurch 8140 New Zealand www.aurecongroup.com Email: christchurch@ap.aure

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

Sheet 1 of 1

Sheet 1 of 1

TP49

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Confractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548590 m Northing: 5171888 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Logged by: RS Input by: RS Checked by: RJH

Elevation (m) $\widehat{\mathbf{E}}$ Pocket Penetrometer Tests Shear Vane Tests Graphic Log $\widehat{\mathbf{E}}$ Water Level Soil Description Depth (SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke 0.5 gravels. becomes minor silt. becomes brownish grey, cobbles present to the base of the test pit. 1.0 1.5 2.0 2.5 3.0 Database File: 224926_TESTPITS.GP.j. Library: COPY OF CHC用工程KARY MARCH 2017にGTE 3.5 End of Test Pit at 4m (TARGET DEPTH ACHIEVED) 4.0 4.5 11/1/2011 9:34:14 AM Logged by: RS Input by: Checked by: RS **RJH** Generated: Water Table Not Encountered Verified by: RJH

Aurecon (New Zealand) Unrited
Unit 1,190 Cavenduli Rd
Por BOX 1661
Christchurch 8140
Rew Zealand
Wew Zealand
Telephone: 164 3 355 0821
Project Name: Brookside
Location: Cnr Burnham Sc
Www.aurecongroup.com
Facultride: 164 3 379 6855
Fmalt: christchurch@ap.aurecongroup.com

Client:

CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP50

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548517 m Northing: 5171852 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH

Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
2.0					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.20.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt, cobbles present in the soil matrix to the base of the test pit. becomes brownish grey. becomes minor sand and no cobbles to 2.6m. becomes sandy	
3.5 -				4444		· · · · · · · · · · · · · · · · · · ·
4.5					End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
Remarks: Water Table No	at Encour	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

Database File: 224926_TESTPITS.GPJ, Library: COPY OF CHOTH LIBRARY MARCH ZUTT.GLE; Data template CHCH DATA LEMP

Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Christiante 6140 Project Reference: 224926 **CDL NZ Land Development Ltd**

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP51

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548524 m Northing: 5171926 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -			で で で で で で で で で で で で で で			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt, dark brownish grey	100
0 –		1				becomes brownish grey and cobbles present in the soil matrix to the base of the test plt.	
.5 –							
2.0 —							1
.5 -							
3.0 —	- - - - - - - - - - - - - - - - - - -	- Address					
3.5 -							
4.0 —						End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	
4.5 -						LING OF TESTET IL AL FLORITY TO THE TESTED OF THE TESTED O	
Remar		nt Encou	intered	.,		Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
Water	table M	J. L.11000	471(0100			I VOINIBLEY: I TOIL	

Aureon (New Zealand) Limited
Unit 1, 150 Casendish Rd
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CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP52

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548626 m Northing: 5171985 m Ground Level: N/A

Date Started: 9/29/2011
Date Completed: 9/29/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
5						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt. becomes brownish grey, cobbles present in the soil matrix to the base of the test pit. becomes minor sand and no cobbles to 3m.	
0 -					1111	becomes sandy	
.0 —				***************************************		End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
.5 –							
Remarks:						Logged by: RS Input by: RS Checked by: RJH	

Aurecon (New Zealand) Limited
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Email: christchusch@up.aurecongrup.com

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

Telephone: 164 3 366 0821 Facsimile: 164 3 379 8955 Project Reference: **224926**

TP53

Sheet 1 of 1

Excavator Type: 22 Tonne Excavator Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548713 m Northing: 5172035 m Ground Level: N/A

Date Started: 9/29/2011 Date Completed: 9/29/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
-						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke	
5 -					***************************************	gravels. becomes minor silt. becomes brownish grey and cobbles present in the soil matrix to the base of the test pit.	
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5 -							
o —	1	i de la companya de					3044
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5 -	- - - -	ockida					
.0 —						End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	
.5 ·	-			1.04			
Remar Water	rks: Table No	ot Encou	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

Aurecon (New Zealand) Limited Unit 1, 150 Cavendish Rd PO BOX 1061

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

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CO-ORDINATES OD New Zealan

TP54

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548782 m Northing: 5172163 m Ground Level: N/A Date Started: 9/30/2011 Date Completed: 9/30/2011

Depth (m)	Sample Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, prown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt. becomes with cobbles present in the soil matrix to the base of the test pit. becomes brownish grey becomes minor sand and no cobbles to 2.5m. becomes sandy	
4.0		5 O 6			End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5 -		14.000				
Remarks:	e Not Encou				Logged by: RS Input by: RS Checked by: RJH	

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Unit 1, 150 Casendish Rd
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New Zealand
New Zealand
Feedindle: 464 3 366 0821
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Feedindle: 464 3 366 0821
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Freelindle: 464 3 366 0821
Freelindle: 464 3 366 0821

Client: CDL NZ Land Development Ltd Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP55

Email: dimetaricingap.aumicargoup.com
TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548716 m Northing: 5172100 m Ground Level: N/A

Date Started: 9/30/2011 Date Completed: 9/30/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
1.0 — 2.0 — 3.0 — 4.0 —						Sil.T, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt and cobbles present in the soil matrix to the base of the test pit. becomes brownish grey. End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	
Remark Water	ks: Table Not	t Encour	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	1 1 of 1

Database File: 224926_TESTPITS.GPJ, Library: COPY COF CHICH LIBRARY MARCH 2017, GLB, Data te

Aurecon (New Zealand) Limited Unit 1, 150 Cavendish Rd PO BOX 1061 Christchutch 8140 Christchurch 8140
New Zealand
Vew Zealand
Vew Aureorngroup.com
Facsimile: +64 3 379 6855
Email: christchurch@ap aurecongroup.com

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

Sheet 1 of 1

Sheet 1 of 1

TP56

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

Easting: 154 Northing: 517 Ground Level: N/A

CO-ORDINATES OD New Zealand TM Easting: 1548625 m Northing: 5172063 m

Date Started: Date Completed: 9/30/2011

9/30/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH

Elevation (m) $\widehat{\mathbf{E}}$ Pocket Penetrometer Tests Shear Vane Tests Graphic Log $\widehat{\mathbf{E}}$ Water Level Sample Soil Description Depth | SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke 0.5 gravels. becomes minor silt and cobbles present in the soil matrix to the base of the becomes brownish grey. 1.0 1.5 2.0 2.5 3.0 Database File: 224926_TESTPITS.GPJ, Library: COPY OF CHURLIBIKARY-MARCH-2011-61 3.5 4.0 End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED) 4.5 11/1/2011 9:34:16 AM Logged by: RS Input by: RS RJH Checked by: Last Generated: RJH Water Table Not Encountered Verified by:

Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Co-cording duplication (140 April 140 April

CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP57

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548536 m Northing: 5171995 m Ground Level: N/A

Date Started: 9/30/2011 Date Completed: 9/30/2011

Logged by: RS Input by: RS Checked by: RJH Verified by: RJH

Sheet 1 of 1

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5 -		100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt and cobbles present in the soil matrix to the base of the test pit.	
.0 —	i Antique	0 0 0 0 0 0				becomes brownish grey.	
1.5 -		90%			***************************************		
2.0	1877))					
2.5		<u>0</u>					
3.0	3						
3.5							
4.0	***			-como-		End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
4.5	3			Į.			
Remarks Water Ta	s: able Not E	Encount	ered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
Remarks Water Ta							

Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Constand Ontology Project Name: Project Reference: 224926 **CDL NZ Land Development Ltd**

Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP58

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548463 m Northing: 5171943 m Ground Level: N/A

Date Started: 9/30/2011 Date Completed: 9/30/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
5 -						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	<u></u>
] - -						becomes minor silt. becomes with cobbles present in the soil matrix to the base of the test pit. becomes brownish grey.	
5 -							
- - - 0							enter a constant and
5 -							
o —							
5 -							
.0 —	1					End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
.5	- - - - -						
Remar		ot Encou	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
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Client: CDL NZ Land Dev Project Name: Brookside Location: Cnr Burnham Sc Constraint de Indictoration Telephone: 494 3379 6955 Emit directoration Reproposition Conr Emit Constraint Supposition Facilities: 494 3379 6955 Emit directoration Reproposition Conr Emit Constraint Supposition Reproposition Constraint Supposition Reproposition Rep

CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP59

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548424 m Northing: 5172041 m Ground Level: N/A

Date Started: 9/30/2011
Date Completed: 9/30/2011

Depth (m)	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5					SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt. becomes with cobbles present in the soil matrix to the base of the test pit.	f
.0 -					becomes brownish grey.	
1.5						
2.0				1000		
2.5						
3.0						
3.5						
4.0					4.40	
4.5					End of Test Pit at 4.4m (TARGET DEPTH ACHIEVED)	. Was
Remarks:	e Not Enco	ountered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
Remarks: Water Tabl						

Arrecon (New Zealand) Limited
Und 1, 190 Casendsh Rd
Project Name: Brookside
Location: Cnr Burnham Sc
Location: Cnr Burnh

CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP60

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zeatand TM Easting: 1548485 m Northing: 5172079 m Ground Level: N/A

Date Started: 9/30/2011 Date Completed: 9/30/2011

Depth (m)	Sample Sample Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
.5		京			SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.28 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt and cobbles present in the soil matrix to the base of the test pit. becomes brownish grey	
.0 —				****		
.5 -				The state of the s		
0						\$
5 -					SAND, sand is fine to coarse grained and well graded, greyish brown. Tightly packed, moist, sub-horizontal bedding sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well	
.0 —					graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels.	
.5				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4.00	
.0 -					End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	****
I.5 -		1009				
Remarks: Water Tab	le Not Enc	ountered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

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CDL NZ Land Development Ltd Client:

Project Name: Brookside Road Subdivision
Location: Cnr Burnham School Road & Brookside Road, Rolleston

TP61

Sheet 1 of 1

Sheet 1 of 1

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548570 m Northing: 5172126 m Ground Level: N/A

Date Started: 9/30/2011 Date Completed: 9/30/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5 -		and a manufal designation of the first transfer of the first trans				SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt, brown and cobbles present in the soil matrix to the base of the test pit. becomes brownish grey	The state of the s
.5 -	and asset from the first from the fi	The state of the s			and work of the contract of th		
.5 -	in the contract of the contrac				and the state of t	becomes minor sand and no cobbles to 3.3m. becomes sandy	
.0 —			6 O O 6			End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	THE RESIDENCE OF THE PARTY OF T
l.5 -		The district of the second sec	1				
Remark Water T	s: Γable Not	Encoun	tered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

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Last (

CDL NZ Land Development Ltd Client: Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Project Reference: 224926

Sheet 1 of 1

Sheet 1 of 1

TP62

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548516 m Northing: 5172195 m Ground Level: N/A

Date Started: 9/30/2011 Date Completed: 9/30/2011

Logged by: RS Input by: RS Checked by: RJH Venified by: RJH

 $\widehat{\mathbb{E}}$ Pocket Penetrometer Tests Elevation (m) Shear Vane Tests Graphic Log Depth (m) Water Level Sample Soil Description SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke 0.5 gravels. becomes with minor silt and cobbles present in the soil matrix to the base of the test pit. becomes brownish grey. 1.0 1.5 2.0 2.5 3.0 3.5 Database File: 224926_TESTPITS.GPJ, Library: CORYCECHERB 4.0 End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED) 4.5 11/1/2011 9:34:18 AM Logged by: Input by: Checked by: RS RS **RJH** Water Table Not Encountered Verified by: **RJH**

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CO-ORDINATES OD New Zeelan

Client: CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision

Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP63

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548431 m Northing: 5172133 m Ground Level: N/A

Date Started: 9/30/2011 Date Completed: 9/30/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
).5 –						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.6m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes with minor silt and cobbles present in the soil matrix to the base of the test pit.	
.0 —						becomes brownish grey.	
.5 -	-						
2.0 —	-						
2,5 -		100					
3.0 —	-						
3.5 4.0 -	-						
4.5			6 B. Y.			End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	
	-		*****				
Rema Water	rks: Table No	it Encou	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	
1							

Aureon (New Zealand) Limited
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Client:

CDL NZ Land Development Ltd

Project Name: Brookside Road Subdivision Location: Cnr Burnham School Road & Brookside Road, Rolleston

Sheet 1 of 1

TP64

TEST PIT INFORMATION
Excavator Type: 22 Tonne Excavator
Test Pit Dimensions:
Contractor: TEXCO

CO-ORDINATES OD New Zealand TM Easting: 1548423 m Northing: 5172240 m Ground Level: N/A Date Started: 9/30/2011 Date Completed: 9/30/2011

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
5						SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity, rootlets to 0.4m. (TOPSOIL) sandy GRAVEL with some silt, sand is fine to coarse grained and well graded, gravel is fine to coarse grained, subrounded to rounded and well graded, brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes with minor silt and cobbles present in the soil matrix to the base of the test pit.	669
0					1000	becomes brownish grey.	
5 - -	-						
o —	- - - - -						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
5 -	-						
0							
.5 -							
.0 —		<u>.</u>		1,000		End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
.5		4000	1102				
Remar Water	rks:	ot Encou	ntered			Logged by: RS Input by: RS Checked by: RJH Verified by: RJH	

GENERAL NOTES

This site investigation was carried out in accordance with described in the New Zealand Geotechnical Society's "Guidleines for the Field Description of Soils and Rocks in Engineering Use" for the specific purpose and client as defined in the introductory section(s) of this document. The report should not be used by other parties or for other purposes without prior consultation with Aurecon, as it may not contain adequate or appropriate information.

LOGGING

The information on the Logs (Boreholes, Test Pits, Natural Exposures etc.) has been based on a visual and tactile assessment except at the discrete locations where test information has been reported (eg field and/or laboratory results).

Reference should be made to our standard sheets for the definition of our logging procedures (Soil and/or Rock Descriptions, as appropriate).

GROUNDWATER

Unless otherwise indicated, the water levels given on the logs are the levels of free water or seepage in the test hole recorded at the given time of measuring. The measured ground water level may be affected by the method of investigation (for example, if rotary drilling is utilised, drilling fluids will be pumped into the ground).

The actual groundwater level may differ from the recorded level depending on material permeabilities. Further variations of this level could occur with time due to such effects as seasonal and tidal fluctuations or construction activities.

Final confirmation of levels can only be made by appropriate instrumentation techniques and programmes.

SAMPLING

Samples extracted during the fieldwork phase of a site investigation may be 'disturbed' or 'undisturbed' (as indicated on the logs) depending on the intended mature and purpose of the sample as well as the practicable method of extraction, transportation, extrusion and testing. This aspect should be taken into account when assessing test results which must of necessity reflect the effects of such disturbance.

Generally, 'disturbed' samples would be suitable for visual identification, moisture content determination, Atterberg Limits testing, compaction and California bearing ratio (CBR) testing, amongst others.

The amount sampled is also a limiting factor in the suitability for testing purposes, for example, a minimum of 10 kg is necessary for compaction and CBR testing.

'Undisturbed' samples are normally necessary for laboratory testing such as shrink-swell tests. These samples are obtained by pushing a thin-walled, mild steel tube with a machined cutting edge into the soil, and extracting the assembly. The soil (normally of nominal 50 mm diameter) is extruded at the laboratory prior to testing.

LABORATORY TESTING

Laboratory testing is normally carried out in accordance with relevant British, Australian or New Zealand Standards (eg AS1289) or to State Roads Authorities or TransitNZ Standards where specified. All testing is carried out in ISO9001 laboratories unless prior agreements are made between Aurecon and the client.

Where tests are used which are not covered by Standard procedures, the method details are provided in the report.

All soil properties (as measured by laboratory testing) exhibit inherent variability and thus a certain statistical number of tests is required in order to predict an average property with any degree of confidence. The site variability of soil strata, future changes in moisture and other conditions and the discrete sampling positions must also be considered when assessing the representative nature of the laboratory programme.

Certain laboratory tests provide interpreted soil properties as derived by conventional mathematical procedures. The applicability of such properties to engineering design must be assessed with due regard to the site, sample condition, procedure and the proposed development.

INTERPRETATION OF RESULTS

The discussion and any recommendations contained within this report are normally based on a site evaluation from discrete test hole data. Generalised or idealised subsurface conditions (including any cross-sections contained in the report) have been assumed or prepared by interpolation and /or extrapolation of these data. As such, these conditions are an interpretation and must be considered as a guide only.

CHANGE IN CONDITIONS

Local variations or anomalies in the generalised ground conditions used for this report can occur, particularly between discrete test hole locations. Furthermore, certain design or construction procedures may have been assumed in assessing the soil-structure interaction behaviour of the site.

Any change in design, in construction methods, or in ground conditions as noted during construction, from those assumed in this report should be referred to Aurecon for appropriate assessment and comment.

FOUNDATION DEPTH

Where referred to in the report, the recommended depth of any foundation (piles, caissons, footings, etc.) is an engineering estimate of the depth to which they should be constructed. The estimate is influenced and perhaps limited by the fieldwork method and testing carried out in connection with the site investigation, and other pertinent information as has been made available. The depth remains, however, an estimate and therefore liable to variation. Foundation drawings, designs and specifications based upon this report should provide for variations in the final depth depending upon the ground conditions at each point of support.

REPRODUCTION OF REPORTS

Where it is desired to reproduce the information contained in this report for the inclusion in the contract documents or engineering specification of the subject development, such reproduction should include all of the report, including appendices (if any).

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SEQUENCE OF TERMS - fraction - colour - structure - strength - moisture - bedding - plasticity - sensitivity - additional

GRAIN SIZE CRITERIA

			(c)	DARSE					G	INE	ORGANIC
				Gravel			Sand				
ТУРЕ	Boulders	Cobbles	coarse	medium	fine	coarse	шефіли	fine	Silt	Clay	Organic Soil
Size Range (mm)	2	00 6	50 2	0 6)	2 0	.6 O.	2 0	.06 0	.002	
Graphic Symbol	0	00	909	300	388				XXX XXX XXX		不不不 不不不不

PROPORTIONAL TERMS DEFINITION (COARSE SOILS)

Frantion	Term	% of Soil Mass	Example
Major	() [UPPER CASE]	≥ 50 [major constituent]	GRAVEL
Subordinate	() y [lower case]	20 – 50	Sandy
Minor	with some with minor	12 – 20 5 – 12	with some sand with minor sand
	with trace of (or slightly)	< 5	with trace of sand (slightly sandy)

SOIL CLASSIFIC	ATIO	N	BOULDERS
<35%	DARSE SOIL	Particle size composition	COURTNESS
MAYERIAL Fraction finer than 0.06mm	00	8 8	GRAVEL
		uick/dilatant behaviour	SAND
>35%	PINE SOIL	0	Sila
		Plastic	BLAY

DENSITY INDEX (RELATIVE DENSITY) TERMS

Descriptive Term	Density Index (R _D)	SPT "N" value (blows / 300 mm)	Oynamic Cone (blows / 100 mm)
Very dense	> 85	> 50	> 17
Dense	65 – 85	30 - 50	7-17
Medium dense	35 – 65	10 – 30	3-7
Loose	15 – 35	4-10	1-3
Very loose	< 15	<4	0-2

Note:

No correlation is implied between Standard Penetration Test (SPT) and Dynamic Cone Test values.

SPT "N" values are uncorrected.

Dynamic Cone Penetrometer (Scala)

CONSISTENCY TERMS FOR COHESIVE SOILS

Descriptive Term	Undrained Shear Strength (kPa)	Diagnostic Features
Very soft	< 12	Easily exudes between fingers when squeezed
Soft	12 - 25	Easily indented by fingers
Firm	25 - 50	Indented by strong finger pressure and can be indented by thumb pressure
Stiff	50 - 100	Cannot be indented by thumb pressure
Very stiff	100 - 200	Can be indented by thumb nail
Hard	200 - 500	Difficult to indent by thumb nail

ORGANIC SOILS/ DESCRIPTORS

Term	Description
Topsoil	Surficial organic soil layer that may contain living matter. However topsoil may occur at greater depth, having been buried by geological processes or man- made fill, and should then be termed a buried topsoil.
Organic clay, silt or sand	Contains finely divided organic matter; may have distinctive smell; may stain; may oxidise rapidly. Describe as for inorganic soils.
Peat	Consists predominantly of plant remains. Firm: Fibres already compressed together Spongy: Very compressible and open stucture Plastic: Can be moulded in hand and smears in fingers Fibrous: Plant remains recognisable and retain some strength Amorphous: No recognisable plant remains
Roolets	Fine, partly decomposed roots, normally found in the upper part of a soil profile or in a redeposited soil (e.g. colluvium or fill)
Carbonaceous	Discrete particles of hardened (carbonised) plant material.

PLASTICITY (CLAYS & SILTS)

Telm	Description		
High plasticity	Can be moulded or deformed over a wide range of moisture contents without cracking or showing any tendency to volume change		
Low plasticity	When moulded can be crumbled in the fingers; may show quick or dilatant behaviour		

MOISTURE CONDITION

Condition	Description	Granular Solls	Cohesive Soils
Dry	Looks and feels dry Run freely through hands		Hard, powdery or friable
Moist	Feels cool, darkened in colour	Tend to cohere	Weakened by moisture, but no free water on hands when remoulding
Wet			Weakened by moisture, free water forms on hands when handling
Saturated	Feels cool, darkened in colour and free water is present on the sample		

GRADING (GRAVELS & SANDS)

Term	Description		
Well graded	Good representation	n of all particle sizes from largest to smallest	
Poorly graded	Limited representation of grain sizes - further divided into:		
	Uniformly graded	Most particles about the same size	
	Gap graded	Absence of one or more intermediate sizes	

NZ GEOTECHNICAL SOCIETY INC

This field sheet has been taken from and should be used and read with reference to the document FIELD DESCRIPTION OF SOIL AND ROCK. Guideline For the Field Classification and Description of Soil and Rock for Engineering Purposes. NZ Geotechnical Society Inc, December 2005. www.nzgeotechsoc.org.nz

by KATE WILLIAMS design



SEQUENCE OF TERMS - weathering - colour - fabric - rock name - strength - discontinuities - additional

SCALE OF ROCK MASS WEATHERING

Term	(fivatile	Addressibilition	Description
Unweathered (fresh rock)		UW	Rock mass shows no loss of strength, discolouration or other effects due to weathering. There may be slight discolouration on major rock mass defect surfaces or on clasts.
Slightly Weathered	II	SW	The rock mass is not significantly weaker than when fresh. Rock may be discoloured along defects, some of which may have been opened slightly.
Moderately Weathered	=	MW	The rock mass is significantly weaker than the fresh rock and part of the rock mass may have been changed to a soil. Rock material may be discoloured and defect and clast surfaces will have a greater discolouration, which also penetrates slightly into the rock material. Increase in density of defects due to physical disintegration.
Highly Weathered	IV	HW	Most of the original rock mass strength is lost. Material is discoloured and more than half the mass is changed to a soil by chemical decomposition or disintegration (increase in density of defects/fractures). Decomposition adjacent to defects and at the surface of clasts penetrates deeply into the rock material. Lithorelicts or corestones of unweathered or slightly weathered rock may be present.
Completely Weathered	V	CW	Original rock strength is lost and the rock mass changed to a soil either by decomposition (with some rock fabric preserved) or by physical disintegration.
Residual Soil	VI	RS	Rock is completely changed to a soil with the original fabric destroyed (pedological soil).

ROCK STRENGTH TERMS

Term	Held Identification of Specimen	Unconfined univarial outpressive strength q_{μ} (MPa)	Point load strangth I _{sea} (MPa)
Extremely strong	Can only be chipped with geological hammer	> 250	>10
Very strong	Requires many blows of geological hammer to break it	100 - 250	5-10
Strong	Requires more than one blow of geological hammer to fracture it	50 – 100	2-5
Moderately strong	Cannot be scraped or peeled with a pocket knife. Can be fractured with single firm blow of geological hammer	20 – 50	1-2
Weak Can be peeled by a pocket knife with difficulty. Shallow indentations made by firm blow with point of geological hammer Very weak Crumbles under firm blows with point of geological hammer. Can be peeled by a pocket knife		5 – 20	
		1-5	<1
Extremely weak (soil description required)	Indented by thumb nail or other lesser strength terms used for soils	<1	

Note: . No correlation is implied between q and I

SPACING OF DEFECTS/ DISCONTINUITIES

Term	Spacing
Very widely spaced	>2 m
Widely spaced	600 mm – 2 m
Moderately widely spaced	200 mm – 600 mm
Closely spaced	60 mm – 200 mm
Very closely spaced	20 mm – 60 mm
Extremely closely spaced	<20 mm

APERTURE OF DISCONTINUITY SURFACES

Telim	Approduce (mm)	Description
Tight	NII	Closed
Very Narrow	>0-2	
Narrow	2-6	
Moderately Narrow	6-20	Gapped
Moderately Wide	20 - 60	Open
Wide	60 - 200	
Very Wide	> 200	1

BEDDING THICKNESS TERMS

Term	Bad Thickness
Thinly laminated	< 2 mm
Laminated	2 mm - 6 mm
Very thin	6 mm - 20 mm
Thin	20 mm - 60 mm
Moderately thin	60 mm - 200 mm
Moderately thick	0.2 m - 0.6 m
Thick	0.6 m - 2 m
Very thick	> 2 m

Teirii	Inellication (from horizontal)
Sub-horizontal	0° - 5°
Gently inclined	6° – 15°
Moderately inclined	16° – 30°
Steeply inclined	31° – 60°
Very steeply inclined	61° - 80°
Sub-vertical	81° – 90°

ROUGHNESS AND APERTURE

1	rough	~~~
11	smooth	
111	slickensided	
		STEPPED
IV	rough	~
٧	smooth	
VΙ	slickensided	
		UNDULATIN
VII	rough	
VIII	smooth	
ıx	alickensided	to the later
		PLANAR

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