
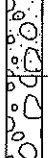

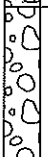





Appendix A

Geotechnical Investigation Logs

BOREHOLE INFORMATION Drilling Method: CAT 312 - Track Diameter Core: Contractor: McMillans	CO-ORDINATES OD New Zealand TM Easting: 1548460 m Northing: 5172210 m Ground Level: N/A	Date Started: 5/10/2011 Date Completed: 6/10/2011 Inclination: Orientation:	Logged by: R.JH Input by: R.JH Checked by: RS Verified by:
--	---	--	---

Method/Casing	Core Recovery (%)	Water Loss (%)	Groundwater Level (m)	R.L. (m)	Depth (m)	Graphic Log	Material Description	USC Description	Consistency/Density	Moisture	Sample	In-Situ Testing	Laboratory Testing	Notes	Backfill	Geological Unit
							Driller notes: "TOPSOIL"	OL								
					1		Sandy GRAVEL. Brown grey, very dense, dry, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained. Becomes brownish grey, gravel is subrounded to subangular.	GW				SPT at 1m N = 50+ 50 30mm (SC)				
					2		GRAVEL with some sand. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained.	GW				SPT at 2.5m N = 45 10, 11/11, 11, 12, 11 450mm (SC)				
					4		Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained. Becomes brownish grey with no silt.	GW				SPT at 4m N = 35 4, 6/6, 9, 9, 9 450mm (SC)				
					5											
					6											
					7		GRAVEL with some sand. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained.	GW				SPT at 7m N = 50+ 14, 21/22, 28 250mm (SC)				
					8											
					9		Sandy GRAVEL with trace silt. Brown grey, very dense, moist, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	GW				SPT at 8.5m N = 50+ 11, 17/27, 23 241mm (SC)				

BOREHOLE INFORMATION Drilling Method: CAT 312 - Track Diameter Core: Contractor: McMillans	CO-ORDINATES OD New Zealand TM Easting: 1548460 m Northing: 5172210 m Ground Level: N/A	Date Started: 5/10/2011 Date Completed: 6/10/2011 Inclination: Orientation:	Logged by: RJH Input by: RJH Checked by: RS Verified by:
--	---	--	---

Method/Casing	Core Recovery (%)	Water Loss (%)	Groundwater Level (m)	R.L. (m)	Depth (m)	Graphic Log	Material Description	USC Description	Consistency/Density	Moisture	Sample	In-Situ Testing	Laboratory Testing	Notes	Backfill	Geological Unit
					11		Becomes with no silt.	GW		M		SPT at 10m N = 50+ 13, 28/50 205mm (SC)				
					12							SPT at 11.5m N = 60+ 50 72mm (SC)				
					13		Sandy GRAVEL with minor silt. Brown grey, very dense, saturated, well graded. Gravel is fine to medium grained, rounded to subrounded. Sand is fine to coarse grained.	VD				SPT at 13m N = 60 7, 15/17, 14, 14, 18 450mm (SC)				
					14			GW		S		SPT at 14.5m N = 50+ 50 50mm (SC)				
					15		Borehole Terminated at 15m (TARGET)									
					16											
					17											
					18											
					19											

Method CC concrete core OB open barrel SSA solid stem auger HSA hollow stem auger WASH wash drill PQ3 PQ Triple Tube HQ3 HQ Triple Tube NQ3 NQ Triple Tube NMLC NMLC Triple Tube DP Direct Push DT Dual Tube (70mm) Casing	USC Classification CH Inorganic CLAYS high plasticity CI Inorganic CLAYS medium plasticity CL Inorganic CLAYS low plasticity GC Clayey GRAVEL GM Silty GRAVEL GP Poorly Graded GRAVEL MH Inorganic SILT high plasticity ML Inorganic SILT low plasticity OH ORGANIC CLAY medium to high plasticity OL ORGANIC SILT low plasticity PT PEAT and highly organic soils SC Clayey SAND SM Silty SAND SP Poorly graded SAND SW Well graded SAND	Consistency VS very soft S soft F firm S stiff VS very stiff H hard Density VL very loose L loose MD medium dense D dense VD very dense	Soil Samples B bulk U undisturbed D disturbed Water at end of excavation at time of excavation at time of closure	In Situ Testing PP pen penetrometer VS vane shear SPT std. pen. test SS split spoon SC solid cone HB hammer bouncing SH sinks under own weight Moisture D dry M moist W wet S saturated	Graphic Log Topsoil Sandy GRAVEL GRAVEL Backfill Convent Seal: 1 pipe group, 1 pipe Bentonite Seal: 1 pipe group, 1 pipe Filter Pack: 1 pipe group, 1 pipe Slough Backfill: 1 pipe group, 1 pipe
---	---	---	--	---	--

BOREHOLE INFORMATION Drilling Method: CAT 312 - Track Diameter Core: Contractor: McMillans	CO-ORDINATES OD New Zealand TM Easting: 1548360 m Northing: 5171670 m Ground Level: N/A	Date Started: 5/10/2011 Date Completed: 6/10/2011 Inclination: Orientation:	Logged by: RJH Input by: RJH Checked by: RS Verified by:
--	---	--	---


Method/Casing	Core Recovery (%)	Water Loss (%)	Groundwater Level (m)	R.L. (m)	Depth (m)	Graphic Log	Material Description	USC Description	Consistency/Density	Moisture	Sample	In-Situ Testing	Laboratory Testing	Notes	Backfill	Geological Unit
							Driller notes: "TOPSOIL"	OL								
					0.30		Sandy GRAVEL. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained.	GW								
					1.00		GRAVEL with some sand. Brownish grey, very dense, dry, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained.					SPT at 1m N = 50+ 12, 14/15, 15, 20 325mm (SC)				
					2					D						
					3							SPT at 2.5m N = 50+ 10, 22/22, 28 250mm (SC)				
					4		Becomes moist, gravel is subrounded to rounded.									
					5							SPT at 4m N = 49 4, 6/7, 9, 15, 18 450mm (SC)				
					6.50		Sandy GRAVEL. Brownish grey, very dense, moist, well graded. Gravel is fine to medium grained, subrounded to subangular. Sand is fine to coarse grained.					SPT at 5.5m N = 50+ 24, 26/50 105mm (SC)				
					7											
					8							SPT at 7m N = 50+ 11, 13/13, 15, 22 370mm (SC)				
					9							SPT at 8.5m N = 50+ 50 130mm (SC)				

Method CC concrete core OB open barrel SSA solid stem auger HSA hollow stem auger WASH wash drill PQ3 PQ Triple Tube HQ3 HQ Triple Tube NQ3 NQ Triple Tube NMLC NMLC Triple Tube DP Direct Push DT Dual Tube (70mm)	USC Classification CH Inorganic CLAYS high plasticity CI Inorganic CLAYS medium plasticity CL Inorganic CLAYS low plasticity GC Clayey GRAVEL GM Silty GRAVEL GP Poorly Graded GRAVEL MH Inorganic SILT high plasticity ML Inorganic SILT low plasticity OH ORGANIC CLAY medium to high plasticity OL ORGANIC SILT low plasticity PT PEAT and highly organic soils SC Clayey SAND SM Silty SAND SP Poorly graded SAND SW Well graded SAND	Consistency VS very soft S soft F firm S stiff VS very stiff H hard Density VL very loose L loose MD medium dense D dense VD very dense	Soil Samples B bulk U undisturbed D disturbed Water at end of excavation at time of excavation at time of closure	In Situ Testing PP pen penetrometer VS vane shear SPT std. pen. test SS split spoon SC solid cone HB hammer bouncing SH sinks under own weight Moisture D dry M moist W wet S saturated	Graphic Log Topsoil Sandy GRAVEL GRAVEL Backfill Cement Seal: 1 pipe group, 1 pipe Bentonite Seal: 1 pipe group, 1 pipe Filter Pack: 1 pipe group, 1 pipe Slough Backfill: 1 pipe group, 1 pipe
---	---	---	--	---	---

BOREHOLE INFORMATION Drilling Method: CAT 312 - Track Diameter Core: Contractor: McMillans	CO-ORDINATES OD New Zealand TM Easting: 1548360 m Northing: 5171670 m Ground Level: N/A	Date Started: 5/10/2011 Date Completed: 6/10/2011 Inclination: Orientation:	Logged by: RJH Input by: RJH Checked by: RS Verified by:
--	---	--	---

Method/Casing	Core Recovery (%)	Water Loss (%)	Groundwater Level (m)	R.L. (m)	Depth (m)	Graphic Log	Material Description	USC Description	Consistency/Density	Moisture	Sample	In-Situ Testing	Laboratory Testing	Notes	Backfill	Geological Unit
					11		Becomes brown grey, with minor silt, saturated.			M		SPT at 10m N = 50* 17, 17/27, 23 300mm (SC)				
					12							SPT at 11.5m N = 50* 7, 23/50 205mm (SC)				
					13							SPT at 13m N = 51 4, 11/12, 11, 14, 14 450mm (SC)				
					14							SPT at 14.5m N = 30* 13, 20/29, 10 255mm (SC)				
					15		Borehole Terminated at 15m (TARGET)									
					16											
					17											
					18											
					19											

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1548557 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5171658 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.</p>	
4.0						End of Test Pit at 4.2m (Required Depth Reached)	

Remarks:

Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH


Sheet 1 of 1

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

CO-ORDINATES OD New Zealand TM
Easting: 1548400 m
Northing: 5171613 m
Ground Level: N/A

Date Started: 9/27/2011
Date Completed: 9/27/2011

Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>Sandy GRAVEL with minor cobbles and trace of boulders; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.</p>	
1.0							
1.5							
2.0							
2.5							
3.0							
3.5							
4.0							
4.2						End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered


Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

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

CO-ORDINATES OD New Zealand TM
Easting: 1548310 m
Northing: 5171750 m
Ground Level: N/A

Date Started: 9/27/2011
Date Completed: 9/27/2011

Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						SILT , minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)	
1.0						0.30 GRAVEL with some silty sand and minor cobbles; Light yellow brown. Moist. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded.	
1.5						1.20 Sandy GRAVEL with minor cobbles; Light brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.	
2.0							
2.5							
3.0							
3.5							
4.0							
4.5						4.30 End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered


Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH



TP04

Sheet 1 of 1

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1548311 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5171653 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>Sandy GRAVEL with minor cobbles; Brown grey. Dry. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.</p> <p>becomes moist</p>	
4.5						End of Test Pit at 4.4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH

Sheet 1 of 1

Last Generated: 11/1/2011 9:34:02 AM


Database File: 224928 TESTPITS.GPJ Library: COPY OF CHECH LIBRARY MARCHE 2011 C:\E Data Template: CHECH DATA TEMPLATE NOV 2010 C:\E 381 Generated: 11/13/2011

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

CO-ORDINATES OD New Zealand TM
Easting: 1548230 m
Northing: 5171796 m
Ground Level: N/A

Date Started: 9/27/2011
Date Completed: 9/27/2011


Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						SILT , minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)	
1.0						GRAVEL with some silty sand and minor cobbles; Light yellow brown. Moist. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded.	
1.5						Sandy GRAVEL with minor cobbles and slightly bouldery; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
2.0							
2.5							
3.0							
3.5							
4.0							
4.5						End of Test Pit at 4.4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1548250 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5171862 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH


Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>Sandy GRAVEL with minor cobbles; Brown grey. Dry. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.</p> <p>becomes moist</p>	
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH

Sheet 1 of 1

TEST PIT INFORMATION Excavator Type: 22 Tonne Excavator Test Pit Dimensions: Contractor: TEXCO	CO-ORDINATES OD New Zealand TM Easting: 1548150 m Northing: 5171903 m Ground Level: N/A	Date Started: 9/27/2011 Date Completed: 9/27/2011	Logged by: MHD Input by: MHD Checked by: RJH Verified by: RJH
--	---	--	--

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						0.10 SILT , minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Light yellow brown. Dry. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded.	
1.0						1.00 Sandy GRAVEL with minor cobbles and slightly bouldery; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
1.5							
2.0							
2.5						becomes moist	
3.0							
3.5							
4.0							
4.5						4.30 End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered


Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

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

CO-ORDINATES OD New Zealand TM
Easting: 1548185 m
Northing: 5171995 m
Ground Level: N/A

Date Started: 9/27/2011
Date Completed: 9/27/2011


Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>GRAVEL with some silty sand and minor cobbles; Dark brown. Moist. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded.</p>	
1.0							
1.5							
2.0						<p>Sandy GRAVEL with minor cobbles; Dark brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.</p>	
2.5							
3.0							
3.5							
4.0							
4.5						End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1548065 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5172050 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>0.20 Gravelly SILT; Light yellow brown. Dry. Gravel coarse grained. Low plasticity. Friable. Gravel sub rounded.</p> <p>0.30 GRAVEL with some silty sand and minor cobbles; Light yellow brown. Dry. Sand coarse to medium grained. Gravel rounded to sub rounded.</p> <p>0.80 Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.</p> <p>4.40 End of Test Pit at 4.4m (TARGET DEPTH ACHIEVED)</p>	


Remarks:

Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH

Sheet 1 of 1

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1548152 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5172076 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH


Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>GRAVEL with some silty sand and minor cobbles; Light brown. Moist. Medium dense. Sand coarse to medium grained. Gravel rounded to sub rounded</p> <p>Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand coarse grained. Rounded to sub rounded.</p> <p>becomes moist</p>	
4.5						End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH

Sheet 1 of 1

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1548046 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5172185 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>0.30</p> <p>GRAVEL with some silty sand and minor cobbles; Dark brown. Dry. Medium dense. Gravel fine to coarse grained. Sand fine to medium grained. Rounded to sub rounded.</p> <p>1.00</p> <p>Sandy GRAVEL with minor cobbles; Dark brown. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.</p> <p>4.30</p>	
4.5						End of Test Pit at 4.3m (TARGET DEPTH ACHIEVED)	

Remarks:

Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH


Sheet 1 of 1

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

CO-ORDINATES OD New Zealand TM
Easting: 1547999 m
Northing: 5172255 m
Ground Level: N/A

Date Started: 9/27/2011
Date Completed: 9/27/2011

Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						SILT , minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)	
0.5						0.30 Sandy GRAVEL with minor cobbles; Dark brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
1.0							
1.5							
2.0							
2.5							
3.0							
3.5							
4.0							
4.5						4.20 End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered


Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH



TP13

Sheet 1 of 1

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1547959 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5172333 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>Sandy GRAVEL with minor cobbles; Dark brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.</p>	
4.0						End of Test Pit at 4.1m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH

Sheet 1 of 1

ast Generated: 11/1/2011 9:34:05 AM


Database File: 224926 TESTPITS.GPJ. Library: COPY OF CECH LIBRARY MAY 2011. C:\Data Template: CHCH DATA TEMPLATE NOV 2010 C:\Data Template: CHCH DATA TEMPLATE NOV 2010 C:\Data Template: CHCH DATA TEMPLATE NOV 2010

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

CO-ORDINATES OD New Zealand TM
Easting: 1548067 m
Northing: 5172384 m
Ground Level: N/A

Date Started: 9/27/2011
Date Completed: 9/27/2011


Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						SILT , minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)	
						0.30 GRAVEL with some silty sand and minor cobbles; Brown. Dry. Medium dense. Sand coarse grained. Gravel fine to coarse grained. Gravel rounded to sub rounded.	
1.0						0.90 Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
1.5							
2.0							
2.5							
3.0						becomes moist	
3.5							
4.0							
4.5							
						4.80 End of Test Pit at 4.8m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/27/2011	Logged by: MHD
Excavator Type: 22 Tonne Excavator	Easting: 1548110 m	Date Completed: 9/27/2011	Input by: MHD
Test Pit Dimensions:	Northing: 5172419 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>SILT, minor fine to medium grained poorly graded sand and trace fine grained subrounded gravels, dark brown, moist, low plasticity. (TOPSOIL)</p> <p>GRAVEL with some silty sand and minor cobbles; Brown. Dry. Medium dense. Sand coarse grained. Gravel fine to coarse grained. Gravel rounded to sub rounded.</p> <p>Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.</p>	
3.0						becomes moist	
4.5						End of Test Pit at 4.5m (TARGET DEPTH ACHIEVED)	

Remarks:

Water Table Not Encountered

Logged by: MHD
 Input by: MHD
 Checked by: RJH
 Verified by: RJH


Sheet 1 of 1

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

CO-ORDINATES OD New Zealand TM
Easting: 1548160 m
Northing: 5172450 m
Ground Level: N/A

Date Started: 9/27/2011
Date Completed: 9/27/2011



Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						SILT , minor silty sand; Light brown. Dry. Sand is medium grained. Low plasticity. Friable, rootlets present. (TOPSOIL) GRAVEL with some silty sand and minor cobbles; Brown. Dry. Medium dense. Sand coarse grained. Gravel fine to coarse grained. Gravel rounded to sub rounded.	
1.0						Sandy GRAVEL with minor cobbles; Brown grey. Moist. Medium dense. Gravel fine to coarse grained. Sand medium to coarse grained. Rounded to sub rounded.	
1.5							
2.0							
2.5							
3.0						becomes moist	
3.5							
4.0							
4.5						End of Test Pit at 4.2m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

Logged by: MHD
Input by: MHD
Checked by: RJH
Verified by: RJH

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/28/2011	Logged by: RS
Excavator Type: 22 Tonne Excavator	Easting: 1548254 m	Date Completed: 9/28/2011	Input by: RS
Test Pit Dimensions:	Northing: 5172495 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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)</p> <p>silty SAND with some fine to medium grained, rounded and uniformly graded gravels, sand is fine to coarse grained and well graded, brown. Tightly packed, moist, sub-horizontal bedding.</p>	
1.0						<p>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, greywacke gravels.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered

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


Sheet 1 of 1

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

CO-ORDINATES OD New Zealand TM
Easting: 1548304 m
Northing: 5172416 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>0.10 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)</p> <p>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, greywacke gravels.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix.</p> <p>becomes with some sand and no cobbles.</p> <p>becomes sandy with cobbles present in the soil matrix to the base of the test pit.</p>	
4.0						4.00 End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered

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

TEST PIT INFORMATION	CO-ORDINATES OD New Zealand TM	Date Started: 9/28/2011	Logged by: RS
Excavator Type: 22 Tonne Excavator	Easting: 1548248 m	Date Completed: 9/28/2011	Input by: RS
Test Pit Dimensions:	Northing: 5172382 m		Checked by: RJH
Contractor: TEXCO	Ground Level: N/A		Verified by: RJH

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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)</p> <p>SILT, some fine to medium grained uniformly graded sand, brown. "Stiff", moist, low plasticity.</p> <p>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, greywacke gravels.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered

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


Sheet 1 of 1

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

CO-ORDINATES OD New Zealand TM
Easting: 1548150 m
Northing: 5172336 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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)</p> <p>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, grey and brown. Tightly packed, moist, sub-horizontal bedding, greywacke gravels. becomes minor silt.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
1.0							
1.5							
2.0							
2.5							
3.0							
3.5							
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered


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

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

CO-ORDINATES OD New Zealand TM
Easting: 1548238 m
Northing: 5172291 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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)</p> <p>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, greywacke gravels.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
1.0							
1.5							
2.0							
2.5							
3.0							
3.5							
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered


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

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

CO-ORDINATES OD New Zealand TM
Easting: 1548336 m
Northing: 5172348 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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)</p> <p>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.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered


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

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

CO-ORDINATES OD New Zealand TM
Easting: 1548306 m
Northing: 5172259 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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)</p> <p>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.</p> <p>becomes minor silt, grey and brown.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered


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

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

CO-ORDINATES OD New Zealand TM
Easting: 1548217 m
Northing: 5172199 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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)</p> <p>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.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
1.0							
1.5							
2.0							
2.5							
3.0							
3.5							
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered


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

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

CO-ORDINATES OD New Zealand TM
Easting: 1548295 m
Northing: 5172172 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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.)</p> <p>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.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered


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

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

CO-ORDINATES OD New Zealand TM
Easting: 1548277 m
Northing: 5172069 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						<p>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.)</p> <p>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, greywacke gravels.</p> <p>becomes brownish grey.</p> <p>becomes with cobbles present in the soil matrix to the base of the test pit.</p>	
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	

Remarks:
Water Table Not Encountered









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

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

CO-ORDINATES OD New Zealand TM
Easting: 1548385 m
Northing: 5172134 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

Depth (m)	Sample	Water Level (m)	Graphic Log	Shear Vane Tests	Pocket Penetrometer Tests	Soil Description	Elevation (m)
0.5						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)	
1.0						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.	
1.5						becomes brownish grey.	
2.0						becomes with cobbles present in the soil matrix to the base of the test pit.	
2.5							
3.0							
3.5							
4.0						End of Test Pit at 4m (TARGET DEPTH ACHIEVED)	
4.5							

Remarks:
Water Table Not Encountered

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