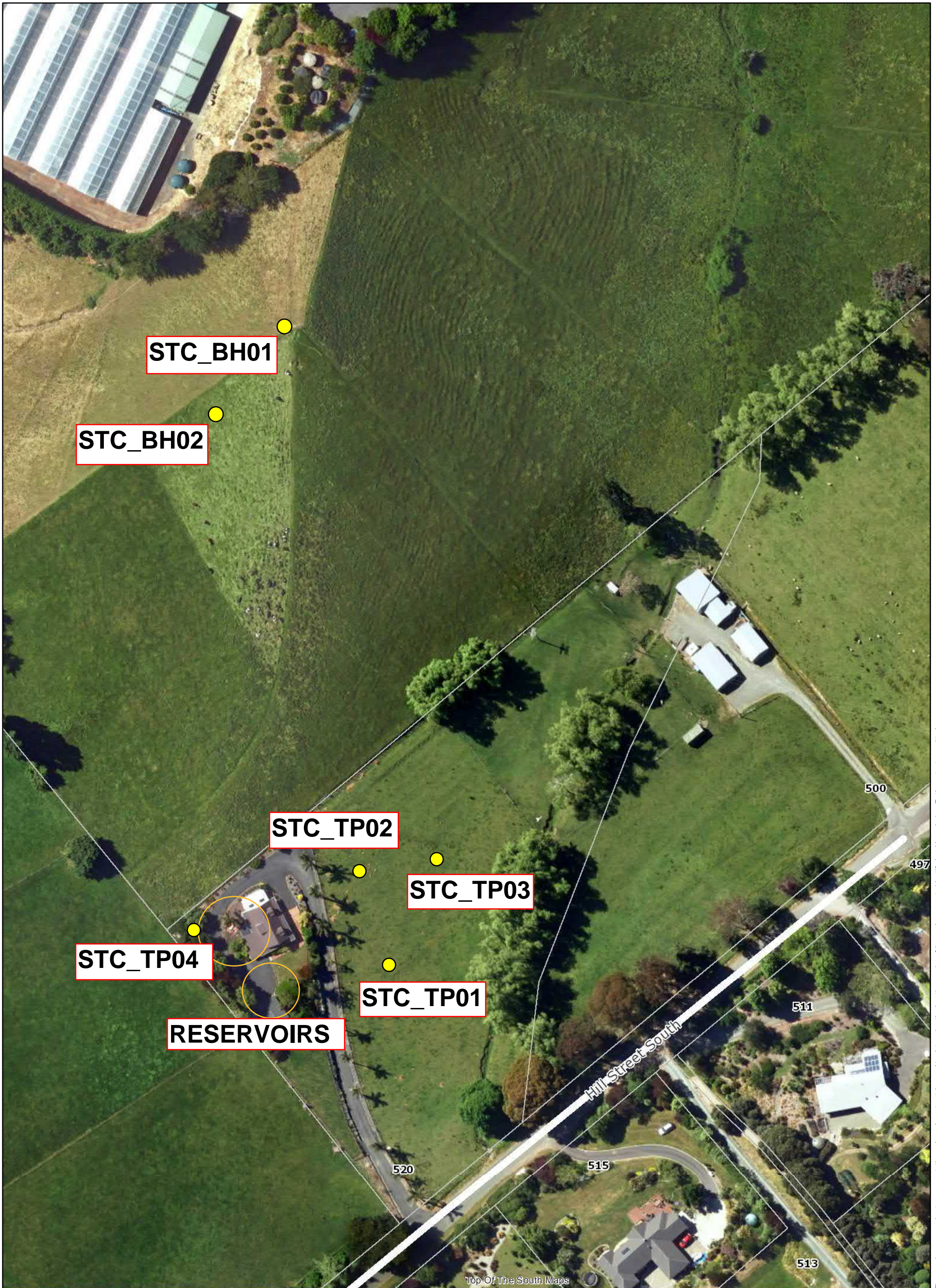




Appendix E

Stantec Logs and Location Plan



The map is an approximate representation only and must not be used to determine the location or size of items shown, or to identify legal boundaries. To the extent permitted by law, the Tasman District Council and Nelson City Council, their employees, agents and contractors will not be liable for any costs, damages or losses suffered as a result of the data or plan, and no warranty or representation of any kind is given as to the accuracy or completeness of the information represented. Top of the South Maps information is licensed under a Creative Commons Attribution 3.0 New Zealand License, and the use of any data or plan or any information downloaded must be in accordance with the terms of that licence. Cadastral and NZ Topo50 related data is sourced from Land Information New Zealand.

www.topofthesouthmaps.co.nz

Top of the South Maps

Legend



- Property Address
- Property at Subdivision Stage 223
- Property Boundary

- Place Names
- Road Labels
- State Highway



Scale: 1:1,000 @A3

08 September 2020



STANTEC NEW ZEALAND level 1 66 Oxford street Richmond Nelson Tel: 03 546 8728 Fax: 03 548 2016	TEST PIT LOG			Job No: 80510514
				Hole No: TP1
				Sheet: 1 of 1
	Client: Tasman District Council			Started: 13/12/18
	Project: Richmond South Reservoirs			Finished: 13/12/18
	Location: 520 Hill Street			Logged: KC
	Description: 10m downslope offset from top of driveway.			Checked: JG
	Easting: 389351m Northing: 790356m Pit orientation:		RL Surface: 63.1m	
Equipment Type: 5 Tonne Excavator		Pit dimension: 2m X 0.7m Datum: NZVD2016		

depth (m)	Material Description <small>(Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes. New Zealand Geotechnical Society, 2005)</small>	graphic log	Seepages	moisture condition	Scala Penetration (Blows/100mm)	RL (m)
0.0	Sandy SILT, brown, soft, dry, non-plastic, organics present. [TOPSOIL]	(0.2)		dry		63.0
0.2	Silty CLAY, orange, yellow, orange brown, firm, dry, low plasticity. Scattered angular pebbles with sand (weathered fragments).			dry		62.8
0.4				dry		62.6
0.6				dry		62.4
0.8				dry		62.2
1.0	Clayey GRAVEL and cobbles with some silt, yellow brown, dry, low plasticity. Rounded fine to coarse gravels with some boulders (<300mm). [MOUTERE GRAVELS]	(1)		dry		62.0
1.2				dry		61.8
1.4				dry		61.6
1.6				dry		61.4
1.8				dry		61.2
2.0	Test pit terminated at 2m due to Target Depth	(2)		dry		61.0
2.2						60.8
2.4						60.6
2.6						60.4
2.8						60.2
3.0						60.0

20/12/18 STANTEC NEW ZEALAND Project: 80510514, Richmond South Reservoirs, 520 Hill Street, www.stantec.com

Remarks: No groundwater measured in test pit.
 Coordinates and RL's are approximate. Coordinates (Nelson GD2000) derived via measurement from site features. Reduced Levels derived from 0.5m LiDAR information.

Contractor: Nelmecc



TEST PIT LOG

Job No: 80510514

Hole No: TP3

Sheet: 1 of 1

STANTEC NEW ZEALAND
level 1
66 Oxford street
Richmond
Nelson
Tel: 03 546 8728
Fax: 03 548 2016

Client: Tasman District Council

Project: Richmond South Reservoirs
Location: 520 Hill Street

Description: 30m downslope offset from top of driveway.

Started: 13/12/18

Finished: 13/12/18

Logged: KC

Checked: JG

Easting: 389410m Northing: 790372m Pit orientation:

RL Surface: 54m

Equipment Type: 5 Tonne Excavator Pit dimension: 2m X 0.7m

Datum: NZVD2016

depth (m)	Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes. New Zealand Geotechnical Society, 2005)	graphic log	Seepages	moisture condition	Scala Penetration (Blows/100mm)											RL (m)
					<small>SCALA PENETROMETER TEST: +DETERMINATION OF "GOOD GROUND" IN ACCORDANCE WITH NZS 3604: 1999 +DETERMINATION OF PENETRATION RESISTANCE OF A SOIL IN ACCORDANCE WITH NZS 4402: 1988</small>											
					0	2	4	6	8	10	12	14	16	18	20	
0.0 - 0.2	Sandy SILT, brown, soft, dry, non-plastic, organics present. [TOPSOIL]	(0.2)		dry												53.8
0.2 - 1.1	Silty CLAY, orange, yellow, orange brown, firm, dry, low plasticity. Scattered angular pebbles with sand (weathered fragments).	(1.1)		dry												53.6
1.1 - 2.0	Clayey GRAVEL and cobbles with some silt, yellow brown, dry, low plasticity. Rounded fine to coarse gravels, some boulders (<300mm). [MOUTERE GRAVELS]	(2)		dry												53.4
2.0 - 2.2	Test pit terminated at 2m due to Target Depth															53.2
2.2 - 2.4																53.0
2.4 - 2.6																52.8
2.6 - 2.8																52.6
2.8 - 3.0																52.4
																52.2
																52.0

20/12/18 STANTEC NEW ZEALAND Project: 80510514, Richmond South Reservoirs, 520 Hill Street, www.stantec.com

Remarks: No groundwater measured in test pit.
Coordinates and RL's are approximate. Coordinates (Nelson GD2000) derived via measurement from site features. Reduced Levels derived from 0.5m LiDar information.

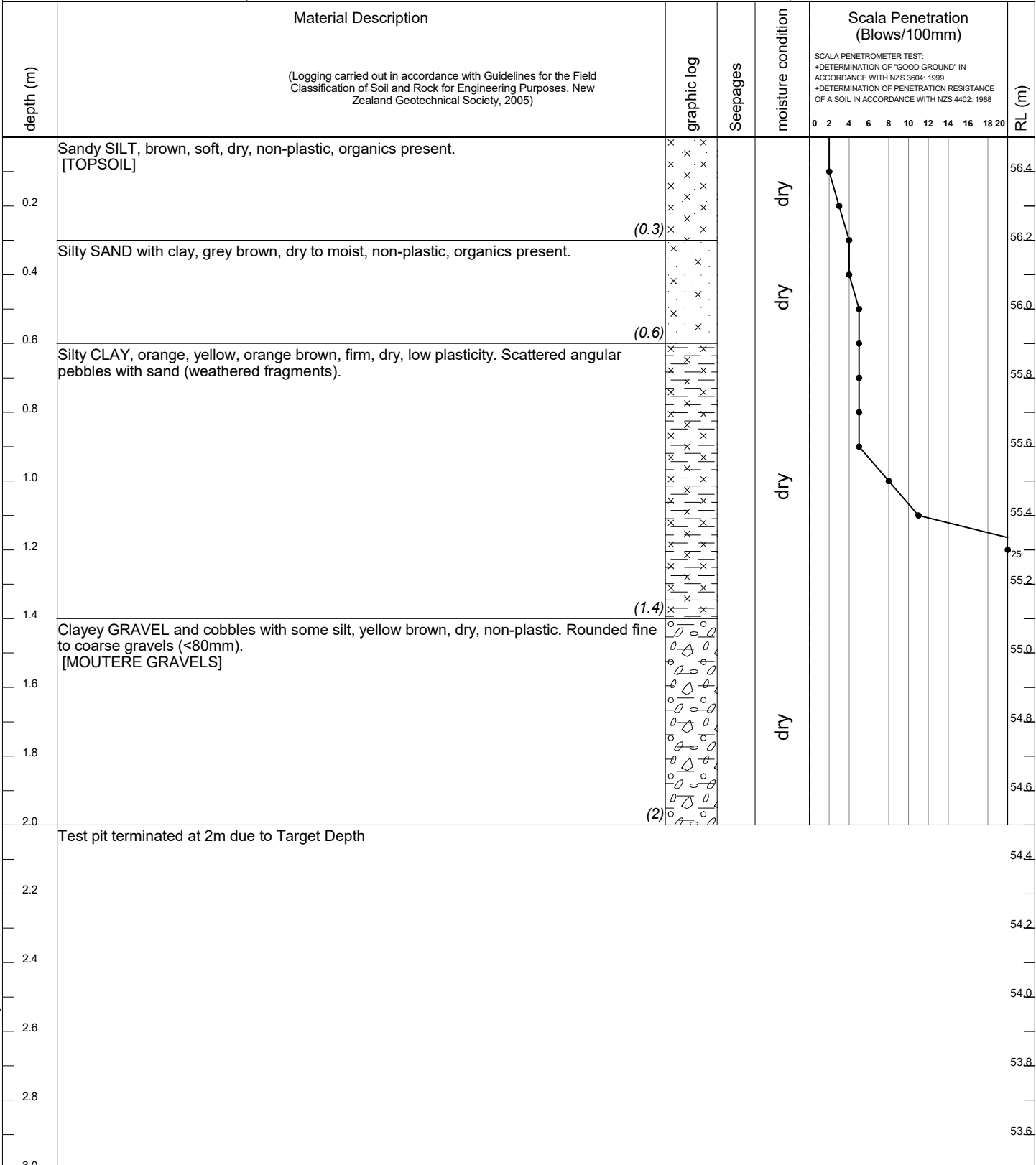
Contractor: Nelmec



TEST PIT LOG

STANTEC NEW ZEALAND
level 1
66 Oxford street
Richmond
Nelson
Tel: 03 546 8728
Fax: 03 548 2016

Client: Tasman District Council			Job No: 80510514
			Hole No: TP4
Project: Richmond South Reservoirs Location: 520 Hill Street			Sheet: 1 of 1
			Started: 13/12/18
Description: Corner of property.			Finished: 13/12/18
			Logged: KC
Easting: 389398m Northing: 790344m Pit orientation:			Checked: JG
			RL Surface: 56.5m
Equipment Type: 5 Tonne Excavator		Pit dimension: 2m X 0.4m	
			Datum: NZVD2016



20/12/18 STANTEC NEW ZEALAND Project: 80510514, Richmond South Reservoirs, 520 Hill Street, www.stantec.com

Remarks: No groundwater measured in test pit.
Coordinates and RL's are approximate. Coordinates (Nelson GD2000) derived via measurement from site features. Reduced Levels derived from 0.5m LiDAR information.

Contractor: Nelmecc



BOREHOLE LOG

Job No: 80507007
Hole No: STC17-01
Sheet: 2 of 4
Started: 25/10/17
Finished: 25/10/17
Logged: KWC
Checked: JKW
RL Surface: 76.2m
Datum: NZVD2016

STANTEC NEW ZEALAND
level 1
66 Oxford street
Richmond
Nelson
Tel: 03 546 8728
Fax: 03 548 2016

Client: Tasman District Council
Project: South Richmond Reservoirs Location: Richmond
Description: Hanna Reservoir SI
Easting: 389541.98m Northing: 793871.98m Inclination: Vertical
Diameter (Int/Ext): 85mm/123mm

Depth (m)	Elevation (m)	Samples Type	Shear Vane (kPa) Peak Strength/ Residual Strength	Standard Penetration Tests		Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes. New Zealand Geotechnical Society, 2005)	Graphic Log	Moisture Condition	Groundwater	Other Observations	Installation
				Blows // (SPT) // (75mm/150mm, 225mm/300mm)	N Value/ Refusal Data						
71.0						Clayey GRAVEL with silt, yellow brown, moist, very dense, non-plastic, rounded fine to coarse gravels. [MOUTERE GRAVELS] (5.3)	moist				
6.0	70.0	SPT sample		4/15//29/21	for 35 mm 50 Blows	Layer of higher concentration of fine to medium rounded gravels, orange brown.	moist	9/4 AD2 ▼			
7.0	69.0	SPT sample		9/27//28/22	for 120 mm 50 Blows		moist				
8.0	68.0	SPT sample		9/21//29/21	for 120 mm 50 Blows		moist				
9.0	67.0	SPT sample					moist				

Drilling Method: Rotary drilling with flush	Casing: None.	Remarks: See key sheets for abbreviations and symbols - Material descriptions conform to FIELD DESCRIPTION OF SOIL AND ROCK, 2005, NZGS - Solid nose cone used for SPT Testing at 9 m bgl and for all tests below this depth. Coordinate System - Nelson Circuit 2000.
Contractor: CW Drilling	Flush: Mud	
Equipment Type: Hanjin D8D Rig		

STC_BH01



BOREHOLE LOG

Job No: 80507007

Hole No: STC17-01

Sheet: 4 of 4

STANTEC NEW ZEALAND
level 1
66 Oxford street
Richmond
Nelson
Tel: 03 546 8728
Fax: 03 548 2016

Client: Tasman District Council

Started: 25/10/17

Project: South Richmond Reservoirs
Location: Richmond

Finished: 25/10/17

Description: Hanna Reservoir SI

Logged: KWC

Checked: JKW

Easting: 389541.98m Northing: 793871.98m Inclination: Vertical

RL Surface: 76.2m

Diameter (Int/Ext): 85mm/123mm

Datum: NZVD2016

Depth (m)	Elevation (m)	Samples Type	Shear Vane (kPa) Peak Strength/ Residual Strength	Standard Penetration Tests		Material Description (Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes. New Zealand Geotechnical Society, 2005)	Graphic Log	Moisture Condition	Groundwater	Other Observations	Installation
				Blows // (75mm/150mm, 225mm/300mm)	N Value/ Refusal Data						
61.0		SPT sample		11/27/1/50	for 75 mm 50 Blows	Clayey GRAVEL with silt, yellow brown, moist, very dense, non-plastic, rounded fine to coarse gravels. [MOUTERE GRAVELS]		wet			
60.0											
16.0		SPT sample		9/28/1/50	for 80 mm 50 Blows						
17.0											
18.0		SPT sample		7/22/1/26/24	for 120 mm 50 Blows						
19.0		SPT sample		8/29/1/40/10	for 100 mm 50 Blows	(19.7)					
Borehole terminated at 19.7m due to Target Depth											

Drilling Method:
Rotary drilling with flush

Casing:
None.

Contractor:
CW Drilling

Flush:
Mud

Equipment Type:
Hanjin D8D Rig

Remarks: See key sheets for abbreviations and symbols
- Material descriptions conform to FIELD DESCRIPTION OF SOIL AND ROCK, 2005, NZGS
- Solid nose cone used for SPT Testing at 9 m bgl and for all tests below this depth.
Coordinate System - Nelson Circuit 2000.



STANTEC NEW ZEALAND
level 1
66 Oxford street
Richmond
Nelson
Tel: 03 546 8728
Fax: 03 548 2016

STC_BH02

BOREHOLE LOG

Job No: 80507007
Hole No: STC17-02
Sheet: 1 of 2
Client: Tasman District Council
Project: South Richmond Reservoirs
Location: Richmond
Description: Hanna Reservoir SI
Started: 19/03/18
Finished: 20/03/18
Logged: KWC
Checked: JKW
Easting: 389349.73m Northing: 790499.36m Inclination: Vertical
Diameter (Int/Ext): 85mm/123mm
RL Surface: 66.9m
Datum: NZVD2016

Depth (m)	Elevation (m)	Samples Type	Shear Vane (kPa) Peak Strength/ Residual Strength	Standard Penetration Tests		Material Description <small>(Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes. New Zealand Geotechnical Society, 2005)</small>	Graphic Log	Moisture Condition	Groundwater	Other Observations	Installation	
				Blows // (50mm/150mm, 75mm/300mm, 225mm/300mm)	N Value/ Refusal Data							
1.0	66.0					SILT, brown, soft, moist, non-plastic. Organics present.	x x x x x x x x x x x x x x x	moist				
						(0.4)						
						Silty CLAY, yellow brown, firm, moist, low plasticity. Occasional pockets of mottled orange material.	x x x x x x x x x x x x x x x	moist				
						(1)						
						Clayey, fine to coarse GRAVEL, some silt, yellow brown, medium dense, moist, non-plastic; Rounded. [MOUTERE GRAVELS]						
2.0	65.0	SPT sample		4/3/4/5/5/5	N = 19							
3.0	64.0	SPT sample		13/15/22	for 75 mm 22 Blows	2.80m - Prominent orange oxidation layer.						
						(2.8)						
						3.00m - Becomes very dense.						
4.0	63.0					3.50m - Large gravel clast encountered.						
						(3.5)						
5.0	62.0	SPT sample		17/15/35	for 55 mm 35 Blows	4.90m - Becomes wet.						
						(4.9)						
						Clayey, fine to coarse GRAVEL, some silt, yellow brown, medium dense, moist, non-plastic; Rounded. [MOUTERE GRAVELS]						

Drilling Method: **Rotary drilling with flush** Casing: **None.**
 Contractor: **CW Drilling** Flush: **Mud**
 Equipment Type: **Hanjin D8D Rig**

Remarks: See key sheets for abbreviations and symbols
 - Material descriptions conform to FIELD DESCRIPTION OF SOIL AND ROCK, 2005, NZGS
 - Solid nose cone used for SPT Testing at 6 m bgl and for all tests below this depth.
 Coordinate System - Nelson Circuit 2000.

STC_BH02



STANTEC NEW ZEALAND
level 1
66 Oxford street
Richmond
Nelson
Tel: 03 546 8728
Fax: 03 548 2016

BOREHOLE LOG

Job No: 80507007
Hole No: STC17-02
Sheet: 2 of 2
Started: 19/03/18
Finished: 20/03/18
Logged: KWC
Checked: JKW
RL Surface: 66.9m
Datum: NZVD2016

Client: Tasman District Council

Project: South Richmond Reservoirs
Location: Richmond

Description: Hanna Reservoir SI

Easting: 389349.73m Northing: 790499.36m Inclination: Vertical

Diameter (Int/Ext): 85mm/123mm

Depth (m)	Elevation (m)	Samples Type	Shear Vane (kPa) <small>Peak Strength/ Residual Strength</small>	Standard Penetration Tests		Material Description <small>(Logging carried out in accordance with Guidelines for the Field Classification of Soil and Rock for Engineering Purposes. New Zealand Geotechnical Society, 2005)</small>	Graphic Log	Moisture Condition	Groundwater	Other Observations	Installation
				Blows // <small>(75mm/150mm, 225mm/300mm)</small>	N Value/ Refusal Data						
6.0	61.0	SPT sample		8/16//22/12	for 105 mm 34 Blows	Clayey, fine to coarse GRAVEL, some silt, yellow brown, medium dense, moist, non-plastic; Rounded. [MOUTERE GRAVELS][continued]		wet			
7.0	60.0	SPT sample		14/17//33	for 75 mm 33 Blows						
8.0	59.0	SPT sample		14/21//15	for 75 mm 15 Blows						
9.0	58.0	SPT sample		14/36	for 150 mm (seating)						
10.0	57.0	SPT sample				Borehole terminated at 10m due to Target Depth					

(8.5)

8.50m - Some rounded cobbles.

(10)

Drilling Method: **Rotary drilling with flush**
Casing: **None.**
Contractor: **CW Drilling**
Equipment Type: **Hanjin D8D Rig**
Flush: **Mud**

Remarks: See key sheets for abbreviations and symbols
- Material descriptions conform to FIELD DESCRIPTION OF SOIL AND ROCK, 2005, NZGS
- Solid nose cone used for SPT Testing at 6 m bgl and for all tests below this depth.
Coordinate System - Nelson Circuit 2000.