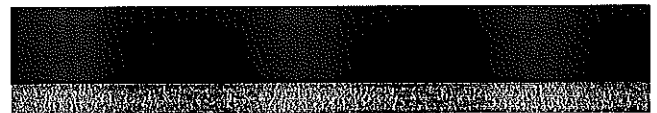


H A R R I S O N
G R I E R S O N

WHAREWAKA (2003) LTD

Wharewaka Point Subdivision - Stage 1

Geotechnical Completion Report



September 2005
Reference 1050-014359-01

HARRISON GRIERSON CONSULTANTS LIMITED

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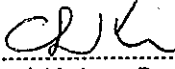
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WHAREWAKA (2003) LTD
Wharewaka Point Subdivision - Stage 1
Geotechnical Completion Report

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014359-AB201	Cut and Fill Plan – Sheet 1 of 3
014359-AB202	Cut and Fill Plan – Sheet 2 of 3
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1.0 INTRODUCTION

This report is for Lots 1 to 42, 127 to 161, and 180 to 212 of DP 356786, comprising Stage 1 of the Wharewaka Point Subdivision, located off Ernest Kemp Rise, Taupo. The report describes the geotechnical aspects of the site, earthworks undertaken to develop the subdivision, and records construction information and building restrictions.

2.0 SITE INVESTIGATIONS

Prior to development, geotechnical investigations were undertaken by Harrison Grierson Consultants Ltd to assess the suitability of the site for development, and the findings were presented in a report (Reference 1). The investigations confirmed that the site is located on Taupo Pumice Alluvium, which comprises medium dense and dense sands and gravels. The soils have good bearing capacity suitable for the erection of buildings with foundations not requiring specific foundation design.

A Building Limitation Line was required for slope stability purposes behind the steep bank above Lake Taupo behind lots 21 to 29. This was calculated to be approximately 7m to 8m beyond the top of the bank. A building restriction line of 5m from the western boundary of these lots has been imposed for planning purposes, and is sufficient protection for slope stability purposes.

A feature of the site was the large number of boulders present across the site.

3.0 DEVELOPMENT

Earthworks to develop the site for a residential subdivision were undertaken between January 2005 and March 2005 by Advance Earthworks, who were awarded a contract to undertake the earthworks construction for the entire Wharewaka Point Subdivision. The bulk of the earthworks within Stage 1 comprised excavation to form the road subgrades. Cut and fill operations were undertaken on some lots to create the finished contour, however on Lots 1, 2, 25 to 27, 153, 154, 180 to 191, and 206 to 212 there were no substantive earthworks undertaken apart from at the fronts of the lots where they were cut to suit the road contour. On Lots 16 to 19 the area was reworked to remove large boulders from the area, however the finished contour is close to the original contour.

In areas where earthworks were undertaken, topsoil was first stripped and stockpiled, and all vegetation and fences cleared. Earthworks, including stripping, cut to fill operations and respreading topsoil was primarily undertaken with motorscrapers. Hydraulic excavators and dump trucks were used in areas where rock had to be undercut from road subgrades and other areas, primarily

in Stage 2, and for a limited amount of earthmoving. Compaction of pumice fill was undertaken with a vibratory drum roller. Undercutting of the road subgrades was required in many areas to remove large boulders present, however there was very little undercutting required within the Lot areas.

Earthworks within the lot areas have involved fill depths of up to 1.0m, and cut depths of up to 1.6m. Earthfilling was undertaken to the requirements of NZS 4431.

Drawing 014359-AB200 shows the finished level contours for the site, while Drawings 014359-AB201 to AB203 show the depths of cut and fill over the site.

4.0 TESTING

During construction the Contractor undertook nuclear densometer and scala penetrometer tests to confirm that the required compaction standards were being achieved. The specified compaction level for fill areas was 95% of maximum dry density at optimum moisture content. Scala penetrometer testing was undertaken adjacent to areas where nuclear densometer field tests were undertaken to calibrate the results, with additional scala penetrometer tests being undertaken across the fill areas as a control. The test results show that the specified standard was exceeded throughout.

In addition to the testing undertaken during construction, Harrison Grierson have undertaken a scala penetrometer test at the center of each Lot following construction.

The test results are appended to this report.

The tests indicate that the bearing capacity of the soils at each lot is generally suitable for the erection of buildings not requiring specific foundation design, although some of the lots not affected by earthworks had bearing strengths marginally below that required by NZS 3604 in some of the upper soils. At a number of sites rock boulders were hit that curtailed the depth that the penetrometer could extend to.

5.0 BUILDING RESTRICTIONS AND RECOMMENDATIONS

5.1 BUILDING SETBACK (LOTS 21 TO 29)

No building should be permitted within 8m of the crest of the bank located to the west of these sites, unless specific geotechnical investigations and foundation design are undertaken by a geotechnical engineer.

The building restriction line imposed for planning reasons, and shown as areas AU to BJ on Lots 22 to 29 of DP 356786, and the western portion of areas AS and AT on Lot 21 of DP 356786 adequately covers the setback required.

5.2 PRESENCE OF BOULDERS

A number of boulders are present on the site at and just below ground level. It is possible that these boulders may be encountered during building or site contouring, and may need to be removed to enable house foundations to be constructed.

6.0 CONCLUSIONS

Prior to development the site was in pasture. Earthworks have been carried out to form the road alignments for the subdivision, and cut and filling operations have been undertaken on some lots to form the finished contour. Cuts of up to 1.6m below the original contour, and fills of up to 1.0m have been undertaken within the Lot areas. The earthworks have all been carried out in a controlled manner, with appropriate testing of fill undertaken during construction.

All sites are suitable for the erection thereon of residential buildings not requiring specific design in accordance with NZS 3604:1999 and related documents.

The following restrictions and notes apply to the development:

- a) A building restriction is imposed over the areas shown as AU to BJ on Lots 22 to 29, and the western portion of areas AS and AT on Lot 21 of DP 356786 due to the proximity of the steep bank to the west of these lots. Any building constructed within these areas will require specific geotechnical investigations and foundation design undertaken by a geotechnical engineer.
- b) Boulders are present on the site at and just below ground level. It is possible that these boulders may be encountered during building or site contouring, and may need to be removed to enable house foundations to be constructed.

A Statement on the Suitability of the Land For Building is appended as Appendix 1 of this report.

7.0 LIMITATIONS

This report has been prepared for the particular project described to us and its extent is limited to the scope of work agreed between the client and Harrison Grierson Consultants Limited. No responsibility is accepted by Harrison Grierson Consultants Limited or its directors, servants, agents, staff or employees for the accuracy of information provided by third parties and/or the use of any part of this report in any other context or for any other purposes.

Topsoil depths may vary across the lots, and no guarantee is given as to the depth of topsoil present. Owners should make their own assessment of topsoil depths across each lot prior to commencement of building.

This report does not preclude the necessity for routine foundation inspections at the time of construction of any dwelling.

This report is for the use by Wharewaka (2003) Ltd only, and should not be used or relied upon by any other person or entity or for any other project.

8.0 REFERENCES

1. "Wharewaka Point (2003) Ltd, Wharewaka Point, Taupo. Geotechnical Investigation" Harrison Grierson Consultants Ltd, August 2004, Reference 09.14359.1

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APPENDIX 1

Statement of Professional Opinion as to Geotechnical Suitability of Land for Building

STATEMENT OF PROFESSIONAL OPINION AS TO THE
GEOTECHNICAL SUITABILITY OF LAND FOR BUILDING

To : Taupo District Council

DEVELOPMENT: Wharewaka Point Subdivision – Stage 1

OWNER: Wharewaka (2003) Ltd

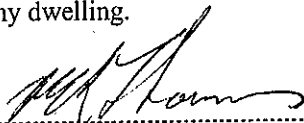
LOCATION: Ernest Kemp Rise, Taupo

I Mark Rhys Thomas of Harrison Grierson Consultants Ltd
(full name)
PO Box 1199, Tauranga
(name and address of firm)

Hereby confirm that;

- 1) I am a professional person, appropriately qualified with experience in geotechnical engineering to ascertain the suitability of the land for building development and was retained as the Soils Engineer to the above development.
- 2) An appropriate level of site investigation and construction supervision has been carried out under my direction and is described in my development evaluation report dated: September 2005
- 3) In my professional opinion, not to be construed as a guarantee, I consider that;
 - a) The earth fills shown on the attached Plan Nos. 014359 AB201 to AB203 have been placed in accordance with the earthworks design for this project.
 - b) The completed works give due regard to all land slope and foundation stability considerations.
 - c) The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604 and related documents, providing that:
 - i) Boulders are present in many areas on the site at or just below original ground level. These boulders may be encountered during building should foundations extend below the filled ground, and may need to be removed.
 - d) The original ground not affected by filling is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604 and related documents providing that:
 - ii) No building is to be constructed within 8m of the crest of the bank located to the west of Lots 21 to 29. (Refer section 5.2 of my report).
 - iii) Boulders are present in many areas on the site at or just below ground level. These boulders may be encountered during building, and may need to be removed.
- 4) This professional opinion is furnished to the Council and the subdividing owner for their purposes alone, on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection for any dwelling.

Signed



Date

12/9/05

APPENDIX 2

Test Results on Completed Development

HARRISON GRIERSON CONSULTANTS LTD											Job No.	1050 014359 01			
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 1															
1.00	0				0.00 m										
0.87	3	0.130	43 mm	78 kPa	0.13 m	++++++									
0.80	5	0.070	14 mm	200 kPa	0.20 m	+++++									
0.72	5	0.080	16 mm	180 kPa	0.28 m	+++++									
0.65	6	0.070	12 mm	225 kPa	0.35 m	+++++									
0.60	6	0.050	8 mm	275 kPa	0.40 m	+++++									
0.55	7	0.050	7 mm	340 kPa	0.45 m	+++++									
0.50	5	0.050	10 mm	250 kPa	0.50 m	+++++									
0.45	5	0.050	10 mm	250 kPa	0.55 m	+++++									
0.40	10	0.050	5 mm	430 kPa	0.60 m	+++++									
0.30	15	0.100	7 mm	340 kPa	0.70 m	+++++									
0.20	12	0.100	8 mm	275 kPa	0.80 m	+++++									
0.10	14	0.100	7 mm	340 kPa	0.90 m	+++++									
0.00	14	0.099	7 mm	340 kPa	1.00 m	+++++									
0.60	0	NEW	ROD	340 kPa	1.00 m	+++++									
0.50	12	0.100	8 mm	275 kPa	1.10 m	+++++									
0.40	42	0.100	2 mm	450 kPa	1.20 m	+++++									
LOT 2															
1.00	0				0.00 m										
0.90	1	0.100	100 mm	37 kPa	0.10 m	+++									
0.80	3	0.100	33 mm	98 kPa	0.20 m	+++++									
0.70	6	0.100	17 mm	175 kPa	0.30 m	+++++									
0.60	3	0.100	33 mm	98 kPa	0.40 m	+++++									
0.50	2	0.100	50 mm	68 kPa	0.50 m	+++++									
0.40	10	0.100	10 mm	250 kPa	0.60 m	+++++									
0.30	12	0.100	8 mm	275 kPa	0.70 m	+++++									
0.20	14	0.100	7 mm	340 kPa	0.80 m	+++++									
0.10	18	0.100	6 mm	340 kPa	0.90 m	+++++									
		rock													
LOT 3															
1.00	0				0.00 m										
0.90	4	0.100	25 mm	135 kPa	0.10 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.20 m	+++++									
0.70	16	0.100	6 mm	340 kPa	0.30 m	+++++									
0.60	12	0.100	8 mm	275 kPa	0.40 m	+++++									
		rock													
LOT 3 (2nd test)															
1.00	0				0.00 m										
0.90	4	0.100	25 mm	135 kPa	0.10 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.20 m	+++++									
0.70	12	0.100	8 mm	275 kPa	0.30 m	+++++									
0.60	20	0.100	5 mm	430 kPa	0.40 m	+++++									
0.50	21	0.100	5 mm	430 kPa	0.50 m	+++++									
0.40	20	0.100	5 mm	430 kPa	0.60 m	+++++									
		rock													

This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M,J, Stockwell B,E, C,ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 4															
1.20	0				0.00 m										
1.10	1	0.100	100 mm	37 kPa	0.10 m	+++									
1.00	3	0.100	33 mm	98 kPa	0.20 m	+++++									
0.90	6	0.100	17 mm	175 kPa	0.30 m	+++++									
0.80	7	0.100	14 mm	200 kPa	0.40 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.50 m	+++++									
0.60	8	0.100	13 mm	225 kPa	0.60 m	+++++									
0.50	18	0.100	6 mm	340 kPa	0.70 m	+++++									
0.40	16	0.100	6 mm	340 kPa	0.80 m	+++++									
0.30	15	0.100	7 mm	340 kPa	0.90 m	+++++									
0.20	15	0.100	7 mm	340 kPa	1.00 m	+++++									
0.10	24	0.100	4 mm	430 kPa	1.10 m	+++++									
0.00	18	0.100	6 mm	340 kPa	1.20 m	+++++									
LOT 5															
1.00	0				0.00 m										
0.90	2	0.100	50 mm	68 kPa	0.10 m	+++++									
0.80	5	0.100	20 mm	160 kPa	0.20 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.30 m	+++++									
0.60	12	0.100	8 mm	275 kPa	0.40 m	+++++									
0.50	13	0.100	8 mm	275 kPa	0.50 m	+++++									
0.40	17	0.100	6 mm	340 kPa	0.60 m	+++++									
0.30	17	0.100	6 mm	340 kPa	0.70 m	+++++									
0.20	16	0.100	6 mm	340 kPa	0.80 m	+++++									
	rock														
LOT 6															
1.00	0				0.00 m										
0.90	1	0.100	100 mm	37 kPa	0.10 m	+++									
0.80	3	0.100	33 mm	98 kPa	0.20 m	+++++									
0.70	6	0.100	17 mm	175 kPa	0.30 m	+++++									
0.60	13	0.100	8 mm	275 kPa	0.40 m	+++++									
0.50	35	0.100	3 mm	450 kPa	0.50 m	+++++									
0.40	30	0.100	3 mm	450 kPa	0.60 m	+++++									
	rock														
LOT 7															
1.00	0				0.00 m										
0.90	1	0.100	100 mm	37 kPa	0.10 m	+++									
0.80	2	0.100	50 mm	68 kPa	0.20 m	+++++									
0.70	5	0.100	20 mm	160 kPa	0.30 m	+++++									
0.60	14	0.100	7 mm	340 kPa	0.40 m	+++++									
0.50	18	0.100	6 mm	340 kPa	0.50 m	+++++									
0.40	37	0.100	3 mm	450 kPa	0.60 m	+++++									
	hard														

This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M,J, Stockwell B,E, C,ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD										Job No. 1050 014359 01						
SCALAPENETROMETER RESULT SHEET										Date tested						
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5		Tested by PSP / KLC								
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type		Printed 8-Sep-05								
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 8																
1.10	0				0.00 m											
1.00	3	0.100	33 mm	98 kPa	0.10 m	+++++										
0.90	7	0.100	14 mm	200 kPa	0.20 m	+++++										
0.80	6	0.100	17 mm	175 kPa	0.30 m	+++++										
0.70	7	0.100	14 mm	200 kPa	0.40 m	+++++										
0.60	9	0.100	11 mm	238 kPa	0.50 m	+++++										
0.50	12	0.100	8 mm	275 kPa	0.60 m	+++++										
0.40	18	0.100	6 mm	340 kPa	0.70 m	+++++										
0.30	24	0.100	4 mm	430 kPa	0.80 m	+++++										
0.20	23	0.100	4 mm	430 kPa	0.90 m	+++++										
0.10	24	0.100	4 mm	430 kPa	1.00 m	+++++										
0.00	25	0.100	4 mm	430 kPa	1.10 m	+++++										
LOT 9																
1.10	0				0.00 m											
1.00	3	0.100	33 mm	98 kPa	0.10 m	+++++										
0.90	4	0.100	25 mm	135 kPa	0.20 m	+++++										
0.80	5	0.100	20 mm	160 kPa	0.30 m	+++++										
0.70	9	0.100	11 mm	238 kPa	0.40 m	+++++										
0.60	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.50	6	0.100	17 mm	175 kPa	0.60 m	+++++										
0.40	18	0.100	6 mm	340 kPa	0.70 m	+++++										
0.30	27	0.100	4 mm	430 kPa	0.80 m	+++++										
0.20	26	0.100	4 mm	430 kPa	0.90 m	+++++										
0.10	27	0.100	4 mm	430 kPa	1.00 m	+++++										
0.00	24	0.100	4 mm	430 kPa	1.10 m	+++++										
LOT 10																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++										
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++										
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++										
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++										
0.70	22	0.100	5 mm	430 kPa	0.80 m	+++++										
0.60	25	0.100	4 mm	430 kPa	0.90 m	+++++										
0.50	25	0.100	4 mm	430 kPa	1.00 m	+++++										
0.40	27	0.100	4 mm	430 kPa	1.10 m	+++++										
0.30	24	0.100	4 mm	430 kPa	1.20 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD											Job No.	1050 014359 01			
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 11															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++									
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++									
0.60	13	0.100	8 mm	275 kPa	0.90 m	+++++									
0.50	12	0.100	8 mm	275 kPa	1.00 m	+++++									
0.40	13	0.100	8 mm	275 kPa	1.10 m	+++++									
0.30	13	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	14	0.100	7 mm	340 kPa	1.30 m	+++++									
0.10	9	0.100	11 mm	238 kPa	1.40 m	+++++									
0.00	9	0.100	11 mm	238 kPa	1.50 m	+++++									
LOT 12															
1.50	0				0.00 m										
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++									
1.30	7	0.100	14 mm	200 kPa	0.20 m	+++++									
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++									
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++									
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++									
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++									
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++									
0.70	15	0.100	7 mm	340 kPa	0.80 m	+++++									
0.60	16	0.100	6 mm	340 kPa	0.90 m	+++++									
0.50	15	0.100	7 mm	340 kPa	1.00 m	+++++									
0.40	16	0.100	6 mm	340 kPa	1.10 m	+++++									
0.30	16	0.100	6 mm	340 kPa	1.20 m	+++++									
0.20	15	0.100	7 mm	340 kPa	1.30 m	+++++									
0.10	16	0.100	6 mm	340 kPa	1.40 m	+++++									
0.00	17	0.100	6 mm	340 kPa	1.50 m	+++++									
LOT 13															
1.50	0				0.00 m										
1.40	6	0.100	17 mm	175 kPa	0.10 m	+++++									
1.30	7	0.100	14 mm	200 kPa	0.20 m	+++++									
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++									
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	8	0.100	13 mm	225 kPa	0.70 m	+++++									
0.70	28	0.100	4 mm	430 kPa	0.80 m	+++++									
0.60	30	0.100	3 mm	450 kPa	0.90 m	+++++									
0.50	31	0.100	3 mm	450 kPa	1.00 m	+++++									
rock															

HARRISON GRIERSON CONSULTANTS LTD										Job No. 1050 014359 01						
SCALAPENETROMETER RESULT SHEET										Date tested						
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5		Tested by PSP / KLC								
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type		Printed 8-Sep-05								
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT14																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	8	0.100	13 mm	225 kPa	0.20 m	+++++										
1.20	9	0.100	11 mm	238 kPa	0.30 m	+++++										
1.10	11	0.100	9 mm	275 kPa	0.40 m	+++++										
1.00	10	0.100	10 mm	250 kPa	0.50 m	+++++										
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++										
0.80	10	0.100	10 mm	250 kPa	0.70 m	+++++										
0.70	9	0.100	11 mm	238 kPa	0.80 m	+++++										
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++										
0.50	14	0.100	7 mm	340 kPa	1.00 m	+++++										
0.40	10	0.100	10 mm	250 kPa	1.10 m	+++++										
0.30	11	0.100	9 mm	275 kPa	1.20 m	+++++										
0.20	9	0.100	11 mm	238 kPa	1.30 m	+++++										
0.10	10	0.100	10 mm	250 kPa	1.40 m	+++++										
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++										
LOT 15																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	9	0.100	11 mm	238 kPa	0.20 m	+++++										
1.20	18	0.100	6 mm	340 kPa	0.30 m	+++++										
1.10	21	0.100	5 mm	430 kPa	0.40 m	+++++										
1.00	18	0.100	6 mm	340 kPa	0.50 m	+++++										
0.90	14	0.100	7 mm	340 kPa	0.60 m	+++++										
0.80	13	0.100	8 mm	275 kPa	0.70 m	+++++										
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++										
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++										
0.50	11	0.100	9 mm	275 kPa	1.00 m	+++++										
0.40	13	0.100	8 mm	275 kPa	1.10 m	+++++										
0.30	13	0.100	8 mm	275 kPa	1.20 m	+++++										
0.20	12	0.100	8 mm	275 kPa	1.30 m	+++++										
0.10	14	0.100	7 mm	340 kPa	1.40 m	+++++										
0.00	13	0.100	8 mm	275 kPa	1.50 m	+++++										
LOT 16																
1.50	0				0.00 m											
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++										
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++										
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++										
1.10	15	0.100	7 mm	340 kPa	0.40 m	+++++										
1.00	15	0.100	7 mm	340 kPa	0.50 m	+++++										
0.90	13	0.100	8 mm	275 kPa	0.60 m	+++++										
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++										
0.70	9	0.100	11 mm	238 kPa	0.80 m	+++++										
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++										
0.50	15	0.100	7 mm	340 kPa	1.00 m	+++++										
0.40	11	0.100	9 mm	275 kPa	1.10 m	+++++										
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++										
0.20	12	0.100	8 mm	275 kPa	1.30 m	+++++										
0.10	12	0.100	8 mm	275 kPa	1.40 m	+++++										
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC					
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05					
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 17																
1.50	0				0.00 m											
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++										
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++										
1.20	10	0.100	10 mm	250 kPa	0.30 m	+++++										
1.10	13	0.100	8 mm	275 kPa	0.40 m	+++++										
1.00	9	0.100	11 mm	238 kPa	0.50 m	+++++										
0.90	17	0.100	6 mm	340 kPa	0.60 m	+++++										
0.80	31	0.100	3 mm	450 kPa	0.70 m	+++++										
0.70	25	0.100	4 mm	430 kPa	0.80 m	+++++										
0.60	18	0.100	6 mm	340 kPa	0.90 m	+++++										
LOT 18																
1.50	0				0.00 m											
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++										
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++										
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++										
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	14	0.100	7 mm	340 kPa	0.60 m	+++++										
0.80	10	0.100	10 mm	250 kPa	0.70 m	+++++										
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++										
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++										
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++										
0.40	11	0.100	9 mm	275 kPa	1.10 m	+++++										
0.23	12	0.170	14 mm	200 kPa	1.27 m	+++++										
0.20	11	0.030	3 mm	450 kPa	1.30 m	+++++										
0.10	11	0.100	9 mm	275 kPa	1.40 m	+++++										
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++										
LOT 19																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++										
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++										
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++										
1.00	13	0.100	8 mm	275 kPa	0.50 m	+++++										
0.90	12	0.100	8 mm	275 kPa	0.60 m	+++++										
0.80	14	0.100	7 mm	340 kPa	0.70 m	+++++										
0.70	13	0.100	8 mm	275 kPa	0.80 m	+++++										
0.60	16	0.100	6 mm	340 kPa	0.90 m	+++++										
0.50	16	0.100	6 mm	340 kPa	1.00 m	+++++										
0.40	16	0.100	6 mm	340 kPa	1.10 m	+++++										
0.30	15	0.100	7 mm	340 kPa	1.20 m	+++++										
0.20	16	0.100	6 mm	340 kPa	1.30 m	+++++										
0.10	16	0.100	6 mm	340 kPa	1.40 m	+++++										
0.00	15	0.100	7 mm	340 kPa	1.50 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 20															
1.50	0				0.00 m										
1.40	6	0.100	17 mm	175 kPa	0.10 m	+++++									
1.30	7	0.100	14 mm	200 kPa	0.20 m	+++++									
1.20	11	0.100	9 mm	275 kPa	0.30 m	+++++									
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++									
1.00	14	0.100	7 mm	340 kPa	0.50 m	+++++									
0.90	16	0.100	6 mm	340 kPa	0.60 m	+++++									
0.80	15	0.100	7 mm	340 kPa	0.70 m	+++++									
0.70	14	0.100	7 mm	340 kPa	0.80 m	+++++									
0.60	17	0.100	6 mm	340 kPa	0.90 m	+++++									
0.50	17	0.100	6 mm	340 kPa	1.00 m	+++++									
0.40	21	0.100	5 mm	430 kPa	1.10 m	+++++									
0.30	20	0.100	5 mm	430 kPa	1.20 m	+++++									
LOT 21															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++									
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++									
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++									
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++									
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++									
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++									
0.30	6	0.100	17 mm	175 kPa	1.20 m	+++++									
0.20	11	0.100	9 mm	275 kPa	1.30 m	+++++									
0.10	18	0.100	6 mm	340 kPa	1.40 m	+++++									
0.00	24	0.100	4 mm	430 kPa	1.50 m	+++++									
LOT 22															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++									
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++									
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++									
0.90	6	0.100	17 mm	175 kPa	0.60 m	+++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++									
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++									
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++									
0.50	9	0.100	11 mm	238 kPa	1.00 m	+++++									
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++									
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++									
0.20	8	0.100	13 mm	225 kPa	1.30 m	+++++									
0.10	6	0.100	17 mm	175 kPa	1.40 m	+++++									
0.00	10	0.100	10 mm	250 kPa	1.50 m	+++++									

This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M.J. Stockwell B.E, C.ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 23															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++									
0.70	3	0.100	33 mm	98 kPa	0.80 m	+++++									
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++									
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++									
0.40	18	0.100	6 mm	340 kPa	1.10 m	+++++									
0.30	14	0.100	7 mm	340 kPa	1.20 m	+++++									
0.20	10	0.100	10 mm	250 kPa	1.30 m	+++++									
0.10	10	0.100	10 mm	250 kPa	1.40 m	+++++									
0.00	10	0.100	10 mm	250 kPa	1.50 m	+++++									
LOT 24															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++									
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++									
1.00	16	0.100	6 mm	340 kPa	0.50 m	+++++									
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++									
0.80	14	0.100	7 mm	340 kPa	0.70 m	+++++									
0.70	15	0.100	7 mm	340 kPa	0.80 m	+++++									
0.60	21	0.100	5 mm	430 kPa	0.90 m	+++++									
0.50	29	0.100	3 mm	450 kPa	1.00 m	+++++									
0.40	16	0.100	6 mm	340 kPa	1.10 m	+++++									
0.30	17	0.100	6 mm	340 kPa	1.20 m	+++++									
0.20	18	0.100	6 mm	340 kPa	1.30 m	+++++									
LOT 25															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++									
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++									
1.00	8	0.100	13 mm	225 kPa	0.50 m	+++++									
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++									
0.70	5	0.100	20 mm	160 kPa	0.80 m	+++++									
0.60	6	0.100	17 mm	175 kPa	0.90 m	+++++									
0.50	5	0.100	20 mm	160 kPa	1.00 m	+++++									
0.40	6	0.100	17 mm	175 kPa	1.10 m	+++++									
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++									
0.20	6	0.100	17 mm	175 kPa	1.30 m	+++++									
0.10	5	0.100	20 mm	160 kPa	1.40 m	+++++									
0.00	7	0.100	14 mm	200 kPa	1.50 m	+++++									

This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M,J, Stockwell B,E, C,ENG, M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No.		1050 014359 01		
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by		PSP / KLC		
PROJECT WHAREWAKA POINT STAGE 1											Printed		8-Sep-05		
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 26															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	++++++									
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++									
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++									
0.90	6	0.100	17 mm	175 kPa	0.60 m	+++++									
0.80	7	0.100	14 mm	200 kPa	0.70 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++									
0.60	6	0.100	17 mm	175 kPa	0.90 m	+++++									
0.50	5	0.100	20 mm	160 kPa	1.00 m	+++++									
0.40	6	0.100	17 mm	175 kPa	1.10 m	+++++									
		rock													
LOT 27															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++									
0.80	3	0.100	33 mm	98 kPa	0.70 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++									
0.60	6	0.100	17 mm	175 kPa	0.90 m	+++++									
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++									
		rock													
LOT 28															
1.50	0				0.00 m										
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++									
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++									
1.00	8	0.100	13 mm	225 kPa	0.50 m	+++++									
0.90	11	0.100	9 mm	275 kPa	0.60 m	+++++									
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++									
0.70	15	0.100	7 mm	340 kPa	0.80 m	+++++									
0.60	7	0.100	14 mm	200 kPa	0.90 m	+++++									
0.50	8	0.100	13 mm	225 kPa	1.00 m	+++++									
0.40	9	0.100	11 mm	238 kPa	1.10 m	+++++									
0.30	13	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	12	0.100	8 mm	275 kPa	1.30 m	+++++									
0.10	14	0.100	7 mm	340 kPa	1.40 m	+++++									
0.00	13	0.100	8 mm	275 kPa	1.50 m	+++++									

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 29															
1.50	0				0.00 m										
1.40	11	0.100	9 mm	275 kPa	0.10 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.30	9	0.100	11 mm	238 kPa	0.20 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.10	10	0.100	10 mm	250 kPa	0.40 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.00	10	0.100	10 mm	250 kPa	0.50 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.90	10	0.100	10 mm	250 kPa	0.60 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.80	8	0.100	13 mm	225 kPa	0.70 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.70	9	0.100	11 mm	238 kPa	0.80 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
rock															
LOT 30															
1.50	0				0.00 m										
1.40	8	0.100	13 mm	225 kPa	0.10 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.30	9	0.100	11 mm	238 kPa	0.20 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.20	10	0.100	10 mm	250 kPa	0.30 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.10	10	0.100	10 mm	250 kPa	0.40 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.00	9	0.100	11 mm	238 kPa	0.50 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.60	6	0.100	17 mm	175 kPa	0.90 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.50	18	0.100	6 mm	340 kPa	1.00 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
rock															
LOT 31															
1.50	0				0.00 m										
1.40	8	0.100	13 mm	225 kPa	0.10 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.30	8	0.100	13 mm	225 kPa	0.20 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.20	10	0.100	10 mm	250 kPa	0.30 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.60	5	0.100	20 mm	160 kPa	0.90 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.50	9	0.100	11 mm	238 kPa	1.00 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.40	8	0.100	13 mm	225 kPa	1.10 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.20	10	0.100	10 mm	250 kPa	1.30 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.10	9	0.100	11 mm	238 kPa	1.40 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
0.00	11	0.100	9 mm	275 kPa	1.50 m	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 32															
1.50	0				0.00 m										
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++									
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++									
0.90	3	0.100	33 mm	98 kPa	0.60 m	+++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++									
0.70	3	0.100	33 mm	98 kPa	0.80 m	+++++									
0.60	14	0.100	7 mm	340 kPa	0.90 m	+++++									
0.50	17	0.100	6 mm	340 kPa	1.00 m	+++++									
0.40	14	0.100	7 mm	340 kPa	1.10 m	+++++									
0.30	13	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	15	0.100	7 mm	340 kPa	1.30 m	+++++									
0.10	15	0.100	7 mm	340 kPa	1.40 m	+++++									
0.00	16	0.100	6 mm	340 kPa	1.50 m	+++++									
LOT 33															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++									
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++									
0.80	8	0.100	13 mm	225 kPa	0.70 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++									
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++									
0.50	15	0.100	7 mm	340 kPa	1.00 m	+++++									
rock															
LOT 34															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++									
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++									
1.00	8	0.100	13 mm	225 kPa	0.50 m	+++++									
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++									
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++									
0.60	5	0.100	20 mm	160 kPa	0.90 m	+++++									
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++									
0.40	6	0.100	17 mm	175 kPa	1.10 m	+++++									
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++									
rock															

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Author : M,J, Stockwell B,E, C,ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 35															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	7	0.100	14 mm	200 kPa	0.20 m	+++++									
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++									
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++									
1.00	9	0.100	11 mm	238 kPa	0.50 m	+++++									
0.90	10	0.100	10 mm	250 kPa	0.60 m	+++++									
0.80	10	0.100	10 mm	250 kPa	0.70 m	+++++									
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++									
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++									
0.50	9	0.100	11 mm	238 kPa	1.00 m	+++++									
0.40	18	0.100	6 mm	340 kPa	1.10 m	+++++									
rock															
LOT 36															
1.50	0				0.00 m										
1.40	6	0.100	17 mm	175 kPa	0.10 m	+++++									
1.30	9	0.100	11 mm	238 kPa	0.20 m	+++++									
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++									
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++									
1.00	8	0.100	13 mm	225 kPa	0.50 m	+++++									
0.90	12	0.100	8 mm	275 kPa	0.60 m	+++++									
0.80	12	0.100	8 mm	275 kPa	0.70 m	+++++									
0.70	8	0.100	13 mm	225 kPa	0.80 m	+++++									
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++									
0.50	14	0.100	7 mm	340 kPa	1.00 m	+++++									
rock															
LOT 37															
1.50	0				0.00 m										
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++									
1.30	8	0.100	13 mm	225 kPa	0.20 m	+++++									
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++									
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++									
1.00	14	0.100	7 mm	340 kPa	0.50 m	+++++									
0.90	10	0.100	10 mm	250 kPa	0.60 m	+++++									
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++									
0.70	12	0.100	8 mm	275 kPa	0.80 m	+++++									
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++									
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++									
0.40	10	0.100	10 mm	250 kPa	1.10 m	+++++									
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++									
0.20	11	0.100	9 mm	275 kPa	1.30 m	+++++									
0.10	9	0.100	11 mm	238 kPa	1.40 m	+++++									
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++									

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Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd											NB safety factor 1.6 -- 5		Tested by PSP / KLC			
PROJECT WHAREWAKA POINT STAGE 1											depending on soil type		Printed 8-Sep-05			
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 38																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++										
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++										
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++										
1.00	10	0.100	10 mm	250 kPa	0.50 m	+++++										
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++										
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++										
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++										
0.60	7	0.100	14 mm	200 kPa	0.90 m	+++++										
0.50	8	0.100	13 mm	225 kPa	1.00 m	+++++										
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++										
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++										
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++										
0.10	7	0.100	14 mm	200 kPa	1.40 m	+++++										
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++										
LOT 39																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++										
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++										
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++										
0.80	7	0.100	14 mm	200 kPa	0.70 m	+++++										
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++										
0.60	5	0.100	20 mm	160 kPa	0.90 m	+++++										
0.50	5	0.100	20 mm	160 kPa	1.00 m	+++++										
0.40	5	0.100	20 mm	160 kPa	1.10 m	+++++										
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++										
0.20	10	0.100	10 mm	250 kPa	1.30 m	+++++										
0.10	10	0.100	10 mm	250 kPa	1.40 m	+++++										
0.00	11	0.100	9 mm	275 kPa	1.50 m	+++++										
LOT 40																
1.50	0				0.00 m											
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++										
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++										
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	11	0.100	9 mm	275 kPa	0.60 m	+++++										
0.80	10	0.100	10 mm	250 kPa	0.70 m	+++++										
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++										
0.60	7	0.100	14 mm	200 kPa	0.90 m	+++++										
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++										
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++										
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++										
0.20	10	0.100	10 mm	250 kPa	1.30 m	+++++										
0.10	11	0.100	9 mm	275 kPa	1.40 m	+++++										
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++										

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Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd											NB safety factor 1.6 -- 5		Tested by PSP / KLC			
PROJECT WHAREWAKA POINT STAGE 1											depending on soil type		Printed 8-Sep-05			
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 41																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++										
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++										
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++										
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++										
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++										
0.80	7	0.100	14 mm	200 kPa	0.70 m	+++++										
0.70	10	0.100	10 mm	250 kPa	0.80 m	+++++										
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++										
0.50	8	0.100	13 mm	225 kPa	1.00 m	+++++										
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++										
0.30	9	0.100	11 mm	238 kPa	1.20 m	+++++										
0.20	14	0.100	7 mm	340 kPa	1.30 m	+++++										
0.10	12	0.100	8 mm	275 kPa	1.40 m	+++++										
0.00	13	0.100	8 mm	275 kPa	1.50 m	+++++										
LOT 42																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++										
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++										
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++										
0.80	7	0.100	14 mm	200 kPa	0.70 m	+++++										
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++										
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++										
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++										
0.40	8	0.100	13 mm	225 kPa	1.10 m	+++++										
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++										
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++										
0.10	7	0.100	14 mm	200 kPa	1.40 m	+++++										
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++										
LOT 127																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++										
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++										
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	10	0.100	10 mm	250 kPa	0.60 m	+++++										
0.80	12	0.100	8 mm	275 kPa	0.70 m	+++++										
0.70	13	0.100	8 mm	275 kPa	0.80 m	+++++										
0.60	14	0.100	7 mm	340 kPa	0.90 m	+++++										
0.50	12	0.100	8 mm	275 kPa	1.00 m	+++++										
0.40	12	0.100	8 mm	275 kPa	1.10 m	+++++										
0.30	33	0.100	3 mm	450 kPa	1.20 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 – 5					Tested by PSP / KLC					
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05					
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 128																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++++										
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++++										
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++++										
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++++										
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++++										
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++++										
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++++										
0.50	11	0.100	9 mm	275 kPa	1.00 m	+++++++										
0.40	12	0.100	8 mm	275 kPa	1.10 m	+++++++										
LOT 129																
1.50	0				0.00 m											
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++++										
1.30	7	0.100	14 mm	200 kPa	0.20 m	+++++++										
1.20	10	0.100	10 mm	250 kPa	0.30 m	+++++++										
1.10	11	0.100	9 mm	275 kPa	0.40 m	+++++++										
1.00	10	0.100	10 mm	250 kPa	0.50 m	+++++++										
0.90	12	0.100	8 mm	275 kPa	0.60 m	+++++++										
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++++										
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++++										
0.60	11	0.100	9 mm	275 kPa	0.90 m	+++++++										
0.50	11	0.100	9 mm	275 kPa	1.00 m	+++++++										
0.40	10	0.100	10 mm	250 kPa	1.10 m	+++++++										
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++++										
0.20	8	0.100	13 mm	225 kPa	1.30 m	+++++++										
0.10	12	0.100	8 mm	275 kPa	1.40 m	+++++++										
0.00	11	0.100	9 mm	275 kPa	1.50 m	+++++++										
LOT 130																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++++										
1.20	9	0.100	11 mm	238 kPa	0.30 m	+++++++										
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++++										
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++++										
0.80	8	0.100	13 mm	225 kPa	0.70 m	+++++++										
0.70	9	0.100	11 mm	238 kPa	0.80 m	+++++++										
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++++										
0.50	9	0.100	11 mm	238 kPa	1.00 m	+++++++										
0.40	14	0.100	7 mm	340 kPa	1.10 m	+++++++										
0.30	35	0.100	3 mm	450 kPa	1.20 m	+++++++										

This spreadsheet has been developed with reference to the following publication:

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Author : M,J, Stockwell B,E, C,ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 131															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++									
1.10	12	0.100	8 mm	275 kPa	0.40 m	+++++									
1.00	10	0.100	10 mm	250 kPa	0.50 m	+++++									
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++									
0.80	10	0.100	10 mm	250 kPa	0.70 m	+++++									
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++									
0.60	13	0.100	8 mm	275 kPa	0.90 m	+++++									
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++									
0.40	9	0.100	11 mm	238 kPa	1.10 m	+++++									
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	15	0.100	7 mm	340 kPa	1.30 m	+++++									
0.01	16	0.190	12 mm	225 kPa	1.49 m	+++++									
0.00	15	0.010	1 mm	500 kPa	1.50 m	+++++									
LOT 132															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	8	0.100	13 mm	225 kPa	0.20 m	+++++									
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++									
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++									
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++									
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++									
0.80	18	0.100	6 mm	340 kPa	0.70 m	+++++									
0.70	21	0.100	5 mm	430 kPa	0.80 m	+++++									
0.60	18	0.100	6 mm	340 kPa	0.90 m	+++++									
0.50	14	0.100	7 mm	340 kPa	1.00 m	+++++									
0.40	16	0.100	6 mm	340 kPa	1.10 m	+++++									
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	14	0.100	7 mm	340 kPa	1.30 m	+++++									
0.10	15	0.100	7 mm	340 kPa	1.40 m	+++++									
0.00	14	0.100	7 mm	340 kPa	1.50 m	+++++									
LOT 133															
1.00	0				0.00 m										
0.90	4	0.100	25 mm	135 kPa	0.10 m	+++++									
0.80	5	0.100	20 mm	160 kPa	0.20 m	+++++									
0.70	11	0.100	9 mm	275 kPa	0.30 m	+++++									
0.60	11	0.100	9 mm	275 kPa	0.40 m	+++++									
0.50	25	0.100	4 mm	430 kPa	0.50 m	+++++									
0.40	40	0.100	3 mm	450 kPa	0.60 m	+++++									
LOT 134															
1.00	0				0.00 m										
0.90	2	0.100	50 mm	68 kPa	0.10 m	+++++									
0.80	12	0.100	8 mm	275 kPa	0.20 m	+++++									
0.70	14	0.100	7 mm	340 kPa	0.30 m	+++++									
0.60	23	0.100	4 mm	430 kPa	0.40 m	+++++									
0.50	32	0.100	3 mm	450 kPa	0.50 m	+++++									
0.40	53	0.100	2 mm	450 kPa	0.60 m	+++++									
0.30	33	0.100	3 mm	450 kPa	0.70 m	+++++									

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Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 135															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	++++++									
1.30	9	0.100	11 mm	238 kPa	0.20 m	+++++									
1.20	20	0.100	5 mm	430 kPa	0.30 m	+++++									
1.10	21	0.100	5 mm	430 kPa	0.40 m	+++++									
1.00	19	0.100	5 mm	430 kPa	0.50 m	+++++									
0.90	15	0.100	7 mm	340 kPa	0.60 m	+++++									
0.80	13	0.100	8 mm	275 kPa	0.70 m	+++++									
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++									
0.60	11	0.100	9 mm	275 kPa	0.90 m	+++++									
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++									
0.40	11	0.100	9 mm	275 kPa	1.10 m	+++++									
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++									
0.20	11	0.100	9 mm	275 kPa	1.30 m	+++++									
0.10	11	0.100	9 mm	275 kPa	1.40 m	+++++									
0.00	10	0.100	10 mm	250 kPa	1.50 m	+++++									
LOT 136															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	8	0.100	13 mm	225 kPa	0.20 m	+++++									
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++									
1.10	16	0.100	6 mm	340 kPa	0.40 m	+++++									
1.00	15	0.100	7 mm	340 kPa	0.50 m	+++++									
0.90	14	0.100	7 mm	340 kPa	0.60 m	+++++									
0.80	12	0.100	8 mm	275 kPa	0.70 m	+++++									
0.70	12	0.100	8 mm	275 kPa	0.80 m	+++++									
0.60	11	0.100	9 mm	275 kPa	0.90 m	+++++									
0.50	12	0.100	8 mm	275 kPa	1.00 m	+++++									
0.40	13	0.100	8 mm	275 kPa	1.10 m	+++++									
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	12	0.100	8 mm	275 kPa	1.30 m	+++++									
0.10	11	0.100	9 mm	275 kPa	1.40 m	+++++									
0.00	13	0.100	8 mm	275 kPa	1.50 m	+++++									
LOT 137															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++									
1.10	13	0.100	8 mm	275 kPa	0.40 m	+++++									
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	8	0.100	13 mm	225 kPa	0.70 m	+++++									
0.70	19	0.100	5 mm	430 kPa	0.80 m	+++++									
0.60	30	0.100	3 mm	450 kPa	0.90 m	+++++									
0.50	36	0.100	3 mm	450 kPa	1.00 m	+++++									

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Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD										Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET										Date tested				
CLIENT: Wharewaka (2003) Ltd					NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1					depending on soil type					Printed 8-Sep-05				
					50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR	
LOT 138														
1.50	0				0.00 m									
1.40	3	0.100	33 mm	98 kPa	0.10 m	++++++								
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++								
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++								
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++								
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++								
0.90	17	0.100	6 mm	340 kPa	0.60 m	+++++								
0.80	17	0.100	6 mm	340 kPa	0.70 m	+++++								
0.70	18	0.100	6 mm	340 kPa	0.80 m	+++++								
0.60	21	0.100	5 mm	430 kPa	0.90 m	+++++								
0.50	27	0.100	4 mm	430 kPa	1.00 m	+++++								
LOT 139														
1.50	0				0.00 m									
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++								
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++								
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++								
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++								
1.00	13	0.100	8 mm	275 kPa	0.50 m	+++++								
0.90	15	0.100	7 mm	340 kPa	0.60 m	+++++								
0.80	15	0.100	7 mm	340 kPa	0.70 m	+++++								
0.70	25	0.100	4 mm	430 kPa	0.80 m	+++++								
0.60	23	0.100	4 mm	430 kPa	0.90 m	+++++								
0.50	23	0.100	4 mm	430 kPa	1.00 m	+++++								
LOT 140														
1.50	0				0.00 m									
1.40	3	0.100	33 mm	98 kPa	0.10 m	++++++								
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++								
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++								
1.10	12	0.100	8 mm	275 kPa	0.40 m	+++++								
1.00	11	0.100	9 mm	275 kPa	0.50 m	+++++								
0.90	12	0.100	8 mm	275 kPa	0.60 m	+++++								
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++								
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++								
0.60	12	0.100	8 mm	275 kPa	0.90 m	+++++								
0.50	13	0.100	8 mm	275 kPa	1.00 m	+++++								
0.40	13	0.100	8 mm	275 kPa	1.10 m	+++++								
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++								
0.20	12	0.100	8 mm	275 kPa	1.30 m	+++++								
0.10	13	0.100	8 mm	275 kPa	1.40 m	+++++								
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++								

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HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC					
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05					
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 141																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++										
1.20	13	0.100	8 mm	275 kPa	0.30 m	+++++										
1.10	13	0.100	8 mm	275 kPa	0.40 m	+++++										
1.00	13	0.100	8 mm	275 kPa	0.50 m	+++++										
0.90	12	0.100	8 mm	275 kPa	0.60 m	+++++										
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++										
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++										
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++										
0.50	11	0.100	9 mm	275 kPa	1.00 m	+++++										
0.40	9	0.100	11 mm	238 kPa	1.10 m	+++++										
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++										
0.20	8	0.100	13 mm	225 kPa	1.30 m	+++++										
0.10	7	0.100	14 mm	200 kPa	1.40 m	+++++										
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++										
LOT 142																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++										
1.20	13	0.100	8 mm	275 kPa	0.30 m	+++++										
1.10	15	0.100	7 mm	340 kPa	0.40 m	+++++										
1.00	12	0.100	8 mm	275 kPa	0.50 m	+++++										
0.90	11	0.100	9 mm	275 kPa	0.60 m	+++++										
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++										
0.70	10	0.100	10 mm	250 kPa	0.80 m	+++++										
0.60	11	0.100	9 mm	275 kPa	0.90 m	+++++										
0.50	9	0.100	11 mm	238 kPa	1.00 m	+++++										
0.40	10	0.100	10 mm	250 kPa	1.10 m	+++++										
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++										
0.20	11	0.100	9 mm	275 kPa	1.30 m	+++++										
0.10	10	0.100	10 mm	250 kPa	1.40 m	+++++										
0.00	10	0.100	10 mm	250 kPa	1.50 m	+++++										
LOT 143																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	10	0.100	10 mm	250 kPa	0.20 m	+++++										
1.20	11	0.100	9 mm	275 kPa	0.30 m	+++++										
1.10	12	0.100	8 mm	275 kPa	0.40 m	+++++										
1.00	11	0.100	9 mm	275 kPa	0.50 m	+++++										
0.90	11	0.100	9 mm	275 kPa	0.60 m	+++++										
0.80	12	0.100	8 mm	275 kPa	0.70 m	+++++										
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++										
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++										
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++										
0.40	10	0.100	10 mm	250 kPa	1.10 m	+++++										
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++										
0.20	10	0.100	10 mm	250 kPa	1.30 m	+++++										
0.10	11	0.100	9 mm	275 kPa	1.40 m	+++++										
0.00	11	0.100	9 mm	275 kPa	1.50 m	+++++										

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SCALAPENETROMETER RESULT SHEET										Date tested				
CLIENT: Wharewaka (2003) Ltd					NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1					depending on soil type					Printed 8-Sep-05				
					50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR	
LOT 144														
1.50	0				0.00 m									
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++								
1.30	11	0.100	9 mm	275 kPa	0.20 m	+++++								
1.20	17	0.100	6 mm	340 kPa	0.30 m	+++++								
1.10	19	0.100	5 mm	430 kPa	0.40 m	+++++								
1.00	16	0.100	6 mm	340 kPa	0.50 m	+++++								
0.90	13	0.100	8 mm	275 kPa	0.60 m	+++++								
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++								
0.70	12	0.100	8 mm	275 kPa	0.80 m	+++++								
0.60	13	0.100	8 mm	275 kPa	0.90 m	+++++								
0.50	13	0.100	8 mm	275 kPa	1.00 m	+++++								
0.40	14	0.100	7 mm	340 kPa	1.10 m	+++++								
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++								
0.20	13	0.100	8 mm	275 kPa	1.30 m	+++++								
0.10	14	0.100	7 mm	340 kPa	1.40 m	+++++								
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++								
LOT 145														
1.50	0				0.00 m									
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++								
1.30	11	0.100	9 mm	275 kPa	0.20 m	+++++								
1.20	15	0.100	7 mm	340 kPa	0.30 m	+++++								
1.10	16	0.100	6 mm	340 kPa	0.40 m	+++++								
1.00	17	0.100	6 mm	340 kPa	0.50 m	+++++								
0.90	16	0.100	6 mm	340 kPa	0.60 m	+++++								
0.80	22	0.100	5 mm	430 kPa	0.70 m	+++++								
0.70	18	0.100	6 mm	340 kPa	0.80 m	+++++								
0.60	16	0.100	6 mm	340 kPa	0.90 m	+++++								
0.50	17	0.100	6 mm	340 kPa	1.00 m	+++++								
LOT 146														
1.50	0				0.00 m									
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++								
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++								
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++								
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++								
1.00	12	0.100	8 mm	275 kPa	0.50 m	+++++								
0.90	15	0.100	7 mm	340 kPa	0.60 m	+++++								
0.80	18	0.100	6 mm	340 kPa	0.70 m	+++++								
0.70	18	0.100	6 mm	340 kPa	0.80 m	+++++								
0.60	22	0.100	5 mm	430 kPa	0.90 m	+++++								
0.50	21	0.100	5 mm	430 kPa	1.00 m	+++++								

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC					
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05					
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 147																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++										
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++										
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++										
1.00	9	0.100	11 mm	238 kPa	0.50 m	+++++										
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++										
0.80	10	0.100	10 mm	250 kPa	0.70 m	+++++										
0.70	9	0.100	11 mm	238 kPa	0.80 m	+++++										
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++										
0.50	17	0.100	6 mm	340 kPa	1.00 m	+++++										
0.40	15	0.100	7 mm	340 kPa	1.10 m	+++++										
0.30	17	0.100	6 mm	340 kPa	1.20 m	+++++										
0.20	17	0.100	6 mm	340 kPa	1.30 m	+++++										
0.10	16	0.100	6 mm	340 kPa	1.40 m	+++++										
0.00	17	0.100	6 mm	340 kPa	1.50 m	+++++										
LOT 148																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++										
1.20	16	0.100	6 mm	340 kPa	0.30 m	+++++										
1.10	16	0.100	6 mm	340 kPa	0.40 m	+++++										
1.00	16	0.100	6 mm	340 kPa	0.50 m	+++++										
0.90	23	0.100	4 mm	430 kPa	0.60 m	+++++										
0.80	17	0.100	6 mm	340 kPa	0.70 m	+++++										
0.70	15	0.100	7 mm	340 kPa	0.80 m	+++++										
0.60	20	0.100	5 mm	430 kPa	0.90 m	+++++										
0.50	18	0.100	6 mm	340 kPa	1.00 m	+++++										
LOT 149																
1.50	0				0.00 m											
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++										
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++										
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++										
1.10	17	0.100	6 mm	340 kPa	0.40 m	+++++										
1.00	16	0.100	6 mm	340 kPa	0.50 m	+++++										
0.90	16	0.100	6 mm	340 kPa	0.60 m	+++++										
0.80	16	0.100	6 mm	340 kPa	0.70 m	+++++										
0.70	18	0.100	6 mm	340 kPa	0.80 m	+++++										
0.60	17	0.100	6 mm	340 kPa	0.90 m	+++++										
0.50	18	0.100	6 mm	340 kPa	1.00 m	+++++										
LOT 150																
1.50	0				0.00 m											
1.40	7	0.100	14 mm	200 kPa	0.10 m	+++++										
1.30	18	0.100	6 mm	340 kPa	0.20 m	+++++										
1.20	18	0.100	6 mm	340 kPa	0.30 m	+++++										
1.10	18	0.100	6 mm	340 kPa	0.40 m	+++++										
1.00	15	0.100	7 mm	340 kPa	0.50 m	+++++										
0.90	17	0.100	6 mm	340 kPa	0.60 m	+++++										
0.80	20	0.100	5 mm	430 kPa	0.70 m	+++++										
0.70	17	0.100	6 mm	340 kPa	0.80 m	+++++										
0.60	20	0.100	5 mm	430 kPa	0.90 m	+++++										
0.50	16	0.100	6 mm	340 kPa	1.00 m	+++++										

This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M.J. Stockwell B.E, C.ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD										Job No. 1050 014359 01						
SCALAPENETROMETER RESULT SHEET										Date tested						
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5				Tested by PSP / KLC						
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type				Printed 8-Sep-05						
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 151																
1.50	0				0.00 m											
1.40	9	0.100	11 mm	238 kPa	0.10 m	+++++										
1.30	16	0.100	6 mm	340 kPa	0.20 m	+++++										
1.20	20	0.100	5 mm	430 kPa	0.30 m	+++++										
1.10	14	0.100	7 mm	340 kPa	0.40 m	+++++										
1.00	12	0.100	8 mm	275 kPa	0.50 m	+++++										
0.90	10	0.100	10 mm	250 kPa	0.60 m	+++++										
0.80	10	0.100	10 mm	250 kPa	0.70 m	+++++										
0.70	8	0.100	13 mm	225 kPa	0.80 m	+++++										
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++										
0.50	8	0.100	13 mm	225 kPa	1.00 m	+++++										
0.40	8	0.100	13 mm	225 kPa	1.10 m	+++++										
0.30	8	0.100	13 mm	225 kPa	1.20 m	+++++										
0.20	8	0.100	13 mm	225 kPa	1.30 m	+++++										
0.10	8	0.100	13 mm	225 kPa	1.40 m	+++++										
0.00	9	0.100	11 mm	238 kPa	1.50 m	+++++										
refusal																
LOT 152																
1.50	0				0.00 m											
1.40	7	0.100	14 mm	200 kPa	0.10 m	+++++										
1.30	13	0.100	8 mm	275 kPa	0.20 m	+++++										
1.20	12	0.100	8 mm	275 kPa	0.30 m	+++++										
1.10	13	0.100	8 mm	275 kPa	0.40 m	+++++										
1.00	28	0.100	4 mm	430 kPa	0.50 m	+++++										
0.90	25	0.100	4 mm	430 kPa	0.60 m	+++++										
refusal																
LOT 153																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++										
1.20	2	0.100	50 mm	68 kPa	0.30 m	+++++										
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++										
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++										
0.90	3	0.100	33 mm	98 kPa	0.60 m	+++++										
0.80	3	0.100	33 mm	98 kPa	0.70 m	+++++										
0.70	13	0.100	8 mm	275 kPa	0.80 m	+++++										
0.60	25	0.100	4 mm	430 kPa	0.90 m	+++++										
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++										
0.40	15	0.100	7 mm	340 kPa	1.10 m	+++++										
0.30	15	0.100	7 mm	340 kPa	1.20 m	+++++										
0.20	14	0.100	7 mm	340 kPa	1.30 m	+++++										
0.10	15	0.100	7 mm	340 kPa	1.40 m	+++++										
0.00	15	0.100	7 mm	340 kPa	1.50 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 154															
1.50	0				0.00 m										
1.40	1	0.100	100 mm	37 kPa	0.10 m	+++									
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++++									
1.10	2	0.100	50 mm	68 kPa	0.40 m	+++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++++									
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++++									
0.60	4	0.100	25 mm	135 kPa	0.90 m	+++++++									
0.50	4	0.100	25 mm	135 kPa	1.00 m	+++++++									
0.40	6	0.100	17 mm	175 kPa	1.10 m	+++++++									
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++++									
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++++									
0.10	13	0.100	8 mm	275 kPa	1.40 m	+++++++									
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++++									
LOT 155															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++++									
1.20	2	0.100	50 mm	68 kPa	0.30 m	+++++									
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++++									
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++++									
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++++									
0.60	6	0.100	17 mm	175 kPa	0.90 m	+++++++									
0.50	12	0.100	8 mm	275 kPa	1.00 m	+++++++									
0.40	12	0.100	8 mm	275 kPa	1.10 m	+++++++									
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++++									
0.20	11	0.100	9 mm	275 kPa	1.30 m	+++++++									
0.10	12	0.100	8 mm	275 kPa	1.40 m	+++++++									
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++++									
LOT 156															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++++									
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++++									
0.70	5	0.100	20 mm	160 kPa	0.80 m	+++++++									
0.60	6	0.100	17 mm	175 kPa	0.90 m	+++++++									
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++++									
0.40	5	0.100	20 mm	160 kPa	1.10 m	+++++++									
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++++									
0.20	16	0.100	6 mm	340 kPa	1.30 m	+++++++									
0.10	16	0.100	6 mm	340 kPa	1.40 m	+++++++									
0.00	15	0.100	7 mm	340 kPa	1.50 m	+++++++									

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Author : M.J. Stockwell B.E, C.ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No.		1050 014359 01		
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by		PSP / KLC		
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed		8-Sep-05		
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 157															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++									
0.90	6	0.100	17 mm	175 kPa	0.60 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++									
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++									
0.60	6	0.100	17 mm	175 kPa	0.90 m	+++++									
0.50	6	0.100	17 mm	175 kPa	1.00 m	+++++									
0.40	5	0.100	20 mm	160 kPa	1.10 m	+++++									
0.30	5	0.100	20 mm	160 kPa	1.20 m	+++++									
0.21	8	0.090	11 mm	238 kPa	1.29 m	+++++									
0.10	12	0.110	9 mm	275 kPa	1.40 m	+++++									
0.00	11	0.100	9 mm	275 kPa	1.50 m	+++++									
LOT 158															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++									
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++									
0.70	5	0.100	20 mm	160 kPa	0.80 m	+++++									
0.60	4	0.100	25 mm	135 kPa	0.90 m	+++++									
0.50	4	0.100	25 mm	135 kPa	1.00 m	+++++									
0.40	5	0.100	20 mm	160 kPa	1.10 m	+++++									
0.30	5	0.100	20 mm	160 kPa	1.20 m	+++++									
0.20	4	0.100	25 mm	135 kPa	1.30 m	+++++									
0.10	7	0.100	14 mm	200 kPa	1.40 m	+++++									
0.00	7	0.100	14 mm	200 kPa	1.50 m	+++++									
LOT 159															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++									
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	3	0.100	33 mm	98 kPa	0.70 m	+++++									
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++									
0.60	20	0.100	5 mm	430 kPa	0.90 m	+++++									
0.50	19	0.100	5 mm	430 kPa	1.00 m	+++++									
0.40	20	0.100	5 mm	430 kPa	1.10 m	+++++									

This spreadsheet has been developed with reference to the following publication:

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Author : M,J, Stockwell B,E, C,ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd											NB safety factor 1.6 -- 5		Tested by PSP / KLC		
PROJECT WHAREWAKA POINT STAGE 1											depending on soil type		Printed 8-Sep-05		
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 160															
1.50	0				0.00 m										
1.40	1	0.100	100 mm	37 kPa	0.10 m	+++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++									
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++									
0.90	14	0.100	7 mm	340 kPa	0.60 m	+++++									
0.80	23	0.100	4 mm	430 kPa	0.70 m	+++++									
0.70	23	0.100	4 mm	430 kPa	0.80 m	+++++									
0.60	34	0.100	3 mm	450 kPa	0.90 m	+++++									
rock															
LOT 161															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++									
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++									
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++									
0.60	25	0.100	4 mm	430 kPa	0.90 m	+++++									
0.50	24	0.100	4 mm	430 kPa	1.00 m	+++++									
rock															
LOT 180															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++									
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++									
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++									
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++									
0.40	6	0.100	17 mm	175 kPa	1.10 m	+++++									
0.30	6	0.100	17 mm	175 kPa	1.20 m	+++++									
0.20	4	0.100	25 mm	135 kPa	1.30 m	+++++									
0.10	4	0.100	25 mm	135 kPa	1.40 m	+++++									
0.00	6	0.100	17 mm	175 kPa	1.50 m	+++++									
LOT 181															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++									
1.00	10	0.100	10 mm	250 kPa	0.50 m	+++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++									
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++									
0.60	12	0.100	8 mm	275 kPa	0.90 m	+++++									
0.50	5	0.100	20 mm	160 kPa	1.00 m	+++++									
0.40	5	0.100	20 mm	160 kPa	1.10 m	+++++									
0.30	6	0.100	17 mm	175 kPa	1.20 m	+++++									
0.20	5	0.100	20 mm	160 kPa	1.30 m	+++++									
0.10	4	0.100	25 mm	135 kPa	1.40 m	+++++									
0.00	4	0.100	25 mm	135 kPa	1.50 m	+++++									

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Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5, depending on soil type					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 182															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++									
0.90	11	0.100	9 mm	275 kPa	0.60 m	+++++									
0.80	13	0.100	8 mm	275 kPa	0.70 m	+++++									
0.70	12	0.100	8 mm	275 kPa	0.80 m	+++++									
0.60	14	0.100	7 mm	340 kPa	0.90 m	+++++									
0.50	16	0.100	6 mm	340 kPa	1.00 m	+++++									
0.40	14	0.100	7 mm	340 kPa	1.10 m	+++++									
0.30	12	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	11	0.100	9 mm	275 kPa	1.30 m	+++++									
0.10	12	0.100	8 mm	275 kPa	1.40 m	+++++									
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++									
LOT 183															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++									
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++									
0.90	6	0.100	17 mm	175 kPa	0.60 m	+++++									
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++									
0.70	8	0.100	13 mm	225 kPa	0.80 m	+++++									
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++									
0.50	12	0.100	8 mm	275 kPa	1.00 m	+++++									
rock															
LOT 184															
1.50	0				0.00 m										
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++									
1.20	2	0.100	50 mm	68 kPa	0.30 m	+++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++									
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	11	0.100	9 mm	275 kPa	0.70 m	+++++									
0.70	14	0.100	7 mm	340 kPa	0.80 m	+++++									
0.60	14	0.100	7 mm	340 kPa	0.90 m	+++++									
0.50	13	0.100	8 mm	275 kPa	1.00 m	+++++									
0.40	11	0.100	9 mm	275 kPa	1.10 m	+++++									
0.30	9	0.100	11 mm	238 kPa	1.20 m	+++++									
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++									
0.10	8	0.100	13 mm	225 kPa	1.40 m	+++++									
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++									

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 185															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++++									
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++++									
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++++									
0.60	4	0.100	25 mm	135 kPa	0.90 m	+++++++									
0.50	13	0.100	8 mm	275 kPa	1.00 m	+++++++									
0.40	21	0.100	5 mm	430 kPa	1.10 m	+++++++									
rock															
LOT 186															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++++									
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++++									
0.90	2	0.100	50 mm	68 kPa	0.60 m	+++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++++									
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++++									
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++++									
0.50	8	0.100	13 mm	225 kPa	1.00 m	+++++++									
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++++									
0.30	6	0.100	17 mm	175 kPa	1.20 m	+++++++									
0.21	7	0.090	13 mm	225 kPa	1.29 m	+++++++									
0.10	7	0.110	16 mm	180 kPa	1.40 m	+++++++									
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++++									
LOT 187															
1.50	0				0.00 m										
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++++									
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++++									
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++++									
0.70	3	0.100	33 mm	98 kPa	0.80 m	+++++++									
0.60	3	0.100	33 mm	98 kPa	0.90 m	+++++++									
0.50	6	0.100	17 mm	175 kPa	1.00 m	+++++++									
0.40	11	0.100	9 mm	275 kPa	1.10 m	+++++++									
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++++									
0.20	9	0.100	11 mm	238 kPa	1.30 m	+++++++									
0.10	10	0.100	10 mm	250 kPa	1.40 m	+++++++									
0.00	11	0.100	9 mm	275 kPa	1.50 m	+++++++									

This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M.J. Stockwell B.E, C.ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC					
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05					
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 188																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++										
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++										
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++										
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++										
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++										
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++										
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++										
0.60	5	0.100	20 mm	160 kPa	0.90 m	+++++										
0.50	4	0.100	25 mm	135 kPa	1.00 m	+++++										
0.40	3	0.100	33 mm	98 kPa	1.10 m	+++++										
0.30	4	0.100	25 mm	135 kPa	1.20 m	+++++										
0.20	2	0.100	50 mm	68 kPa	1.30 m	+++++										
0.10	8	0.100	13 mm	225 kPa	1.40 m	+++++										
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++										
LOT 189																
1.50	0				0.00 m											
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++										
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++										
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++										
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	6	0.100	17 mm	175 kPa	0.60 m	+++++										
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++										
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++										
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++										
0.50	9	0.100	11 mm	238 kPa	1.00 m	+++++										
0.40	6	0.100	17 mm	175 kPa	1.10 m	+++++										
0.30	8	0.100	13 mm	225 kPa	1.20 m	+++++										
0.20	15	0.100	7 mm	340 kPa	1.30 m	+++++										
0.10	16	0.100	6 mm	340 kPa	1.40 m	+++++										
0.00	15	0.100	7 mm	340 kPa	1.50 m	+++++										
LOT 190																
1.50	0				0.00 m											
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++										
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++										
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++										
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++										
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++										
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++										
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++										
0.70	5	0.100	20 mm	160 kPa	0.80 m	+++++										
0.60	7	0.100	14 mm	200 kPa	0.90 m	+++++										
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++										
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++										
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++										
0.20	9	0.100	11 mm	238 kPa	1.30 m	+++++										
0.10	9	0.100	11 mm	238 kPa	1.40 m	+++++										
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01					
SCALAPENETROMETER RESULT SHEET											Date tested					
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC					
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05					
						50	100	150	200	250	300	350	400	450	Kpa	
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
LOT 191																
1.50	0				0.00 m											
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++										
1.30	7	0.100	14 mm	200 kPa	0.20 m	+++++										
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++										
1.10	4	0.100	25 mm	135 kPa	0.40 m	+++++										
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++										
0.90	11	0.100	9 mm	275 kPa	0.60 m	+++++										
0.80	8	0.100	13 mm	225 kPa	0.70 m	+++++										
0.70	4	0.100	25 mm	135 kPa	0.80 m	+++++										
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++										
0.50	6	0.100	17 mm	175 kPa	1.00 m	+++++										
0.40	14	0.100	7 mm	340 kPa	1.10 m	+++++										
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++										
0.20	4	0.100	25 mm	135 kPa	1.30 m	+++++										
0.10	5	0.100	20 mm	160 kPa	1.40 m	+++++										
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++										
LOT 192																
1.50	0				0.00 m											
1.40	8	0.100	13 mm	225 kPa	0.10 m	+++++										
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++										
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++										
1.10	10	0.100	10 mm	250 kPa	0.40 m	+++++										
1.00	9	0.100	11 mm	238 kPa	0.50 m	+++++										
0.90	12	0.100	8 mm	275 kPa	0.60 m	+++++										
0.80	12	0.100	8 mm	275 kPa	0.70 m	+++++										
0.70	11	0.100	9 mm	275 kPa	0.80 m	+++++										
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++										
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++										
0.40	12	0.100	8 mm	275 kPa	1.10 m	+++++										
0.30	14	0.100	7 mm	340 kPa	1.20 m	+++++										
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++										
0.10	8	0.100	13 mm	225 kPa	1.40 m	+++++										
0.00	8	0.100	12 mm	225 kPa	1.50 m	+++++										
LOT 193																
1.50	0				0.00 m											
1.40	8	0.100	13 mm	225 kPa	0.10 m	+++++										
1.30	9	0.100	11 mm	238 kPa	0.20 m	+++++										
1.20	9	0.100	11 mm	238 kPa	0.30 m	+++++										
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++										
1.00	8	0.100	13 mm	225 kPa	0.50 m	+++++										
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++										
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++										
0.70	10	0.100	10 mm	250 kPa	0.80 m	+++++										
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++										
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++										
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++										
0.30	6	0.100	17 mm	175 kPa	1.20 m	+++++										
0.20	8	0.100	13 mm	225 kPa	1.30 m	+++++										
0.10	12	0.100	8 mm	275 kPa	1.40 m	+++++										
0.00	10	0.100	10 mm	250 kPa	1.50 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 194															
1.50	0				0.00 m										
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	8	0.100	13 mm	225 kPa	0.50 m	+++++									
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++									
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++									
0.70	10	0.100	10 mm	250 kPa	0.80 m	+++++									
0.60	14	0.100	7 mm	340 kPa	0.90 m	+++++									
0.50	15	0.100	7 mm	340 kPa	1.00 m	+++++									
0.40	11	0.100	9 mm	275 kPa	1.10 m	+++++									
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++									
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++									
rock															
LOT 195															
1.50	0				0.00 m										
1.40	7	0.100	14 mm	200 kPa	0.10 m	+++++									
1.30	8	0.100	13 mm	225 kPa	0.20 m	+++++									
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++									
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++									
1.00	10	0.100	10 mm	250 kPa	0.50 m	+++++									
0.90	15	0.100	7 mm	340 kPa	0.60 m	+++++									
0.80	9	0.100	11 mm	238 kPa	0.70 m	+++++									
0.70	8	0.100	13 mm	225 kPa	0.80 m	+++++									
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++									
0.50	9	0.100	11 mm	238 kPa	1.00 m	+++++									
0.40	15	0.100	7 mm	340 kPa	1.10 m	+++++									
rock															
LOT 196															
1.50	0				0.00 m										
1.40	7	0.100	14 mm	200 kPa	0.10 m	+++++									
1.30	8	0.100	13 mm	225 kPa	0.20 m	+++++									
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++									
1.10	12	0.100	8 mm	275 kPa	0.40 m	+++++									
1.00	9	0.100	11 mm	238 kPa	0.50 m	+++++									
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++									
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++									
0.60	15	0.100	7 mm	340 kPa	0.90 m	+++++									
0.50	14	0.100	7 mm	340 kPa	1.00 m	+++++									
0.40	10	0.100	10 mm	250 kPa	1.10 m	+++++									
0.30	13	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	16	0.100	6 mm	340 kPa	1.30 m	+++++									
0.10	15	0.100	7 mm	340 kPa	1.40 m	+++++									
0.00	17	0.100	6 mm	340 kPa	1.50 m	+++++									

This spreadsheet has been developed with reference to the following publication:

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Author : M,J, Stockwell B,E, C,ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 197															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++									
1.10	8	0.100	13 mm	225 kPa	0.40 m	+++++									
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++									
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++									
0.80	13	0.100	8 mm	275 kPa	0.70 m	+++++									
0.70	12	0.100	8 mm	275 kPa	0.80 m	+++++									
0.60	9	0.100	11 mm	238 kPa	0.90 m	+++++									
0.50	16	0.100	6 mm	340 kPa	1.00 m	+++++									
0.40	15	0.100	7 mm	340 kPa	1.10 m	+++++									
0.30	6	0.100	17 mm	175 kPa	1.20 m	+++++									
0.20	18	0.100	6 mm	340 kPa	1.30 m	+++++									
0.10	14	0.100	7 mm	340 kPa	1.40 m	+++++									
0.00	15	0.100	7 mm	340 kPa	1.50 m	+++++									
LOT 198															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	9	0.100	11 mm	238 kPa	0.20 m	+++++									
1.20	12	0.100	8 mm	275 kPa	0.30 m	+++++									
1.10	14	0.100	7 mm	340 kPa	0.40 m	+++++									
1.00	9	0.100	11 mm	238 kPa	0.50 m	+++++									
0.90	8	0.100	13 mm	225 kPa	0.60 m	+++++									
0.80	14	0.100	7 mm	340 kPa	0.70 m	+++++									
0.70	19	0.100	5 mm	430 kPa	0.80 m	+++++									
0.60	24	0.100	4 mm	430 kPa	0.90 m	+++++									
0.50	22	0.100	5 mm	430 kPa	1.00 m	+++++									
LOT 199															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	6	0.100	17 mm	175 kPa	0.50 m	+++++									
0.90	6	0.100	17 mm	175 kPa	0.60 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++									
0.70	8	0.100	13 mm	225 kPa	0.80 m	+++++									
0.60	8	0.100	13 mm	225 kPa	0.90 m	+++++									
0.50	10	0.100	10 mm	250 kPa	1.00 m	+++++									
0.40	14	0.100	7 mm	340 kPa	1.10 m	+++++									
0.30	13	0.100	8 mm	275 kPa	1.20 m	+++++									
0.20	13	0.100	8 mm	275 kPa	1.30 m	+++++									
0.10	14	0.100	7 mm	340 kPa	1.40 m	+++++									
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++									
LOT 200															
1.50	0				0.00 m										
1.40	5	0.100	20 mm	160 kPa	0.10 m	+++++									
1.30	5	0.100	20 mm	160 kPa	0.20 m	+++++									
1.20	7	0.100	14 mm	200 kPa	0.30 m	+++++									
1.10	7	0.100	14 mm	200 kPa	0.40 m	+++++									
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++									
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++									
0.80	12	0.100	8 mm	275 kPa	0.70 m	+++++									
rock															

This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M.J. Stockwell B.E, C.ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5 depending on soil type					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1											Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 201															
1.50	0				0.00 m										
1.40	6	0.100	17 mm	175 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	6	0.100	17 mm	175 kPa	0.30 m	+++++									
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++									
1.00	8	0.100	13 mm	225 kPa	0.50 m	+++++									
0.90	9	0.100	11 mm	238 kPa	0.60 m	+++++									
0.80	15	0.100	7 mm	340 kPa	0.70 m	+++++									
0.70	18	0.100	6 mm	340 kPa	0.80 m	+++++									
rock															
LOT 202															
1.50	0				0.00 m										
1.40	6	0.100	17 mm	175 kPa	0.10 m	+++++									
1.30	7	0.100	14 mm	200 kPa	0.20 m	+++++									
1.20	8	0.100	13 mm	225 kPa	0.30 m	+++++									
1.10	9	0.100	11 mm	238 kPa	0.40 m	+++++									
1.00	12	0.100	8 mm	275 kPa	0.50 m	+++++									
0.90	16	0.100	6 mm	340 kPa	0.60 m	+++++									
0.80	15	0.100	7 mm	340 kPa	0.70 m	+++++									
0.70	13	0.100	8 mm	275 kPa	0.80 m	+++++									
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++									
0.50	11	0.100	9 mm	275 kPa	1.00 m	+++++									
0.40	8	0.100	13 mm	225 kPa	1.10 m	+++++									
0.30	13	0.100	8 mm	275 kPa	1.20 m	+++++									
rock															
LOT 203															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++									
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++									
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++									
1.00	5	0.100	20 mm	160 kPa	0.50 m	+++++									
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++									
0.80	16	0.100	6 mm	340 kPa	0.70 m	+++++									
0.70	18	0.100	6 mm	340 kPa	0.80 m	+++++									
0.60	20	0.100	5 mm	430 kPa	0.90 m	+++++									
rock															
LOT 204															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++									
1.30	6	0.100	17 mm	175 kPa	0.20 m	+++++									
1.20	5	0.100	20 mm	160 kPa	0.30 m	+++++									
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++									
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++									
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++									
0.80	6	0.100	17 mm	175 kPa	0.70 m	+++++									
0.70	5	0.100	20 mm	160 kPa	0.80 m	+++++									
0.60	7	0.100	14 mm	200 kPa	0.90 m	+++++									
0.50	6	0.100	17 mm	175 kPa	1.00 m	+++++									
0.40	8	0.100	13 mm	225 kPa	1.10 m	+++++									
0.30	10	0.100	10 mm	250 kPa	1.20 m	+++++									
0.20	9	0.100	11 mm	238 kPa	1.30 m	+++++									
0.10	11	0.100	9 mm	275 kPa	1.40 m	+++++									
0.00	12	0.100	8 mm	275 kPa	1.50 m	+++++									

HARRISON GRIERSON CONSULTANTS LTD											Job No. 1050 014359 01				
SCALAPENETROMETER RESULT SHEET											Date tested				
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC				
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05				
						50	100	150	200	250	300	350	400	450	Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR		
LOT 205															
1.50	0				0.00 m										
1.40	1	0.100	100 mm	37 kPa	0.10 m	+++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++++									
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++++									
0.90	7	0.100	14 mm	200 kPa	0.60 m	+++++++									
0.80	4	0.100	25 mm	135 kPa	0.70 m	+++++++									
0.70	7	0.100	14 mm	200 kPa	0.80 m	+++++++									
0.60	7	0.100	14 mm	200 kPa	0.90 m	+++++++									
0.50	6	0.100	17 mm	175 kPa	1.00 m	+++++++									
0.40	5	0.100	20 mm	160 kPa	1.10 m	+++++++									
0.30	4	0.100	25 mm	135 kPa	1.20 m	+++++++									
0.20	3	0.100	33 mm	98 kPa	1.30 m	+++++++									
0.10	15	0.100	7 mm	340 kPa	1.40 m	+++++++									
0.00	14	0.100	7 mm	340 kPa	1.50 m	+++++++									
LOT 206															
1.50	0				0.00 m										
1.40	4	0.100	25 mm	135 kPa	0.10 m	+++++++									
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++++									
1.20	3	0.100	33 mm	98 kPa	0.30 m	+++++++									
1.10	5	0.100	20 mm	160 kPa	0.40 m	+++++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++++									
0.90	6	0.100	17 mm	175 kPa	0.60 m	+++++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++++									
0.70	3	0.100	33 mm	98 kPa	0.80 m	+++++++									
0.60	5	0.100	20 mm	160 kPa	0.90 m	+++++++									
0.50	3	0.100	33 mm	98 kPa	1.00 m	+++++++									
0.40	6	0.100	17 mm	175 kPa	1.10 m	+++++++									
0.30	5	0.100	20 mm	160 kPa	1.20 m	+++++++									
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++++									
0.10	7	0.100	14 mm	200 kPa	1.40 m	+++++++									
0.00	5	0.100	20 mm	160 kPa	1.50 m	+++++++									
LOT 207															
1.50	0				0.00 m										
1.40	3	0.100	33 mm	98 kPa	0.10 m	+++++++									
1.30	3	0.100	33 mm	98 kPa	0.20 m	+++++++									
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++++									
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++++									
1.00	3	0.100	33 mm	98 kPa	0.50 m	+++++++									
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++++									
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++++									
0.70	5	0.100	20 mm	160 kPa	0.80 m	+++++++									
0.60	4	0.100	25 mm	135 kPa	0.90 m	+++++++									
0.50	6	0.100	17 mm	175 kPa	1.00 m	+++++++									
0.40	7	0.100	14 mm	200 kPa	1.10 m	+++++++									
0.30	5	0.100	20 mm	160 kPa	1.20 m	+++++++									
0.20	7	0.100	14 mm	200 kPa	1.30 m	+++++++									
0.10	5	0.100	20 mm	160 kPa	1.40 m	+++++++									
0.00	6	0.100	17 mm	175 kPa	1.50 m	+++++++									

HARRISON GRIERSON CONSULTANTS LTD											Job No.		1050 014359 01														
SCALAPENETROMETER RESULT SHEET											Date tested																
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5					Tested by PSP / KLC																
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type					Printed 8-Sep-05																
						50		100		150		200		250		300		350		400		450		Kpa			
Reading		Blows		diff		Pen/blow		Bearing		Depth		3		7		13		20		30		50		60+		CBR	
LOT 208																											
1.40		0								0.00 m																	
1.30		2		0.100		50 mm		68 kPa		0.10 m		+++++															
1.20		2		0.100		50 mm		68 kPa		0.20 m		+++++															
1.10		4		0.100		25 mm		135 kPa		0.30 m		+++++															
1.00		4		0.100		25 mm		135 kPa		0.40 m		+++++															
0.90		4		0.100		25 mm		135 kPa		0.50 m		+++++															
0.80		6		0.100		17 mm		175 kPa		0.60 m		+++++															
0.70		4		0.100		25 mm		135 kPa		0.70 m		+++++															
0.60		4		0.100		25 mm		135 kPa		0.80 m		+++++															
0.50		5		0.100		20 mm		160 kPa		0.90 m		+++++															
0.40		3		0.100		33 mm		98 kPa		1.00 m		+++++															
0.30		3		0.100		33 mm		98 kPa		1.10 m		+++++															
0.20		5		0.100		20 mm		160 kPa		1.20 m		+++++															
0.10		6		0.100		17 mm		175 kPa		1.30 m		+++++															
0.00		13		0.100		8 mm		275 kPa		1.40 m		+++++															
rock																											
LOT 209																											
1.50		0								0.00 m																	
1.40		2		0.100		50 mm		68 kPa		0.10 m		+++++															
1.30		4		0.100		25 mm		135 kPa		0.20 m		+++++															
1.20		5		0.100		20 mm		160 kPa		0.30 m		+++++															
1.10		4		0.100		25 mm		135 kPa		0.40 m		+++++															
1.00		4		0.100		25 mm		135 kPa		0.50 m		+++++															
0.90		3		0.100		33 mm		98 kPa		0.60 m		+++++															
0.80		4		0.100		25 mm		135 kPa		0.70 m		+++++															
0.70		6		0.100		17 mm		175 kPa		0.80 m		+++++															
0.60		4		0.100		25 mm		135 kPa		0.90 m		+++++															
0.50		5		0.100		20 mm		160 kPa		1.00 m		+++++															
0.40		5		0.100		20 mm		160 kPa		1.10 m		+++++															
0.30		4		0.100		25 mm		135 kPa		1.20 m		+++++															
0.20		6		0.100		17 mm		175 kPa		1.30 m		+++++															
0.10		14		0.100		7 mm		340 kPa		1.40 m		+++++															
0.00		18		0.100		6 mm		340 kPa		1.50 m		+++++															
LOT 210																											
1.50		0								0.00 m																	
1.40		2		0.100		50 mm		68 kPa		0.10 m		+++++															
1.30		4		0.100		25 mm		135 kPa		0.20 m		+++++															
1.20		3		0.100		33 mm		98 kPa		0.30 m		+++++															
1.10		3		0.100		33 mm		98 kPa		0.40 m		+++++															
1.00		3		0.100		33 mm		98 kPa		0.50 m		+++++															
0.90		3		0.100		33 mm		98 kPa		0.60 m		+++++															
0.80		4		0.100		25 mm		135 kPa		0.70 m		+++++															
0.70		4		0.100		25 mm		135 kPa		0.80 m		+++++															
0.60		5		0.100		20 mm		160 kPa		0.90 m		+++++															
0.50		13		0.100		8 mm		275 kPa		1.00 m		+++++															
0.40		5		0.100		20 mm		160 kPa		1.10 m		+++++															
0.30		5		0.100		20 mm		160 kPa		1.20 m		+++++															
0.20		6		0.100		17 mm		175 kPa		1.30 m		+++++															
0.10		12		0.100		8 mm		275 kPa		1.40 m		+++++															
0.00		11		0.100		9 mm		275 kPa		1.50 m		+++++															

HARRISON GRIERSON CONSULTANTS LTD										Job No.		1050 014359 01						
SCALAPENETROMETER RESULT SHEET										Date tested								
CLIENT: Wharewaka (2003) Ltd						NB safety factor 1.6 -- 5				Tested by		PSP / KLC						
PROJECT WHAREWAKA POINT STAGE 1						depending on soil type				Printed		8-Sep-05						
						50	100	150	200	250	300	350	400	450	Kpa			
Reading Blows						diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR	
LOT 211																		
1.50	0				0.00 m													
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++												
1.30	4	0.100	25 mm	135 kPa	0.20 m	+++++												
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++												
1.10	3	0.100	33 mm	98 kPa	0.40 m	+++++												
1.00	4	0.100	25 mm	135 kPa	0.50 m	+++++												
0.90	4	0.100	25 mm	135 kPa	0.60 m	+++++												
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++												
0.70	5	0.100	20 mm	160 kPa	0.80 m	+++++												
0.60	5	0.100	20 mm	160 kPa	0.90 m	+++++												
0.50	7	0.100	14 mm	200 kPa	1.00 m	+++++												
0.40	5	0.100	20 mm	160 kPa	1.10 m	+++++												
0.30	7	0.100	14 mm	200 kPa	1.20 m	+++++												
0.20	9	0.100	11 mm	238 kPa	1.30 m	+++++												
0.10	8	0.100	13 mm	225 kPa	1.40 m	+++++												
0.00	10	0.100	10 mm	250 kPa	1.50 m	+++++												
LOT 212																		
1.50	0				0.00 m													
1.40	2	0.100	50 mm	68 kPa	0.10 m	+++++												
1.30	2	0.100	50 mm	68 kPa	0.20 m	+++++												
1.20	4	0.100	25 mm	135 kPa	0.30 m	+++++												
1.10	6	0.100	17 mm	175 kPa	0.40 m	+++++												
1.00	7	0.100	14 mm	200 kPa	0.50 m	+++++												
0.90	5	0.100	20 mm	160 kPa	0.60 m	+++++												
0.80	5	0.100	20 mm	160 kPa	0.70 m	+++++												
0.70	6	0.100	17 mm	175 kPa	0.80 m	+++++												
0.60	10	0.100	10 mm	250 kPa	0.90 m	+++++												
0.50	14	0.100	7 mm	340 kPa	1.00 m	+++++												
0.40	10	0.100	10 mm	250 kPa	1.10 m	+++++												
0.30	8	0.100	13 mm	225 kPa	1.20 m	+++++												
0.20	10	0.100	10 mm	250 kPa	1.30 m	+++++												
0.10	9	0.100	11 mm	238 kPa	1.40 m	+++++												
0.00	10	0.100	10 mm	250 kPa	1.50 m	+++++												

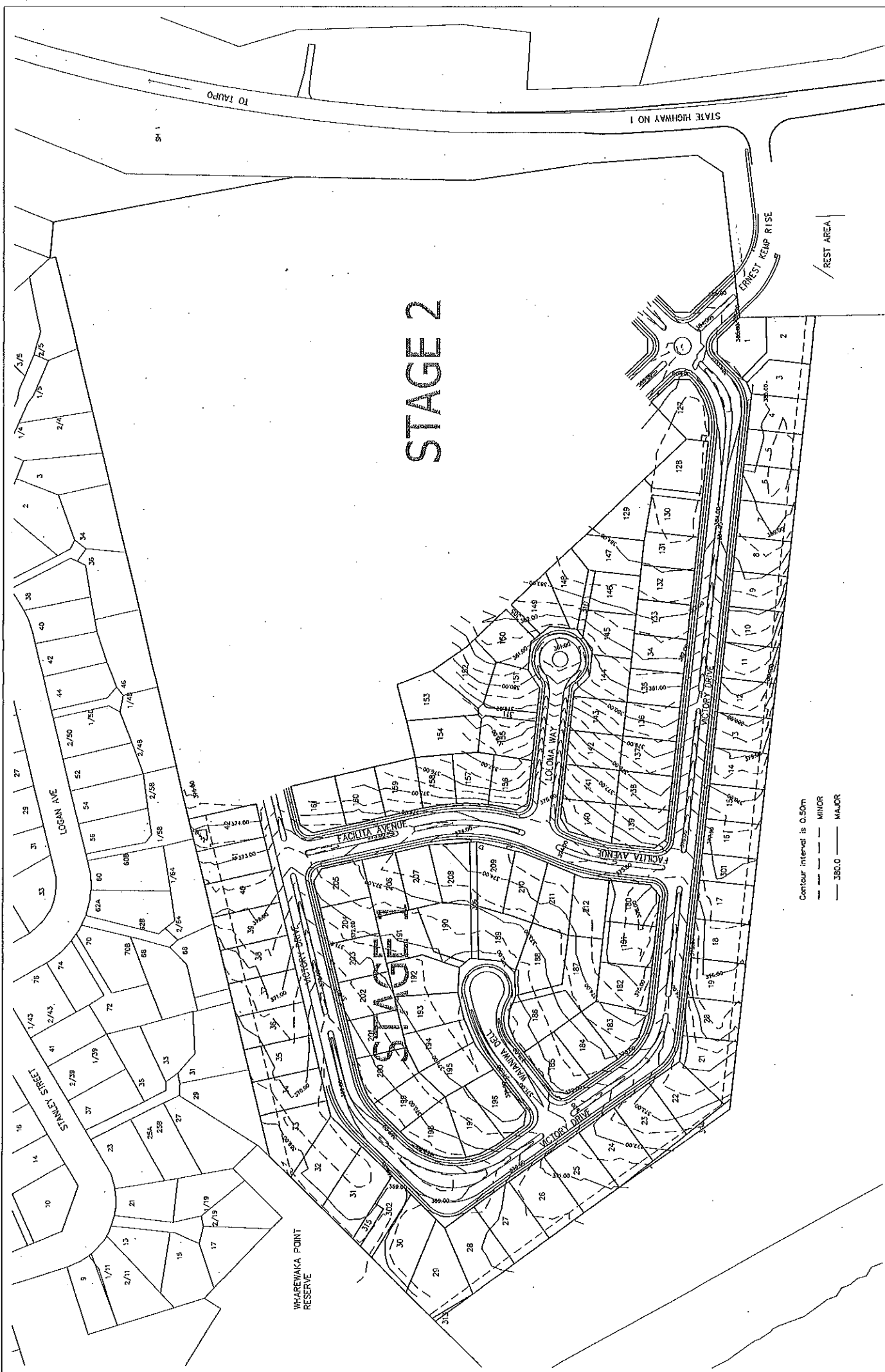
This spreadsheet has been developed with reference to the following publication:

"DETERMINATION OF ALLOWABLE BEARING PRESSURE UNDER SMALL STRUCTURES"

Author : M,J, Stockwell B,E, C,ENG. M.I.C.E. (Member)

Published by N Z Engineering (32,6) 15 June 1977

DRAWINGS

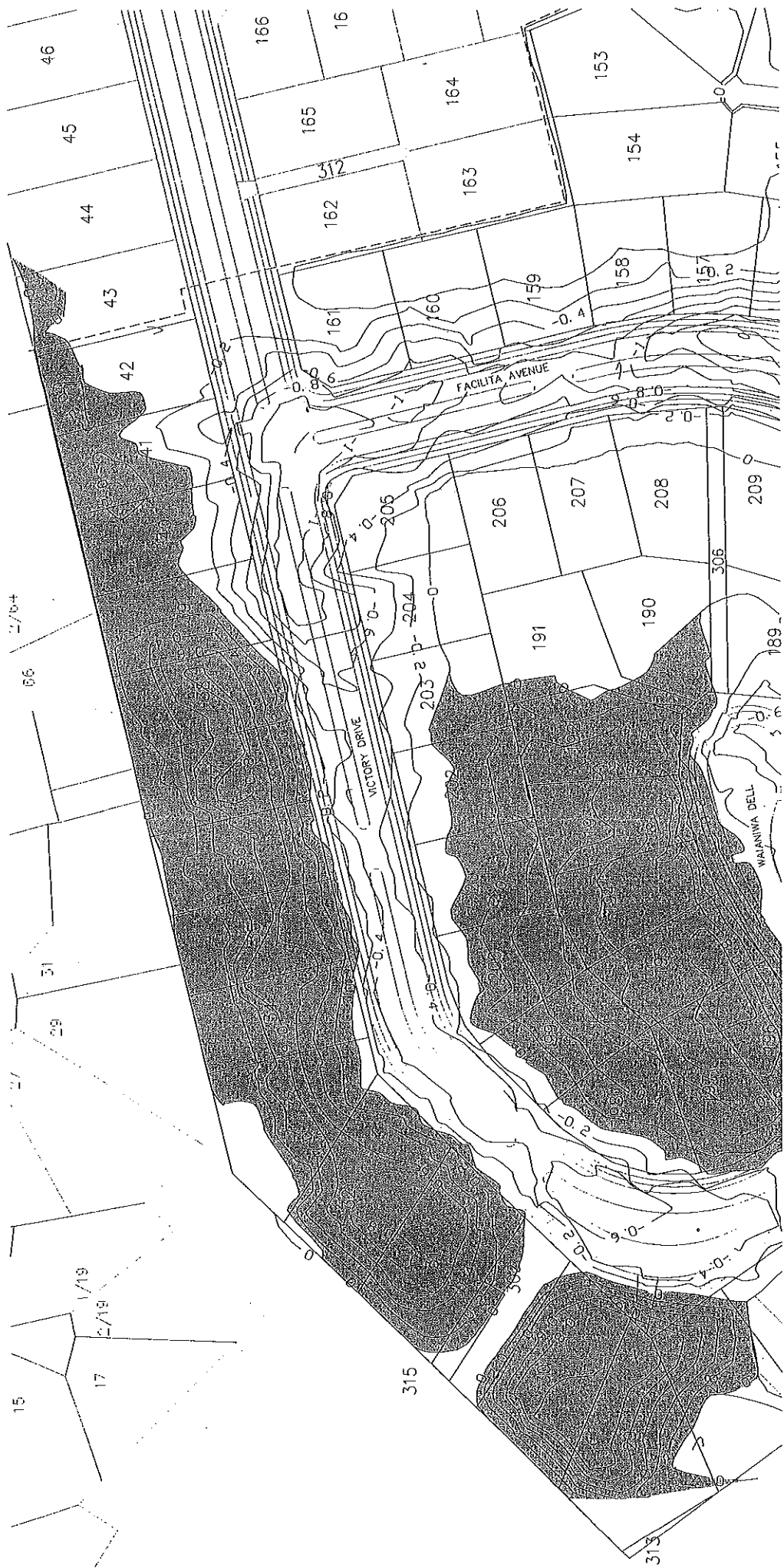


STAGE 2

WHAREWAKA POINT
RESERVE

Contour interval is 0.50m
 --- MINOR
 --- MAJOR

PROJECT		TITLE		AS BUILT ISSUE	
HARRISON GRIERSON		STAGE 1 ASBUILT FINISHED LEVEL CONTOURS		11/000 (A3)	
CONSULTING ENGINEERS SURVEYORS PLANNERS		WHAREWAKA POINT SUBDIVISION TAUPO		11/000 (A3)	
42-46 Portsmouth Street, Taupo, Ph 07 376 7250 Fax 07 376 7251		014359-AB200		REV	
1		1		REV	



LEGEND

AREA OF FILL

AREA OF NO EARTHWORKS

CONTOUR INTERVAL IS 0.20m

NOTE: ROADS WERE UNDERCUT A FURTHER 0.45m BELOW CUT CONTOURS SHOWN.

REFER TYPICAL CROSS SECTIONS

PROJECT				TITLE		ASBUILT ISSUE	
HARRISON GRIERSON CONSULTING ENGINEERS SURVEYORS PLANNERS 42-46 Hornumangi Street, Taupo Ph 07 376 7550 Fax 07 376 7551				WHAREWAKA (2003) LIMITED WHAREWAKA POINT SUBDIVISION TAUPO		STAGE 1 ASBUILT CUT & FILL PLAN SHEET 1 OF 3	
DESIGNED BY	DATE	DATE	DATE	PROJECT NO.	SCALE	PROJECT NO.	SCALE
CK	AUG 13	AUG 13	AUG 13	1080-D1-055-01	1:500 (A3)	1080-D1-055-01	1:500 (A3)
DRAWN BY	DATE	DATE	DATE	DRAWING NO.	REV	DRAWING NO.	REV
CK	AUG 13	AUG 13	AUG 13	014359-AB201	1	014359-AB201	1
ASBUILT DRAWING	DATE	DATE	DATE				
REF	DATE	DATE	DATE				

