

1074



HARRISON
GRIERSON

HURST (PAPAMOA) FAMILY TRUST

Evansfield Stage 7 Subdivision

Geotechnical Completion Report

March 2004

Reference 73.10187.1



1074-1

TAURANGA CITY COUNCIL

CONSENT NOTICE PURSUANT TO SECTION 221
RESOURCE MANAGEMENT ACT 1991

TCC SUB NO: 2601
Stage 7

IN THE MATTER OF PLAN DP 324280

AND

IN THE MATTER OF Subdivision Consent pursuant
to Sections 104, 105, 108, 220
& 221 of the Resource
Management Act 1991

Pursuant to Section 252(1)(a) of the Local Government Act 1974, I, **OWEN TERENCE WYNYARD**, Group Manager - Environmental Services of the Tauranga City Council, hereby certify that, by way of resolution passed under delegated authority on 26th February 2003, the following condition was imposed on the subdivision consent for Lots 177 DPS 92517.

That a consent notice be registered on the Certificate of Title for Lots 138 – 141, 150 – 167 inclusive and Lots 178, 179, 181, 182, 187 and 188:

1. Advising the owners and subsequent owners thereof, of the following requirement to be complied with on a continuing basis:

"All floors of any structure, requiring a Building Consent in accordance with the Building Act 1991, shall be constructed to the minimum floor level of RL 5.20m Moturiki Orthometric Datum".

For Lots 139, 140, 153 – 155 & 160 – 167

1. These Lots contain a Building Restriction Line as shown on the survey plan and as described in the following geotechnical report.
2. All geotechnical components of building consent applications shall comply with the recommendations contained in the Geotechnical Report compiled by Harrison Grierson Limited dated March 2004, Reference 7.310187.1.

DATED at Tauranga this

19th

day of

May

2004


Owen Terence Wynyard
Group Manager - Environmental Services

HARRISON GRIERSON CONSULTANTS LIMITED

Document Control Record

Client Hurst (Papamoa) Family Trust

Project Evansfield Stage 7 Subdivision

Project No. 73.10187.1

Document Geotechnical Completion Report

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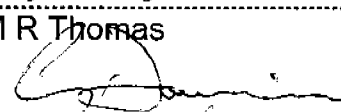
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M R Thomas

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G D Downing

Approved


M R Thomas

Office of Origin Tauranga

Telephone 07 578 0023

Facsimile 07 577 9557

Email tauranga@harrisingrierson.com

HURST (PAPAMOA) FAMILY TRUST
EVANSFIELD STAGE 7 SUBDIVISION
Geotechnical Completion Report

March 2004
Reference 73.10187.1

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1.0 INTRODUCTION

This report is for Lots 138 to 141, 150 to 167, 178 to 182, 187 and 188 inclusive of DP 324280, comprising Stage 7 of the Evansfield Subdivision at Papamoa.

2.0 BACKGROUND

The site is located on Arabian Drive and Palamino Place in Papamoa. Prior to development for residential subdivision, the site was farmland and contained some large agricultural buildings, including an old piggery and a large fertiliser storage shed. There were also several trees on the site.

The underlying material over the site is sand, however there were a number of depressions on the site which contained pockets of peat, and extensive areas of peat are present on the southern and eastern portions of the site. Excavations prior to construction revealed that the depth of peat was up to 4m to the east of Palamino Drive. There were also some areas on the site in which rubbish had been buried in the past.

3.0 DEVELOPMENT

Earthworks to develop the site were undertaken by Murray Salt Contractors Limited, between April and September 2003.

Prior to undertaking the bulk earthworks, the existing buildings were demolished.

Earthworks comprised cut to fill operations to form the finished contours, using motorscrapers and rollers. All areas of peat, rubbish and other unsuitable materials located below designated building platform areas were undercut and removed. All undercut areas were backfilled and compacted with sand. In addition to the cut to fill operation in the sands, granular fill was imported from Fulton Hogan's Poplar Lane Quarry to construct the site to the required finished levels to make up for the shortfall of suitable material available on site. All filling was undertaken to the requirements of NZS 4431.

Earthworks have been undertaken in only those areas for which building platforms have been developed. The areas of peat located over the south-eastern portion of the site, and predominantly contained within Lots 140, 154, 160 and 180, have been subjected to some minor earthworks with peat and organic materials excavated from the site spread over low areas. This area has not been developed for building on.

Drawing 10187-7-AB01 shows the finished contours and Drawing 10187-7-AB02 shows the depths of cut and fill over the site, together with areas where peat and other unsuitable materials were undercut. Within the Stage 7 area, the maximum depth of fill is 2.6m and of cut is 1.0m.

4.0 TESTING

Scala penetrometer tests and nuclear densometer tests were undertaken by the contractor during construction to ensure adequate compaction standards were being achieved. In addition machine augered boreholes extending to 1.5m below the surface, together with scala penetrometer tests, have been undertaken on each Lot following construction. Density tests undertaken on the imported fill revealed compacted dry densities of between 98% and 104% of MDD, which is in excess of the 95% minimum required for residential development.

The results of the final tests are attached and show that both the filled ground and original ground have safe bearing strengths well in excess of 100 kPa (300kPa capacity), at the level of building foundations and are therefore suitable for the erection thereon of buildings not requiring specific foundation design.

The borehole in Lot 153 revealed a buried layer of organic material located below the initial sand surface. This was excavated and backfilled with sand in January 2004. No other boreholes revealed any evidence of organic or other unsuitable materials.

5.0 BUILDING RESTRICTIONS

The south-eastern corner of the site is underlain by peat soils to significant depths. The pre-construction investigations revealed peat depths of up to 3m, however the depths are expected to be greater than that in places, especially where additional fill has been placed. These soils are unstable and prone to settlement, therefore are not suitable for building on. Much of this area is also below the minimum building level required for the area, and is therefore flood prone. A building restriction line has been placed on lots extending over the peat land.

The lots effected are Lots 139, 140, 153 to 155, and 160 to 167. Building behind the building restriction line on these lots is not to be undertaken unless specific foundation design is undertaken. The areas not suitable for building on are described as areas F to R on DP 324280.

Lot 180 is located entirely over the peat soils, and no building site has been identified for this lot. It is intended that Lot 180 be transferred to the owner of Lot 1 DPS 28790, and one title be issued to include both parcels.

6.0 CONCLUSIONS

Both the filled ground and original ground not effected by filling of the Evansfield Stage 7 subdivision are suitable for the erection thereon of buildings not requiring specific design in terms of NZS 3604 and related documents, with the exception of the areas described below:

- The areas located behind the building restriction lines on Lots 139, 140, 153 to 155, and 160 to 167, which are defined as areas F to R on DP 324280, contain significant depths of peat and other organic materials, and are not suitable for building on unless specific foundation design is undertaken.

- Lot 180 contains significant depths of peat and other organic materials, and is not suitable for building on unless specific foundation design is undertaken.

It should be noted that this report does not preclude routine foundation inspections at the time of erection of any dwelling. It is possible that these inspections may reveal localised areas of loose sands, particularly in the areas not affected by filling. It is also possible that there may be isolated pockets of buried rubbish or organic materials located on the site during past farming activities that have not been located during the earthworks operations. If such areas are encountered field testing should be undertaken to determine the extent of the soft or unsuitable area and what treatment, if any, of the foundation soils is required.

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

SECTION 2

To: The Director of Environmental Services

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

DEVELOPMENT: Evansfield Stage 7

OWNER: Hurst (Papamoa) Family Trust

LOCATION: Arabian Drive and Palomino Place, Papamoa

I Mark Rhys Thomas Of Harrison Grierson Consultants Limited
(full name)

P O 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 March 2003.
3. In my professional opinion, not to be construed as a guarantee, I consider that;
 - a) Every part/the area shown in my report dated March 2004 of each new allotment is suitable for the erection thereon of the building types appropriate to the zoning of land, provided that:
Extensive areas of peat are present behind the Building Line Restriction on Lots 139, 140, 153 to 155, and 160 to 167 and any buildings constructed within these areas are subject to specific foundation design.
Lot 180 is not suitable for the erection thereon of buildings unless subjected to specific foundation design.
 - b) The earth fills shown on the attached Plan No. 10187-7-AB02 have been placed in accordance with the Code of Practice for Development of the Tauranga District Council.
 - c) The completed works give due regard to all land slope and foundation stability considerations.
 - d) The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604:1999 and related documents.
 - e) The original ground not affected by filling is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604:1999 and related documents, provided that:
Extensive areas of peat are present behind the Building Line Restriction on Lots 139, 140, 153 to 155, and 160 to 167 and any buildings constructed within these areas are subject to specific foundation design.
Lot 180 is not suitable for the erection thereon of buildings unless subjected to specific foundation design.

4. This professional opinion is furnished to the Council and the owner for their purpose 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:

22/3/56

**SUITABILITY OF LAND
FOR BUILDING DEVELOPMENT**

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Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots Development: Evansfield Stage 7

# Lot	Area (m ²)	Subsurface Data						Foundations			Building Line Restriction?	Recommendations / Restrictions
		Bearing Strength (kPa)	Subdivision Filling		Natural Topography Unworked?	Natural Topography Earthworked?		Conventional Shallow Foundation to NZS 3604:1991?	Specific Design?			
			Y/N	Depth (m)		Y/N	Cut Depth (m)					
138	693	190	Y	0.5	N	N		Y	N	N	Peat and organic materials located behind the BLR (Area F on DP 324280). Specific foundation design required for buildings located in this area.	
139	1466	160	Y	0.5	N	N		Y	N	Y	Peat and organic materials located behind the BLR (Area R on DP 324280). Specific foundation design required for buildings located in this area.	
140	4029	170	Y	0.6	N	N		Y	N	Y		
141	647	250	Y	0.5	N	N		Y	N	N		
150	698	190	Y	0.6	N	N		Y	N	N		
151	509	180	Y	0.6	N	N		Y	N	N		
152	425	225	Y	0.5	N	N		Y	N	N	Top 500mm loose. Peat and organic materials located behind the BLR (Area G on DP 324280). Specific foundation design required for buildings located in this area.	
153	645	225	Y	0.4	N	N		Y	N	Y	Peat and organic materials located behind the BLR (Area H on DP 324280). Specific foundation design required for buildings located in this area.	
154	4288	275	Y	0.8	N	N		Y	N	Y	Peat and organic materials located behind the BLR (Area I on DP 324280). Specific foundation design required for buildings located in this area.	
155	649	430	Y	0.8-1.8	N	N		Y	N	N		
156	584	300	Y	0-0.6	N	N		Y	N	N		
157	540	275	Y	0-0.8	N	N		Y	N	N		
158	540	340	Y	0-1.6	N	N		Y	N	N		
159	640	275	Y	0-0.6	N	N		Y	N	N	Peat and organic materials located behind the BLR (Area J on DP 324280). Specific foundation design required for buildings located in this area.	
160	4100	275	Y	0.8-2.0	N	N		Y	N	Y	Peat and organic materials located behind the BLR (Area K on DP 324280). Specific foundation design required for buildings located in this area.	
161	773	340	Y	0.4-2.0	N	N		Y	N	Y	Peat and organic materials located behind the BLR (Area L on DP 324280). Specific foundation design required for buildings located in this area.	
162	710	430	Y	0.2-0.8	N	N		Y	N	Y	Peat and organic materials located behind the BLR (Area M on DP 324280). Specific foundation design required for buildings located in this area.	
163	907	430	Y	0.2-1.6	N	N		Y	N	Y	Peat and organic materials located behind the BLR (Area N on DP 324280). Specific foundation design required for buildings located in this area.	
164	798	340	Y	0-2.0	N	N		Y	N	Y		

Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots **Development: Evansfield Stage 7**

# Lot #	Area (m ²)	Subsurface Data						Foundations			Building Line Restriction?	Recommendations / Restrictions
		Bearing Strength (kPa)	Subdivision Filling		Natural Topography Unworked?	Natural Topography Earthworked?		Conventional Shallow Foundation to NZS 3604:1991?	Specific Design?			
			Y/N	Depth (m)		Y/N	Cut					
										Y/N		
												Peat and organic materials located behind the BLR (Area O on DP 324280). Specific foundation design required for buildings located in this area.
165	700	340	Y	0.4 - 2.4	N				Y	N	Y	Peat and organic materials located behind the BLR (Area P on DP 324280). Specific foundation design required for buildings located in this area.
166	730	340	Y	0 - 2.2	N			Y	0 - 0.4		Y	Peat and organic materials located behind the BLR (Area Q on DP 324280). Specific foundation design required for buildings located in this area.
167	664	430	Y	0 - 2.6	N			Y	0 - 1.0		Y	
178	620	180	Y	0 - 2.0	N			Y	0 - 0.5		N	
179	678	340	Y	0 - 0.4	N			Y	0-0.4		N	
181	680	275	Y	0 - 1.6	N			N			N	
182	587	250	Y	0 - 1.6	N			N			N	
187	470	340	Y	0.6	N			N			N	
188	480	450	Y	0.6	N			N			N	
												Peat and organic materials located over the entire Lot. Specific foundation design required for buildings located anywhere on this Lot.
180	47121	N/A	N		N					N	Y	
Comments												
Bearing strength is the safe bearing strength 300mm below ground level, as determined from Scala Penetrometer, using the method determined by Stockwell (NZ Engineering (326) 15 June 1977). For bearing capacity the above values should be multiplied by 3.												

TEST RESULTS AND BORELOGS

HARRISON GRIERSON CONSULTANTS LTD											File No 73 10187				
SCALAPENETROMETER RESULT SHEET											Date teste 29 th Jan				
CLIENT: HURST (PAPAMOA) FAMILY TRUST						NB safety factor 1.6 --					Tested by MC				
PROJECT: EVANSFIELD STAGE 7						depending on soil type					Printed				
						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 139															
1.10	0		ROD		0.00 m										
0.92	7	0.180	26 mm	130 kPa	0.18 m	+++++									
0.82	5	0.100	20 mm	160 kPa	0.28 m	+++++									
0.72	7	0.100	14 mm	200 kPa	0.38 m	+++++									
0.58	11	0.140	13 mm	225 kPa	0.52 m	+++++									
0.46	10	0.120	12 mm	225 kPa	0.64 m	+++++									
0.32	8	0.140	18 mm	170 kPa	0.78 m	+++++									
0.25	10	0.070	7 mm	340 kPa	0.85 m	+++++									
Lot 140															
1.10	0		ROD		0.00 m										
0.96	5	0.140	28 mm	120 kPa	0.14 m	+++++									
0.69	16	0.270	17 mm	175 kPa	0.41 m	+++++									
0.56	11	0.130	12 mm	225 kPa	0.54 m	+++++									
0.45	9	0.110	12 mm	225 kPa	0.65 m	+++++									
0.27	14	0.180	13 mm	225 kPa	0.83 m	+++++									
0.20	5	0.070	14 mm	200 kPa	0.90 m	+++++									
Lot 150															
1.10	0		ROD		0.00 m										
0.84	14	0.260	19 mm	165 kPa	0.26 m	+++++									
0.72	8	0.120	15 mm	190 kPa	0.38 m	+++++									
0.67	10	0.050	5 mm	430 kPa	0.43 m	+++++									
0.46	7	0.210	30 mm	110 kPa	0.64 m	+++++									
0.38	8	0.080	10 mm	250 kPa	0.72 m	+++++									
0.29	9	0.090	10 mm	250 kPa	0.81 m	+++++									
0.23	11	0.060	5 mm	430 kPa	0.87 m	+++++									
Lot 151															
1.10	0		ROD		0.00 m										
0.96	10	0.140	14 mm	200 kPa	0.14 m	+++++									
0.70	16	0.260	16 mm	180 kPa	0.40 m	+++++									
0.42	14	0.280	20 mm	160 kPa	0.68 m	+++++									
0.28	5	0.140	28 mm	120 kPa	0.82 m	+++++									
0.23	6	0.050	8 mm	275 kPa	0.87 m	+++++									
Lot152															
1.10	0		ROD		0.00 m										
0.96	11	0.140	13 mm	225 kPa	0.14 m	+++++									
0.79	13	0.170	13 mm	225 kPa	0.31 m	+++++									
0.66	11	0.130	12 mm	225 kPa	0.44 m	+++++									
0.56	11	0.100	9 mm	275 kPa	0.54 m	+++++									
0.43	11	0.130	12 mm	225 kPa	0.67 m	+++++									
0.23	15	0.200	13 mm	225 kPa	0.87 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 New Zealand Engineering (32,6) 15 June 1977

File No 73 10187

Date teste 29 th Jan

NB safety factor 1.6 --

Tested by MC

depending on soil type Printed

Printed

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HARRISON GRIERSON CONSULTANTS LTD

File No 73 10187

SCALAPENETROMETER RESULT SHEET

Date teste 29 th Jan

CLIENT: HURST (PAPAMOA) FAMILY TRUST

NB safety factor 1.6 --
depending on soil type

Tested by MC

PROJECT: EVANSFIELD STAGE 7

Printed

Reading	Blows	diff	Pen/blow	Bearing	Depth	Kpa											
						3	7	13	20	30	50	60+	CBR				
0.43	13	0.140	12 mm	225 kPa	0.67 m	+++++											
0.29	9	0.080	16 mm	180 kPa	0.81 m	+++++											
0.21	5	0.010	16 mm	180 kPa	0.89 m	+++++											
0.20	1		10 mm	250 kPa	0.90 m	+++++											
Lot 158																	
1.10	0	0.170	ROD		0.00 m												
0.93	4	0.090	43 mm	78 kPa	0.17 m	+++++											
0.84	10	0.070	9 mm	275 kPa	0.26 m	+++++											
0.77	11	0.060	6 mm	340 kPa	0.33 m	+++++											
0.71	15	0.050	4 mm	430 kPa	0.39 m	+++++											
0.66	10	0.170	5 mm	430 kPa	0.44 m	+++++											
0.49	20	0.090	9 mm	275 kPa	0.61 m	+++++											
0.40	11	0.070	8 mm	275 kPa	0.70 m	+++++											
0.33	16		4 mm	430 kPa	0.77 m	+++++											
Lot 159																	
1.07	0	0.110	ROD		0.00 m												
0.96	3	0.110	37 mm	89 kPa	0.11 m	+++++											
0.85	7	0.100	16 mm	180 kPa	0.22 m	+++++											
0.75	11	0.010	9 mm	275 kPa	0.32 m	+++++											
0.74	3	0.070	3 mm	450 kPa	0.33 m	+++++											
0.67	10	0.180	7 mm	340 kPa	0.40 m	+++++											
0.49	20	0.150	9 mm	275 kPa	0.58 m	+++++											
0.34	15	0.100	10 mm	250 kPa	0.73 m	+++++											
0.24	10	0.030	10 mm	250 kPa	0.83 m	+++++											
0.21	6		5 mm	430 kPa	0.86 m	+++++											
Lot 160																	
1.12	0	0.180	ROD		0.00 m												
0.94	10	0.090	18 mm	170 kPa	0.18 m	+++++											
0.85	10	0.160	9 mm	275 kPa	0.27 m	+++++											
0.69	20	0.100	8 mm	275 kPa	0.43 m	+++++											
0.59	15	0.190	7 mm	340 kPa	0.53 m	+++++											
0.40	30	0.200	6 mm	340 kPa	0.72 m	+++++											
0.20	20	NEW	10 mm	250 kPa	0.92 m	+++++											
1.25	0	0.250	ROD	250 kPa	0.92 m	+++++											
1.00	40		6 mm	340 kPa	1.17 m	+++++											
Lot 161																	
1.10	0	0.110	ROD		0.00 m												
0.99	10	0.110	11 mm	238 kPa	0.11 m	+++++											
0.88	13	0.110	8 mm	275 kPa	0.22 m	+++++											
0.77	20	0.070	6 mm	340 kPa	0.33 m	+++++											
0.70	16	0.070	4 mm	430 kPa	0.40 m	+++++											
0.63	20	0.080	4 mm	430 kPa	0.47 m	+++++											
0.55	20	0.080	4 mm	430 kPa	0.55 m	+++++											

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SCALAPENETROMETER RESULT SHEET

Date teste 29 th Jan

CLIENT: HURST (PAPAMOA) FAMILY TRUST

NB safety factor 1.6 --

Tested by MC

PROJECT: EVANSFIELD STAGE 7

depending on soil type

Printed

						Dependent on soil type, linked										Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR			
0.47	16	0.070	5 mm	430 kPa	0.63 m	+++++	+++	++	+							
0.40	17	0.110	4 mm	430 kPa	0.70 m	+++++	+++	++	+							
0.29	23	0.070	5 mm	430 kPa	0.81 m	+++++	+++	++	+							
0.22	9	NEW	8 mm	275 kPa	0.88 m	+++++	+++	++	+							
1.25	0	0.110	ROD	275 kPa	0.88 m	+++++	+++	++	+							
1.14	13	0.140	8 mm	275 kPa	0.99 m	+++++	+++	++	+							
1.00	16	0.120	9 mm	275 kPa	1.13 m	+++++	+++	++	+							
0.88	12	0.110	10 mm	250 kPa	1.25 m	+++++	+++	++	+							
0.77	14	0.040	8 mm	275 kPa	1.36 m	+++++	+++	++	+							
0.73	8		5 mm	430 kPa	1.40 m	+++++	+++	++	+							
Lot 162																
1.10	0	0.110	ROD		0.00 m											
0.99	7	0.090	16 mm	180 kPa	0.11 m	+++++	+++	++	+							
0.90	8	0.100	11 mm	238 kPa	0.20 m	+++++	+++	++	+							
0.80	11	0.050	9 mm	275 kPa	0.30 m	+++++	+++	++	+							
0.75	11	0.050	5 mm	430 kPa	0.35 m	+++++	+++	++	+							
0.70	11	0.020	5 mm	430 kPa	0.40 m	+++++	+++	++	+							
0.68	8	0.040	2 mm	450 kPa	0.42 m	+++++	+++	++	+							
0.64	12	0.080	3 mm	450 kPa	0.46 m	+++++	+++	++	+							
0.56	16	0.070	5 mm	430 kPa	0.54 m	+++++	+++	++	+							
0.49	15	0.110	5 mm	430 kPa	0.61 m	+++++	+++	++	+							
0.38	16	0.160	7 mm	340 kPa	0.72 m	+++++	+++	++	+							
0.22	14	NEW	11 mm	238 kPa	0.88 m	+++++	+++	++	+							
1.23	0	0.230	ROD	238 kPa	0.88 m	+++++	+++	++	+							
1.00	15	0.270	15 mm	190 kPa	1.11 m	+++++	+++	++	+							
0.73	9	0.110	30 mm	110 kPa	1.38 m	+++++	+++	++	+							
0.62	6	0.100	18 mm	170 kPa	1.49 m	+++++	+++	++	+							
0.52	10	0.040	10 mm	250 kPa	1.59 m	+++++	+++	++	+							
0.48	7		6 mm	340 kPa	1.63 m	+++++	+++	++	+							
Lot 163																
1.10	0	0.130	ROD		0.00 m											
0.97	3	0.120	43 mm	78 kPa	0.13 m	+++++	+++	++	+							
0.85	5	0.030	24 mm	140 kPa	0.25 m	+++++	+++	++	+							
0.82	10	0.050	3 mm	450 kPa	0.28 m	+++++	+++	++	+							
0.77	11	0.080	5 mm	430 kPa	0.33 m	+++++	+++	++	+							
0.69	13	0.070	6 mm	340 kPa	0.41 m	+++++	+++	++	+							
0.62	11	0.070	6 mm	340 kPa	0.48 m	+++++	+++	++	+							
0.55	15	0.070	5 mm	430 kPa	0.55 m	+++++	+++	++	+							
0.48	16	0.100	4 mm	430 kPa	0.62 m	+++++	+++	++	+							
0.38	15	0.080	7 mm	340 kPa	0.72 m	+++++	+++	++	+							
0.30	13	0.070	6 mm	340 kPa	0.80 m	+++++	+++	++	+							
0.23	6	NEW	12 mm	225 kPa	0.87 m	+++++	+++	++	+							
1.26	0	0.100	ROD	225 kPa	0.87 m	+++++	+++	++	+							
1.16	12	0.120	8 mm	275 kPa	0.97 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 New Zealand Engineering (32.6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD						File No 73 10187									
SCALAPENETROMETER RESULT SHEET						Date teste 29 th Jan									
CLIENT: HURST (PAPAMOA) FAMILY TRUST						NB safety factor 1.6 --									
PROJECT: EVANSFIELD STAGE 7						depending on soil type Printed									
Reading	Blows	diff	Pen/blow	Bearing	Depth	50	100	150	200	250	300	350	400	450	Kpa
						3	7	13	20	30	50	60+	CBR		
1.04	15	0.070	8 mm	275 kPa	1.09 m	+++++									
0.97	13	0.040	5 mm	430 kPa	1.16 m	+++++									
0.93	13	0.080	3 mm	450 kPa	1.20 m	+++++									
0.85	15	0.100	5 mm	430 kPa	1.28 m	+++++									
0.75	13		8 mm	275 kPa	1.38 m	+++++									
Lot 164															
0.97	0	0.080	ROD		0.00 m										
0.89	4	0.050	20 mm	160 kPa	0.08 m	+++++									
0.84	5	0.060	10 mm	250 kPa	0.13 m	+++++									
0.78	8	0.030	7 mm	340 kPa	0.19 m	+++++									
0.75	6	0.040	5 mm	430 kPa	0.22 m	+++++									
0.71	9	0.030	4 mm	430 kPa	0.26 m	+++++									
0.68	9	0.050	3 mm	450 kPa	0.29 m	+++++									
0.63	7	0.100	7 mm	340 kPa	0.34 m	+++++									
0.53	16	0.100	6 mm	340 kPa	0.44 m	+++++									
0.43	17	0.040	6 mm	340 kPa	0.54 m	+++++									
0.39	17	0.070	2 mm	450 kPa	0.58 m	+++++									
0.32	20	0.040	4 mm	430 kPa	0.65 m	+++++									
0.28	13	0.020	3 mm	450 kPa	0.69 m	+++++									
0.26	3		7 mm	340 kPa	0.71 m	+++++									
Lot 165															
0.95	0	0.110	ROD		0.00 m										
0.84	8	0.070	14 mm	200 kPa	0.11 m	+++++									
0.77	7	0.040	10 mm	250 kPa	0.18 m	+++++									
0.73	5	0.050	8 mm	275 kPa	0.22 m	+++++									
0.68	6	0.050	8 mm	275 kPa	0.27 m	+++++									
0.63	8	0.080	6 mm	340 kPa	0.32 m	+++++									
0.55	12	0.050	7 mm	340 kPa	0.40 m	+++++									
0.50	11	0.040	5 mm	430 kPa	0.45 m	+++++									
0.46	7	0.050	6 mm	340 kPa	0.49 m	+++++									
0.41	8	0.070	6 mm	340 kPa	0.54 m	+++++									
0.34	10	0.060	7 mm	340 kPa	0.61 m	+++++									
0.28	10	NEW	6 mm	340 kPa	0.67 m	+++++									
1.28	0	0.080	ROD	340 kPa	0.67 m	+++++									
1.20	10	0.040	8 mm	275 kPa	0.75 m	+++++									
1.16	10	0.030	4 mm	430 kPa	0.79 m	+++++									
1.13	10	0.060	3 mm	450 kPa	0.82 m	+++++									
1.07	12	0.070	5 mm	430 kPa	0.88 m	+++++									
1.00	12	0.070	6 mm	340 kPa	0.95 m	+++++									
0.93	12	0.050	6 mm	340 kPa	1.02 m	+++++									
0.88	10	0.050	5 mm	430 kPa	1.07 m	+++++									
0.83	12	0.050	4 mm	430 kPa	1.12 m	+++++									
0.78	16		3 mm	450 kPa	1.17 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 New Zealand Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD						File No 73 10187									
SCALAPENETROMETER RESULT SHEET						Date teste 29 th Jan									
CLIENT: HURST (PAPAMOA) FAMILY TRUST						NB safety factor 1.6 --									
PROJECT: EVANSFIELD STAGE 7						depending on soil type Printed									
						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 166															
0.97	0	0.110	ROD		0.00 m										
0.86	8	0.050	14 mm	200 kPa	0.11 m	+++++									
0.81	8	0.050	6 mm	340 kPa	0.16 m	+++++									
0.76	8	0.060	6 mm	340 kPa	0.21 m	+++++									
0.70	10	0.050	6 mm	340 kPa	0.27 m	+++++									
0.65	10	0.050	5 mm	430 kPa	0.32 m	+++++									
0.60	7	0.060	7 mm	340 kPa	0.37 m	+++++									
0.54	10	0.040	6 mm	340 kPa	0.43 m	+++++									
0.50	10	0.030	4 mm	430 kPa	0.47 m	+++++									
0.47	11	0.050	3 mm	450 kPa	0.50 m	+++++									
0.42	15	0.060	3 mm	450 kPa	0.55 m	+++++									
0.36	15	0.060	4 mm	430 kPa	0.61 m	+++++									
0.30	11	0.050	5 mm	430 kPa	0.67 m	+++++									
0.25	7	NEW	7 mm	340 kPa	0.72 m	+++++									
1.24	0	0.040	ROD	340 kPa	0.72 m	+++++									
1.20	11	0.040	4 mm	430 kPa	0.76 m	+++++									
1.16	14	0.030	3 mm	450 kPa	0.80 m	+++++									
1.13	14	0.000	2 mm	450 kPa	0.83 m	+++++									
1.13	7		mm	450 kPa	0.83 m	+++++									
Lot 167															
0.95	0	0.080	ROD		0.00 m										
0.87	5	0.030	16 mm	180 kPa	0.08 m	+++++									
0.84	4	0.040	8 mm	275 kPa	0.11 m	+++++									
0.80	5	0.040	8 mm	275 kPa	0.15 m	+++++									
0.76	5	0.040	8 mm	275 kPa	0.19 m	+++++									
0.72	6	0.035	7 mm	340 kPa	0.23 m	+++++									
0.69	8	0.045	4 mm	430 kPa	0.27 m	+++++									
0.64	10	0.040	5 mm	430 kPa	0.31 m	+++++									
0.60	10	0.010	4 mm	430 kPa	0.35 m	+++++									
0.59	10	0.020	1 mm	500 kPa	0.36 m	+++++									
0.57	10	0.020	2 mm	450 kPa	0.38 m	+++++									
0.55	10	0.080	2 mm	450 kPa	0.40 m	+++++									
0.47	20	0.030	4 mm	430 kPa	0.48 m	+++++									
0.44	10	0.040	3 mm	450 kPa	0.51 m	+++++									
0.40	13	0.050	3 mm	450 kPa	0.55 m	+++++									
0.35	12	0.040	4 mm	430 kPa	0.60 m	+++++									
0.31	10	0.060	4 mm	430 kPa	0.64 m	+++++									
0.25	10	NEW	6 mm	340 kPa	0.70 m	+++++									
1.25	0	0.060	ROD	340 kPa	0.70 m	+++++									
1.19	10	0.040	6 mm	340 kPa	0.76 m	+++++									
1.15	5	0.070	8 mm	275 kPa	0.80 m	+++++									
1.08	14	0.050	5 mm	430 kPa	0.87 m	+++++									
1.03	12	0.050	4 mm	430 kPa	0.92 m	+++++									
0.98	14	0.060	4 mm	430 kPa	0.97 m	+++++									
0.92	12	0.040	5 mm	430 kPa	1.03 m	+++++									
0.88	12		3 mm	450 kPa	1.07 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 New Zealand Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD

File No 73 10187

SCALAPENETROMETER RESULT SHEET

Date teste 29 th Jan

CLIENT: HURST (PAPAMOA) FAMILY TRUST

NB safety factor 1.6 --	Tested by MC
-------------------------	--------------

PROJECT: EVANSFIELD STAGE 7

depending on soil type Printed

Depositing drill type: 100mm						Penetration depth (mm)								Kpa
Reading	Blows	diff	Pen/blow	Bearing	Depth	3	7	13	20	30	50	60+	CBR	
Lot 178														
0.97	0	0.050	ROD		0.00 m									
0.92	3	0.050	17 mm	175 kPa	0.05 m	+++++								
0.87	3	0.050	17 mm	175 kPa	0.10 m	+++++								
0.82	3	0.080	17 mm	175 kPa	0.15 m	+++++								
0.74	4	0.080	20 mm	160 kPa	0.23 m	+++++								
0.66	5	0.060	16 mm	180 kPa	0.31 m	+++++								
0.60	4	0.070	15 mm	190 kPa	0.37 m	+++++								
0.53	5	0.150	14 mm	200 kPa	0.44 m	+++++								
0.38	4	0.060	38 mm	87 kPa	0.59 m	+++++								
0.32	5	0.060	12 mm	225 kPa	0.65 m	+++++								
0.26	4	NEW	15 mm	190 kPa	0.71 m	+++++								
1.25	0	0.070	ROD	190 kPa	0.71 m	+++++								
1.18	5	0.060	14 mm	200 kPa	0.78 m	+++++								
1.12	7	0.030	9 mm	275 kPa	0.84 m	+++++								
1.09	5	0.040	6 mm	340 kPa	0.87 m	+++++								
1.05	6	0.070	7 mm	340 kPa	0.91 m	+++++								
0.98	8	0.080	9 mm	275 kPa	0.98 m	+++++								
0.90	9	0.050	9 mm	275 kPa	1.06 m	+++++								
0.85	10	0.065	5 mm	430 kPa	1.11 m	+++++								
0.79	10	0.095	6 mm	340 kPa	1.18 m	+++++								
0.69	10		10 mm	250 kPa	1.27 m	+++++								
Lot 179														
0.97	0	0.080	ROD		0.00 m									
0.89	3	0.040	27 mm	125 kPa	0.08 m	+++++								
0.85	3	0.060	13 mm	225 kPa	0.12 m	+++++								
0.79	7	0.040	9 mm	275 kPa	0.18 m	+++++								
0.75	8	0.060	5 mm	430 kPa	0.22 m	+++++								
0.69	10	0.040	6 mm	340 kPa	0.28 m	+++++								
0.65	7	0.070	6 mm	340 kPa	0.32 m	+++++								
0.58	9	0.070	8 mm	275 kPa	0.39 m	+++++								
0.51	10	0.100	7 mm	340 kPa	0.46 m	+++++								
0.41	11	0.050	9 mm	275 kPa	0.56 m	+++++								
0.36	5	0.060	10 mm	250 kPa	0.61 m	+++++								
0.30	7	NEW	9 mm	275 kPa	0.67 m	+++++								
1.30	0	0.050	ROD	275 kPa	0.67 m	+++++								
1.25	5	0.090	10 mm	250 kPa	0.72 m	+++++								
1.16	6	0.190	15 mm	190 kPa	0.81 m	+++++								
0.97	11	0.090	17 mm	175 kPa	1.00 m	+++++								
0.88	10	0.100	9 mm	275 kPa	1.09 m	+++++								
0.78	11	0.080	9 mm	275 kPa	1.19 m	+++++								
0.70	11	0.050	7 mm	340 kPa	1.27 m	+++++								
0.65	7		7 mm	340 kPa	1.32 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 New Zealand Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD											File No 73 10187				
SCALAPENETROMETER RESULT SHEET											Date teste 29 th Jan				
CLIENT: HURST (PAPAMOA) FAMILY TRUST						NB safety factor 1.6 --					Tested by MC				
PROJECT: EVANSFIELD STAGE 7						depending on soil type					Printed				
						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 181															
1.10	0	0.050	ROD		0.00 m										
1.05	3	0.240	17 mm	175 kPa	0.05 m	+++++									
0.81	12	0.100	20 mm	160 kPa	0.29 m	+++++									
0.71	12	0.090	8 mm	275 kPa	0.39 m	+++++									
0.62	16	0.150	6 mm	340 kPa	0.48 m	+++++									
0.47	20	0.110	8 mm	275 kPa	0.63 m	+++++									
0.36	11	0.110	10 mm	250 kPa	0.74 m	+++++									
0.25	10	0.050	11 mm	238 kPa	0.85 m	+++++									
0.20	3		17 mm	175 kPa	0.90 m	+++++									
Lot 182															
1.07	0	0.110	ROD		0.00 m										
0.96	6	0.160	18 mm	170 kPa	0.11 m	+++++									
0.80	10	0.100	16 mm	180 kPa	0.27 m	+++++									
0.70	10	0.100	10 mm	250 kPa	0.37 m	+++++									
0.60	10	0.070	10 mm	250 kPa	0.47 m	+++++									
0.53	10	0.070	7 mm	340 kPa	0.54 m	+++++									
0.46	10	0.080	7 mm	340 kPa	0.61 m	+++++									
0.38	15	0.120	5 mm	430 kPa	0.69 m	+++++									
0.26	18	0.040	7 mm	340 kPa	0.81 m	+++++									
0.22	9		4 mm	430 kPa	0.85 m	+++++									
Lot 187															
0.97	0	0.040	ROD		0.00 m										
0.93	3	0.040	13 mm	225 kPa	0.04 m	+++++									
0.89	3	0.020	13 mm	225 kPa	0.08 m	+++++									
0.87	3	0.040	7 mm	340 kPa	0.10 m	+++++									
0.83	5	0.030	8 mm	275 kPa	0.14 m	+++++									
0.80	5	0.020	6 mm	340 kPa	0.17 m	+++++									
0.78	5	0.030	4 mm	430 kPa	0.19 m	+++++									
0.75	7	0.030	4 mm	430 kPa	0.22 m	+++++									
0.72	7	0.055	4 mm	430 kPa	0.25 m	+++++									
0.67	9	0.065	6 mm	340 kPa	0.31 m	+++++									
0.60	9	0.050	7 mm	340 kPa	0.37 m	+++++									
0.55	11	0.080	5 mm	430 kPa	0.42 m	+++++									
0.47	10	0.090	8 mm	275 kPa	0.50 m	+++++									
0.38	10	0.100	9 mm	275 kPa	0.59 m	+++++									
0.28	10	NEW	10 mm	250 kPa	0.69 m	+++++									
1.27	0	0.130	ROD		0.69 m	+++++									
1.14	12	0.080	11 mm	238 kPa	0.82 m	+++++									
1.06	9	0.090	9 mm	275 kPa	0.90 m	+++++									
0.97	10	0.095	9 mm	275 kPa	0.99 m	+++++									
0.88	10	0.110	10 mm	250 kPa	1.09 m	+++++									
0.77	10	0.105	11 mm	238 kPa	1.20 m	+++++									
0.66	9	0.080	12 mm	225 kPa	1.30 m	+++++									
0.58	6	0.040	13 mm	225 kPa	1.38 m	+++++									
0.54	3		13 mm	225 kPa	1.42 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 New Zealand Engineering (32,6) 15 June 1977

HARRISON GRIERSON CONSULTANTS LTD						File No 73 10187									
SCALAPENETROMETER RESULT SHEET						Date teste 29 th Jan									
CLIENT: HURST (PAPAMOA) FAMILY TRUST				NB safety factor 1.6 -- depending on soil type		Tested by MC									
PROJECT: EVANSFIELD STAGE 7				Printed											
Reading	Blows	diff	Pen/blow	Bearing	Depth	50	100	150	200	250	300	350	400	450	Kpa
						3	7	13	20	30	50	60+	CBR		
Lot 188															
1.11	0	0.160	ROD		0.00 m										
0.95	7	0.170	23 mm	145 kPa	0.16 m	+++++									
0.78	7	0.020	24 mm	140 kPa	0.33 m	+++++									
0.76	10	0.040	2 mm	450 kPa	0.35 m	+++++									
0.72	10	0.060	4 mm	430 kPa	0.39 m	+++++									
0.66	10	0.070	6 mm	340 kPa	0.45 m	+++++									
0.59	12	0.120	6 mm	340 kPa	0.52 m	+++++									
0.47	20	0.060	6 mm	340 kPa	0.64 m	+++++									
0.41	12	0.070	5 mm	430 kPa	0.70 m	+++++									
0.34	15	0.080	5 mm	430 kPa	0.77 m	+++++									
0.26	12	0.060	7 mm	340 kPa	0.85 m	+++++									
0.20	9		7 mm	340 kPa	0.91 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 New Zealand Engineering (32,6) 15 June 1977

SCALAPENETROMETER RESULT SHEET

File No 73.10187.1

Date tested 15-Aug-03

CLIENT: Hurst (Papamoa) Family

NB safety factor 1.6 – 5.

Tested by AD

PROJECT: Evansfield Stage 7, Arabian Drv, Papamoa

depending on soil type

Printed 15-Aug-03

						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																
0.87	0	NEW		kPa	0.00 m											
0.79	2	0.080	40 mm	85 kPa	0.08 m	++++++										
0.77	1	0.020	20 mm	160 kPa	0.10 m	+++++										
0.71	2	0.060	30 mm	110 kPa	0.16 m	+++++										
0.67	1	0.040	40 mm	85 kPa	0.20 m	+++++										
0.64	1	0.030	30 mm	110 kPa	0.23 m	+++++										
0.60	2	0.040	20 mm	160 kPa	0.27 m	+++++										
0.56	2	0.040	20 mm	160 kPa	0.31 m	+++++										
0.54	2	0.020	10 mm	250 kPa	0.33 m	+++++										
0.50	3	0.040	13 mm	225 kPa	0.37 m	+++++										
0.47	2	0.030	15 mm	190 kPa	0.40 m	+++++										
0.46	2	0.010	5 mm	430 kPa	0.41 m	+++++										
0.42	3	0.040	13 mm	225 kPa	0.45 m	+++++										
0.38	3	0.040	13 mm	225 kPa	0.49 m	+++++										
0.35	3	0.030	10 mm	250 kPa	0.52 m	+++++										
0.30	4	0.055	14 mm	200 kPa	0.58 m	+++++										
0.23	3	0.065	22 mm	150 kPa	0.64 m	+++++										
0.20	2	0.030	15 mm	190 kPa	0.67 m	+++++										
1.20	0	NEW	ROD	190 kPa	0.67 m	+++++										
1.15	2	0.050	25 mm	135 kPa	0.72 m	+++++										
1.10	2	0.050	25 mm	135 kPa	0.77 m	+++++										
1.06	2	0.040	20 mm	160 kPa	0.81 m	+++++										
0.99	3	0.075	25 mm	135 kPa	0.89 m	+++++										
0.92	3	0.065	22 mm	150 kPa	0.95 m	+++++										
0.88	2	0.040	20 mm	160 kPa	0.99 m	+++++										
0.85	2	0.030	15 mm	190 kPa	1.02 m	+++++										
0.82	3	0.030	10 mm	250 kPa	1.05 m	+++++										
0.80	3	0.020	7 mm	340 kPa	1.07 m	+++++										
0.78	4	0.020	5 mm	430 kPa	1.09 m	+++++										
0.75	5	0.030	6 mm	340 kPa	1.12 m	+++++										
0.72	5	0.030	6 mm	340 kPa	1.15 m	+++++										
0.70	5	0.020	4 mm	430 kPa	1.17 m	+++++										
0.67	6	0.030	5 mm	430 kPa	1.20 m	+++++										
0.64	5	0.030	6 mm	340 kPa	1.23 m	+++++										
0.60	6	0.040	7 mm	340 kPa	1.27 m	+++++										
0.57	5	0.030	6 mm	340 kPa	1.30 m	+++++										
0.53	6	0.040	7 mm	340 kPa	1.34 m	+++++										
0.48	7	0.050	7 mm	340 kPa	1.39 m	+++++										
0.45	5	0.030	6 mm	340 kPa	1.42 m	+++++										
0.41	5	0.040	8 mm	275 kPa	1.46 m	+++++										
0.37	5	0.040	8 mm	275 kPa	1.50 m	+++++										
0.33	5	0.040	8 mm	275 kPa	1.54 m	+++++										
0.30	5	0.035	7 mm	340 kPa	1.58 m	+++++										

HARRISON GRIERSON CONSULTANTS LTD										File No 73.10187.1				
SCALAPENETROMETER RESULT SHEET										Date tested 15-Aug-03				
CLIENT: Hurst (Papamoa) Family					NB safety factor 1.6 – 5,					Tested by AD				
PROJECT: Evansfield Stage 7, Arabian Drv, Papamoa					depending on soil type					Printed 15-Aug-03				
					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 140														
0.85	0				0.00 m									
0.80	1	0.055	55 mm	63 kPa	0.05 m	+++++								
0.75	1	0.050	50 mm	68 kPa	0.11 m	+++++								
0.70	1	0.045	45 mm	75 kPa	0.15 m	+++++								
0.66	1	0.040	40 mm	85 kPa	0.19 m	+++++								
0.62	1	0.040	40 mm	85 kPa	0.23 m	+++++								
0.58	1	0.040	40 mm	85 kPa	0.27 m	+++++								
0.55	2	0.035	18 mm	170 kPa	0.31 m	+++++								
0.51	3	0.035	12 mm	225 kPa	0.34 m	+++++								
0.47	4	0.045	11 mm	238 kPa	0.39 m	+++++								
0.43	3	0.035	12 mm	225 kPa	0.42 m	+++++								
0.39	4	0.040	10 mm	250 kPa	0.46 m	+++++								
0.36	3	0.030	10 mm	250 kPa	0.49 m	+++++								
0.31	4	0.050	13 mm	225 kPa	0.54 m	+++++								
0.27	5	0.040	8 mm	275 kPa	0.58 m	+++++								
0.24	4	0.030	8 mm	275 kPa	0.61 m	+++++								
0.20	5	0.040	8 mm	275 kPa	0.65 m	+++++								
0.18	4	0.020	5 mm	430 kPa	0.67 m	+++++								
1.18	0	NEW	ROD	430 kPa	0.67 m	+++++								
1.14	4	0.040	10 mm	250 kPa	0.71 m	+++++								
1.10	5	0.040	8 mm	275 kPa	0.75 m	+++++								
1.04	6	0.060	10 mm	250 kPa	0.81 m	+++++								
1.00	6	0.040	7 mm	340 kPa	0.85 m	+++++								
0.96	6	0.040	7 mm	340 kPa	0.89 m	+++++								
0.92	6	0.040	7 mm	340 kPa	0.93 m	+++++								
0.88	6	0.040	7 mm	340 kPa	0.97 m	+++++								
0.85	7	0.030	4 mm	430 kPa	1.00 m	+++++								
0.82	7	0.030	4 mm	430 kPa	1.03 m	+++++								
0.76	7	0.060	9 mm	275 kPa	1.09 m	+++++								
0.74	5	0.020	4 mm	430 kPa	1.11 m	+++++								
0.71	6	0.035	6 mm	340 kPa	1.15 m	+++++								
0.67	6	0.040	7 mm	340 kPa	1.19 m	+++++								
0.63	7	0.035	5 mm	430 kPa	1.22 m	+++++								
0.60	7	0.030	4 mm	430 kPa	1.25 m	+++++								
0.57	7	0.030	4 mm	430 kPa	1.28 m	+++++								
0.55	8	0.020	2 mm	450 kPa	1.30 m	+++++								
0.50	8	0.050	6 mm	340 kPa	1.35 m	+++++								
0.47	8	0.035	4 mm	430 kPa	1.39 m	+++++								
0.43	10	0.035	4 mm	430 kPa	1.42 m	+++++								
0.40	10	0.035	4 mm	430 kPa	1.46 m	+++++								
0.34	10	0.055	6 mm	340 kPa	1.51 m	+++++								
Lot 139														
0.85	0				0.00 m									
0.78	2	0.070	35 mm	93 kPa	0.07 m	+++++								
0.74	3	0.045	15 mm	190 kPa	0.12 m	+++++								
0.65	5	0.085	17 mm	175 kPa	0.20 m	+++++								
0.55	5	0.100	20 mm	160 kPa	0.30 m	+++++								
0.52	5	0.030	6 mm	340 kPa	0.33 m	+++++								
0.45	6	0.070	12 mm	225 kPa	0.40 m	+++++								
0.39	10	0.065	7 mm	340 kPa	0.47 m	+++++								
0.31	10	0.075	8 mm	275 kPa	0.54 m	+++++								
0.22	10	0.090	9 mm	275 kPa	0.63 m	+++++								
1.22	0	NEW	ROD	275 kPa	0.63 m	+++++								
1.13	10	0.090	9 mm	275 kPa	0.72 m	+++++								
1.07	10	0.060	6 mm	340 kPa	0.78 m	+++++								
0.99	15	0.080	5 mm	430 kPa	0.86 m	+++++								
0.92	15	0.070	5 mm	430 kPa	0.93 m	+++++								
0.82	15	0.100	7 mm	340 kPa	1.03 m	+++++								
0.72	15	0.100	7 mm	340 kPa	1.13 m	+++++								
0.60	10	0.120	12 mm	225 kPa	1.25 m	+++++								
0.43	15	0.170	11 mm	238 kPa	1.42 m	+++++								
0.35	10	0.080	8 mm	275 kPa	1.50 m	+++++								

HARRISON GRIERSON CONSULTANTS LTD						File No 73.10187.1	
SCALAPENETROMETER RESULT SHEET						Date tested 15-Aug-03	
CLIENT: Hurst (Papamoa) Family				NB safety factor 1.6 -- 5.		Tested by AD	
PROJECT: Evansfield Stage 7, Arabian Drv, Papamoa				depending on soil type		Printed 15-Aug-03	
Reading Blows		diff	Pen/blow	Bearing	Depth	50 100 150 200 250 300 350 400 450 Kpa	
						3 7 13 20 30 50 60+ CBR	
Lot 138							
0.90	0				0.00 m		
0.81	5	0.090	18 mm	170 kPa	0.09 m	+++++	
0.75	5	0.065	13 mm	225 kPa	0.16 m	+++++	
0.60	10	0.145	15 mm	190 kPa	0.30 m	+++++	
0.49	10	0.110	11 mm	238 kPa	0.41 m	+++++	
0.39	15	0.105	7 mm	340 kPa	0.52 m	+++++	
0.32	10	0.065	7 mm	340 kPa	0.58 m	+++++	
1.31	0	NEW	ROD	340 kPa	0.58 m	+++++	
1.21	15	0.100	7 mm	340 kPa	0.68 m	+++++	
1.07	15	0.140	9 mm	275 kPa	0.82 m	+++++	
0.98	11	0.090	8 mm	275 kPa	0.91 m	+++++	
0.88	15	0.100	7 mm	340 kPa	1.01 m	+++++	
0.79	15	0.090	6 mm	340 kPa	1.10 m	+++++	
0.68	15	0.110	7 mm	340 kPa	1.21 m	+++++	
0.55	15	0.130	9 mm	275 kPa	1.34 m	+++++	
0.42	13	0.130	10 mm	250 kPa	1.47 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 New Zealand Engineering (32,6) 15 June 1977							

CLIENT: HURST (PAPAMOA) FAMILY TRUST

PROJECT: Evansfield Stage 7

BOREHOLE No: Lot 139

Sheet 1 of 1

Drill Type: 50mm HAND AUGER

Drilled By: EMG

Date Started: 19/8/03

Date Finished:

Project No: 73:10187.1

Coordinates:

Ground Elevation:

Water Level: 1.0m

Logged By: EMG

Checked By:

Shear Vane No:

GROUND WATER		DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT LIQUID LIMIT PLASTIC LIMIT 50 100 150 (%)	SHEAR STRENGTH REMOULDED SHEAR POCKET PENETROMETER ○ v ⊗ r ○ p	LABORATORY TESTS
	0.0		TOPSOIL, black/brown		0.0	50 100 150 (kPa)		
	0.5				0.5			
	1.0		wet		1.0			
	1.5		END OF BORE. 1.5 METRES. (TARGET DEPTH)		1.5			
	2.0				2.0			

CLIENT:

PROJECT: Evansfield stage 7, Evansfield

BOREHOLE No: Lot 139

Sheet 1 of 1

Drill Type:	50mm Hand Auger
Drilled By:	Mike & Ben
Date Started:	2/2/04
Date Finished:	2/2/04

Project No: 7310187.7
Coordinates:
Ground Elevation:
Water Level:

Logged By: Mike
Checked By:
Shear Vane No:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
					SHEAR STRENGTH				
					REMOULDED SHEAR				
					POCKET PENETROMETER				
					50	100	150	(kPa)	
	0.0		TOPSOIL	0.0					
			light brown, fine grained, SAND 0.5m with small sedimentary stones (could be broken with fingers) 0.6m with patches of rusting brown material 0.8m sea shells						
	0.5			0.5					
			SILTY topsoil with fine grain sand						
	1.0		SILTY sand with rusty brown patches, fine grain sand	1.0					
	1.5		SANDY silt, with peat	1.5					
			SANDY peat, soft, light brown, moist, fine grain						
	2.0			2.0					

geolabair, soil & water
laboratory services

CLIENT: HURST (PAPAMOA) FAMILY TRUST

PROJECT: , Evansfield Stage 7

BOREHOLE No: Lot 140

Sheet 1 of 1

Drill Type: Hand Auger

Project No:

Logged By:

Drilled By: Mike

Coordinates:

Checked By:

Date Started: 2/2/04

Ground Elevation:

Shear Vane No:

Date Finished: 2/2/04

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
	0.0			0.0	50	100	150	(%)	
					SHEAR STRENGTH				○ v
					REMOULDED SHEAR				⊗ r
					POCKET PENETROMETER				○ p
	0.0			0.0	50	100	150	(kPa)	
			TOPSOIL , moist, greyish black, loose						
			Fine grain brown SAND, dry						
			patches of rusty brown material						
	0.5			0.5					
			light brown, fine grain SILTY sand, moist, very wet at 1.1 m						
	1.0			1.0					
			Organic layer topsoil, PEAT mixed with sands and silts, very wet and core slips out.						
			SILTY sand, wet and uniform						
	1.5			1.5					
		</							

SOIL BORE3.GPJ GEOLAB.GDT 26/02/04

geolabair, soil & water
laboratory services

CLIENT: HURST (PAPAMOA) FAMILY TRUST

PROJECT: Evansfield Stage 7

BOREHOLE No: Lot 140

Sheet 1 of 1

Drill Type: 50mm HAND AUGER

Project No: 73:10187.1

Logged By: EMG

Drilled By: EMG

Coordinates:

Checked By:

Date Started: 19/8/03

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level: 1.0m

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT	PLASTIC LIMIT	50	100	
	0.0		TOPSOIL, black/brown	0.0					
			SAND, (f-cg), greyish brown, moist						
	0.5			0.5					
	1.0		wet	1.0					
	1.5		END OF BORE. 1.5 METRES. (TARGET DEPTH)	1.5					
	2.0			2.0					

SOIL GEOTECH.GPJ GEOLAB.GDT 28/02/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 151

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tjong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS	
					LIQUID LIMIT					
					PLASTIC LIMIT					
					50	100	150	(%)		
					SHEAR STRENGTH				○ v	
					REMOULDED SHEAR				⊗ r	
					POCKET PENETROMETER				○ p	
					0.0	50	100	150	(kPa)	
	0.0		TOPSOIL, dark brown	0.0						
			SAND, (fine to medium grained), damp, brownish black, soft, loose, uniformly graded, slightly moist, non-plastic							
	0.5			0.5						
	1.0			1.0						
			SAND,silty (medium grained), saturated, dark brown, wet.							
	1.5			1.5						
	2.0			2.0						

SOIL BH.GPJ GEOLAB.GDT 02/03/04

SOIL BHLGPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 154

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
	0.0								
								</	

SOIL BH/GPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 155

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tiong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
					SHEAR STRENGTH				
					REMOULDED SHEAR				
					POCKET PENETROMETER				
					50	100	150	(kPa)	
	0.0		TOPSOIL, dark brown	0.0					
			SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0		SAND, (medium grained), saturated, dark reddish brown, wet.	1.0					
	1.5			1.5					
	2.0			2.0					

SOIL BHGPJ GEOLAB GDT 02103704

SOIL BH:GPJ GEOLAB GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 156

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tiong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS	
					LIQUID LIMIT					
					PLASTIC LIMIT					
					50	100	150	(%)		
	0.0		TOPSOIL, dark brown	0.0						
			SAND, fine grained, damp, brownish black, soft, loose, uniformly graded, slightly moist, non-plastic							
	0.5			0.5						
	1.0		SAND, (medium grained), saturated, dark brown, wet.	1.0						
	1.5			1.5						
	2.0			2.0						

SOIL BT.GPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 158

Sheet 1 of 1

Drill Type: 75mm Machine Auger
Drilled By: Perry Drilling
Date Started: 13/1/04
Date Finished:Project No: 73.10187.1
Coordinates:
Ground Elevation:
Water Level:Logged By: Alex Tiong
Checked By:
Shear Vane No:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
	0.0								

SOIL BH GPJ GEOLAB GDT 02/03/04

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 160

Sheet 1 of 1

Drill Type:	75mm Machine Auger
Drilled By:	Perry Drilling
Date Started:	13/1/04
Date Finished:	

Project No: 73.10187.1
Coordinates:
Ground Elevation:
Water Level:

Logged By: Alex Tiong
Checked By:
Shear Vane No:

GROUND WATER		DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS	
						LIQUID LIMIT					
						PLASTIC LIMIT					
		50	100	150	(%)						
		SHEAR STRENGTH									
		REMOULDED SHEAR									
		POCKET PENETROMETER									
		50	100	150	(kPa)						
	0.0	TOPSOIL, dark brown, rubble				0.0					
		SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic									
	0.5					0.5					
	1.0	SAND,(medium grained), saturated, dark reddish brown, wet.				1.0					
	1.5					1.5					
	2.0					2.0					

SOIL BH.GPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 161

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tiong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
					SHEAR STRENGTH				
					REMOULDED SHEAR				
					POCKET PENETROMETER				
					50	100	150	(kPa)	
	0.0		TOPSOIL, dark brown, rubble	0.0					
			SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0			1.0					
			SAND, (medium grained), saturated, dark reddish brown, wet.						
	1.5			1.5					
	2.0			2.0					

SOIL BR/GPJ GEOLAB/GDT 02/03/04

SOIL BH.GPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 163

Sheet 1 of 1

Drill Type: 75mm Machine Auger
Drilled By: Perry Drilling
Date Started: 13/1/04
Date Finished:Project No: 73.10167.1
Coordinates:
Ground Elevation:
Water Level:Logged By: Alex Tjong
Checked By:
Shear Vane No:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
	0.0		TOPSOIL, dark brown, rubble	0.0					
			SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0		SAND,(medium grained), saturated, dark reddish brown, wet.	1.0					
	1.5			1.5					
	2.0			2.0					

SOIL BH/CPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 164

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
	0.0		TOPSOIL, dark brown, rubble	0.0					
			SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0		SAND, (medium grained), saturated, dark reddish brown, wet.	1.0					
	1.5			1.5					
	2.0			2.0					

SOIL BH GPJ GEOLAB.GDT 02/03/04

SOIL BH.GPJ GEOLAB.GDT 02/03/04

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 165

Sheet 1 of 1

Drill Type:	75mm Machine Auger
Drilled By:	Perry Drilling
Date Started:	13/1/04
Date Finished:	

Project No: 73.10187.1
Coordinates:
Ground Elevation:
Water Level:

Logged By: Alex Tiong
Checked By:
Shear Vane No:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
					SHEAR STRENGTH				
					REMOULDED SHEAR				
					POCKET PENETROMETER				
	0.0		TOPSOIL, dark brown, rubble	0.0					
			SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0		SAND, (medium grained), saturated, dark reddish brown, wet.	1.0					
	1.5			1.5					
	2.0			2.0					

SOIL 8H.GPJ GEOLAB.GDT 26/02/04

Phone: 07 578 0023

END OF BORE. 2.0 METRES.

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 166

Sheet 1 of 1

Drill Type: 75mm Machine Auger
Drilled By: Perry Drilling
Date Started: 13/1/04
Date Finished:Project No: 73.10187.1
Coordinates:
Ground Elevation:
Water Level:Logged By: Alex Tjong
Checked By:
Shear Vane No:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
	0.0		TOPSOIL, dark brown, rubble	0.0					
			SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0		SAND,(medium grained), saturated, dark reddish brown, wet.	1.0					
	1.5			1.5					
	2.0			2.0					

SOIL BH.GPJ GEOLAB.GDT 02/03/04

SOIL BH/GPJ GEOLAB.GDT 02/03/04

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 167

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Drilled By: Perry Drilling

Date Started: 13/1/04

Date Finished:

Project No: 73.10187.1

Coordinates:

Ground Elevation:

Water Level:

Logged By: Alex Tiong

Checked By:

Shear Vane No:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT			Δ	
					50	100	150 (%)		
					SHEAR STRENGTH			○ v	
					REMOULDED SHEAR			⊗ r	
					POCKET PENETROMETER			○ p	
	0.0		TOPSOIL, dark brown	0.0	50	100	150 (kPa)		
			SAND, (fine to medium grained), damp, dark brown, soft, loose, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0			1.0					
	1.5		SAND, (medium grained), saturated, dark brown, wet.	1.5					
	2.0			2.0					

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 178

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tjong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS	
					LIQUID LIMIT					
					PLASTIC LIMIT					
					50	100	150	(%)		
	0.0		TOPSOIL, dark brown	0.0						
			SAND, (fine to medium grained), damp, dark reddish brown, soft, loosely packed, uniformly graded, slightly moist, non-plastic							
	0.5									
	1.0			1.0						
									</	

SOIL BILGPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 179

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tiong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
					SHEAR STRENGTH				Δ
					REMOULDED SHEAR				×
					POCKET PENETROMETER				□
	0.0			0.0	50	100	150	(kPa)	
			TOPSOIL, dark brown						
			SAND, (fine to medium grained), damp, dark reddish brown, soft, loosely packed, uniformly graded, slightly moist, non-plastic.						
	0.5			0.5					
	1.0		SAND, (medium grained), saturated, dark brown, wet.	1.0					

SOIL BHLGPJ GEOLAB.GDT 02/03/04

Logged By: Alex Tiong
Checked By:
Shear Vane No:

SOIL BH.GPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 181

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Drilled By: Perry Drilling

Date Started: 13/1/04

Date Finished:

Project No: 73.10187.1

Coordinates:

Ground Elevation:

Water Level:

Logged By: Alex Tiong

Checked By:

Shear Vane No:

GROUND WATER		DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
						LIQUID LIMIT				
						PLASTIC LIMIT				
						50	100	150	(%)	
		SHEAR STRENGTH								
		REMOULDED SHEAR								
		POCKET PENETROMETER								
		50	100	150	(kPa)					
	0.0			TOPSOIL, dark brown	0.0					
				SAND, (fine to medium grained), damp, brownish black, soft, loosely packed, uniformly graded, slightly moist, non-plastic.						
	0.5				0.5					
	1.0				1.0					
	1.5			SAND, (medium grained), saturated, dark brown, wet.	1.5					
	2.0				2.0					

SOIL BLCFJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 182

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Project No: 73.10187.1

Logged By: Alex Tiong

Drilled By: Perry Drilling

Coordinates:

Checked By:

Date Started: 13/1/04

Ground Elevation:

Shear Vane No:

Date Finished:

Water Level:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAINminor components, strength, colour. structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT				
					PLASTIC LIMIT				
					50	100	150	(%)	
					SHEAR STRENGTH				Δ
					REMOULDED SHEAR				×
					POCKET PENETROMETER				□
	0.0			0.0	50	100	150	(kPa)	
			TOPSOIL, dark brown.						
			SAND, (fine to medium grained), damp, brownish black, soft, loosely packed, uniformly graded, slightly moist, non-plastic.						
	0.5			0.5					
	1.0			1.0					
	1.5		SAND, (medium grained), saturated, dark brown, wet.	1.5					
	2.0			2.0					

SOIL_BH.GPJ GEOLAB.GDT 02/03/04

SOIL BH CPJ GEOLAB.GDT 02/03/04

geolabair, soil & water
laboratory services

CLIENT: Hurst Family Trust

PROJECT: Evansfield Stage 7, Papamoa

BOREHOLE No: Lot 187

Sheet 1 of 1

Drill Type: 75mm Machine Auger

Drilled By: Perry Drilling

Date Started: 13/1/04

Date Finished:

Project No: 73.10187.1

Coordinates:

Ground Elevation:

Water Level:

Logged By: Alex Tiong

Checked By:

Shear Vane No:

GROUND WATER	DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION MAIN/minor components, strength, colour structure, weathering	DEPTH (m)	NATURAL WATER CONTENT				LABORATORY TESTS
					LIQUID LIMIT	PLASTIC LIMIT	50	100	
	0.0		TOPSOIL, greyish black	0.0					
			SAND, (fine to medium grained), damp, dark brown, soft, loosely packed, uniformly graded, slightly moist, non-plastic						
	0.5			0.5					
	1.0			1.0					
	1.5		Sand (medium grained), saturated, pale brown, wet	1.5					
	2.0			2.0					

SOIL BHGPJ GEOLAB GDT 02/03/04

DRAWINGS

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CONSTRUCTION NOTES:



1. LEVELS ARE IN TERMS OF MOTURIKI DATUM.
ORIGIN - TDC BM 588, RL = 5.265M
2. BLR = BUILDING LINE RESTRICTION.

CONSULTING ENGINEERS SURVEYORS PLANNERS
141 Cameron Road, Tauranga Ph 07 578 0023 Fax 07 577 9557

REF	AMENDMENT	BY	DATE
PROJECT:			

EVANSFIELD SUBDIVISION
STAGE 7
AS-BUILT

TITLE: _____

FINISHED CONTOURS

DESIGNED: GDD	DATE: 2/2004	SIGNATURE:	PLOT DATE: 17/3/2004
DRAWN: DAA	DATE: 20/2/2004	SIGNATURE:	CAD REF: 10187-7-AB01
CHECKED: GDD	DATE:	SIGNATURE:	CAD XREF: 10187-7-XREF
APPROVED:	DATE:	SIGNATURE:	SURVEY BY: BEW
			SURVEY DATE: 2/2004
			SUR REF: M90

PLOT STATUS:	AS-BUILT
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PROJECT No: 73 10187.1	SCALE: 1:500 (A1) 1:1000 (A3)	A1
DRAWING No:		REV

10187-7-AB01

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CONSTRUCTION NOTES:

1. AREA OF CUT
2. AREA OF FILL
"FILL 500" = 500MM
3. AREA OF UNSUITABLE MATERIAL
4. B.L.R. = BUILDING LINE RESTRICTION
5. CONTOURS ARE CUT/FILL DEPTH BETWEEN EXISTING + FINISHED SAND SUBGRADE.
6. NEGATIVE CONTOURS = CUT
POSITIVE CONTOURS = FILL
7. CONTOUR INTERVAL = 0.2M

141 Cameron Road, Tauranga Ph 07 578 0023 Fax 07 577 9557

REF	AMENDMENT	BY	DATE
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EVANSFIELD SUBDIVISION
STAGE 7
AS-BUILT

TITLE: CUT/FILL PLAN

DESIGNED: GDD	DATE: 2/2004	SIGNATURE:	PLOT DATE: 17/3/2004
DRAWN: DAA	DATE: 20/2/2004	SIGNATURE:	CAD REF: 10187-7-AB
CHECKED: GDD	DATE:	SIGNATURE:	CAD XREF: 10187-7-XF
APPROVED:	DATE:	SIGNATURE:	SURVEY BY: B
			SURVEY DATE: 2/2004
			SDR REF:

PLOT STATUS:		AS-BUILT
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PROJECT No: 73 10187.1	SCALES: 1:500 (A1) 1:1000 (A3)	A
DRAWING No:		REV

10187-7-AB02

