

MAYFIELD

RESIDENTIAL SUBDIVISION STAGE 5

**REPORT ON SUBDIVISION EARTHWORKS
& RECOMMENDATIONS FOR BUILDING**

**HARKIN CLOSE, HAWKRIDGE HEIGHTS
CRATER AVENUE, REDHAVEN PLACE
BETHLEHEM**

Our Ref: 16992
April 2004

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1.0 Introduction

The earthworks, roading construction and services installation were completed on 23 April 2004 for stage 5 of the Mayfield Subdivision in Bethlehem. 57 Residential Lots were created, with access from the new roads of Crater Avenue, Redhaven Place, Harkin Close and Hawkridge Heights constructed in this stage.

The locations and sizes of the 57 lots are shown on DP 330110 (3 sheets). A house exists on lot 14. Lots 5, 50 and 57 have been created for future subdivision in the Mayfield development. Copies of DP 330110 are contained in Appendix I of this report.

This report describes the earthworks undertaken in the formation of this stage of subdivision including the relevant standards adopted for the placement of filling to support residential buildings and recommendations for developing sites on sloping ground including building restrictions where relevant.

During the report reference is made to drawing 16992-21 which is included in Appendix I. This drawing shows the road and lot locations, areas formed in cut and fill, compaction test positions and the sites of pre and post subdivision subsoil test bores.

2.0 Earthworks

The earthworks undertaken in the Stage 5 area comprised:

- The reduction of a ridge and higher ground to the south west within lots 22 and 36 and the road reserve area of Redhaven Place to ease sloping ground falling to the north.
- The reduction of a ridge line that extended up the alignment of Hawkridge Heights from the north east. The earthworks eased the road gradient and the steeper slopes within lots 49 to 54 that faced to the north west.
- The placement of filling to the standards contained in NZS 4431:1989 and the Tauranga City Council Code of Practice for Development.
- The placement of filling to ease the slopes facing north west within lots 6 to 13, 39, 40 and 43 to 48.
- To infill silt detention ponds required during the earthworks on lots 3 to 5, 34, 41 and 42.
- To infill minor depressions in lots 16 to 18 and 31 to 33.

Areas of original ground were left undisturbed in lots 1, 2, 14 (around the existing house), 15, 19, 23, parts of 24 to 26 and part of lot 56.

The depths of filling shown in 16992-21 were derived from surveyed contours of the finished surface taken on completion of the earthworks compared with a topographical survey undertaken by S & L Consultants Ltd prior to the subdivision construction.

The earthworks for stage 5 were undertaken by A & R Partnership subcontracted to Higgins Contractors Bay of Plenty Ltd during the 2003-2004 earthworks season in compliance with consent 61698 issued by Environment Bay of Plenty.

3.0 Pre Subdivision Investigations

Prior to obtaining subdivision approval in 28 August 2003 for stage 5 of the Mayfield development a geotechnical assessment was undertaken by S & L Consultants Ltd and the report on that investigation was contained in the subdivision consent application document reference 16992 and dated June 2003.

That investigation involved the putting down of eight machine drilled boreholes at locations shown on appended plan 16992-21. The summary logs of the soils found in the boreholes are contained in Appendix IV. Boreholes 1, 2, 3 and 8 were located on upper levels to identify the soils present in areas that would be cut while boreholes 4, 5 and 6 were located in areas where filling was proposed and has subsequently been placed.

Each borehole showed the presence of in situ ash derivative soils with no past filling or disturbed ground found. The soil types were typical of the Bethlehem area and are as described in Appendix A of Section 2 of the Tauranga City Council Code of Practice for Development.

The investigation concluded that:

- The soils to be obtained in areas of cut would be suitable for placement as filling to support future houses.
- Areas of ground not to be disturbed by construction earthworks would be suitable for the support of future houses in accordance with NZS 3600.
- As the volcanic ash stratigraphy varies in type and relative strength foundation bearing conditions may vary across building sites formed in areas of cut.
- Similar variations in soil type may be encountered in road subgrades and in situ testing would be required to determine pavement depths applicable to the subgrade conditions present.

4.0 Earthworks Standards

The performance specification required of the Contractor for the earthworks was based on the guidelines contained in NZS 4431:1989 "Code of Practice for Earthfill for Residential Development". Enforcement of the compaction requirements listed below satisfies the standards listed in Section 7 of NZS 4431.

Air voids percentage (as defined in NZS 4402:Part 1: 1980)

- | | | |
|-----------------|---|--|
| Structural Fill | - | average value less than 10% (any 10 tests) |
| | - | Maximum single value 12% |

Undrained shear strength (measured by in situ vane)

Structural Fill - average value not less than 150 kPa (any 10 tests)
 - Minimum single value 100 kPa

The earthworks were observed by an engineering technician from this office and compaction and strength control testing was undertaken by local IANZ accredited soil testing laboratories in Tauranga both on site and in the laboratory.

41 compaction tests were undertaken within the areas of filling at locations shown on 16992-21. The compaction test results are summarized in the tabulation contained in Appendix III. The tests were generally taken after 0.5 metres of filling in the deeper fills had been placed and 0.3 metres to 0.4 metres below the completed surface in other areas.

All test results fall within the acceptance criteria with most developed shear strengths being so high that the probe could not be pushed in or the readings exceeded the dial capacity.

5.0 Post Construction Testing

Post construction handaugered boreholes were put down on each lot that does not contain supervised filling at locations shown on 16992-21. These boreholes were generally 1 metre deep and were intended to confirm ground bearings conditions for shallow building foundations that were identified in the pre-subdivision boreholes and pits and during observations of services trench cuts and exposed soils prior to the placement of topsoil and grassing.

As the boreholes were being drilled undrained shear strengths were recorded with a hand held shear vane pushed in advance of the auger.

Summary logs of these boreholes and the shear strengths recorded are contained in Appendix IV.

6.0 Summary and Recommendations

6.1 Subdivision Construction Filling

Supervised structural filling as shown on drawing 16992-21 was placed in accordance with the methods and standards quoted in NZS 4431 under the supervision of S & L Consultants Ltd. Compaction testing on site confirmed that a high and uniform degree of compaction has been achieved suitable for the support of buildings. Post construction boreholes also confirmed this suitability.

Our statement in support of the suitability of the filled areas for the erection of buildings in terms of NZS 3604 is appended in Appendix II of this report.

Within areas of structural filling on which buildings may be erected, however, the possibility of variation of soil type and strength may exist away from our observation or compaction tests locations. The normal inspection of foundation conditions during construction of buildings by competent tradesmen as described in NZS 3604 and by building certifiers should therefore be undertaken. If for any reason areas of low soil strength are found professional geotechnical advice should be sought.

6.2 Areas of Cut

In areas of cut as shown on 16692-21 the subsoils present on these lots will be ash derivative soils typical those found in the Tauranga area.

The varying depths of cut have however exposed a variety of different soil types immediately below the topsoil overlay. This is because the more recent ashes which extend the original ground level and which comprise a stiff upper mantle of light brown friable silt overlying bands of yellow or light grey pumiceous sand have been partially or totally removed. These differing soil types are described on the pre subdivision borehole logs contained in Appendix IV.

Each soil type identified in the boreholes and by visual observation during constructions had varying undrained shear strengths or degrees of compaction. The tests undertaken showed that undrained shear strengths in the in situ soils are sufficient for the construction of shallow building foundations.

For all lots located in areas of cut the post construction boreholes indicated that ultimate ground bearing pressures for foundation design may be taken as 300 kPa in the limit state. This capacity meets the definition of "good ground" as defined in NZS 3604. In situ and as tested, the soils present in the cut areas are of adequate strength for bearing capacity of 300 kPa. However if they are disturbed or are found to be variable during construction, foundations detailed in accordance with NZS 3604 may have to be deepened or widened accordingly.

6.3 Areas of Undisturbed Ground

Areas of ground not altered by the subdivision earthworks are shown on 16992-21. Pre and post subdivision investigations indicate that in situ soils exist in the areas not modified during the subdivision construction. Tests taken during these investigations indicate that shallow building foundations can be constructed and that ultimate ground bearing pressures for foundation design may be taken as 300 kPa in the limit state. This capacity meets the definition of "good ground" as defined on NZS 3604.

6.4 Land Stability

Most of the area on the lots contained in Stage 5 at Mayfield comprises near flat or gently sloping as a result of the subdivision earthworks. In these areas no global stability issues exist that may restrict or prevent buildings being erected. Slopes such as those through lots 35 to 37 and lot 40 do not exceed 12 degrees.

A house exists on lot 14. The platform for this house was formed in cut with a near vertical batter being present along the southern boundary of lot 14. The same batter used to extend north eastwards along the north western boundary of new lot 55 but reshaping work as part of the subdivision earthworks have eased the batter slope. A **building restriction line** has been imposed on lot 55 to limit future building to be not closer than 5 metres from the existing batter in lot 14 and the upper steeper ground where the batter slope was eased on the lot 13/lot 14 boundary. This building restriction line is shown on DP 330110 in Appendix I.

Slopes have been formed by cut and filling to be not steeper than 20 degrees along the north western sides of lots 49 to 34 (formed in cut) and the rear south eastern sides of lots 6 to 13 (mostly formed in filling placed at the base of the slope) No building restriction lines are considered necessary to limit the locations of buildings on these slopes as future instability that may affect the houses on these lots is considered unlikely. However, care should be exercised in planning any building development. In particular the following types of development are possible.

- (a) On lots 49 to 54
Levelled areas may be required for building sites or the development of the rear yards by earthworks which could require the placement of filling on the sloping ground towards the rear boundaries. Such filling should be placed by compaction in layers on horizontal cut lateral benches after the surface topsoil has been removed. Retaining walls should be erected to resist lateral earth pressures from the filling present. Professional engineering advice should be sought on appropriate embedment depths for retaining walls where they are located on sloping ground. Due regard should also be given to the possibility of adversely surcharging structures or unfaced cut batters that may be present on the properties below (lots 6 to 12)
- (b) On lots 6 to 13
Leveled areas may be required for building sites by cutting into the sloping ground rising to the rear boundaries of these lots. For cut faces higher than 1.2 metres retaining walls should be erected. Such walls are to be specifically designed and a building consent issued if the walls are loaded by any surcharge from the sloping ground above the wall. With such a surcharge present a retaining wall less than 1.5 metres high is not exempt from requiring a building consent under the Third Schedule of the Building Act 1991. In locating cut batters or undertaking site earthworks care should be given to maintaining support to the properties above (lots 49 to 54).

6.5 Topsoil Thickness

During the subdivision earthworks areas of cut or fill were initially stripped of topsoil and this was then replaced to target depths of up to 300mm. Outside of the earthworks areas where the ground was not disturbed and also close to road berms it is possible that topsoil depths may be deeper than 300mm where the topsoil depth was developed naturally or where it was deepened due to past farming activities or where slopes were eased down to the road berm levels. No guarantee is implied or given that the topsoil on any part of any lot is 300mm deep or less and it is recommended that future owners or builders check topsoil depths when preparing site development plans and cost schedules.

7.0 Professional Opinion

Our statement in the format of Council's Code of Practice for Development (Form G2) that all lots are suitable for building is contained in Appendix II. This statement is accompanied by form G2A which summarizes the information and recommendations within this report.

8.0 Applicability

Recommendations contained in this document are based on data from borehole data, observations of soil exposures, and test results. Inferences about the nature and continuity of subsoils away from these locations are made but cannot be guaranteed.

In all circumstances, if variations in the subsoils occur which differ from that described or assumed to exist the site should be inspected by an engineer suitably qualified to make an informed judgment and provide advice on appropriate improvement measures.

This report has been prepared specifically for the development at Stage 5 of the Mayfield Subdivision and no responsibility is accepted by S & L Consultants Ltd for the use of any part of this report for other development sites without their written approval.

S & L Consultants Ltd
Consultants, Engineers, Surveyors, Planners

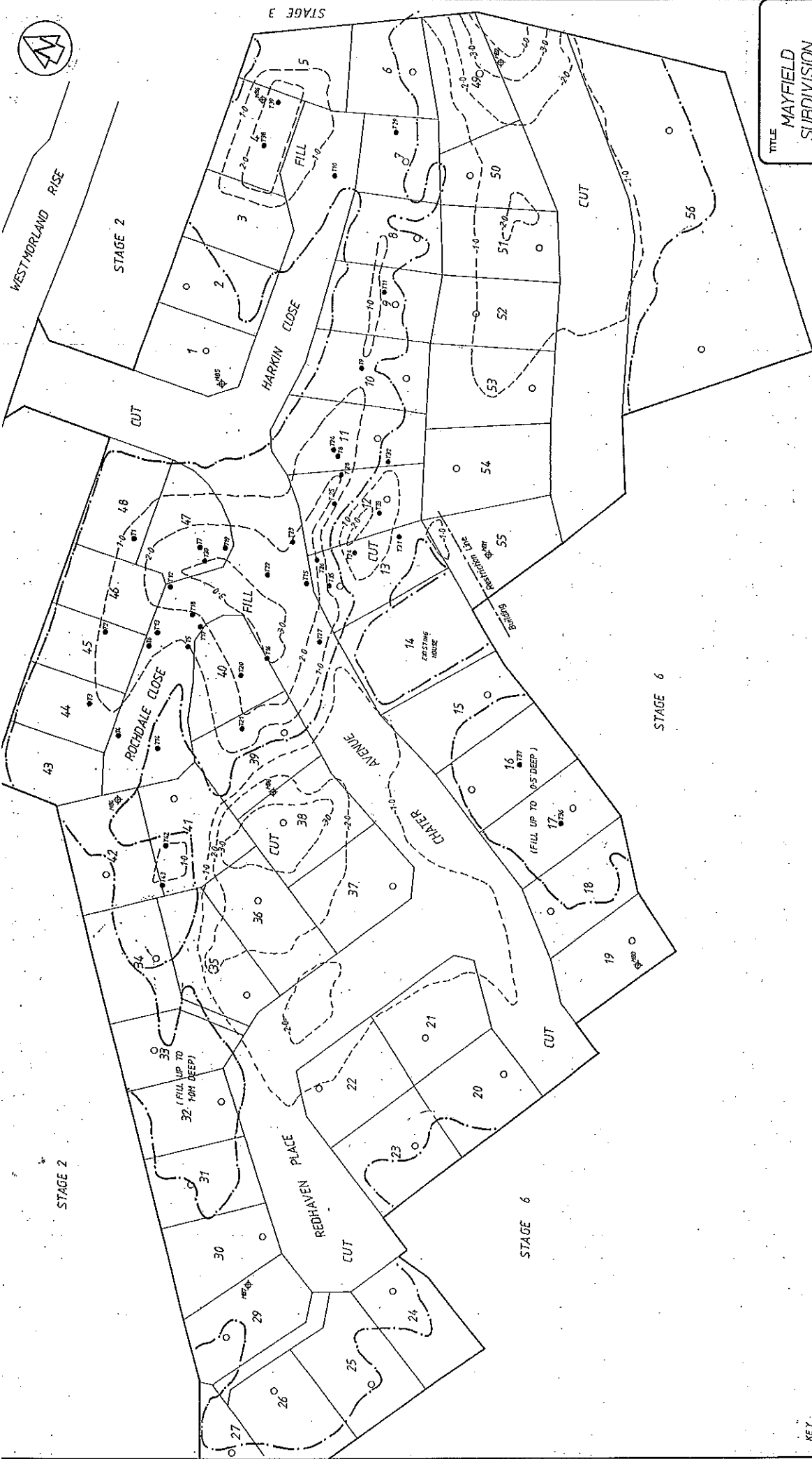


M W Hughes
Geotechnical Engineer

29 April 2004

APPENDIX I

**Drawings - Earthworks Completion Plan 16992-21
Deposited Plan DP 330110 (3 sheets)**



TITLE
**MAYFIELD
SUBDIVISION
STAGE 5**

COMPLETED EARTHWORKS
REFERENCE PLAN

Copyright in the drawing is reserved
DATE 04/04
ORIGINAL SCALES 1:500 (A1)

DRAWING No
15992-21

Version 1

1 224 Application			
STAGE	NO.	DESCRIPTION	DATE
1	224	Application	04/04/04
2	224	Application	04/04/04
3	224	Application	04/04/04
4	224	Application	04/04/04
5	224	Application	04/04/04
6	224	Application	04/04/04
7	224	Application	04/04/04
8	224	Application	04/04/04
9	224	Application	04/04/04
10	224	Application	04/04/04
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53	224	Application	04/04/04
54	224	Application	04/04/04
55	224	Application	04/04/04
56	224	Application	04/04/04



S & L CONSULTANTS LTD
QUANTITY SURVEYORS - ENGINEERS - PLANNERS
111 Cassin Road, Tauranga, New Zealand
Ph: 07 577-0069
Fax: 07 577-0065
Email: info@slc.co.nz

REDUCED SCALE

- KEY
- Construction Compaction Test Position
 - Post Construction Benchmarks by S & L Consultants Ltd
 - Pre subdivision Benchmarks by S & L Consultants Ltd
 - 10- Depth of Structural Fill
 - 10- Depth of Cut
 - - - Extent of Cut / Fill

Approvals

I hereby certify that this plan was approved by the Tauranga District Council pursuant to Section 223 of the Resource Management Act 1991 on the day of 200... subject to the granting or reserving of the easements set out in the Memoranda hereon and subject to the amalgamation conditions set out hereon.

Authorised Officer sub 5805

MEMORANDUM OF EASEMENT

PURPOSE SHOWN	SERVIENT	DOMINANT
ROW	A	LOT 60

MEMORANDUM OF EASEMENTS IN GROSS

PURPOSE SHOWN	SERVIENT	GRANTEE
Right to drain	B	LOT 3
water	C	LOT 4
and	D	LOT 5
sewage	E	LOT 29
	F	LOT 30
	G	LOT 31
	H	LOT 32
	I	LOT 33
	J	LOT 34
	K	LOT 42
	L	LOT 43
	M	LOT 44
	N	LOT 45
	O	LOT 46
	P	LOT 48

NOTE Lots 1-56 & Area Q will be subject to a consent notice.

Class of Survey: I

Total Area 8-3063 ha

Comprised in Cst SA 238/986 80306

JOHN DAVID BARNES

I, being a person entitled to practice as a licensed cadastral surveyor certify that the surveys to which this consent notice relates are accurate, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor General's Rules for Cadastral Survey 2002.

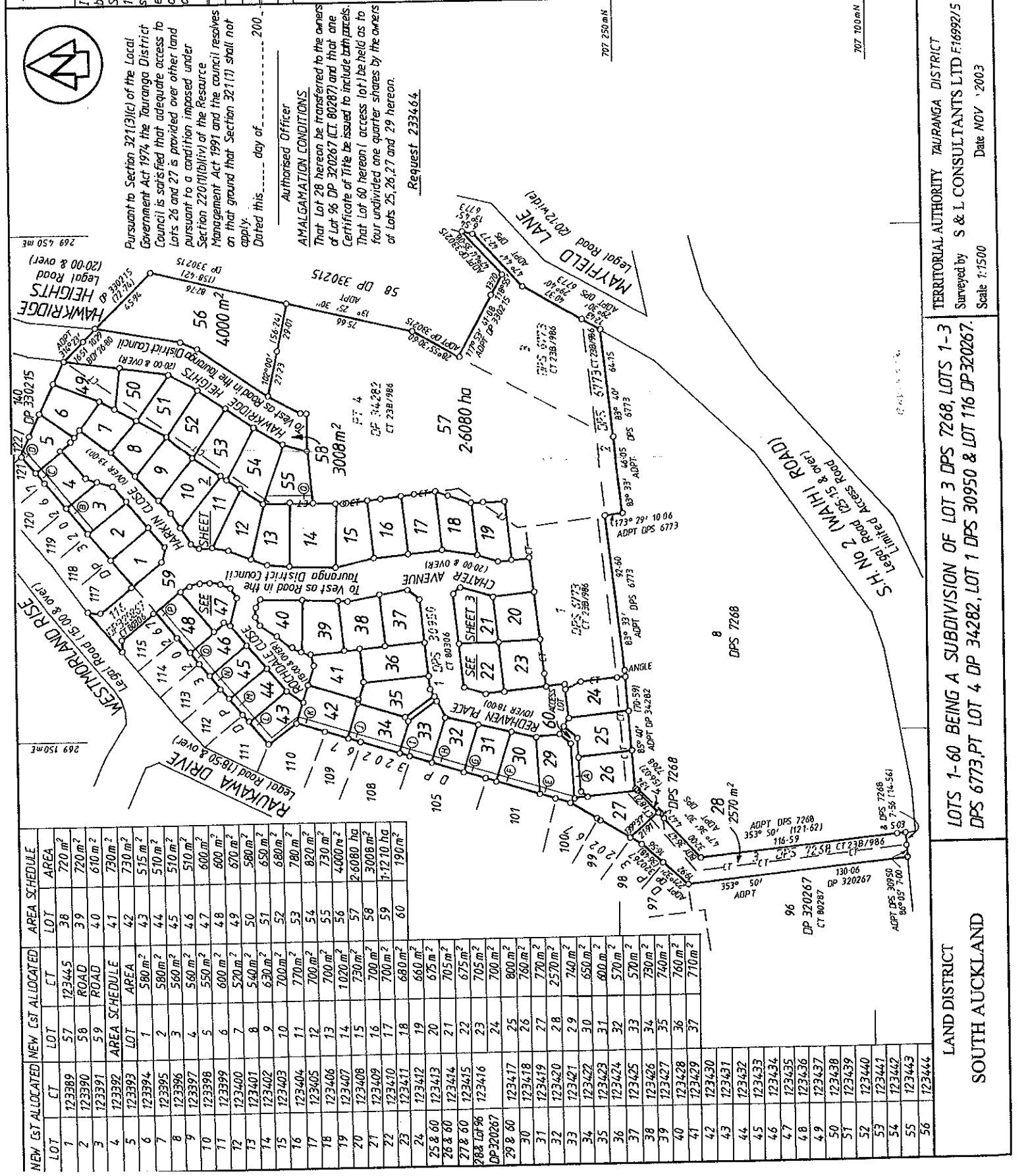
This consent is accurate and has been created in accordance with the Act and these Rules.

Signed Date 12.02.2004

Field Book Traverse Book P.

Reference Plan Corner Contour

Enacted Approved as to Survey by Land Information NZ on Deposited by Land Information NZ on File Received Invoices



NEW GST ALLOCATED		NEW GST ALLOCATED		AREA SCHEDULE	
LOT	CT	LOT	CT	LOT	AREA
1	123389	57	123445	38	720 m ²
2	123390	58	ROAD	39	720 m ²
3	123391	59	ROAD	40	610 m ²
4	123392	AREA SCHEDULE		41	730 m ²
5	123393	LOT	AREA	42	730 m ²
6	123394	1	580 m ²	43	515 m ²
7	123395	2	580 m ²	44	510 m ²
8	123396	3	560 m ²	45	510 m ²
9	123397	4	560 m ²	46	510 m ²
10	123398	5	550 m ²	47	600 m ²
11	123399	6	600 m ²	48	600 m ²
12	123400	7	520 m ²	49	670 m ²
13	123401	8	540 m ²	50	580 m ²
14	123402	9	630 m ²	51	650 m ²
15	123403	10	700 m ²	52	680 m ²
16	123404	11	770 m ²	53	780 m ²
17	123405	12	700 m ²	54	820 m ²
18	123406	13	700 m ²	55	730 m ²
19	123407	14	1020 m ²	56	4000 m ²
20	123408	15	730 m ²	57	26080 ha
21	123409	16	700 m ²	58	3008 m ²
22	123410	17	700 m ²	59	11210 ha
23	123411	18	680 m ²	60	190 m ²
24	123412	19	660 m ²		
25 & 60	123417	25	800 m ²		
30	123418	26	760 m ²		
31	123419	27	770 m ²		
32	123420	28	2570 m ²		
33	123421	29	740 m ²		
34	123422	30	650 m ²		
35	123423	31	600 m ²		
36	123424	32	570 m ²		
37	123425	33	570 m ²		
38	123426	34	230 m ²		
39	123427	35	740 m ²		
40	123428	36	760 m ²		
41	123429	37	770 m ²		
42	123430				
43	123431				
44	123432				
45	123433				
46	123434				
47	123435				
48	123436				
49	123437				
50	123438				
51	123439				
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53	123441				
54	123442				
55	123443				
56	123444				

Pursuant to Section 321(3)(c) of the Local Government Act 1974, the Tauranga District Council is satisfied that adequate access to Lots 26 and 27 is provided over other land pursuant to a condition imposed under Section 220(1)(b)(iv) of the Resource Management Act 1991 and the council resolves on that ground that Section 321(1) shall not apply.

Dated this day of 200...

Authorised Officer

AMALGAMATION CONDITIONS

That Lot 28 hereon be transferred to the owners of Lot 96 DP 320267 (CT 80287) and that one Certificate of Title be issued to include both parcels.

That Lot 60 hereon (access lot) be held as to four undivided one quarter shares by the owners of Lots 25, 26, 27 and 29 hereon.

Request 233464

707 250 mN

707 100 mN

Scale 1:1500

Date NOV 2003

TERRITORIAL AUTHORITY TAURANGA DISTRICT

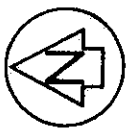
Surveyed by S & L CONSULTANTS LTD F16992/5

Scale 1:1500

DATE NOV 2003

LOTS 1-60 BEING A SUBDIVISION OF LOT 3 DPS 7268, LOTS 1-3 DPS 6773, PT LOT 4 DP 34282, LOT 1 DPS 30950 & LOT 116 DP 320267.

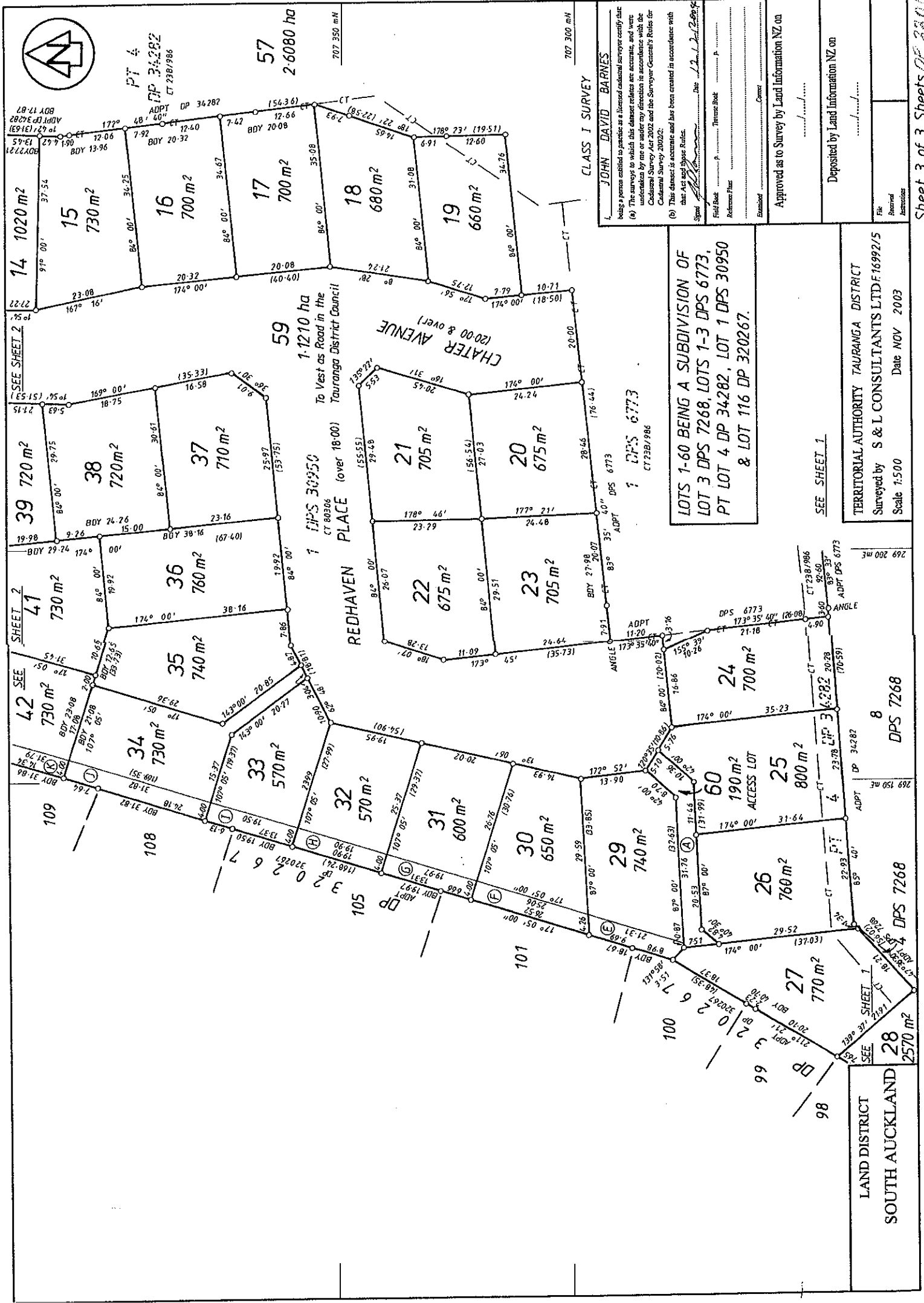
LAND DISTRICT SOUTH AUCKLAND



PT 4
DPS 34282
CT 238/1986

CLASS I SURVEY

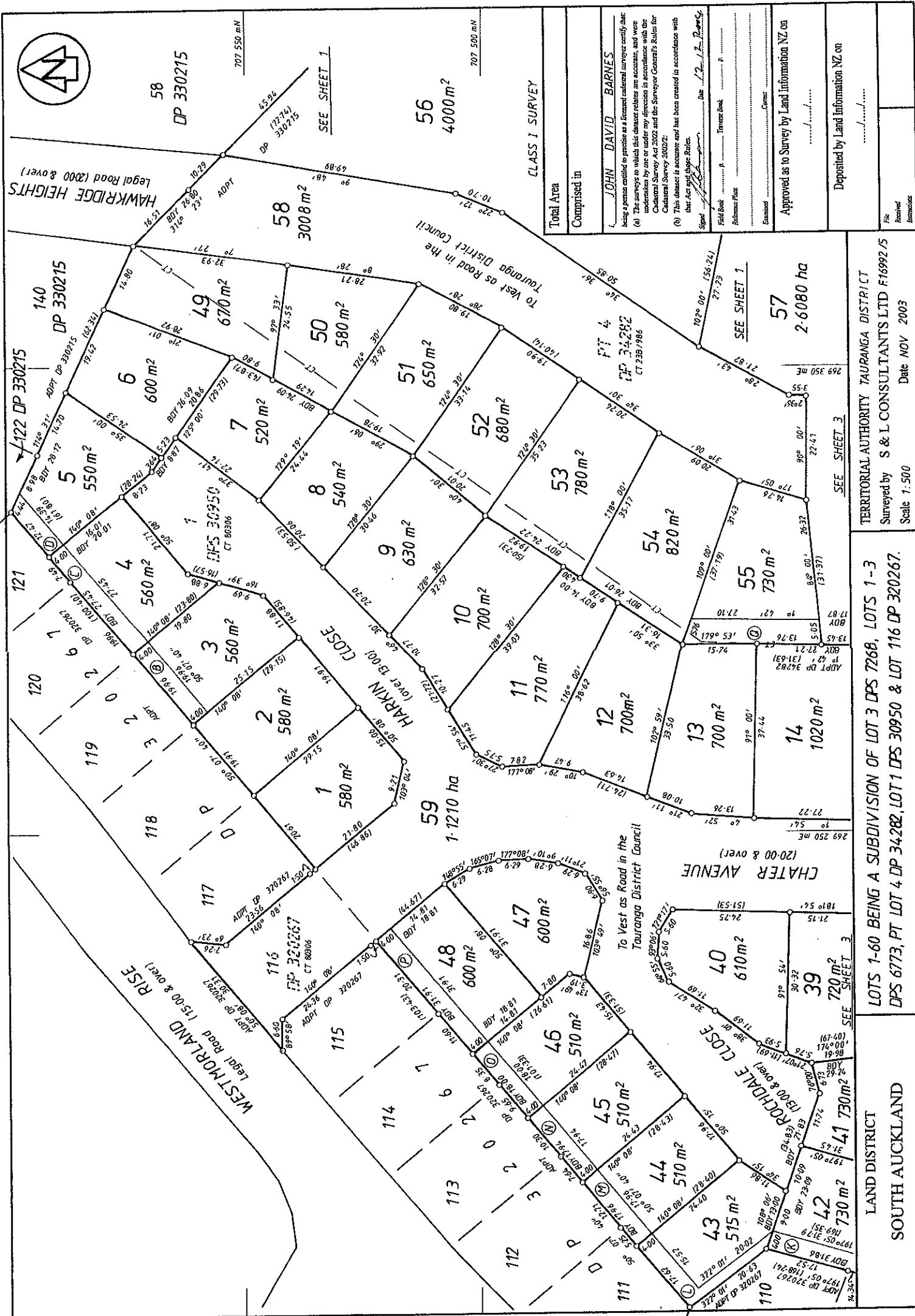
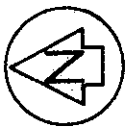
JOHN DAVID BARNES	
being a person entitled to practice as a licensed cadastral surveyor certify that	
(a) The survey to which this classed surveyor certifies, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor-General's Rules for Cadastral Survey 2002;	
(b) This classed survey is accurate and has been created in accordance with that Act and those Rules.	
Signal	Due 12.1.2002
Field Book	P. Thence Book
Reference Plan	
Examined	Consent
Approved as to Survey by Land Information NZ on	
Deposited by Land Information NZ on	
File	Received
Assessment	



LOTS 1-60 BEING A SUBDIVISION OF
LOT 3 DPS 7268, LOTS 1-3 DPS 6773,
PT LOT 4 DP 34282, LOT 1 DPS 30950
& LOT 116 DP 320267.

SEE SHEET 1

TERRITORIAL AUTHORITY TAURANGA DISTRICT
Surveyed by S & L CONSULTANTS LTD F16992/5
Scale 1:500 Date NOV 2003



CLASS 1 SURVEY

Total Area

Comprised in

JOHN DAVID BARNES

being a person entitled to practice as a licensed cadastral surveyor certify that:
(a) The survey to which this document relates is accurate, and was undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor General's Rules for Cadastral Survey 2002;
(b) This document is accurate and has been created in accordance with that Act and those Rules.

Signed: [Signature] Date: 12.12.2003

Field Book: [Blank] Traverse Book: [Blank] P: [Blank]

Reference Plans: [Blank]

Examined: [Blank] Correct: [Blank]

Approved as to Survey by Land Information NZ on: [Blank]

Deposited by Land Information NZ on: [Blank]

File: [Blank]
Received: [Blank]
Remarks: [Blank]

TERRITORIAL AUTHORITY TAURANGA DISTRICT

Surveyed by S & L CONSULTANTS LTD F16992/5

Date NOV 2003

Scale 1:500

LOTS 1-60 BEING A SUBDIVISION OF LOT 3 DPS 7268, LOTS 1-3
DPS 6773, PT LOT 4 DP 34282, LOT 1 DPS 30950 & LOT 116 DP 320267.

LAND DISTRICT
SOUTH AUCKLAND

Sheet 2 of 3 Sheets DP 330215

APPENDIX II

**Statement of Professional Opinion as to the Suitability of
Land for Building Development**

Lot Summary Report

SECTION 2

To: The Director of Environmental Services

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

DEVELOPMENT: Mayfield Subdivision Stage 5

OWNER: Mayfield Ltd

LOCATION: Westmorland Rise, Bethlehem

I Michael William Hughes of S & L Consultants Ltd

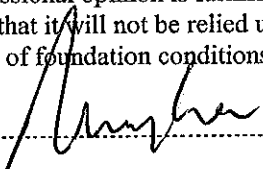
(Full Name)

PO Box 231, Tauranga

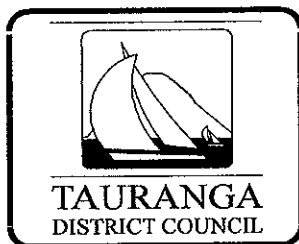
(Name and Address of Firm)

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 dated 29 April 2004
- 3) In my professional opinion, not to be construed as a guarantee, I consider that;
 - (a) The area shown in my report dated 29 April 2004 of each new allotment is suitable for the erection thereon of the building types appropriate to the zoning of the land, provided that;
Recommendations contained in my report are complied with.
 - (b) The structural earth fills shown on the attached Plan Nos. 16992-21 have been placed in accordance with the Code of Practice for Development of the Tauranga City 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 providing that:
Recommendations contained in my report, section 6 are complied with.
 - (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, subject to the recommendations contained in my report including those relating to topsoil depths and soil variations away from test or observation positions.
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 29 April 2004



**SUITABILITY OF LAND
FOR BUILDING DEVELOPMENT**

TAURANGA CITY COUNCIL

MAY 98

G 2 Δ

TDC Sub 5605

File Ref: 16992

Comments

Refer to S & L Consultants Ltd report reference 16992 dated 29 April 2004. Lots shown on DP 330110.

Refer to report for recommendations for development on lots 6 to 12 inclusive.



TAURANGA CITY COUNCIL

G 2a Δ

MAYFIELD SUBDIVISION STAGE 5

The comments and notations included on this summary sheet are outlined in the support documents. These shall be read in conjunction with this summary.

TDC Sub 5605

File Ref: 16992

[illegible]

Comments

Refer to S & L Consultants Ltd report reference I6992 dated 29 April 2004. Lots shown on DP 330110.

Lots shown on DP 330110



TAURANGA
DISTRICT COUNCIL

LOT SUMMARY REPORT

TAURANGA CITY COUNCIL

MAY 98

G 2a Δ

APPENDIX III

Compaction Test Results

MAYFIELD SUBDIVISION STAGE 5
SUMMARY OF COMPACTION TEST RESULTS

Sheet 1 of 2

Test No	Location	Air Voids Percentage	Undrained Shear Strength kPa
T1	Lot 48	2.7	>200
T2	Lot 45	4.2	>200
T3	Lot 44	2.3	>200
T4	Road	4.4	191
T5	Road	0.6	>200
T6	Road	1.8	>200
T7	Lot 47	0.0	156
T8	Lot 11	0.3	158
T9	Lot 10	4.8	167
T10	Road	6.8	168
T11	Lot 9	4.8	190
T12	Road	0.0	164
T13	Road	3.0	185
T14	Road	0.0	>200
T15	Road	3.5	160
T16	Road	3.6	182
T17	Road	3.1	164
T18	Road	4.1	>200
T19	Lot 47	2.4	187
T20	Lot 40	7.5	>200
T21	Lot 39	4.8	>200
T22	Road	1.9	182

Refer to 16992-21 for test locations

Our Ref: 16692-V

MAYFIELD SUBDIVISION STAGE 5
SUMMARY OF COMPACTION TEST RESULTS

Sheet 2 of 2

Test No	Location	Air Voids Percentage	Undrained Shear Strength kPa
T23	Road	0.0	165
T24	Lot 11	7.1	>200
T25	Lot 12	7.3	>200
T26	Lot 13	5.1	>200
T27	Road	0.8	178
T28	Lot 12	6.0	>200
T29	Lot 7	8.1	>200
T30	Lot 47	1.5	>200
T31	Lot 13	4.0	183
T32	Lot 11	0.0	198
T33	Lot 12	0.0	140
T34	Lot 13	1.9	166
T35	Lot 13	3.4	159
T36	Lot 17	9.5	>200
T37	Lot 16	11.9	>200
T38	Lot 4	1.2	>200
T39	Lot 4	2.0	>200
T42	Lot 41	6.7	>200
T43	Lot 41	6.0	159

Refer to 16992-21 for test locations

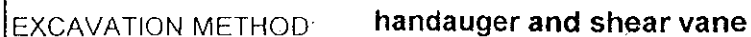
APPENDIX IV

Post Construction Borehole Logs

Pre Construction Borehole Logs

handauger and shear vane

EXCAVATION METHOD: **handauger and shear vane**







BOREHOLE ON
LOTS 12, 13

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)					
			50	100	150			
LOT 12								
Topsoil silty brown clay black	mm							
SILT stiff sl. moist friable brown	xx	0.5						
	xx							
	xx							
	xx							
	xx							
	xx							
	xx	1.0						
	xx							
end of bore								
LOT 13								
Topsoil silty sl. moist friable black	mm							
	mm							
	mm							
	mm							
SILT stiff moist friable brown	xx	0.5						
	xx							
	xx							
	xx							
	xx							
	xx							
	xx	1.0						
end of bore								

EXCAVATION METHOD: handauger and shear vane

BOREHOLE ON
LOTS 15, 16

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)					
			50	100	150			
LOT 15								
TOPSOIL silty clay friable black bec. st. moist	h m m							
SILT stiff moist friable brown bec. clayey stiff brown	x x x x x x x	0.5 1.0						
end of bore								
LOT 16								
TOPSOIL silty moist black	h m m							
SILT stiff moist friable mixed brown - dark brown fill	x x x x	0.5						
SILT clayey sl. sandy stiff moist brown - dark green	x x x	1.0						
end of bore								

EXCAVATION METHOD. handauger and shear vane



BOREHOLE ON
LOTS 17, 18

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)					
			50	100	150			
LOT 17								
TOPSOIL silty clayey firm black	33							
SILT sl. clayey stiff sl. moist friable brown	X - X - X - X - X -	0.5						
Fill	X -							
SILT organic old topsoil thin band	XX	1.0						
SILT v. stiff moist friable brown	X -							
end of bore								
LOT 18								
TOPSOIL silty clayey sl. moist black	52 52							
SILT sl. clayey stiff moist friable brown	X - X - X - X - X - X X X X	0.5						
remains silty v. stiff brown	X X	1.0						
end of bore								

EXCAVATION METHOD

handauger and shear vane



BOREHOLE ON
LOTS 19, 20

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
LOT 19					
Topsoil silty fine st. moist black	mm				
	mm				
	mm				
	mm				
	mm				
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BOREHOLE ON
LOTS 21, 22

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
LOT 21					
TOPSOIL clayey silty firm sl moist black					
SILT sl. clayey stiff moist fine brown - light brown remains v. stiff light brown		0.5 1.0			
end of bore					
LOT 22					
TOPSOIL silty firm moist black					
SILT sl. clayey stiff moist sl. cohesive light brown		0.5 1.0			
end of bore					

EXCAVATION METHOD: handauger and shear vane

handauger and shear vane

BOREHOLE ON
LOTS 25, 26

Sheet: 1 Of: 1

Site: MAYFIELD STAGE 5

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Undrained Shear Strength
(kPa)

50 100 150

Description of Soil

LOT 25

Soil Symbol

Depth (m)

TOPSOIL firm friable black

SILT stiff moist friable brown
— light brown

remains stiff moist brown

end of bore

LOT 26

TOPSOIL firm friable s. moist
blackSILT stiff moist friable brown
— light brown

end of bore

EXCAVATION METHOD: handauger and shear vane



BOREHOLE ON
LOTS 27, 29

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)						
			50	100	150				
LOT 27									
TOPSOIL firm friable black	xx								
SILT stiff moist friable light brown - brown	xx	0.5							
	xx								
	xx								
	xx								
	xx								
remains stiff light brown	xx	1.0							
end of bore									
LOT 29									
TOPSOIL firm-stiff moist black	xx								
SILT stiff sl-moist friable brown	xx	0.5							
	xx								
	xx								
	xx								
	xx								
remains stiff friable light brown	xx	1.0							
end of bore									

EXCAVATION METHOD: handauger and shear vane

BOREHOLE ON
LOTS 30 31

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)						
			50	100	150				
LOT 30									
TOPSOIL silty stiff moist black	333								
SILT stiff moist friable light brown	XX	0.5							
	XX								
	XX								
	XX								
becomes clayey stiff silty cohesive light brown	11X	1.0							
	11X								
end of bore									
LOT 31									
TOPSOIL silty stiff black	333								
SILT silty clayey stiff silty moist mixed brown - light brown fill	XX	0.5							
	XX								
	XX								
SILT stiff moist friable brown	XX	1.0							
	XX								
end of bore									
EXCAVATION METHOD			handauger and shear vane						

BOREHOLE ON
LOTS 32, 33

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)					
			50	100	150			
LOT 32								
TOPSOIL ST. & moist black	SS	0.0						
SILT ST. & si. moist friable brown - fill	XX	0.5						
SILT si. clayey stiff moist mixed brown - dark brown fill	XX	1.0						
end of bore								
LOT 33								
TOPSOIL S.H. ST. & moist black	SS	0.0						
SILT ST. & moist friable brown becomes light brown	XX	0.5						
end of bore								

EXCAVATION METHOD

handauger and shear vane

BOREHOLE ON
LOTS 34 35

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
LOT 34					
TOPSOIL stiff moist black	SS				
SILT stiff moist friable brown fill	XX	0.5			
SILT stiff st. moist friable brown with some topsoil incl	XX				
SILT stiff moist friable brown	XX	1.0			
end of bore					
LOT 35					
TOPSOIL stiff moist black	SS				
SILT stiff moist friable light brown	XX	0.5			
becomes clayey moist light brown	XX				
end of bore					
EXCAVATION METHOD			handauger and shear vane		

BOREHOLE ON
LOTS 36 37

Sheet: 1 Of: 1

Site: MAYFIELD STAGE 5

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
LOT 36					
TOPSOIL stiff friable black	~ ~ ~				
SAND (m) med. dense moist light brown	· · · · X X	0.5			
SILT clayey stiff v. moist lt brown	X · · X				
SILT sandy (t) stiff friable v. moist light brown	X · · X	1.0			
SAND (t) silty med dense light brown					
end of bore					
LOT 37					
TOPSOIL black	~ ~ ~				
SILT stiff moist st. cohesive moist	X X X X X X X X X X	0.5			
becomes v. moist	X · · X				
clayey stiff v. moist light brown	X · · X	1.0			
end of bore					

EXCAVATION METHOD

handauger and shear vane



BOREHOLE ON
LOTS 38 39

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)							
			50	100	150					
LOT 38										
TOPSOIL from friable st. moist black	mm 33									
SILT st. moist friable brown	xx xx	0.5								
SILT sandy (st) st. moist friable pumiceous light brown bec. v. moist	x. x. x. x. x.	1.0								
end of bore										
LOT 39										
TOPSOIL from friable black	mm mm mm									
SILT st. moist friable brown remains stiff light brown	xx xx xx xx xx xx xx	0.5 1.0								
end of bore										
EXCAVATION METHOD			handauger and shear vane							

BOREHOLE ON
LOTS 41 42

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
LOT 41					
TOPSOIL firm moist friable black	3 3 3				
SILT STIFF SL. moist friable brown	X X X X X X X X X X	0.5			
becomes clayey ST. moist light brown	X X X X	1.0			
end of bore					
LOT 42					
TOPSOIL firm moist black	m m				
SILT STIFF moist friable brown	X X X X X X X X X X	0.5			
becomes stiff light brown	X X X X	1.0			
end of bore					

EXCAVATION METHOD

handauger and shear vane



BOREHOLE ON
LOTS 49 50

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)					
			50	100	150			
LOT 49								
TOPSOIL firm friable black	333							
SILT v. stiff moist friable light brown	x x x	0.5						
bec. clayey cohesive light brown - yellow.	x x x	1.0						
end of bore								
LOT 50								
TOPSOIL firm moist black	333							
SILT stiff moist friable light brown	x x x	0.5						
becomes stiff moist silty cohesive - clayey	x x x	1.0						
end of bore								

EXCAVATION METHOD

handauger and shear vane



BOREHOLE ON
LOTS 51 52

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)									
			50	100	150							
LOT 51												
TOPSOIL firm moist black	333											
SILT stiff moist friable light brown	x x x x x	0.5										
becomes clayey stiff v. moist light brown	x x x x x	1.0										
end of bore												
LOT 52												
TOPSOIL moist black	m m m											
SILT sandy (f) stiff moist friable light brown	x x x x x	0.5										
SILT sandy (f) stiff v. moist v. light brown	x x x x x	1.0										
SILT clayey stiff moist brown	x x x											
end of bore												

EXCAVATION METHOD handauger and shear vane

BOREHOLE ON
LOTS 53 54

Sheet: 1 Of: 1

Site: MAYFIELD STAGE 5

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
LOT 53					
TOPSOIL black	W W W				
SILT STIFF moist black light brown	X X X X X X X	0.5			
bec. v. moist light brown	X X	1.0			
end of bore					
LOT 54					
TOPSOIL STIFF black	W W W				
SILT STIFF sl. moist black brown	X X X X X	0.5			
becomes v. stiff moist light brown	X X X X	1.0			
SILT sandy (x) STIFF moist purraceous light brown	X X X				
end of bore					

EXCAVATION METHOD

handauger and shear vane

BOREHOLE ON
LOTS 56

Site: MAYFIELD STAGE 5

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: APRIL 04

RL Ground: —

Logged By: S SLACK

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)								
			50			100			150		
LOT 56 NORTH											
TOPSOIL sl. moist firm black	SS	0.0									
SILT ST. M sl. moist friable brown	XX	0.5									
	XX										
	XV										
	XX										
	XX										
	XX										
st. M moist friable light brown	XX	1.0									
	XY										
end of bore											
LOT 56 SOUTH											
TOPSOIL sl. moist firm black	SS	0.0									
SILT ST. M sl. moist friable mixed brown - dark brown (disturbed ground)	XX	0.5									
	XX										
	XV										
	XX										
SILT ST. M moist friable brown	XX	1.0									
	XY										
end of bore											
EXCAVATION METHOD handauger and shear vane											



Borehole No. MB 1

Site: MAYFIELD SUBDIVISION-STAGE 5
SIMMONS AND
THICKER PROPERTIES

Sheet: 1 Of: 2

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 29.4

Logged By: MH

Description of Soil	Soil Symbol	Depth (m)	SPT	GROUNDWATER	CORE RECOVERY	Undrained Shear Strength (kPa)		
						50	100	150
TOPSOIL								
SILT: Very clayey, moderately cohesive brown yellow, stiff, moist	x/x	0-0.5						
	x/x	0.5-1.0						
	x/x	1.0-1.5						
SPT 450 Recovery		1.5-2.0	1 2 2					
Very clayey, cohesive Dark brown yellow silt, stiff moist		2.0-2.5						
brown yellow silt		2.5-3.0						
Some sand, cream		3.0-3.5						
Very sandy, cream, loose		3.5-4.0						
SPT 450 RECOVERY		4.0-4.5	1.5 1.5 2					
pumice sand, cream, loose Dry		4.5-5.0						
pumiceous silt, cream		5.0-5.5						
CLAY: cohesive, Dark brown, very stiff, moist		5.5-6.0						
		6.0-6.5						
		6.5-7.0						
		7.0-7.5						
		7.5-8.0						
		8.0-8.5						
		8.5-9.0						
		9.0-9.5						
		9.5-10.0						
		10.0-10.5						
		10.5-11.0						
		11.0-11.5						
		11.5-12.0						
		12.0-12.5						
		12.5-13.0						
		13.0-13.5						
		13.5-14.0						
		14.0-14.5						
		14.5-15.0						
		15.0-15.5						
		15.5-16.0						
		16.0-16.5						
		16.5-17.0						
		17.0-17.5						
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		22.0-22.5						
		22.5-23.0						
		23.0-23.5						
		23.5-24.0						
		24.0-24.5						
		24.5-25.0						
		25.0-25.5						
		25.5-26.0						
		26.0-26.5						
		26.5-27.0						
		27.0-27.5						
		27.5-28.0						
		28.0-28.5						
		28.5-29.0						
		29.0-29.4						

EXCAVATION METHOD: 75 mm Ø MACHINE ANGER Et follow SPT



Borehole No. MB 1

Site: MAYFIELD SUBDIVISION STAGE 5

SIMMONS AND
TUCKER PROPERTIES

Sheet: 2 Of: 2

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 29.4

Logged By: MHT

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
SPT 450 RECOVERY Very clayey cohesive silt Dark brown orange, Very stiff Slightly moist	X X	6 10 12 N=22			
	X X	6.5			
	X X	6.5			
	X X	6.5			
SPT 450 : Very clayey moderately RECOVERY cohesive, yellow orange silt stiff, sensitive, moist	X X	6.5 1 1 1 N=2			
EOB @ 6.5m: TARGET DEPTH		6.5			

EXCAVATION METHOD: 75mm in MACHINE AUGER FT HOLLOW CPT



Borehole No. MB 2

Site: MAYFIELD SUBDIVISION STAGE 5 SIMMONS AND THCKER PROPERTIES

Sheet: 1 of 3

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 30.2

Logged By: MHA

Description of Soil	Soil Symbol	Depth (m)	SPT	GROUNDWATER	CORE RECOVERY	Undrained Shear Strength (kPa)		
						50	100	150
TOPSOIL	W	0						
SILT: Very clayey, moderately cohesive brown yellow, stiff, moist	x x	0.5						
		1.0						
some sand	x x	1.5						
SPT 450 RECOVERY		2.0	0					
cream pumiceous silt some sand, loose			1					
pumice sand, grey, loose Dry			1	N=2				
SILT: Very clayey, cohesive, Dark brown orange, very stiff, moist	x x	2.5						
	x	3.0						
SPT 450 RECOVERY	x x	3.5	4					
Very clayey, cohesive silt brown orange, very stiff to hard, slightly moist	x	4.0	6					
brown orange silt	x	4.5	9	N=15				
	x x	5.0						
	x	5.5						

EXCAVATION METHOD: 75mm ϕ Machine Auger + Hollow SPT

Borehole No. *MB 2*Site: *MAYFIELD SUBDIVISION STAGE 5* *SIMMONS AND TUCKER PROPERTIES.*Sheet: *2* Of: *3*Job No. *16992*Date Excavated: *M. 16/6/03*RL Ground: *30.2*Logged By: *MH*

Description of Soil	Soil Symbol	Depth (m)	Undrained Shear Strength (kPa)		
			50	100	150
SPT 450 RECOVERY SILT: moderately cohesive pale yellow, very stiff slightly moist	x x	2 3 4			
SILT: clayey, cohesive, Dark brown orange, very stiff, moist	x	5.0			
	x x	5.5			
SPT 450 RECOVERY clayey brown orange silt Sandy, non cohesive silt cream, Dense	x	6.0			
SILT: very clayey, moderately cohesive	x x	6.5			
	x	7.0			
Pumice Sand cream Dry		7.5			
SPT 450 RECOVERY Pumice Sand, cream, Dry Dense		2 3 6			
		8.0			
		8.5			
		9.0			

EXCAVATION METHOD: *75mm ϕ MACHINE AUGER + HOLLOW SPT.*



Borehole No. MB 2

Site: MAYFIELD SUBDIVISION STAGE 5
SIMMONS AND TUCKER PROPERTIES

Sheet: 3 Of: 3

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 30.2

Logged By: M.H.

Description of Soil

Soil Symbol

Depth (m)

Undrained Shear Strength (kPa)

50 100 150

SPT 450 : fine grained pumice sand
RECOVERY pale grey, Dense, Dry

3

4

4

N=8

EOTB @ 9.5m: TARGET DEPTH

EXCAVATION METHOD: 75 mm ϕ MACHINE AUGER + HOLLOW SPT



Borehole No. MB 3

Sheet: 1 of 2

Site: MAYFIELD SUBDIVISION STAGE 5

SIMMONS AND
TACKER PROPERTIES

Job No. 16992

Date Excavated: Mr 16/6/03

RL Ground: 29.1

Logged By: M4

Description of Soil

Soil Symbol

Depth (m)

SPT

GROUNDWATER

CORE RECOVER

Undrained Shear Strength
(kPa)

50 100 150

TOPSOIL

SILT: Very clayey, moderately cohesive
Dark brown yellow, very stiff
slightly moist.

SPT 450 : SILT: very clayey, cohesive
RECOVERY Dark brown orange, very
stiff, sensitive, slightly moist

SILT: very clayey, cohesive, Dark
brown orange, stiff, moist

very sandy, cream, loose

SPT 450
RECOVERY

SILT: very sandy, pale yellow
medium dense, Dry
pumice SAND: medium grained
pale yellow, Dry, loose
pumice sand pale grey, loose
slightly moist

CLAY: cohesive, Dark brown, stiff,
sticky, moist

YOUNGER ASHES

OLDER ASHES

BOREHOLE DRY

100%

N=2

100%

N=3

100%

EXCAVATION METHOD: 75 mm ϕ MACHINE AUGER + HALL'S SPT



Borehole No. MB3

Site: MAYFIELD SUBDIVISION STAGE 5
SIMMONS AND TUCKER PROPERTIES

Sheet: 2 Of: 2

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 29.1

Logged By: MAA

Description of Soil

Soil Symbol

Depth (m)

Undrained Shear Strength (kPa)

50 100 150

SPT 450 : SILT, Very clayey, cohesive
RECOVERY Dark brown orange, hard
Slightly moist

x x

3

3

8

N=11

Very clayey cohesive brown
orange silt, very stiff, moist

x x

5-0

x x

5-5

1002

SPT 450 : SILT: Very clayey, cohesive
RECOVERY Dark brown orange, very stiff
Slightly moist

x x

6-0

1

1

2

N=3

EUR @ 6.5m: TARGET DEPTH

EXCAVATION METHOD: 75mm Ø MACHINE AUGER & HOLLOW SPT



Borehole No. MB4

Site: MAYFIELD SUBDIVISION STAGE 5

SIMMONS AND
TUCKER PROPERTIES

Sheet: 1 of 2

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 18.3

Logged By: MAA

Description of Soil	Soil Symbol	Depth (m)	SPT	GROUNDWATER	CORE RECOVERY	Undrained Shear Strength (kPa)		
						50	100	150
TOPSOIL	EW	0.0						
SILT: Very clayey, moderately cohesive brown yellow, stiff, slightly moist	x	0.5						
	x	1.0						
	x	1.5						
SPT 450: Very clayey cohesive silt, RECOVERY brown yellow, very stiff slightly moist	x	2.0	1					
	x	2.5	2					
	x	3.0	3	N=5				
SILT: Very clayey, cohesive, dark brown yellow, stiff, moist	x	3.5						
	x	4.0						
	x	4.5						
SPT 450: Sandy pale brown silt RECOVERY Pumice sand, pale grey Dense	x	5.0	2					
	x	5.5	6					
	x	6.0	13	N=13				
SAND: Very silty cream, Dense Driller notes solid Drilling.	x	6.5						
	x	7.0						
	x	7.5						

EXCAVATION METHOD: 75 mm ϕ MACHINE AUGER & HOLLOW SPT



SHREMPTON & LIPINSKI

Borehole No. MB 4

Site: MAYFIELD SUBDIVISION STAGE 5 SIMMONS AND TUCKER PROPERTIES

Sheet: 2 of 2

Job No. 16992

Date Excavated: m. 16/6/03

RL Ground: 18.3

Logged By: MAA

Description of Soil	Soil Symbol	Depth (m)	SPT	CORE RECOVERY	Undrained Shear Strength (kPa)		
					50	100	150
SPT 450 : clayey pale brown silt	X X	1	1	N=5			
RECOVERY		2	2				
pale grey silt		3	3				
SILT: clayey, some sand, slightly cohesive, pale brown, firm moist	X X	4		100%			
		5					
		6					
	X X	7		N=8			
		8					
		9					
SPT 450 : SILT: Very sandy, pale brown, dense.	X X	10	2	N=8			
RECOVERY		11	3				
		12	5				
EOB @ 6.5m: TARGET DEPTH		13					

EXCAVATION METHOD: 75 mm ϕ MACHINE AUGER & HALL'S SPT



Borehole No. MB 5

Site: MAYFIELD SUBDIVISION STAGE 5 SIMMONS AND
TUCKER PROPERTIES

Sheet: / Of: /

Job No. 16992

Date Excavated: *M. 16/6/03*

RL Ground: 15.9

Logged By: *MH*

Description of Soil	Soil Symbol	Depth (m)	SPT	GROUNDWATER	CORE RECOVERY	Undrained Shear Strength (kPa)		
						50	100	150
TOPSOIL	☞☞☞	0-0.5						
SILT: Very clayey, moderately cohesive brown yellow, stiff, moist	xx	0.5-1.0			100%			
	x	1.0-1.5						
SPT 450 : Very clayey, moderately RECOVERY cohesive brown yellow silt, stiff, moist, sensitive.	xx	1.5-2.0	1 1.5 2 N=35					
clayey brown yellow silt	x	2.0-2.5						
	xx	2.5-3.0			100%			
Sandy, pale brown yellow	☞☞☞	3.0-3.5	3 6 6 N=12					
SPT 450 : pale yellow sandy silt RECOVERY	☞☞☞	3.5-4.0						
grey pumice sand, Dry	☞☞☞	4.0-4.5						
EUB @ 3.5m : TARGET DEPTH		4.5-5.0		BOREHOLE DRY				

EXCAVATION METHOD: 75 mm Ø MACHINE AUGER + HOLLOW SPT.



Borehole No. MB 6

Site: MAYFIELD SUBDIVISION STAGE 5

SIMMONS AND
TUCKER PROPERTIES

Sheet: / Of: /

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 14.5

Logged By: *MAA*

Description of Soil	Soil Symbol	Depth (m)	SPT	GROUNDWATER	CORE RECOVERY	Undrained Shear Strength (kPa)		
						50	100	150
<p align="center"><u>TOPSOIL</u></p> <p>SILT: Very clayey, moderately cohesive Dark brown yellow, stiff, moist</p>	X	0						
	X	0.5						
	X	1						
	X	1.5						
	X	2						
	X	2.5						
	X	3						
	X	3.5						
	X	4						
	X	4.5						
	X	5						
	X	5.5						
	X	6						
	X	6.5						
	X	7						
	X	7.5						
	X	8						
	X	8.5						
	X	9						
	X	9.5						
	X	10						
	X	10.5						
	X	11						
	X	11.5						
	X	12						
	X	12.5						
	X	13						
	X	13.5						
	X	14						
	X	14.5						
	X	15						
	X	15.5						
	X	16						
	X	16.5						
	X	17						
	X	17.5						
	X	18						
	X	18.5						
	X	19						
	X	19.5						
	X	20						
	X	20.5						
	X	21						
	X	21.5						
	X	22						
	X	22.5						
	X	23						
	X	23.5						
	X	24						
	X	24.5						
	X	25						
	X	25.5						
	X	26						
	X	26.5						
	X	27						
	X	27.5						
	X	28						
	X	28.5						
	X	29						
	X	29.5						
	X	30						
	X	30.5						
	X	31						
	X	31.5						
	X	32						
	X	32.5						
	X	33						
	X	33.5						
	X	34						

EXCAVATION METHOD: 75mm Ø MACHINE AUGER GT HOLLOW SPT



Borehole No. MB 7

Site: MAYFIELD SUBDIVISION

SIMMONS AND TUCKER
PROPERTIES

Sheet: 1 Of: 1

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 27.9

Logged By: MA

Description of Soil

Soil Symbol

Depth (m)

SPT

GROUNDWATER

CORE RECOVERY

Undrained Shear Strength
(kPa)

50

100

150

TOPSOIL

SILT: very clayey, moderately cohesive
Dark orange, stiff, moistSPT 450 : Very sandy non cohesive
RECOVERY brown yellow silt, Dense
DrySILT: clayey, pale brown, yellow
stiffVery sandy, non cohesive
coarse, loose, DrySPT 450 : very clayey, cohesive, Dark
RECOVERY brown orange silt, Very
stiff, slightly moist

EOB @ 3.5m: TARGET DEPTH

YOUNGER ASHES

OLDER ASHES

BOREHOLE DRY

EXCAVATION METHOD: 75mm ϕ MACHINE AUGER Et Hollow SPT.



Borehole No. MB8

Sheet: 1 Of: 2

Site: MAYFAIR SUBDIVISION STAGE 5

SIMMONS AND
TUCKER PROPERTIES

Job No. 16992

Date Excavated: M. 16/6/03

RL Ground: 27.1

Logged By: MH

Description of Soil	Soil Symbol	Depth (m)	SPT	GROUNDWATER	CORE RECOVERY	Undrained Shear Strength (kPa)		
						50	100	150
<u>TOPSOIL</u>	TS	0.0						
SILT: Very clayey, moderately cohesive Dark brown orange, stiff, moist	XX	0.5		BOREHOLE DRY	100%			
	XX	1.0						
	XX	1.5						
SPT 450 : Very clayey cohesive silt RECOVERY brown orange, hard, slightly moist	XX	1.5	6					
	XX	1.8	9					
	XX	2.0	10	N=19				
SILT: Very clayey, cohesive, brown orange Very stiff, slightly moist	XX	2.0			100%			
	XX	2.5						
	XX	3.0						
SPT 450 : Very clayey, cohesive, brown RECOVERY orange silt, very stiff moist	XX	3.0	2					
	XX	3.2	2					
	XX	3.5	3	N=5				
clayey, cohesive brown orange silt, very stiff	XX	3.5			100%			
	XX	4.0						
	XX	4.5						
Sandy, non cohesive, brown orange, very stiff	XX	4.5						
	XX	5.0						



Borehole No. MB 8

Site: MAYFAIR SUBDIVISION STAGE 5 SIMMONS AND TUCKER PROPERTIES.

Sheet: 2 Of: 2

Job No. 16992

Date Excavated: M. 16/6/02

RL Ground: 27.1

Logged By: MA

Description of Soil

Soil Symbol

Depth (m)

Undrained Shear Strength (kPa)

50 100 150

SPT 450

clayey, brown orange

RECOVERY

silt, very stiff, moist

SAND: grey mixed brown

SILT: clayey, cohesive, Dark brown orange, very stiff, slightly moist

OLDER ASHES

SPT 450

SILT: non cohesive, cream

RECOVERY

stiff, Dry

MAYFAIR

EOB @ 6.5m: TARGET DEPTH

EXCAVATION METHOD: 75mm ϕ MACHINE AUGER + HOLLOW SPT