APPLICATION FOR LANDUSE CONSENT

Applicant: Paihia Ltd

Resource Application No.: Vol 2 RC 2080121

Date Received		8.8.07
Application Fees		$925-
Receipt/Number		
Type of Application		
Zoning of Land		
Legal Description		LOT 3 DP 44530
Property Address and Location		8 School Road Paihia
Valuation Reference No./Property ID		22S-00301
Cross References Bldg / RC		
Section 88 Date		
Section 92		
Amendments/dated		
Notification Date		
Closing Date		
Hearing Date		
Decision		
Monitoring		Yes ☐ No ☐
Planner		MIM

PLANNING COST SHEET

PRE-APPROVAL

RC 2080121

Date	Initial	[illegible]	Time	Rate	Cost
13/8/07	QTH	Set up file	.5	72-	36-
14/8/07	RJC	Check/allocate .5	.5		
27-8-07	Admin	Photocopying +Postage 20 x .20 = 120.20 + 7x1.00 + .50			127.70
28/8/07	MIM	Initial Assessment	1.5	113-00	169.50
28/8/07	MIM	Draft S93/94 Notification Report	2	113-00	226-00
28/8/07	MIM	Email Agent	.3	113-00	33.90
28/8/07	MIM	Prepare Notification pack	1	113-00	113-00
29/8/07	MIM	Email Agent	.2	113-00	22.60
31/8/07	MIM	Review info from Agent - addendum to engineers report	.5	113-00	56.50
10/9/07	MIM	Phone call with affected party	.4	113-00	45.20
10/9/07	MIM	Email representative for affected party	.3	113-00	33.90
10/9/07	MIM	Phone call to agent - request RoW details.	.3	113-00	33.90
13/9/07	MIM	Email agent re: progress	.2	113-00	22.60
17/9/07	MIM	Answer general enquiry - Bay Cornical	.3	113-00	33.90
18/9/07	MIM	Discuss S92 request & reporting with Engineer	.5	113-00	56.50
19/9/07	MIM	Draft S92 request letter	1	113-00	113-00
19/10/07	MIM	Respond to enquiry - affected party	.5	113-00	56.50
19/10/07	MIM	Respond to enquiry - Paihia RP Assoc	.5	113-00	56.50
23/10/07	MIM	Draft letter response to agent	1	113-00	113-00
31/10/07	MIM	Draft Email to agent	.3	113-00	33.90
31/10/07	MIM	Check information provided	.5	113-00	56.50
31/10/07	MIM	Draft Email to engineers.	.5	113-00	56.50
28/11/07	MIM	Section 92 Letter to agent	1	113-00	113-00
28/11/07	MIM	Copy to transit	.4	113-00	45.20
29.01.08	LEW	Prepare notification pack & letter	1.5		
18/12/07	MIM	Check Transit Response	.2	113-00	22.60
18/12/07	MIM	Check S92 response from Agent	.4	113-00	45.20
20/12/07	MIM	Copy all further info recieved to Roading Engineer	.3	113-00	33.90
18/1/08	MIM	Review Road Eng response	.3	113-00	33.90
21/1/08	MIM	Re-draft S93/94	1	113-00	113-00
23/1/08	MIM	Copy S93/94 to agent	.2	113-00	22.60
3/3/08	MIM	Review submissions, load responses, etc letters, copy to	1.5	113-00	169.50
		~~Check~~ agent			
	Admin	Mail Out			
				Sub Total	
				Less Deposit	
				TOTAL	$

* *Applicant is only to be charged travel time and mileage from nearest Service Centre.*

Enviro/forms/1plancostsheet

PLANNING COST SHEET

RC. 2080121

PRE - APPROVAL

Paihia Ltd.

Date	Initial	Description	Time	Rate	Cost
15.9.07	MGabriels	Roading Engineer	1hr	140	140-
		Site visit	30km	1.13	33.90
~~6.8.08~~	~~QTA~~	~~Update WHout File Admin~~	~~.25~~	~~72~~	~~18~~
19.3.08	PJK	Discuss report	1.5	140	210-
		Base Monitoring			127-
		Monitoring fee			237-
6.8.08	ZAS	MTR File set up fee	.10	102-	10.20
	Admin	Mail out Final Invoice Timesheet	2.00	72-	144-
				Sub Total	1514.54
				Less Deposit	925 -
				TOTAL	$1089.54

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10/3/08	MIM	~~Set up file~~ Draft Hearing Report.	2	113·00	226·00
12/3/08	MIM	~~Check/allocate~~ " "	2·5	113·00	282·50
14/3/08	~~Admin~~ MIM	~~Photocopying~~ Arrange Eng conditions,	1·5	113·00	169·50
		Type consent conditions			
14/3/08	MIM	Copy attachments for report	·5	113·00	56·50
14/3/08	MIM	File maintinance & time record	·5	113·00	56·50
	RKS	10 Day Letters P/copy	80	·20	16-
	R·KS.	Envelopes	20	·50	10-
	R.K.S	Admin	·30	72-	21·60
	R.K.S	5 Day Letters P/copy	80	·20	16-
	R·K.S	Envelopes	20	1·00	20-
	RKS	P/copy Report for 5 Day	380	·20	76-
	RKS	Report for agenda	160	·20	32-
	RKS	Admin time	·30	72-	21·60
31/3/08	MIM	Attend Hearing	5hr	113·00	565·00
	RKS	Attend Hearing	5Hr	72-	360-
8/4/08	RKS	Correspondence - Advise Hearing	·50	72·	36-
		photo copy	40	·20	8-
		Envelopes	20	·50	10-
17 July	RKS	Decision	·5	72-	36-
		Photocopy	300	·20	60-
		Postage	12	$2.	24
17·9·	RKS	Decision prepare copies + post	2·00	72-	144-
		Hearing fee	5hrs		785-
Commissioners Hearings					
31·7·08		Joel Carr #135423			2298·34
22·6·08		L·T Robertson			1438·00
15·9·07		Engineer		140	
31/3/08	RMS	Attend Hearing	5hrs	140	700-
14·3·08	~	Engineering Report	3hrs		420-
28/4/08		Meeting	1·5		210-
14·3·08	RMS	Site visit	30Km	1·13	33·90
8·7·08	PJK	Review report.	·25	140-	35-
9·7·08	RKS	Amendments post to Commissioners	1·50	72-	108-
6·8·08	QTH	Update Workflow	·25	72-	18-
		Check			
	Admin	Mail Out			
				Sub Total	
				Less Deposit	

Paihia Ltd. Page 1

PLANNING COST SHEET

COPY

PRE-APPROVAL RC 2080121

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27-8-07	Admin	Photocopying 601 x .20 = 120.20 + 7x1.00 + .50 + Postage			127.70
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10/9/07	MIM	Email representative for affected party	.3	113-00	33.90
10/9/07	MIM	Phone call to agent - request POW details.	.3	113-00	33.90
13/9/07	MIM	Email agent re: progress	.2	113-00	22.60
17/9/07	MIM	Answer general enquiry - Bay Cortical	.30	113-00	33.90
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28/11/07	MIM	Copy to transit	.4	113-00	45.20
29.01.08	LEW	Prepare notification pack & letter	1.5	102	153-
18/12/07	MIM	Check Transit Response	.2	113-00	22.60
18/12/07	MIM	Check S92 response from Agent	.4	113-00	45.20
20/12/07	MIM	Copy all further info recieved to Reading Engineer	.3	113-00	33.90
18/1/08	MIM	Review Road Eng response	.3	113-00	33.90
21/1/08	MIM	Re-draft S93/94	1	113-00	113-00
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	Admin	Mail Out			
				Sub Total	
				Less Deposit	

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Resource Applicantion No.: RC 2080121

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Section 88 Date		
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Amendments/dated		
Notification Date		
Closing Date		
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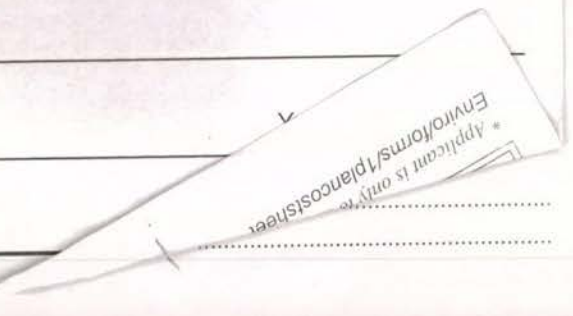
Decision		
Monitoring		
Planner		



PLANNING COST SHEET

PRE-APPROVAL

RC 2080121

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19/10/07	MIM	Respond to enquiry - affected party	.5	113-00	56.50
19/10/07	MIM	Respond to enquiry - Pahua RP Area	.5	113-00	56-50
23/10/07	MIM	Draft letter response to agent	1	113-00	113-00
31/10/07	MIM	Draft Email to agent	.3	113-00	33-90
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	R.K.S	5 Day Letters P/copy	80	.20	16-
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	RKS	P/copy Report for 5Day	380	.20	76-
	RKS	Report for agenda	160	.20	32-
	RKS	Admin time	.30	72-	21.60
31/3/08	MIM	Attend Hearing	5hr	113-00	565-00
	RKS	Attend Hearing	5Hr	72-	360-
8/4/08	RKS	Correspondence - Advise Hearing	.50	72.	36-
		photo copy	40	.20	8-
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9.7.08	RKS	Amendments post to Commissioners	1.50	72-	108-
6.8.08	QTH	Update Workflow	.25	72-	18-
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Paihia Ltd.

PLANNING COST SHEET

PRE-APPROVAL

COPY

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3/3/08	MIM	Review submissions, load responses, etc letters, copy to agent	1.5	113-00	169.50
	Admin	Mail Out			
				Sub Total	

6494019202

I. R. CARR
703 MOTUKIORE RD
RD1 OKAIHAU

DATE 31/7/08
ORDER No.

No. 135423

M FAR NORTH DISTRICT COUNCIL

RC 2080121 PAIHIA LTD

TAX INVOICE
PURCHASE ORDER
STATEMENT

DESCRIPTION	QTY.	RATE	AMOUNT	
PREPARATION TIME	3hrs			
1ST SITE VISIT & TRAVEL TIME	2hrs			
MRG & TRAVEL	4hrs			
HRG & TRAVEL	2½hrs			
DELIBERATION	2½hrs			
WRITING DECISION REPORT	9hrs			
TOTAL TIME	23hrs	80·00	1840	00
TRAVEL	290km	0·70	203	00
SUB TOTAL			2043	00
PLUS G.S.T.			255	34
TOTAL			2298	34

G.S.T. REG. No.
27 - 066 - 968

SPECIAL INSTRUCTIONS
P.O. 18864

REDIFORM®

FORMS DESIGN © MOORE BUSINESS FORMS AND SYSTEMS.

REDIFORM RE-ORDER REF. RAMULTIBK3

Environmental Protection

Resource Compliance Monitoring Report

Applicant Name:	PAIHIA Ltd	**MRC No.**	
Consent Description:	5 Residential Appartmts'		
Site Address:	8 School Rd		PAIHIA

RC Consent No:	2080121	**BC Number:**	
RC Consent Granted Date:	17-7-2008	**BC Final:**	
		CCC Issued	

CHECK:

Change Of Conditions	**YES / NO**	**Date Issued:**		**Change of Conditions Attached**	**YES / NO**
Objections/Appeals	**YES / NO**	**Date Resolved:**		**Objections/Appeals Attached**	**YES / NO**
Surrendered Consent	**YES / NO**	**Date Advised:**		**Surrendered Consent Attached**	**YES / NO**
Lapsed Consent	**[✓ YES] / NO**	**Date Lapsed:**	17-7-2013		
Extension of Time	**YES / NO**	**Date Issued:**			

MONITORING OFFICER

Officer Name:	Nicky Maihi	Officer Signature:	NMaihi	Date:	

Condition No.:		Condition Met **Y / N**		Plans approved/documents attached **Y / N**	
Description:					
Condition No.:		Condition Met **Y / N**		Plans approved/documents attached **Y / N**	
Description:					
Condition No.:		Condition Met **Y / N**		Plans approved/documents attached **Y / N**	
Description:					
Condition No.:		Condition Met **Y / N**		Plans approved/documents attached **Y / N**	
Description:					
Condition No.:		Condition Met **Y / N**		Plans approved/documents attached **Y / N**	
Description:					
Condition No.:		Condition Met **Y / N**		Plans approved/documents attached **Y / N**	
Description:					

LAPSED : 17 JULY 2013

FAR NORTH DISTRICT COUNCIL

CONSENT COMPLIANCE INSPECTION SHEET

Consent No. 2080121 Consent Holder Paihia Ltd Month 17 July 08

Consent Description Residential Apartmt - 5 Apartmts

Location 8 School Rd, Paihia.

BC

Letters Sent:

Phone Calls & Conversations:

Site Visits:

Compliance Met: NO **Signature** **Date**

LAPSED : 17-7-2013

Far North
District Council

Private Bag 752, Memorial Ave
Kaikohe 0400, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

30 April 2009

Paihia Limited
C/- Damian Otto - Ormiston Projects
PO Box 58395
Greenmount
Manukau 2141

Dear Sir / Madam

Re: RESOURCE CONSENT 2080121

Further to the above mentioned resource consent issued on the 17TH July 2008 for 5 residential apartments.

Conditions of your consent will be administered by Resource Consent Monitoring Officers at Councils Kaikohe Office.

Any documentation required to meet the conditions of your resource consent will need to be forwarded to the attention of Nicky Maihi.

The following conditions will require documentation

(6) Prior to commencing any physical site works a construction management plan shall be **submitted** to and approved by the Council. The plan shall contain information on, and site management procedures for, the following matters:

a. The timing of civil engineering, building construction and any demolition works, including hours of operation and key project and site management personnel and their contact details;

b. The transportation of demolition, construction and waste materials to and from the site, the loading and unloading of materials and the associated controls on vehicles through sign-posted site entrances and exits;

c. The excavation and filling works, including any retaining structures and any necessary de-watering requirements/methods, to be prepared by a Chartered Professional Engineer with suitable geotechnical qualifications and expertise;

d. Control of dust and on-site noise (including compliance with construction noise standards) and any appropriate avoidance or remedial measures;

e. Construction Traffic management on the Right of Way (Wallace Lane) to maintain single lane access for other access users and adjoining property owners.

f. Prevention of earth, mud, gravel or other material being deposited on adjoining roads by vehicles exiting the site, and proposing remedial measures should that occur;

g. Publicity measures, including signage, to inform adjacent landowners, occupiers, pedestrians and other users of School Road.

h. Safety fencing isolating the site from the Right of Way and pedestrian access to enable the safe passage of pedestrian traffic, including access to Lot 1 DP 140756

The Council may require all or parts of this report to be peer reviewed, with all costs associated with the review being met by the Consent Holder.

(8) That prior to the commencement of construction on site the consent holder shall **provide evidence** to confirm that Top Energy have removed the power poles along Wallace Lane and re-installed the power underground including connections to each of the existing properties serviced.

(10) That prior to the commencement of construction on site the consent holder shall upgrade the access along 'Wallace Lane' to provide a 5m minimum width concreted carriageway up to the southern boundary of Lot 3 DP 44530. The following requirements shall be met:

a. During construction these works will be supervised by the design engineer or a Certified Professional Engineer.

b. The construction shall be carried out in accordance with either option A or option B identified in the approved engineering plans prepared by PK Engineering referenced "Proposed Project Lot 3, 8 School Road, Paihia, dated April 08, Project 07 – 142, Sheet C3 (option A), Sheet C4 (option A), Sheet D8 (option A); Sheet C3 (option B), Sheet C4 (option B), Sheet D8 (option B), and attached to this consent with the Council's "Approved Plan" stamp affixed to it (dated 6 December 2006) and as required to be amended by the conditions of this consent.

[Note: The preferred upgrade option is option B, in principle and is subject to refinement and agreement to any easements necessary for the works being reached with the Body Corporate of Marsden Close, BC12274 Lot 1 DP 120926]

c. The shape and gradient of the existing driveway to Lot DP 44530 will be retained to ensure that the standard of access to numbers 10 and 12 School Road is not diminished.

d. The concrete surface of Wallace lane shall have a cross slope of 1:50 from the eastern side adjoining DP 120926 (Marsden Close) to the concreted dish drain on the western side.

e. A concrete kerb of a minimum height of 125 mm will be constructed along the eastern side of Wallace Lane adjoining DP 120926 (Marsden Close) to prevent surface water from overflowing onto DP 120926.

f. Services including power and phone lines and stormwater pipes shall be aligned and buried as close as practicable (taking into account any existing easements) to the middle of Wallace Lane. The power and phone lines shall be contained in separate ducting such that the materials for ducting and the size of ducts shall comply with the requirements of the network operators.

g. Prior to the completion of the concreting of the Wallace Lane carriageway the applicant shall **submit** for the consideration of Council the design and details of the stormwater pipe to be installed under the concreted carriageway. The design shall be completed by a C.P Engineer and shall include details of the overland flow path for the 1 in 100 year rainfall event.

h. Should the rock retaining wall on the boundary of Lot 2 DP 44530 be removed or damaged, the bank is to be suitably retained under the supervision of a Chartered Professional Geotechnical Engineer.

i. Should any damage occur to structural integrity of the carport on Lot 2 DP 44530, appropriate remedial action is to be undertaken immediately.

(12) That all earthworks and construction for the development (including the Wallace Lane improvement works) are to be supervised by a suitably qualified geotechnical engineer and appropriate measures are to be undertaken e.g. Sheet piling to stabilise the cut faces and prevent subsidence of adjacent properties. **This will require an engineer's producer statement upon completion of the works.**

(15) **At the time of submitting an application for building consent** a Registered Surveyor shall certify to Council in writing that the building will comply with the maximum height rules as specified in the District Plan, being a maximum height of 10 metres above average ground level. The surveyor is also to establish a datum on-site or adjacent to the site to provide a reference level against which the building height or ground settlement can be measured.

(16) Prior to the roof of the sixth level being installed on the building a **Registered Surveyor shall certify** to Council in writing that the building complies with the maximum height rules specified in the District plan being a maximum height of 10 metres above average ground level.

(17) That plans, including cross-sections, of the proposed vehicle entrance/exit shall be prepared by a Certified Professional Engineer and **submitted** to the council for approval prior to construction. The plans shall detail appropriate measures to provide maximum visibility for vehicle drivers and pedestrians using Wallace Lane.

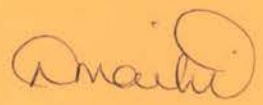
(21) That any stormwater discharged into the Council's stormwater system is to comply with the requirements and conditions of the Far North District Council's stormwater discharge consent. That a producer statement be **submitted** to the satisfaction of the Council's Resource Consents Manager specifying that the plans and specifications satisfy the building code requirement that surface water be disposed of in a way that avoids the likelihood of damage or nuisance to other property.

Please note that some conditions may require information to be provided at building consent stage, it is also important to provide a copy of the information to Nicky Maihi to ensure compliance of your consent condition.

Please note that a site visit will be then be conducted by a member of the Monitoring Team to check compliance of all other conditions. Once all conditions of your consent have been satisfied your consent can be filed as completed.

If you have any queries regarding conditions of your resource consent, please do not hesitate to contact me on 09 4015281.

Yours faithfully



Nicky Maihi
Monitoring Officer – Field Services

Far North District Council

Private Bag 752, Memorial Ave
Kaikohe 0440, New Zealand
Freephone: 0800 920 029
Phone: (09) 401 5200
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Te Kaunihera o Tai Tokerau Ki Te Raki

Resource Consent No: RC2080121

24-Jul-2013

Paihia Limited
C/- George Bogiatto
PO Box 106120
Auckland City
Auckland 1143

Dear Sir / Madam

Re – Resource Consent RC2080121

Further to the above mentioned consent issued on the 17th July 2008 to construct 5 apartments.

Please note that under Section 125 of the Resource management Act 1991 your consent lapsed on the 17th July 2013.

Please be aware that if this building is to be constructed in the future new resource consent may need to be obtained.

This resource consent has been placed on the property file as a lapsed consent.

If you require any further information please do not hesitate to contact me on 0800 920029.

Yours sincerely,

Nicky Maihi
Monitoring Officer – Field Services

5 Day Letters

- Planners Report
&
- Agenda Attachments

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Application No: RC-2080121-RMALUC

19 March 2008

Ronald William Simpson
PO Box 332
Paihia 0247

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

Please find enclosed a copy of the planner's report and recommendation prepared for the above application for your information.

You are reminded that the hearing is set down for **31 March 2008** at the Council Chambers, MemoriaL Ave, Kaikohe at 10.00am, or as soon thereafter as circumstances permit.

If you have any further queries regarding this matter, please contact the undersigned.

Yours faithfully

Melissa McGrath
CONSULTANT PLANNER

Far North
District Council

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Application No: RC-2080121-RMALUC

19 March 2008

Violet Johnson
c/- Julian Dawson, Thomson Wilson Lawyers
PO Box 1042
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Marsden Close Body Corporate
Body Corporate Administration
PO Box 2322
Auckland 1140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

Please find enclosed a copy of the planner's report and recommendation prepared for the above application for your information.

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Application No: RC-2080121-RMALUC

19 March 2008

James Ranken Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

Please find enclosed a copy of the planner's report and recommendation prepared for the above application for your information.

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Application No: RC-2080121-RMALUC

19 March 2008

Frederick John Rankken Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

Please find enclosed a copy of the planner's report and recommendation prepared for the above application for your information.

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Application No: RC-2080121-RMALUC

19 March 2008

Charlotte M Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

Please find enclosed a copy of the planner's report and recommendation prepared for the above application for your information.

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Application No: RC-2080121-RMALUC

19 March 2008

Pamela Joy Wallace
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Stanley William George Morley
PO Box 352
Paihia 0247

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

Please find enclosed a copy of the planner's report and recommendation prepared for the above application for your information.

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Application No: **RC-2080121-RMALUC**

19 March 2008

Tom Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: **RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use**

Please find enclosed a copy of the planner's report and recommendation prepared for the above application for your information.

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Application No: RC-2080121-RMALUC

19 March 2008

Marlyn 2000 Limited Trading As Ala-Moana Motel
C/-
100 School Rd
Paihia 0200

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Timothy John Orgias
PO Box 265
Paihia 0247

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: **RC-2080121-RMALUC**

19 March 2008

Ian Alan MacDonald
PO Box 46028
Herne Bay
Auckland 1147

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

James Frederick Brock
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Leonie June Brock
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Christine Maria Habicht
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: **RC-2080121-RMALUC**

19 March 2008

Transit New Zealand
PO Box 1459
Auckland 1140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Frank Erich Habicht
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: **RC-2080121-RMALUC**

19 March 2008

Mr Lloyd H Wallace
Apartment G
Marsden Close
Paihia 0200

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Hugh Vernon Wallace
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Application No: RC-2080121-RMALUC

19 March 2008

Paihia Limited
C/- Damian Otto - Ormiston Projects
PO Box 58395
Greenmount
Manukau City 2141

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Melissa McGrath
CONSULTANT PLANNER

ITEM	:	1.0
TO	:	HEARINGS COMMISSIONERS
FROM	:	GENERAL MANAGER, DEVELOPMENT & CONSENTS
WRITER		MELISSA MCGRATH, CONSULTANT PLANNER
SUBJECT	:	RC 2080121, PAIHIA LTD

This issue has been assessed for the purposes of Section 79 of the Local Government Act 2002, and is considered to be of low significance.

REPORT

THE RESOURCE MANAGEMENT ACT 1991

AND THE FAR NORTH DISTRICT PARTLY OPERATIVE PLAN

Hearing:	**31st March 2008**
Report by:	**Melissa McGrath, Resource Planner**
Application Number:	**RC-2080121-RMALUC**
Applicant:	**Paihia Limited**
Proposal:	**Land Use**
Activity Classification: **RMA 1991**	**Restricted Discretionary**
Location:	**8 School Road, Paihia**
Legal Description:	**LOT 3 DP 44530**
Site Area:	**1189m^2**
Zoning:	**Commercial**
Submissions:	
Support	**4**
Objections	**15**
Attachments:	Executive Summary Planners Report Council engineers report Cadastral print out. Relevant district plan rules Application. Further information provided Submissions.

1.0 The Proposal

1.1 Paihia Limited has made resource consent application to construct and occupy a new residential apartment building, comprising of five residential units with on site car parking, at Wallace Lane, 8 School Road, Paihia.

1.2 The applicant proposes to construct a 10m high apartment building, comprised of car parking level at ground level, and six residential levels, containing five residential apartments.

1.3 Four of the five apartments proposed consist of a large master suite and two smaller guest suites (each with ensuite bathrooms), a large kitchen and living area separating the master suite form the guest suites and a study. One apartment is larger and split over levels five and six, containing three guest suites, one master bedroom, living space, games room and study.

1.4 Vehicle access to the building and ground level parking will be achieved from Wallace Lane.

2.0 The Site

2.1 The site is legally described as Lot 3 DP 44530, contained in certificate of title referenced NA1544/80. The site is 1189m2 area; access to the site is located off Wallace Lane, 8 School Road Paihia.

2.2 The site has a relatively steep contour with an easterly aspect. The site has been subject to slips in the past; the site is currently vacant, overgrown with grass and does not contain any native vegetation.

2.3 The site is located approximately 150m along Wallace Lane, from the intersection of School Road and State Highway 11 on the eastern side of Marsden Road/State Highway 11. The site is visible from the coast.

2.4 The nature and character of the surrounding properties is predominantly residential single unit development; however Marsden Close Apartments are located at 54 – 56 Marsden Road, adjacent to Wallace Lane. The site is in close proximity to amenities, with the entrance to the main public car park for Paihia being located some 50 metres along School Road.

2.5 Wallace Lane is a private way comprised of three consecutive access legs, with overlying reciprocal right of ways, the legal width of Wallace Lane is 6m. The following properties have right of way access over Wallace Lane:

Lot 3 DP 44530	Will contain the five residential units proposed.
Lot 1 DP 140756	Contain one residential unit with physical access from School Road
Lot 1 DP 73026	
Pt Lot 5 DP 44530	

Therefore three residential units currently utilise Wallace Lane for access, the proposal will result in a total of eight residential units gaining access over Wallace Lane.

2.6 Lots 1 and 2 DP 44530 (10 and 12 School Road) currently have physical access located on the School Road, road reserve. Both driveways link into the same vehicle crossing on School Road that serves Wallace Lane.

3.0 Activity Classification

3.1 Under the Partly Operative District Plan the site is zoned Commercial. The proposal complies with all the permitted activity bulk and location rules for the Commercial

zone apart from the parking and access provisions under rules 15.1.6.1.1 and 15.1.6.1.2. The following table sets out permitted activity rules that are not satisfied by the proposal:

Chapter 15 Transportation		
Rule Number & Name	**Standard**	**Comments**
Parking		
15.1.6.1.1 (b)	Where any activity established within the commercial zone, two loading spaces shall be required for a building with a gross floor area of between 500m2 and 5000m2.	The proposed building has a gross floor area of 790m2 and therefore two loading spaces are required under the District Plan. The proposal fails to provide these spaces.
Vehicle Access		
15.1.6.1.2 (b)	Any access carriageway from the road to any parking or loading space within the commercial zone, shall be 6m wide for a two-way operation.	The proposal fails to comply with this requirement because the proposed access, is located over Wallace Lane which is only 5m wide.
15.1.6.1.2(c)	The construction of private access, in addition to the specifies covered should be undertaken in accordance with Appendix 3B Part 3, and the grade shall be no steeper than 1 in 20 adjacent to the road boundary for a length of at least 6m in the commercial zone.	The applicant has provided an engineers report prepared by TPC engineering which confirms that the proposal will be unable to achieved the required grade according to the plan rules, but with suggested upgrading the entrance will be 1 in 4.4 to 1 in 7.2.
15.1.6.1.2(e)(ii)	Vvehicle access shall not be permitted onto a local road within 90m of its intersection with a arterial or collector road.	Existing Wallace Lane is located approximately 30m from the School Road and State Highway 11 intersection, increased traffic movement and formation may result in exacerbation of the current traffic safety.
15.1.6.1.2(h)	Private access off street in the urban zones shall be constructed in accordance with Council's Engineering Standards and Guidelines and when serving two or more properties shall be widened to provide a double width entrance.	The proposed access design fails to comply with Council's Engineering Standards and Guidelines.
15.1.6.1.2 (m)	All residential accesses serving four or more sites or potential sites shall provide passing bays and vehicle queuing spaces at the entrance to the legal road.	Due to the width of Wallace Lane the applicant is unable to provide queuing space.

3.2 The application therefore requires assessment as a restricted discretionary activity under the Partly Operative District Plan. According to rule 15.1.7 Council must restrict is discretion to the following matters:

15.1.7.1 PARKING

(a) Whether it is physically practicable to provide the required car parks on site.

(b) Whether there is an adequate alternative supply of parking in the vicinity, such as a public car park or angled road parking.

(c) Whether there is another site nearby where a legal agreement could be entered into with the owner of that site to allow it to be used for the parking required for the application.

(d) Whether it can be shown that the actual parking demand will not be as high as that indicated in ***Appendix 7C***.

(e) Adequacy of the layout and design of the car parking areas in terms of other recognised standards.

(f) Degree of user familiarity with the car park and length of stay of most vehicles.

(g) Total number of spaces in the car park.

(h) Clear space for car doors to be opened even if columns, walls and other obstructions intrude into a car parking space.

(i) For sites with a frontage with Kerikeri Road between its intersection with SH10 and Cannon Drive:

(i) the visual impact of hard surfaces and vehicles on the natural environment;

(ii) the effectiveness of any landscape plantings in screening hard surfaces and vehicles associated with parking areas.

15.1.7.2 VEHICLE ACCESS

(a) Adequacy of sight distances available at the access location.

(b) Any current traffic safety or congestion problems in the area.

(c) Any foreseeable future changes in traffic patterns in the area.

(d) Possible measures or restrictions on vehicle movements in and out of the access.

(e) The adequacy of the engineering standards proposed and the ease of access to and from, and within, the site.

(f) The provision of access for all persons and vehicles likely to need access to the site, including pedestrian, cycle, disabled, vehicular.

(g) The provision made to mitigate the effects of stormwater runoff, and any impact of roading and access on waterways, ecosystems, drainage patterns or the amenities of adjoining properties.

15.1.7.3 PROPERTY ACCESS GENERALLY

(a) The provisions of the roading hierarchy, and any development plans of the roading network.

(b) The need to provide alternative access for car parking and vehicle loading in business zones by way of vested service lanes at the rear of properties, having regard to alternative means of access and performance standards for activities within such zones.

(c) Any need to require provision to be made in a subdivision for the vesting of reserves for the purpose of facilitating connections to future roading extensions to serve surrounding land; future connection of pedestrian accessways from street to street; future provision of service lanes; or planned road links that may need to pass through the subdivision; and the practicality of creating such easements at the time of subdivision application in order to facilitate later development.

(d) Enter into agreements that will enable the Council to require the future owners to form and vest roads when other land becomes available (consent notices shall be registered on such Certificates of Title pursuant to ***Rule 13.6.7***).

(e) Any requirements of Transit New Zealand in respect of Limited Access roads and State Highways.

4.0 Sections 93 & 94, Resource Management Act 1991

A separate determination has been made relating to the processing of the proposal. A determination has been made that the application would require limited notification as the proposal complies with the bulk and location rules for the Commercial zone under the District Plan and the traffic report submitted with the application concludes that, due to the

width and gradient of the proposed access the proposed activity fails to meet the provision of the District Plan.

5.0 Summary of Submissions

5.1 The following is a summary of the submissions received:

Submittor	Support/Oppose	Comments	Speak
Transit New Zealand	Unopposed		No
Ronald William Simpson	Oppose	• Parking and Access • Stormwater • Ground Stability • Seeking assurances relating to the effects on surrounding properties specifically Marsden Close Apartments	Yes
Violet Johnson	Oppose	• Access and car parking • Significant increase in traffic flow along Wallance Lane and School Road • Number of construction vehicles accessing the site over 12 month construction period • Wallace Lane does not comply with the District Plan Rules for road width for two way access • Mitigation Measures proposed by the applicant are wholly inadequate to avoid, remedy or mitigate the effects of these works	Yes
Marsden Close Body Corporate	Oppose	That the widening and supposed/proposed strengthening of the driveway particular reference to the boundary of BC 122747 (Marsden Close) affecting two owners specifically units 1 and 2 and/or the common area of the body corporate.	Yes
James Ranken Hellaby Frederick John Rankken Hellaby Charlotte M Hellaby Tom Hellaby	Oppose	• Concern with residential lane servicing commercial sized development • Instability of lane with increased traffic flow with developers' trucks and vans, vibrations causing cracks to retaining wall and house • Risk of damage to retaining walls because land made unstable with trucks.	Yes
Marlyn 2000 Limited Trading As Ala-Moana Motel	Oppose	• The size of the development • The shadow on existing buildings from this building • The possible drainage to existing buildings from the proposed earthworks	Yes
Timothy John Orgias	Support (with conditions)	The applicant shall ensure that the access to 10 and 12 School Road from School Road is, at least, no steeper than it is currently to allow for a sate entrance and exist from those two properties. If this is achieved then the proposal is supported.	No
Ian Alan MacDonald	Oppose	• Traffic and parking control • Design aspects • Potential damage to Wallace Lane and block retaining wall	Yes

James Frederick Brock Leonie June Brock	Oppose	• Proposed access does not meeting an appropriate standard for the development, nor is adequate access able to be formed for this level of development intensity, given the available legal width of the easement and physical constraints • It will have more than minor effects on safety and efficiency of the roading network • It will have more than minor effects on the existing amenity of the area • It is contrary to the objectives and policies of the District Plan • The land is unstable and there is no certainty that a project of this scale can proceed without detriment to adjoining/adjacent property • Approving the application could also be seen to legitimise use of the site in terms of the permitted Commercial Zone Traffic Intensity of 200 daily movements and thereby further compromise amenity and safety.	Yes
Christine Maria Habicht Frank Erich Habicht	Oppose		
Hugh Vernon Wallace Pamela Joy Wallace	Oppose		
Mr Lloyd H Wallace	Support	The complete development at 8 School Road Paihia	No
Stanley William George Morley	Support (subject to conditions)	• The applicant shall retain the shape and gradient of the drive to give No.10 and No. 12 Wallace Lane residents access as good or better than existing • The applicant shall retain the bank should the rock wall be removed. • It would seem to be sensible to bury the power wires at the time of development.	Yes

5.2 The matters of concern raised can be generalised into categories, listed below in no particular order:

- Safety of proposed access, particularly gradient of Wallace Lane, Cumulative effects
- Site stability of Lot 3 DP 44530, adjoining properties and Wallace Lane
- Visual amenity and size of the proposed building
- Adverse effects from increased traffic use of Wallace Lane
- Parking availability and manoeuvring

6.0 Consideration of Application

6.1 Section 104(1) of the Resource Management Act, Consideration of Applications, sets out the matters that a consent authority must (subject to Part 2) have regard to when considering a resource consent application. These are:

(a) Any actual and potential effects of on the environment of allowing the activity; and

(b) Any relevant provisions of—

(i) A national policy statement:

(ii) A New Zealand coastal policy statement:

(ii) A regional policy statement or proposed regional policy statement:

(iii) A plan or proposed plan; and

(c) *Any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

6.2 Section 104(2) provides for a consent authority to disregard an adverse effect on the environment if the plan permits an activity with that effect.

6.3 Section 104(5) provides for a consent authority to grant a resource consent on the basis that the activity is a controlled activity, a restricted discretionary activity, a discretionary activity, or a non-complying activity, regardless of what type of activity the application was expressed to be for.

7.0 Part 2 of the Act

7.1 Part 2 of the Resource Management Act sets out the purpose and principles of the Act, including matters of national importance. The purpose of the Act is to promote the sustainable management of natural and physical resources. In the Act, "sustainable management" means:

".... Managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well being and for their health and safety while –

(i) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(ii) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(iii) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

7.2 Section 6 of the Act lists the following as matters of national importance:

(a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:
(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:
(d) The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:
(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.
(f) the protection of historic heritage from inappropriate subdivision, use, and development.
(g) the protection of recognised customary activities.

7.3 Section 7 of the Act states:

"In achieving the purpose of this act, all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall have particular regard to:

(a) Kaitiakitanga:
(aa) The ethic of stewardship:
(b) The efficient use and development of natural and physical resources:
(ba) the efficiency of the end use of energy:
(c) The maintenance and enhancement of amenity values:
(d) Intrinsic values of ecosystems:
(e) [Repealed]

(f) Maintenance and enhancement of the quality of the environment:
(g) Any finite characteristics of natural and physical resources:
(h) The protection of the habitat of trout and salmon:
(i) the effects of climate change:
(j) the benefits to be derived from the use and development of renewable energy.

7.4 Section 8 of the Act requires all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi.

7.5 Of these matters within Part 2 of the Act the most relevant to the proposal are Sections 7 (a) and (b), with the requirement achieve sustainable development, by "avoiding, remedying, or mitigating any adverse effects of activities on the environment".

8.0 Environmental effects are assessed as follows:

8.1 Vehicle Access:

Vehicle access to the site is via right of way, on Wallace Lane, 8 School Road, Paihia. According to Appendix 3B (Standards for Private Access) of the District Plan, access standards in the Commercial zone for more than 5 dwelling units require that a access must have a legal width of 8m and a formed carriageway width of 6m; Wallace Lane is only 6m wide legally and is unable to be formed to comply with the standards under the Commercial zone rules of the District Plan and Engineering Guidelines.

The proposal will result in an increase of five residential units utilising Wallace Lane for access, as the proposed activity consists of residential development and the surrounding properties contain residential development it is consider reasonable to expect the access to meet the residential zone standards. According to Appendix 3B (Standards for Private Access) of the District Plan access standards in the Residential zone for 5 - 8 dwelling units, must have a legal width of 7.5m, and a carriageway width of 5m. Therefore the proposed width of Wallace Lane meets the carriageway width requirements for the Residential zone.

Due to the physical constraints of the access and location the applicant has opted to upgrade Wallace Lane to provide a 5m wide formed carriageway. During the construction period, increased traffic will affect the use of Wallace Lane, and upgrading with relevant construction management plans will help with mitigation of the activity. The applicant has provided a traffic report prepared by Traffic Planning Consultants, David Phillip, dated August 2007 and subsequent additional information in letters dated 30 October 2007, and 17 December 2007. This report concludes that with upgrading of the existing vehicle access the safety and operation of the access would be acceptable.

Wallace Lane is currently located within 30m of the School Road intersection School Road intersection with State Highway 11. This intersection has recently been upgraded and widened to improve, sight distances and road safety. The traffic report submitted within the application states that School Road and the intersection of School Road with State Highway 11 will not result in adverse effects to traffic safety. Council's Development Engineer Marius Gabriels, has completed a site inspection and assessment of the application. He has confirmed that the sight distances from the entrance to School Road and the intersection with State Highway 11 are safe according to the Austroads recommended standards. Transit New Zealand has also confirmed that they consider the proposal will not result in adverse effects to the intersection and remain un-opposed to the application.

Included within the recommendations of the traffic report, is one that the applicant undertake works to improve access to Wallace Lane from School Road. The report states that a fairly flat platform can be constructed within the School Road, road reserve at the entrance of Wallace Lane to enable traffic to move safely onto School Road and access to 10 and 12 School Road will be re-aligned. Overall it is considered that the traffic accessing the site will not result in effects any more than minor to the roading network and the functioning of the intersection.

8.2 Traffic Movements:

The proposal will result in increased traffic generation from the existing site, utilising Wallace Lane for access. According to permitted activity rule 7.7.5.1.6 Traffic Intensity in the Commercial zone, the traffic intensity factor for a site in this zone is 200 daily one way movements (DOWM). Appendix 3A (Traffic Intensity Factors) of the District Plan, a residential unit has a traffic intensity factor of 10 DOWM. The proposal will result in 50 DOWM and therefore the proposal is well within the limits within the Commercial zone. If added to the additional traffic intensity factors for the existing users of Wallace Lane (this being three residential units, 30 DOWM) the total DOWM over Wallace Lane will be 80. During construction phase traffic effects to Wallace Lane will be adverse, however once construction is complete traffic associated with the residential development will be no more than minor.

The traffic report provided within the application concludes that with upgrading of the existing vehicle access the safety and operation of the access would be acceptable, and that the increased traffic intensity will not result in adverse effects to traffic safety on Wallace Lane and School Road. Council's Resource Consent Engineer concurs with this report subject to compliance with recommended conditions of consent. Overall it is considered that the traffic generation associated with the site will not result in effects any more than minor to the roading network.

8.3 Noise:

The proposed activity will result in the generation of increased noise during construction periods. However this noise will have to comply with the construction noise requirements under the District Plan. As such it is considered that the noise to be generated is at an acceptable level for the environment and effects should be assessed as minor.

8.4 Cultural Effects:

The site is not identified within the District Plan as being of significance to Maori, or containing registered archaeological sites. Taking these matters into account it is not considered that there are any adverse cultural effects associated with the proposal. No concerns have been raised from local iwi.

8.5 Visual and Amenity Effects:

The property is located in the Commercial zone and complies with all relevant bulk and location permitted activity rules e.g. 100% impermeable surface site coverage, no landscaping required, 10m building height etc in the District Plan. As the application is considered to be a restricted discretionary activity, matters relating to visual and amenity impacts can not be considered. Concerns have been raised by submitters focused on the size and location of the proposed building rather than the impact of the proposal on the access way, Wallace Lane. As the building complies with the Commercial zone rules under the District Plan it is considered that those concerns raised are beyond the matters to which Council must restrict its discretion.

8.6 Stability:

The applicant has provided a Site Suitability Report prepared by PK Engineering dated June 2007; this report concludes that the site shows evidence of being prone to slips in the past and that the proposed development is suitable provided that the specified

conditions are met. This report does not provide specific mentioned of the stability of Wallace Lane, as questioned by several submitters. The District Plan has no earthworks controls for the Commercial zone; Council's Resource Consent Engineer considers that provided the recommendations within the engineering report submitted are met the proposed building development will not result in adverse stability effects.

8.7 Parking:

According rule 15.1.6.1.1 (a) (i) of the District Plan the minimum number of public off-street car parking spaces to be provided for users of the activity, shall be determined by reference to Appendix 3C. Accord Appendix 3C, each residential unit shall have 2 car parking spaces for its exclusive use. The applicant has provided a parking plan to confirm that 11 car parks are available in the ground floor of the proposed building.

According to rule 15.1.6.1.1 (b) of the plan, where any activity established within the commercial zone, two loading spaces shall be required for a building with a gross floor area of between 500m2 and 5000m2. The proposed building has a gross floor area of 790m2 and therefore two loading spaces are required under the District Plan. The proposal fails to provide these spaces, however the proposed activity is for residential purposes only; residential development of this size will not require regular deliveries as a commercial activity would. Therefore it is considered that the proposal will not result in adverse effects as a result of lack of loading spaces.

During the construction period, the proposed activity will result in additional construction traffic, it is considered that subject to compliance with conditions of consent the proposal will not result in adverse effects as a result of parking.

8.8 The environmental effects associated with the proposal have been assessed above. These effects are either provided for as permitted activities, or the applicant has provided details of mitigation measures, any adverse effects are considered to be no more than minor provided that conditions of consent are complied with.

9.0 Relevant Objectives and Policies of the Partly Operative District Plan

9.1 Of the statutory documents listed in section 104(1) of the Act, Partly Operative District Plan is considered to have relevance to the proposal.

Urban Environment :

7.3 OBJECTIVES

7.3.1 To ensure that urban activities do not cause adverse environmental effects on the natural and physical resources of the District.

7.3.2 To enable the continuing use of buildings and infrastructure in urban areas, particularly where these are under-utilised.

7.3.3 To avoid, remedy or mitigate the adverse effects of activities on the amenity values of existing urban environments.

7.3.4 To enable urban activities to establish in areas where their potential effects will not adversely affect the character and amenity of those areas.

7.3.5 To achieve the development of community services as an integral and complementary component of urban development.

7.3.6 To ensure that sufficient water storage is available to meet the needs of the community all year round.

7.4 POLICIES

7.4.1 That amenity values of existing and newly developed areas be maintained or enhanced.

7.4.2 That the permissible level of effects created or received in residential areas reflects those appropriate for residential activities.

7.4.3 That adverse effects on publicly-provided facilities and services be avoided or remedied by new development, through the provision of additional services.

7.4.4 That stormwater systems for urban development be designed to minimise adverse effects on the environment.

7.4.5 That new urban development avoid:

(a) adversely affecting the natural character of the coastal environment, lakes, rivers, wetlands or their margins;

(b) adversely affecting areas of significant indigenous vegetation or significant habitats of indigenous fauna;

(c) adversely affecting outstanding natural features, landscapes and heritage resources;

(d) adversely affecting the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga;

(e) areas where natural hazards could adversely affect the physical resources of urban development or pose risk to people's health and safety;

(f) areas containing finite resources which can reasonably be expected to be valuable for future generations, where urban development would adversely affect their availability;

(g) adversely affecting the safety and efficiency of the roading network;

(h) the loss or permanent removal of highly productive and versatile soils from primary production due to subdivision and development for urban purposes.

7.4.6 That the natural and historic heritage of urban settlements in the District be protected (refer to ***Chapter 12***).

7.4.7 That urban areas with distinctive characteristics be managed to maintain and enhance the level of amenity derived from those characteristics.

7.4.8 That infrastructure for urban areas be designed and operated in a way which:

(a) avoids remedies or mitigates adverse effects on the environment;

(b) provides adequately for the reasonably foreseeable needs of future generations; and

(c) safeguards the life-supporting capacity of air, water, soil and ecosystems.

7.4.9 That the need for community services in urban areas is recognised and provided for.

Commercial Zone:

7.7.3 OBJECTIVES

These objectives supplement those set out in ***Section 7.3***.

7.7.3.1 To achieve the development of commercial areas in the District accommodating a wide range of activities that avoid, remedy or mitigate the adverse effects of activities on other activities within the Commercial Zone and on the natural and physical resources of the District.

7.7.4 POLICIES

These policies supplement those set out in ***Section 7.4***.

7.7.4.1 That the Commercial Zone be applied to areas which are traditional commercial centres, and also to areas where the provision of commercial activity would not have adverse environmental effects, and would contribute to the needs and well being of the community.

7.7.4.2 That the range of activities provided for in the Commercial Zone be limited only by the needs for the effects generated by the particular activity to be consistent with other activities in the zone.

7.7.4.3 That standards be applied that protect visual and environmental amenity within the Commercial Zone, and the amenity of adjacent zones.

7.7.4.4 That stormwater disposal systems do not result in suspended solids, industrial by-products, oil, or other contaminated substance or waste entering the stormwater collection system in concentrations that are likely to pose an immediate or long term hazard to human health or the environment.

COMMENT: The subject site is located in the commercial zone; however the proposal to construct five residential apartments is not creating a public commercial facility for the Paihia Township. The activity is consistent with the bulk and location provisions for the commercial zone.

10.0 Conclusion

10.1 The proposed residential activity will be consistent with the zoning. It is my opinion that subject to compliance with conditions of consent the environmental effects associated with the proposal are minor in nature and in most instances satisfy the permitted activity status of the Partly Operative District Plan.

10.2 The proposal is considered to be generally consistent with the objectives and policies of the Partly Operative District Plan and with the provisions of the Regional Policy Statement. In relation to Part 2 of the Act the activity is considered to result in sustainable management of natural and physical resources.

11.0 Recommendation

11.1 It is recommended that the application Limited to construct and occupy a new residential apartment building, comprising of five residential units with on site car parking, at Wallace Lane, 8 School Road, Paihia, being more particularly described as Lot 3 DP 44530 be granted consent, subject to conditions of consent.

RECOMMENDATION:

That pursuant to Sections 104 and 104C of the Resource Management Act 1991, the Council grants its consent to Paihia Limited to construct and occupy a new residential apartment building, comprising of five residential units with on site car parking, at Wallace Lane, 8 School Road, Paihia, being more particularly described as Lot 3 DP 44530 contained in NA1544/80 (North Auckland Registry) subject to the following conditions:

(1) The development shall be carried out in accordance with the approved architectural plans prepared by Ormiston Project Management Limited, referenced "Paihia Projects Ltd, Wallace Lane, Paihia, Proposed Development" dated 26 March 2007, and access detail plan prepared by TPC, referenced "Lot 3, 8 School Rd, Paihia, Existing Access Details & Proposed Widening (5.0m), and attached to this consent with the Council's "Approved Plan" stamp affixed to it (dated 6 December 2006) and as required to be amended by the conditions of this consent.

(2) The proposed building and associated plant shall be constructed and operated in accordance with the recommendations and comments set out in the report prepared by Golder Associates and dated 29th June 2007.

(3) The proposed activity is to comply with the permitted noise levels as set out in the Partly Operative District Plan. Any issue of non-compliance with the prescribed levels will necessitate monitoring by Council, the costs of which may be required to be recovered from the applicant.

(4) Construction noise shall meet the limits recommended in, and shall be measured and assessed in accordance with, NZS 6803P:1984 'The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work'.

(5) If the windows must remain closed to achieve the above internal sound levels in the bedrooms then mechanical ventilation shall be provided to meet the requirements of the Building Code (clause G4).

(6) Earthworks requiring heavy machinery and mechanical digging equipment, and the use of any power tools on site, shall be restricted to the hours of between 8.00 am to 6.00 pm Monday to Friday and 8.30 am to 1.00 pm Saturday. There shall be no movement of heavy vehicles to and from the site outside of these hours.

All other works shall be restricted to the hours of between 7.30 am to 6.00 pm Monday to Friday and 8.00 am to 1.00 pm Saturday.

No work shall be undertaken on Sundays and public holidays.

(7) Prior to commencing any physical site works a construction management plan shall be submitted to and approved by the Council. The plan shall contain information on, and site management procedures for, the following matters:

a. The timing of civil engineering, building construction and any demolition works, including hours of operation and key project and site management personnel and their contact details;

b. The transportation of demolition, construction and waste materials to and from the site, the loading and unloading of materials and the associated controls on vehicles through sign-posted site entrances and exits;

c. The excavation and filling works, including any retaining structures and any necessary de-watering requirements/methods, to be prepared by a Chartered Professional Engineer with suitable geotechnical qualifications and expertise;

d. Control of dust and on-site noise (including compliance with construction noise standards) and any appropriate avoidance or remedial measures;

e. Construction Traffic management on the Right of Way (Wallace Lane) to maintain single lane access for other access users and adjoining property owners.

f. Prevention of earth, mud, gravel or other material being deposited on adjoining roads by vehicles exiting the site, and proposing remedial measures should that occur;

g. Publicity measures, including signage, to inform adjacent landowners, occupiers, pedestrians and other users of School Road.

h. Safety fencing isolating the site from the Right of Way and pedestrian access to enable the safe passage of pedestrian traffic, including access to Lot 1 DP 140756

The Council may require all or parts of this report to be peer reviewed, with all costs associated with the review being met by the Consent Holder.

(8) All construction works on the site are to be undertaken in accordance with the approved Construction Management Plan.

(9) That prior to the commencement of construction on site the consent holder shall provide evidence to confirm that Top Energy have removed the power poles along Wallace Lane and re-installed the power underground including connections to each of the existing properties serviced.

(10) That prior to the commencement of construction on site the consent holder shall upgrade the existing entrance off School Road to provide a double width commercial entrance complying with the Council's Engineering Standard FNDC/S/2. The upgraded entrance is to accommodate the continuing use by all of the adjacent lots which currently share the common entry point.

(11) That prior to the commencement of construction on site the consent holder shall upgrade the access along 'Wallace Lane' to provide a 5m minimum width concreted carriageway up to the southern boundary of Lot 3 DP 44530.

(12) That prior to any excavation commencing, the consent holder is to provide evidence that all consents (earthworks permits and/or resource consent) for the disposal of fill have been obtained for the receiving site.

(13) That during the construction phase all trade vehicles are to be located on the application site or existing roadside parking or the public car park.

(14) That all earthworks and construction for the development are to be completed in accordance with the Site Stability and Suitability Report prepared by PK Engineering, Job No. 07-56 and dated June 2007.

(15) That all earthworks and construction for the development are to be supervised by a suitably qualified geotechnical engineer and appropriate measures are to be undertaken e.g. Sheet piling to stabilise the cut faces and prevent subsidence of adjacent properties. This will require an engineer's producer statement upon completion of the works.

(16) Any fill required to be utilised for the proposed earthworks shall comply with Rule 12.3.6.1.4 of the Partly Operative District Plan.

(17) That the consent holder shall locate all underground services prior to excavation and undertake measures to relocate and/or protect existing services. No work is to be undertaken on council provided services or in the vicinity of these services without the prior approval of the Council's Utilities Manager.

(18) At the time of submitting an application for building consent a Registered Surveyor shall certify to Council in writing that the building will with the maximum height rules specific in the District Plan being a maximum height of 10 metres above average ground level. The surveyor is also to establish a datum on-site or adjacent to the site to provide a reference level against which the building height or ground settlement can be measured.

(19) Prior to the roof of the sixth level being installed on the building a Registered Surveyor shall certify to Council in writing that the building complies with the maximum height rules specified in the District plan being a maximum height of 10 metres above average ground level.

(20) That plans, including cross-sections, of the proposed vehicle entrance/exit shall be prepared by a Certified Professional Engineer and submitted to the council for approval prior to construction. The plans shall detail appropriate measures to provide maximum visibility for vehicle drivers and pedestrians using Wallace Lane.

(21) That a maximum height bar be installed at the entrance of the property to prevent over height vehicles (e.g. Boats on trailers and trucks) from entering the carpark.

(22) That 11 carparks be provided on site in accordance with the Ground Level Basement Plans prepared by, Ormiston Project Management Limited, referenced "Paihia Projects Ltd, Wallace Lane, Paihia, Proposed Development" dated 26 March 2007 and attached to this consent. Each apartment is to have two parking spaces identified and allocated for their specific use.

(23) That all carparks are to be marked in accordance with the requirements of the District Plan. The markings shall be completed prior to the apartments being occupied.

(24) That any stormwater discharged into the Council's stormwater system is to comply with the requirements and conditions of the Far North District Council's stormwater discharge consent. That a producer statement be submitted to the satisfaction of the Council's Resource Consents Manager specifying that the plans and specifications satisfy the building code requirement that surface water be disposed of in a way that avoids the likelihood of damage or nuisance to other property.

(25) That all security lighting required for the apartments is to be directed away from the adjoining sites. The locations and height of lighting is to be subject to the approval of the Council.

(26) That temporary advertising signage shall be limited to a maximum area of 12.0 m^2 and subject to council approval prior to installation.

(27) That no building, or part thereof, excavation or other work shall be left unfinished, or shall be allowed to fall into such a condition; and no land shall be allowed to deteriorate or to remain in such a condition that it would, in the opinion of the Council, visually detract from the amenities of the property, or adjoining properties, or the neighbourhood.

(28) Provide evidence to the Council that each unit has a separate metered water connection complying with Council requirements to the satisfaction of the Council's Utilities Manager.

(29) Pay, as may be required, the Council's actual and reasonable monitoring and administration fees for assessing compliance with these conditions, and for any additional site visits that may be necessary.

In consideration of the application under Section 104 of the Act, the following reasons are given for this decision in accordance with the requirements of Section 113 of the Act:

1. The environmental effects associated with the proposal are considered either to be minor and/or in accordance with the permitted activity standards of the partly operative district plan. In particular the proposed activity meets all bulk and location requirements for permitted activities in the Commercial zone. Infringements of permitted activity standards relate to parking and access in the Commercial zone only. Effects associated with these matters are considered to be minor.
2. The imposed conditions will ensure that the effect of the consent will be in compliance with the relevant provisions of the applicable district plan; and that such conditions will adequately avoid, or mitigate to a minor impact level, the expected adverse effects on the environment.
3. The proposal is considered to be consistent with the assessment criteria as outlined in the Partly Operative District Plan.
4. In making this decision the statutory provisions of Section 104 & 104C of the Act were considered. Also considered, chapters 7 (Urban environment), 11 (natural and physical resources), 14 (transportation), and the associated appendices of the Partly Operative District Plan. The proposal was also assessed against the relevant district wide provisions outlined part III of the plan.
5. The principle issues of the proposal were considered to be adequacy of access, site stability, stormwater runoff, traffic movements, and safety to the roading network. It was found that subject to compliance with conditions of consent, the proposal will not result in adverse effects.

ADVICE NOTES:

1. If any subsurface archaeological sites or remains are uncovered during the development of the site, all earthworks in the vicinity shall cease and local iwi and the New Zealand Historic Places Trust shall be contacted immediately so that appropriate action can be taken.
2. Please note a single connection to Council's reticulated Sanitary Sewer or Water may compromise the ability to subdivide by way of unit title in the future.

STATUTORY INFORMATION

(1) Pursuant to section 102 of the Local Government Act 2002, the Far North District Council has prepared and adopted a development contributions policy. Under this policy, the activity to which this consent relates may be subject to development contributions.

You will be advised of the assessment of the development contributions payable under separate cover in the near future.

It is important to note that the development contributions must be paid prior to commencement of the work or activity to which this consent relates.

Further information regarding Council's development contributions policy may be obtained from the long term council community plan (LTCCP) or Councils web page at www.fndc.govt.nz

(2) The registered proprietor of the land is advised that any earthworks (excavation or filling) which alters existing land contours and is undertaken within 20 metres of any road or other property boundary requires permission for the control of earthworks, pursuant to Chapter 22 of the Far North District Council General Bylaws, March 2008.

(3) Prior to undertaking any significant earthworks or clearance of vegetation on the land, the owner should assess the need for a land use consent from the Northland Regional Council and/or an earthworks permit under the *FNDC General Bylaws.*

(4) Prior to constructing a new or an additional vehicle access point to any site, the owner is to obtain a permit from the Council as to the siting (from a traffic safety point-of-view), earthworks, formation and drainage of such access in terms of the Council's Control of Vehicle Crossings Bylaw 2004.

(5) All building work must be carried out in accordance with the Building Act 2004.

(6) It is the responsibility of the consent holder to ensure all necessary building consents have been obtained and any geotechnical issues have been addressed to the Council's satisfaction prior to the commencement of earthworks. This planning consent is not an authority to commence work. To proceed further the consent holder will be required to lodge a further building consent application which can only be granted providing that the engineering, building and bylaw requirements are met.

(7) If any activity associated with this proposal, such as earthworks, fencing or landscaping, may modify, damage or destroy any archaeological site(s), an authority for the New Zealand Historic Places Trust must be obtained for the work to proceed lawfully. An Authority is required whether or not the land on which an archaeological site may be present is designated, resource consent or building consent has been granted, or the activity is permitted under the District or Regional Plan.

(8) If the Northland Regional Council's volume thresholds for earthworks are breached consent will be required from the Regional Council.

REPORT PREPARED BY MELISSA MCGRATH, RESOURCE PLANNER

REPORT REVIEWED AND APPROVED FOR SUBMISSION TO COMMISSIONER BY:

P.J. Killalea

RESOURCE CONSENT MANAGER, PAT KILLALEA

DATE: 19 March 2008

FAR NORTH DISTRICT COUNCIL

REPORT

TO:	**HEARING COMMISSIONERS**
FROM:	**RESOURCE CONSENTS ENGINEER**
DATE:	**14 MARCH 2008**
SUBJECT:	**PAIHIA LTD - LANDUSE CONSENT APPLICATION TO SONSTRUCT FIVE APARTMENTS ON LOT 3 DP 44530**
REF:	**RC-2080121-RMALUC**

The application is located within the commercially zoned area in Paihia close to the intersection of Marsden Road and School Road. The area is serviced by Councils reticulated sanitary server and water supply and there is no impediment to the property connecting to these services.

From an Engineering perspective there are two principle limitations to the development of the site.

1. ACCESS

Access to the site is via Wallace Lane, a narrow right of way with a single lane carriageway. The access does not comply with Councils permitted activity standard on several counts.

1.1 Rule 15.1.6.1.2 (e)

The entrance does not and cannot comply with the 90m set back distance from the Marsden Road / School road intersection.

Historically, Wallace Lane existed before Marsden Road and School Road were designated respectively as strategic and collector road.

Given the proximity and geometry of the intersection the actual traffic speed is 30-40 km/hr within the zoned 50 kmph speed restriction.

The 27m offset between Marsden Road and Wallace Lane is considered adequate given the relatively low numbers of turning traffic movement.

1.2 Rule 15.1.6.1.2. (c)

The gradient of the Wallace Lane access carriageway does not and cannot comply with the permitted activity standard. As the entrance off School Road is shared by No 10 (Lot 2 DP 44530) it is not possible to lower the carriageway to achieve the permitted activity standard without adversely electing access to No 10. By contrast the access to No 12 School Road can accommodate the upgrading of the entrance by filling and regrading the first 10m or so of the No 12 driveway.

1.3 Rule 15.1.6.1.2 (b)

The commercial zone permitted activity standard requires a 6m wide sealed carriageway for two way operation; given the constraints of legal width and topography this cannot be achieved. However the application describes this essentially as a residential activity and in this case the residential carriageway standard of 5m can be achieved. The applicant would be required to remove the power poles and provide underground power, as well as construct retaining walls to support the carriageway.

2. SITE STABILITY

The site consists of steep slopes on weathered greywacke. There is evidence of recent slippage and associated slip debris at the toe of the slope.
The site suitability report prepared by PK Engineering identifies intact rock at 2.5m which will provide suitable foundation conditions. Excavations to remove weathered overburden will also improve the factor of safety against slope failure.

The Applicants Engineer has included a list of recommendation pertaining to the development of the site and it is accepted that providing the recommendations are adopted and work is supervised by a competent Chartered Professional Engineer with appropriate Geotechnical expertise then the site can be safely developed.

Recommended conditions of consent have been included in the planners report.

Rex Shand
RESOURCE CONSENTS ENGINEER

RC 2080121 9/8/07

(See Notes Opposite)

1. I (full name of applicant) PAIHIA LTD

Surname ..... First Names .....

Hereby apply for a) LAND USE CONSENT ☑ b) SUBDIVISION CONSENT ☐

I am the OWNER of the property, (Owner, Occupier, Lessee, etc.,)

Name and Address of Owner (If different from above) C/- P.O BOX 58395

Address GREENMOUNT, MANUKAU, 2141

2. Any Additional **FEES & CHARGES** relating to this application shall be invoiced to : **(Please tick appropriate box)**

A. APPLICANT **(as in 1.above)** ☐ or **B.** AGENT **(as in Note 6 opposite - application must be signed by agent)** ☑

3. The following additional resource consents are required in relation to this proposal and have/have not been applied for : N/A

Have you lodged an application with Council for a building consent ? No ☑ Yes **BC N°**

4. DESCRIPTION OF ACTIVITY :

PROPOSAL FOR A NEW RESIDENTIAL APARTMENT BUILDING, COMPRISING ~~ABOVE~~ 5 APARTMENTS + ASSOCIATED CARPARKING, WITH ACCESS ISSUES THAT DO NOT COMPLY

5. LEGAL DESCRIPTION
The application site is located at :

Street address 8 SCHOOL ROAD, PAIHIA **RAPID** Number : .....

Valuation Roll Number (Can be obtained from your rates notice or a Customer Liaison Officer PH : 0800 920029)	Lot(s) or Section N° : 3 DP N° 44530 BLK	Certificate of Title : (Not more than 6 months old) NA154 4/80

ADDRESS FOR SERVICE/CORRESPONDENCE - AGENT/REPRESENTATIVE :

Name of Agent/Representative (if appropriate) DAIMAN OTTO — ORMISTON PROJECTS MANAGEMENT LTD

Address For Service : P.O BOX 58395, GREENMOUNT, MANUKAU, 2141

Phone : Home 0275554447 Business 09 2713007 Fax N° 09 2714037

Email Address : DAIMAN@ORMISTONPROJECTS.CO.NZ

7. *ADDRESS FOR SERVICE/CORRESPONDENCE - APPLICANT :*

Name of Applicant PAIHIA LTD

Address For Service : P.O BOX 58395, GREENMOUNT, MANUKA, 2141

Phone : Home ..... Business 09 2713007 Fax N° 09 2714037

Email Address : .....

The information supplied with this application is true and complete to the best of my knowledge. I understand that Council is relying on this information in making its decision on this resource consent.

Signature of ~~Applicant~~/Agent : .....
(Strike out that which does not apply)

Dated : 08.08.07

Please Note : Council is unable to accept your application until *all* details are completed, *all* relevant information provided, the application signed and the Standard fees paid. (See notes below and check list back page). Application must be signed by agent if receiving invoices as in question 2 opposite.

NOTES

1. Full name and address of applicant must be given, however if applicant is not the owner of the property, name and postal address of owner must be supplied.

2. Additional fees and charges associated with the processing of the consent can be invoiced directly to the applicant or alternatively, to the agent who is acting on his/her behalf.

3. Additional consents - Specify the following : Land use consent, subdivision consent, coastal permit, water permit, discharge permit or other consents as relevant, as well as any consent required under other legislation or other authority (ie Northland Regional Council) that may be important in regard to the proposal. Indicate if this application is in relation to a Building Consent, if so, give BC number.

4. Briefly describe the activity, i.e. Subdivide into three Lots; Build new cattery; New building too close to boundary etc.,

5. Legal Description. Describe the location in a manner which will allow it to be readily identified, eg. The street address, legal description, the name of any relevant stream, river or other body to which the application may relate, proximity to any well known landmark, etc.

6.& 7 Address for Service/Correspondence - If you are making your application through a consultant or other agent, then those details must also be provided. The agent is authorised to sign on behalf of the person making an application, and **must** sign the application if '**Box B**' is ticked in question 2.

SUBDIVISION APPLICATIONS - You are advised to employ a registered land surveyor or other professional to submit your application. He or she can advise you about the most appropriate type of subdivision for your land and estimate the total cost.

Office Use Only

Resource Consent N° :	*RECEIVED AT* ..... *OFFICE*
Valuation N° :	*DATE* ..... *RECEIPT N°* .....
Applicant I.D. N° :	*FEES RECEIVED $* .....
Agent/Rep I.D. :	*CHECKED BY* .....
	Customer Liaison Officer

Far North District Council

RESOURCE CONSENT INFORMATION PACK

PLEASE COMPLETE THIS FORM TO THE BEST OF YOUR ABILITY AND INCLUDE WITH YOUR RESOURCE CONSENT APPLICATION FORM

WHAT ARE YOU PROPOSING TO DO?

TO CONSTRUCT A MULTI-LEVEL, RESIDENTIAL APARTMENT BUILDING, WITH ACCESS ISSUES THAT FAIL TO COMPLY

WILL YOUR PROPOSAL REQUIRE ANY OF THE FOLLOWING

- The Construction / Extension / Demolition of Buildings — Yes / (No)
  If yes, please provide plans / diagrams drawn to scale showing the location, design and finished exteriors of the building(s)
- Earthworks — (Yes) / No

  If yes - What volume

  - Maximum height / depth

  (Please note that Council requires an engineers report for any earthworks over 50 cubic metres in volume and / or creates a cut face over 1.5 metres in height)
- Vegetation Clearance — Yes / (No)

  If yes - What type

  - How much
- Formation of an Accessway and / or Parking area — (Yes) / No
  If yes, the parking and associated manoeuvring areas will need to be shown on a site plan drawn to scale
- Effluent and Stormwater Disposal Systems — (Yes) / No

  If yes - How will effluent be disposed of (on-site or to a reticulated system) — RETICULATION

  - How will Stormwater be disposed of (on-site or to a reticulated system) — RETICULATION

  - How an engineer designed the system(s) — (Yes) / No
- Any Buildings Within 40 Metres of a Water Body (i.e. stream, river, the sea, lake, etc.) — Yes / (No)

  If yes - How far

WHERE POSSIBLE PLEASE USE DIAGRAMS AND PLANS DRAWN TO A RECOGNISED SCALE TO DETAIL THE PROPOSAL

Far North District Council

DESCRIPTION OF THE SITE AND SURROUNDING AREA

- What is the Area of the Site 1052 m^2
- What is the Topography of the Site (Flat / Rolling / Sandy / Wetland, etc.)

STEEP, GRASSED SITE.

- What Vegetation is Contained on the Site

GRASS

- Are There any Existing Buildings on the Site Yes / (No)
  If yes, please describe and provide a site plan showing their location and any access to the buildings

- Are there any Special Features on or near the Site Yes / (No)
  (e.g. archaeological sites, notable trees, historic buildings)
  If yes, please describe

If you are unsure regarding the possibility of historic sites, such as pa sites and buildings, you are advised to contact the New Zealand Historic Places Trust, who will be able to tell you more regarding possible sites.

- What is the Current Use of the Site and Surrounding Areas

THE SITE IS NOT BEING USED FOR ANY PURPOSE

Far North District Council

ASSESSMENT OF ENVIRONMENTAL EFFECTS

An Assessment of Environmental Effects is required with all resource consent applications. You will need to consider actual and potential effects, and whether they will be minor or significant.

The detail of the assessment should reflect the magnitude of your proposal, i.e. if you are constructing a garage, your Assessment of Environmental Effects will be simple, as opposed to an Assessment for a motel complex. If any effects are unknown, it is recommended that you obtain professional advice to determine what the effects will be.

WHAT ASPECT(S) OF YOUR PROPOSAL WILL AFFECT?

- Others on Your Property and / or Your Neighbours?
  (e.g. shading of their property, sotrmwater flows, increased noise)

SEE AEE

Will these Effects be Significant or Minor, and How can they be Reduced?

AS ABOVE

- What Effects will the Proposal have on the wider community?

AS ABOVE

Will these Effects be Significant or Minor, and How can they be Reduced?

AS ABOVE

- Maori Culture? (e.g. destroy or occupy site of significance to Maori)

AS ABOVE

- Any Ecosystems? (e.g. habitats for flora / fauna)

AS ABOVE

- The Landscape and Visual Amenity of the Environment? (e.g. building seen from the coast, vegetation clearance / earthworks)

AS ABOVE

Will these Effects be Significant or Minor, and How can they be Reduced?

AS ABOVE

- Any Archaeological Sites, Historic Buildings, Notable Trees, or any other Area with a Recognised Value? (e.g. recreation or scientist area or site)

N/A

Will these Effects be Significant or Minor, and How can they be Reduced?

N/A

- Waterways in the Area?

N/A

Will these Effects be Significant or Minor, and How can they be Reduced?

N/A

- Any Existing or Potential Natural Hazards? (e.g. flooding, slips)

N/A

Will these Effects be Significant or Minor, and How can they be Reduced?

N/A

Far North District Council

WILL YOUR PROPOSAL INVOLVE THE:

- Discharge of Contaminants Into the Environment — Yes / No
  If yes, please describe

- Use of Hazardous Substances or Hazardous Installations — Yes / No
  If yes, please describe

CONSULTATION WITH POTENTIALLY AFFECTED PARTIES

Where the District Plan(s) provides, and / or where Council deems it necessary, you may be required to undertake consultation with any parties who may be affected by your proposal, to obtain their written approval consenting to your proposal. As a guideline, Council generally requires written consents from all adjoining landowners and a local Iwi representative.

- Have you discussed your Proposal with People who may be affected by your Proposal? — Yes / No
  If yes, please list those people

- Have any People Given Their Written Approval? — Yes / No
  If yes, you will need to include these as part of your consent

PROPOSED APARTMENT BUILDING AT

Wallace Lane, Paihia

August 2007

ASSESSMENT OF ENVIRONMENTAL EFFECTS AND STATUTORY ANALYSIS

1.0 INTRODUCTION

This report has been prepared in relation to an application by Ormiston Project Management Limited on behalf of Paihia Ltd, which seeks to gain approval for a residential development at Wallace Lane, 8 School Road, Paihia.

This assessment of environmental effects (AEE) has been prepared in accordance with the requirements of Section 88 of and Schedule 4 to the Resource Management Act 1991. It is intended to provide the information necessary for a full understanding of the activity for which consent is sought and any actual or potential effects the proposal may have on the environment.

To this end, this AEE contains the following information:

a) A description of the proposal;
b) A description of the site and the surrounding locality;
c) An outline of the reasons why resource consent is required;
d) An assessment of the effects of the activity on the environment;
e) An analysis of the provisions of the Resource Management Act 1991 and the district plans which are relevant to the application; and
f) Conclusions.

Appendices:

1. Architectural Plans
2. Perspectives
3. Traffic Report
4. Geotechnical and Civil Report
5. Survey
6. Acoustic Engineer Report
7. Certificate of Title

2.0 THE PROPOSAL

The applicant seeks consent to construct a new apartment building on a site at 8 School Road, Wallace Lane, Paihia [Lot 3 DP 44530]. The development contains a car parking level at grade, and an additional 6 residential levels containing 5 apartments. The apartments are served by a private elevator and stair tower.

Each apartment has a deck and at least 3 bedrooms, with living areas, kitchen, study, and bathroom and storage rooms. The top level apartment is a double level apartment with 4 bedrooms, decks and bathroom, study, living and storage areas.

The ground level contains the main entrance to the building, as well as a car park, rubbish room, landscaped planters and letterboxes. Vehicles access the garage through a secure door off Wallace Lane.

The apartment building will be constructed with concrete, masonry and steel construction. The principle cladding will be natural sandstone tiling, as well as significant amounts of glass, concrete and timber.

The site is designated commercial and the building has been designed within the planning requirements of that zone. Resource consent is needed in respect to infringements to the width of the access way [Wallace Lane].

The proposed development seeks to contribute to the existing urban form of Paihia, and take advantage of a very steep site and significant views.

The proposal adheres to the planning controls of the zone in which it is located – the Commercial Zone. The details and means of compliance are outlined as below.

3.0 THE SITE AND LOCALITY

The Site

The site lies within the Commercial Zone of Paihia, in Zone Map 89. The site is surrounded on all sides by properties zoned commercial. The site is accessed via Wallace Lane, and is steep site with an easterly aspect.

There are significant views from the site to wards Russell. The site is steep and currently has limited or no vegetation. The site has been subject to slips in the past, but the site is now stable. A geotechnical report and survey has been conducted on the site, please see the appendices.

The Locality

The site lies within the commercial zone of Paihia and as such has close proximity to the urban and shopping centre of Paihia. The site is located within 150m of the intersection of Marsden and School Roads, and the shorefront.

4.0 REASONS WHY RESOURCE CONSENT IS REQUIRED

Consents will be required in terms of the standards for development under the rules in Chapter 7 Section 7.7, Chapter 14 of the Far North District Council Revised Proposed District Plan. The following matters of consent are required for this proposal:

- Rule 14.1.6.1.2(b) of the District Plan – For the Commercial and Industrial Zones, the access carriageway from the road to any parking or loading space shall be 3m wide for one-way operation, and 6m for two-way operation. In respect to the proposal outlined, the existing access will not allow compliance with this rule. As such, the proposal requires resource consent for a **restricted discretionary** activity.

The analysis, Assessment of Effects, District Plan matters and recommendations of this infringement is outlined in the attached report *'Proposal for a Residential Development, Lot 3 Wallace Lane, Paihia: Traffic Impact Assessment'* carried out by Traffic Planning Consultants Ltd.

5.0 COMPLIANCE OF PROPOSAL WITH ZONING RULES

As mentioned above, the site lies within the Commercial Zone. The commercial zone outlines the following Zone Rules which any proposal must comply with. The proposal in question does comply with all rules, except that to do with access as outlined above.

7.7.5.1 Permitted Activities

(a) The nature of the building, a residential apartment building, generally comply with the permitted activities set out in Rules 7.7.5.1.1 to 7.7.5.1.9, and with the permitted activities set out in Part 3 of the Plan – District Wide Provisions, except where the proposal infringes Rule 14.1.6.1.2. This is addressed above.

7.7.5.1.2 Building Height

The building height for this site as it lies in Zoning Map 89 is 10.0m. The building complies with this rule as shown in the attached architectural plans. A 10.0m rolling height limit taken from information from the attached survey was applied to the design and the building envelope along all areas complies with this rule.

7.7.5.1.3 Sunlight

This Rule does not apply as the site does not adjoin any site that is Residential, Coastal Residential, Russell Township, Coastal Living or Rural Living zoned.

7.7.5.1.4 Visual Amenity & Environmental Protection

(a) Rule 7.7.5.1.4(a) does not apply as the site does not adjoin any zone except for the Commercial Zone

(b) As shown on the attached architectural plan, the building is set back 4.1m from the access boundary, and there are landscaped planters making up 50% of the available area or what equates to 53m2. *NB. The landscape design for the planters will be designed by a landscape professional and submitted with the plans at lodgement time.*

(c) The landscaping within the allotted areas, will be maintained, replanted and replaced where and if necessary during the life of the building, as per the a Landscape Plan. *NB. The landscape design for the planters will be designed by a landscape professional and submitted with the plans at lodgement time.*

7.7.5.1.5 Setback from Boundaries

This rule does not apply in terms of the veranda provision, as there is no 'Pedestrian Frontage' as per the Zone Map.

7.7.5.1.6 Noise Mitigation for Residential Activities

As per council requirements, please see the attached report *'Acoustic Design Report: Wallace Lane Apartments'* prepared by Golder Associates. This addresses the concerns of this rule as it applies to the proposed development.

7.7.5.1.7 Traffic Intensity

The Traffic Intensity Factor [TIF] of the proposed development will equal 50 movements per day, based on 10 movements per standard residential unit. In addition, Wallace Lane serves an additional 5 dwellings with a combined TIF of 50 movements per day. Please see the attached report *'Proposal for a Residential Development, Lot 3 Wallace Lane, Paihia: Traffic Impact Assessment'* for further analysis.

7.7.5.1.8 Keeping Of Animals

As this site and proposed development is to be a residential activity, the site will not be used for factory farming, boarding or breeding kennel or cattery.

7.7.5.1.9 Noise

As per council requirements, please see the attached report *'Acoustic Design Report: Wallace Lane Apartments'* prepared by Golder Associates. This addresses the concerns of this rule as it applies to the proposed development.

7.0 CONCLUSIONS

The applicant seeks consent to construct a new apartment building on a site at 8 School Road, Wallace Lane, Paihia [Lot 3 DP 44530]. The development contains a car parking level at grade, and an additional 6 residential levels containing 5 apartments. The apartments are served by a private elevator and stair tower.

It is considered that any potential adverse effects on the surrounding environment will be mitigated by measures incorporated into the proposed development, including proposed changes to the access way, and landscaping elements. Further, it is considered that relevant objectives and policies of the District Plan will not be compromised by the development.

It is thus considered that the proposed development is consistent with the purpose and principles of Part II of the Resource Management Act 1991. It is concluded that the proposal satisfies all matters that the consent authority is required to apply in terms of the sections 93, 94 and 104 of the Act and that the application can be granted consent on a non-notified basis.

Golder Associates

Kingett Mitchell
RESOURCE & ENVIRONMENTAL CONSULTANTS

29 June 2007

Ref: ORMPR-FNT-001

Working Concepts Ltd
PO Box 58395
Manukau
AUCKLAND

Attention: Mr Daiman Otto

Dear Mr Otto

Acoustic Design Report - Wallace Lane Apartments, Paihia

Introduction

It is proposed to construct a seven-storey residential apartment development at on Wallace Lane, Paihia on land zoned for commercial use.

Golder Kingett Mitchell (Golder Associates (NZ) Ltd) has been commissioned to provide an Acoustic Design Report, to review the building design for compliance with the relevant noise standards and where necessary identify appropriate acoustic controls to ensure compliance.

Design Standards

The site is located within an Urban Environment Commercial Zone under the *Far North District Council Revised Proposed District Plan* and the building structure is required to provide a minimum attenuation of 30 dB(A) for bedrooms and 20 dB(A) for all other habitable rooms.

Clause G6 of the New Zealand Building Code (NZBC) sets the following intertenancy performance standards:

- G6.2 - Building Elements which are common between occupancies, shall be constructed to prevent undue noise transmission from other occupancies or common spaces, to the habitable spaces of household units;
- G6.3.1 - The Sound Transmission Class (STC) of walls, floors and ceilings, shall be no less than 55; and

- G6.3.2 - The Impact Insulation Class (IIC) of floors shall be no less than 55.

Acoustic Design Assessment

District Plan Compliance

Whilst the detailed structural design has yet to be completed, the external walls are likely to be constructed from either filled concrete blocks or pre-cast panels, although the upper level may be constructed using timber stud walls.

Façade attenuation of 30 dB(A) can be readily achieved through virtually all common building constructions, with the possible exception of timber weatherboard cladding. The only elements of the building where this performance cannot be achieved without specific acoustic treatments are windows and doors.

The use of 4 mm float glass in standard frames will provide at least 20 dB(A) attenuation and will therefore be acceptable in all windows other than bedrooms.

Due to the extensive areas of glazing in the bedrooms, all openable bedroom windows and balcony doors need to be fitted a minimum of 10 mm float glass or 6.76 mm PVB laminate glass with rubber compression seals capable of achieving an airtight closure. It is not possible to achieve an effective acoustic seal with sliding doors and they should not, therefore, be used for the bedrooms.

In most cases, the apartment roof will be the floor slab of the apartment above and will readily provide at least 30 dB(A) attenuation. There will be roof areas on of the top apartment that will not be deck areas and may be constructed from other roofing materials. However, even lightweight metal clad roofs with 10 mm plasterboard ceilings below and insulation batts in the cavity can be expected to provide attenuation of at least 30 dB(A).

However, any ceiling penetrations for recessed lighting etc in the bedrooms of the top apartment should, unless otherwise advised by the supplier, be limited in area to the equivalent of 1 x 130 mm diameter hole for every 8 m^2 of ceiling, or enclosed, or otherwise treated, to maintain the acoustic performance of the ceiling.

As windows open for ventilation will only offer 10-15 dB(A) attenuation, the required façade attenuation can only be achieved with closed windows and all the habitable rooms of all apartments will need to be provided with mechanical ventilation. In order to achieve reasonable internal noise levels, the ventilation systems should be designed to achieve a noise level of no more than:

- L_{eq} 30 dB(A) at 1 m from any diffuser in bedrooms; and
- L_{eq} 35 dB(A) at 1 m from any diffuser in other habitable rooms.

Building Code Compliance

The building design will comprise ground floor parking with single level apartments on the first through fourth floors and a two-storey apartment occupying the upper two levels. All units will be served by a common lift and staircase located in the southern corner of the building. The stairwell and lift are well separated from the habitable

rooms of most apartments, but the lift shaft is adjacent to habitable rooms in the top two apartment. The external decks of each apartment will be located at least partially above the living areas of the unit below.

The NZBC Clause G6 requirements will apply to:

- the STC rating of the walls between the lift shaft and habitable rooms of the top two apartments (forth and fifth levels;
- the STC ratings of the ceiling/floors between the ground level car park & first level apartment, first & second levels, second & third levels, third & fourth levels fourth & fifth levels and between the top of the lift shaft & the sixth level rooms; and
- the IIC ratings of the ceiling/floors between the first and second levels, second and third levels, third and fourth levels and fourth and fifth levels.

An STC 55 rated wall design can be readily with either a timber-framed, filled concrete block or pre-cast concrete panel wall. The preferred wall design should be confirmed to meet the STC 55 rating at the detailed design stage.

The STC rated floor designs can be readily achieved with either solid 150 mm concrete slabs or hollow core type slabs with a minimum 60 mm topping. If lighter weight floor designs such as rib and infill are used, a 10 mm plasterboard ceiling will normally be sufficient to achieve the overall floor/ceiling STC 55 rating. However, as noted above any ceiling penetrations for recessed lighting etc in the bedrooms of the top apartment should, unless otherwise advised by the supplier, be limited in area to the equivalent of 1 x 130 mm diameter hole for every 8 m^2 of ceiling, or enclosed, or otherwise treated, to maintain the acoustic performance of the ceiling.

To meet the IIC criterion, suspended rather than direct fixed plasterboard ceilings will be required in all habitable rooms (not bathrooms) in combination with good quality carpet over rubber waffle underlay. Where hard flooring surfaces are required, a proprietary resilient flooring product should be used and this will also apply to all bathroom and balcony floors apart from the top floor.

There are a number of suitable products on the market that will provide the necessary resilient layer below hard-surfaced areas to achieve the required IIC rating including:

- Gib Sound Barrier for Floors, Winstone Wallboards Ltd, tel 09 633 0100;
- Mapefonic Sound Control System, Mapei New Zealand Ltd, tel 09 921 1994;
- Cladex Acousticork, Construction Trade Supplies Ltd, tel 07 574 0459;
- Enkasonic Sound Control Matting, Acoustic Solutions Ltd, tel 09 236 8076; and
- Acoustibond & Acoustic Underlay, Construction Chemicals, tel 09 273 5444.

It is our understanding that any of the above may be suitable for this building design. However, this should be confirmed with the manufacturer and/or supplier before specifying any one product. It should also be noted that effective performance is dependent upon the correct installation of all components and that depending upon the preferred design, insulation batts may be required in the ceiling cavity to achieve the IIC 55 rating.

Any ceiling penetrations for recessed lighting etc in habitable rooms should be designed to maintain the acoustic performance of the ceiling panel. Unless otherwise advised by the supplier, they should either be limited in area to the equivalent of 1 x 130 mm diameter hole for every 8 m^2 of ceiling, or enclosed, or otherwise treated, to maintain the acoustic performance of the ceiling.

Additional Recommendations for Building Noise Control

The NZBC requirements only apply between apartments, however, to optimise acoustic privacy we would recommend that the STC/IIC 55 ratings also be applied to the floor/ceiling between the two levels of the top apartment.

The NZBC does not address the control of noise from waste water pipes, however, we would recommend following the Building Code of Australia recommendations.

Waste pipes from bathrooms should be contained in ducting located preferably within the bathrooms and duct walls rated to at least STC 30 in bathrooms and STC 45 if they form part of a wall adjacent to a habitable room. It waste piles do penetrate the floor slab and run through the ceiling space of the apartment below, the penetrations must be acoustically sealed and the pipes lagged with 8 kg m^{-2} pipe insulation, which in combination with the ceiling can achieve STC 30 for bathrooms and with insulation batts in the ceiling cavity can achieve STC 45 for other habitable rooms.

We would also recommend that acoustic privacy be optimised through the use of solid core apartment entry doors fitted with acoustic seals to all sides (Raven, Zero or equivalent products), dropping seals on the bottom of the doors would be preferable and should be used if practicable..

Conclusions

In combination with the identified window and door treatments, the external facades of the Wallace Lane apartment building can provide sufficient noise attenuation to comply with the District Plan requirements of 30 dB(A) for bedrooms and 20 dB(A) for all other habitable rooms.

An alternative mechanical ventilation system will be required for all habitable rooms and it is recommended that the system be specified to operate at the identified noise levels to maintain a satisfactory internal noise level.

Design options for the intertenancy walls and floor/ceilings have been identified that will comply with the NZBC STC 55 and IIC 55 performance standards.

Yours sincerely
Golder Kingett Mitchell
Golder Associates (NZ) Ltd

John Cawley
Principal Consultant - Acoustics

COMPUTER FREEHOLD REGISTER UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General of Land

Identifier	**NA1544/80**
Land Registration District	**North Auckland**
Date Issued	04 March 1958

Prior References
NA1069/290

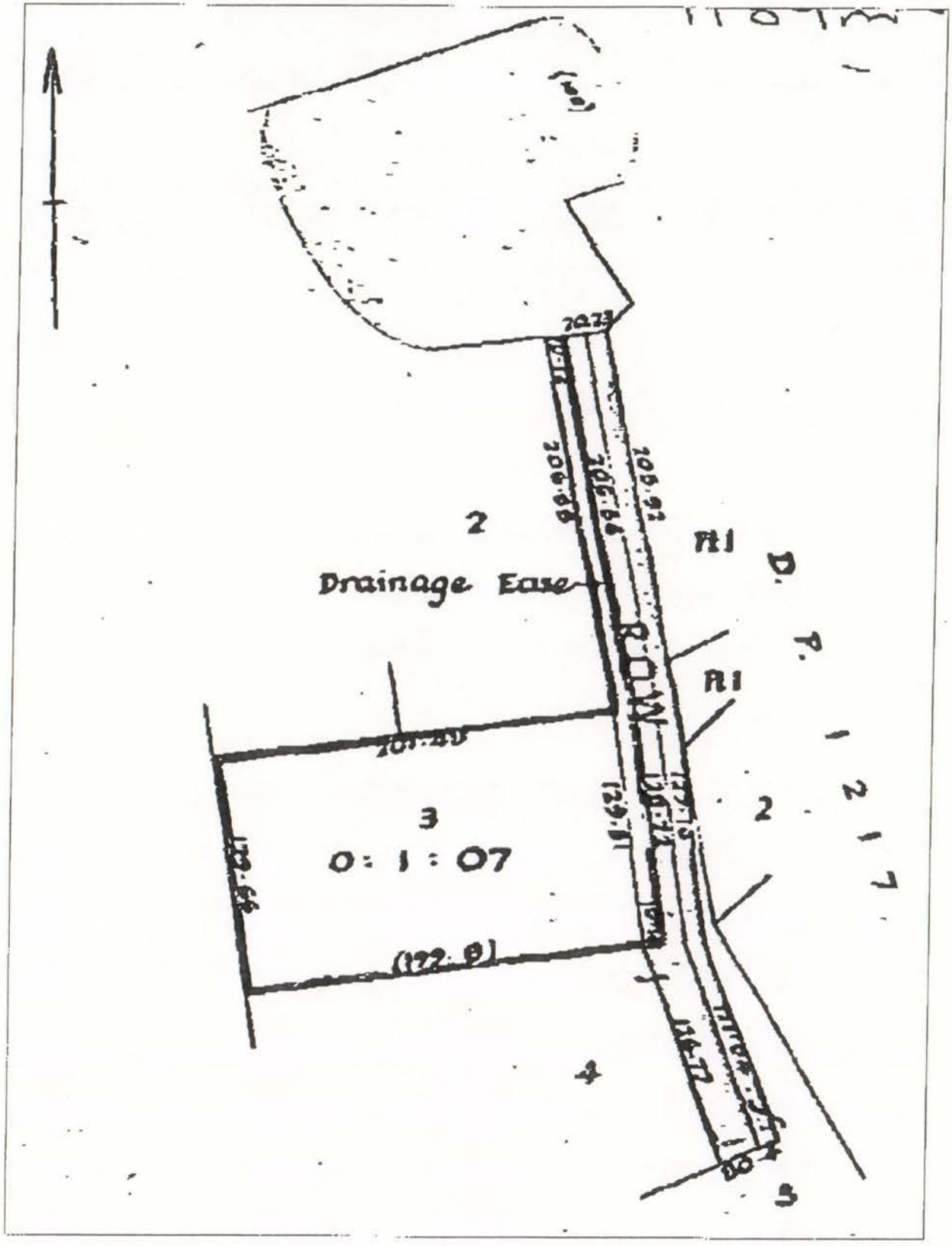
Estate	Fee Simple
Area	1189 square metres more or less
Legal Description	Lot 3 Deposited Plan 44530

Proprietors
Paihia Limited

Interests

Appurtenant hereto is a right of way and a drainage right created by Transfer 600639
Appurtenant hereto is a right of way and a drainage right created by Transfer 600640
Subject to a right of way and a drainage right over part created by Transfer 600639
Subject to a right of way and a drainage right over part created by Transfer 600640
Subject to a right of way and a drainage right over part created by Transfer 600641 - 4.3.1958
Fencing Agreement in Transfer 600641 - 4.3.1958
A206359 Partial Surrender of the Easements created by Transfer 600639 - 27.2.1967 at 10.09 am
6870344.3 Mortgage to TEA Custodians (Pacific) Limited - 18.5.2006 at 9:00 am
6906910.1 Mortgage to Refinance Services Nominees Limited - 15.6.2006 at 9:00 am

Identifier **NA1544/80**



TPC TRAFFIC PLANNING CONSULTANTS LTD

PROPOSAL FOR A RESIDENTIAL DEVELOPMENT

LOT 3 WALLACE LANE, PAIHIA

TRAFFIC IMPACT ASSESSMENT

Report Prepared For:
Ormiston Project Management Ltd

Prepared By:
David Philip

August 2007
Reference: 07125
Issue B

1.0 INTRODUCTION

This assessment examines and describes the traffic planning effects of a proposal to construct a five-unit residential development on Lot 3 of Wallace Lane, with vehicle access via School Road in Paihia. The assessment specifically describes the existing traffic environment, proposed on-site changes, the traffic effects of the proposal and consideration of relevant District Plan criteria.

The proposal covers the construction and operation of five new residential units with associated vehicle access and parking. Access to and from the proposed development will be via a shared right of way called Wallace Lane which adjoins School Road. A total of 11 on-site parking spaces will be provided for residents of the proposed units.

2.0 EXISTING TRAFFIC ENVIRONMENT

2.1 The Road Network

The subject site is located on the western side of Wallace Lane between two existing residential dwellings. Wallace Lane currently provides a single lane access for four separate dwellings. Two of the four existing dwellings have driveways off of Wallace Lane, adjacent to School Road. The other two dwellings are located at the southern end of Wallace Lane.

The Wallace Lane access way is sealed to a width of between 3.2 metres and 3.6 metres. The form of the access way is not fully defined within the adjacent road reserve on School Road due partly to the close proximity of the vehicle access for the property immediately east of Wallace Lane. The current layout of the access way at its connection with School Road allows an ingress vehicle to wait off of the adjacent traffic lane in the event a vehicle is approaching School Road on Wallace Lane.

School Road is designated a collector road in the Far North District Plan (Revised Proposed). The carriageway width varies along the length of the road and is in the order of 6.5 metres wide in the vicinity of Wallace Lane. Street parking on School Road is prohibited through the use on no-stopping carriageway markings in the vicinity of Wallace Lane and the intersection with Marsden Road. A footpath is provided on the northern side of School Road.

School Road connects with Marsden Road in the form of a priority controlled intersection. The intersection does not included dedicated turning bays, although the carriageway is generally wide enough to allow through traffic to pass vehicles waiting to turn into School Road. Marsden Road forms a section of State Highway 11 (SH 11) and is designated a strategic link in the District Plan. Street parking is controlled on the western side of Marsden Road with indented parking provided on the eastern side. Footpaths are provided on both sides of Marsden Road.

The posted speed limit on roads in the near vicinity of the subject site is 50km/h. Typical traffic volumes are quite variable between seasons due to the influence of tourism in the area. A gauge of current traffic volumes on Marsden Road can be

provided by a Transit New Zealand count site on SH 11, some four kilometres to the south of School Road. The annual average daily traffic flow at the count site is in the order of 4,000 vehicles per day, combined for two-way movement.

2.2 Road Safety

Information has been sourced from the Land Transport New Zealand "Crash Analysis System" for the five year period, January 2002 to December 2006, to identify relevant crash data for the area adjacent to the subject site. Five separate crashes were reported in the vicinity of the Marsden Road/School Road intersection, with one of the crashes involving minor injury to a cyclist.

Three of the reported crashes involved turning at or near the intersection, one crash involved a vehicle making a u-turn to the south of School Road, and the final crash was a nose-to-tail type incident on the School Road approach to Marsden Road. The type and frequency of reported crashes are considered typical for a priority controlled intersection, given the level of activity in the immediate area.

Overall, the review of reported crashes in the vicinity of the subject site does not highlight any specific traffic safety problem which would be exacerbated by the proposal.

3.0 THE PROPOSAL

3.1 Description

The proposal involves the construction of an apartment block comprising five separate residential units. A total of 11 parking spaces will be provided in a basement level for residents of the development. The parking area will gain access onto Wallace Lane and then onto School Road. The proposal includes upgrade works on Wallace Lane to better facilitate two-way movement between School Road and the proposed development vehicle access.

The subject property is zoned for commercial use in the District Plan, albeit other properties on the shared access way are residential in nature.

3.2 Traffic Generation

The traffic generation characteristics of the proposal will be largely dependent on the day to day use of the five residential units. Residential activity would typically generate vehicle movements during commuter peak periods associated with employment and education type activities. The location and type of residential development proposed may lead some units being used on a non-continuous basis, with more intense use during summer and holiday periods. Such an outcome would obviously generate fewer vehicle trips when assessing the development as a whole.

Notwithstanding this, it is considered reasonable to expect a residential unit to generate between seven and 10 vehicle trips per day and an average of one trip per hour during

the peak generation period. On this basis, the development could be expected to generate up to 50 trips per day and in the order of five trips during the peak hour of generation.

3.3 Vehicle Access

Vehicle access to and from the subject property will be via Wallace Lane which is a private access way, currently serving four separate properties. The access way is currently sealed with a usable carriageway width of between 3.2 metres and 3.6 metres. The available width limits vehicle movement to one way along the fully length of some 110 metres, with no formal passing bay. The layout of the sealed area at the eastern end of Wallace Lane provides sufficient space for an ingress vehicle to wait within the road reserve, without affecting traffic on School Road while another vehicle travels eastbound on the access way.

Wallace Lane is located approximately 25 metres west of Marsden Road. Sight lines between approaching traffic and vehicles exiting Wallace Lane are in the order of 30 metres to the east (towards Marsden Road) and 70 metres to the west. The available sight lines are considered acceptable for a low volume driveway onto a collector road, based on likely vehicle operating speeds on both approaches.

The proposed development will increase the frequency of vehicle movements on Wallace Lane and as such it is appropriate that the access way be upgraded to better accommodate the potential for conflicting two-way movements. While the shared access will essentially service nine separate dwellings, including the proposed development, it is noted that two existing dwellings have driveways immediately adjacent to School Road. The surveyed boundary lines on Wallace Lane indicate the access reserve is in the order of 6.1 metres, albeit that a number of existing features restrict the potential access width. The driveway for the proposed development will be located approximately 70 metres south of the School Road carriageway.

A desirable outcome for the upgraded access way would be two-way operation along the full length. Guidance on Council requirements for a two way access way is provided in Section 14 and Appendix 7B of the District Plan. On the basis that the subject site is zoned for commercial use, the required access way is 6.0 metre wide carriageway within an 8.0 meters wide road boundary. This desirable standard is not achievable within the available access reserve.

If the access way was assessed on the basis of residential use, as is case at present and proposed, Councils' required minimum standard for a private access is a 5.0 metre carriageway within a 7.5 metre wide legal boundary of reserve. A carriageway width of 5.0 metres can theoretically be achieved within the current access reserve. However, the extent of physical works required to achieve 5.0 meters is considered undesirable. The key constraint is an existing pinch-point between a large power pole and a high retaining wall.

A practical access solution has been developed to allow two-way movement to operate on Wallace Lane through the use of isolated widening. The proposed access upgrade is outlined in the attached drawing and incorporates the following elements.

- Widening of the existing access way immediately east of School Road to provide an improved passing bay for ingress and egress vehicles to pass. This passing bay is required to allow an ingress vehicle to wait off of School Road while an egress vehicle approaches. Alternatively an ingress vehicle can pass a stationary vehicle waiting to turn onto School Road.

- Provision of a passing bay immediately east of the large power pole on the northern side of the access way. The proposed passing bay will increase the usable carriageway to approximately 5.5 metres wide over a distance of eight metres, with five metre long tapers. This passing bay will be located close to the existing vertical crest on the access way.

- Widening of the access carriageway by the driveway to the proposed development. The widening will increase the carriageway to approximately 4.5 metres wide over a distance of at least 15 metres. The proposed widening will improve ingress and egress movements associated with the development and permit opposing vehicle to pass each other within the development driveway.

- Lighting will be incorporated into the access upgrade to improve safety and general amenity at night. The level and type of lighting will be designed to the satisfaction of Council and in consultation with immediate neighbours.

All widening works will be carried out to the satisfaction of the Council. In particular, the proposed passing bay adjacent to School Road may be fully within the road reserve due to the wide road boundary at that location.

4.0 DISTRICT PLAN PROVISIONS

4.1 Parking

Part 14 of the District Plan refers to Appendix 7C of the Plan to determine the minimum number of parking spaces required for various activities. Two parking spaces are required for each residential unit. The proposal to provide 11 parking spaces for the development exceeds the minimum requirement of 10 spaces.

Parking areas should also be of sufficient space to facilitate efficient movement to and from individual spaces. The parking spaces within the proposed development will be 2.5 metres wide with approximately 7.6 metres of manoeuvring space across the aisle. Appendix 7D of the District Plan outlines Council requirements for the dimensions of parking and manoeuvring areas. The minimum manoeuvring space required for 2.5 metre wide parking spaces provided for residential use is 6.7 metres. Parking spaces which are adjacent to an end wall have an additional 300mm clearance to improve manoeuvring and allow for car door opening.

A number of parking spaces will involve indirect manoeuvring when either entering o leaving the development. For example, drivers accessing parking spaces 1 and 7 may be required to undertake unconventional manoeuvring movements to complete entry to the

spaces. Operating constraints of this nature, despite compliance with the relevant Council manoeuvring standards, are typical for the scale of parking area proposed. Regular users of the parking area will become accustomed to a preferred sequence of manoeuvres to enter and exit parking spaces.

Overall, the proposed on-site parking arrangements are considered acceptable for the proposed activity.

4.2 Loading and Servicing

The loading and servicing requirements of residential activities are generally minor in nature, typically limited to occasional courier delivery and very occasional removals truck. Courier deliveries can take place with vehicles waiting within the parking area while delivery is made. The demand for larger removal vehicles will be very infrequent and specific arrangements can be made with affected parties.

The servicing arrangements for the proposal are considered acceptable.

4.3 Vehicle Access

Councils' requirements for vehicle access to sites are outlined in Section 14.1.6.1.2 of the District Plan. Various rules detail the required standards for criteria related to the safe and efficient access to and from sites. These rules are discussed below, as they relate to the current application.

(b) As mentioned previously, the desired 6.0 metre wide access way for commercial zones cannot be achieved within the current site constraints. Sections of carriageway widening incorporating passing bays are proposed to accommodate two-way vehicle movement to and from School Road.

(c) The proposed access way will not comply with the required access width, as stated in Appendix 7B of the District Plan. The road reserve on School Road is significantly wider than the usable carriageway. The desired low-gradient platform adjacent to the road boundary is not feasible due to a steeper gradient on the existing access way.

(d) The subject site complies with the restriction of no more than two vehicle crossing per site and maximum width of 6.0 metres.

(e) The access way connects with a collector road within 90 metres of its intersection with an arterial road. The access way currently exists and hence the location cannot be altered. The level of traffic on School Road at present and the proposed demand on the Wallace Lane access way are not considered significant. The predicted effect on the operation of School Road or the intersection with Marsden Road is considered negligible.

(f) The parking area and driveway within the proposed development will not generate reverse manoeuvres to or from the adjacent road.

(h) As noted previously, proposed widening on Wallace Lane, at the connection with School Road will provide sufficient space to allow two opposing vehicle to pass without affected through traffic on School Road.

(j) The proposed upgrade to the existing access way will be either sealed or concreted.

(k) The access way serving the proposed development is relatively straight.

(l) The formal passing bay proposed approximately mid way between School Road and the subject site will be 5.5 metres wide in accordance with the District Plan requirement. The passing bay will be 8.0 metres long with 5.0 metre long tapers at both ends. The proposed passing bay dimensions are considered acceptable given the length of access way and the likely vehicle speeds on the access.

(m) The passing bay is located in close proximity to the vertical crest mid way along the access way.

(n) The proposed upgrade to the access way will provide a suitable passing bay and provision to accommodate opposing vehicles at the road boundary.

(o) The remaining legal access way, not incorporated in carriageway widening will be landscaped to the satisfaction of Council.

(p) The vehicle access way will also serve pedestrian usage.

(q) The on-going maintenance of the upgraded access way will be addressed by agreement between the current owners.

(r) Appropriate measures will be incorporated in to the design of the upgraded access way to address stormwater runoff.

(s) The access way will serve a total of nine residential units, including the five units proposed. The formation of a public road, as indicated in (t) is not considered appropriate.

Overall, the access arrangements proposed for the subject site are considered appropriate given the current physical constraints.

5.0 TRAFFIC IMPACTS OF THE PROPOSAL

The traffic related impacts of the proposal centre on;

- the impacts of traffic generated by the development,
- the impacts of constrained vehicle access arrangements, and
- the impacts of construction related traffic.

5.1 Impacts of Traffic Generated by the Proposal

The level of traffic generated by the proposal will likely vary seasonally due to the type of residential units proposed and the potential for non-continuous use. Typically, each residential unit can be expected to generate in the order of 10 vehicle movements per day and one vehicle movement during the peak hour. The five residential units proposed may generate up to 50 vehicle movements per day and five movements during the peak hour of generation.

It is anticipated that most if not all vehicle tips generated by the proposal will travel via the intersection of Marsden Road and School Road, to the east of Wallace Lane. Daily traffic generation would be expected to be split evenly between ingress and egress movements, resulting in 25 vehicle movements onto Marsden Road and 25 movements from Marsden Road into School Road. The directional distribution of generated trips, once on Marsden Road will vary although could be expected to be relatively even on average. The predicted increase in daily traffic at the intersection of Marsden Road and School Road is therefore between 10 and 15 vehicles for each of the four turning movements in and out of School Road. The predicted peak hour generation of five additional trips could be expected to increase each of the turning movements by one or two vehicles per hour.

Vehicles accessing the proposal will only interact with pedestrians walking on Wallace Lane. Pedestrians on School Road will typically be on the footpath on the northern side of the road, opposite Wallace Lane.

Analysis of the relevant crash records does not indicate a traffic safety problem in the vicinity of the site.

Overall, it is considered that the estimated levels of traffic generated by the proposed development can be accommodated on the road network without compromising its function, capacity or safety. On this basis, the effects of the proposal are no more than minor.

5.2 Impacts of Proposed Access Arrangements

The existing access way between School Road and the proposed development will be upgraded to better accommodate two-way vehicle movement. Physical and boundary constraints prevent the provision of a suitable two-way link along the full length of the access way. However a series of carriageway widening sections will permit acceptable two-way operation, allowing for likely traffic generation.

The proposed upgrade of the access way in the vicinity of the School Road boundary will improve the general convenience of drivers accessing Wallace Lane and decrease the potential for waiting vehicles affecting the operation of School Road.

Overall, the proposed access arrangements are considered acceptable for the intended activity. The effects of additional traffic movements on current users of the access are considered negligible, subject to the suggested upgrade measures.

5.3 Impacts during Construction

The construction works are expected to occur over a period of approximately 12 months. The subject site will introduce various challenges relating to construction. The key areas to be defined, from a traffic safety and operation perspective are suitable access and loading arrangements, maintaining existing vehicle movements on Wallace Lane, materials storage, and parking for construction staff.

The construction methodology and proposed temporary traffic management of related vehicle movements will be defined in conjunction with a preferred Contractor. The controls and measures proposed will be agreed with Council through submission of a construction traffic management plan (TMP).

Construction traffic effects will in part be related to the number of truck movements likely during the construction period. There is also traffic generated by builders and sub-contractors working at the site.

Deliveries to the site during the construction period will consist of concrete, timber, exterior joinery and cladding together with interior finishing materials. The number of truck movements associated with the construction will vary from day to day although, on average, it is estimated that there will be up to a maximum of 10 truck movements per day over the construction period.

There will also be traffic movements associated with the various trades required during the construction period. The number of traffic movements will vary from week to week over the course of the construction period.

The traffic effects during construction will be able to be accommodated on the road network without noticeably impacting on other road users.

6.0 DISTRICT PLAN ASSESSMENT CRITERIA

Section 14.1.7 of the District Plan outlines a series of assessment criteria for assessing proposed developments.

6.1 Section 14.1.7.1 Parking

The proposed car parking provision exceeds the minimum requirement outlined in Appendix 7C of the District Plan. The proposed parking and manoeuvring dimensions exceed the minimum standards outlined for residential activities in Appendix 7D of the Plan.

Overall the proposal is considered to be consistent with the parking assessment criteria.

6.2 Section 14.1.7.2 Vehicle Access

(a) adequacy of sight distances available at the access location

The sight distances available to and from vehicles accessing Wallace Lane are considered acceptable for a low volume driveway on a collector road. The vehicle operating speeds on both approaches will be influenced by the adjacent road geometry, being an intersection to the east and a series of horizontal curves to the west.

(b) any current traffic safety or congestion problems in the area

A review of the available crash history for the past five years does not highlight any notable road safety concern in the immediate vicinity of the subject site. Existing traffic flows and general operation in the area are very seasonal. Peak demand periods typically generate minor levels of queuing and delay for movements to and from School Road.

(c) any foreseeable future changes in traffic patterns in the area

Traffic flows on the surrounding roads will increase over time as a result of development in the area as well as further afield. This may necessitate changes to the on-street management in the area. Further growth in traffic volumes will likely occur on a gradual basis without the introduction of significant changes.

(d) possible measures or restrictions on vehicle movements in and out of the accesses

The level of traffic generation predicted for the proposed development, combined with existing use does not highlight any notable concern which may necessitate the introduction of access restrictions.

(e) the adequacy of the engineering standards proposed and the ease of access to and from, and within, the site

The extent of carriageway widening on the shared access way is limited by adjacent legal boundaries and various existing physical constraints including a large power pole and significant retaining wall. The proposed access upgrade measures are considered sufficient to permit acceptable operation on the access way. The car parking are within the proposed development complies with Council standards and will be primarily used by regular users.

(f) the provision of access for all persons and vehicles likely to need access to the site, including pedestrian, cycle, disabled, vehicular

Given the location of the development and the nature of the local area, it is likely that many local trips will be made on foot rather than by car. The access way will be used by pedestrians and potentially cyclists. All user groups will have to share the access way, be it widened sections of carriageway or sections of resurfaced carriageway with adjacent berm. The development includes a separate pedestrian access remote from the vehicle driveway. The upgrade of the access way will include lighting to enhance night time operation and safety.

(g) the provision made to mitigate the effects of stormwater runoff, and any impact of roading and access on waterways, ecosystems, drainage patterns or the amenities of adjoining properties

The proposed upgrade of the access way will increase the sealed area and hence influence current stormwater runoff patterns. Mitigating measures will be designed and agreed with Council to avoid any related adverse effects.

Overall the proposal is considered to be consistent with the Councils' assessment criteria for vehicle access.

7.0 CONCLUSIONS

Based on the assessment of traffic effects described in this report, the following conclusions can be made in respect of the proposal to construct five residential units on Lot 3 of Wallace Lane in Paihia.

- The level of additional traffic generated by the proposal will typically be in the range of 50 vehicle trips per day, when all units are in use. A comparable peak hour traffic generation may be five vehicle trips per hour.

- The proposed on-site parking area exceeds the requirements of the District Plan in terms of provision and dimensions.

- The proposal includes a series of upgrade measures for the existing vehicle access. While the proposed access does not meet Council standards based on the current zoning or number of separate dwellings, the safety and operation of the access are considered acceptable.

- The traffic generated by the proposal can be accommodated on the adjacent road network with little or no noticeable effect.

It is concluded that from a traffic perspective, the proposal will have no more than a minor impact on the safety, function, and capacity of the adjacent road network.

TRAFFIC PLANNING CONSULTANTS LTD

David Philip
August 2007

29 June 2007

Ref: ORMPR-FNT-001

Working Concepts Ltd
PO Box 58395
Manukau
AUCKLAND

Attention: Mr Daiman Otto

Dear Mr Otto

Acoustic Design Report - Wallace Lane Apartments, Paihia

Introduction

It is proposed to construct a seven-storey residential apartment development at on Wallace Lane, Paihia on land zoned for commercial use.

Golder Kingett Mitchell (Golder Associates (NZ) Ltd) has been commissioned to provide an Acoustic Design Report, to review the building design for compliance with the relevant noise standards and where necessary identify appropriate acoustic controls to ensure compliance.

Design Standards

The site is located within an Urban Environment Commercial Zone under the *Far North District Council Revised Proposed District Plan* and the building structure is required to provide a minimum attenuation of 30 dB(A) for bedrooms and 20 dB(A) for all other habitable rooms.

Clause G6 of the New Zealand Building Code (NZBC) sets the following intertenancy performance standards:

- G6.2 - Building Elements which are common between occupancies, shall be constructed to prevent undue noise transmission from other occupancies or common spaces, to the habitable spaces of household units;
- G6.3.1 - The Sound Transmission Class (STC) of walls, floors and ceilings, shall be no less than 55; and

- G6.3.2 - The Impact Insulation Class (IIC) of floors shall be no less than 55.

Acoustic Design Assessment

District Plan Compliance

Whilst the detailed structural design has yet to be completed, the external walls are likely to be constructed from either filled concrete blocks or pre-cast panels, although the upper level may be constructed using timber stud walls.

Façade attenuation of 30 dB(A) can be readily achieved through virtually all common building constructions, with the possible exception of timber weatherboard cladding. The only elements of the building where this performance cannot be achieved without specific acoustic treatments are windows and doors.

The use of 4 mm float glass in standard frames will provide at least 20 dB(A) attenuation and will therefore be acceptable in all windows other than bedrooms.

Due to the extensive areas of glazing in the bedrooms, all openable bedroom windows and balcony doors need to be fitted a minimum of 10 mm float glass or 6.76 mm PVB laminate glass with rubber compression seals capable of achieving an airtight closure. It is not possible to achieve an effective acoustic seal with sliding doors and they should not, therefore, be used for the bedrooms.

In most cases, the apartment roof will be the floor slab of the apartment above and will readily provide at least 30 dB(A) attenuation. There will be roof areas on of the top apartment that will not be deck areas and may be constructed from other roofing materials. However, even lightweight metal clad roofs with 10 mm plasterboard ceilings below and insulation batts in the cavity can be expected to provide attenuation of at least 30 dB(A).

However, any ceiling penetrations for recessed lighting etc in the bedrooms of the top apartment should, unless otherwise advised by the supplier, be limited in area to the equivalent of 1 x 130 mm diameter hole for every 8 m^2 of ceiling, or enclosed, or otherwise treated, to maintain the acoustic performance of the ceiling.

As windows open for ventilation will only offer 10-15 dB(A) attenuation, the required façade attenuation can only be achieved with closed windows and all the habitable rooms of all apartments will need to be provided with mechanical ventilation. In order to achieve reasonable internal noise levels, the ventilation systems should be designed to achieve a noise level of no more than:

- L_{eq} 30 dB(A) at 1 m from any diffuser in bedrooms; and
- L_{eq} 35 dB(A) at 1 m from any diffuser in other habitable rooms.

Building Code Compliance

The building design will comprise ground floor parking with single level apartments on the first through fourth floors and a two-storey apartment occupying the upper two levels. All units will be served by a common lift and staircase located in the southern corner of the building. The stairwell and lift are well separated from the habitable

rooms of most apartments, but the lift shaft is adjacent to habitable rooms in the top two apartment. The external decks of each apartment will be located at least partially above the living areas of the unit below.

The NZBC Clause G6 requirements will apply to:

- the STC rating of the walls between the lift shaft and habitable rooms of the top two apartments (forth and fifth levels;
- the STC ratings of the ceiling/floors between the ground level car park & first level apartment, first & second levels, second & third levels, third & fourth levels fourth & fifth levels and between the top of the lift shaft & the sixth level rooms; and
- the IIC ratings of the ceiling/floors between the first and second levels, second and third levels, third and fourth levels and fourth and fifth levels.

An STC 55 rated wall design can be readily with either a timber-framed, filled concrete block or pre-cast concrete panel wall. The preferred wall design should be confirmed to meet the STC 55 rating at the detailed design stage.

The STC rated floor designs can be readily achieved with either solid 150 mm concrete slabs or hollow core type slabs with a minimum 60 mm topping. If lighter weight floor designs such as rib and infill are used, a 10 mm plasterboard ceiling will normally be sufficient to achieve the overall floor/ceiling STC 55 rating. However, as noted above any ceiling penetrations for recessed lighting etc in the bedrooms of the top apartment should, unless otherwise advised by the supplier, be limited in area to the equivalent of 1 x 130 mm diameter hole for every 8 m^2 of ceiling, or enclosed, or otherwise treated, to maintain the acoustic performance of the ceiling.

To meet the IIC criterion, suspended rather than direct fixed plasterboard ceilings will be required in all habitable rooms (not bathrooms) in combination with good quality carpet over rubber waffle underlay. Where hard flooring surfaces are required, a proprietary resilient flooring product should be used and this will also apply to all bathroom and balcony floors apart from the top floor.

There are a number of suitable products on the market that will provide the necessary resilient layer below hard-surfaced areas to achieve the required IIC rating including:

- Gib Sound Barrier for Floors, Winstone Wallboards Ltd, tel 09 633 0100;
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- Enkasonic Sound Control Matting, Acoustic Solutions Ltd, tel 09 236 8076; and
- Acoustibond & Acoustic Underlay, Construction Chemicals, tel 09 273 5444.

It is our understanding that any of the above may be suitable for this building design. However, this should be confirmed with the manufacturer and/or supplier before specifying any one product. It should also be noted that effective performance is dependent upon the correct installation of all components and that depending upon the preferred design, insulation batts may be required in the ceiling cavity to achieve the IIC 55 rating.

Any ceiling penetrations for recessed lighting etc in habitable rooms should be designed to maintain the acoustic performance of the ceiling panel. Unless otherwise advised by the supplier, they should either be limited in area to the equivalent of 1 x 130 mm diameter hole for every 8 m^2 of ceiling, or enclosed, or otherwise treated, to maintain the acoustic performance of the ceiling.

Additional Recommendations for Building Noise Control

The NZBC requirements only apply between apartments, however, to optimise acoustic privacy we would recommend that the STC/IIC 55 ratings also be applied to the floor/ceiling between the two levels of the top apartment.

The NZBC does not address the control of noise from waste water pipes, however, we would recommend following the Building Code of Australia recommendations.

Waste pipes from bathrooms should be contained in ducting located preferably within the bathrooms and duct walls rated to at least STC 30 in bathrooms and STC 45 if they form part of a wall adjacent to a habitable room. It waste piles do penetrate the floor slab and run through the ceiling space of the apartment below, the penetrations must be acoustically sealed and the pipes lagged with 8 kg m^{-2} pipe insulation, which in combination with the ceiling can achieve STC 30 for bathrooms and with insulation batts in the ceiling cavity can achieve STC 45 for other habitable rooms.

We would also recommend that acoustic privacy be optimised through the use of solid core apartment entry doors fitted with acoustic seals to all sides (Raven, Zero or equivalent products), dropping seals on the bottom of the doors would be preferable and should be used if practicable..

Conclusions

In combination with the identified window and door treatments, the external facades of the Wallace Lane apartment building can provide sufficient noise attenuation to comply with the District Plan requirements of 30 dB(A) for bedrooms and 20 dB(A) for all other habitable rooms.

An alternative mechanical ventilation system will be required for all habitable rooms and it is recommended that the system be specified to operate at the identified noise levels to maintain a satisfactory internal noise level.

Design options for the intertenancy walls and floor/ceilings have been identified that will comply with the NZBC STC 55 and IIC 55 performance standards.

Yours sincerely
Golder Kingett Mitchell
Golder Associates (NZ) Ltd

John Cawley
Principal Consultant - Acoustics

PK ENGINEERING
CHARTERED PROFESSIONAL ENGINEERS

SITE STABILITY AND SUITABILITY REPORT

For

Lot 3, DP 44530

At

Wallace Lane,
Paihia

For

Ormiston Project Management Limited

Job No: 07-56
Date: June 2007

Level 1 National Bank Building 90 Kerikeri Road, Kerikeri, New Zealand
Telephone: 09 407 3255 Fax: 09 407 3256 Email: pk.engin@xtra.co.nz

Introduction

This report was requested by Daiman Otto from Ormiston Project Management Limited and has been prepared to assess the site stability and suitability for the development of Lot 3, DP 445030 on Wallace Lane, Paihia.

This report assesses the sites in regard to land stability, stormwater flows and wastewater disposal, and has been prepared for the sole use of our clients Ormiston Project Management Limited. It shall not be used, reproduced or copied in any manner, or form without the permission of PK Engineering Limited.

Site Description (refer to included site plan and cross-sections)

This site is located on the east facing slopes of a prominent ridge line which traverses in a north – south direction. The gradients of the slopes start off at approximately 28 to 30 degrees at the upper regions of this lot and reduce down to approximately 20 to 25 in the mid and lower areas.

An old slip scarp is visible on the upper reaches of this site and the slip debris is evident adjacent to the accessway on the lower boundary.

A pedestrian right of way exists on the southern boundary. The entire area is currently covered in grass.

Investigations

Visual Inspection
A thorough walkover of the site and all surrounding slopes was undertaken and geotechnical features relating to site stability and stormwater flows were noted.

Subsurface Investigation (refer to included site plan)
Eight subsurface exploratory augerholes were drilled in the locations shown on the site plan.

The augerholes were drilled down to depths ranging from 1.5 to 3.5 metres. Soil strength measurements (insitu undrained shear strength) were recorded at 0.5 metre intervals.

Scala penetrometer tests were carried out in the base of all eight augerholes to a depth of 5.0 metres or till significant rock was struck.

The logs of the eight auger holes and their associated scala penetrometer logs are shown in Appendix A.

Slope Stability Analysis
Bishops modified slope stability analysis was performed on the anticipated slip planes and factors of safety were evaluated, using the results of the data collected from the site exploratory works.
The results of this analysis can be seen in Appendix B.

Geology

The local geology of the site is comprised of soils derived from the weathering of Waipapa group greywacke and argillite.

The soils which are classified as Marua clay loam are comprised of a layer of yellowish brown clayey topsoil of approximately 2.0 metres depth overlying a layer of clayey silt. The clayey silt layer starts phasing into soft weathered rock at depths from approximately 2.5 metres to 4.0 metres.

The intact rock mass is located immediately below the weathered rock.

Site Stability and Suitability

The stability of the upper slopes are dependant upon the depth of the well weathered greywacke which have been reduced to silty clay. These clays are reasonably sensitive to moisture variations and prone to slippage if they get excessively saturated.

It appears that a large portion of the sensitive clay layer has actually slipped in the past and the angle of repose is now presented by the severly reclining slip scarp.

As a consequence of this the bulk of the central portion of this site now has a lot less slip mass that is prone to circular slip type of failure.

The presence of intact rock mass at the depths of approximately 2.5m at the upper portion of this site also indicates that the volume of unstable material present is significantly less than the site appears to present when looked at from below.

From the information collected for the site investigative work and the analysis it is evident that this lot can be developed provided the following conditions are met.

- Any stormwater trying to enter the upper reaches of this lot must be collected and piped either to a storage and slow release mechanism or piped directly to the shoreline.

- Maximum ground cover must be maintained either by revegetation or providing maximum roof coverage over the area to eliminate any direct rainfall impact on the existing exposed slip faces.

- It is essential that as much of the upper clay layer as possible be removed for any proposed building on this site. Ideally, a stepped building structure, the foundations of which are located on the weathered rock would suit this site. All foundations must be piled down to the intact rock mass.

- All cut faces and slip scarps on this site must be carefully retained during the construction stage to prevent any impact upon the buildings on the neighbouring sections. It is crucial that a contiguous concrete pile wall be erected along the southern and northern boundary prior to undertaking any excavations exceeding 1.2 metres in height. Any such contiguous pile wall should have a capping beam on top and be left to cure for a minimum of 10 days prior to the excavation.

- All such retaining wall structures and foundations must be designed by a suitably qualified and experienced Chartered Professional Engineer.

- The following soil strengths parameter shall be used in the design of all foundations and retaining wall structures on this site.

  Upper Clay Layer

Bulk density	= 18 kNm3
Internal angle of friction of clay	= 25 degrees
Cohesion	= 18 kPa.

  Weathered Rock Layer

Bulk density	= 20 kNm3
Internal angle of friction of clay	= 40 degrees
Cohesion	= 0 kPa

  Intact Rock Mass

Bulk density	= 25 kNm3
Internal angle of friction of clay	= 50 degrees
Cohesion	= 0 kPa

- The lower region of the site still shows the presence of old slip deris. This must be removed prior to building work in this region. It is recommended that compacted hardfill be placed instead to act as a suitable base material for any slab. All foundations in this region must be anchored into the intact rock mass.

- The appropriate foundation for the development of this site should be comprised of reinforced concrete foundation beams placed longitudinally along the section (ie down the slopes), which are supported by reinforced concrete bored piles which are anchored into the intact rock mass. These piles should not be placed any further than 5.0m apart.

Stormwater

The careful management of stormwater runoff is vital to the continued stability of the proposed building site.
All stormwater from the following sources should be piped directly to the nearest naturally occurring flow path as indicated on the site plan:

- Water tank overflows
- Gutter and spouting overflows
- Paved areas
- Driveway drains
- Subsurface drains behind retaining walls
- Surface water interceptor drains in the top region of the section.

It is also imperative that a system of silt fences be erected to circumvent any areas left exposed due to earthworks during the construction process. This will prevent the migration of silt into the drainage flow paths and eventually to the shoreline.

During construction any stormwater concentrations should be contained in a 2 metre x 2 metre x 1.0 metre deep detention pond prior to discharging through a doubled layered silt fence into any existing stormwater system.
A properly formed roadside drain will be required along the upslope side of Wallace Lane to channel stormwater away from this site.

Effluent Disposal

It is understood that a town council sewer reticulation system is available to connect to for any proposed development on this site and that the site is within the are of benefit.

Recommendations

I recommend that:

- All stormwater runoff from the upper portion of this site be collected and piped directly to the stormwater reticulation on School Road. Alternatively, a suitable roadside drain be provided along Wallace Lane.

- Maximum ground cover be provided by vegetation or maximising the roof coverage over the site.

- All stormwater from the roof area be collected and disposed off in a sustainable manner – i.e either through attenuation tanks or directly to the shoreline via existing stormwater reticulation system on School Road.

- The removal of existing upper clay layer be maximised to reduce the volume of material prone to slippage.

- All cut faces and slip scarps be carefully retained during the construction phase.

- A system of contiguous concrete piles be employeed to reduce the risk of damage to neighbouring buildings.

- All foundations and retaining walls on this site be designed by a suitably qualified and Chartered Professional Engineer.

- The soil strength parameters as described in the report be used for the design of all foundations and retaining walls.

- All slip debris be removed from the lower portion of this site and replaced with suitably compacted hardfill.

- Reinforced concrete foundation beams should be placed longitudinally down the slope and supported by reinforced concrete piles which are embedded into the intact rock mass. These piles should be located no more than 5.0metres apart.

- Stormwater be carefully managed as discussed in the stormwater section of this report.

- Adequate temporary drainage and silt control measures be provided prior to undertaking any excavation.

- All excavation and construction work for the foundations and retaining walls be carefully inspected and monitored by a Chartered Professional Engineer.

Conclusions

It is possible to develop this site and build a stepped multi-storey type structure on this lot provided the abovementioned recommendations are followed.

Pradeep Kumar.
B.E hons, NZCE, MIPENZ,
IntPE, CPEng.
(Structural, Geotechnical)
Chartered Professional Engineer.

Appendix A

- **Augerhole logs** **A1 to A5**
- **Scala Penetrometer Test Results** **A6 to A7**
- **Site Plan** **A8 to A10**
- **Cross-Section** **A11 to A12**

P K ENGINEERING LIMITED

90 KERIKERI RD Phone (09) 4073255 Fax (09) 4073256

BOREHOLE No. AH1
SHT.1 of 5

Location: Daiman Otto, Lot 3 DP 44530, Wallace Lane, Paihia. | **Job No.** 07-56

Drilled by: Craig Greenfield | **Date:** 22 May 2007

R.L. at Ground Level: | **GWL:**

Unit	Soil Description	Soil Symbol	Depth(m)	Sample/ Test	Shear Strength (40 80 120 160)	Moisture	Origins, Composition, Defects.
	TOPSOIL, moist, very stiff, greyish brown						
	Clayey SILT, some gravel, dry, very stiff	%%%			UTP		
	yellowish brown/greyish white	%%%					
	Hit Rock Unable to Penetrate 0.3 metres.		0.5				
	See scala penetrometer test no PT1.						
			1.0				
			1.5				
			2.0				
			2.5				
			3.0				
			3.5				
			4.0				
			4.5				

FILL @@@ | CLAY #### | SILT %%% | SAND ØØØ | GRAVEL ‡‡‡‡ | PEAT | MUD STONE **** | TOPSOIL | SILT STONE ÐÐÐ | SAND STONE | TUFF | BASALT ßßß

A2

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BOREHOLE No. AH2
SHT. 2 of 5

Location: Daiman Otto, Lot 3 DP 44530, Wallace Lane, Paihia.

Job No. 07-56

Drilled by: Craig Greenfield

Date: 22 May 2007

R.L. at Ground Level:

GWL:

Unit	Soil Description	Soil Symbol	Depth(m)	Sample/ Test	Shear Strength (40 80 120 160)	Moisture	Origins, Composition, Defects.
	TOPSOIL, moist, very stiff, dark brown						
					172/52		
	CLAY, dry, very stiff, yellowish brown	####					
	/light greyish, light brown	####					
		####	0.5		189/67		
		####					
		####					
		####					
		####					
		####	1.0		225/69		
	Silty CLAY, dry, very stiff, /greyish white	####					
	Clayey SILT, light brown/light reddish brown/greyish white	####					
		####					
		####					
		####	1.5		262+		
	Hit Rock, Unable to Penetrate 1.450 metres.						
	See scala penetrometer test no PT2.						
			2.0				
			2.5				
			3.0				
			3.5				
			4.0				
			4.5				

FILL CLAY SILT SAND GRAVEL PEAT MUD STONE TOPSOIL SILT STONE SAND STONE TUFF BASALT

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90 KERIKERI RD Phone (09) 4073255 Fax (09) 4073256

BOREHOLE No. AH4
SHT. 3 of 5

Location: Daiman Otto, Lot 3 DP 44530, Wallace Lane, Paihia. — **Job No. 07-56**

Drilled by: Craig Greenfield — **Date: 21 May 2007**

R.L. at Ground Level: — **GWL:**

Unit	Soil Description	Soil Symbol	Depth(m)	Sample/ Test	Shear Strength (40 80 120 160)	Moisture	Origins, Composition, Defects.
	TOPSOIL, dry, very stiff, greyish brown (some shells)						
	Silty CLAY, dry, very stiff, yellowish brown	####			52/13		
	CLAY,	####					
		####					
		####	0.5		161/51		
		####					
		####					
		####					
		####					
	Silty CLAY, dry, very stiff, yellowish brown/whitish	####	1.0		195/49		
	Brown/brownish red	####					
	Moist	####					
		####					
	Clayey SILT, moist, very stiff, greyish white/	%%%					
	Reddish brown	%%%	1.5		191/49		
		%%%					
		%%%					
		%%%					
		%%%					
	Reddish brown	%%%					
	Brownish pink/reddish brown/greyish white	%%%	2.0		180/77		
		%%%					
		%%%					
	SILT, some clay, moist, very stiff, whitish brown/	%%%					
	Reddish brown/pink/greyish white	%%%					
		%%%					
		%%%					
		%%%	2.5		UTP		
		%%%					
		%%%					
		%%%					
		%%%					
		%%%					
		%%%	3.0		UTP		
		%%%					
		%%%					
		%%%					

	Target depth 3.2 metres.											
	See scala penetrometer test no PT1.		3.5									
			4.0									
			4.5									

FILL CLAY SILT SAND GRAVEL PEAT MUD STONE TOPSOIL SILT STONE SAND STONE TUFF BASALT

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A4

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BOREHOLE No. AH5
SHT. 4 of 5

Location: Daiman Otto, Lot 3 DP 44530, Wallace Lane, Paihia. — **Job No. 07-56**

Drilled by: Craig Greenfield — **Date: 21 May 2007**

R.L. at Ground Level: — **GWL:**

Unit	Soil Description	Soil Symbol	Depth(m)	Sample/ Test	Shear Strength (40 80 120 160)	Moisture	Origins, Composition, Defects.
	Silty CLAY, dry, very stiff, light reddish brown/greyish						
	White (some gravel)	####			232/60		
	Yellowish brown/greyish white	####					
		####					
		####	0.5		198/79		
		####					
		####					
		####					
	Clayey SILT,	####					
	Some gravel	####	1.0		UTP		
	/pinkish red	####					
		####					
	Silty CLAY, dry, very stiff, reddish brown/greyish	####					
	White/reddish brown	%%%					
	Clayey SILT, greyish white/yellowish brown/pink	%%%	1.5		238/131		
		%%%					
		%%%					
		%%%					
		%%%					
		%%%					
		%%%	2.0		262++		
		%%%					
		%%%					
		%%%					
		%%%					
		%%%					
		%%%	2.5		182/51		
		%%%					
		%%%					
		%%%					
		%%%					
		%%%					
		%%%	3.0		UTP		
		%%%					
		%%%					
	Target depth 3.2 metres.						
	See scala penetrometer test no PT2.		3.5				
			4.0				
			4.5				

FILL CLAY SILT SAND GRAVEL PEAT MUD STONE TOPSOIL SILT STONE SAND STONE TUFF BASALT

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BOREHOLE No. AH7
SHT. 5 of 5

Location: Daiman Otto, Lot 3 DP 44530, Wallace Lane, Paihia.
Job No. 07-56
Drilled by: Craig Greenfield
Date: 22 May 07
R.L. at Ground Level:
GWL:

Unit	Soil Description	Soil Symbol	Depth(m)	Sample/ Test	Shear Strength (40 80 120 160)	Moisture	Origins, Composition, Defects.
	TOPSOIL, moist, very stiff, dark brown						
	CLAY, dry, very stiff, yellowish brown				183/60		
	Silty CLAY	####					
		####					
		####	0.5		195/86		
		####					
		####					
		####					
		####					
		####	1.0		221/79		
	Yellowish brown/reddish brown/whitish grey	####					
		####					
	Clayey SILT	%%%					
		%%%					
	Reddish brown/yellowish brown/greyish white	%%%	1.5		232/172		
		%%%					
		%%%					
		%%%					
		%%%					
		%%%					
		%%%					
		%%%	2.0		236/142		
		%%%					
		%%%					
	Target Depth 2.2 metres.						
	See scala penetrometer test no PT7.		2.5				
			3.0				
			3.5				
			4.0				
			4.5				

FILL CLAY SILT SAND GRAVEL PEAT MUD STONE TOPSOIL SILT STONE SAND STONE TUFF BASALT

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PENETROMETER HOLE No.

Location: Daiman Otto, Lot 3 DP 44530, Wallace Lane, Paihia.

Job No. 07-56

Driven by: Craig Greenfield

Date: 22 May 07

R.L. at Ground Level:

GWL:

Depth	PT1	PT2	PT3	PT4	Depth	PT1	PT2	PT3	PT4	Dept	PT1	PT2	PT3	PT4
50					2550		8	15		5050		30+		
100			1		2600		9	15		5100				
150			1		2650		8	16		5150				
200			1		2700		7	13		5200				
250			2		2750		6	10		5250				
300			2		2800		10	15		5300				
350	7		2		2850		10	16		5350				
400	8		2		2900		9	14		5400				
450	9		2		2950		8	19		5450				
500	5		1		3000		8	19		5500				
550	5		2		3050		9	25		5550				
600	11		2		3100		10	30		5600				
650	16		2		3150		9		9	5650				
700	13		3		3200		9		8	5700				
750	15		2		3250		9		7	5750				
800	13		4		3300		8		7	5800				
850	16		3		3350		7		8	5850				
900	15		3		3400		8		9	5900				
950	18		5		3450		7		9	5950				
1000	15		6		3500		5		8	6000				
1050	13		5		3550		6		13	6050				
1100	13		6		3600		5		14	6100				
1150	9		6		3650		5		12	6150				
1200	4		7		3700		7		12	6200				
1250	4		7		3750		10		15	6250				
1300	8		8		3800		11		18	6300				
1350	9		7		3850		11		17	6350				
1400	10		8		3900		11		18	6400				
1450	14		9		3950		9		25	6450				
1500	13	5	8		4000		10		23	6500				
1550	15	6	8		4050		10		23	6550				
1600	17	5	6		4100		9		27	6600				
1650	28	6	6		4150		9			6650				
1700	30++	4	7		4200		9			6700				
1750		6	7		4250		9			6750				
1800		8	7		4300		12			6800				
1850		5	7		4350		12			6850				
1900		5	4		4400		12			6900				
1950		5	4		4450		13			6950				
2000		4	4		4500		11			7000				
2050		5	4		4550		11			7050				
2100		4	5		4600		12			7100				
2150		4	8		4650		13			7150				
2200		5	5		4700		9			7200				
2250		7	4		4750		8			7250				
2300		9	4		4800		8			7300				
2350		7	9		4850		10			7350				
2400		7	10		4900		14			7400				
2450		8	10		4950		20			7450				
2500		7	12		5000		28			7500				

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PENETROMETER HOLE No.

Location: Daiman Otto, Lot 3 DP 44530, Wallace Lane, Paihia.

Job No. 07-56

Driven by: Craig Greenfield

Date: 22 May 07

R.L. at Ground Level:

GWL:

Depth	PT5	PT6	PT7	PT8	Depth	PT5	PT6	PT7	PT8	Dept	PT5	PT6	PT7	PT8
50					2550		5	4		5050	11	6		
100		1		1	2600		5	5		5100	12	5		
150		1		2	2650		5	4		5150	13	6		
200		2		1	2700		5	4		5200	14	5		
250		1		2	2750		6	5		5250	15	6		
300		1		2	2800		6	5		5300	21	6		
350		1		2	2850		5	4		5350	19	7		
400		1		2	2900		4	4		5400	19	8		
450		2		1	2950		5	4		5450	19	8		
500		1		2	3000		4	3		5500	24	8		
550		2		2	3050		5	4		5550		7		
600		2		3	3100		5	3		5600		8		
650		2		2	3150	4	5	4		5650		9		
700		2		2	3200	4	5	4		5700		9		
750		2		3	3250	3	5	5		5750		10		
800		2		2	3300	3	6	5		5800		10		
850		2		2	3350	4	5	7		5850		8		
900		3		2	3400	5	4	7		5900		8		
950		2		2	3450	5	4	7		5950		8		
1000		3		2	3500	5	5	7		6000		8		
1050		3		2	3550	4	5	7		6050		7		
1100		4		2	3600	5	4	8		6100		8		
1150		5		2	3650	4	5	11		6150		8		
1200		5		2	3700	4	5	12		6200		8		
1250		5		2	3750	3	6	13		6250		7		
1300		4		2	3800	4	6	12		6300		7		
1350		4		2	3850	4	6	15		6350		4		
1400		6		2	3900	5	6	11		6400		5		
1450		6		2	3950	7	6	11		6450		8		
1500		6		2	4000	6	5	12		6500		17		
1550		4		2	4050	7	4	9		6550		24		
1600		6		2	4100	10	4	9		6600		23		
1650		5		3	4150	14	5	11		6650		23		
1700		7		2	4200	18	4	21		6700		30		
1750		6		3	4250	18	4	29		6750				
1800		6		3	4300	17	4	21		6800				
1850		6		3	4350	17	4	17		6850				
1900		6		4	4400	16	3	15		6900				
1950		8		3	4450	13	3	14		6950				
2000		8		3	4500	12	4	10		7000				
2050		8		3	4550	12	5	11		7050				
2100		7		4	4600	13	6	13		7100				
2150		7		6	4650	13	4	12		7150				
2200		6		12	4700	10	4	11		7200				
2250		5	3	18	4750	9	4	12		7250				
2300		6	2	27	4800	10	4	19		7300				
2350		6	3	33	4850	10	4	21		7350				
2400		5	4	33	4900	10	5			7400				
2450		5	4		4950	12	5			7450				
2500		6	4		5000	11	5			7500				

Appendix B

- **Slope Stability Analysis** **B1 to B25**
- **Slip Profile** **B26 to B33**

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name: For Ormiston Project Management Limited
Job No: 07-56
Site Address: Lot 3 DP 44530, Wallace Lane, Paihia

Date: 27-Jun-07
Designer: PK

SUMMARY OF SLOPE STABILITY ANALYSIS

SLIP MARK	Safety of Factors	SAFETY OF FACTORS				
		TRIAL 1	TRIAL 2	TRIAL 3	TRIAL 4	TRIAL 5
SLIP PROFILE A1	SF2	1.81	2.73	2.19	1.67	1.14
	SF3	1.84	2.92	2.29	1.69	1.15
	SF4	1.85	2.93	2.30	1.69	1.16
SLIP PROFILE A2	SF2	1.74	2.63	2.10	1.60	1.08
	SF3	1.77	2.82	2.19	1.61	1.09
	SF4	1.77	2.84	2.20	1.61	1.09
SLIP PROFILE A3	SF2	2.20	3.35	2.68	2.03	1.38
	SF3	2.28	3.61	2.83	2.09	1.41
	SF4	2.29	3.64	2.85	2.10	1.42
SLIP PROFILE A4	SF2	1.86	2.79	2.25	1.73	1.19
	SF3	1.90	2.98	2.36	1.75	1.21
	SF4	1.90	3.00	2.37	1.75	1.21
SLIP PROFILE B1	SF2	1.61	2.47	1.94	1.47	0.98
	SF3	1.63	2.66	2.02	1.47	0.97
	SF4	1.63	2.69	2.03	1.46	0.97
SLIP PROFILE B2	SF2	1.75	2.68	2.12	1.60	1.07
	SF3	1.79	2.90	2.22	1.62	1.08
	SF4	1.79	2.92	2.23	1.62	1.08
SLIP PROFILE B3	SF2	2.16	3.27	2.63	2.00	1.37
	SF3	2.23	3.52	2.77	2.05	1.40
	SF4	2.24	3.53	2.78	2.06	1.40
SLIP PROFILE B4	SF2	1.76	2.66	2.13	1.63	1.11
	SF3	1.79	2.85	2.23	1.64	1.12
	SF4	1.80	2.87	2.24	1.64	1.12

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name:	For Ormiston Project Management Limited		
Job No:	07-56	Date:	27-Jun-07
Site Address:	Lot 3 DP 44530, Wallace Lane, Paihia	Designer:	PK

SLIP PROFILE A1

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	0.8	0.5	7.2	62	0	0	0
2	1	1.8	32.4	62	0	0	0
3	1	2.8	50.4	52	1	10	10
4	1	3.5	63	42	1.8	18	18
5	1	4	72	32	2.4	24	24
6	1	4.2	75.6	31	2.8	28	28
7	1	4.2	75.6	26	3	30	30
8	1	4.1	73.8	20	3.1	31	31
9	1	3.9	70.2	16	3.1	31	31
10	1	3.6	64.8	11	3	30	30
11	1	3.4	61.2	8	2.8	28	28
12	1	3	54	0	2.5	25	25
13	1	2.7	48.6	357	2.2	22	22
14	1	2.2	39.6	353	1.8	18	18
15	1	1.8	32.4	347	1.2	12	12
16	1	1.4	25.2	347	0.7	7	7
17	1.5	0.6	16.2	347	0	0	0

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.8090291		for F3	1.8449222	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	7.2	62	6.3565325	12	9.6	0	0	7.2	0.4662075	3.3566936	12.956694	0.310805	0.7440465	17.413822	0.2577114	0.6971728	18.584624	0.2526976	0.6927463	18.703374
2	32.4	62	28.604396	12	12	0	0	32.4	0.4662075	15.105121	27.105121	0.310805	0.7440465	36.429338	0.2577114	0.6971728	38.878629	0.2526976	0.6927463	39.127051
3	50.4	52	39.710429	12	12	10	10	40.4	0.4662075	18.834781	30.834781	0.310805	0.8606813	35.826016	0.2577114	0.8188486	37.656267	0.2526976	0.8148982	37.838814
4	63	42	42.148754	12	12	18	18	45	0.4662075	20.979335	32.979335	0.310805	0.9511745	34.672223	0.2577114	0.9156535	36.017267	0.2526976	0.9122991	36.149696
5	72	32	38.147754	12	12	24	24	48	0.4662075	22.377958	34.377958	0.310805	1.0127777	33.944229	0.2577114	0.9846471	34.913987	0.2526976	0.9819907	35.008436
6	75.6	31	38.930264	12	12	28	28	47.6	0.4662075	22.191475	34.191475	0.310805	1.0172691	33.611043	0.2577114	0.9899285	34.539337	0.2526976	0.9873467	34.629656
7	75.6	26	33.135042	12	12	30	30	45.6	0.4662075	21.25906	33.25906	0.310805	1.0350556	32.132632	0.2577114	1.011785	32.871668	0.2526976	1.0095875	32.943217
8	73.8	20	25.23652	12	12	31	31	42.8	0.4662075	19.953679	31.953679	0.310805	1.0459975	30.548524	0.2577114	1.0278417	31.088133	0.2526976	1.0261272	31.140076
9	70.2	16	19.346187	12	12	31	31	39.2	0.4662075	18.275332	30.275332	0.310805	1.0469299	28.918203	0.2577114	1.0322981	29.328092	0.2526976	1.0309163	29.3674
10	64.8	11	12.362119	12	12	30	30	34.8	0.4662075	16.224019	28.224019	0.310805	1.0409274	27.114301	0.2577114	1.0307986	27.380731	0.2526976	1.0298421	27.406162
11	61.2	8	8.5157974	12	12	28	28	33.2	0.4662075	15.478087	27.478087	0.310805	1.0335193	26.586912	0.2577114	1.0261315	26.778329	0.2526976	1.0254339	26.796548
12	54	0	0	12	12	25	25	29	0.4662075	13.520016	25.520016	0.310805	1	25.520016	0.2577114	1	25.520016	0.2526976	1	25.520016
13	48.6	357	-2.600573	12	12	22	22	26.6	0.4662075	12.401118	24.401118	0.310805	0.9819362	24.850003	0.2577114	0.9847773	24.778312	0.2526976	0.9850455	24.771563
14	39.6	353	-4.871705	12	12	18	18	21.6	0.4662075	10.070081	22.070081	0.310805	0.9541677	23.13019	0.2577114	0.9606994	22.97293	0.2526976	0.9613163	22.95819
15	32.4	347	-7.324478	12	12	12	12	20.4	0.4662075	9.510632	21.510632	0.310805	0.9038506	23.798881	0.2577114	0.9158531	23.486989	0.2526976	0.9169866	23.457958
16	25.2	347	-5.696816	12	12	7	7	18.2	0.4662075	8.4849756	20.484976	0.310805	0.9038506	22.664118	0.2577114	0.9158531	22.367097	0.2526976	0.9169866	22.33945
17	16.2	347	-3.662239	12	18	0	0	16.2	0.4662075	7.5525607	25.552561	0.310805	0.9038506	28.27078	0.2577114	0.9158531	27.900283	0.2526976	0.9169866	27.865797
			268.33798											485.43123			495.06269			496.0234

SF2 1.80902914
SF3 1.84492216
SF4 1.8485024

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.733717		for F3	2.9170997	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (k	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	7.2	62	6.3565325	22	17.6	0	0	7.2	0.6247229	4.4980046	22.098005	0.4164819	0.8373436	26.390606	0.2285251	0.6714055	32.91305	0.2141589	0.6587224	33.546766
2	32.4	62	28.604396	22	22	0	0	32.4	0.6247229	20.241021	42.241021	0.4164819	0.8373436	50.446462	0.2285251	0.6714055	62.914316	0.2141589	0.6587224	64.125683
3	50.4	52	39.710429	22	22	10	10	40.4	0.6247229	25.238804	47.238804	0.4164819	0.9439447	50.044037	0.2285251	0.7958525	59.356229	0.2141589	0.7845333	60.212616
4	63	42	42.148754	22	22	18	18	45	0.6247229	28.112529	50.112529	0.4164819	1.0218753	49.039767	0.2285251	0.896127	55.921237	0.2141589	0.8865156	56.52752
5	72	32	38.147754	22	22	24	24	48	0.6247229	29.986697	51.986697	0.4164819	1.0687685	48.641682	0.2285251	0.9691833	53.639694	0.2141589	0.9615717	54.064296
6	75.6	31	38.930264	22	22	28	28	47.6	0.6247229	29.736808	51.736808	0.4164819	1.0716875	48.276022	0.2285251	0.974899	53.068891	0.2141589	0.9675011	53.474676
7	75.6	26	33.135042	22	22	30	30	45.6	0.6247229	28.487362	50.487362	0.4164819	1.0813732	46.688196	0.2285251	0.9989928	50.538266	0.2141589	0.9926962	50.858826
8	73.8	20	25.23652	22	22	31	31	42.8	0.6247229	26.738138	48.738138	0.4164819	1.0821346	45.038889	0.2285251	1.0178612	47.882894	0.2141589	1.0129485	48.115118
9	70.2	16	19.346187	22	22	31	31	39.2	0.6247229	24.489136	46.489136	0.4164819	1.0760531	43.203385	0.2285251	1.0242547	45.388258	0.2141589	1.0202956	45.564381
10	64.8	11	12.362119	22	22	30	30	34.8	0.6247229	21.740356	43.740356	0.4164819	1.0610878	41.222184	0.2285251	1.0252306	42.663919	0.2141589	1.0224899	42.778275
11	61.2	8	8.5157974	22	22	28	28	33.2	0.6247229	20.740799	42.740799	0.4164819	1.0482239	40.774492	0.2285251	1.0220703	41.817866	0.2141589	1.0200713	41.899815
12	54	0	0	22	22	25	25	29	0.6247229	18.116963	40.116963	0.4164819	1	40.116963	0.2285251	1	40.116963	0.2141589	1	40.116963
13	48.6	357	-2.600573	22	22	22	22	26.6	0.6247229	16.617628	38.617628	0.4164819	0.9762815	39.555834	0.2285251	0.986339	39.15249	0.2141589	0.9871077	39.121999
14	39.6	353	-4.871705	22	22	18	18	21.6	0.6247229	13.494014	35.494014	0.4164819	0.941167	37.712767	0.2285251	0.96429	36.808442	0.2141589	0.9660574	36.741102
15	32.4	347	-7.324478	22	22	12	12	20.4	0.6247229	12.744346	34.744346	0.4164819	0.8799608	39.483971	0.2285251	0.9224511	37.665245	0.2141589	0.9256988	37.533102
16	25.2	347	-5.696816	22	22	7	7	18.2	0.6247229	11.369956	33.369956	0.4164819	0.8799608	37.922094	0.2285251	0.9224511	36.175312	0.2141589	0.9256988	36.048396
17	16.2	347	-3.662239	22	33	0	0	16.2	0.6247229	10.12051	43.12051	0.4164819	0.8799608	49.002763	0.2285251	0.9224511	46.745578	0.2141589	0.9256988	46.581579
			268.33798											733.56011			782.76865			787.31111

SF2 2.73371703
SF3 2.9170997
SF4 2.93402784

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.1941559		for F3	2.2894413	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	7.2	62	6.3565325	15	12	0	0	7.2	0.5772186	4.1559737	16.155974	0.3848124	0.8093841	19.960825	0.2630709	0.7019044	23.017342	0.252122	0.6922382	23.33875
2	32.4	62	28.604396	15	15	0	0	32.4	0.5772186	18.701882	33.701882	0.3848124	0.8093841	41.638924	0.2630709	0.7019044	48.014918	0.252122	0.6922382	48.685386
3	50.4	52	39.710429	15	15	10	10	40.4	0.5772186	23.31963	38.31963	0.3848124	0.9189921	41.697453	0.2630709	0.8230714	46.556876	0.252122	0.8144447	47.050011
4	63	42	42.148754	15	15	18	18	45	0.5772186	25.974836	40.974836	0.3848124	1.0006875	40.946683	0.2630709	0.9192391	44.574731	0.252122	0.911914	44.932785
5	72	32	38.147754	15	15	24	24	48	0.5772186	27.706492	42.706492	0.3848124	1.051989	40.595948	0.2630709	0.9874868	43.24766	0.252122	0.9816857	43.503222
6	75.6	31	38.930264	15	15	28	28	47.6	0.5772186	27.475604	42.475604	0.3848124	1.0553792	40.246769	0.2630709	0.9926884	42.788457	0.252122	0.9870502	43.032869
7	75.6	26	33.135042	15	15	30	30	45.6	0.5772186	26.321167	41.321167	0.3848124	1.0674926	38.708621	0.2630709	1.014134	40.745272	0.252122	1.0093352	40.938994
8	73.8	20	25.23652	15	15	31	31	42.8	0.5772186	24.704955	39.704955	0.3848124	1.0713049	37.062235	0.2630709	1.0296744	38.560689	0.252122	1.0259304	38.701414
9	70.2	16	19.346187	15	15	31	31	39.2	0.5772186	22.626968	37.626968	0.3848124	1.0673254	35.253512	0.2630709	1.0337751	36.397636	0.252122	1.0307577	36.504184
10	64.8	11	12.362119	15	15	30	30	34.8	0.5772186	20.087206	35.087206	0.3848124	1.0550461	33.256563	0.2630709	1.031821	34.005128	0.252122	1.0297323	34.074106
11	61.2	8	8.5157974	15	15	28	28	33.2	0.5772186	19.163657	34.163657	0.3848124	1.0438172	32.729539	0.2630709	1.0268773	33.269464	0.252122	1.0253538	33.318897
12	54	0	0	15	15	25	25	29	0.5772186	16.739339	31.739339	0.3848124	1	31.739339	0.2630709	1	31.739339	0.252122	1	31.739339
13	48.6	357	-2.600573	15	15	22	22	26.6	0.5772186	15.354014	30.354014	0.3848124	0.9779761	31.037582	0.2630709	0.9844905	30.832207	0.252122	0.9850763	30.81387
14	39.6	353	-4.871705	15	15	18	18	21.6	0.5772186	12.467921	27.467921	0.3848124	0.9450631	29.064642	0.2630709	0.9600401	28.611223	0.252122	0.9613871	28.571137
15	32.4	347	-7.324478	15	15	12	12	20.4	0.5772186	11.775259	26.775259	0.3848124	0.8871201	30.182224	0.2630709	0.9146415	29.274047	0.252122	0.9171167	29.195041
16	25.2	347	-5.696816	15	15	7	7	18.2	0.5772186	10.505378	25.505378	0.3848124	0.8871201	28.75076	0.2630709	0.9146415	27.885655	0.252122	0.9171167	27.810396
17	16.2	347	-3.662239	15	22.5	0	0	16.2	0.5772186	9.3509409	31.850941	0.3848124	0.8871201	35.903751	0.2630709	0.9146415	34.823414	0.252122	0.9171167	34.729432
			268.33798											588.77537			614.34406			616.93983

SF2 2.1941559
SF3 2.28944129
SF4 2.29911481

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.6722826		for F3	1.6920642	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kP	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	7.2	62	6.3565325	10	8	0	0	7.2	0.4662075	3.3566936	11.356694	0.310805	0.7440465	15.263419	0.2787851	0.7157777	15.86623	0.2755259	0.7129003	15.930269
2	32.4	62	28.604396	10	10	0	0	32.4	0.4662075	15.105121	25.105121	0.310805	0.7440465	33.741334	0.2787851	0.7157777	35.073909	0.2755259	0.7129003	35.215474
3	50.4	52	39.710429	10	10	10	10	40.4	0.4662075	18.834781	28.834781	0.310805	0.8606813	33.502275	0.2787851	0.8354526	34.513962	0.2755259	0.8328847	34.620376
4	63	42	42.148754	10	10	18	18	45	0.4662075	20.979335	30.979335	0.310805	0.9511745	32.56956	0.2787851	0.9297523	33.319987	0.2755259	0.9275718	33.398314
5	72	32	38.147754	10	10	24	24	48	0.4662075	22.377958	32.377958	0.310805	1.0127777	31.969462	0.2787851	0.9958126	32.514107	0.2755259	0.9940858	32.570588
6	75.6	31	38.930264	10	10	28	28	47.6	0.4662075	22.191475	32.191475	0.310805	1.0172691	31.644995	0.2787851	1.0007804	32.166372	0.2755259	0.9991021	32.220406
7	75.6	26	33.135042	10	10	30	30	45.6	0.4662075	21.25906	31.25906	0.310805	1.0350556	30.200368	0.2787851	1.0210215	30.615478	0.2755259	1.019593	30.658371
8	73.8	20	25.23652	10	10	31	31	42.8	0.4662075	19.953679	29.953679	0.310805	1.0459975	28.636474	0.2787851	1.035048	28.93941	0.2755259	1.0339335	28.970605
9	70.2	16	19.346187	10	10	31	31	39.2	0.4662075	18.275332	28.275332	0.310805	1.0469299	27.007855	0.2787851	1.0381057	27.237431	0.2755259	1.0372075	27.261018
10	64.8	11	12.362119	10	10	30	30	34.8	0.4662075	16.224019	26.224019	0.310805	1.0409274	25.192937	0.2787851	1.0348189	25.341651	0.2755259	1.0341971	25.356887
11	61.2	8	8.5157974	10	10	28	28	33.2	0.4662075	15.478087	25.478087	0.310805	1.0335193	24.651777	0.2787851	1.0290638	24.75851	0.2755259	1.0286103	24.769426
12	54	0	0	10	10	25	25	29	0.4662075	13.520016	23.520016	0.310805	1	23.520016	0.2787851	1	23.520016	0.2755259	1	23.520016
13	48.6	357	-2.600573	10	10	22	22	26.6	0.4662075	12.401118	22.401118	0.310805	0.9819362	22.813211	0.2787851	0.9836496	22.773473	0.2755259	0.983824	22.769436
14	39.6	353	-4.871705	10	10	18	18	21.6	0.4662075	10.070081	20.070081	0.310805	0.9541677	21.034123	0.2787851	0.9581069	20.947643	0.2755259	0.9585079	20.93888
15	32.4	347	-7.324478	10	10	12	12	20.4	0.4662075	9.510632	19.510632	0.310805	0.9038506	21.586126	0.2787851	0.9110891	21.414625	0.2755259	0.9118259	21.397321
16	25.2	347	-5.696816	10	10	7	7	18.2	0.4662075	8.4849756	18.484976	0.310805	0.9038506	20.451363	0.2787851	0.9110891	20.288878	0.2755259	0.9118259	20.272483
17	16.2	347	-3.662239	10	15	0	0	16.2	0.4662075	7.5525607	22.552561	0.310805	0.9038506	24.951647	0.2787851	0.9110891	24.753408	0.2755259	0.9118259	24.733406
			268.33798											448.73694			454.04509			454.60328

SF2 1.6722826
SF3 1.69206418
SF4 1.69414435

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.6722826		for F3	1.6920642	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	7.2	62	6.3565325	5	4	0	0	7.2	0.3638957	2.6200488	6.6200488	0.2425971	0.6838291	9.680853	0.2176042	0.661764	10.00364	0.2150602	0.6595181	10.037706
2	32.4	62	28.604396	5	5	0	0	32.4	0.3638957	11.790219	16.790219	0.2425971	0.6838291	24.55324	0.2176042	0.661764	25.371914	0.2150602	0.6595181	25.458316
3	50.4	52	39.710429	5	5	10	10	40.4	0.3638957	14.701385	19.701385	0.2425971	0.8069399	24.414933	0.2176042	0.7872479	25.025644	0.2150602	0.7852435	25.089524
4	63	42	42.148754	5	5	18	18	45	0.3638957	16.375305	21.375305	0.2425971	0.9055416	23.604996	0.2176042	0.8888206	24.049066	0.2150602	0.8871186	24.095205
5	72	32	38.147754	5	5	24	24	48	0.3638957	17.466992	22.466992	0.2425971	0.9766391	23.004394	0.2176042	0.9633971	23.320593	0.2150602	0.9620493	23.353266
6	75.6	31	38.930264	5	5	28	28	47.6	0.3638957	17.321434	22.321434	0.2425971	0.9821454	22.727219	0.2176042	0.9692753	23.028993	0.2150602	0.9679652	23.06016
7	75.6	26	33.135042	5	5	30	30	45.6	0.3638957	16.593642	21.593642	0.2425971	1.0051605	21.482781	0.2176042	0.9942062	21.71948	0.2150602	0.9930912	21.743866
8	73.8	20	25.23652	5	5	31	31	42.8	0.3638957	15.574734	20.574734	0.2425971	1.0226732	20.118581	0.2176042	1.0141267	20.28813	0.2150602	1.0132568	20.305549
9	70.2	16	19.346187	5	5	31	31	39.2	0.3638957	14.26471	19.26471	0.2425971	1.0281328	18.73757	0.2176042	1.021245	18.863945	0.2150602	1.0205439	18.876904
10	64.8	11	12.362119	5	5	30	30	34.8	0.3638957	12.663569	17.663569	0.2425971	1.0279152	17.183878	0.2176042	1.0231472	17.263957	0.2150602	1.0226619	17.27215
11	61.2	8	8.5157974	5	5	28	28	33.2	0.3638957	12.081336	17.081336	0.2425971	1.0240284	16.68053	0.2176042	1.0205507	16.737371	0.2150602	1.0201967	16.743179
12	54	0	0	5	5	25	25	29	0.3638957	10.552974	15.552974	0.2425971	1	15.552974	0.2176042	1	15.552974	0.2150602	1	15.552974
13	48.6	357	-2.600573	5	5	22	22	26.6	0.3638957	9.6796246	14.679625	0.2425971	0.985586	14.894311	0.2176042	0.9869234	14.874128	0.2150602	0.9870595	14.872077
14	39.6	353	-4.871705	5	5	18	18	21.6	0.3638957	7.8601463	12.860146	0.2425971	0.9625588	13.360374	0.2176042	0.9656336	13.317833	0.2150602	0.9659465	13.313518
15	32.4	347	-7.324478	5	5	12	12	20.4	0.3638957	7.4234715	12.423472	0.2425971	0.9192699	13.514498	0.2176042	0.9249199	13.431943	0.2150602	0.925495	13.423596
16	25.2	347	-5.696816	5	5	7	7	18.2	0.3638957	6.6229011	11.622901	0.2425971	0.9192699	12.643622	0.2176042	0.9249199	12.566386	0.2150602	0.925495	12.558578
17	16.2	347	-3.662239	5	7.5	0	0	16.2	0.3638957	5.8951097	13.39511	0.2425971	0.9192699	14.571465	0.2176042	0.9249199	14.482453	0.2150602	0.925495	14.473454
			268.33798											306.72622			309.89845			310.23002

SF2 1.14305927
SF3 1.15488104
SF4 1.15611669

1

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name:	For Ormiston Project Management Limited		
Job No:	07-56	Date:	27-Jun-07
Site Address:	Lot 3 DP 44530, Wallace Lane, Paihia	Designer:	PK

SLIP PROFILE A2

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	1	0.5	9	50	0	0	0
2	1	1.3	23.4	49	0	0	0
3	1	2.1	37.8	46	0	0	0
4	1	2.65	47.7	41	0.3	3	3
5	1	3	54	37.5	0.8	8	8
6	1	3.2	57.6	33	1.2	12	12
7	1	3.2	57.6	27	1.5	15	15
8	1	3.2	57.6	23	1.65	16.5	16.5
9	1	3.1	55.8	18	1.75	17.5	17.5
10	1	3	54	15	1.7	17	17
11	1	2.6	46.8	10	1.6	16	16
12	1	2.3	41.4	9	1.5	15	15
13	1	1.8	32.4	6	1.3	13	13
14	1	1.4	25.2	4	1.1	11	11
15	1	1	18	0	0.8	8	8
16	1	0.6	10.8	358	0.5	5	5
17	1	0.2	3.6	357	0.1	1	1

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.735725		for F3	1.766572	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9	50	6.8934475	12	12	0	0	9	0.4662075	4.1958671	16.195867	0.310805	0.8809712	18.384104	0.2685952	0.8486412	19.08447	0.2639052	0.8450489	19.165598
2	23.4	49	17.657727	12	12	0	0	23.4	0.4662075	10.909254	22.909254	0.310805	0.8907154	25.720062	0.2685952	0.8588637	26.67391	0.2639052	0.8553246	26.784281
3	37.8	46	27.187067	12	12	0	0	37.8	0.4662075	17.622642	29.622642	0.310805	0.918309	32.257815	0.2685952	0.8879503	33.360698	0.2639052	0.884577	33.487917
4	47.7	41	31.289156	12	12	3	3	44.7	0.4662075	20.839473	32.839473	0.310805	0.9586729	34.255139	0.2685952	0.9309851	35.273898	0.2639052	0.9279086	35.390849
5	54	37.5	32.867827	12	12	8	8	46	0.4662075	21.445543	33.445543	0.310805	0.9826041	34.037657	0.2685952	0.9569126	34.951512	0.2639052	0.9540579	35.056092
6	57.6	33	31.365959	12	12	12	12	45.6	0.4662075	21.25906	33.25906	0.310805	1.0079779	32.995821	0.2685952	0.9849927	33.765793	0.2639052	0.9824387	33.853571
7	57.6	27	26.14529	12	12	15	15	42.6	0.4662075	19.860437	31.860437	0.310805	1.0321248	30.868785	0.2685952	1.0129653	31.452645	0.2639052	1.0108364	31.518886
8	57.6	23	22.502098	12	12	16.5	16.5	41.1	0.4662075	19.161126	31.161126	0.310805	1.0419539	29.906433	0.2685952	1.0254642	30.387336	0.2639052	1.023632	30.441727
9	55.8	18	17.240003	12	12	17.5	17.5	38.3	0.4662075	17.855745	29.855745	0.310805	1.0471013	28.512757	0.2685952	1.0340602	28.872348	0.2639052	1.0326111	28.912864
10	54	15	13.973652	12	12	17	17	37	0.4662075	17.249676	29.249676	0.310805	1.046366	27.953579	0.2685952	1.0354434	28.248456	0.2639052	1.0342297	28.281605
11	46.8	10	8.1252172	12	12	16	16	30.8	0.4662075	14.359189	26.359189	0.310805	1.0387741	25.375285	0.2685952	1.0314458	25.555573	0.2639052	1.0306316	25.575764
12	41.4	9	6.4751752	12	12	15	15	26.4	0.4662075	12.307877	24.307877	0.310805	1.0363045	23.456307	0.2685952	1.0297027	23.606695	0.2639052	1.0289691	23.623524
13	32.4	6	3.3860856	12	12	13	13	19.4	0.4662075	9.0444245	21.044425	0.310805	1.0270058	20.491047	0.2685952	1.0225945	20.579442	0.2639052	1.0221044	20.589311
14	25.2	4	1.7575321	12	12	11	11	14.2	0.4662075	6.6201458	18.620146	0.310805	1.0192415	18.268629	0.2685952	1.0162977	18.321547	0.2639052	1.0159706	18.327446
15	18	0	0	12	12	8	8	10	0.4662075	4.6620745	16.662075	0.310805	1	16.662075	0.2685952	1	16.662075	0.2639052	1	16.662075
16	10.8	358	-0.389637	12	12	5	5	5.8	0.4662075	2.7040032	14.704003	0.310805	0.9881359	14.880547	0.2685952	0.9896588	14.85765	0.2639052	0.989828	14.85511
17	3.6	357	-0.192635	12	12	1	1	2.6	0.4662075	1.2121394	13.212139	0.310805	0.9819362	13.455191	0.2685952	0.9841949	13.424312	0.2639052	0.9844458	13.42089
			246.28397											427.48123			435.07836			435.94751

SF2 1.73572499

SF3 1.766572

SF4 1.77010106

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.6282669		for F3	2.8229006	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9	50	6.8934475	22	22	0	0	9	0.6247229	5.6225058	27.622506	0.4164819	0.9619133	28.716212	0.2376938	0.8249726	33.482937	0.2213053	0.81242	34.000279
2	23.4	49	17.657727	22	22	0	0	23.4	0.6247229	14.618515	36.618515	0.4164819	0.9704596	37.733169	0.2376938	0.8355454	43.825881	0.2213053	0.8231786	44.48429
3	37.8	46	27.187067	22	22	0	0	37.8	0.6247229	23.614524	45.614524	0.4164819	0.9943155	45.875302	0.2376938	0.8657249	52.689396	0.2213053	0.8539377	53.416686
4	47.7	41	31.289156	22	22	3	3	44.7	0.6247229	27.925112	49.925112	0.4164819	1.0279924	48.565642	0.2376938	0.9107151	54.819681	0.2213053	0.8999649	55.474508
5	54	37.5	32.867827	22	22	8	8	46	0.6247229	28.737252	50.737252	0.4164819	1.0469258	48.463082	0.2376938	0.9381041	54.084887	0.2213053	0.9281289	54.666167
6	57.6	33	31.365959	22	22	12	12	45.6	0.6247229	28.487362	50.487362	0.4164819	1.0655241	47.382657	0.2376938	0.9681654	52.147455	0.2213053	0.9592411	52.632611
7	57.6	27	26.14529	22	22	15	15	42.6	0.6247229	26.613194	48.613194	0.4164819	1.0800927	45.008353	0.2376938	0.9989388	48.664837	0.2213053	0.9914999	49.029956
8	57.6	23	22.502098	22	22	16.5	16.5	41.1	0.6247229	25.67611	47.67611	0.4164819	1.0832379	44.012596	0.2376938	1.0133923	47.046057	0.2213053	1.0069899	47.345172
9	55.8	18	17.240003	22	22	17.5	17.5	38.3	0.6247229	23.926886	45.926886	0.4164819	1.0797513	42.534687	0.2376938	1.0245129	44.828022	0.2213053	1.0194495	45.050675
10	54	15	13.973652	22	22	17	17	37	0.6247229	23.114746	45.114746	0.4164819	1.0737122	42.017541	0.2376938	1.027447	43.909562	0.2213053	1.0232061	44.091554
11	46.8	10	8.1252172	22	22	16	16	30.8	0.6247229	19.241464	41.241464	0.4164819	1.0571213	39.012992	0.2376938	1.0260809	40.193191	0.2213053	1.0232356	40.304956
12	41.4	9	6.4751752	22	22	15	15	26.4	0.6247229	16.492684	38.492684	0.4164819	1.0528329	36.561057	0.2376938	1.0248695	37.558618	0.2213053	1.0223063	37.65279
13	32.4	6	3.3860856	22	22	13	13	19.4	0.6247229	12.119624	34.119624	0.4164819	1.03805	32.86896	0.2376938	1.0193651	33.471447	0.2213053	1.0176523	33.527781
14	25.2	4	1.7575321	22	22	11	11	14.2	0.6247229	8.8710646	30.871065	0.4164819	1.0266118	30.070826	0.2376938	1.0141425	30.440558	0.2213053	1.0129995	30.474905
15	18	0	0	22	22	8	8	10	0.6247229	6.2472286	28.247229	0.4164819	1	28.247229	0.2376938	1	28.247229	0.2213053	1	28.247229
16	10.8	358	-0.389637	22	22	5	5	5.8	0.6247229	3.6233926	25.623393	0.4164819	0.9843234	26.031478	0.2376938	0.9907736	25.862006	0.2213053	0.9913649	25.846581
17	3.6	357	-0.192635	22	22	1	1	2.6	0.6247229	1.6242794	23.624279	0.4164819	0.9762815	24.198225	0.2376938	0.9858484	23.9634	0.2213053	0.9867253	23.942103
			246.28397											647.30001			695.23516			700.18824

SF2 2.62826694
SF3 2.82290063
SF4 2.84301188

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.0962646		for F3	2.1910325	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9	50	6.8934475	15	15	0	0	9	0.5772186	5.1949672	20.194967	0.3848124	0.9376564	21.537706	0.2753558	0.8538193	23.652506	0.2634459	0.8446971	23.907939
2	23.4	49	17.657727	15	15	0	0	23.4	0.5772186	13.506915	28.506915	0.3848124	0.9465616	30.116279	0.2753558	0.8639653	32.99544	0.2634459	0.8549781	33.342277
3	37.8	46	27.187067	15	15	0	0	37.8	0.5772186	21.818862	36.818862	0.3848124	0.9715377	37.897513	0.2753558	0.8928127	41.239178	0.2634459	0.8842467	41.638675
4	47.7	41	31.289156	15	15	3	3	44.7	0.5772186	25.80167	40.80167	0.3848124	1.0072186	40.509252	0.2753558	0.9354197	43.618569	0.2634459	0.9276074	43.985927
5	54	37.5	32.867827	15	15	8	8	46	0.5772186	26.552054	41.552054	0.3848124	1.0276497	40.434063	0.2753558	0.9610275	43.237113	0.2634459	0.9537784	43.565732
6	57.6	33	31.365959	15	15	12	12	45.6	0.5772186	26.321167	41.321167	0.3848124	1.0482785	39.418119	0.2753558	0.9886742	41.794525	0.2634459	0.9821887	42.070499
7	57.6	27	26.14529	15	15	15	15	42.6	0.5772186	24.589511	39.589511	0.3848124	1.0657176	37.148221	0.2753558	1.016034	38.964751	0.2634459	1.010628	39.173181
8	57.6	23	22.502098	15	15	16.5	16.5	41.1	0.5772186	23.723683	38.723683	0.3848124	1.0708658	36.161099	0.2753558	1.0281053	37.665094	0.2634459	1.0234526	37.836323
9	55.8	18	17.240003	15	15	17.5	17.5	38.3	0.5772186	22.107471	37.107471	0.3848124	1.0699667	34.680959	0.2753558	1.0361489	35.812875	0.2634459	1.0324692	35.94051
10	54	15	13.973652	15	15	17	17	37	0.5772186	21.357087	36.357087	0.3848124	1.065517	34.121545	0.2753558	1.0371928	35.053355	0.2634459	1.0341109	35.157824
11	46.8	10	8.1252172	15	15	16	16	30.8	0.5772186	17.778332	32.778332	0.3848124	1.051623	31.169282	0.2753558	1.0326196	31.742893	0.2634459	1.0305518	31.806583
12	41.4	9	6.4751752	15	15	15	15	26.4	0.5772186	15.23857	30.23857	0.3848124	1.0478796	28.856912	0.2753558	1.0307601	29.336188	0.2634459	1.0288973	29.389299
13	32.4	6	3.3860856	15	15	13	13	19.4	0.5772186	11.19804	26.19804	0.3848124	1.0347402	25.31847	0.2753558	1.0233011	25.601498	0.2634459	1.0220564	25.632676
14	25.2	4	1.7575321	15	15	11	11	14.2	0.5772186	8.1965038	23.196504	0.3848124	1.0244031	22.643923	0.2753558	1.0167692	22.813932	0.2634459	1.0159386	22.832585
15	18	0	0	15	15	8	8	10	0.5772186	5.7721858	20.772186	0.3848124	1	20.772186	0.2753558	1	20.772186	0.2634459	1	20.772186
16	10.8	358	-0.389637	15	15	5	5	5.8	0.5772186	3.3478677	18.347868	0.3848124	0.9854659	18.61847	0.2753558	0.9894149	18.54416	0.2634459	0.9898445	18.536111
17	3.6	357	-0.192635	15	15	1	1	2.6	0.5772186	1.5007683	16.500768	0.3848124	0.9779761	16.872363	0.2753558	0.9838331	16.771918	0.2634459	0.9844704	16.761061
			246.28397											516.27636			539.61818			542.34939

SF2 2.0962646
SF3 2.19103253
SF4 2.20213031

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.5964399		for F3	1.6089813	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9	50	6.8934475	10	10	0	0	9	0.4662075	4.1958671	14.195867	0.310805	0.8809712	16.113883	0.2920294	0.8665903	16.381289	0.2897532	0.8648469	16.414313
2	23.4	49	17.657727	10	10	0	0	23.4	0.4662075	10.909254	20.909254	0.310805	0.8907154	23.474676	0.2920294	0.8765473	23.854109	0.2897532	0.8748296	23.900945
3	37.8	46	27.187067	10	10	0	0	37.8	0.4662075	17.622642	27.622642	0.310805	0.918309	30.079899	0.2920294	0.904805	30.528834	0.2897532	0.9031678	30.584174
4	47.7	41	31.289156	10	10	3	3	44.7	0.4662075	20.839473	30.839473	0.310805	0.9586729	32.168922	0.2920294	0.9463569	32.58757	0.2897532	0.9448638	32.639067
5	54	37.5	32.867827	10	10	8	8	46	0.4662075	21.445543	31.445543	0.310805	0.9826041	32.00225	0.2920294	0.9711762	32.378825	0.2897532	0.9697907	32.425082
6	57.6	33	31.365959	10	10	12	12	45.6	0.4662075	21.25906	31.25906	0.310805	1.0079779	31.011651	0.2920294	0.9977538	31.329433	0.2897532	0.9965142	31.368403
7	57.6	27	26.14529	10	10	15	15	42.6	0.4662075	19.860437	29.860437	0.310805	1.0321248	28.931035	0.2920294	1.0236023	29.171912	0.2897532	1.0225691	29.201388
8	57.6	23	22.502098	10	10	16.5	16.5	41.1	0.4662075	19.161126	29.161126	0.310805	1.0419539	27.986963	0.2920294	1.0346191	28.185375	0.2897532	1.0337298	28.20962
9	55.8	18	17.240003	10	10	17.5	17.5	38.3	0.4662075	17.855745	27.855745	0.310805	1.0471013	26.602722	0.2920294	1.0413004	26.750921	0.2897532	1.0405972	26.769
10	54	15	13.973652	10	10	17	17	37	0.4662075	17.249676	27.249676	0.310805	1.046366	26.042202	0.2920294	1.0415075	26.163688	0.2897532	1.0409184	26.178493
11	46.8	10	8.1252172	10	10	16	16	30.8	0.4662075	14.359189	24.359189	0.310805	1.0387741	23.449939	0.2920294	1.0355144	23.523758	0.2897532	1.0351192	23.532739
12	41.4	9	6.4751752	10	10	15	15	26.4	0.4662075	12.307877	22.307877	0.310805	1.0363045	21.526373	0.2920294	1.0333679	21.587546	0.2897532	1.0330119	21.594986
13	32.4	6	3.3860856	10	10	13	13	19.4	0.4662075	9.0444245	19.044425	0.310805	1.0270058	18.543638	0.2920294	1.0250436	18.579136	0.2897532	1.0248057	18.583449
14	25.2	4	1.7575321	10	10	11	11	14.2	0.4662075	6.6201458	16.620146	0.310805	1.0192415	16.306386	0.2920294	1.0179321	16.327362	0.2897532	1.0177733	16.329909
15	18	0	0	10	10	8	8	10	0.4662075	4.6620745	14.662075	0.310805	1	14.662075	0.2920294	1	14.662075	0.2897532	1	14.662075
16	10.8	358	-0.389637	10	10	5	5	5.8	0.4662075	2.7040032	12.704003	0.310805	0.9881359	12.856534	0.2920294	0.9888133	12.847727	0.2897532	0.9888954	12.84666
17	3.6	357	-0.192635	10	10	1	1	2.6	0.4662075	1.2121394	11.212139	0.310805	0.9819362	11.418399	0.2920294	0.9829409	11.406728	0.2897532	0.9830627	11.405314
			246.28397											393.17754			396.26629			396.64562

SF2 1.59643988
SF3 1.60898126
SF4 1.61052147

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.5964399		for F3	1.6089813	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9	50	6.8934475	5	5	0	0	9	0.3638957	3.275061	8.275061	0.2425971	0.8287282	9.9852532	0.227942	0.8175033	10.122358	0.2261653	0.8161424	10.139236
2	23.4	49	17.657727	5	5	0	0	23.4	0.3638957	8.5151585	13.515158	0.2425971	0.8392455	16.10394	0.227942	0.8281866	16.318977	0.2261653	0.8268459	16.345438
3	37.8	46	27.187067	5	5	0	0	37.8	0.3638957	13.755256	18.755256	0.2425971	0.8692515	21.576328	0.227942	0.8587111	21.841172	0.2261653	0.8574332	21.873723
4	47.7	41	31.289156	5	5	3	3	44.7	0.3638957	16.266136	21.266136	0.2425971	0.9139314	23.268853	0.227942	0.9043183	23.516207	0.2261653	0.9031529	23.546553
5	54	37.5	32.867827	5	5	8	8	46	0.3638957	16.7392	21.7392	0.2425971	0.9410885	23.10006	0.227942	0.9321685	23.321107	0.2261653	0.931087	23.348194
6	57.6	33	31.365959	5	5	12	12	45.6	0.3638957	16.593642	21.593642	0.2425971	0.9708355	22.242329	0.227942	0.9628551	22.42668	0.2261653	0.9618876	22.449237
7	57.6	27	26.14529	5	5	15	15	42.6	0.3638957	15.501955	20.501955	0.2425971	1.0011644	20.47811	0.227942	0.9945123	20.615084	0.2261653	0.9937058	20.631815
8	57.6	23	22.502098	5	5	16.5	16.5	41.1	0.3638957	14.956112	19.956112	0.2425971	1.0153078	19.655234	0.227942	1.0095826	19.766696	0.2261653	1.0088885	19.780295
9	55.8	18	17.240003	5	5	17.5	17.5	38.3	0.3638957	13.937204	18.937204	0.2425971	1.0260278	18.456814	0.227942	1.0214999	18.538625	0.2261653	1.020951	18.548593
10	54	15	13.973652	5	5	17	17	37	0.3638957	13.46414	18.46414	0.2425971	1.0287158	17.948728	0.227942	1.0249235	18.01514	0.2261653	1.0244637	18.023225
11	46.8	10	8.1252172	5	5	16	16	30.8	0.3638957	11.207986	16.207986	0.2425971	1.0269321	15.782918	0.227942	1.0243878	15.82212	0.2261653	1.0240793	15.826886
12	41.4	9	6.4751752	5	5	15	15	26.4	0.3638957	9.6068455	14.606845	0.2425971	1.0256364	14.241738	0.227942	1.0233443	14.273638	0.2261653	1.0230664	14.277515
13	32.4	6	3.3860856	5	5	13	13	19.4	0.3638957	7.0595758	12.059576	0.2425971	1.0198775	11.824534	0.227942	1.0183459	11.842318	0.2261653	1.0181602	11.844477
14	25.2	4	1.7575321	5	5	11	11	14.2	0.3638957	5.1673184	10.167318	0.2425971	1.0144845	10.022153	0.227942	1.0134624	10.03226	0.2261653	1.0133385	10.033487
15	18	0	0	5	5	8	8	10	0.3638957	3.6389566	8.6389566	0.2425971	1	8.6389566	0.227942	1	8.6389566	0.2261653	1	8.6389566
16	10.8	358	-0.389637	5	5	5	5	5.8	0.3638957	2.1105948	7.1105948	0.2425971	0.9905967	7.1780926	0.227942	0.9911254	7.1742634	0.2261653	0.9911895	7.1737994
17	3.6	357	-0.192635	5	5	1	1	2.6	0.3638957	0.9461287	5.9461287	0.2425971	0.985586	6.0330896	0.227942	0.9863702	6.0282931	0.2261653	0.9864653	6.0277121
			246.28397											266.53713			268.29389			268.50914

SF2 1.082235
SF3 1.08936809
SF4 1.09024207

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name: For Ormiston Project Management Limited
Job No: 07-56
Site Address: Lot 3 DP 44530, Wallace Lane, Paihia
Date: 27-Jun-07
Designer: PK

SLIP PROFILE A3

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	0.9	1	16.2	67	0	0	0
2	1	2.4	43.2	57	0.6	6	6
3	1	3.2	57.6	47	2.6	26	26
4	1	3.6	64.8	38	2.2	22	22
5	1	3.7	66.6	27	2.4	24	24
6	1	3.6	64.8	18	2.5	25	25
7	1	3.4	61.2	11.5	2.5	25	25
8	1	3.1	55.8	6	2.2	22	22
9	1	2.9	52.2	0	2	20	20
10	1	2.5	45	357	1.5	15	15
11	1	2.1	37.8	351.5	1.1	11	11
12	1	1.7	30.6	350	0.6	6	6
13	1	1.2	21.6	349.5	0	0	0
14	1.5	0.7	18.9	349.5	0	0	0
			0			0	0
			0			0	0
			0			0	0

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.2026536		for F3	2.2813251	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	67	14.910782	12	10.8	0	0	16.2	0.4662075	7.5525607	18.352561	0.310805	0.6770049	27.108462	0.2116572	0.5857474	31.331869	0.2043582	0.5790293	31.695394
2	43.2	57	36.226152	12	12	6	6	37.2	0.4662075	17.342917	29.342917	0.310805	0.8054276	36.431476	0.2116572	0.7222854	40.625099	0.2043582	0.7161647	40.972302
3	57.6	47	42.119894	12	12	26	26	31.6	0.4662075	14.732155	26.732155	0.310805	0.9093871	29.395794	0.2116572	0.8368854	31.942431	0.2043582	0.8315481	32.147456
4	64.8	38	39.888474	12	12	22	22	42.8	0.4662075	19.953679	31.953679	0.310805	0.9794078	32.625511	0.2116572	0.9183761	34.793675	0.2043582	0.9138831	34.964734
5	66.6	27	30.230492	12	12	24	24	42.6	0.4662075	19.860437	31.860437	0.310805	1.0321248	30.868785	0.2116572	0.9871205	32.276139	0.2043582	0.9838074	32.384833
6	64.8	18	20.020649	12	12	25	25	39.8	0.4662075	18.555057	30.555057	0.310805	1.0471013	29.180611	0.2116572	1.0164686	30.060011	0.2043582	1.0142135	30.12685
7	61.2	11.5	12.199047	12	12	25	25	36.2	0.4662075	16.87671	28.87671	0.310805	1.0418853	27.715825	0.2116572	1.0221221	28.251724	0.2043582	1.0206671	28.291995
8	55.8	6	5.831592	12	12	22	22	33.8	0.4662075	15.757812	27.757812	0.310805	1.0270058	27.027901	0.2116572	1.016644	27.303374	0.2043582	1.0158812	27.323876
9	52.2	0	0	12	12	20	20	32.2	0.4662075	15.01188	27.01188	0.310805	1	27.01188	0.2116572	1	27.01188	0.2043582	1	27.01188
10	45	357	-2.407938	12	12	15	15	30	0.4662075	13.986224	25.986224	0.310805	0.9819362	26.464268	0.2116572	0.9872416	26.322051	0.2043582	0.9876322	26.311641
11	37.8	351.5	-5.630458	12	12	11	11	26.8	0.4662075	12.49436	24.49436	0.310805	0.9425485	25.987373	0.2116572	0.957317	25.586468	0.2043582	0.9584042	25.557442
12	30.6	350	-5.348358	12	12	6	6	24.6	0.4662075	11.468703	23.468703	0.310805	0.9302836	25.227472	0.2116572	0.9476129	24.766128	0.2043582	0.9488887	24.732831
13	21.6	349.5	-3.960724	12	12	0	0	21.6	0.4662075	10.070081	22.070081	0.310805	0.9260532	23.832411	0.2116572	0.9442336	23.373538	0.2043582	0.945572	23.340454
14	18.9	349.5	-3.465634	12	18	0	0	18.9	0.4662075	8.8113208	26.811321	0.310805	0.9260532	28.952246	0.2116572	0.9442336	28.394795	0.2043582	0.945572	28.354604
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2116572	1	0	0.2043582	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2116572	1	0	0.2043582	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2116572	1	0	0.2043582	1	0
			180.61397											397.83001			412.03918			413.21629

SF2 2.20265363
SF3 2.28132511
SF4 2.28784239

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	[illegible]	15	16	17	18			
												for F1	[illegible]		for F2	3.3515194		for F3	3.6148753	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	67	14.910782	22	19.8	0	0	16.2	0.6247229	10.12051	29.92051	0.4164819	0.7742719	38.643415	0.1863999	0.5625001	53.192007	0.17282	0.550001	54.400833
2	43.2	57	36.226152	22	22	6	6	37.2	0.6247229	23.23969	45.23969	0.4164819	0.894045	50.601136	0.1863999	0.7011055	64.526226	0.17282	0.6897178	65.591592
3	57.6	47	42.119894	22	22	26	26	31.6	0.6247229	19.741242	41.741242	0.4164819	0.9866632	42.305464	0.1863999	0.8184161	51.002469	0.17282	0.8084859	51.628909
4	64.8	38	39.888474	22	22	22	22	42.8	0.6247229	26.738138	48.738138	0.4164819	1.0444586	46.663544	0.1863999	0.9028286	53.98382	0.17282	0.8944694	54.488326
5	66.6	27	30.230492	22	22	24	24	42.6	0.6247229	26.613194	48.613194	0.4164819	1.0800927	45.008353	0.1863999	0.9756559	49.826167	0.17282	0.9694918	50.142963
6	64.8	18	20.020649	22	22	25	25	39.8	0.6247229	24.86397	46.86397	0.4164819	1.0797513	43.402558	0.1863999	1.0086651	46.461379	0.17282	1.0044694	46.655447
7	61.2	11.5	12.199047	22	22	25	25	36.2	0.6247229	22.614968	44.614968	0.4164819	1.0629499	41.972784	0.1863999	1.0170875	43.865417	0.17282	1.0143806	43.982473
8	55.8	6	5.831592	22	22	22	22	33.8	0.6247229	21.115633	43.115633	0.4164819	1.03805	41.535218	0.1863999	1.0140044	42.520164	0.17282	1.0125852	42.579759
9	52.2	0	0	22	22	20	20	32.2	0.6247229	20.116076	42.116076	0.4164819	1	42.116076	0.1863999	1	42.116076	0.17282	1	42.116076
10	45	357	-2.407938	22	22	15	15	30	0.6247229	18.741686	40.741686	0.4164819	0.9762815	41.731495	0.1863999	0.9885931	41.211784	0.17282	0.9893198	41.181514
11	37.8	351.5	-5.630458	22	22	11	11	26.8	0.6247229	16.742573	38.742573	0.4164819	0.9268075	41.802178	0.1863999	0.9610791	40.311532	0.17282	0.9631019	40.226867
12	30.6	350	-5.348358	22	22	6	6	24.6	0.6247229	15.368182	37.368182	0.4164819	0.9118131	40.982285	0.1863999	0.9520275	39.25116	0.17282	0.954401	39.153545
13	21.6	349.5	-3.960724	22	22	0	0	21.6	0.6247229	13.494014	35.494014	0.4164819	0.9066756	39.147425	0.1863999	0.948865	37.406812	0.17282	0.9513551	37.308902
14	18.9	349.5	-3.465634	22	33	0	0	18.9	0.6247229	11.807262	44.807262	0.4164819	0.9066756	49.419289	0.1863999	0.948865	47.221958	0.17282	0.9513551	47.098358
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.1863999	1	0	0.17282	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.1863999	1	0	0.17282	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.1863999	1	0	0.17282	1	0
			180.61397											605.33122			652.89697			656.55556

SF2 **3.35151938**
SF3 **3.61487528**
SF4 **3.63513169**

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.6786181		for F3	2.8329159	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	67	14.910782	15	13.5	0	0	16.2	0.5772186	9.3509409	22.850941	0.3848124	0.7451227	30.667354	0.2154912	0.5892763	38.777975	0.2037542	0.5784734	39.502149
2	43.2	57	36.226152	15	15	6	6	37.2	0.5772186	21.472531	36.472531	0.3848124	0.8674879	42.04385	0.2154912	0.7255005	50.272234	0.2037542	0.7156583	50.963613
3	57.6	47	42.119894	15	15	26	26	31.6	0.5772186	18.240107	33.240107	0.3848124	0.9635049	34.499158	0.2154912	0.8396891	39.58621	0.2037542	0.8311064	39.995007
4	64.8	38	39.888474	15	15	22	22	42.8	0.5772186	24.704955	39.704955	0.3848124	1.024964	38.737902	0.2154912	0.9207361	43.123055	0.2037542	0.9135113	43.464109
5	66.6	27	30.230492	15	15	24	24	42.6	0.5772186	24.589511	39.589511	0.3848124	1.0657176	37.148221	0.2154912	0.9888608	40.035476	0.2037542	0.9835332	40.252338
6	64.8	18	20.020649	15	15	25	25	39.8	0.5772186	22.973299	37.973299	0.3848124	1.0699667	35.490169	0.2154912	1.0176531	37.314581	0.2037542	1.0140269	37.448021
7	61.2	11.5	12.199047	15	15	25	25	36.2	0.5772186	20.895312	35.895312	0.3848124	1.0566372	33.971274	0.2154912	1.0228863	35.092183	0.2037542	1.0205468	35.172629
8	55.8	6	5.831592	15	15	22	22	33.8	0.5772186	19.509988	34.509988	0.3848124	1.0347402	33.351354	0.2154912	1.0170447	33.931634	0.2037542	1.0158181	33.972607
9	52.2	0	0	15	15	20	20	32.2	0.5772186	18.586438	33.586438	0.3848124	1	33.586438	0.2154912	1	33.586438	0.2037542	1	33.586438
10	45	357	-2.407938	15	15	15	15	30	0.5772186	17.316557	32.316557	0.3848124	0.9779761	33.044322	0.2154912	0.9870365	32.740997	0.2037542	0.9876645	32.720177
11	37.8	351.5	-5.630458	15	15	11	11	26.8	0.5772186	15.469458	30.469458	0.3848124	0.9315248	32.709228	0.2154912	0.9567459	31.84697	0.2037542	0.9584941	31.788882
12	30.6	350	-5.348358	15	15	6	6	24.6	0.5772186	14.199577	29.199577	0.3848124	0.9173484	31.830413	0.2154912	0.9469428	30.835629	0.2037542	0.9489942	30.768972
13	21.6	349.5	-3.960724	15	15	0	0	21.6	0.5772186	12.467921	27.467921	0.3848124	0.9124827	30.102402	0.2154912	0.9435306	29.11185	0.2037542	0.9456828	29.045597
14	18.9	349.5	-3.465634	15	22.5	0	0	18.9	0.5772186	10.909431	33.409431	0.3848124	0.9124827	36.613769	0.2154912	0.9435306	35.408953	0.2037542	0.9456828	35.32837
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2154912	1	0	0.2037542	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2154912	1	0	0.2037542	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2154912	1	0	0.2037542	1	0
			180.61397											483.79585			511.66418			514.00891

SF2 **2.67861813**
SF3 **2.83291589**
SF4 **2.84589787**

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	.5		for F2	2.0320916		for F3	2.0907244	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kF	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	67	14.910782	10	9	0	0	16.2	0.4662075	7.5525607	16.552561	0.310805	0.6770049	24.449692	0.2294225	0.6020989	27.491432	0.2229885	0.5961769	27.764511
2	43.2	57	36.226152	10	10	6	6	37.2	0.4662075	17.342917	27.342917	0.310805	0.8054276	33.948323	0.2294225	0.7371828	37.091093	0.2229885	0.7317875	37.364559
3	57.6	47	42.119894	10	10	26	26	31.6	0.4662075	14.732155	24.732155	0.310805	0.9093871	27.19651	0.2294225	0.8498763	29.100889	0.2229885	0.8451714	29.262886
4	64.8	38	39.888474	10	10	22	22	42.8	0.4662075	19.953679	29.953679	0.310805	0.9794078	30.58346	0.2294225	0.9293117	32.232111	0.2229885	0.9253512	32.370065
5	66.6	27	30.230492	10	10	24	24	42.6	0.4662075	19.860437	29.860437	0.310805	1.0321248	28.931035	0.2294225	0.9951843	30.004931	0.2229885	0.9922639	30.093243
6	64.8	18	20.020649	10	10	25	25	39.8	0.4662075	18.555057	28.555057	0.310805	1.0471013	27.270576	0.2294225	1.0219573	27.941535	0.2229885	1.0199695	27.995991
7	61.2	11.5	12.199047	10	10	25	25	36.2	0.4662075	16.87671	26.87671	0.310805	1.0418853	25.796228	0.2294225	1.0256632	26.204225	0.2229885	1.0243807	26.237032
8	55.8	6	5.831592	10	10	22	22	33.8	0.4662075	15.757812	25.757812	0.310805	1.0270058	25.080493	0.2294225	1.0185006	25.289932	0.2229885	1.0178282	25.306639
9	52.2	0	0	10	10	20	20	32.2	0.4662075	15.01188	25.01188	0.310805	1	25.01188	0.2294225	1	25.01188	0.2229885	1	25.01188
10	45	357	-2.407938	10	10	15	15	30	0.4662075	13.986224	23.986224	0.310805	0.9819362	24.427476	0.2294225	0.986291	24.319621	0.2229885	0.9866353	24.311135
11	37.8	351.5	-5.630458	10	10	11	11	26.8	0.4662075	12.49436	22.49436	0.310805	0.9425485	23.865466	0.2294225	0.9546708	23.562426	0.2229885	0.9556291	23.538797
12	30.6	350	-5.348358	10	10	6	6	24.6	0.4662075	11.468703	21.468703	0.310805	0.9302836	23.07759	0.2294225	0.9445079	22.730042	0.2229885	0.9456324	22.703011
13	21.6	349.5	-3.960724	10	10	0	0	21.6	0.4662075	10.070081	20.070081	0.310805	0.9260532	21.672708	0.2294225	0.9409761	21.329002	0.2229885	0.9421559	21.302294
14	18.9	349.5	-3.465634	10	15	0	0	18.9	0.4662075	8.8113208	23.811321	0.310805	0.9260532	25.712692	0.2294225	0.9409761	25.304916	0.2229885	0.9421559	25.273229
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2294225	1	0	0.2229885	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2294225	1	0	0.2229885	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2294225	1	0	0.2229885	1	0
			180.61397											367.02413			377.61404			378.53527

SF2 2.0320916
SF3 2.09072443
SF4 2.095825

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.0320916		for F3	2.0907244	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	67	14.910782	5	4.5	0	0	16.2	0.3638957	5.8951097	10.39511	0.2425971	0.6142251	16.923942	0.1790744	0.5557576	18.704394	0.1740524	0.5511353	18.861267
2	43.2	57	36.226152	5	5	6	6	37.2	0.3638957	13.536919	18.536919	0.2425971	0.7482307	24.774337	0.1790744	0.6949626	26.673262	0.1740524	0.6907513	26.83588
3	57.6	47	42.119894	5	5	26	26	31.6	0.3638957	11.499103	16.499103	0.2425971	0.8595102	19.195936	0.1790744	0.8130594	20.292617	0.1740524	0.809387	20.384689
4	64.8	38	39.888474	5	5	22	22	42.8	0.3638957	15.574734	20.574734	0.2425971	0.9374216	21.94822	0.1790744	0.8983194	22.903586	0.1740524	0.895228	22.982675
5	66.6	27	30.230492	5	5	24	24	42.6	0.3638957	15.501955	20.501955	0.2425971	1.0011644	20.47811	0.1790744	0.9723308	21.085371	0.1740524	0.9700512	21.13492
6	64.8	18	20.020649	5	5	25	25	39.8	0.3638957	14.483047	19.483047	0.2425971	1.0260278	18.988811	0.1790744	1.0064018	19.359115	0.1740524	1.0048502	19.389007
7	61.2	11.5	12.199047	5	5	25	25	36.2	0.3638957	13.173023	18.173023	0.2425971	1.0282893	17.673064	0.1790744	1.0156273	17.893397	0.1740524	1.0146263	17.911051
8	55.8	6	5.831592	5	5	22	22	33.8	0.3638957	12.299673	17.299673	0.2425971	1.0198775	16.962501	0.1790744	1.0132388	17.073639	0.1740524	1.012714	17.082487
9	52.2	0	0	5	5	20	20	32.2	0.3638957	11.71744	16.71744	0.2425971	1	16.71744	0.1790744	1	16.71744	0.1740524	1	16.71744
10	45	357	-2.407938	5	5	15	15	30	0.3638957	10.91687	15.91687	0.2425971	0.985586	16.149651	0.1790744	0.9889851	16.094145	0.1740524	0.9892538	16.089773
11	37.8	351.5	-5.630458	5	5	11	11	26.8	0.3638957	9.7524037	14.752404	0.2425971	0.9527083	15.484701	0.1790744	0.9621703	15.332425	0.1740524	0.9629183	15.320514
12	30.6	350	-5.348358	5	5	6	6	24.6	0.3638957	8.9518333	13.951833	0.2425971	0.9422052	14.807638	0.1790744	0.9533078	14.635182	0.1740524	0.9541856	14.621719
13	21.6	349.5	-3.960724	5	5	0	0	21.6	0.3638957	7.8601463	12.860146	0.2425971	0.9385603	13.701993	0.1790744	0.9502082	13.53403	0.1740524	0.9511291	13.520926
14	18.9	349.5	-3.465634	5	7.5	0	0	18.9	0.3638957	6.877628	14.377628	0.2425971	0.9385603	15.318812	0.1790744	0.9502082	15.131029	0.1740524	0.9511291	15.116379
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.1790744	1	0	0.1740524	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.1790744	1	0	0.1740524	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.1790744	1	0	0.1740524	1	0
			180.61397											249.12515			255.42963			255.96873

SF2 1.37932385
SF3 1.41422965
SF4 1.41721446

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name:	For Ormiston Project Management Limited		
Job No:	07-56	Date:	27-Jun-07
Site Address:	Lot 3 DP 44530, Wallace Lane, Paihia	Designer:	PK

SLIP PROFILE A4

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	1	1	18	63	0	0	0
2	1	2.3	41.4	60	0.4	4	4
3	1	3.3	59.4	52	1.5	15	15
4	1	4	72	43	2.3	23	23
5	1	4.2	75.6	35	2.7	27	27
6	1	4.2	75.6	28	3	30	30
7	1	4.2	75.6	20	3.1	31	31
8	1	4.1	73.8	16	3.1	31	31
9	1	3.8	68.4	11.5	3	30	30
10	1	3.6	64.8	9	2.8	28	28
11	1	3.4	61.2	7	2.6	26	26
12	1	3.1	55.8	358	2.3	23	23
13	1	2.8	50.4	354	1.9	19	19
14	1	2.4	43.2	350	1.4	14	14
15	1	2	36	350	0.9	9	9
16	1	1.5	27	350	0.3	3	3
17	1.3	0.6	14.04	350	0	0	0

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.858829		for F3	1.9006258	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	18	63	16.036422	12	12	0	0	18	0.4662075	8.3917341	20.391734	0.310805	0.7310753	27.892796	0.2508071	0.6776224	30.093063	0.2452916	0.6727086	30.312879
2	41.4	60	35.849362	12	12	4	4	37.4	0.4662075	17.436159	29.436159	0.310805	0.7693054	38.263296	0.2508071	0.7173516	41.034493	0.2452916	0.7125756	41.309526
3	59.4	52	46.801577	12	12	15	15	44.4	0.4662075	20.699611	32.699611	0.310805	0.8606813	37.992706	0.2508071	0.8134086	40.200719	0.2452916	0.8090629	40.416648
4	72	43	49.096426	12	12	23	23	49	0.4662075	22.844165	34.844165	0.310805	0.9433865	36.935194	0.2508071	0.9024743	38.609593	0.2452916	0.8987133	38.771169
5	75.6	35	43.355242	12	12	27	27	48.6	0.4662075	22.657682	34.657682	0.310805	0.9974592	34.745965	0.2508071	0.9630515	35.987362	0.2452916	0.9598884	36.105948
6	75.6	28	35.485896	12	12	30	30	45.6	0.4662075	21.25906	33.25906	0.310805	1.0288797	32.32551	0.2508071	1.0007172	33.235222	0.2452916	0.9981283	33.321427
7	75.6	20	25.852045	12	12	31	31	44.6	0.4662075	20.792852	32.792852	0.310805	1.0459975	31.350795	0.2508071	1.0254807	31.97803	0.2452916	1.0235946	32.036953
8	73.8	16	20.3383	12	12	31	31	42.8	0.4662075	19.953679	31.953679	0.310805	1.0469299	30.521316	0.2508071	1.0303953	31.011087	0.2452916	1.0288753	31.056901
9	68.4	11.5	13.634229	12	12	30	30	38.4	0.4662075	17.902366	29.902366	0.310805	1.0418853	28.700249	0.2508071	1.0299258	29.033514	0.2452916	1.0288264	29.064539
10	64.8	9	10.135057	12	12	28	28	36.8	0.4662075	17.156434	29.156434	0.310805	1.0363045	28.135007	0.2508071	1.0269205	28.392104	0.2452916	1.0260579	28.415975
11	61.2	7	7.4570038	12	12	26	26	35.2	0.4662075	16.410502	28.410502	0.310805	1.0304194	27.571784	0.2508071	1.0231089	27.768796	0.2452916	1.0224369	27.787048
12	55.8	358	-2.013123	12	12	23	23	32.8	0.4662075	15.291604	27.291604	0.310805	0.9881359	27.619281	0.2508071	0.9903005	27.558912	0.2452916	0.9904995	27.553375
13	50.4	354	-5.326653	12	12	19	19	31.4	0.4662075	14.638914	26.638914	0.310805	0.9615512	27.704104	0.2508071	0.9678922	27.522604	0.2452916	0.9684751	27.506038
14	43.2	350	-7.550623	12	12	14	14	29.2	0.4662075	13.613258	25.613258	0.310805	0.9302836	27.532742	0.2508071	0.9407702	27.225839	0.2452916	0.9417342	27.197969
15	36	350	-6.292186	12	12	9	9	27	0.4662075	12.587601	24.587601	0.310805	0.9302836	26.430221	0.2508071	0.9407702	26.135608	0.2452916	0.9417342	26.108854
16	27	350	-4.719139	12	12	3	3	24	0.4662075	11.188979	23.188979	0.310805	0.9302836	24.926785	0.2508071	0.9407702	24.64893	0.2452916	0.9417342	24.623698
17	14.04	350	-2.453952	12	15.6	0	0	14.04	0.4662075	6.5455526	22.145553	0.310805	0.9302836	23.805163	0.2508071	0.9407702	23.539811	0.2452916	0.9417342	23.515714
			275.68588											512.45291			523.97569			525.10466

SF2 1.858829

SF3 1.90062575

SF4 1.9047209

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.7879467		for F3	2.9801513	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kP	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	18	63	16.036422	22	22	0	0	18	0.6247229	11.245012	33.245012	0.4164819	0.8252242	40.286037	0.2240799	0.6538109	50.848055	0.2096279	0.6409354	51.86952
2	41.4	60	35.849362	22	22	4	4	37.4	0.6247229	23.364635	45.364635	0.4164819	0.8608138	52.699704	0.2240799	0.6942078	65.347339	0.2096279	0.6816935	66.546972
3	59.4	52	46.801577	22	22	15	15	44.4	0.6247229	27.737695	49.737695	0.4164819	0.9439447	52.691323	0.2240799	0.7923501	62.772368	0.2096279	0.7809633	63.687619
4	72	43	49.096426	22	22	23	23	49	0.6247229	30.61142	52.61142	0.4164819	1.0154471	51.811089	0.2240799	0.8842492	59.49841	0.2096279	0.8743944	60.168979
5	75.6	35	43.355242	22	22	27	27	48.6	0.6247229	30.361531	52.361531	0.4164819	1.058063	49.488102	0.2240799	0.9477239	55.249771	0.2096279	0.939436	55.7372
6	75.6	28	35.485896	22	22	30	30	45.6	0.6247229	28.487362	50.487362	0.4164819	1.0784834	46.813297	0.2240799	0.9881718	51.091686	0.2096279	0.9813881	51.444846
7	75.6	20	25.852045	22	22	31	31	44.6	0.6247229	27.86264	49.86264	0.4164819	1.0821346	46.07804	0.2240799	1.0163411	49.060929	0.2096279	1.0113991	49.300655
8	73.8	16	20.3383	22	22	31	31	42.8	0.6247229	26.738138	48.738138	0.4164819	1.0760531	45.293433	0.2240799	1.0230297	47.640983	0.2096279	1.0190469	47.82718
9	68.4	11.5	13.634229	22	22	30	30	38.4	0.6247229	23.989358	45.989358	0.4164819	1.0629499	43.26578	0.2240799	1.0245983	44.885257	0.2096279	1.0217176	45.011811
10	64.8	9	10.135057	22	22	28	28	36.8	0.6247229	22.989801	44.989801	0.4164819	1.0528329	42.732138	0.2240799	1.0227402	43.98947	0.2096279	1.0204799	44.086907
11	61.2	7	7.4570038	22	22	26	26	35.2	0.6247229	21.990245	43.990245	0.4164819	1.0432958	42.16469	0.2240799	1.0198523	43.133937	0.2096279	1.0180914	43.208543
12	55.8	358	-2.013123	22	22	23	23	32.8	0.6247229	20.49091	42.49091	0.4164819	0.9843234	43.167632	0.2240799	0.9912648	42.865349	0.2096279	0.9917862	42.842814
13	50.4	354	-5.326653	22	22	19	19	31.4	0.6247229	19.616298	41.616298	0.4164819	0.9503824	43.789002	0.2240799	0.9707169	42.871713	0.2096279	0.9722443	42.804362
14	43.2	350	-7.550623	22	22	14	14	29.2	0.6247229	18.241908	40.241908	0.4164819	0.9118131	44.133945	0.2240799	0.9454416	42.564137	0.2096279	0.9479676	42.45072
15	36	350	-6.292186	22	22	9	9	27	0.6247229	16.867517	38.867517	0.4164819	0.9118131	42.626629	0.2240799	0.9454416	41.110435	0.2096279	0.9479676	41.000892
16	27	350	-4.719139	22	22	3	3	24	0.6247229	14.993349	36.993349	0.4164819	0.9118131	40.571199	0.2240799	0.9454416	39.128114	0.2096279	0.9479676	39.023853
17	14.04	350	-2.453952	22	28.6	0	0	14.04	0.6247229	8.771109	37.371109	0.4164819	0.9118131	40.985494	0.2240799	0.9454416	39.527674	0.2096279	0.9479676	39.422348
			275.68588											768.59753			821.58563			826.43522

SF2 **2.78794666**
SF3 **2.98015126**
SF4 **2.99774227**

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.2544308		for F3	2.3581063	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	18	63	16.036422	15	15	0	0	18	0.5772186	10.389934	25.389934	0.3848124	0.7970094	31.856505	0.2560374	0.6822822	37.213246	0.2447806	0.6722533	37.768402
2	41.4	60	35.849362	15	15	4	4	37.4	0.5772186	21.587975	36.587975	0.3848124	0.8333904	43.902565	0.2560374	0.7218807	50.684243	0.2447806	0.7121331	51.378002
3	59.4	52	46.801577	15	15	15	15	44.4	0.5772186	25.628505	40.628505	0.3848124	0.9189921	44.209851	0.2560374	0.8175296	49.696677	0.2447806	0.8086603	50.241746
4	72	43	49.096426	15	15	23	23	49	0.5772186	28.28371	43.28371	0.3848124	0.9938518	43.551473	0.2560374	0.9060408	47.772362	0.2447806	0.8983648	48.180548
5	75.6	35	43.355242	15	15	27	27	48.6	0.5772186	28.052823	43.052823	0.3848124	1.0399011	41.400881	0.2560374	0.966051	44.565788	0.2447806	0.9595954	44.8656
6	75.6	28	35.485896	15	15	30	30	45.6	0.5772186	26.321167	41.321167	0.3848124	1.063618	38.849631	0.2560374	1.0031723	41.190498	0.2447806	0.9978885	41.408603
7	75.6	20	25.852045	15	15	31	31	44.6	0.5772186	25.743948	40.743948	0.3848124	1.0713049	38.032075	0.2560374	1.0272692	39.662385	0.2447806	1.0234199	39.811567
8	73.8	16	20.3383	15	15	31	31	42.8	0.5772186	24.704955	39.704955	0.3848124	1.0673254	37.200422	0.2560374	1.0318367	38.479882	0.2447806	1.0287345	38.595921
9	68.4	11.5	13.634229	15	15	30	30	38.4	0.5772186	22.165193	37.165193	0.3848124	1.0566372	35.173087	0.2560374	1.0309684	36.048819	0.2447806	1.0287246	36.127448
10	64.8	9	10.135057	15	15	28	28	36.8	0.5772186	21.241644	36.241644	0.3848124	1.0478796	34.585693	0.2560374	1.0277386	35.263485	0.2447806	1.0259779	35.323999
11	61.2	7	7.4570038	15	15	26	26	35.2	0.5772186	20.318094	35.318094	0.3848124	1.039437	33.9781	0.2560374	1.0237462	34.498876	0.2447806	1.0223746	34.54516
12	55.8	358	-2.013123	15	15	23	23	32.8	0.5772186	18.932769	33.932769	0.3848124	0.9854659	34.433224	0.2560374	0.9901118	34.271654	0.2447806	0.9905179	34.257602
13	50.4	354	-5.326653	15	15	19	19	31.4	0.5772186	18.124663	33.124663	0.3848124	0.9537295	34.731717	0.2560374	0.9673394	34.243062	0.2447806	0.9685291	34.200999
14	43.2	350	-7.550623	15	15	14	14	29.2	0.5772186	16.854782	31.854782	0.3848124	0.9173484	34.724848	0.2560374	0.939856	33.893258	0.2447806	0.9418235	33.822454
15	36	350	-6.292186	15	15	9	9	27	0.5772186	15.584902	30.584902	0.3848124	0.9173484	33.340553	0.2560374	0.939856	32.542114	0.2447806	0.9418235	32.474132
16	27	350	-4.719139	15	15	3	3	24	0.5772186	13.853246	28.853246	0.3848124	0.9173484	31.452878	0.2560374	0.939856	30.699645	0.2447806	0.9418235	30.635512
17	14.04	350	-2.453952	15	19.5	0	0	14.04	0.5772186	8.1041488	27.604149	0.3848124	0.9173484	30.091239	0.2560374	0.939856	29.370614	0.2447806	0.9418235	29.309258
			275.68588											621.51474			650.09661			652.94695

SF2 **2.2544308**
SF3 **2.35810627**
SF4 **2.36844537**

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.7257445		for F3	1.7516934	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kP	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	18	63	16.036422	10	10	0	0	18	0.4662075	8.3917341	18.391734	0.310805	0.7310753	25.1571	0.2701486	0.694854	26.468486	0.2661467	0.6912887	26.604997
2	41.4	60	35.849362	10	10	4	4	37.4	0.4662075	17.436159	27.436159	0.310805	0.7693054	35.663548	0.2701486	0.7340999	37.373874	0.2661467	0.7306346	37.551135
3	59.4	52	46.801577	10	10	15	15	44.4	0.4662075	20.699611	30.699611	0.310805	0.8606813	35.668966	0.2701486	0.8286479	37.047835	0.2661467	0.8254948	37.189345
4	72	43	49.096426	10	10	23	23	49	0.4662075	22.844165	32.844165	0.310805	0.9433865	34.815172	0.2701486	0.9156632	35.869265	0.2661467	0.9129343	35.976482
5	75.6	35	43.355242	10	10	27	27	48.6	0.4662075	22.657682	32.657682	0.310805	0.9974592	32.74087	0.2701486	0.9741435	33.524508	0.2661467	0.9718485	33.603676
6	75.6	28	35.485896	10	10	30	30	45.6	0.4662075	21.25906	31.25906	0.310805	1.0288797	30.381648	0.2701486	1.009796	30.955818	0.2661467	1.0079175	31.01351
7	75.6	20	25.852045	10	10	31	31	44.6	0.4662075	20.792852	30.792852	0.310805	1.0459975	29.438745	0.2701486	1.0320947	29.835298	0.2661467	1.0307262	29.874909
8	73.8	16	20.3383	10	10	31	31	42.8	0.4662075	19.953679	29.953679	0.310805	1.0469299	28.610968	0.2701486	1.0357256	28.920478	0.2661467	1.0346227	28.951306
9	68.4	11.5	13.634229	10	10	30	30	38.4	0.4662075	17.902366	27.902366	0.310805	1.0418853	26.780651	0.2701486	1.0337812	26.990592	0.2661467	1.0329835	27.011434
10	64.8	9	10.135057	10	10	28	28	36.8	0.4662075	17.156434	27.156434	0.310805	1.0363045	26.205072	0.2701486	1.0299456	26.366862	0.2661467	1.0293197	26.382895
11	61.2	7	7.4570038	10	10	26	26	35.2	0.4662075	16.410502	26.410502	0.310805	1.0304194	25.630827	0.2701486	1.0254656	25.754644	0.2661467	1.024978	25.766897
12	55.8	358	-2.013123	10	10	23	23	32.8	0.4662075	15.291604	25.291604	0.310805	0.9881359	25.595268	0.2701486	0.9896027	25.557331	0.2661467	0.9897471	25.553603
13	50.4	354	-5.326653	10	10	19	19	31.4	0.4662075	14.638914	24.638914	0.310805	0.9615512	25.624132	0.2701486	0.965848	25.510135	0.2661467	0.966271	25.498969
14	43.2	350	-7.550623	10	10	14	14	29.2	0.4662075	13.613258	23.613258	0.310805	0.9302836	25.38286	0.2701486	0.9373896	25.19044	0.2661467	0.9380891	25.171658
15	36	350	-6.292186	10	10	9	9	27	0.4662075	12.587601	22.587601	0.310805	0.9302836	24.280339	0.2701486	0.9373896	24.096278	0.2661467	0.9380891	24.078311
16	27	350	-4.719139	10	10	3	3	24	0.4662075	11.188979	21.188979	0.310805	0.9302836	22.776903	0.2701486	0.9373896	22.604239	0.2661467	0.9380891	22.587384
17	14.04	350	-2.453952	10	13	0	0	14.04	0.4662075	6.5455526	19.545553	0.310805	0.9302836	21.010317	0.2701486	0.9373896	20.851044	0.2661467	0.9380891	20.835497
			275.68588											475.76339			482.91713			483.65201

SF2 1.72574447
SF3 1.75169336
SF4 1.754359

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.7257445		for F3	1.7516934	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	18	63	16.036422	5	5	0	0	18	0.3638957	6.5501219	11.550122	0.2425971	0.6703081	17.231065	0.210863	0.6420358	17.989842	0.2077394	0.6392529	18.068158
2	41.4	60	35.849362	5	5	4	4	37.4	0.3638957	13.609698	18.609698	0.2425971	0.7102424	26.201898	0.210863	0.682763	27.256455	0.2077394	0.6800581	27.364864
3	59.4	52	46.801577	5	5	15	15	44.4	0.3638957	16.156967	21.156967	0.2425971	0.8069399	26.218764	0.210863	0.7819365	27.057144	0.2077394	0.7794753	27.142575
4	72	43	49.096426	5	5	23	23	49	0.3638957	17.830887	22.830887	0.2425971	0.896876	25.456015	0.210863	0.8752366	26.085388	0.2077394	0.8731066	26.149025
5	75.6	35	43.355242	5	5	27	27	48.6	0.3638957	17.685329	22.685329	0.2425971	0.9583432	23.671404	0.210863	0.9401443	24.129625	0.2077394	0.9383529	24.17569
6	75.6	28	35.485896	5	5	30	30	45.6	0.3638957	16.593642	21.593642	0.2425971	0.9968636	21.661582	0.210863	0.9819679	21.990171	0.2077394	0.9805017	22.023055
7	75.6	20	25.852045	5	5	31	31	44.6	0.3638957	16.229747	21.229747	0.2425971	1.0226732	20.759071	0.210863	1.0118215	20.981711	0.2077394	1.0107533	21.003885
8	73.8	16	20.3383	5	5	31	31	42.8	0.3638957	15.574734	20.574734	0.2425971	1.0281328	20.011749	0.210863	1.0193873	20.183433	0.2077394	1.0185264	20.200491
9	68.4	11.5	13.634229	5	5	30	30	38.4	0.3638957	13.973593	18.973593	0.2425971	1.0282893	18.45161	0.210863	1.0219638	18.565818	0.2077394	1.0213411	18.577137
10	64.8	9	10.135057	5	5	28	28	36.8	0.3638957	13.39136	18.39136	0.2425971	1.0256364	17.931657	0.210863	1.020673	18.018856	0.2077394	1.0201845	18.027485
11	61.2	7	7.4570038	5	5	26	26	35.2	0.3638957	12.809127	17.809127	0.2425971	1.0221086	17.42391	0.210863	1.0182419	17.490076	0.2077394	1.0178613	17.496616
12	55.8	358	-2.013123	5	5	23	23	32.8	0.3638957	11.935778	16.935778	0.2425971	0.9905967	17.096542	0.210863	0.9917416	17.076805	0.2077394	0.9918543	17.074865
13	50.4	354	-5.326653	5	5	19	19	31.4	0.3638957	11.426324	16.426324	0.2425971	0.9687599	16.956032	0.210863	0.9721138	16.897532	0.2077394	0.9724439	16.891795
14	43.2	350	-7.550623	5	5	14	14	29.2	0.3638957	10.625753	15.625753	0.2425971	0.9422052	16.584237	0.210863	0.9477517	16.48718	0.2077394	0.9482977	16.477688
15	36	350	-6.292186	5	5	9	9	27	0.3638957	9.8251829	14.825183	0.2425971	0.9422052	15.734559	0.210863	0.9477517	15.642475	0.2077394	0.9482977	15.633469
16	27	350	-4.719139	5	5	3	3	24	0.3638957	8.7334959	13.733496	0.2425971	0.9422052	14.575908	0.210863	0.9477517	14.490605	0.2077394	0.9482977	14.482262
17	14.04	350	-2.453952	5	6.5	0	0	14.04	0.3638957	5.1090951	11.609095	0.2425971	0.9422052	12.321197	0.210863	0.9477517	12.249089	0.2077394	0.9482977	12.242037
			275.68588											328.2872			332.5922			333.0311

SF2 1.19080163
SF3 1.20641725
SF4 1.20800925

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name:	For Ormiston Project Management Limited	Date:	27-Jun-07
Job No:	07-56	Designer:	PK
Site Address:	Lot 3 DP 44530, Wallace Lane, Paihia		

SLIP PROFILE B1

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	1.5	0.5	13.5	41	0	0	0
2	1.5	0.9	24.3	39	0	0	0
3	1.5	1.3	35.1	39	0	0	0
4	1.5	2	54	39	0	0	0
5	1.5	2.4	64.8	43	0	0	0
6	1.5	2.4	64.8	43	0.7	7	10.5
7	1.5	2.2	59.4	39	1.3	13	19.5
8	1.5	2.5	67.5	33	1.9	19	28.5
9	1.5	2.6	70.2	21	2	20	30
10	1.5	2.4	64.8	16.5	1.9	19	28.5
11	1.5	2.1	56.7	12	1.7	17	25.5
12	1.5	1.8	48.6	11	1.4	14	21
13	1.5	1.4	37.8	9	1.1	11	16.5
14	1.5	0.9	24.3	8	0.7	7	10.5
15	1	0.6	10.8	5	0.4	4	4
16	1	0.15	2.7	5	0.1	1	1
			0			0	0

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.6143472		for F3	1.6315146	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	13.5	41	8.8554214	12	18	0	0	13.5	0.4662075	6.2938006	24.293801	0.310805	0.9586729	25.341074	0.2887901	0.944232	25.728634	0.2857513	0.9422388	25.783062
2	24.3	39	15.29006	12	18	0	0	24.3	0.4662075	11.328841	29.328841	0.310805	0.9727917	30.14915	0.2887901	0.9589394	30.584665	0.2857513	0.9570274	30.64577
3	35.1	39	22.085643	12	18	0	0	35.1	0.4662075	16.363882	34.363882	0.310805	0.9727917	35.325017	0.2887901	0.9589394	35.8353	0.2857513	0.9570274	35.906895
4	54	39	33.977912	12	18	0	0	54	0.4662075	25.175202	43.175202	0.310805	0.9727917	44.382785	0.2887901	0.9589394	45.02391	0.2857513	0.9570274	45.113863
5	64.8	43	44.186784	12	18	0	0	64.8	0.4662075	30.210243	48.210243	0.310805	0.9433865	51.103382	0.2887901	0.9283747	51.929725	0.2857513	0.9263026	52.04589
6	64.8	43	44.186784	12	18	7	10.5	54.3	0.4662075	25.315065	43.315065	0.310805	0.9433865	45.91444	0.2887901	0.9283747	46.656877	0.2857513	0.9263026	46.761247
7	59.4	39	37.375703	12	18	13	19.5	39.9	0.4662075	18.601677	36.601677	0.310805	0.9727917	37.625402	0.2887901	0.9589394	38.168915	0.2857513	0.9570274	38.245173
8	67.5	33	36.756984	12	18	19	28.5	39	0.4662075	18.182091	36.182091	0.310805	1.0079779	35.895717	0.2887901	0.9959898	36.327773	0.2857513	0.994335	36.388229
9	70.2	21	25.152899	12	18	20	30	40.2	0.4662075	18.74154	36.74154	0.310805	1.0449677	35.160455	0.2887901	1.0370797	35.427885	0.2857513	1.0359909	35.465119
10	64.8	16.5	18.400819	12	18	19	28.5	36.3	0.4662075	16.92333	34.92333	0.310805	1.0470924	33.352675	0.2887901	1.0408409	33.552995	0.2857513	1.039978	33.580835
11	56.7	12	11.786402	12	18	17	25.5	31.2	0.4662075	14.545672	32.545672	0.310805	1.0427638	31.210973	0.2887901	1.0381875	31.34855	0.2857513	1.0375558	31.367635
12	48.6	11	9.2715893	12	18	14	21	27.6	0.4662075	12.867326	30.867326	0.310805	1.0409274	29.653677	0.2887901	1.0367276	29.773806	0.2857513	1.0361479	29.790464
13	37.8	9	5.9121165	12	18	11	16.5	21.3	0.4662075	9.9302187	27.930219	0.310805	1.0363045	26.951749	0.2887901	1.0328612	27.041598	0.2857513	1.032386	27.054047
14	24.3	8	3.3812725	12	18	7	10.5	13.8	0.4662075	6.4336628	24.433663	0.310805	1.0335193	23.641225	0.2887901	1.030456	23.711505	0.2857513	1.0300332	23.721239
15	10.8	5	0.9411049	12	12	4	4	6.8	0.4662075	3.1702107	15.170211	0.310805	1.0232795	14.82509	0.2887901	1.0213611	14.852935	0.2857513	1.0210963	14.856787
16	2.7	5	0.2352762	12	12	1	1	1.7	0.4662075	0.7925527	12.792553	0.310805	1.0232795	12.501524	0.2887901	1.0213611	12.525005	0.2857513	1.0210963	12.528253
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2887901	1	0	0.2857513	1	0
			317.79677											513.03433			518.49008			519.25451

SF2	1.61434723
SF3	1.63151463
SF4	1.63392004

B14

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.4702233		for F3	2.6649075	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kP	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	13.5	41	8.8554214	22	33	0	0	13.5	0.6247229	8.4337586	41.433759	0.4164819	1.0279924	40.30551	0.2529014	0.9206906	45.002913	0.2344257	0.9085714	45.603197
2	24.3	39	15.29006	22	33	0	0	24.3	0.6247229	15.180766	48.180766	0.4164819	1.0392858	46.359498	0.2529014	0.9363575	51.455523	0.2344257	0.9247323	52.102395
3	35.1	39	22.085643	22	33	0	0	35.1	0.6247229	21.927772	54.927772	0.4164819	1.0392858	52.851463	0.2529014	0.9363575	58.661111	0.2344257	0.9247323	59.398569
4	54	39	33.977912	22	33	0	0	54	0.6247229	33.735035	66.735035	0.4164819	1.0392858	64.212402	0.2529014	0.9363575	71.270891	0.2344257	0.9247323	72.166872
5	64.8	43	44.186784	22	33	0	0	64.8	0.6247229	40.482041	73.482041	0.4164819	1.0154471	72.364224	0.2529014	0.9039024	81.294222	0.2344257	0.8913039	82.443304
6	64.8	43	44.186784	22	33	7	10.5	54.3	0.6247229	33.922451	66.922451	0.4164819	1.0154471	65.904419	0.2529014	0.9039024	74.037255	0.2344257	0.8913039	75.083761
7	59.4	39	37.375703	22	33	13	19.5	39.9	0.6247229	24.926442	57.926442	0.4164819	1.0392858	55.73678	0.2529014	0.9363575	61.863595	0.2344257	0.9247323	62.641312
8	67.5	33	36.756984	22	33	19	28.5	39	0.6247229	24.364192	57.364192	0.4164819	1.0655241	53.836597	0.2529014	0.9764467	58.747901	0.2344257	0.9663858	59.359516
9	70.2	21	25.152899	22	33	20	30	40.2	0.6247229	25.113859	58.113859	0.4164819	1.0828321	53.668394	0.2529014	1.0242206	56.739591	0.2344257	1.0176007	57.108704
10	64.8	16.5	18.400819	22	33	19	28.5	36.3	0.6247229	22.67744	55.67744	0.4164819	1.0771007	51.691953	0.2529014	1.0306499	54.021683	0.2344257	1.0254035	54.298081
11	56.7	12	11.786402	22	33	17	25.5	31.2	0.6247229	19.491353	52.491353	0.4164819	1.0647312	49.3001	0.2529014	1.0307272	50.926524	0.2344257	1.0268866	51.116991
12	48.6	11	9.2715893	22	33	14	21	27.6	0.6247229	17.242351	50.242351	0.4164819	1.0610878	47.349854	0.2529014	1.029881	48.78462	0.2344257	1.0263563	48.952154
13	37.8	9	5.9121165	22	33	11	16.5	21.3	0.6247229	13.306597	46.306597	0.4164819	1.0528329	43.982855	0.2529014	1.0272481	45.078301	0.2344257	1.0243584	45.205465
14	24.3	8	3.3812725	22	33	7	10.5	13.8	0.6247229	8.6211755	41.621175	0.4164819	1.0482239	39.706377	0.2529014	1.0254622	40.587723	0.2344257	1.0228914	40.689732
15	10.8	5	0.9411049	22	22	4	4	6.8	0.6247229	4.2481155	26.248115	0.4164819	1.0324881	25.422197	0.2529014	1.0182338	25.778083	0.2344257	1.0166238	25.818906
16	2.7	5	0.2352762	22	22	1	1	1.7	0.6247229	1.0620289	23.062029	0.4164819	1.0324881	22.336363	0.2529014	1.0182338	22.649051	0.2344257	1.0166238	22.684918
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2529014	1	0	0.2344257	1	0
			317.79677											785.02898			846.89899			854.67388

SF2 2.4702233
SF3 2.66490747
SF4 2.68937245

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.9411745		for F3	2.0220512	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	13.5	41	8.8554214	15	22.5	0	0	13.5	0.5772186	7.7924508	30.292451	0.3848124	1.0072186	30.07535	0.2973553	0.9498505	31.891809	0.2854619	0.9420489	32.155921
2	24.3	39	15.29006	15	22.5	0	0	24.3	0.5772186	14.026411	36.526411	0.3848124	1.0193586	35.832738	0.2973553	0.9643289	37.877547	0.2854619	0.9568453	38.173791
3	35.1	39	22.085643	15	22.5	0	0	35.1	0.5772186	20.260372	42.760372	0.3848124	1.0193586	41.94831	0.2973553	0.9643289	44.342105	0.2854619	0.9568453	44.68891
4	54	39	33.977912	15	22.5	0	0	54	0.5772186	31.169803	53.669803	0.3848124	1.0193586	52.65056	0.2973553	0.9643289	55.655083	0.2854619	0.9568453	56.090368
5	64.8	43	44.186784	15	22.5	0	0	64.8	0.5772186	37.403764	59.903764	0.3848124	0.9938518	60.274341	0.2973553	0.9342153	64.122011	0.2854619	0.9261052	64.683538
6	64.8	43	44.186784	15	22.5	7	10.5	54.3	0.5772186	31.342969	53.842969	0.3848124	0.9938518	54.176053	0.2973553	0.9342153	57.634432	0.2854619	0.9261052	58.139147
7	59.4	39	37.375703	15	22.5	13	19.5	39.9	0.5772186	23.031021	45.531021	0.3848124	1.0193586	44.666341	0.2973553	0.9643289	47.215243	0.2854619	0.9568453	47.584518
8	67.5	33	36.756984	15	22.5	19	28.5	39	0.5772186	22.511524	45.011524	0.3848124	1.0482785	42.938517	0.2973553	1.000654	44.982108	0.2854619	0.9941774	45.275143
9	70.2	21	25.152899	15	22.5	20	30	40.2	0.5772186	23.204187	45.704187	0.3848124	1.0714848	42.655003	0.2973553	1.0401486	43.940054	0.2854619	1.0358872	44.120815
10	64.8	16.5	18.400819	15	22.5	19	28.5	36.3	0.5772186	20.953034	43.453034	0.3848124	1.0681077	40.682258	0.2973553	1.0432732	41.650678	0.2854619	1.0398959	41.785948
11	56.7	12	11.786402	15	22.5	17	25.5	31.2	0.5772186	18.00922	40.50922	0.3848124	1.0581479	38.283134	0.2973553	1.039968	38.952372	0.2854619	1.0374956	39.045195
12	48.6	11	9.2715893	15	22.5	14	21	27.6	0.5772186	15.931233	38.431233	0.3848124	1.0550461	36.426118	0.2973553	1.0383616	37.011416	0.2854619	1.0360926	37.092468
13	37.8	9	5.9121165	15	22.5	11	16.5	21.3	0.5772186	12.294756	34.794756	0.3848124	1.0478796	33.204916	0.2973553	1.0342009	33.644097	0.2854619	1.0323407	33.704721
14	24.3	8	3.3812725	15	22.5	7	10.5	13.8	0.5772186	7.9656163	30.465616	0.3848124	1.0438172	29.186735	0.2973553	1.0316478	29.531023	0.2854619	1.0299929	29.578472
15	10.8	5	0.9411049	15	15	4	4	6.8	0.5772186	3.9250863	18.925086	0.3848124	1.0297284	18.378716	0.2973553	1.0221075	18.51575	0.2854619	1.0210711	18.534543
16	2.7	5	0.2352762	15	15	1	1	1.7	0.5772186	0.9812716	15.981272	0.3848124	1.0297284	15.51989	0.2973553	1.0221075	15.635608	0.2854619	1.0210711	15.651478
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2973553	1	0	0.2854619	1	0
			317.79677											616.89898			642.60134			646.30498

SF2 1.94117448
SF3 2.02205119
SF4 2.03370531

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.4695916		for F3	1.465071	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (ki	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	13.5	41	8.8554214	10	15	0	0	13.5	0.4662075	6.2938006	21.293801	0.310805	0.9586729	22.211748	0.3172361	0.9628914	22.114436	0.3182149	0.9635335	22.0997
2	24.3	39	15.29006	10	15	0	0	24.3	0.4662075	11.328841	26.328841	0.310805	0.9727917	27.065242	0.3172361	0.9768382	26.953123	0.3182149	0.9774541	26.936139
3	35.1	39	22.085643	10	15	0	0	35.1	0.4662075	16.363882	31.363882	0.310805	0.9727917	32.241109	0.3172361	0.9768382	32.107549	0.3182149	0.9774541	32.087318
4	54	39	33.977912	10	15	0	0	54	0.4662075	25.175202	40.175202	0.310805	0.9727917	41.298877	0.3172361	0.9768382	41.127795	0.3182149	0.9774541	41.101879
5	64.8	43	44.186784	10	15	0	0	64.8	0.4662075	30.210243	45.210243	0.310805	0.9433865	47.923349	0.3172361	0.9477719	47.701608	0.3182149	0.9484393	47.668038
6	64.8	43	44.186784	10	15	7	10.5	54.3	0.4662075	25.315065	40.315065	0.310805	0.9433865	42.734407	0.3172361	0.9477719	42.536675	0.3182149	0.9484393	42.50674
7	59.4	39	37.375703	10	15	13	19.5	39.9	0.4662075	18.601677	33.601677	0.310805	0.9727917	34.541494	0.3172361	0.9768382	34.398405	0.3182149	0.9774541	34.37673
8	67.5	33	36.756984	10	15	19	28.5	39	0.4662075	18.182091	33.182091	0.310805	1.0079779	32.919461	0.3172361	1.01148	32.805484	0.3182149	1.012013	32.788206
9	70.2	21	25.152899	10	15	20	30	40.2	0.4662075	18.74154	33.74154	0.310805	1.0449677	32.289553	0.3172361	1.047272	32.218507	0.3182149	1.0476227	32.207721
10	64.8	16.5	18.400819	10	15	19	28.5	36.3	0.4662075	16.92333	31.92333	0.310805	1.0470924	30.487598	0.3172361	1.0489185	30.434518	0.3182149	1.0491965	30.426455
11	56.7	12	11.786402	10	15	17	25.5	31.2	0.4662075	14.545672	29.545672	0.310805	1.0427638	28.334003	0.3172361	1.0441006	28.297725	0.3182149	1.0443041	28.292211
12	48.6	11	9.2715893	10	15	14	21	27.6	0.4662075	12.867326	27.867326	0.310805	1.0409274	26.771632	0.3172361	1.0421543	26.740115	0.3182149	1.042341	26.735324
13	37.8	9	5.9121165	10	15	11	16.5	21.3	0.4662075	9.9302187	24.930219	0.310805	1.0363045	24.056847	0.3172361	1.0373103	24.03352	0.3182149	1.0374634	24.029973
14	24.3	8	3.3812725	10	15	7	10.5	13.8	0.4662075	6.4336628	21.433663	0.310805	1.0335193	20.738522	0.3172361	1.0344142	20.720581	0.3182149	1.0345504	20.717853
15	10.8	5	0.9411049	10	10	4	4	6.8	0.4662075	3.1702107	13.170211	0.310805	1.0232795	12.87059	0.3172361	1.0238399	12.863545	0.3182149	1.0239252	12.862474
16	2.7	5	0.2352762	10	10	1	1	1.7	0.4662075	0.7925527	10.792553	0.310805	1.0232795	10.547024	0.3172361	1.0238399	10.541251	0.3182149	1.0239252	10.540372
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.3172361	1	0	0.3182149	1	0
			317.79677											467.03146			465.59484			465.37713

SF2 1.46959158
SF3 1.46507102
SF4 1.46438598

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.4695916		for F3	1.465071	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	13.5	41	8.8554214	5	7.5	0	0	13.5	0.3638957	4.9125914	12.412591	0.2425971	0.9139314	13.581535	0.2476169	0.9172242	13.532778	0.2483809	0.9177254	13.525388
2	24.3	39	15.29006	5	7.5	0	0	24.3	0.3638957	8.8426646	16.342665	0.2425971	0.9298739	17.575141	0.2476169	0.9330324	17.515645	0.2483809	0.9335131	17.506625
3	35.1	39	22.085643	5	7.5	0	0	35.1	0.3638957	12.772738	20.272738	0.2425971	0.9298739	21.8016	0.2476169	0.9330324	21.727796	0.2483809	0.9335131	21.716607
4	54	39	33.977912	5	7.5	0	0	54	0.3638957	19.650366	27.150366	0.2425971	0.9298739	29.197902	0.2476169	0.9330324	29.09906	0.2483809	0.9335131	29.084074
5	64.8	43	44.186784	5	7.5	0	0	64.8	0.3638957	23.580439	31.080439	0.2425971	0.896876	34.654111	0.2476169	0.9002989	34.522355	0.2483809	0.9008199	34.502389
6	64.8	43	44.186784	5	7.5	7	10.5	54.3	0.3638957	19.759534	27.259534	0.2425971	0.896876	30.393874	0.2476169	0.9002989	30.278316	0.2483809	0.9008199	30.260804
7	59.4	39	37.375703	5	7.5	13	19.5	39.9	0.3638957	14.519437	22.019437	0.2425971	0.9298739	23.680026	0.2476169	0.9330324	23.599863	0.2483809	0.9335131	23.58771
8	67.5	33	36.756984	5	7.5	19	28.5	39	0.3638957	14.191931	21.691931	0.2425971	0.9708355	22.34357	0.2476169	0.973569	22.280836	0.2483809	0.973985	22.271318
9	70.2	21	25.152899	5	7.5	20	30	40.2	0.3638957	14.628606	22.128606	0.2425971	1.0205286	21.683475	0.2476169	1.0223272	21.645327	0.2483809	1.0226009	21.639532
10	64.8	16.5	18.400819	5	7.5	19	28.5	36.3	0.3638957	13.209413	20.709413	0.2425971	1.0277238	20.150756	0.2476169	1.0291493	20.122847	0.2483809	1.0293662	20.118605
11	56.7	12	11.786402	5	7.5	17	25.5	31.2	0.3638957	11.353545	18.853545	0.2425971	1.0285852	18.329589	0.2476169	1.0296287	18.311013	0.2483809	1.0297875	18.308189
12	48.6	11	9.2715893	5	7.5	14	21	27.6	0.3638957	10.04352	17.54352	0.2425971	1.0279152	17.067089	0.2476169	1.0288728	17.051204	0.2483809	1.0290186	17.048789
13	37.8	9	5.9121165	5	7.5	11	16.5	21.3	0.3638957	7.7509776	15.250978	0.2425971	1.0256364	14.86977	0.2476169	1.0264215	14.858396	0.2483809	1.026541	14.856666
14	24.3	8	3.3812725	5	7.5	7	10.5	13.8	0.3638957	5.0217601	12.52176	0.2425971	1.0240284	12.227942	0.2476169	1.0247269	12.219607	0.2483809	1.0248332	12.21834
15	10.8	5	0.9411049	5	5	4	4	6.8	0.3638957	2.4744905	7.4744905	0.2425971	1.0173359	7.3471216	0.2476169	1.0177733	7.343964	0.2483809	1.0178399	7.3434836
16	2.7	5	0.2352762	5	5	1	1	1.7	0.3638957	0.6186226	5.6186226	0.2425971	1.0173359	5.5228786	0.2476169	1.0177733	5.520505	0.2483809	1.0178399	5.5201439
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.2476169	1	0	0.2483809	1	0
			317.79677											310.42638			309.62951			309.50866

SF2 0.97680785
SF3 0.97430038
SF4 0.97392011

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name:	For Ormiston Project Management Limited		
Job No:	07-56	Date:	27-Jun-07
Site Address:	Lot 3 DP 44530, Wallace Lane, Paihia	Designer:	PK

SLIP PROFILE B2

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	1	0.9	16.2	65	0	0	0
2	1	1.8	32.4	57	0.6	6	6
3	1	2.6	46.8	50	1.5	15	15
4	1	3	54	42	2.1	21	21
5	1	3.2	57.6	33	2.5	25	25
6	1	3.2	57.6	22	2.5	25	25
7	1	3.1	55.8	15	2.5	25	25
8	1	2.8	50.4	8	2.2	22	22
9	1	2.5	45	3	1.9	19	19
10	1	2	36	357	1.5	15	15
11	1	1.5	27	354	1	10	10
12	1	0.9	16.2	353	0.5	5	5
13	1	0.4	7.2	353	0	0	0
			0			0	0
			0			0	0
			0			0	0
			0			0	0

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.7530701		for F3	1.7890654	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	65	14.680721	12	12	0	0	16.2	0.4662075	7.5525607	19.552561	0.310805	0.7044691	27.755031	0.2659377	0.6638096	29.455075	0.2605872	0.6589608	29.671811
2	32.4	57	27.169614	12	12	6	6	26.4	0.4662075	12.307877	24.307877	0.310805	0.8054276	30.180088	0.2659377	0.7678034	31.658987	0.2605872	0.7633166	31.84508
3	46.8	50	35.845927	12	12	15	15	31.8	0.4662075	14.825397	26.825397	0.310805	0.8809712	30.449799	0.2659377	0.8466057	31.685822	0.2605872	0.8425075	31.839951
4	54	42	36.127503	12	12	21	21	33	0.4662075	15.384846	27.384846	0.310805	0.9511745	28.790559	0.2659377	0.9211571	29.728747	0.2605872	0.9175774	29.844725
5	57.6	33	31.365959	12	12	25	25	32.6	0.4662075	15.198363	27.198363	0.310805	1.0079779	26.983094	0.2659377	0.9835456	27.653384	0.2605872	0.9806319	27.735547
6	57.6	22	21.573471	12	12	25	25	32.6	0.4662075	15.198363	27.198363	0.310805	1.0436197	26.061565	0.2659377	1.0268151	26.488081	0.2605872	1.0248112	26.539878
7	55.8	15	14.439441	12	12	25	25	30.8	0.4662075	14.359189	26.359189	0.310805	1.046366	25.191175	0.2659377	1.0347557	25.47383	0.2605872	1.0333711	25.507961
8	50.4	8	7.0130097	12	12	22	22	28.4	0.4662075	13.240292	25.240292	0.310805	1.0335193	24.421693	0.2659377	1.0272762	24.570113	0.2605872	1.0265317	24.587933
9	45	3	2.3546741	12	12	19	19	26	0.4662075	12.121394	24.121394	0.310805	1.0148933	23.767419	0.2659377	1.0125455	23.822527	0.2605872	1.0122656	23.829116
10	36	357	-1.926351	12	12	15	15	21	0.4662075	9.7903565	21.790356	0.310805	0.9819362	22.191213	0.2659377	0.9843371	22.137088	0.2605872	0.9846234	22.130651
11	27	354	-2.853564	12	12	10	10	17	0.4662075	7.9255267	19.925527	0.310805	0.9615512	20.722274	0.2659377	0.9662931	20.620583	0.2605872	0.9668586	20.608523
12	16.2	353	-1.99297	12	12	5	5	11.2	0.4662075	5.2215234	17.221523	0.310805	0.9541677	18.048738	0.2659377	0.9596874	17.94493	0.2605872	0.9603457	17.93263
13	7.2	353	-0.885765	12	12	0	0	7.2	0.4662075	3.3566936	15.356694	0.310805	0.9541677	16.094334	0.2659377	0.9596874	16.001766	0.2605872	0.9603457	15.990798
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2659377	1	0	0.2605872	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2659377	1	0	0.2605872	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2659377	1	0	0.2605872	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2659377	1	0	0.2605872	1	0
			182.91167											320.65698			327.24093			328.0646

SF2	1.75307011
SF3	1.78906536
SF4	1.79356847

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.6808258		for F3	2.8996569	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (k	ub	W-ub	tan o'	9X10	6(+)11	Tano'/i	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	65	14.680721	22	22	0	0	16.2	0.6247229	10.12051	32.12051	0.4164819	0.8002353	40.13883	0.2330337	0.6339914	50.663951	0.2154472	0.6180542	51.97038
2	32.4	57	27.169614	22	22	6	6	26.4	0.6247229	16.492684	38.492684	0.4164819	0.894045	43.054528	0.2330337	0.7402111	52.002303	0.2154472	0.7254636	53.059428
3	46.8	50	35.845927	22	22	15	15	31.8	0.6247229	19.866187	41.866187	0.4164819	0.9619133	43.523868	0.2330337	0.8214032	50.969103	0.2154472	0.807933	51.818884
4	54	42	36.127503	22	22	21	21	33	0.6247229	20.615854	42.615854	0.4164819	1.0218753	41.703575	0.2330337	0.8991434	47.39606	0.2154472	0.8873775	48.024493
5	57.6	33	31.365959	22	22	25	25	32.6	0.6247229	20.365965	42.365965	0.4164819	1.0655241	39.760683	0.2330337	0.9656278	43.874013	0.2154472	0.956051	44.313497
6	57.6	22	21.573471	22	22	25	25	32.6	0.6247229	20.365965	42.365965	0.4164819	1.0831999	39.111863	0.2330337	1.0144913	41.760797	0.2154472	1.0079044	42.033712
7	55.8	15	14.439441	22	22	25	25	30.8	0.6247229	19.241464	41.241464	0.4164819	1.0737122	38.410167	0.2330337	1.0262411	40.186917	0.2154472	1.0216902	40.365921
8	50.4	8	7.0130097	22	22	22	22	28.4	0.6247229	17.742129	39.742129	0.4164819	1.0482239	37.913777	0.2330337	1.0226977	38.860095	0.2154472	1.0202506	38.953303
9	45	3	2.3546741	22	22	19	19	26	0.6247229	16.242794	38.242794	0.4164819	1.0204229	37.477396	0.2330337	1.0108238	37.833295	0.2154472	1.0099036	37.867769
10	36	357	-1.926351	22	22	15	15	21	0.6247229	13.11918	35.11918	0.4164819	0.9762815	35.972392	0.2330337	0.9860978	35.614299	0.2154472	0.9870388	35.580344
11	27	354	-2.853564	22	22	10	10	17	0.6247229	10.620289	32.620289	0.4164819	0.9503824	34.323329	0.2330337	0.9697706	33.637118	0.2154472	0.9716293	33.572772
12	16.2	353	-1.99297	22	22	5	5	11.2	0.6247229	6.9968961	28.996896	0.4164819	0.941167	30.809511	0.2330337	0.9637354	30.088027	0.2154472	0.9658989	30.020632
13	7.2	353	-0.885765	22	22	0	0	7.2	0.6247229	4.4980046	26.498005	0.4164819	0.941167	28.154412	0.2330337	0.9637354	27.495105	0.2154472	0.9658989	27.433517
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2330337	1	0	0.2154472	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2330337	1	0	0.2154472	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2330337	1	0	0.2154472	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2330337	1	0	0.2154472	1	0
			182.91167											490.35433			530.38108			535.01465

SF2	2.68082582
SF3	2.89965686
SF4	2.92498915

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.1150468		for F3	2.2188724	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	65	14.680721	15	15	0	0	16.2	0.5772186	9.3509409	24.350941	0.3848124	0.7715359	31.561645	0.2729105	0.6701285	36.33772	0.2601405	0.658556	36.976262
2	32.4	57	27.169614	15	15	6	6	26.4	0.5772186	15.23857	30.23857	0.3848124	0.8674879	34.857628	0.2729105	0.7736506	39.085567	0.2601405	0.762942	39.634166
3	46.8	50	35.845927	15	15	15	15	31.8	0.5772186	18.355551	33.355551	0.3848124	0.9376564	35.57332	0.2729105	0.8519464	39.152169	0.2601405	0.8421654	39.60689
4	54	42	36.127503	15	15	21	21	33	0.5772186	19.048213	34.048213	0.3848124	1.0006875	34.024819	0.2729105	0.9258221	36.776194	0.2601405	0.9172786	37.118727
5	57.6	33	31.365959	15	15	25	25	32.6	0.5772186	18.817326	33.817326	0.3848124	1.0482785	32.259867	0.2729105	0.9873426	34.250852	0.2601405	0.9803887	34.493794
6	57.6	22	21.573471	15	15	25	25	32.6	0.5772186	18.817326	33.817326	0.3848124	1.0713384	31.565494	0.2729105	1.0294267	32.850638	0.2601405	1.0246439	33.00398
7	55.8	15	14.439441	15	15	25	25	30.8	0.5772186	17.778332	32.778332	0.3848124	1.065517	30.762842	0.2729105	1.03656	31.622223	0.2601405	1.0332555	31.723356
8	50.4	8	7.0130097	15	15	22	22	28.4	0.5772186	16.393008	31.393008	0.3848124	1.0438172	30.075196	0.2729105	1.0282464	30.530627	0.2601405	1.0264695	30.583478
9	45	3	2.3546741	15	15	19	19	26	0.5772186	15.007683	30.007683	0.3848124	1.0187658	29.454938	0.2729105	1.0129104	29.62521	0.2601405	1.0122422	29.644766
10	36	357	-1.926351	15	15	15	15	21	0.5772186	12.12159	27.12159	0.3848124	0.9779761	27.732364	0.2729105	0.983964	27.563601	0.2601405	0.9846473	27.544473
11	27	354	-2.853564	15	15	10	10	17	0.5772186	9.8127158	24.812716	0.3848124	0.9537295	26.016513	0.2729105	0.9655561	25.697849	0.2601405	0.9669058	25.661979
12	16.2	353	-1.99297	15	15	5	5	11.2	0.5772186	6.4648481	21.464848	0.3848124	0.9450631	22.712608	0.2729105	0.9588296	22.38651	0.2601405	0.9604006	22.34989
13	7.2	353	-0.885765	15	15	0	0	7.2	0.5772186	4.1559737	19.155974	0.3848124	0.9450631	20.269518	0.2729105	0.9588296	19.978496	0.2601405	0.9604006	19.945816
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2729105	1	0	0.2601405	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2729105	1	0	0.2601405	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2729105	1	0	0.2601405	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2729105	1	0	0.2601405	1	0
			182.91167											386.86675			405.85766			408.28758

SF2	2.11504685
SF3	2.21887239
SF4	2.23215705

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.6015123		for F3	1.6156881	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (k	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	65	14.680721	10	10	0	0	16.2	0.4662075	7.5525607	17.552561	0.310805	0.7044691	24.916014	0.2911045	0.6866162	25.563862	0.2885504	0.6843016	25.650329
2	32.4	57	27.169614	10	10	6	6	26.4	0.4662075	12.307877	22.307877	0.310805	0.8054276	27.696935	0.2911045	0.7889074	28.276925	0.2885504	0.7867657	28.353903
3	46.8	50	35.845927	10	10	15	15	31.8	0.4662075	14.825397	24.825397	0.310805	0.8809712	28.179577	0.2911045	0.8658819	28.67065	0.2885504	0.8639256	28.735573
4	54	42	36.127503	10	10	21	21	33	0.4662075	15.384846	25.384846	0.310805	0.9511745	26.687895	0.2911045	0.9379944	27.062898	0.2885504	0.9362856	27.112289
5	57.6	33	31.365959	10	10	25	25	32.6	0.4662075	15.198363	25.198363	0.310805	1.0079779	24.998923	0.2911045	0.9972501	25.267847	0.2885504	0.9958593	25.303137
6	57.6	22	21.573471	10	10	25	25	32.6	0.4662075	15.198363	25.198363	0.310805	1.0436197	24.145158	0.2911045	1.0362411	24.317085	0.2885504	1.0352845	24.339554
7	55.8	15	14.439441	10	10	25	25	30.8	0.4662075	14.359189	24.359189	0.310805	1.046366	23.279798	0.2911045	1.0412681	23.393773	0.2885504	1.0406072	23.408631
8	50.4	8	7.0130097	10	10	22	22	28.4	0.4662075	13.240292	23.240292	0.310805	1.0335193	22.486558	0.2911045	1.0307781	22.546358	0.2885504	1.0304227	22.554135
9	45	3	2.3546741	10	10	19	19	26	0.4662075	12.121394	22.121394	0.310805	1.0148933	21.796769	0.2911045	1.0138624	21.818931	0.2885504	1.0137288	21.821807
10	36	357	-1.926351	10	10	15	15	21	0.4662075	9.7903565	19.790356	0.310805	0.9819362	20.154421	0.2911045	0.9829904	20.132807	0.2885504	0.9831271	20.130009
11	27	354	-2.853564	10	10	10	10	17	0.4662075	7.9255267	17.925527	0.310805	0.9615512	18.642301	0.2911045	0.9636333	18.602022	0.2885504	0.9639032	18.596812
12	16.2	353	-1.99297	10	10	5	5	11.2	0.4662075	5.2215234	15.221523	0.310805	0.9541677	15.952671	0.2911045	0.9565913	15.912253	0.2885504	0.9569055	15.907028
13	7.2	353	-0.885765	10	10	0	0	7.2	0.4662075	3.3566936	13.356694	0.310805	0.9541677	13.998266	0.2911045	0.9565913	13.9628	0.2885504	0.9569055	13.958215
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2911045	1	0	0.2885504	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2911045	1	0	0.2885504	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2911045	1	0	0.2885504	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2911045	1	0	0.2885504	1	0
			182.91167											292.93529			295.52821			295.87142

SF2	**1.60151227**
SF3	**1.61568811**
SF4	**1.61756448**

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.6015123		for F3	1.6156881	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	65	14.680721	5	5	0	0	16.2	0.3638957	5.8951097	10.89511	0.2425971	0.6426579	16.953202	0.22722	0.6287229	17.328952	0.2252264	0.6269163	17.37889
2	32.4	57	27.169614	5	5	6	6	26.4	0.3638957	9.6068455	14.606845	0.2425971	0.7482307	19.521848	0.22722	0.7353359	19.86418	0.2252264	0.7336642	19.909444
3	46.8	50	35.845927	5	5	15	15	31.8	0.3638957	11.571882	16.571882	0.2425971	0.8287282	19.996764	0.22722	0.8169503	20.285055	0.2252264	0.8154233	20.323041
4	54	42	36.127503	5	5	21	21	33	0.3638957	12.008557	17.008557	0.2425971	0.9055416	18.782746	0.22722	0.8952539	18.998585	0.2252264	0.8939201	19.026932
5	57.6	33	31.365959	5	5	25	25	32.6	0.3638957	11.862999	16.862999	0.2425971	0.9708355	17.369574	0.22722	0.9624619	17.520692	0.2252264	0.9613763	17.540476
6	57.6	22	21.573471	5	5	25	25	32.6	0.3638957	11.862999	16.862999	0.2425971	1.0180732	16.563641	0.22722	1.0123138	16.657876	0.2252264	1.0115672	16.670172
7	55.8	15	14.439441	5	5	25	25	30.8	0.3638957	11.207986	16.207986	0.2425971	1.0287158	15.755553	0.22722	1.0247366	15.816734	0.2252264	1.0242208	15.8247
8	50.4	8	7.0130097	5	5	22	22	28.4	0.3638957	10.334637	15.334637	0.2425971	1.0240284	14.974816	0.22722	1.0218887	15.006171	0.2252264	1.0216113	15.010246
9	45	3	2.3546741	5	5	19	19	26	0.3638957	9.4612872	14.461287	0.2425971	1.0113242	14.299358	0.22722	1.0105196	14.310744	0.2252264	1.0104153	14.312222
10	36	357	-1.926351	5	5	15	15	21	0.3638957	7.6418089	12.641809	0.2425971	0.985586	12.826693	0.22722	0.9864088	12.815993	0.2252264	0.9865155	12.814607
11	27	354	-2.853564	5	5	10	10	17	0.3638957	6.1862263	11.186226	0.2425971	0.9687599	11.546954	0.22722	0.9703851	11.527616	0.2252264	0.9705958	11.525114
12	16.2	353	-1.99297	5	5	5	5	11.2	0.3638957	4.0756314	9.0756314	0.2425971	0.9625588	9.428651	0.22722	0.9644506	9.410157	0.2252264	0.9646958	9.4077647
13	7.2	353	-0.885765	5	5	0	0	7.2	0.3638957	2.6200488	7.6200488	0.2425971	0.9625588	7.9164498	0.22722	0.9644506	7.900922	0.2252264	0.9646958	7.8989133
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.22722	1	0	0.2252264	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.22722	1	0	0.2252264	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.22722	1	0	0.2252264	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.22722	1	0	0.2252264	1	0
			182.91167											195.93625			197.44368			197.64252

SF2	**1.07120693**
SF3	**1.07944822**
SF4	**1.08053533**

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name:	For Ormiston Project Management Limited		
Job No:	07-56	Date:	27-Jun-07
Site Address:	Lot 3 DP 44530, Wallace Lane, Paihia	Designer:	PK

SLIP PROFILE B3

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	1	0.9	16.2	60	0	0	0
2	1	2	36	55	0.4	4	4
3	1	2.8	50.4	47	1.3	13	13
4	1	3.2	57.6	40	1.95	19.5	19.5
5	1	3.6	64.8	35	2.4	24	24
6	1	3.7	66.6	27	2.7	27	27
7	1	3.6	64.8	18	2.8	28	28
8	1	3.3	59.4	13	2.7	27	27
9	1	3.4	61.2	5	2.6	26	26
10	1	3.4	61.2	0	2.3	23	23
11	1	3.3	59.4	354	1.9	19	19
12	1	2.9	52.2	352.5	1.5	15	15
13	1	2.3	41.4	352	1	10	10
14	1	1.5	27	352	0.6	6	6
15	1.2	0.7	15.12	352	0.1	1	1.2
			0			0	0
			0			0	0

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.1612265		for F3	2.2321624	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	60	14.028011	12	12	0	0	16.2	0.4662075	7.5525607	19.552561	0.310805	0.7693054	25.415864	0.2157143	0.6869638	28.462286	0.2088591	0.6810277	28.710374
2	36	55	29.485734	12	12	4	4	32	0.4662075	14.918638	26.918638	0.310805	0.828289	32.499089	0.2157143	0.7504052	35.872139	0.2088591	0.7447904	36.142567
3	50.4	47	36.854907	12	12	13	13	37.4	0.4662075	17.436159	29.436159	0.310805	0.9093871	32.369229	0.2157143	0.8398522	35.049213	0.2088591	0.8348394	35.259668
4	57.6	40	37.018755	12	12	19.5	19.5	38.1	0.4662075	17.762504	29.762504	0.310805	0.9658793	30.813895	0.2157143	0.9047658	32.895257	0.2088591	0.9003601	33.056224
5	64.8	35	37.161636	12	12	24	24	40.8	0.4662075	19.021264	31.021264	0.310805	0.9974592	31.100284	0.2157143	0.9429264	32.898924	0.2088591	0.9389951	33.036663
6	66.6	27	30.230492	12	12	27	27	39.6	0.4662075	18.461815	30.461815	0.310805	1.0321248	29.513695	0.2157143	0.988962	30.801804	0.2088591	0.9858504	30.899024
7	64.8	18	20.020649	12	12	28	28	36.8	0.4662075	17.156434	29.156434	0.310805	1.0471013	27.844902	0.2157143	1.0177221	28.64872	0.2088591	1.0156041	28.708465
8	59.4	13	13.359615	12	12	27	27	32.4	0.4662075	15.105121	27.105121	0.310805	1.0442826	25.955733	0.2157143	1.0228959	26.498417	0.2088591	1.0213541	26.538418
9	61.2	5	5.3329278	12	12	26	26	35.2	0.4662075	16.410502	28.410502	0.310805	1.0232795	27.764167	0.2157143	1.0149933	27.990826	0.2088591	1.014396	28.00731
10	61.2	0	0	12	12	23	23	38.2	0.4662075	17.809125	29.809125	0.310805	1	29.809125	0.2157143	1	29.809125	0.2088591	1	29.809125
11	59.4	354	-6.277841	12	12	19	19	40.4	0.4662075	18.834781	30.834781	0.310805	0.9615512	32.067748	0.2157143	0.9716011	31.736051	0.2088591	0.9723256	31.712403
12	52.2	352.5	-6.873528	12	12	15	15	37.2	0.4662075	17.342917	29.342917	0.310805	0.9503669	30.875357	0.2157143	0.9628881	30.473859	0.2088591	0.9637908	30.445318
13	41.4	352	-5.809277	12	12	10	10	31.4	0.4662075	14.638914	26.638914	0.310805	0.9464937	28.144839	0.2157143	0.9598369	27.753583	0.2088591	0.9607989	27.725797
14	27	352	-3.788659	12	12	6	6	21	0.4662075	9.7903565	21.790356	0.310805	0.9464937	23.022188	0.2157143	0.9598369	22.702144	0.2088591	0.9607989	22.679416
15	15.12	352	-2.121649	12	14.4	1	1.2	13.92	0.4662075	6.4896077	20.889608	0.310805	0.9464937	22.070519	0.2157143	0.9598369	21.763705	0.2088591	0.9607989	21.741916
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2157143	1	0	0.2088591	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2157143	1	0	0.2088591	1	0
			198.62177											429.26663			443.35605			444.47269

SF2 2.16122648
SF3 2.2321624
SF4 2.23778431

B2c

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	3.2694704		for F3	3.5151178	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	60	14.028011	22	22	0	0	16.2	0.6247229	10.12051	32.12051	0.4164819	0.8608138	37.314119	0.1910777	0.6656303	48.255779	0.1777246	0.6540675	49.10886
2	36	55	29.485734	22	22	4	4	32	0.6247229	19.991132	41.991132	0.4164819	0.9148435	45.899797	0.1910777	0.7302266	57.504248	0.1777246	0.7192898	58.378603
3	50.4	47	36.854907	22	22	13	13	37.4	0.6247229	23.364635	45.364635	0.4164819	0.9866632	45.977834	0.1910777	0.8218367	55.199084	0.1777246	0.8120723	55.862803
4	57.6	40	37.018755	22	22	19.5	19.5	38.1	0.6247229	23.801941	45.801941	0.4164819	1.0337965	44.304601	0.1910777	0.8889322	51.524674	0.1777246	0.8803503	52.026949
5	64.8	35	37.161636	22	22	24	24	40.8	0.6247229	25.488693	47.488693	0.4164819	1.058063	44.882669	0.1910777	0.9287978	51.129207	0.1777246	0.92114	51.554262
6	66.6	27	30.230492	22	22	27	27	39.6	0.6247229	24.739025	46.739025	0.4164819	1.0800927	43.27316	0.1910777	0.9777792	47.801206	0.1777246	0.9717181	48.099368
7	64.8	18	20.020649	22	22	28	28	36.8	0.6247229	22.989801	44.989801	0.4164819	1.0797513	41.666817	0.1910777	1.0101103	44.539493	0.1777246	1.0059847	44.722151
8	59.4	13	13.359615	22	22	27	27	32.4	0.6247229	20.241021	42.241021	0.4164819	1.0680504	39.549652	0.1910777	1.0173549	41.52044	0.1777246	1.0143516	41.643371
9	61.2	5	5.3329278	22	22	26	26	35.2	0.6247229	21.990245	43.990245	0.4164819	1.0324881	42.606055	0.1910777	1.0128465	43.432291	0.1777246	1.0116829	43.482244
10	61.2	0	0	22	22	23	23	38.2	0.6247229	23.864413	45.864413	0.4164819	1	45.864413	0.1910777	1	45.864413	0.1777246	1	45.864413
11	59.4	354	-6.277841	22	22	19	19	40.4	0.6247229	25.238804	47.238804	0.4164819	0.9503824	49.705047	0.1910777	0.9742049	48.4896	0.1777246	0.9756161	48.419458
12	52.2	352.5	-6.873528	22	22	15	15	37.2	0.6247229	23.23969	45.23969	0.4164819	0.9364517	48.309689	0.1910777	0.9661322	46.825569	0.1777246	0.9678905	46.740505
13	41.4	352	-5.809277	22	22	10	10	31.4	0.6247229	19.616298	41.616298	0.4164819	0.9316651	44.668732	0.1910777	0.963294	43.202075	0.1777246	0.9651677	43.118205
14	27	352	-3.788659	22	22	6	6	21	0.6247229	13.11918	35.11918	0.4164819	0.9316651	37.69507	0.1910777	0.963294	36.457387	0.1777246	0.9651677	36.386611
15	15.12	352	-2.121649	22	26.4	1	1.2	13.92	0.6247229	8.6961422	35.096142	0.4164819	0.9316651	37.670342	0.1910777	0.963294	36.433471	0.1777246	0.9651677	36.362741
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.1910777	1	0	0.1777246	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.1910777	1	0	0.1777246	1	0
			198.62177											649.388			698.17894			701.77055

SF2 3.26947037
SF3 3.51511784
SF4 3.5332005

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.6283784		for F3	2.7715924	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	60	14.028011	15	15	0	0	16.2	0.5772186	9.3509409	24.350941	0.3848124	0.8333904	29.21913	0.2196102	0.6903373	35.273973	0.2082624	0.6805111	35.783314
2	36	55	29.485734	15	15	4	4	32	0.5772186	18.470994	33.470994	0.3848124	0.8889046	37.654201	0.2196102	0.7535961	44.415034	0.2082624	0.7443017	44.969658
3	50.4	47	36.854907	15	15	13	13	37.4	0.5772186	21.587975	36.587975	0.3848124	0.9635049	37.973835	0.2196102	0.842701	43.417502	0.2082624	0.834403	43.849282
4	57.6	40	37.018755	15	15	19.5	19.5	38.1	0.5772186	21.992028	36.992028	0.3848124	1.0134429	36.501344	0.2196102	0.9072696	40.772916	0.2082624	0.8999766	41.103322
5	64.8	35	37.161636	15	15	24	24	40.8	0.5772186	23.550518	38.550518	0.3848124	1.0399011	37.07133	0.2196102	0.9451606	40.787267	0.2082624	0.9386529	41.070046
6	66.6	27	30.230492	15	15	27	27	39.6	0.5772186	22.857856	37.857856	0.3848124	1.0657176	35.523348	0.2196102	0.9907304	38.212066	0.2082624	0.9855795	38.411771
7	64.8	18	20.020649	15	15	28	28	36.8	0.5772186	21.241644	36.241644	0.3848124	1.0699667	33.871749	0.2196102	1.0189257	35.568484	0.2082624	1.0154197	35.691294
8	59.4	13	13.359615	15	15	27	27	32.4	0.5772186	18.701882	33.701882	0.3848124	1.0609276	31.76643	0.2196102	1.0237721	32.919321	0.2082624	1.0212199	33.001593
9	61.2	5	5.3329278	15	15	26	26	35.2	0.5772186	20.318094	35.318094	0.3848124	1.0297284	34.298455	0.2196102	1.0153328	34.784746	0.2082624	1.014344	34.818656
10	61.2	0	0	15	15	23	23	38.2	0.5772186	22.04975	37.04975	0.3848124	1	37.04975	0.2196102	1	37.04975	0.2082624	1	37.04975
11	59.4	354	-6.277841	15	15	19	19	40.4	0.5772186	23.31963	38.31963	0.3848124	0.9537295	40.17872	0.2196102	0.9711893	39.456396	0.2082624	0.9723886	39.407732
12	52.2	352.5	-6.873528	15	15	15	15	37.2	0.5772186	21.472531	36.472531	0.3848124	0.9406218	38.774914	0.2196102	0.9623751	37.898455	0.2082624	0.9638694	37.839703
13	41.4	352	-5.809277	15	15	10	10	31.4	0.5772186	18.124663	33.124663	0.3848124	0.936109	35.385478	0.2196102	0.9592903	34.530386	0.2082624	0.9608826	34.473165
14	27	352	-3.788659	15	15	6	6	21	0.5772186	12.12159	27.12159	0.3848124	0.936109	28.972685	0.2196102	0.9592903	28.272559	0.2082624	0.9608826	28.225707
15	15.12	352	-2.121649	15	18	1	1.2	13.92	0.5772186	8.0348826	26.034883	0.3848124	0.936109	27.811808	0.2196102	0.9592903	27.139734	0.2082624	0.9608826	27.09476
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2196102	1	0	0.2082624	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2196102	1	0	0.2082624	1	0
			198.62177											522.05317			550.49859			552.78975

SF2 2.62837839
SF3 2.77159237
SF4 2.78312767

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.0003524		for F3	2.0531301	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	60	14.028011	10	10	0	0	16.2	0.4662075	7.5525607	17.552561	0.310805	0.7693054	22.816116	0.2330627	0.7019862	25.004138	0.2270716	0.6967984	25.190301
2	36	55	29.485734	10	10	4	4	32	0.4662075	14.918638	24.918638	0.310805	0.828289	30.084473	0.2330627	0.7646143	32.589814	0.2270716	0.7597073	32.800314
3	50.4	47	36.854907	10	10	13	13	37.4	0.4662075	17.436159	27.436159	0.310805	0.9093871	30.169945	0.2330627	0.8525382	32.181737	0.2270716	0.8481572	32.347965
4	57.6	40	37.018755	10	10	19.5	19.5	38.1	0.4662075	17.762504	27.762504	0.310805	0.9658793	28.743243	0.2330627	0.9159154	30.311211	0.2270716	0.912065	30.439174
5	64.8	35	37.161636	10	10	24	24	40.8	0.4662075	19.021264	29.021264	0.310805	0.9974592	29.095189	0.2330627	0.9528754	30.456516	0.2270716	0.9494396	30.56673
6	66.6	27	30.230492	10	10	27	27	39.6	0.4662075	18.461815	28.461815	0.310805	1.0321248	27.575944	0.2330627	0.9968367	28.552135	0.2270716	0.9941172	28.63024
7	64.8	18	20.020649	10	10	28	28	36.8	0.4662075	17.156434	27.156434	0.310805	1.0471013	25.934868	0.2330627	1.023082	26.543751	0.2270716	1.021231	26.591862
8	59.4	13	13.359615	10	10	27	27	32.4	0.4662075	15.105121	25.105121	0.310805	1.0442826	24.040543	0.2330627	1.0267977	24.449921	0.2270716	1.0254502	24.482048
9	61.2	5	5.3329278	10	10	26	26	35.2	0.4662075	16.410502	26.410502	0.310805	1.0232795	25.809667	0.2330627	1.0165051	25.981673	0.2270716	1.015983	25.995024
10	61.2	0	0	10	10	23	23	38.2	0.4662075	17.809125	27.809125	0.310805	1	27.809125	0.2330627	1	27.809125	0.2270716	1	27.809125
11	59.4	354	-6.277841	10	10	19	19	40.4	0.4662075	18.834781	28.834781	0.310805	0.9615512	29.987776	0.2330627	0.9697676	29.733703	0.2270716	0.9704007	29.714302
12	52.2	352.5	-6.873528	10	10	15	15	37.2	0.4662075	17.342917	27.342917	0.310805	0.9503669	28.770906	0.2330627	0.9606038	28.464304	0.2270716	0.9613926	28.440947
13	41.4	352	-5.809277	10	10	10	10	31.4	0.4662075	14.638914	24.638914	0.310805	0.9464937	26.031777	0.2330627	0.9574026	25.735165	0.2270716	0.9582433	25.712588
14	27	352	-3.788659	10	10	6	6	21	0.4662075	9.7903565	19.790356	0.310805	0.9464937	20.909126	0.2330627	0.9574026	20.670882	0.2270716	0.9582433	20.652748
15	15.12	352	-2.121649	10	12	1	1.2	13.92	0.4662075	6.4896077	18.489608	0.310805	0.9464937	19.534844	0.2330627	0.9574026	19.31226	0.2270716	0.9582433	19.295317
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2330627	1	0	0.2270716	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2330627	1	0	0.2270716	1	0
			198.62177											397.31354			407.79634			408.66868

SF2 **2.00035241**
SF3 **2.05313008**
SF4 **2.05752209**

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.0003524		for F3	2.0531301	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	16.2	60	14.028011	5	5	0	0	16.2	0.3638957	5.8951097	10.89511	0.2425971	0.7102424	15.339988	0.1819158	0.6576968	16.565551	0.1772395	0.6536474	16.668175
2	36	55	29.485734	5	5	4	4	32	0.3638957	11.644661	16.644661	0.2425971	0.7724235	21.548621	0.1819158	0.7227225	23.030499	0.1772395	0.7188924	23.153202
3	50.4	47	36.854907	5	5	13	13	37.4	0.3638957	13.609698	18.609698	0.2425971	0.8595102	21.651514	0.1819158	0.8151371	22.830144	0.1772395	0.8117176	22.926322
4	57.6	40	37.018755	5	5	19.5	19.5	38.1	0.3638957	13.864425	18.864425	0.2425971	0.922043	20.459376	0.1819158	0.8830439	21.362951	0.1772395	0.8800385	21.435908
5	64.8	35	37.161636	5	5	24	24	40.8	0.3638957	14.846943	19.846943	0.2425971	0.9583432	20.70964	0.1819158	0.9235436	21.489991	0.1772395	0.9208618	21.552575
6	66.6	27	30.230492	5	5	27	27	39.6	0.3638957	14.410268	19.410268	0.2425971	1.0011644	19.387692	0.1819158	0.9736205	19.936174	0.1772395	0.9714979	19.979733
7	64.8	18	20.020649	5	5	28	28	36.8	0.3638957	13.39136	18.39136	0.2425971	1.0260278	17.924817	0.1819158	1.0072796	18.258445	0.1772395	1.0058348	18.284672
8	59.4	13	13.359615	5	5	27	27	32.4	0.3638957	11.790219	16.790219	0.2425971	1.028942	16.317945	0.1819158	1.0152943	16.537294	0.1772395	1.0142425	16.554443
9	61.2	5	5.3329278	5	5	26	26	35.2	0.3638957	12.809127	17.809127	0.2425971	1.0173359	17.505651	0.1819158	1.0120482	17.597115	0.1772395	1.0116407	17.604203
10	61.2	0	0	5	5	23	23	38.2	0.3638957	13.900814	18.900814	0.2425971	1	18.900814	0.1819158	1	18.900814	0.1772395	1	18.900814
11	59.4	354	-6.277841	5	5	19	19	40.4	0.3638957	14.701385	19.701385	0.2425971	0.9687599	20.336706	0.1819158	0.9751732	20.202961	0.1772395	0.9756674	20.192727
12	52.2	352.5	-6.873528	5	5	15	15	37.2	0.3638957	13.536919	18.536919	0.2425971	0.9593483	19.322407	0.1819158	0.9673386	19.162802	0.1772395	0.9679544	19.150612
13	41.4	352	-5.809277	5	5	10	10	31.4	0.3638957	11.426324	16.426324	0.2425971	0.9560647	17.181184	0.1819158	0.9645796	17.029517	0.1772395	0.9652357	17.01794
14	27	352	-3.788659	5	5	6	6	21	0.3638957	7.6418089	12.641809	0.2425971	0.9560647	13.222754	0.1819158	0.9645796	13.10603	0.1772395	0.9652357	13.097121
15	15.12	352	-2.121649	5	6	1	1.2	13.92	0.3638957	5.0654276	11.065428	0.2425971	0.9560647	11.573932	0.1819158	0.9645796	11.471763	0.1772395	0.9652357	11.463964
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.1819158	1	0	0.1772395	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.1819158	1	0	0.1772395	1	0
			198.62177											271.38304			277.48205			277.98241

SF2 **1.36633079**
SF3 **1.39703744**
SF4 **1.39955658**

P.K.ENGINEERING LIMITED

CONSULTING ENGINEERS

SLOPE STABILITY ANALYSIS

Job Name:	For Ormiston Project Management Limited			
Job No:	07-56		Date:	27-Jun-07
Site Address:	Lot 3 DP 44530, Wallace Lane, Paihia		Designer:	PK

SLIP PROFILE B4

Parameter	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
c'	12	22	15	10	5
ϕ'	25	32	30	25	20

Slice no	b,width	Mid ht,h	W,Weight	Q, Angle	D,depth of GWT	u (kPa)	ub(kn)
1	0.9	0.6	9.72	60	0	0	0
2	1.5	1.4	37.8	55	0	0	0
3	1.5	1.9	51.3	50	0	0	0
4	1.5	2.8	75.6	45	0.8	8	12
5	1.5	3.4	91.8	38	1.6	16	24
6	1.5	3.8	102.6	31	2.2	22	33
7	1.5	3.9	105.3	25	2.5	25	37.5
8	1.5	3.9	105.3	18	2.5	25	37.5
9	1.5	3.5	94.5	11	2.4	24	36
10	1.5	3	81	0	2	20	30
11	1.5	2.4	64.8	353	1.4	14	21
12	1.5	0.9	24.3	351	0.7	7	10.5
13	1.5	0.6	16.2	347	0	0	0
14	1.5	0.3	8.1	345	0	0	0
			0			0	0
			0			0	0
			0			0	0

TRIAL 1 (T1)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.7614165		for F3	1.794517	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9.72	60	8.4168067	12	10.8	0	0	9.72	0.4662075	4.5315364	15.331536	0.310805	0.7693054	19.929065	0.2646776	0.7293624	21.020464	0.2597955	0.7251349	21.143012
2	37.8	55	30.960021	12	18	0	0	37.8	0.4662075	17.622642	35.622642	0.310805	0.828289	43.007503	0.2646776	0.7905085	45.062949	0.2597955	0.7865098	45.292051
3	51.3	50	39.292651	12	18	0	0	51.3	0.4662075	23.916442	41.916442	0.310805	0.8809712	47.579808	0.2646776	0.8456405	49.567686	0.2597955	0.8419011	49.787845
4	75.6	45	53.449352	12	18	8	12	63.6	0.4662075	29.650794	47.650794	0.310805	0.9269513	51.405932	0.2646776	0.8943391	53.280453	0.2597955	0.8908875	53.486882
5	91.8	38	56.508672	12	18	16	24	67.8	0.4662075	31.608865	49.608865	0.310805	0.9794078	50.6519	0.2646776	0.9510135	52.164209	0.2597955	0.9480082	52.329572
6	102.6	31	52.83393	12	18	22	33	69.6	0.4662075	32.448039	50.448039	0.310805	1.0172691	49.591637	0.2646776	0.9935157	50.777292	0.2597955	0.9910017	50.906106
7	105.3	25	44.493847	12	18	25	37.5	67.8	0.4662075	31.608865	49.608865	0.310805	1.0376712	47.807883	0.2646776	1.0181804	48.72306	0.2597955	1.0161175	48.821976
8	105.3	18	32.533554	12	18	25	37.5	67.8	0.4662075	31.608865	49.608865	0.310805	1.0471013	47.37733	0.2646776	1.0328498	48.031056	0.2597955	1.0313414	48.101302
9	94.5	11	18.02809	12	18	24	36	58.5	0.4662075	27.273136	45.273136	0.310805	1.0409274	43.493076	0.2646776	1.0321275	43.863896	0.2597955	1.0311962	43.903514
10	81	0	0	12	18	20	30	51	0.4662075	23.77658	41.77658	0.310805	1	41.77658	0.2646776	1	41.77658	0.2597955	1	41.77658
11	64.8	353	-7.971881	12	18	14	21	43.8	0.4662075	20.419886	38.419886	0.310805	0.9541677	40.265339	0.2646776	0.9598424	40.027284	0.2597955	0.9604431	40.002253
12	24.3	351	-3.829092	12	18	7	10.5	13.8	0.4662075	6.4336628	24.433663	0.310805	0.9385316	26.033928	0.2646776	0.9458001	25.833855	0.2597955	0.9465694	25.812859
13	16.2	347	-3.662239	12	18	0	0	16.2	0.4662075	7.5525607	25.552561	0.310805	0.9038506	28.27078	0.2646776	0.9142783	27.948339	0.2597955	0.915382	27.914643
14	8.1	345	-2.10532	12	18	0	0	8.1	0.4662075	3.7762804	21.77628	0.310805	0.884848	24.610194	0.2646776	0.8968372	24.281195	0.2597955	0.8981062	24.246889
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2646776	1	0	0.2597955	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2646776	1	0	0.2597955	1	0
0	0	0	0	12	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.2646776	1	0	0.2597955	1	0
			318.94839											561.80095			572.35832			573.52548

SF2	**1.76141649**
SF3	**1.79451703**
SF4	**1.79817645**

WALLACE LANE APARTMENTS. PAIHIA

ARTISTS IMPRESSIONS
JULY 2007

WALLACE LANE APARTMENTS, PAIHIA

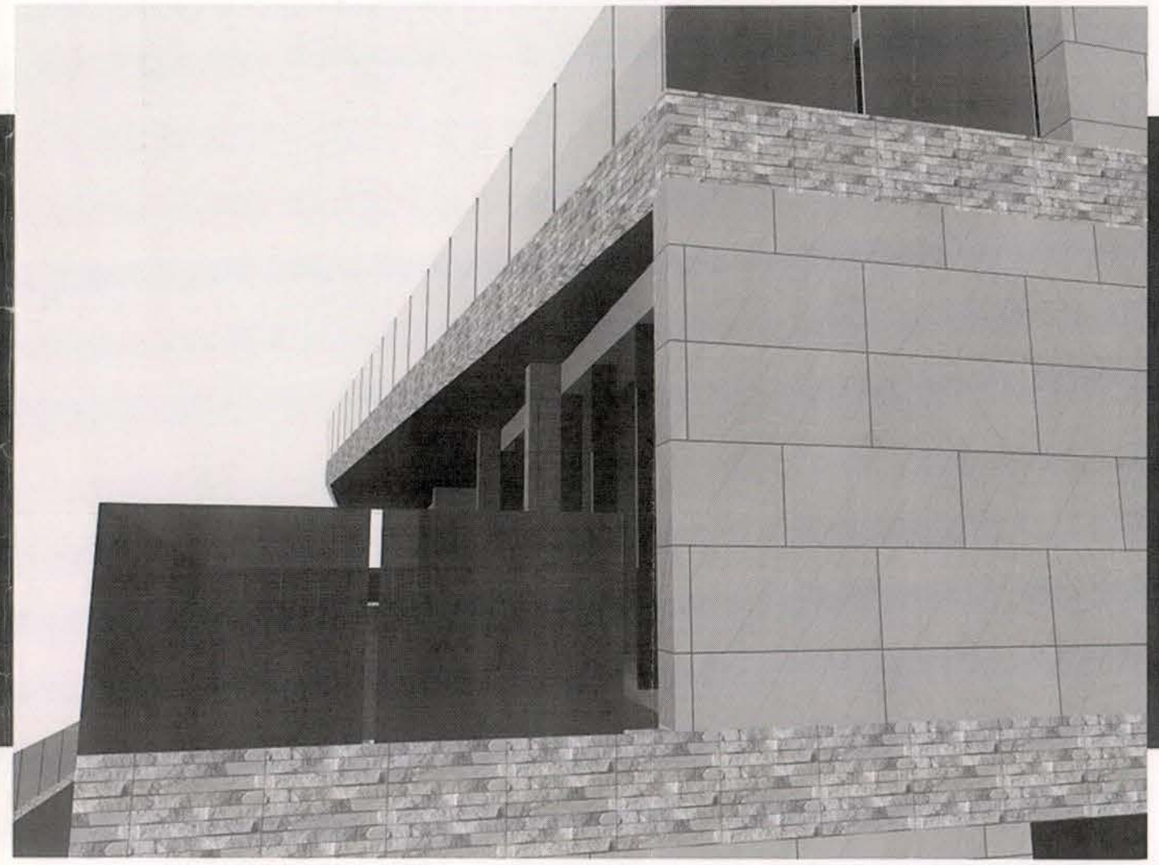
SOUTH WEST VIEW FROM PIONEER APARTMENTS, MARSDEN ROAD

NORTH WEST VIEW FROM SHORE LOOKOUT

ARTISTS IMPRESSIONS
JULY 2007

WALLACE LANE APARTMENTS, PAIHIA

VIEW LOOKING TOWARDS TOP



VIEW LOOKING ACROSS APARTMENT - SANDSTONE DETAIL

ARTISTS IMPRESSIONS
JULY 2007

WALLACE LANE APARTMENTS. PAIHIA

ARCHITECTURAL PLANS
JULY 2007

TPC TRAFFIC PLANNING CONSULTANTS LTD

23 August 2007

Ormiston Project Management
PO Box 58395
Greenmount
Manukau 2141
AUCKLAND

Attn: Daiman Otto

Dear Daiman

Re: 8 School Road – Revised Upgrade of Wallace Lane Driveway

As requested I have assessed the potential to achieve a 5.0 metre wide driveway on Wallace Lane to service the proposed residential development on Lot 3.The attached layout drawing indicates the general areas of widening, with relevant features noted.

Of particular note is the existing width constraint between a large timber retaining wall along the western driveway boundary and a power pole located approximately 10 metres from the adjacent wide road reserve. The existing features limit the available clearance to approximately 4.4 metres. Adjustment to the existing retaining wall or relocation of the power pole is not considered practical. The driveway can be widened to 5.0 metres to the south of the power pole, with the widening continued at least to the vehicle access to the proposed development.

The proposed driveway widening shown in the attached drawing (07125-02) is considered to be an improvement over the previous upgrade option (07125-01) presented to the Far North District Council. As such the related conclusion stated in the traffic impact assessment report, dated August 2007, is still considered appropriate. The related conclusion was: *The proposal includes a series of upgrade measures for the existing vehicle access. While the proposed access does not meet Council standards based on the current zoning or number of separate dwellings, the safety and operation of the access are considered acceptable.*

I trust this email provides sufficient information at this time. Please contact me should you wish to discuss further.

Yours sincerely,
TRAFFIC PLANNING CONSULTANTS LTD

David Philip

PO Box 60-255, Titirangi, Auckland
Level 1, 400 Titirangi Road
cnr Rangiwai Road, Titirangi Village

Tel: (09) 817 2500 Fax: (09) 817 2504
E-mail: tpc@trafficplanning.co.nz

TRIAL 2 (T2)

1	2	3	4	5	6	7	8	9	10	11	12	13	4	15	16	17	18			
												for F1	5		for F2	2.6593179		for F3	2.8483735	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa,	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9.72	60	8.4168067	22	19.8	0	0	9.72	0.6247229	6.0723062	25.872306	0.4164819	0.8608138	30.055635	0.2349185	0.7035932	36.771682	0.2193262	0.6900914	37.491127
2	37.8	55	30.960021	22	33	0	0	37.8	0.6247229	23.614524	56.614524	0.4164819	0.9148435	61.884381	0.2349185	0.7661343	73.896345	0.2193262	0.7533635	75.149017
3	51.3	50	39.292651	22	33	0	0	51.3	0.6247229	32.048283	65.048283	0.4164819	0.9619133	67.623853	0.2349185	0.8228468	79.052724	0.2193262	0.8109041	80.216986
4	75.6	45	53.449352	22	33	8	12	63.6	0.6247229	39.732374	72.732374	0.4164819	1.0016651	72.61147	0.2349185	0.8732994	83.284584	0.2193262	0.8622756	84.349337
5	91.8	38	56.508672	22	33	16	24	67.8	0.6247229	42.35621	75.35621	0.4164819	1.0444586	72.148586	0.2349185	0.9326949	80.794066	0.2193262	0.9230968	81.634134
6	102.6	31	52.83393	22	33	22	33	69.6	0.6247229	43.480711	76.480711	0.4164819	1.0716875	71.364753	0.2349185	0.9781913	78.185846	0.2193262	0.970162	78.832928
7	105.3	25	44.493847	22	33	25	37.5	67.8	0.6247229	42.35621	75.35621	0.4164819	1.0823244	69.624424	0.2349185	1.0056059	74.936127	0.2193262	0.9990175	75.430324
8	105.3	18	32.533554	22	33	25	37.5	67.8	0.6247229	42.35621	75.35621	0.4164819	1.0797513	69.790337	0.2349185	1.0236554	73.614823	0.2193262	1.018838	73.962898
9	94.5	11	18.02809	22	33	24	36	58.5	0.6247229	36.546287	69.546287	0.4164819	1.0610878	65.542445	0.2349185	1.0264503	67.75417	0.2193262	1.0234757	67.951088
10	81	0	0	22	33	20	30	51	0.6247229	31.860866	64.860866	0.4164819	1	64.860866	0.2349185	1	64.860866	0.2193262	1	64.860866
11	64.8	353	-7.971881	22	33	14	21	43.8	0.6247229	27.362861	60.362861	0.4164819	0.941167	64.136183	0.2349185	0.9635035	62.649343	0.2193262	0.9654217	62.524865
12	24.3	351	-3.829092	22	33	7	10.5	13.8	0.6247229	8.6211755	41.621175	0.4164819	0.9218794	45.148177	0.2349185	0.9504894	43.789204	0.2193262	0.9529464	43.676303
13	16.2	347	-3.662239	22	33	0	0	16.2	0.6247229	10.12051	43.12051	0.4164819	0.8799608	49.002763	0.2349185	0.9210058	46.818935	0.2193262	0.9245306	46.640434
14	8.1	345	-2.10532	22	33	0	0	8.1	0.6247229	5.0602552	38.060255	0.4164819	0.8573809	44.391305	0.2349185	0.9045721	42.075424	0.2193262	0.9086248	41.887757
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2349185	1	0	0.2193262	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2349185	1	0	0.2193262	1	0
0	0	0	0	22	0	0	0	0	0.6247229	0	0	0.4164819	1	0	0.2349185	1	0	0.2193262	1	0
			318.94839											848.18518			908.48414			914.60806

SF2 2.65931794
SF3 2.84837348
SF4 2.86757384

TRIAL 3 (T3)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	2.1307884		for F3	2.2259242	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9.72	60	8.4168067	15	13.5	0	0	9.72	0.5772186	5.6105646	19.110565	0.3848124	0.8333904	22.931108	0.2708944	0.7347457	26.009766	0.2593164	0.72472	26.369583
2	37.8	55	30.960021	15	22.5	0	0	37.8	0.5772186	21.818862	44.318862	0.3848124	0.8889046	49.857836	0.2708944	0.7956003	55.704934	0.2593164	0.7861174	56.376903
3	51.3	50	39.292651	15	22.5	0	0	51.3	0.5772186	29.611313	52.111313	0.3848124	0.9376564	55.57613	0.2708944	0.8504022	61.278433	0.2593164	0.8415341	61.924182
4	75.6	45	53.449352	15	22.5	8	12	63.6	0.5772186	36.711101	59.211101	0.3848124	0.9792747	60.464243	0.2708944	0.8987344	65.882758	0.2593164	0.8905487	66.488334
5	91.8	38	56.508672	15	22.5	16	24	67.8	0.5772186	39.135419	61.635419	0.3848124	1.024964	60.134229	0.2708944	0.9548403	64.550501	0.2593164	0.9477133	65.035933
6	102.6	31	52.83393	15	22.5	22	33	69.6	0.5772186	40.174413	62.674413	0.3848124	1.0553792	59.38568	0.2708944	0.9967171	62.880846	0.2593164	0.990755	63.259246
7	105.3	25	44.493847	15	22.5	25	37.5	67.8	0.5772186	39.135419	61.635419	0.3848124	1.0689426	57.660177	0.2708944	1.0208073	60.379095	0.2593164	1.0159151	60.669855
8	105.3	18	32.533554	15	22.5	25	37.5	67.8	0.5772186	39.135419	61.635419	0.3848124	1.0699667	57.604988	0.2708944	1.0347705	59.564336	0.2593164	1.0311934	59.770961
9	94.5	11	18.02809	15	22.5	24	36	58.5	0.5772186	33.767287	56.267287	0.3848124	1.0550461	53.331592	0.2708944	1.0333135	54.453256	0.2593164	1.0311048	54.569902
10	81	0	0	15	22.5	20	30	51	0.5772186	29.438147	51.938147	0.3848124	1	51.938147	0.2708944	1	51.938147	0.2593164	1	51.938147
11	64.8	353	-7.971881	15	22.5	14	21	43.8	0.5772186	25.282174	47.782174	0.3848124	0.9450631	50.55977	0.2708944	0.9590776	49.820965	0.2593164	0.960502	49.747084
12	24.3	351	-3.829092	15	22.5	7	10.5	13.8	0.5772186	7.9656163	30.465616	0.3848124	0.9268698	32.86936	0.2708944	0.9448205	32.244872	0.2593164	0.9466449	32.182729
13	16.2	347	-3.662239	15	22.5	0	0	16.2	0.5772186	9.3509409	31.850941	0.3848124	0.8871201	35.903751	0.2708944	0.9128729	34.890882	0.2593164	0.9154903	34.791129
14	8.1	345	-2.10532	15	22.5	0	0	8.1	0.5772186	4.6754705	27.17547	0.3848124	0.8656123	31.394507	0.2708944	0.8952214	30.356145	0.2593164	0.8982307	30.254444
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2708944	1	0	0.2593164	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2708944	1	0	0.2593164	1	0
0	0	0	0	15	0	0	0	0	0.5772186	0	0	0.3848124	1	0	0.2708944	1	0	0.2593164	1	0
			318.94839											679.61152			709.95494			713.37843

SF2 2.13078836
SF3 2.22592418
SF4 2.23665788

TRIAL 4 (T4)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.6256456		for F3	1.6414134	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kP	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9.72	60	8.4168067	10	9	0	0	9.72	0.4662075	4.5315364	13.531536	0.310805	0.7693054	17.589292	0.286783	0.7485041	18.078107	0.2840281	0.7461185	18.135907
2	37.8	55	30.960021	10	15	0	0	37.8	0.4662075	17.622642	32.622642	0.310805	0.828289	39.385579	0.286783	0.8086138	40.343908	0.2840281	0.8063574	40.456801
3	51.3	50	39.292651	10	15	0	0	51.3	0.4662075	23.916442	38.916442	0.310805	0.8809712	44.174475	0.286783	0.8625719	45.116754	0.2840281	0.8604618	45.227393
4	75.6	45	53.449352	10	15	8	12	63.6	0.4662075	29.650794	44.650794	0.310805	0.9269513	48.169516	0.286783	0.9099677	49.06855	0.2840281	0.9080199	49.173803
5	91.8	38	56.508672	10	15	16	24	67.8	0.4662075	31.608865	46.608865	0.310805	0.9794078	47.588825	0.286783	0.9646207	48.318333	0.2840281	0.9629249	48.403427
6	102.6	31	52.83393	10	15	22	33	69.6	0.4662075	32.448039	47.448039	0.310805	1.0172691	46.642565	0.286783	1.0048989	47.216728	0.2840281	1.0034803	47.283479
7	105.3	25	44.493847	10	15	25	37.5	67.8	0.4662075	31.608865	46.608865	0.310805	1.0376712	44.916794	0.286783	1.0275209	45.360504	0.2840281	1.0263568	45.41195
8	105.3	18	32.533554	10	15	25	37.5	67.8	0.4662075	31.608865	46.608865	0.310805	1.0471013	44.512278	0.286783	1.0396795	44.830033	0.2840281	1.0388283	44.866764
9	94.5	11	18.02809	10	15	24	36	58.5	0.4662075	27.273136	42.273136	0.310805	1.0409274	40.611031	0.286783	1.0363447	40.790615	0.2840281	1.0358191	40.811311
10	81	0	0	10	15	20	30	51	0.4662075	23.77658	38.77658	0.310805	1	38.77658	0.286783	1	38.77658	0.2840281	1	38.77658
11	64.8	353	-7.971881	10	15	14	21	43.8	0.4662075	20.419886	35.419886	0.310805	0.9541677	37.121237	0.286783	0.957123	37.00662	0.2840281	0.9574619	36.993521
12	24.3	351	-3.829092	10	15	7	10.5	13.8	0.4662075	6.4336628	21.433663	0.310805	0.9385316	22.837445	0.286783	0.9423168	22.745707	0.2840281	0.9427509	22.735233
13	16.2	347	-3.662239	10	15	0	0	16.2	0.4662075	7.5525607	22.552561	0.310805	0.9038506	24.951647	0.286783	0.9092811	24.802628	0.2840281	0.9099039	24.785652
14	8.1	345	-2.10532	10	15	0	0	8.1	0.4662075	3.7762804	18.77628	0.310805	0.884848	21.219781	0.286783	0.8910917	21.071098	0.2840281	0.8918077	21.05418
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.286783	1	0	0.2840281	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.286783	1	0	0.2840281	1	0
0	0	0	0	10	0	0	0	0	0.4662075	0	0	0.310805	1	0	0.286783	1	0	0.2840281	1	0
			318.94839											518.49704			523.52616			524.116

SF2 1.62564559
SF3 1.6414134
SF4 1.64326272

TRIAL 5 (T5)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
												for F1	1.5		for F2	1.6256456		for F3	1.6414134	
slice no	W (kN)	Q	WsinQ	c' (kPa)	c'b	u (kPa)	ub	W-ub	tan o'	9X10	6(+)11	Tano'/F	M(Q)	12 (/) 14	Tano'/F	M(Q)	12 (/) 17	Tano'/F	M(Q)	12 (/) 17
1	9.72	60	8.4168067	5	4.5	0	0	9.72	0.3638957	3.5370658	8.0370658	0.2425971	0.7102424	11.315948	0.2238469	0.694006	11.580686	0.2216965	0.692144	11.611841
2	37.8	55	30.960021	5	7.5	0	0	37.8	0.3638957	13.755256	21.255256	0.2425971	0.7724235	27.51762	0.2238469	0.7570661	28.075825	0.2216965	0.7553049	28.141292
3	51.3	50	39.292651	5	7.5	0	0	51.3	0.3638957	18.667847	26.167847	0.2425971	0.8287282	31.57591	0.2238469	0.8143667	32.132759	0.2216965	0.8127196	32.197877
4	75.6	45	53.449352	5	7.5	8	12	63.6	0.3638957	23.143764	30.643764	0.2425971	0.8787282	34.872859	0.2238469	0.8654717	35.407008	0.2216965	0.8639514	35.469313
5	91.8	38	56.508672	5	7.5	16	24	67.8	0.3638957	24.672126	32.172126	0.2425971	0.9374216	34.319806	0.2238469	0.9258796	34.747635	0.2216965	0.9245559	34.797382
6	102.6	31	52.83393	5	7.5	22	33	69.6	0.3638957	25.327138	32.827138	0.2425971	0.9821454	33.423909	0.2238469	0.9724899	33.755761	0.2216965	0.9713826	33.794241
7	105.3	25	44.493847	5	7.5	25	37.5	67.8	0.3638957	24.672126	32.172126	0.2425971	1.0088504	31.889886	0.2238469	1.0009276	32.142309	0.2216965	1.000019	32.171513
8	105.3	18	32.533554	5	7.5	25	37.5	67.8	0.3638957	24.672126	32.172126	0.2425971	1.0260278	31.355999	0.2238469	1.0202347	31.534044	0.2216965	1.0195703	31.554592
9	94.5	11	18.02809	5	7.5	24	36	58.5	0.3638957	21.287896	28.787896	0.2425971	1.0279152	28.006101	0.2238469	1.0243381	28.1039	0.2216965	1.0239279	28.115159
10	81	0	0	5	7.5	20	30	51	0.3638957	18.558679	26.058679	0.2425971	1	26.058679	0.2238469	1	26.058679	0.2216965	1	26.058679
11	64.8	353	-7.971881	5	7.5	14	21	43.8	0.3638957	15.93863	23.43863	0.2425971	0.9625588	24.350335	0.2238469	0.9648656	24.29212	0.2216965	0.9651301	24.285462
12	24.3	351	-3.829092	5	7.5	7	10.5	13.8	0.3638957	5.0217601	12.52176	0.2425971	0.9492795	13.190805	0.2238469	0.952234	13.149877	0.2216965	0.9525729	13.145199
13	16.2	347	-3.662239	5	7.5	0	0	16.2	0.3638957	5.8951097	13.39511	0.2425971	0.9192699	14.571465	0.2238469	0.9235087	14.504585	0.2216965	0.9239948	14.496954
14	8.1	345	-2.10532	5	7.5	0	0	8.1	0.3638957	2.9475549	10.447555	0.2425971	0.9025763	11.575259	0.2238469	0.9074498	11.513094	0.2216965	0.9080087	11.506007
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.2238469	1	0	0.2216965	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.2238469	1	0	0.2216965	1	0
0	0	0	0	5	0	0	0	0	0.3638957	0	0	0.2425971	1	0	0.2238469	1	0	0.2216965	1	0
			318.94839											354.02458			356.99828			357.34551

SF2 1.1099745
SF3 1.11929795
SF4 1.12038662

Wayne R. Miller
Consulting Engineer

7c Fifth Avenue
Whangarei

Telephone (09) 438 3071
Mobile (027) 442 7750
E-mail: wayne-m@xtra.co.nz

Memorandum

TO	:	*Melissa McGrath* *Far North District Council*
ADDRESS	:	*Private Bag 752,* *Kaikohe*
PROJECT	:	***RC 2080121*** ***Paihia Limited***
DATE	:	*13 September 2007*

Melissa – we need a Sec 92 notice I think:

(a) Please provide a plan showing details of the access to the site and demonstrating compliance with the requirements of the Far North District Council District Plan for width and gradients

(b) The geomechanics report indicates factors of safety for soil stability close to 1 for the soils in certain conditions. Please update this report to include comment on whether there will be any effect on adjoining properties, and whether there are any undeveloped areas of the subject property that may have an unacceptably low factor of safety.

Wayne R. Miller
BE (Civil), ME, MIPENZ, MIntPE
Chartered Professional Engineer

Melissa,

I am still not terribly happy with the submitted design. The Traffic Planning Consultants Limited report indicates a width of about 6 metres for a stated length of 7 metres from the road reserve; while I have not had the benefit of discussion with Marius Gabriels, this is inadequate in my view given the impact of possible queuing in the driveway.

There appears at least to be potential for further widening at the entrance and throughout the proposed accessway, and I think we should request some additional thought from them on this matter.

I will discuss with Marius when next I am in Kaikohe and further advise.

Wayne R. Miller
BE (Civil), ME, MIPENZ, MIntPE
Chartered Professional Engineer

Far North
District Council

Private Bag 752, Memorial Ave
Kaikohe 0400, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

19 September 2007

Paihia Limited
C/- Damian Otto - Ormiston Projects
PO Box 58395
Greenmount
Manukau City 2141

Dear Sir/ Madam

RESOURCE CONSENT APPLICATION – Request for Further Information

A preliminary assessment of your application for a resource consent to undertake a landuse proposal has been made.

Under Section 92(1) of the Resource Management Act 1991, the Council requires further information to be able to consider your proposal. This additional information will help us to better understand the proposed activity, its effects on the environment and the means by which any adverse effects on the environment may be avoided, remedied, or mitigated.

Please note that Council's Consultant Engineer Wayne Miller has completed a site inspection and assessment of your application, the following information request is a result of this assessment. The additional information required by the Council is listed below, with further reasons as to why we need this information to be provided.

1. Please provide a plan showing the details of site access and demonstrating compliance with the requirements of the Far North District Council District Plan for width and gradients.

2. The geomechanics report indicates factors of safety for soil stability close to 1 for the soils in certain conditions. Please update this report to include comment on whether there will be any effect on adjoining properties, and whether there are any undeveloped areas of the subject property that may have an unacceptably low factor of safety.

In accordance with the Act, your application will be suspended until we receive this information. Once we have received the information to our satisfaction, a decision will be made regarding the further processing of the application and whether notification may be required.

Under Section 92A(1) of the Act you are required to comply with this request before 10 October 2007, by either:

(a) providing the requested information, or;

(b) informing the Council in writing that you accept that the information can be provided within a reasonable time period, to be set by agreement and advised by the Council, or;

(c) informing the Council in writing of your refusal to provide the information, or;

(d) making a formal objection to this request under Section 357A(1)(b) of the Act, stating your reasons why you consider that this information should not be required by the Council.

Please use the attached form when sending in your response to the Council.

Note that under Section 92A(3) of the Act, the Council may decline your application if:

(1) You do not respond to this request, or;

(2) The information is not provided by the agreed date, set as specified under (b) above, or;

(3) You refuse to provide the information, as per (c) above, and;

(4) The Council considers and concludes that it has insufficient information to enable it to determine the application.

Please feel free to contact the undersigned if you have any questions or concerns.

Yours faithfully

Melissa McGrath
RESOURCE PLANNER

TPC TRAFFIC PLANNING CONSULTANTS LTD

30 October 2007

Ormiston Project Management
PO Box 58395
Greenmount
Manukau 2141
AUCKLAND

Attn: Daiman Otto

Dear Daiman

Re: 8 School Road – Proposed Upgrade to Wallace Lane Access

Further to recent discussions and correspondence, including receipt of additional survey information, I have assessed the potential widening of the existing vehicle access point where Wallace Lane joins School Road.

As stated in previous advice, it is considered necessary to upgrade the existing vehicle crossing layout within the road reserve to provide an appropriate area where two opposing vehicles can pass within Wallace Lane, adjacent to the School Road carriageway. The attached layout drawing (Ref. 07125-03) indicates key features pertaining to the existing access layout, together with possible carriageway widening. The attached drawing replicates the indicative carriageway widening within the private access way, as detailed in Drawing 07125-02 provided as an attachment to our letter to you dated 23 August 2007.

With regard to the proposed widening of Wallace Lane in the vicinity of School Road, the intention is to provide a passing bay which can accommodate an ingress vehicle passing another vehicle waiting to join School Road. The extent of widening shown on Drawing 07125-03 provides a varying width of access way, with a minimum of 5.5 metre width over the initial 7.0 metres adjacent to School Road. The proposed widening is considered sufficient to achieve acceptable two-way vehicle movement at the junction of Wallace Lane with School Road.

The widening of the Wallace Lane access point will take place fully within the road reserve on the uphill or western side of the lane. The existing road reserve, between the School Road carriageway and adjacent property boundary is in excess of 16 metres. The forming of the widened access point will necessitate the removal of a section of rock garden and landscaping used to define individual driveways to No. 10 and No. 12 School Road. The proposed access widening will involve an element of re-grading on the two adjoining driveways to achieve acceptable tie-in.

PO Box 60-255, Titirangi, Auckland
Level 1, 400 Titirangi Road
cnr Rangiwai Road, Titirangi Village

Tel: (09) 817 2500 Fax: (09) 817 2504
E-mail: tpc@trafficplanning.co.nz

The grades on the existing access way will be largely retained with proposed widening works tying into existing features. The existing access gradient, based on information provided in the topographical survey varies between 1 in 4.4 to 1 in 7.2 over the affected section. The access grades are in general compliance with Appendix 7B of the District Plan. While the site is zoned for commercial use with a stated maximum gradient of 1 in 5, all activities which gain vehicle access from Wallace Lane are residential. The maximum gradient for residential zones is 1 in 4 where the carriageway is sealed.

Rule 14.1.6.1.2(c) of the District Plan states that a platform no steeper than 1 in 20 should be provided adjacent to the road boundary for a length of six metres for commercial zoned sites and four metres for other zones. It is not feasible to amend the existing access grades to achieve a near-level platform at the site boundary or where the access way adjoins School Road. The adverse effects of this outcome will be mitigated by the lack of footpath on the western side of School Road. Further mitigation may be possible through the resealing of the access area and reduction in the amount of loose metal currently observed along the western side of School Road.

As mentioned previously, all widening works around the junction of Wallace Lane and School Road will be within road reserve. The design and construction of any proposed widening works should be agreed in consultation with the Far North District Council.

I trust the above and attached drawing provide sufficient information at this time. Please contact me should you have any queries or wish to discuss further.

Yours faithfully,
TRAFFIC PLANNING CONSULTANTS LTD

David Philip

FAX TO MELISSA McGrath 09 4912137

PK ENGINEERING
CHARTERED PROFESSIONAL ENGINEERS

Our ref: 07-56
Your ref: RC2080121-RMALUC

Tuesday, 30 October 2007

Melissa McGrath
Resourse Planner – Planning
Private Bag 752,
Kaikohe.

RE: Resource Consent Application – Request for further information.
(refer to letter dated 19 September 2007)

This report must be read in conjunction with my report dated "Site Stability and Suitability Report for Lot 3 DP44530 at Wallace Lane, Paihia for Ormiston Project Management Ltd" dated June 2007.

The predominant area of this site will be excavated out and the clay above the rock will be removed – hence the factors of safety will be vastly improved for all the slip circles analysed. The areas close to the neighbouring boundaries will be retained using a contiguous concrete pile retaining wall with a capping beam – as described in my report. This will also improve the factors of safety against slippage along the boundaries. The old slip mass on the lower portion of this site will be removed and a new retaining wall will be built along the eastern end of the new driveway. This would stabilise this area and the factors of safety here would be significantly improved.

The proposed development will enhance the stability of this Lot and surrounding sections by providing adequate retaining wall structures and proper control of stormwater runoff.

Pradeep Kumar.
B.E hons, NZCE, MIPENZ,
IntPE, CPEng.
(Structural, Geotechnical)
Chartered Professional Engineer.

Receipt
01 NOV 2007
Doc Ref
Reg m11 - 43

Level 1 National Bank Building 90 Kerikeri Road Kerikeri New Zealand
Telephone: 09 407 3255 Fax: 09 407 3256 Email: pk.engin@xtra.co.nz

Far North District Council

MEMO

To:	Marius Gabriels, Development Engineer, Roading
From:	Melissa McGrath, Resource Planner
Department	Regulatory Services
Date	31 October 2007
Subject	**Paihia Limited** **RC-2080121-RMALUC** **Land Use**

Further to the receipt of the abovementioned resource consent application, the applicant has provided additional information with regard to the access width, gradient and proposed work within road reserve.

The proposal is considered to be a restricted discretionary activity as a result of the proposed access. Due to the nature of the application, and intense public interest, Council must carefully determine whether or not the effects from the proposal are more than minor (therefore warranting public notification). Therefore it is critical that assessment of the access is accurate.

Please provide confirmation of the following aspects:

1. One major concern is that the entrance to Wallace Lane is located within 30m of the School Road and State Highway intersection; please provide confirmation of the setback.
2. With regard to the information submitted, please confirm that the proposed Wallace Lane and School Road intersection is safe and to Council's Engineering Standards.
3. Please confirm that you are satisfied with the gradients of the proposed access given the level of traffic intensity.
4. Please confirm that you are satisfied with the potential impact of the proposed entrance on Numbers 10 and 12 School Road.

If you have any queries please do not hesitate to contact me, on ext 6724.

Kind Regards

Melissa McGrath
Resource Planner

BAY OF ISLANDS PLANNING LIMITED

2 Totara Place , Kerikeri
PO Box 795
Kerikeri

Phone [09] 4075253 ; Fax [09] 4075263 ; Email – bayplan@actrix.co.nz

File Message : **Date : 21 November 2007**

To : Melissa McGrath , Far North District Council.

Re : Apartment Project – Wallace Lane , Paihia : RC 2080121.

Dear Melissa ,

1. We have been instructed to assist the applicant with the processing of this resource consent application which was lodged by Ormiston Project Management Limited. To that end our client has provided us with copies of the relevant application and communications which have taken place with Council.

2. Our assessment of the proposal is that it is deemed to fall as a Restricted Discretionary Activity within the Commercial Zone of the Operative District Plan. The specific matter over which Councils discretion is limited relates to the width of the access drive which is reflected within those matters described within Rule 14.1.7.2.

3. The traffic information prepared by TPC dated August 2007 and lodged with Council adequately details the manner in which the application attains those specified matters. In addition the two matters specified in your Section 92 request dated 19 September 2007 were covered in the replies of TPC and PK Engineering both dated 30 October 2007.

4. It is understood that the application is being referred to a Council Committee to determine whether or not the application should be processed under limited or full public notification. It is also my understanding which was subject to you receiving the Section 92 information that such consideration will be undertaken on the 26 November 2007 such date being agreed between yourself and Damian Otto. The applicant has meet those undertakings.

5. In my recent communications with Daiman ,post 30 October 2007, he has advised that Council now requires information on the effect of traffic movements at the School Road / Marsden Road intersection. The original TPC report dealt with those issues and Mr David Phillip , the traffic engineer , in subsequent discussions with Mr Miller was of the opinion that all issues had been dealt with in the 30 October 2007 response.

6. It would certainly assist the applicant if Council would specifically advise what the particular concerns are as from what I have reviewed the goal posts seem to move .

7. In my opinion Council does not have adequate information to warrant the application being processed beyond that of limited notification. Indeed I am fully aware of the articles in the newspaper however these are dealing with matters which cannot be taken into account by Council when assessing who is affected. Section 93 is very clear that only matters over which Council has limited is discretion can be taken into account i.e. Rule 14.1.7.2.

8. We therefore await confirmation that this matter will be considered at the meeting of 26 November 2007 and look forward to receiving a copy of the planning report.

9. It may well be beneficial that we meet with you beforehand to review the above. In the meantime we would ask for copies of all communications to / from any third paries in relation to this application.

I look forward to hearing from you .

Regards ,

Jeff Kemp.

Far North
District Council

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Kaikohe 0400, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

28 November 2007

Paihia Limited
C/- Damian Otto - Ormiston Projects
PO Box 58395
Greenmount
Manukau City 2141

Dear Sir/ Madam

RESOURCE CONSENT APPLICATION – Request for Further Information

A preliminary assessment of your application for resource consent to undertake a landuse proposal has been made. Further review of the traffic reports and assessment of the additional information provided has been completed by Council's Consultant Engineer Wayne Miller and Council's Road and Drainage Development Engineer, Marius Gabriels.

Under Section 92(1) of the Resource Management Act 1991, the Council requires further information to be able to consider your proposal. This additional information will help us to better understand the proposed activity, its effects on the environment and the means by which any adverse effects on the environment may be avoided, remedied, or mitigated.

The additional information required by the Council is listed below, with further reasons as to why we need this information to be provided.

1. Please expand the scope of the Traffic Report submitted within the application, prepared by Traffic Planning Consultants Ltd to address the following matters:

   - The potential impact of the proposed right of way (ROW) construction and subsequent increased use will have on the intersection of School Road and Marsden Road (State Highway 11).

   - How safe sight distances and manoeuvring to and from School road can be achieved give the proximity of the proposed access to the intersection of School Road and Marsden Road (24m) compared to the recommended sight distance of 65 metres in a 50kph speed zone area.

   - The proposed grade of the ROW is considered not to be satisfactory for safe access if no entrance platform for users is provided, please provided further clarification as to how safety of ROW users will be achieved.

In accordance with the Act, your application will be suspended until we receive this information. Once we have received the information to our satisfaction, a decision will be made regarding the further processing of the application and whether notification may be required.

Under Section 92 A (1) of the Act you are required to comply with this request before **20 December 2007**, by either:

(a) providing the requested information, or;

(b) informing the Council in writing that you accept that the information can be provided within a reasonable time period, to be set by agreement and advised by the Council, or;

(c) informing the Council in writing of your refusal to provide the information, or;

(d) making a formal objection to this request under Section 357 A (1)(b) of the Act, stating your reasons why you consider that this information should not be required by the Council.

Please use the attached form when sending in your response to the Council.

Note that under Section 92 A (3) of the Act, the Council may decline your application if:

(1) You do not respond to this request, or;

(2) The information is not provided by the agreed date, set as specified under (b) above, or;

(3) You refuse to provide the information, as per (c) above, and;

(4) The Council considers and concludes that it has insufficient information to enable it to determine the application.

Please feel free to contact the undersigned if you have any questions or concerns.

Yours faithfully

Melissa McGrath
RESOURCE PLANNER

Far North District Council

To - *Melissa McGrath*
Resource Planner
Far North District Council

From - *Palhia Limited*

Resource Consent *RC-2080121-RMALUC*

Regarding your letter dated 28 November 2007 under Section 92 of the Resource Management Act:

[*Note to the Applicant* – please mark the option (s) you have taken]

☑ (1) I have provided the following information requested by the Council:

(a) SET ATTACHED – 3 PAGES FROM T.P.C

☐ (2) I advise that I will provide the information requested by the Council before:

.....

[*Note to the Applicant* – please indicate the date by which you are able to provide this information]

☐ (3) I refuse to provide the information requested by the Council.

☐ (4) I wish to make a formal objection, under Section 357(1)(b) of the Act, to the request by the Council for additional information under Section 92(1) of the Act, for the following reasons:

(a) .....

[*Note to the applicant* – Please provide detailed reasons with respect to each item of the request objected to and send in with the appropriate lodgement fee for objections]

ORMISTON PROJECT MANAGEMENT LTD

Name of Applicant / Agent DAIMAN OTTC

Signature of Applicant / Agent .....

Date 18.12.07

TPC TRAFFIC PLANNING CONSULTANTS LTD

17 December 2007

Ormiston Project Management
PO Box 58395
Greenmount
Manukau 2141
AUCKLAND

Attn: Daiman Otto

Dear Daiman

Re: 8 School Road, Lot 3 Wallace Lane – Section 92 Response

Further to recent discussions and correspondence, we have considered the three listed points outlining additional information requested by the Far North District Council. As discussed, the three items raised were identified in previous correspondence, including the Traffic Impact Assessment (TIA) report dated August 2007.

The following comments relate to the bulleted items in the Council letter dated 28 November 2007.

Impact on intersection of Marsden Road and School Road

The day-to day traffic generation of the proposal was previously discussed in Section 5.1 of the TIA report submitted with the resource consent application. For the purposes of assessment, the additional vehicle trips generated by the proposal were taken to be up to 50 movements per day and five movements during the peak hour of generation. Given the location of the proposed development and the likely non-continuous occupancy of all five units, the actual number of trips generated outside of the peak holiday season would be expected to be less than stated.

A peak hour generation of five vehicle trips would typically be split between arrival and departure movements. A worst case scenario may be four departure trips leaving the proposed development, joining School Road and turning right onto Marsden Road. While accurate information is not to hand for turning counts at the Marsden Road/School Road intersection, anecdotal evidence from local contacts, together with our own observations, would suggest that the traffic generated by the proposal will have no noticeable effect on capacity and operational.

With regard to potential adverse effects at the Marsden Road/School road intersection during construction, Section 5.3 of the TIA report provides some initial thoughts. As noted, the construction works should be subject to a traffic management plan (TMP)

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cnr Rangiwai Road, Titirangi Village

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E-mail: tpc@trafficplanning.co.nz

to effectively control potential adverse effects to the satisfaction of Council. It is acknowledged that construction of the proposed apartments will be challenging given access constraints and topographical considerations. It is considered reasonable to define appropriate conditions for inclusion in a Council decision on the consent application. Appropriate conditions and requirements to be included in a construction TMP may include specified construction times, the avoidance of truck movements as stated times, and the requirement for an off-site 'waiting area' for trucks to prevent waiting on the School Road carriageway.

As a further general observation, it is our understanding that the intersection of Marsden Road and School Road typically operates without any notable safety or capacity concerns. During busier periods, the operation of the intersection is affected more by the function of Marsden Road; namely, pedestrian crossing and side street/parking accesses to north, and kerbside parking along eastern side of Marsden Road, rather than the number of traffic movements to and from School Road.

Sight distances at Wallace Lane

The sight distance requirement suggested in the Council letter adopts standard values for a 50 km/h posted speed limit. The suggested value of 65 metres relates to stopping sight distance for a car travelling at 60 km/h in a semi-rural environment (2 second reaction time). We believe more appropriate assessment criteria of stopping sight distance would take account of the urban environment and the negotiation speed of vehicle turning into School Road from Marsden Road. As an example, the stopping sight distance for a car travelling at 40 km/h in an urban environment is 30 metres[1]. The equivalent sight distance required for a car travelling at 35 km/h is 23 metres.

The Council letter notes that the separation between Marsden Road and the existing Wallace Lane access point is 24 metres. The available sight distance between a driver waiting to exit Wallace Lane and vehicles turning into School Road will be in excess of this distance. We believe the available sight distance is acceptable for the operating condition of the access way and frontage road.

We would also point out that the subject access way is currently in operation and to our knowledge does not generate crashes between turning vehicles and traffic approaching from Marsden Road. We further note that the property immediately east of Wallace Lane has an access way closer to Marsden Road. This access serves at least 18 parking spaces via combination of at grade and basement parking. The recorded crash history does not highlight any crashes associated with either of the two existing access points.

Provision of entrance platform

As previously noted in the TIA report and a subsequent response dated 30 October 2007 to an earlier Section 92 request, a near-level platform for vehicles joining School

[1] Table 5.1 of Austroads Part 5 – Intersections at Grade

Road cannot be achieved due to existing grade constraints within the road reserve. The District Plan requirements relate to an entry platform within the subject property, prior to joining the road reserve which may be achieved if deemed beneficial. However, given the true purpose of providing a near-level platform, and the location of the road reserve boundary, there seems to be no benefit in amending existing grades within the property.

Previous advice has also been provided in regard to the safe operation of the access point, where it joins the School Road carriageway. The key considerations for the safety operation of steep driveways are considered to be appropriate surfacing material, impact on pedestrians, and visibility along the driveway.

It is noted the existing vehicle crossing is in a generally poor condition with minor potholes and loose material. An upgraded access would be sealed in a satisfactory manner and if desirable include further sealing of the metalled access way to No. 12 School Road which appears to be a source of loose material. The finished surface would provide good skid resistance and enhance the existing access operation.

There is no pedestrian footpath on the southern side of School Road and hence the grade of the approach will not influence pedestrian safety. The existing driveway is relatively straight and affords acceptable sight lines to the access point with School Road from the property boundary.

As stated previously, we believe the adverse affects associated with the grade of the existing access way (Wallace Lane) can be adequately mitigated through localise widening and application of suitable surfacing material.

We trust the above provides sufficient information at this time. Please contact me should you have any queries or wish to discuss further.

Yours faithfully,
TRAFFIC PLANNING CONSULTANTS LTD

David Philip

TNZ Ref: 8/1/4/4/47
Your Ref: RC-2080121-RMALUC

18th December 2007

FNDC
Private Bag 752
Memorial Avenue
Kaikohe 0400

Attn: Melissa McGrath

Dear Madam

PROPOSED SUBDIVISION - PAIHIA
STATE HIGHWAY 11, 8 SCHOOL ROAD, PAIHIA 0200

Thank you for your letter dated 28th Novemebr 2007, relating to a subdivision proposal located on State Highway 11, in Paihia.

This letter is to inform you that Transit has received the proposal and is in the process of assessment. The assessment will involve a site visit by our network consultants to collect relevant access data and this will be assessed against Transit's current access management policies and practices, this will therefore mean we will **not** be able to respond within 10 working days.

Please be advised that we will respond to you when the appropriate reporting has been completed.

If you have any enquiries, please do not hesitate to contact me on phone (09) 368 2000 or email planning@transit.govt.nz

Yours faithfully

Michal Akurangi
Resource Planner

ack (Paihia Ltd).doc

Auckland Regional Office
Level 13 • Qantas House • 191 Queen Street • PO Box 1459 • Auckland • New Zealand
Telephone 09 368 2000 • Facsimile 09 368 2059

Far North
District Council

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Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

MEMO

To:	Melissa McGrath, Resource Planner, Regulatory Services
From:	Maruis Gabriels, Road and Drainage Development Engineer
Department	Roading and Drainage Department
Date	28 November 2007
Subject	**Paihia Limited** **RC-2080121-RMALUC** **Land Use**

There are several issues that concern me with this proposal.

1. The distance from the proposed access to the intersection with Marsden road measures at 24 metres. Council's Engineering Standards and Guidelines suggest adequate sight distance from 50kph should be 65metres (TNZ values). It is acknowledged that the speed value of vehicles traversing the corner from Marsden Road will be less than the 50kph speed value however enough reaction time to stop is still required in an emergency.

   The intersection with Marsden road is at an obtuse angle of 120 degrees suggesting the speed value of a left turning vehicle into School road is able to travel this curve at a faster speed than that of a right angle intersection. This would therefore require a reaction time to stop greater than the 24 metre available.

2. Traffic Planning Consultants Ltd (TPC) statement disregarding the access platform for safe access onto School road is considered to be detrimental to ROW users and does not comply with our Engineering Standards and Guidelines.

3. As already mentioned the grade as proposed at School road is not satisfactory for safe access if no platform for users is provided.

4. The potential impact of this development will not greatly impact on other users, with 5 existing users and five new users the estimate traffic movements are 100 per day, the widening of the ROW and the proposed passing bay adequately compensates for the additional use.

BAY OF ISLANDS PLANNING LIMITED

2 Totara Place , Kerikeri
PO Box 795
Kerikeri

Phone [09] 4075253 ; Fax [09] 4075263 ; Email – bayplan@actrix.co.nz

File Message : **Date : 21 November 2007**

To : Melissa McGrath , Far North District Council.

Re : Apartment Project – Wallace Lane , Paihia : RC 2080121.

Dear Melissa ,

1. We have been instructed to assist the applicant with the processing of this resource consent application which was lodged by Ormiston Project Management Limited. To that end our client has provided us with copies of the relevant application and communications which have taken place with Council.

2. Our assessment of the proposal is that it is deemed to fall as a Restricted Discretionary Activity within the Commercial Zone of the Operative District Plan. The specific matter over which Councils discretion is limited relates to the width of the access drive which is reflected within those matters described within Rule 14.1.7.2.

3. The traffic information prepared by TPC dated August 2007 and lodged with Council adequately details the manner in which the application attains those specified matters. In addition the two matters specified in your Section 92 request dated 19 September 2007 were covered in the replies of TPC and PK Engineering both dated 30 October 2007.

4. It is understood that the application is being referred to a Council Committee to determine whether or not the application should be processed under limited or full public notification. It is also my understanding which was subject to you receiving the Section 92 information that such consideration will be undertaken on the 26 November 2007 such date being agreed between yourself and Damian Otto. The applicant has meet those undertakings.

5. In my recent communications with Daiman ,post 30 October 2007, he has advised that Council now requires information on the effect of traffic movements at the School Road / Marsden Road intersection. The original TPC report dealt with those issues and Mr David Phillip , the traffic engineer , in subsequent discussions with Mr Miller was of the opinion that all issues had been dealt with in the 30 October 2007 response.

6. It would certainly assist the applicant if Council would specifically advise what the particular concerns are as from what I have reviewed the goal posts seem to move .

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8. We therefore await confirmation that this matter will be considered at the meeting of 26 November 2007 and look forward to receiving a copy of the planning report.

9. It may well be beneficial that we meet with you beforehand to review the above. In the meantime we would ask for copies of all communications to / from any third paries in relation to this application.

I look forward to hearing from you .

Regards ,

Jeff Kemp.

Far North
District Council

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Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

28 November 2007

Paihia Limited
C/- Damian Otto - Ormiston Projects
PO Box 58395
Greenmount
Manukau City 2141

Dear Sir/ Madam

RESOURCE CONSENT APPLICATION – Request for Further Information

A preliminary assessment of your application for resource consent to undertake a landuse proposal has been made. Further review of the traffic reports and assessment of the additional information provided has been completed by Council's Consultant Engineer Wayne Miller and Council's Road and Drainage Development Engineer, Marius Gabriels.

Under Section 92(1) of the Resource Management Act 1991, the Council requires further information to be able to consider your proposal. This additional information will help us to better understand the proposed activity, its effects on the environment and the means by which any adverse effects on the environment may be avoided, remedied, or mitigated.

The additional information required by the Council is listed below, with further reasons as to why we need this information to be provided.

1. Please expand the scope of the Traffic Report submitted within the application, prepared by Traffic Planning Consultants Ltd to address the following matters:

   - The potential impact of the proposed right of way (ROW) construction and subsequent increased use will have on the intersection of School Road and Marsden Road (State Highway 11).

   - How safe sight distances and manoeuvring to and from School road can be achieved give the proximity of the proposed access to the intersection of School Road and Marsden Road (24m) compared to the recommended sight distance of 65 metres in a 50kph speed zone area.

   - The proposed grade of the ROW is considered not to be satisfactory for safe access if no entrance platform for users is provided, please provided further clarification as to how safety of ROW users will be achieved.

In accordance with the Act, your application will be suspended until we receive this information. Once we have received the information to our satisfaction, a decision will be made regarding the further processing of the application and whether notification may be required.

Under Section 92 A (1) of the Act you are required to comply with this request before **20 December 2007**, by either:

(a) providing the requested information, or;

(b) informing the Council in writing that you accept that the information can be provided within a reasonable time period, to be set by agreement and advised by the Council, or;

(c) informing the Council in writing of your refusal to provide the information, or;

(d) making a formal objection to this request under Section 357 A (1)(b) of the Act, stating your reasons why you consider that this information should not be required by the Council.

Please use the attached form when sending in your response to the Council.

Note that under Section 92 A (3) of the Act, the Council may decline your application if:

(1) You do not respond to this request, or;

(2) The information is not provided by the agreed date, set as specified under (b) above, or;

(3) You refuse to provide the information, as per (c) above, and;

(4) The Council considers and concludes that it has insufficient information to enable it to determine the application.

Please feel free to contact the undersigned if you have any questions or concerns.

Yours faithfully

Melissa McGrath
RESOURCE PLANNER

TRANSIT NEW ZEALAND
ARARAU AOTEAROA

TNZ Ref: 8/1/4/4/47
Your Ref: RC-2080121-RMALUC

18th December 2007

FNDC
Private Bag 752
Memorial Avenue
Kaikohe 0400

Attn: Melissa McGrath

Dear Madam

PROPOSED SUBDIVISION - PAIHIA
STATE HIGHWAY 11, 8 SCHOOL ROAD, PAIHIA 0200

Thank you for your letter dated 28th Novemebr 2007, relating to a subdivision proposal located on State Highway 11, in Paihia.

This letter is to inform you that Transit has received the proposal and is in the process of assessment. The assessment will involve a site visit by our network consultants to collect relevant access data and this will be assessed against Transit's current access management policies and practices, this will therefore mean we will **not** be able to respond within 10 working days.

Please be advised that we will respond to you when the appropriate reporting has been completed.

If you have any enquiries, please do not hesitate to contact me on phone (09) 368 2000 or email planning@transit.govt.nz

Yours faithfully

Michal Akurangi
Resource Planner

ack (Paihia Ltd).doc

Auckland Regional Office
Level 13 • Qantas House • 191 Queen Street • PO Box 1459 • Auckland • New Zealand
Telephone 09 368 2000 • Facsimile 09 368 2059

Our File: 8/1/4/4/4/47
Code: Paihia Ltd SH 11 Paihia.doc
Your Ref: RC 2080121 - RMALUC

19 February 2008

Far North District Council
Private Bag 752
Kaikohe

Attention: Melissa McGrath

Dear Madam

RE: PROPOSED LANDUSE – PAIHIA LTD
SH, 11 PAIHIA

Thank you for your letter relating to the above proposal dated 28 November 2007.To reiterate Transit's understanding the proposal is for the construction of an apartment block comprising five separate residential units on the parent lot, legally described as, Lot 3 DP 44530. The property is accessed via Wallace Lane from School Rd.

We have carefully considered the proposal and prepared to remain **unopposed** to the proposal pursuant to section 94 of the Resource Management Act 1991.

The following summarises the reasons and matters that Transit had to consider when assessing this proposal:

- The proposed site is accessed via a local side road, which is consistent with Transits access management policy.
- The site is located within an urban environment and is located within a 50km/h speed limit

This response is Transit New Zealand's current view of the situation. Please note that if this proposal is put on hold for any length of time and resubmitted at a later date Transit may need to review its comments in the light of any traffic, safety or policy change.

Please forward us a copy of the Council's decision on this resource consent application when available.

Auckland Regional Office
Qantas House, Level 13 • 191 Queen Street • PO Box 1459 • Auckland 1140 • New Zealand
Tel 64 9 368 2000 • **Fax** 64 9 368 2059 • www.transit.govt.nz

If you have any further questions or comments please do not hesitate to contact me on 09 368 2000 or michal.akurangi@tranist.govt.nz.

Yours sincerely

Michal Akurangi
Resource Planner

Enc.
Cc. Highways North
H:\LUD reply letters\Paihia Ltd SH 11 Paihia.doc

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

REGULATORY & CUSTOMER SERVICES
29 FEB 2008
RECEIVED

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): RONALD WILLIAM SIMPSON

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.
The specific parts of the application that my submission relates to are [*give details*]:

1. Parking and Access
2. Stormwater
3. Ground stability

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:

1 ROAD ACCESS/PARKING ~~I oppose~~
2 STORMWATER RUN OFF
3 ~~GROUND STABILITY~~ I am seeking assurances from the developer relating to the affects the project will have on surrounding properties specifically MARSDEN CLOSE APTS

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:

PLEASE SEE ATTACHED SHEET.

I wish (or do not wish) to be heard in support of my submission

✓ If others make a similar submission, I will consider presenting a joint case with them at a hearing [Delete this line if you would not consider presenting a joint case]

Signed _____ **Date** 26/2/08

Address for Service of submitter P.O. Box 332 PAIHIA.
UNIT F MARSDEN CLOSE APARTMENTS

Telephone: 09 4027924 **Fax:** 09 4027656

Email: _____ **Contact person:** RON SIMPSON

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Received:
29 FEB 2008

Dept	Doc Ref
Reg	M2-647

1/ Parking and access

Because the proposed construction is within the commercial zone, it could easily be turned into a motel, rental apartments or upmarket backpacker accommodation increasing traffic flow to and from the property. What provision is there for extra parking and should the carriageway not be 6metres wide?

2/ Stormwater

In February, and again in March 2007, storm water from Wallace Lane contributed to serious flooding of two low lying properties (Pioneer Apartments and Apartment F, Marsden Close) on Marden Rd. The existing 3 cesspits along Marsden Rd, between Kings Rd and School Rd, have proven to be inadequate in heavy rain. Will this be improved?

3/ Ground Stability

The proposed site has suffered subsidence in the past. What assurances do we have that surrounding properties will not be adversely affected by the construction? Will the 'Lane' stand up to the heavy machinery?

I am not against progress, but along with other affected residents, I have serious concerns about the project and would like to see an independent engineers report before work begins.

PARTNERS
G.J. MATHIAS, L.L.B. (Hons)
G.L. CURRIE, L.L.B.
A.B. FAIRLEY, L.L.B. (Hons)
M.J. BADHAM, B.A., L.L.B.
V.B. SYERS, L.L.B.

ASSOCIATE
J.C. DAWSON, BComm/LLM(ENV)

THOMSON WILSON

BARRISTERS & SOLICITORS

THOMSON WILSON HOUSE, RATHBONE STREET,
WHANGAREI, NEW ZEALAND.
P.O. BOX 1042 DX AP24512 FAX 0-9-438 9473
TELEPHONE 0-9-438 4039

Our Ref. D Tuato'o/djd

Your Ref.

27 February 2008

FAXED

Far North District Council
Private Bag 752
KAIKOHE 0400

Fax No: 09 401 ~~2137~~ 0987

Attention: Melissa McGrath
Resource Planner

re: **Resource Consent - Paihia Limited - RC-2080121 - RMALUC**

We act for Violet Johnson. Please find **enclosed** our submission in relation to the above matter. We have also served the above submission on the applicant.

If you have any queries regarding our submissions please contact the writer.

Yours faithfully
THOMSON WILSON

Per:

D TUATO'O
Staff Solicitor

E-mail: dt@thomsonwilson.co.nz

encl.

Received:
2 8 FEB 2008
Dept: Reg
Our Ref: m2. 613

REGULATORY & CUSTOMER SERVICES
2 8 FEB 2008
RECEIVED

cc Ormiston Project Management Limited
C/- Daiman Otto
P O Box 58395
Greenmount
MANUKAU 2141

cc Violet Johnson

RESOURCE MANAGEMENT ACT 1991
SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT 1991

To: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter: Violet Johnson

Submission On: Resource consent application by Paihia Limited: RC 2080121 RMALUC. Proposed application for land use to construct a new residential apartment building, comprising of 5 apartments, associated parking and access at 8 School Road, Paihia 0200.

Address: 8 School Road
Paihia

SUBMISSION IN OPPOSITION

1. The specific parts of the application that my submission relates to are:

Access and Carparking – School Road and Wallace Lane.

2. My submission is that:

2.1 I am a resident of Marsden Close which is a Body Corporate managed apartment complex. My apartment "A" is situated directly below the applicant's site.

2.2 The applicant proposes widening Wallace Lane and providing for 11 carpark spaces within the site. This will result in a significant increase of traffic flow along and to Wallace Lane and School Road.

2.3 A number of construction vehicles will access the site over a 12 month period significantly increasing traffic flow.

2.4 Wallace Lane does not comply with the District Plan rules for road width for two way access.

In order for the lane to be sufficiently wide enough to comply with the rules significant construction works would need to be completed on land situated below Wallace Lane. These works will create adverse construction, noise and vibration effects on any and all properties adjacent to or adjoining Wallace Lane access. The effects will be more than minor.

2.5 The mitigation measures proposed by the applicant are wholly inadequate to avoid remedy or mitigate the adverse effects of these works.

3. Without derogating from the generality of the above:

(a) **Vehicle access**

The access carriageway will serve more than 5 residential units and fails to comply with the minimum width of 6m. In addition, the length and width of the access prohibits the provision of sufficient passing bays. Thus the access is inadequate. This gives rise to adverse effects related to traffic safety, ingress and egress difficulties and adverse amenity impacts that are more than minor. The residents will not be able to enforce and control the number of visitors and resulting congestion as a result of the development.

The applicant has not made adequate provision to mitigate the effects of stormwater runoff and drainage patterns of adjoining properties as a result of the development.

(b) **Traffic movement and safety**

The applicant's proposal will not be safe and provide efficient access for pedestrians, bicycles and vehicles without disrupting the amenities of the surrounding environment. The adverse effects of transport on the environment will not be minimised. The resulting development will increase traffic movement and formation which will lead to traffic congestion, inadequate sight distances available at the access location and an increase in safety issues in an already congested area.

The vehicle access is within 30m of School Road and the intersection with State Highway 11. The substantial increase of 50 traffic movements (as stated in the report provided by Traffic Planning Consultants ("TCP")) will result in an exacerbation of traffic safety. Transit New Zealand have not given written confirmation for the proposal. The development will result in adverse effects to the intersection.

(c) **Vehicle queuing spaces**

The applicant is required pursuant to rules 15.1.6.1.2(h) and (m) to provide a double-width entrance together with passing bays and vehicle queuing spaces at the entrance to the legal road. The width of the Wallace Lane access will prohibit the applicant providing such queuing space. The applicant is unable to comply with Council's engineering standards and guidelines and cannot sufficiently mitigate the effects of the impact of roading and access to the applicant's property or to the adjoining landowners who will be directly effected by the development.

(d) **Residential development in commercial zone**

The development is to be undertaken in a commercial zone. However, the applicant refers to the development as a residential activity. The zoning for the area is not residential and nor should it be considered so by Council. The residential development will result in an increase of residents during particular times of the year and therefore the number

of residents at any one time should be limited. The number of car movements along the accessway will also need to be limited in order to minimise any effects. An increase in 5 residential units within a commercially zoned area will substantially increase the traffic flows for all residents.

(e) **Adverse effects**

In this case, the applicant proposes to significantly widen the access lane in order to accommodate 5 residential units with 11 allotted car spaces. During the construction phase of the development the engineers report for the applicant provided by TCP estimates that there may be up to 10 traffic movements per day over a course of 12 months. The current accessway cannot adequately accommodate such activity. The applicant has not provided any plans or drawings with respect to the structural aspects of the road widening such as retaining walls, engineers reports, subsidence, stability or site suitability.

The proposal will result in adverse effects more than those permitted in the District Plan. The traffic report submitted by the applicant concludes that the proposed activity will fail to meet the provision of the District Plan. The adverse effects arising from the proposal will be more than minor. The application fails to meet both road width and gradient for the proposed access and activity.

3. I seek the following decision from the Far North District Council:

3.1 That the application be refused consent

Or

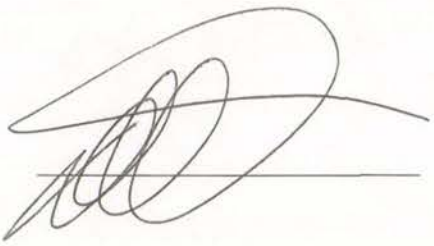
3.2 Such other relief that will meet the concerns of the submitter.

AND

3.3 Such consequential relief necessary to give effect to the submission.

4. I do wish to be heard in support of my submission.

5. If others make a similar submission I would be prepared to consider presenting a joint case with them at any hearing.

Signature  Date 27 February 2008.

Address for service: Violet Johnstone
C/- Julian Dawson
Thomson Wilson Lawyers
P O Box 1042
WHANGAREI

Tel: 09 438 4039
Fax: 09 438 9473
Mob: 0274 200 223
Email: jcd@thomsonwilson.co.nz

Far North District Council

REGULATORY & CUSTOMER SERVICES
27 FEB 2008
RECEIVED

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter (Full Name): BODY CORPORATE 122747

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.

The specific parts of the application that my submission relates to are [*give details*]:
THE WIDENING AND SUPPOSED/PROPOSED STRENGTHENING OF THE DRIVEWAY WITH PARTICULAR REFERENCE TO THE BOUNDARY OF BC 122747 (MARSDEN CLOSE) AFFECTING TWO OWNERS (SPECIFICALLY UNITS 1 & 2) AND/OR THE COMMON AREA OF THE BODY CORPORATE

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:
OPPOSITION TO THE WORK CONTINUING WITHOUT WRITTEN ASSURANCES REGARDING SUBSIDENCE DURING THE CONSTRUCTION WORK AND SUBSEQUENT TO COMPLETION OF THE CONSTRUCTION

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:
1. WRITTEN CONFIRMATION OF THE ABOVE WITH A BOND TO BE ISSUED AND HELD IN A SOLICITOR'S TRUST ACCOUNT OF $10000 2. ON RELEASE OF THE BOND, WRITTEN CONFIRMATION THAT LIABILITY FOR ANY SUBSEQUENT DAMAGE WILL BE ACCEPTED AS A RESULT OF SAID CONSTRUCTION. 3. A COPY OF THE GEOTECHNICAL REPORT TO BE FORWARDED FOR OWNERS TO PERUSE. 4. FULL DISCLOSURE OF ANY ACTION THAT DIRECTLY INVOLVES THE BOUNDARY OF THE BODY CORPORATE PROPERTY

I wish (or do not wish) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed (Body Corporate Secretary on Behalf of BC 122747) **Date** 25-2-08

Address for Service of submitter
PO BOX 2322 SHORTLAND ST AUCKLAND

Telephone: 09-3732336 **Fax:** 09-3007147

Email: glenne@bodycorpadmin.co.nz **Contact person:** Glenn KWOK

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter (Full Name): James, Fred, Tom Charlotte Hellaby
Apartment B, Marsden close, Marsden Rd, Paihia

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.

The specific parts of the application that my submission relates to are [*give details*]:
1) Concern with residential lane servicing a commercial sized development.
2) Instability of lane with increased traffic flow with developers tructs and vans. Vibrations causing cracks to retaining wall + hou.
3) Risk of damage to retaining walls because land made unstable with truce

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:
We oppose the development of five apartments on 8 School Rd as residential access only to a commercial sized development
We support the development of three apartments with a proper retaining wall securing the surrounding properties.

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:
1) Ensure developers pay for an engineers report on the lane before development starts.
2) Upgrade lane before development starts to sustain traffic flow apartme
3) Ensure future safety of Marsden close with permanent fence/wall approved by Marsden close built prio. to start o develom

I wish (~~or do not wish~~) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

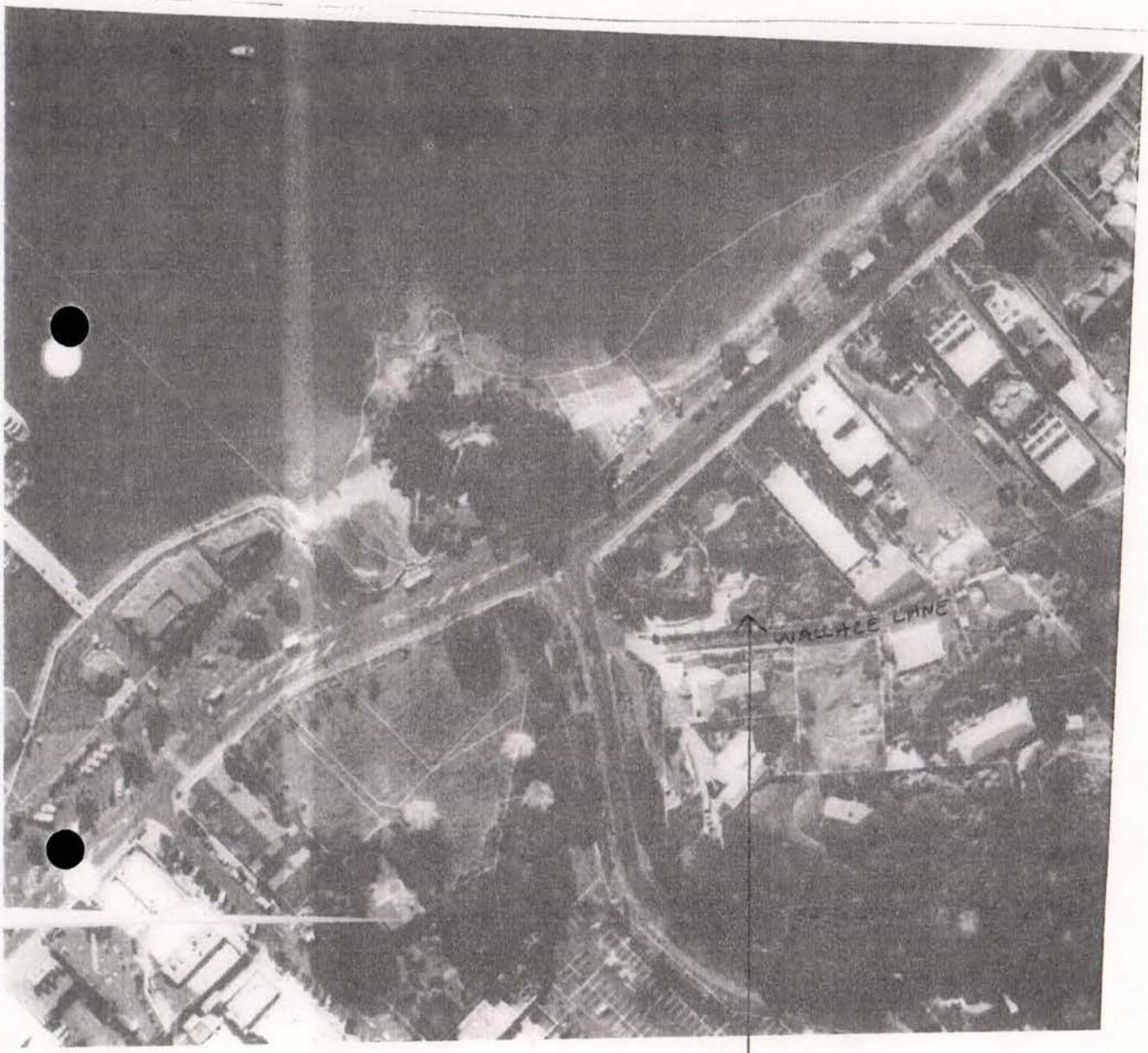
Signed CHellaby JHellaby Date 25/2/08

Address for Service of submitter P. O. Box 22-747, Otahuhu, Auckland.

Telephone: 09 270-9805 **Fax:** 09 276-4155

Email: charlotteh@hellaby.co.nz **Contact person:** Charlotte Hellaby.

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council



Apartment B
Marsden close.

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): ALA-MOANA PROPERTIES LTD

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.
The specific parts of the application that my submission relates to are [*give details*]:
THE SIZE OF THE DEVELOPMENT.
THE SHADOW ON EXISTING BUILDINGS FROM THIS BUILDING
THE POSSIBLE DAMAGE TO EXISTING BUILDINGS FROM THE PROPOSED EARTHWORKS

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:
THAT THE BUILDING PLAN BE RETHOUGHT FOR A SMALLER AND LESS OVERBEARING BUILDING.
ALSO THAT WHATEVER IS BUILT WILL BE RESIDENTIAL ONLY TO REDUCE THE NOISE FROM POSSIBLE VEHICLES IF ALLOWED AS RENTAL (MOTELETIC).

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:
THAT THE DEVELOPER REDUCE THE SIZE OF THE STRUCTURE.
THAT IF & WHEN WORK STARTS RESTRICTIONS ARE SET FOR ACCEPTABLE HOURS OF SUCH. THERE ARE ALREADY PRIVATE HOMES & BUSINESSES ESTABLISHED IN IMMEDIATE VICINITY.

I wish (~~or do not wish~~) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed J.D. Brook. (DIRECTOR). **Date** 22nd Feb 2008

Address for Service of submitter C/O 100 SCHOOL ROAD PAIHIA
BAY OF ISLANDS.

Telephone: 09 4027937 **Fax:** 09 4027962

Email: **Contact person:** Margaret Brook

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council.

REGULATORY & CUSTOMER SERVICES
25 FEB 2008
RECEIVED

Received:
25 FEB 2008

Dept	Doc Ref
Reg	RC - 5560

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): Timothy John Orgias

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.

The specific parts of the application that my submission relates to are [*give details*]:
ENTRANCE FROM SCHOOL RD SHARED BY WALLACE LANE RESIDENTS & 10 & 12 SCHOOL RD RESIDENTS

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:
TO ENSURE THAT THE ACCESS TO 10 & 12 SCHOOL RD FROM SCHOOL RD IS, AT LEAST, NO STEEPER THAN IT IS CURRENTLY TO ALLOW FOR A SAFE ENTRANCE & EXIT FROM THOSE TWO PROPERTIES. IF THAT IS ACHIEVED THEN THE PROPOSAL IS SUPPORTED

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:
STIPULATE GRADIENTS / SLOPES TO BE SAME OR LESS THAN CURRENT.

~~I wish~~ (or do not wish) to be heard in support of my submission

* ~~If others make a similar submission, I will consider presenting a joint case with them at a hearing~~ [* Delete this line if you would not consider presenting a joint case]

Signed _____ **Date** 19/2/08

Address for Service of submitter P. O. Box 265 PAIHIA

Telephone: 09 4027769 **Fax:** 09 4027769

Email: _____ **Contact person:** Tim Orgias

REGULATORY & CUSTOMER SERVICES
RECEIVED
25 FEB 2008
RECEIVED
25 FEB 2008
Reg 112 - 568

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Reg F2-436
09 440 2137

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): IAN ALLAN MACDONALD

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.
The specific parts of the application that my submission relates to are [*give details*]:
TRAFFIC AND PARKING CONTROL – DESIGN ASPECTS
POTENTIAL DAMAGE TO WALLACE LANE AND BLOCK RETAINING WALL

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:
OPPOSE DESIGN ASPECTS
PARKING PROBLEMS
POTENTIAL DAMAGE TO LANE & RETAINING WALL
" WATER & SLIP PROBLEMS

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:
APPARTMENTS CANNOT BE SUB DIVIDED IN FUTURE IE BACK PACKERS - SERVICED APARTMENTS
ENGINEERING REPORT ON WALLACE LANE AND BLOCK RETAINING WALL
PARKING RESTRICTIONS ON TRADE VEHICLES DURING CONSTRUCTION (SCHOOL RD)
CONTROL OF STORM WATER RUN OFF DURING CONSTRUCTION

I wish (~~or do not wish~~) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed Macdonald **Date** 25/2/2008

Address for Service of submitter UNIT C MARSDEN CLOSE 54 MARSDEN RD PAIHIA
POSTAL BOX 46028 HERNE BAY AUCKLAND

Telephone: 09 3760381 **Fax:** 09 3760005

Email: macdonald@vodafone.net.nz **Contact person:** IAN MACDONALD

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): JAMES & LEONIE BROCK

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.
The specific parts of the application that my submission relates to are [*give details*]:

ALL

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:

SEE ATTACHED

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:

DECLINE THE APPLICATION

I wish (~~or do not wish~~) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed J Brock L. J. Brock **Date** 18/2/08

Address for Service of submitter c/- Wendell Taylor & Assoc. LTD
PO Box 1415, WHANGAREI

Telephone: 09) 430 3330 **Fax:** 09) 430 3330.

Email: wendell@clear.net.nz **Contact person:** WENDELL TAYLOR

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Wendell Taylor & Associates Ltd.

RESOURCE MANAGEMENT AND PLANNING CONSULTANTS

Principal:- WENDELL TAYLOR DIP., T.P., M.N.Z.P.I., M.R.A.P.I.

7 Lupton Avenue
P O Box 1415
Whangarei
New Zealand

Ph: 09 430 3330
Fax: 09 430 3359
Int: 64 9 430 3330
wendell@clear.net.nz

Submission on RC2080121 by Paihia Ltd to construct a 5 unit residential apartment building at 8 School Rd, Paihia:

Submitter: James & Leonie Brock; 4 School Road, Paihia.

The application is opposed on the following grounds:

1. The access proposed does not meet an appropriate standard for the development to proceed. Nor is adequate access able to be formed for this level of development intensity given the available legal width of the easement and physical constraints.

2. It will have more than minor effects on the safety and efficiency of the roading network.

3. It will have more than minor effects on the existing amenity of the area.

4. It is contrary to the objectives and policies of the District Plan.

5. The land is unstable and there is no certainty that a project of this scale can proceed without detriment to adjoining/adjacent property.

6. Approving the application could also be seen to legitimise use of the site in terms of the permitted Commercial Zone Traffic Intensity of 200 daily movements and thereby further compromise amenity and safety.

7. We also raise the issue of whether the applicant requires resource consent from the Northland Regional Council for the excavation given the erosion prone nature of the site and surrounds.

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

REGULATORY & CUSTOMER SERVICES
22 FEB 2008
RECEIVED

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): PAMELA & HUGH WALLACE

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.
The specific parts of the application that my submission relates to are [*give details*]:

INADEQUATE ACCESS FOR INTENSITY OF DEVELOPMENT PROPOSED.

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:

SEE ATTACHED.

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:

DECLINE APPLICATION IN ITS CURRENT FORM.

I wish (~~or do not wish~~) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed P J Wallace P J Wallace **Date** 18/2/08

Address for Service of submitter C/- WENDELL TAYLOR & ASSOC. LTD
PO BOX 1415, WHANGAREI

Telephone: 09) 430 3330 **Fax:** 09) 430 3330

Email: wendell@clear.net.nz **Contact person:** WENDELL TAYLOR

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Received: 22 FEB 2008	
Dept	Doc Ref
Reg	M2 - 523.

Wendell Taylor & Associates Ltd.

RESOURCE MANAGEMENT AND PLANNING CONSULTANTS

Principal:- WENDELL TAYLOR DIP., T.P., M.N.Z.P.I., M.R.A.P.I.

7 Lupton Avenue
P O Box 1415
Whangarei
New Zealand

Ph: 09 430 3330
Fax: 09 430 3359
Int: 64 9 430 3330
wendell@clear.net.nz

Submission on RC2080121 by Paihia Ltd to construct a 5 unit residential apartment building at 8 School Rd, Paihia:

Submitter: P & H Wallace, 2 School Road, Paihia.

The application is opposed on the following grounds:

1. The access proposed does not meet an appropriate standard for the development at this level of intensity to proceed. Nor is adequate access able to be formed for this level of development intensity given the available legal width of the easement and physical constraints. A minimum formation width of 6m is required.

2. It will have more than minor effects on the safety and efficiency of the roading network.

3. It will have more than minor effects on the existing amenity of the area.

4. It is contrary to the objectives and policies of the District Plan.

5. The land is unstable and there is no certainty that a project of this scale can proceed without detriment to adjoining/adjacent property.

6. Approving the application could also be seen to legitimise use of the site in terms of the permitted Commercial Zone Traffic Intensity of 200 daily movements and thereby further compromise amenity and safety.

7. We also raise the issue of whether the applicant requires resource consent from the Northland Regional Council for the excavation given the erosion prone nature of the site and surrounds.

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

REGULATORY & CUSTOMER SERVICES
19 FEB 2008
RECEIVED

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): HUGH VERNON WALLACE & PAMELA JOY WALLACE

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.

The specific parts of the application that my submission relates to are [*give details*]: WIDTH OF WALLACE LANE
1. PROPOSED WIDTH of 5mtrs is unsatisfactory for the safety
2. BACKTRACKING PEDESTRIAN TRAFFIC from No 6 (ABOVE HABICHT) using Wallace Lane for access to Coach + Catamaran Excursions
6 mtrs is a minimum Requirement

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:
There is no Provision for Visitor or TRADESMEN Car Parking — unlike the Visitor/TRADESMEN Vehicles visiting MARSDEN CLOSE APT. (At the entrance to Wallace Lane) All Vehicles park on the ADjacent Reserve

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:
Minimum 6mtrs Width — Some Future DATE as Benefactors have plans to Build Apartments on LOT 5 Wallace Lane

~~I wish~~ (or do not wish) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed D.J. Wallace P.J. Wallace. **Date** 6-2-08

Address for Service of submitter WALLACE LANE
2 School Rd PAIHIA B.O.I.

Telephone: 4027316 **Fax:** —

Email: — **Contact person:** AS ABOVE

Received:
19 FEB 2008
Dept
Reg M2 - 423

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Far North District Council

SUBMISSION TO RESOURCE CONSENT

REGULATORY & CUSTOMER SERVICES
22 FEB 2008
RECEIVED

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): FRANK & CHRISTINE HABICHT

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.
The specific parts of the application that my submission relates to are [*give details*]:

ALL

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:

SEE ATTACHED

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:

DECLINE THE APPLICATION

I wish (~~or do not wish~~) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed Frank Habicht **Date** 18/2/08

Address for Service of submitter C/- WENDELL TAYLOR & ASSOC. LTD
PO BOX 1415 WHANGAREI

Telephone: 09) 430 3330 **Fax:** 09) 430 3330

Email: wendell@clear.net.nz **Contact person:** Wendell

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

Received
22 FEB 2008
Reg M2-524

Wendell Taylor & Associates Ltd.

RESOURCE MANAGEMENT AND PLANNING CONSULTANTS

Principal:- WENDELL TAYLOR DIP., T.P., M.N.Z.P.I., M.R.A.P.I.

7 Lupton Avenue
P O Box 1415
Whangarei
New Zealand

Ph: 09 430 3330
Fax: 09 430 3359
Int: 64 9 430 3330
wendell@clear.net.nz

Submission on RC2080121 by Paihia Ltd to construct a 5 unit residential apartment building at 8 School Rd, Paihia:

Submitter: Frank & Christine Habicht; 6 School Road, Paihia.

The application is opposed on the following grounds:

1. The access proposed does not meet an appropriate standard for the development to proceed. Nor is adequate access able to be formed for this level of development intensity given the available legal width of the easement and physical constraints.

2. It will have more than minor effects on the safety and efficiency of the roading network.

3. It will have more than minor effects on the existing amenity of the area.

4. It is contrary to the objectives and policies of the District Plan.

5. The land is unstable and there is no certainty that a project of this scale can proceed without detriment to adjoining/adjacent property.

6. Approving the application could also be seen to legitimise use of the site in terms of the permitted Commercial Zone Traffic Intensity of 200 daily movements and thereby further compromise amenity and safety.

7. We also raise the issue of whether the applicant requires resource consent from the Northland Regional Council for the excavation given the erosion prone nature of the site and surrounds.

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

REGULATORY & CUSTOMER SERVICES
22 FEB 2008
RECEIVED

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): _____

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.
The specific parts of the application that my submission relates to are [*give details*]:

THE COMPLETE DEVELOPMENT AT 8 SCHOOL RD PAIHIA 0200

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:

I SUPPORT THE APPLICATION TO CONSTRUCT A NEW RESIDENTIAL APARTMENT BUILDING AS DESCRIBE ABOVE

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:

TO APPROVE THE APPLICATION WITHOUT RESERVATION

I ~~wish (or~~ do not wish) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed Lloyd Wallace **Date** 21-2-08

Address for Service of submitter APT G. MARSDEN CLOSE
54 MARSDEN RD. PAIHIA 0200

Telephone: 09 402 8505 **Fax:** N/A

Email: lloydwallace1@hotmail.com **Contact person:** LLOYD WALLACE

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as ~~reasonably practicable after~~ you have served your submission on the Far North District Council

Received
22 FEB 2008

Dept	Doc. Ref
Reg	m2 530

Far North District Council

SUBMISSION TO RESOURCE CONSENT

SUBMISSION PURSUANT TO SECTION 96 OF THE RESOURCE MANAGEMENT ACT

TO: Far North District Council
Private Bag 752
KAIKOHE 0400
Attention: Melissa McGrath, Resource Planner

Name of Submitter
(Full Name): Stanley William George Morley.

This is a submission on an application from Paihia Limited, RC-2080121-RMALUC, an application for a Land Use to Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access at 8 School Road, Paihia 0200.

The specific parts of the application that my submission relates to are [*give details*]:

1 Driveway access from Wallace Lane to No 10 and No 12. Note Aerial Photo
2 Boundaries Lot 10 // Wallace Lane Note Plan
3 It would seem to be sensible to bury the power wires at the time of development.

My submission is [*include whether you support or oppose the specific parts of the application or wish to have them amended; and the reasons for your view*]:

I support the project, subject to my concerns re the access being satisfied.

I seek the following decision from the Council [*give precise details, including the general nature of any conditions sought*]:

1 To ensure Developers retain the shape and gradient of the drive (Marked in Pink on the aerial Photo) to give No 10 and No 12 + Wallace Lane Residents access as good or better than now
2 To ensure developer retains bank if they remove rock wall (Note Plan attached)
3 It would seem to be sensible to bury the power wires at the time of development.

I wish (~~or do not wish~~) to be heard in support of my submission

* If others make a similar submission, I will consider presenting a joint case with them at a hearing [* Delete this line if you would not consider presenting a joint case]

Signed S. Morley. **Date** 14-2-08

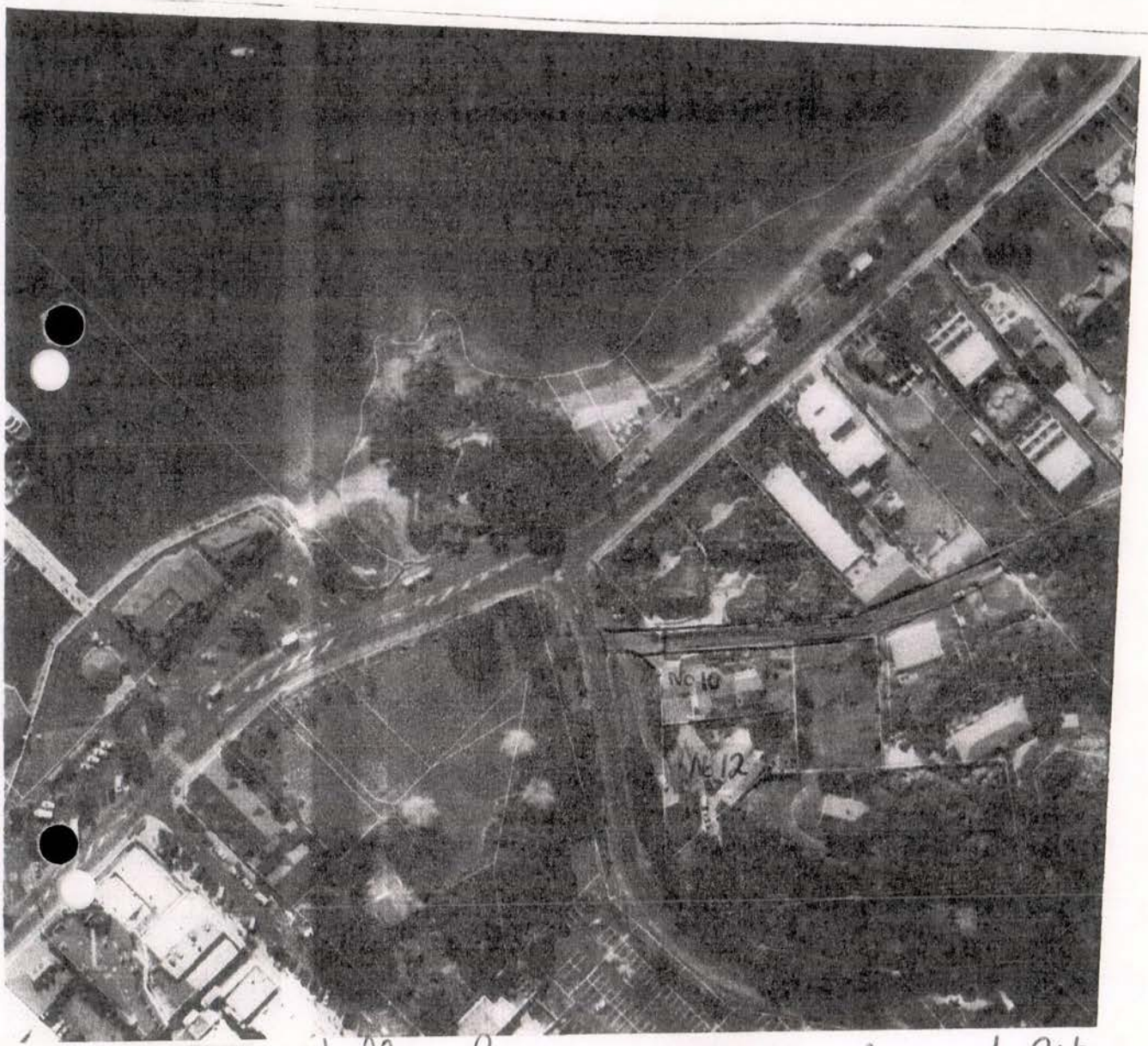
Address for Service of submitter Box 352
Paihia Bay of Islands.

Telephone: 09-4027303 **Fax:** 09-4027307
~~Email:~~ Mobile 021-942015 **Contact person:** Stan Morley.

Note to Submitter:
You must serve a copy of your submission on the applicant as soon as reasonably practicable after you have served your submission on the Far North District Council

REGULATORY & CUSTOMER SERVICES
19 FEB 2008
RECEIVED

Received: 19 FEB 2008	
Dept	Doc Ref
Reg	M2-430



Wallace Lane. Development Site.

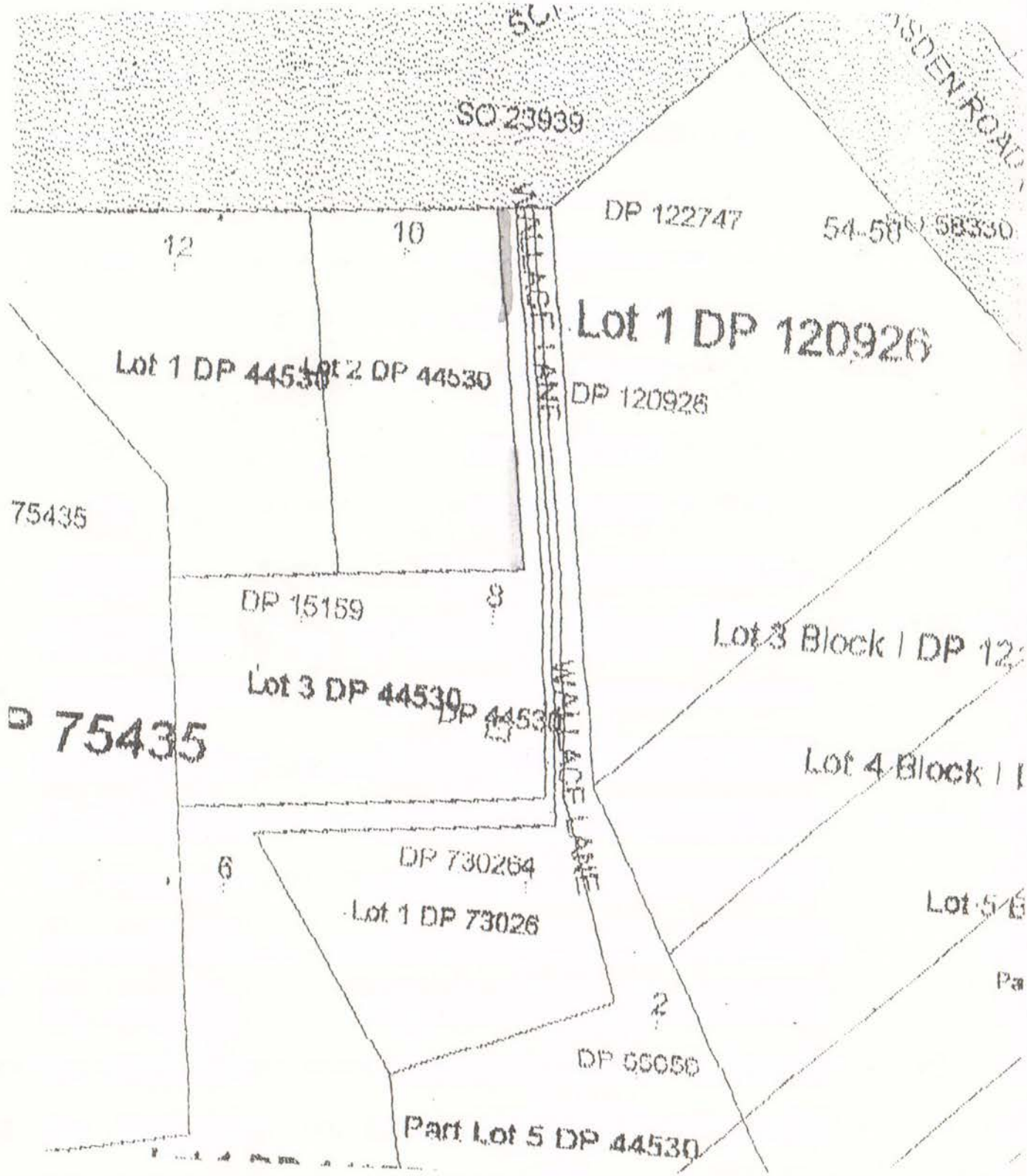
Relaid Concrete drive.

When I purchased No 10 in 1993 it was very very difficult to get from Wallace Lane up our drive.
I ripped up the old drive, reshaped and relaid in concrete the total bottom area giving far better access to Wallace Lane residents and to No 10 and No 12.

[redacted] Rock wall and bank on developers land.

[redacted] Small area of my land used for Wallace Lane access.

If developer takes out rock wall and part of the bank they will need to retain the bank



10 Day letters

Far North
District Council

Private Bag 752, Memorial Ave
Kaikohe 0400, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12-Mar-2008

Paihia Limited
C/- Damian Otto - Ormiston Projects
PO Box 58395
Greenmount
Manukau City 2141

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION, - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on **31 March 2008** at the Far North District Council Chambers, Memorial Avenue, Kaikohe.
The time set down for the hearing is **9.30am** or as soon thereafter as circumstances permit.

A copy of the procedures followed at the Hearing is enclosed for your information. If you wish to present written evidence, please provide a minimum of 12 copies so that other parties can view your evidence.

A copy of the planner's report and recommendation will be forwarded to you at least five days prior to the hearing.

If you have any further queries regarding this matter, please contact the undersigned.

Yours faithfully

Melissa McGrath
RESOURCE PLANNER

Far North
District Council

Private Bag 752, Memorial Ave
Kaikohe 0400, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Violet Johnson
c/- Julian Dawson, Thomson Wilson Lawyers
PO Box 1042
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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If you have any further queries regarding this matter, please contact the undersigned.

Yours faithfully

Melissa McGrath
PLANNER

Far North
District Council

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Kaikohe 0400, New Zealand
Freephone: 0800 920 029
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Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Marsden Close Body Corporate
Body Corporate Administration
PO Box 2322
Auckland 1140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on 31 March 2008 at the Council Chambers, MemoriaL Ave, Kaikohe.

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If you have any further queries regarding this matter, please contact the undersigned.

Yours faithfully

Melissa McGrath
PLANNER

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District Council

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Kaikohe 0400, New Zealand
Freephone: 0800 920 029
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Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Ronald William Simpson
PO Box 332
Paihia 0247

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on 31 March 2008 at the Council Chambers, MemoriaL Ave, Kaikohe.

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Yours faithfully

PP RK Smythe

Melissa McGrath
PLANNER

Far North
District Council

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Kaikohe 0400, New Zealand
Freephone: 0800 920 029
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Application No: RC-2080121-RMALUC

12 March 2008

Frank Erich Habicht
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on 31 March 2008 at the Council Chambers, MemoriaL Ave, Kaikohe.

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Melissa McGrath
PLANNER

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Application No: RC-2080121-RMALUC

12 March 2008

Mr Lloyd H Wallace
Apartment G
Marsden Close
Paihia 0200

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Yours faithfully

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Application No: RC-2080121-RMALUC

12 March 2008

Transit New Zealand
PO Box 1459
Auckland 1140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Melissa McGrath
PLANNER

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District Council

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Application No: RC-2080121-RMALUC

12 March 2008

Hugh Vernon Wallace
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Yours faithfully

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PLANNER

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Application No: RC-2080121-RMALUC

12 March 2008

Pamela Joy Wallace
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Melissa McGrath
PLANNER

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Application No: **RC-2080121-RMALUC**

12 March 2008

Stanley William George Morley
PO Box 352
Paihia 0247

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on 31 March 2008 at the Council Chambers, MemoriaL Ave, Kaikohe.

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Yours faithfully

Melissa McGrath
PLANNER

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Application No: RC-2080121-RMALUC

12 March 2008

Christine Maria Habicht
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Yours faithfully

Melissa McGrath
PLANNER

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Application No: RC-2080121-RMALUC

12 March 2008

James Ranken Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on 31 March 2008 at the Council Chambers, MemoriaL Ave, Kaikohe.

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Yours faithfully

Melissa McGrath
PLANNER

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Application No: RC-2080121-RMALUC

12 March 2008

Frederick John Rankken Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Melissa McGrath
PLANNER

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District Council

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Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Charlotte M Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Yours faithfully

Melissa McGrath
PLANNER

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District Council

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Website: www.fndc.govt.nz

Application No: **RC-2080121-RMALUC**

12 March 2008

Tom Hellaby
PO Box 22747
Otahuhu
Auckland 1640

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Yours faithfully

Melissa McGrath
PLANNER

Far North
District Council

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Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Marlyn 2000 Limited Trading As Ala-Moana Motel
C/-
100 School Rd
Paihia 0200

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Yours faithfully

Melissa McGrath
PLANNER

Far North
District Council

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Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Timothy John Orgias
PO Box 265
Paihia 0247

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on 31 March 2008 at the Council Chambers, MemoriaL Ave, Kaikohe.

The time set down for the hearing is 9.30am, or as soon thereafter as circumstances permit.

A copy of the procedures followed at the Hearing is enclosed for your information. If you wish to present written evidence, please provide a minimum of 12 copies so that other parties can view your evidence.

A copy of the planner's report and recommendation will be forwarded to you at least five days prior to the hearing.

If you have any further queries regarding this matter, please contact the undersigned.

Yours faithfully

Melissa McGrath
PLANNER

Far North
District Council

Private Bag 752, Memorial Ave
Kaikohe 0400, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Ian Alan MacDonald
PO Box 46028
Herne Bay
Auckland 1147

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

The above referenced application has been scheduled for hearing on 31 March 2008 at the Council Chambers, MemoriaL Ave, Kaikohe.

The time set down for the hearing is 9.30am, or as soon thereafter as circumstances permit.

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Application No: RC-2080121-RMALUC

12 March 2008

James Frederick Brock
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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Yours faithfully

Melissa McGrath
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Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

12 March 2008

Leonie June Brock
C/- Wendall Taylor & Associates
PO Box 1415
Whangarei 0140

Dear Sir / Madam

RE: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION - Paihia Limited, Land Use

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If you have any further queries regarding this matter, please contact the undersigned.

Yours faithfully

Melissa McGrath
PLANNER

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Application No: RC-2080121-RMALUC

5 March 2008

Paihia Limited
C/- Ormiston Projects
P O Box 58395
Greenmount
Manukau City 2141

Dear Renee

Re: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION

Hearing date has been scheduled for the 31st March 2008 at 9.30am to be held in the Kaikohe Council Chambers, Memorial Avenue, Kaikohe

Far North District Council now use independent commissioners and applicants are able to state their preferences for their preferred commissioners. Two commissioners are required and it would be appreciated if you could make your choice and advise me as soon as possible. I have enclosed our booklet to assist you with your choice,

If you have any further queries regarding this matter, please contact the undersigned.

Yours faithfully

Raewyn Smythe
HEARINGS ADMINISTRATOR

30 April 2008.

Dear Submitter ,

Re; Paihia Limited – Proposed Residential Development : Access Arrangements.

You will recall that at the end of the Hearing the applicant offered to reassess the manner in which vehicle access was to be established for their development .

Unfortunately inclement weather delayed the additional site survey and subsequent presentation of this additional information. We would apologize for that delay.

The further site survey has now identified the location of the two residential units within Marsden Close which adjoin the existing Right of Way. The survey has also identified the existing retaining wall and fixed ground levels adjoining the common boundary.

From this information two options have been prepared which were discussed at the Hearing.

The first is OPTION A which entails the development of the wooden retaining wall of approximately 70.0m in length and reflects the application as lodged with Council. [I have detailed this as OPTION A – Sheets 1 , 2 and 3] As depicted on the Cross Section A-A [Sheet 3] this wall will be set into the natural ground level and will also sit within the existing slip debris. The effect of this meaning that the wall will have a visual presence of up to 1.5m above the existing ground level for parts of its length.

The second is OPTION B which entails linking the new access drive into the existing retaining wall located within the Marsden Close property for a distance of about 21.0 metres. [I have detailed this as OPTION B – Sheets 1 , 2 and 3].This would reduce the length of the proposed wooden retaining wall over that distance with the balance being constructed as per OPTION A.

We anticipate that this information may create a few questions and to that end I would welcome your initial comments on what has been proposed.

Our client is keen to move the application forward and would like to receive your input by Friday 9 May 2008 in order that we can respond to Council.

In the meantime please do not hesitate to contact me for any additional information.

Thank you in anticipation.

Yours faithfully ,

Jeff Kemp.

DETERMINATIONS PURSUANT TO SECTION 94 OF THE RESOURCE MANAGEMENT ACT 1991

(Note: for applications other than minor / straightforward ones, also complete the 3 sheet S93 / 94 Determination Form, attached to the consent template).

Applicant:..... RC.....

Activity:								
	Permitted		Controlled		Discretionary		Non-Complying	
	Permitted		Controlled		Discretionary or Restricted Discretionary		Non-Complying	

A. **WRITTEN APPROVAL REQUIRED** **Obtained**

Name:	How Affected:	Yes	No

"THAT pursuant to Sections 94 Council considers that the above persons/no persons may rsely affected by the granting of this resource consent."

Planner ..... Date:.....

M ..... Date:.....

ION-NOTIFICATION

s for Non-Notification:

"THAT pursuant to Sections 93 and 94 Council determines, for the reasons outlined above application need not be notified."

Resource Planner ..... Date:.....

ESM/RCM ..... Date:.....

C. **NOTIFICATION / LIMITED NOTIFICATION**

Reasons for Notification:

Decision "THAT pursuant to Sections 93 and 94 Council determines, for the reasons outlined above that this application be notified / processed by serving notice."

Resource Planner ..... Date:.....

ESM/RCM ..... Date:.....

Far North
District Council

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Website: www.fndc.govt.nz

Application No: RC-2080121-RMALUC

17 July 2008

Paihia Limited
C/- Damian Otto - Ormiston Projects
PO Box 58395
Greenmount
Manukau 2141

Dear Sir / Madam

Re: RC-2080121-RMALUC – RESOURCE CONSENT APPLICATION

I am pleased to inform you that your application for resource consent has been approved. The decision is enclosed for your information. The application was considered and determined under authority delegated to the Manager, Environmental Services of the Far North District Council, pursuant to Section 34(4) of the Resource Management Act 1991.

It is very important that you understand and comply with any conditions of consent. If you have any questions or concerns about any aspect of your consent or its conditions, please contact the Planner who prepared the decision.

Your consent expires five years from the date that you receive this decision. Please note that under Section 125 of the Resource Management Act 1991, your consent will lapse unless you make significant progress towards giving effect to the consent within the five year period.

If you are dissatisfied with the decision or any part of it, you have the right (under Section 357 of the Act) to object to the decision. The objection must be in writing, stating reasons for the objection, and must be received by Council within 15 working days of your receipt of this decision.

Depending on the costs charged against your consent, you will find enclosed either an invoice or a credit note. Any additional costs shown on an invoice need to be paid as soon as possible. If you receive a credit note, you have the option of requesting a refund by cheque, or transferring the amount to any other Council account.

If you have any further queries regarding this matter, please contact the reporting Planner.

Yours faithfully

Customer Services Officer – Planning Consents
Development Consents Department

RECORD OF DECISION ON RESOURCE CONSENT APPLICATIONS

Participants:
PJK
<Planners Initials>

Decision Date:
Granted Date:
Issued Date: 17th July '08

RMA Number : RC-2080121-RMALUC
RFS Type : Land Use
Val Number / Property ID :
Applicant : **PAIHIA LIMITED**
Start Date : 8 August 2007
Location : 8 School Road, Paihia 0200
Hearing Date : 31/3/08
Activity (TDP/PDP) :
Outcome :
No. of lots :

Types of lots :
Zone (TDP/PDP) : Commercial

Area of Site : 1189.00
Proposal : Application to construct a new residential apartment building, comprising of five apartments, associated carparking and access

Issues :

Contributions :

ROADING	RESERVES	SEWERAGE	STORM WATER	WATER

Property File	Sewerage (BES)	Roading (GCI)	Com Fac (SMH)	Finance (AJB)	Transit NZ	DoC	Projects (LMN)	Property Co-ordinator
☐								
Monitoring (DSM)	**Env Health (GB/JG)**	**Liq License (LAL)**	**Legal (YAS)**	**NZHPT**	**NRC**	**Building (HAH)**	**Comm. Brd**	
✓								

IN THE MATTER of the Resource Management Act 1991:

AND

IN THE MATTER of an application under the aforesaid Act, 1991 by Paihia Limited

APPLICATION NUMBER RC-2080121-RMALUC

Hearings application to construct and occupy a new residential apartment building, comprising of five residential units with onsite parking.

The property in respect of which the application is made, is situated at Wallace Lane, 8 School Road, Paihia. Area of Site: 1189m2. Zoning: Commercial

HEARING

Before Hearings Commissioners J Carr and L Robertson for the Far North District Council, on the 31st of March 2008 and the 20th of June 2008.

DECISION

That pursuant to sections 104,104C and 108 of the Resource Management Act 1991, the Council grants its consent to Paihia Limited to construct and occupy a new residential apartment building, comprising of five residential units with on site car parking and upgraded access at Wallace Lane, 8 School Road, Paihia; being more particularly described as Lot 3 DP 44530 contained in NA1544/80 (North Auckland Registry), subject to the following conditions:

(1) The development shall be carried out in accordance with the approved architectural plans prepared by Ormiston Project Management Limited, referenced "Paihia Projects Ltd, Wallace Lane, Paihia, Proposed Development" dated 26 March 2007, and access detail plan prepared by TPC, referenced "Lot 3, 8 School Rd, Paihia, Existing Access Details & Proposed Widening (5.0m), and further qualified by the approved engineering plans prepared by PK Engineering referenced "Proposed Project Lot 3, 8 School Road, Paihia, dated April 08, Project 07 – 142 (see condition 11 below) and attached to this consent with the Council's "Approved Plan" stamp affixed to it (dated 6 December 2006) and as required to be amended by the conditions of this consent.

(2) The proposed building and associated plant shall be constructed and operated in accordance with the recommendations and comments set out in the report prepared by Golder Associates and dated 29th June 2007.

(3) The proposed activity is to comply with the permitted noise levels as set out in the Partly Operative District Plan. Any issue of non-compliance with the prescribed levels will necessitate monitoring by Council, the costs of which may be required to be recovered from the applicant.

(4) Construction noise shall meet the limits recommended in, and shall be measured and assessed in accordance with, NZS 6803P:1984 'The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work'.

(5) Earthworks requiring heavy machinery and mechanical digging equipment, and the use of any power tools on site, shall be restricted to the hours of between 8.00 am to 6.00 pm Monday to Friday and 8.30 am to 1.00 pm Saturday. There shall be no movement of heavy vehicles to and from the site outside of these hours.

All other works shall be restricted to the hours of between 7.30 am to 6.00 pm Monday to Friday and 8.00 am to 1.00 pm Saturday.

No work shall be undertaken on Sundays and public holidays.

(6) Prior to commencing any physical site works a construction management plan shall be submitted to and approved by the Council. The plan shall contain information on, and site management procedures for, the following matters:

a. The timing of civil engineering, building construction and any demolition works, including hours of operation and key project and site management personnel and their contact details;

b. The transportation of demolition, construction and waste materials to and from the site, the loading and unloading of materials and the associated controls on vehicles through sign-posted site entrances and exits;

c. The excavation and filling works, including any retaining structures and any necessary de-watering requirements/methods, to be prepared by a Chartered Professional Engineer with suitable geotechnical qualifications and expertise;

d. Control of dust and on-site noise (including compliance with construction noise standards) and any appropriate avoidance or remedial measures;

e. Construction Traffic management on the Right of Way (Wallace Lane) to maintain single lane access for other access users and adjoining property owners.

f. Prevention of earth, mud, gravel or other material being deposited on adjoining roads by vehicles exiting the site, and proposing remedial measures should that occur;

g. Publicity measures, including signage, to inform adjacent landowners, occupiers, pedestrians and other users of School Road.

h. Safety fencing isolating the site from the Right of Way and pedestrian access to enable the safe passage of pedestrian traffic, including access to Lot 1 DP 140756

The Council may require all or parts of this report to be peer reviewed, with all costs associated with the review being met by the Consent Holder.

(7) All construction works on the site are to be undertaken in accordance with the approved Construction Management Plan.

(8) That prior to the commencement of construction on site the consent holder shall provide evidence to confirm that Top Energy have removed the power poles along Wallace Lane and re-installed the power underground including connections to each of the existing properties serviced.

(9) That prior to the commencement of construction on site the consent holder shall upgrade the existing entrance off School Road to provide a double width commercial entrance complying with the Council's Engineering Standard

FNDC/S/2. The upgraded entrance is to accommodate the continuing use by all of the adjacent lots which currently share the common entry point.

(10) That prior to the commencement of construction on site the consent holder shall upgrade the access along 'Wallace Lane' to provide a 5m minimum width concreted carriageway up to the southern boundary of Lot 3 DP 44530. The following requirements shall be met:

a. During construction these works will be supervised by the design engineer or a Certified Professional Engineer.

b. The construction shall be carried out in accordance with either option A or option B identified in the approved engineering plans prepared by PK Engineering referenced "Proposed Project Lot 3, 8 School Road, Paihia, dated April 08, Project 07 – 142, Sheet C3 (option A), Sheet C4 (option A), Sheet D8 (option A); Sheet C3 (option B), Sheet C4 (option B), Sheet D8 (option B), and attached to this consent with the Council's "Approved Plan" stamp affixed to it (dated 6 December 2006) and as required to be amended by the conditions of this consent.

[Note: The preferred upgrade option is option B, in principle and is subject to refinement and agreement to any easements necessary for the works being reached with the Body Corporate of Marsden Close, BC12274 Lot 1 DP 120926]

c. The shape and gradient of the existing driveway to Lot DP 44530 will be retained to ensure that the standard of access to numbers 10 and 12 School Road is not diminished.

d. The concrete surface of Wallace lane shall have a cross slope of 1:50 from the eastern side adjoining DP 120926 (Marsden Close) to the concreted dish drain on the western side.

e. A concrete kerb of a minimum height of 125 mm will be constructed along the eastern side of Wallace Lane adjoining DP 120926 (Marsden Close) to prevent surface water from overflowing onto DP 120926.

f. Services including power and phone lines and stormwater pipes shall be aligned and buried as close as practicable (taking into account any existing easements) to the middle of Wallace Lane. The power and phone lines shall be contained in separate ducting such that the materials for ducting and the size of ducts shall comply with the requirements of the network operators.

g. Prior to the completion of the concreting of the Wallace Lane carriageway the applicant shall submit for the consideration of Council the design and details of the stormwater pipe to be installed under the concreted carriageway. The design shall be completed by a C.P Engineer and shall include details of the overland flow path for the 1 in 100 year rainfall event.

h. Should the rock retaining wall on the boundary of Lot 2 DP 44530 be removed or damaged, the bank is to be suitably retained under the supervision of a Chartered Professional Geotechnical Engineer.

i. Should any damage occur to structural integrity of the carport on Lot 2 DP 44530, appropriate remedial action is to be undertaken immediately.

(11) That all earthworks and construction for the development are to be completed in accordance with the Site Stability and Suitability Report prepared by PK Engineering, Job No. 07-56 and dated June 2007.

(12) That all earthworks and construction for the development (including the Wallace Lane improvement works) are to be supervised by a suitably qualified geotechnical engineer and appropriate measures are to be undertaken e.g. Sheet

piling to stabilise the cut faces and prevent subsidence of adjacent properties. This will require an engineer's producer statement upon completion of the works.

(13) Any fill required to be utilised for the proposed earthworks shall comply with Rule 12.3.6.1.4 of the Partly Operative District Plan.

(14) That the consent holder shall locate all underground services prior to excavation and undertake measures to relocate and/or protect existing services. No work is to be undertaken on council provided services or in the vicinity of these services without the prior approval of the Council's Utilities Manager.

(15) At the time of submitting an application for building consent a Registered Surveyor shall certify to Council in writing that the building will comply with the maximum height rules as specified in the District Plan, being a maximum height of 10 metres above average ground level. The surveyor is also to establish a datum on-site or adjacent to the site to provide a reference level against which the building height or ground settlement can be measured.

(16) Prior to the roof of the sixth level being installed on the building a Registered Surveyor shall certify to Council in writing that the building complies with the maximum height rules specified in the District plan being a maximum height of 10 metres above average ground level.

(17) That plans, including cross-sections, of the proposed vehicle entrance/exit shall be prepared by a Certified Professional Engineer and submitted to the council for approval prior to construction. The plans shall detail appropriate measures to provide maximum visibility for vehicle drivers and pedestrians using Wallace Lane.

(18) That a maximum height bar/warning system be installed at the entrance of the property to prevent over height vehicles (e.g. boats on trailers and trucks) from entering the carpark entrance.

(19) That 11 carparks be provided on site in accordance with the Ground Level Basement Plans prepared by, Ormiston Project Management Limited, referenced "Paihia Projects Ltd, Wallace Lane, Paihia, Proposed Development" dated 26 March 2007 and attached to this consent. Each apartment is to have two parking spaces identified and allocated for their specific use.

(20) That all carparks are to be marked in accordance with the requirements of the District Plan. The markings shall be completed prior to the apartments being occupied.

(21) That any stormwater discharged into the Council's stormwater system is to comply with the requirements and conditions of the Far North District Council's stormwater discharge consent. That a producer statement be submitted to the satisfaction of the Council's Resource Consents Manager specifying that the plans and specifications satisfy the building code requirement that surface water be disposed of in a way that avoids the likelihood of damage or nuisance to other property.

(22) That all security lighting required for the apartments is to be directed away from buildings on the adjoining sites. The locations and height of lighting is to be subject to the approval of the Council.

(23) That temporary advertising signage shall be limited to a maximum area of 12.0 m^2 and subject to Council approval prior to installation.

(24) That no building, or part thereof, excavation or other work shall be left unfinished, or shall be allowed to fall into such a condition; and no land shall be allowed to deteriorate or to remain in such a condition that it would, in the opinion

of the Council, become a hazard or visually detract from the amenities of the property, or adjoining properties, or the neighbourhood.

(25) Provide evidence to the Council that each unit has a separate metered water connection complying with Council requirements to the satisfaction of the Council's Utilities Manager.

(26) Pay, as may be required, the Council's actual and reasonable monitoring and administration fees for assessing compliance with these conditions, and for any additional site visits that may be necessary.

ADVICE NOTES:

1. If any subsurface archaeological sites or remains are uncovered during the development of the site, all earthworks in the vicinity shall cease and local iwi and the New Zealand Historic Places Trust shall be contacted immediately so that appropriate action can be taken.
2. Please note a single connection to Council's reticulated Sanitary Sewer or Water may compromise the ability to subdivide by way of unit title in the future.
3. Any further intensification of the site including changing the use from residential to commercial activity will require a resource consent. The applicant's Assessment of Environmental Effects describes the proposal as a 'residential apartment building', with a combined traffic intensity factor (TIF) of 50 movements per day. Because of this relatively low TIF and residential use, both the carriageway width of 5.0 metres and the non-complying sight distances available from and of vehicles accessing Wallace Lane are considered acceptable for a low volume driveway on a collector road.

STATUTORY INFORMATION

(1) Pursuant to section 102 of the Local Government Act 2002, the Far North District Council has prepared and adopted a development contributions policy. Under this policy, the activity to which this consent relates may be subject to development contributions.

You will be advised of the assessment of the development contributions payable under separate cover in the near future.

It is important to note that the development contributions must be paid prior to commencement of the work or activity to which this consent relates.

Further information regarding Council's development contributions policy may be obtained from the long term council community plan (LTCCP) or Councils web page at www.fndc.govt.nz

(2) The registered proprietor of the land is advised that any earthworks (excavation or filling) which alters existing land contours and is undertaken within 3 metres of any road or other property boundary requires permission for the control of earthworks, pursuant to Chapter 22 of the Far North District Council General Bylaws, March 2008.

(3) Prior to undertaking any significant earthworks or clearance of vegetation on the land, the owner should assess the need for a land use consent from the Northland Regional Council and/or an earthworks permit under the *FNDC General Bylaws.*

(4) Prior to constructing a new or an additional vehicle access point to any site, the owner is to obtain a permit from the Council as to the siting (from a traffic safety point-of-view), earthworks, formation and drainage of such access in terms of the Council's Control of Vehicle Crossings Bylaw 2004.

(5) All building work must be carried out in accordance with the Building Act 2004.

(6) It is the responsibility of the consent holder to ensure all necessary building consents have been obtained and any geotechnical issues have been addressed to the Council's satisfaction prior to the commencement of earthworks. This planning consent is not an authority to commence work. To proceed further the consent holder will be required to lodge a further building consent application which can only be granted providing that the engineering, building and bylaw requirements are met.

(7) If any activity associated with this proposal, such as earthworks, fencing or landscaping, may modify, damage or destroy any archaeological site(s), an authority for the New Zealand Historic Places Trust must be obtained for the work to proceed lawfully. An Authority is required whether or not the land on which an archaeological site may be present is designated, resource consent or building consent has been granted, or the activity is permitted under the District or Regional Plan.

(8) If the Northland Regional Council's volume thresholds for earthworks are breached consent will be required from the Regional Council.

LAPSING OF CONSENT

Pursuant to section 125 of the resource management act 1991, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;

1 The consent is given effect to; or

2 An application is made to the council to extend the period of consent, and the Council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Resource Management Act 1991.

In consideration of the application under Section 104 of the Act, the following reasons are given for this decision in accordance with the requirements of Section 113 of the Act:

1. The environmental effects associated with the proposal are considered either to be minor and/or in accordance with the permitted activity standards of the partly operative district plan. In particular the proposed activity meets all bulk and location requirements for permitted activities in the Commercial zone. Infringements of permitted activity standards relate to parking and access in the Commercial zone only. Effects associated with these matters are considered to be minor.

2. The imposed conditions will ensure that the effect of the consent will be in compliance with the relevant provisions of the applicable district plan; and that such conditions will adequately avoid, or mitigate to a minor impact level, the expected adverse effects on the environment.

3. The proposal is considered to be consistent with the assessment criteria as outlined in the Partly Operative District Plan.

4. In making this decision the statutory provisions of Section 104 & 104C and Part 2 of the Act were considered. Also considered were, chapters 7 (Urban environment), 11 (natural and physical resources), 14 (transportation), and the associated appendices of the Partly Operative District Plan. The proposal was also assessed against the relevant district wide provisions outlined part III of the plan.

5. The applicant agreed, as an indication of goodwill to neighbours to include conditions that will also be replicated in the building consent.

   The principle issues of the proposal were considered to be adequacy of access, site stability, stormwater runoff, traffic movements, and safety to the roading

network. It was found that subject to compliance with conditions of consent the proposal will not result in adverse effects and will provide for the sustainable management of natural and physical resources.

THE RELEVANT STATUTORY PROVISIONS THAT WERE CONSIDERED (section 113(1) (aa))

This application was considered as a restricted discretionary activity in the terms of the operative provisions of the District Plan and Section 104C of the Resource Management Act 1991 and Part 2 of the Resource Management act 1991.

OTHER RELEVANT PROVISIONS THAT WERE CONSIDERED (section113(1) (ab)

Partly Operative District Plan:

The Partly Operative Plan is operative in terms of the relevant provisions applying to this proposal.

Written Approvals:

Written approvals were not obtained from all affected parties. Consequently the application was required to be notified.

Other Resource Consents:

No other resource consents are required.

PREAMBLE

The Proposal

Paihia Limited has made resource consent application to construct and occupy a new residential apartment building, comprising of five residential units with on- site car parking, at Wallace Lane, 8 School Road, Paihia.

The applicant proposes to construct a 10m high apartment building, comprised of car parking level at ground level, and six residential levels, containing five residential apartments.

Four of the five apartments proposed consist of a large master suite and two smaller guest suites (each with ensuite bathrooms), a large kitchen and living area separating the master suite form the guest suites and a study. One apartment is larger and split over levels five and six, containing three guest suites, one master bedroom, living space, games room and study.

Vehicle access to the building and ground level parking will be achieved from Wallace Lane.

The Site

The site is legally described as Lot 3 DP 44530, contained in certificate of title referenced NA1544/80. The site is 1189m2 area; access to the site is located off Wallace Lane, 8 School Road Paihia.

The site has a relatively steep contour with an easterly aspect. The site has been subject to slips in the past; the site is currently vacant, overgrown with grass and does not contain any native vegetation.

The site is located approximately 150m along Wallace Lane, from the intersection of School Road and State Highway 11 on the eastern side of Marsden Road/State Highway 11. The site is visible from the coast.

The nature and character of the surrounding properties is predominantly residential single unit development; however Marsden Close Apartments are located at 54 – 56 Marsden Road, adjacent to Wallace Lane. The site is in close proximity to amenities,

with the entrance to the main public car park for Paihia being located some 50 metres along School Road.

Wallace Lane is a private way comprised of three consecutive access legs, with overlying reciprocal right of ways, the legal width of Wallace Lane is 6m. The following properties have right of way access over Wallace Lane:

Lot 3 DP 44530	Will contain the five residential units proposed.
Lot 1 DP 140756	Contain one residential unit with physical access from School Road
Lot 1 DP 73026	
Pt Lot 5 DP 44530	

Therefore three residential units currently utilise Wallace Lane for access, the proposal will result in a total of eight residential units gaining access over Wallace Lane.

Lots 1 and 2 DP 44530 (10 and 12 School Road) currently have physical access located on the School Road, road reserve. Both driveways link into the same vehicle crossing on School Road that serves Wallace Lane.

Application Description

Activity Classification

Under the Partly Operative District Plan the site is zoned Commercial. The proposal complies with all the permitted activity bulk and location rules for the Commercial zone apart from the parking and access provisions under rules 15.1.6.1.1 and 15.1.6.1.2.

The application therefore required assessment as a restricted discretionary activity under the Partly Operative District Plan.

Sections 93 & 94, Resource Management Act 1991

A separate determination was made relating to the processing of the proposal. A determination was made that the application would require limited notification as the proposal complied with the bulk and location rules for the Commercial zone under the District Plan and the traffic report submitted with the application concluded that, due to the width and gradient of the proposed access the proposed activity failed to meet the provision of the District Plan.

Summary of Submissions

The matters of concern raised can be generalised into categories, listed below in no particular order:

- Safety of proposed access, particularly gradient of Wallace Lane, cumulative effects
- Site stability of Lot 3 DP 44530, adjoining properties and Wallace Lane
- Visual amenity and size of the proposed building
- Adverse effects from increased traffic use of Wallace Lane
- Parking availability and manoeuvring

THE PRINCIPAL ISSUES THAT WERE IN CONTENTION (Section 113(1)(ac))

The principal issues that were in contention were:

- Land stability of site and Wallace Lane

- Traffic safety of Wallace Lane with a pavement width of 5.0 metres
- Overshadowing of Marsden Close by proposed retaining wall on eastern side of Wallace Lane
- Adverse effects on neighbours if upgrade of Wallace Lane is not completed prior to apartment construction
- Present flooding of Marsden Close units by stormwater and concerns that the proposed development could worsen this
- Adverse effects of increased traffic using Wallace Lane (suggestion of less units)
- Construction of retaining wall on eastern side of Wallace Lane, and lack of detail making it difficult to assess the proposal for adverse effects. Adjournment suggested
- That the drainage system in place behind the Marsden Close retaining wall might be inappropriately located within Wallace Lane, and if so, would be damaged during construction of the proposed piled retaining wall
- Consideration of Part 2 matters in relation to matters that Council has retained discretion over

SUMMARY OF EVIDENCE HEARD
(section 113(1) (ad))

Council's reporting planner, Melissa McGrath in summary stated that the proposed residential activity would be consistent with the zoning. It was her opinion that, subject to compliance with conditions of consent the environmental effects associated with the proposal would be minor in nature and in most instances would satisfy the permitted activity status of the Partly Operative District Plan.

M McGrath explained that the extent of Council's discretion was restricted to matters relating to parking and access under rules 15.1.6.1.1 and 15.1.6.1.2. M McGrath considered the proposal to be generally consistent with the objectives and policies of the Partly Operative District Plan and with the provisions of the Regional Policy Statement. In relation to Part 2 of the Act, M McGrath considered that the activity would, with appropriate conditions; result in sustainable management of natural and physical resources.

Pradeep Kumar said that there are stormwater issues causing instability of the site. Tabled information (appendix C) showed how the issues could be overcome. He said it has been designed to cope with a flood that is bigger than the March 2007 event that flooded Mr Simpson's Marsden Close apartment. Mr Kumar stated that it was intended that services will be put underground.

Mr Kumar said that there is a conflict between the retaining wall that is proposed and the existing retaining wall; when the engineers drill the holes for retaining wall poles it is possible that they will find scoria and other fill. If they are able to tie the new wall to the existing retaining wall owned by Marsden Close it would strengthen the entire length and avoid risking damage to the existing (effective) drainage system.

Mr Phillip said that an earlier draft report was prepared and at that time they were considering a passing bay, to permit sufficient sight distance, they have now revised the plan to develop a 5 metre width along the entire length of Wallace Lane. The crest curve will remain, but he said that in his professional opinion there will be sufficient sight distance on Wallace Lane.

Mr Kemp said that the applicants' engineers have been able to establish a gradient between the end of the carriageway and seal of between 1 in 44 and 1 in 7.2 with 1 in 5 being the maximum gradient (Standards for Private Access).

Submissions

Mr Dawson represented Violet Johnson, a resident of Marsden Close. Mr Dawson said that no mention has been made of visitor parking. The retaining structure could be 4 metres in height; it will, in part, be directly outside Mrs Johnsons' kitchen and lounge windows, directly affecting her amenity. He said that he was concerned that the final plans have not been presented and that the commissioners have no way of assessing the impact of the development without final designs. Mr Dawson noted that Mr Kumar has said the site is precarious and has slipped before and it is likely that it might slip again. Mr Dawson suggested that the commissioners adjourn the hearing and request the applicant to provide detailed engineering designs. In reference to Jeff Kemps suggestion that some of the conditions are outside of the commissioners' scope, Mr Dawson said that the effects during construction are unavoidable and Council should be able to control the effects (construction hours and noise), Part 2 of the Act must be considered.

Mr Wallace said, as a principal shareholder of Wallace Lane he is entitled to a 6 metre wide accessway Mr Wallace said that future development planned for Paihia will cause traffic congestion at the end of Wallace Lane and School Road and the issues needed to be addressed.

Mr McDonald said that the incomplete engineering plans presented are a concern and there did not appear to be any provision for stormwater runoff. He said there is already a parking problem in Paihia particularly at peak times, during construction there will be a problem with construction vehicles parking.

Mr Simpson said he wanted assurance that stormwater will be controlled.

Mr Morley said his concern was that the standard of Wallace Lane would be at least as good as it is now and that Wallace Lane should be fully developed before construction began as he did not believe that the lane is presently constructed sufficiently to take construction vehicles.

ADJOURNMENT

The hearing was adjourned by mutual agreement until 21st April, to allow the Marsden Close Body Corporate and the developer to communicate and try to solve issues regarding the access way. It became apparent during the hearing that various synergies could be developed in this manner. The parties were advised that the hearing may be reconvened if further information, including detailed options for Wallace Lane by Mr Kumar, was presented to all parties and Council, otherwise the commissioners would make their decision based on the information already to hand.

All parties would be advised if the hearing is reconvened.

POST ADJOURNMENT

On the 30th April, Jeff Kemp, Bay of Islands Planning Ltd forwarded new site survey plans offering options A & B. The information was sent to Submitters and the Commissioners. Mr Kemp requested that the submitters respond by 9th May 2008.

On the 12th May the applicants' Counsel, George Bogiatto, with a view to achieving a negotiated outcome, requested that the Commissioners delay their deliberations for at least two weeks to allow them time to liaise with representatives of the Body Corporate, Paihia Ltd's solicitor and Jeff Kemp, Bay of Islands Planning, to discuss information forwarded to the Body Corporate.

Jeff Kemp, Bay of Islands Planning, advised that a site visit with representatives of the Marsden Close Body Corp and Stan Morley has been held, and following that meeting the applicant provided the Marsden Close Body Corp with an electronic copy of the surveyors' survey data. The engineer is also providing some information on the

preferred option for integrating the access and some clarification of matters for Mr Morley.

The Hearing for RC 2080121 – Paihia Ltd was reconvened at the Council Chambers. Memorial Avenue, Kaikohe on 20th June at 10.30am.

Procedural Matter Raised

Mr Taylor advised that he did not receive formal notification of the hearing and therefore, had not received any information and sought an adjournment of the hearing.

Mr Kemp said that the applicant had met with the Body Corp and Mr Morley and that engineering plans for two options had been circulated to all submitters and discussed. Apparently Mr Taylor had recently changed his address. Negotiations have taken place; Stan Morley has given his written support to the proposal, which was tabled. Mr Taylor accepted the explanation and the hearing proceeded.

Mr Kumar referred to tabled option A sheet 1 –page C 3 and said that the drawing reflected that the boundary is still a substantial distance from the edge of the designed pavement.

The commissioners noted that some of the Marsden Close apartments are reputed to be 3.0 m closer to the boundary than they should be and that the Marsden Close stormwater drains behind the existing retaining wall could quite likely be on Wallace Lane in the proximity of proposed retaining piles.

Mr McDonald said that a requirement of the Building Consent should be that the lane was concreted before construction of the units.

Mr Kumar considered that the engineering plans to tie into existing retaining wall were adequate; however, when the proper analysis is done the engineering design will be changed to ensure that the wall is secure. With regard to structural issues pertaining to Mr Morley's carport, Mr Kumar stated they can build a retaining wall along Mr Morley's boundary to the support his carport. The in ground services will be towards the centre of Wallace Lane, and will include ducts to provide for service access.

Mr Kumar stated as an expert, with regards to concerns raised about stormwater, seepage on Marsden Close and overall stability; the net result will be that there will be far less seepage and far less stormwater flowing onto Marsden Close. All stormwater will be intercepted and field drains installed with the water discharged to the creek on the other side of School Road. After the completion of the development there will be overall a better effect and Marsden Close will be drier, and the area more stable than it is presently

Amenity Issues Mr Kemp commented that the existing vegetation on the boundary of Wallace Lane and Marsden Close is higher than what the retaining wall at approx 2m high will be. He said that a safety rail was discussed during the discussion with Thomson Wilson Lawyers.

Mr McDonald said that the main concern of the Body Corp is to ensure that they are not affected by stormwater or the retaining wall.

Mr Taylor said his submitters would prefer that the building be limited to 4 residential units and the two top floors be removed on the basis of the traffic flow on the right of way, if this can't be achieved the RoW must be 6 metres wide.

Mr Kemp said that the developer will consider either option A or B, and noted that if they were building a single residential unit they would still require a resource consent as the right of way is only 5m wide and the underlying zone is commercial. The site zoning allows 200 traffic movements, reducing the height and number of units by one is not directly linked, as the only difference is 10 daily traffic movements.

Councils summary

Council's Resource Consent Engineer said that with the mitigation measures offered there would be no adverse impact of stormwater on the receiving system. Mr Shand considered that both of the applicant's tabled options A and B for the Wallace Lane improvements were viable and that it would be advantageous to have a curb constructed on the eastern edge of the carriageway to stop stormwater overflow onto Marsden Close. A 1:50 pavement slope from this kerb to the dish water table on the western side of Wallace Lane would assist with ensuring that surface water does not overflow on Marsden Close.

Applicants summary

Mr Kemp said both options are viable but considered that option B is the better option, however, the developer does not want to hold things up with other processes.

THE MAIN FINDINGS OF FACT
(section 113(1) (ae))

The site is underlain by a stable intact rock mass that provides a suitable anchor for building foundations for a multi-storey type structure providing the recommendations in the evidence of chartered professional engineers PK Engineering report Job No: 07-56 are met.

Safe and adequate access from School Road for the proposed residential development and other users can be achieved by improving Wallace Lane as provided for by consent conditions. A pavement width of 5.0 m for Wallace Lane is adequate for the 2-way traffic for both the proposal consented and the existing residential developments. It is necessary to complete Wallace Lane improvements prior to commencement of works on the site to minimise adverse effects to adjacent residents. Present flooding of Marsden Close from surface water from Lot 3 DP 44530 will be prevented by interception measures provided in consent conditions. The provision of two loading spaces as required by District Plan rule 15.1.6.1.1(b) are not necessary because the proposal consented is for residential activities only and will not require the regular deliveries that a commercial activity would.

Part 2 matters are required to be considered when determining conditions for restricted discretionary matters (refer ACC/The John Woolley Trust and SJ Christmas CIV 2004-404-3787).

The main findings of fact determined by the hearings commissioners that have led to the above decision. The decision has been reached after considering the application, the evidence heard at the hearing, the report prepared by the reporting planner, all the relevant statutory and planning provisions, including submissions (section 104), as well as the principal issues that were in contention:

.....

J Carr

Hearings Commissioner

L. J. Robertson

L.T. Robertson

Hearings Commissioner

17 July 2008

Date:

SUP A2 B2/

GORMACK GRAPH PAPERS ®

C021X 5 mm cross section

AH2 PT2

AH4 PT4

PT6

PT8

INTACT ROCK MASS

WEATHERED ROCK

SILTY CLAY LAYER

OLD SLIP DEBRIS

EXISTING GROUND LINE

GWT

20°

28°

WALLACE LANE

SECTION A-A SCALE 1:100

LOT 3 DP 44530

WALLACE LANE

PAIHIA

AH2 PT2

AH4 PT4

PT6

PT8

$W = A \times 18\ kN/m^3$

$u = 10\ kPa \times 1 = 10\ kPa$

INTACT ROCK MASS

WEATHERED ROCK

SILTY CLAY LAYER

OLD SLIP DEBRIS

EXISTING GROUND LINE

20°

28°

32°

31°

1.5m

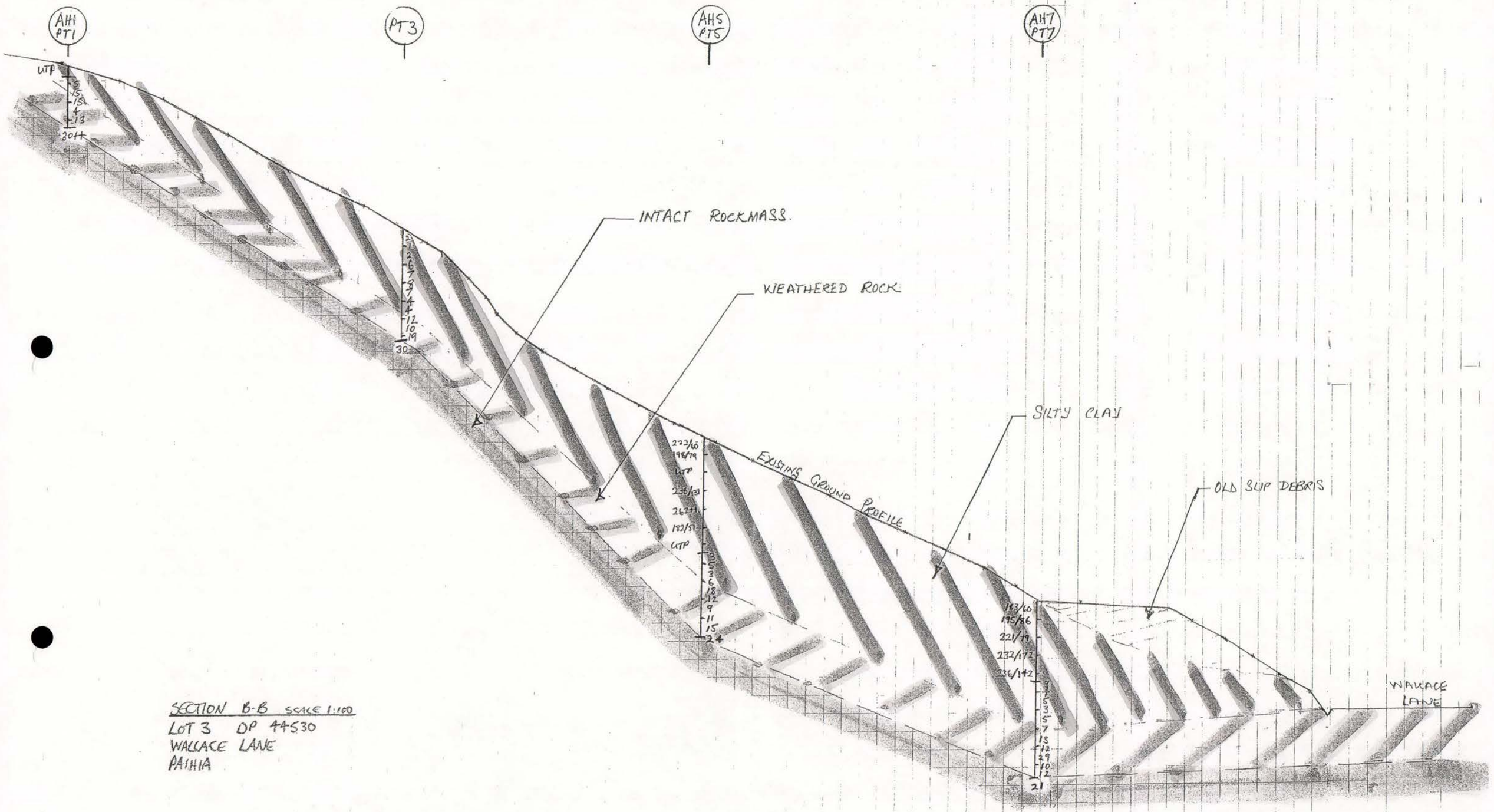
WALLACE LAN

SECTION A-A SCALE 1:100

LOT 3 DP 44530

WALLACE LANE

PAIHIA



SECTION B-B SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA

AH2 PT2

AH4 PT4

PT6

PT8

INTACT ROCK MASS

WEATHERED ROCK

SILTY CLAY LAYER

OLD SLIP DEBRIS

EXISTING GROUND LINE

20°

28°

172/52
159/67
225/69
262H

53/13
161/51
195/49
191/49
140/77
UTP
UTP

WALLACE LANE

SECTION A-A SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA

LOT 1
DP 44530

LOT 2
DP 44530

LOT 3
DP 44530

LOT 1
DP 120926

LOT 5
DP

WOODEN RETAINING WALL

BLOCK WALL

Ø225mm PVC STORMWATER PIPE

Provide adequate stormwater drain along Wallace Lane

PEG IN D/W

C.I. FENCE

TREE

TREE

TREE

HIGH VOLTAGE OVERHEAD POWER WIRES

MAXIMUM HEIGHT
(EXCLUDING SKYLIGHT)
OF UNIT "A" DP 122747 RL=13.24

DRAINAGE DITCH

SLIP DEBRIS

NOVACOL OUTLETS
IL=12.07
IL=12.14

EXISTING EAVE
RL=14.90

POWER

WATER

DISC IN POST

Surface Runoff interceptor drain

Surface Scars

AH1 PT1

AH2 PT2

AH3 PT3

AH4 PT4

AH5 PT5

AH6 PT6

AH7 PT7

PT8

83°00'00"
40.53

352°27'40"
26.00

262°57'30"
40.19

77°09'
2.04

82°57'30"
2.40

173°12'30"
25.89

173°12'30"
25.58

173°12'30"
29.47

173°12'30"
26.05

173°12'30"
25.58

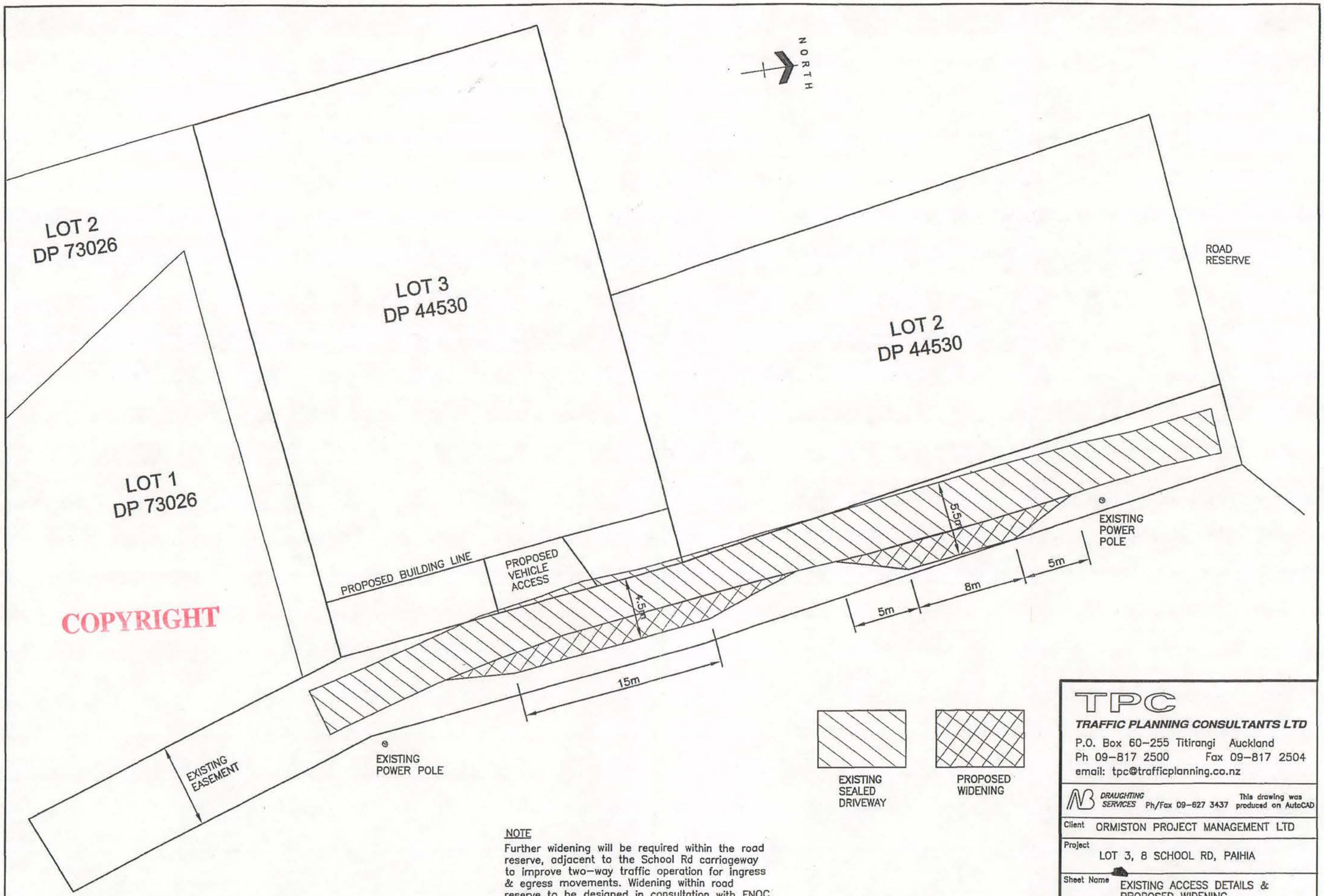
341°0

PEDESTRIAN RIGHT OF WAY
& STEPS

SWIMMING POOL
& DECKING

Augerhole Locations

SITE PLAN SHOWING LOCATION OF ON-SITE TESTS 21-22 MAY 2007 SCALE 1:150



NOTE

Further widening will be required within the road reserve, adjacent to the School Rd carriageway to improve two–way traffic operation for ingress & egress movements. Widening within road reserve to be designed in consultation with FNOC.

TPC
TRAFFIC PLANNING CONSULTANTS LTD
P.O. Box 60–255 Titirangi Auckland
Ph 09–817 2500 Fax 09–817 2504
email: tpc@trafficplanning.co.nz

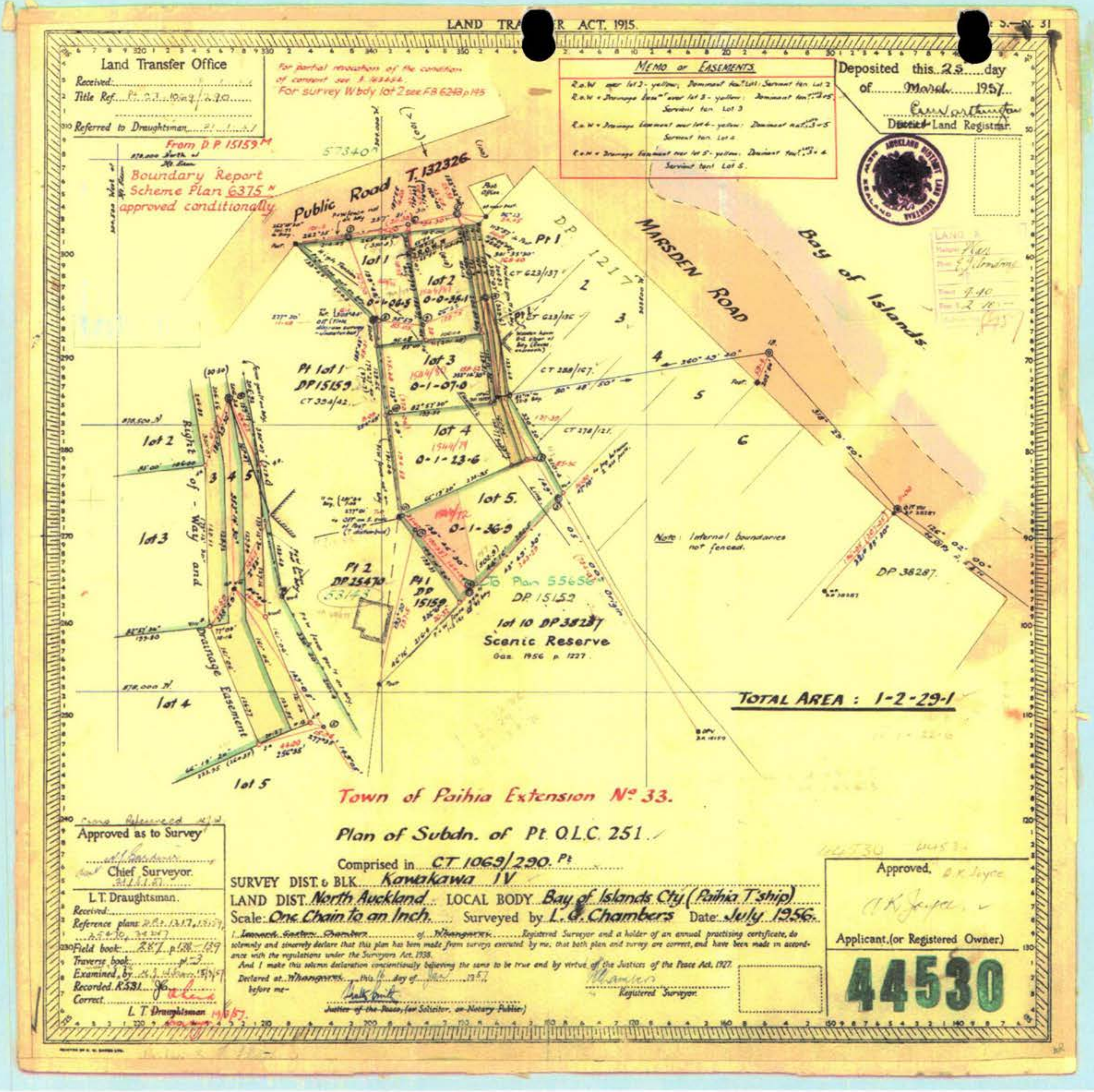
DRAUGHTING SERVICES Ph/Fax 09–627 3437 This drawing was produced on AutoCAD

Client: ORMISTON PROJECT MANAGEMENT LTD

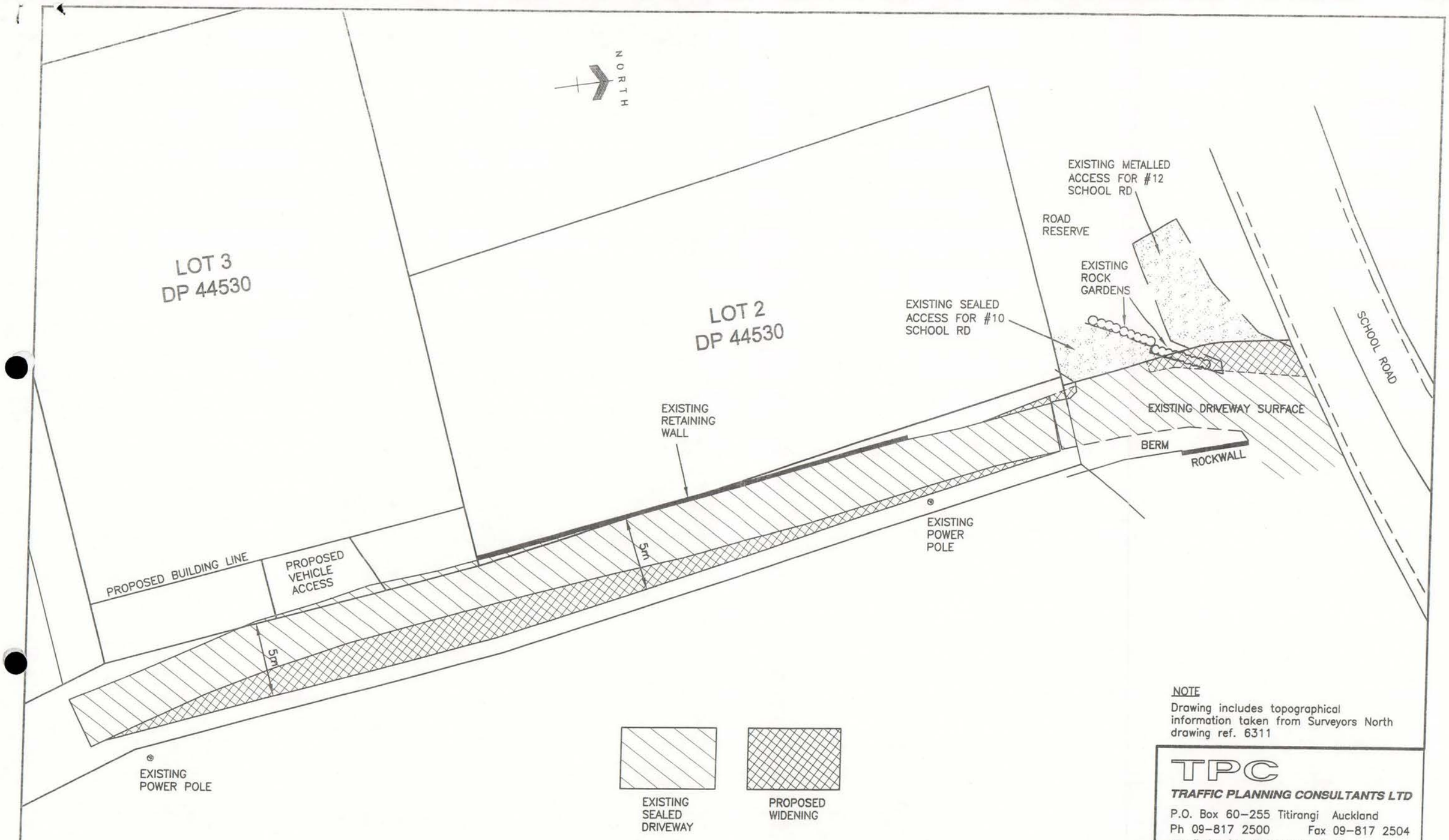
Project: LOT 3, 8 SCHOOL RD, PAIHIA

Sheet Name: EXISTING ACCESS DETAILS & PROPOSED WIDENING

Scale	1:250		DRAWING No.
Designed	D Philip		07125–01
Drawn	N Baker	8.8.07	



LAND TRA[redacted]R ACT. 1915.
Land Transfer Office
Received:
Title Ref.
Referred to Draughtsman
For partial revocation of the condition of consent see
For survey W bdy lot 2 see FB 6248 p 145
MEMO OF EASEMENTS
Deposited this 25 day of March 1957
District Land Registrar.
From D.P. 15159 M
Boundary Report Scheme Plan 6375 N approved conditionally
Public Road T.132326
D.P. 1217
MARSDEN ROAD
Bay of Islands
lot 1
lot 2
0-0-36-1
lot 3
0-1-07-0
lot 4
0-1-23-6
lot 5.
0-1-36-9
Pt lot 1 DP15159
Right of Way and Drainage Easement
lot 2
lot 3
lot 4
lot 5
Pt 2 DP25470
Pt 1 DP 15159
DP 15152
lot 10 DP 38287
Scenic Reserve
Gaz. 1956 p. 1227
Note: Internal boundaries not fenced.
DP 38287.
TOTAL AREA : 1-2-29-1
Town of Paihia Extension No. 33.
Plan of Subdn. of Pt. O.L.C. 251.
Comprised in CT 1069/290. Pt
SURVEY DIST. & BLK. Kawakawa IV
LAND DIST. North Auckland LOCAL BODY Bay of Islands Cty (Paihia T'ship)
Scale: One Chain to an Inch. Surveyed by L. G. Chambers Date: July 1956.
Approved as to Survey
Chief Surveyor.
L.T. Draughtsman.
Received
Reference plans
Field book
Traverse book
Examined by
Recorded
Correct
L.T. Draughtsman
Registered Surveyor.
Justice of the Peace, (or Solicitor, or Notary Public)
Approved.
Applicant (or Registered Owner)
44530



NOTE

Drawing includes topographical information taken from Surveyors North drawing ref. 6311

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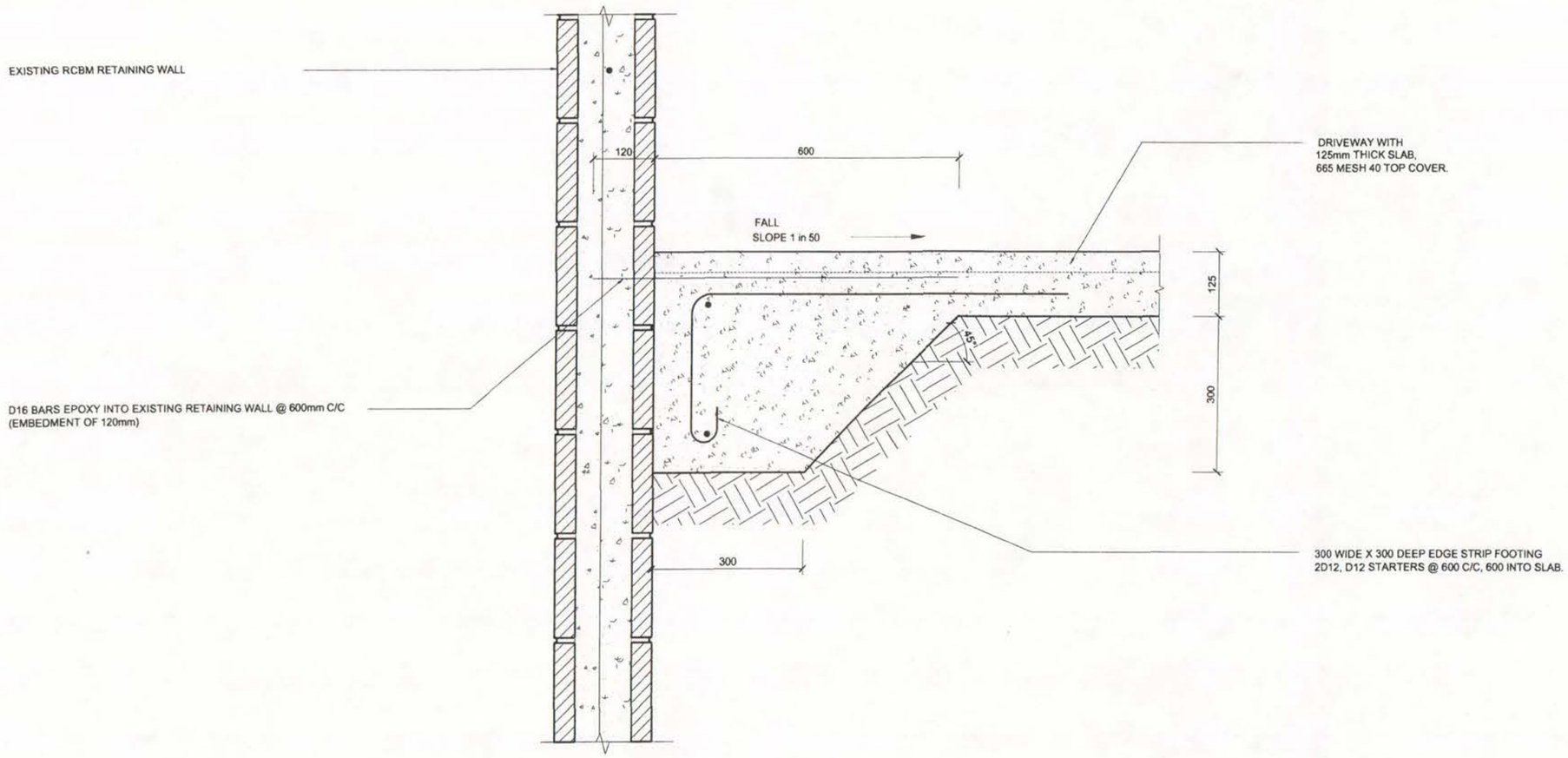
email: tpc@trafficplanning.co.nz

DRAUGHTING SERVICES Ph/Fax 09–627 3437 This drawing was produced on AutoCAD

Client	ORMISTON PROJECT MANAGEMENT LTD
Project	LOT 3, 8 SCHOOL RD, PAIHIA
Sheet Name	EXISTING ACCESS DETAILS & PROPOSED WIDENING (5.0m)

Scale	1:250		DRAWING No.
Designed	D Philip		07125–03
Drawn	N Baker	29.10.07	

RCPPL

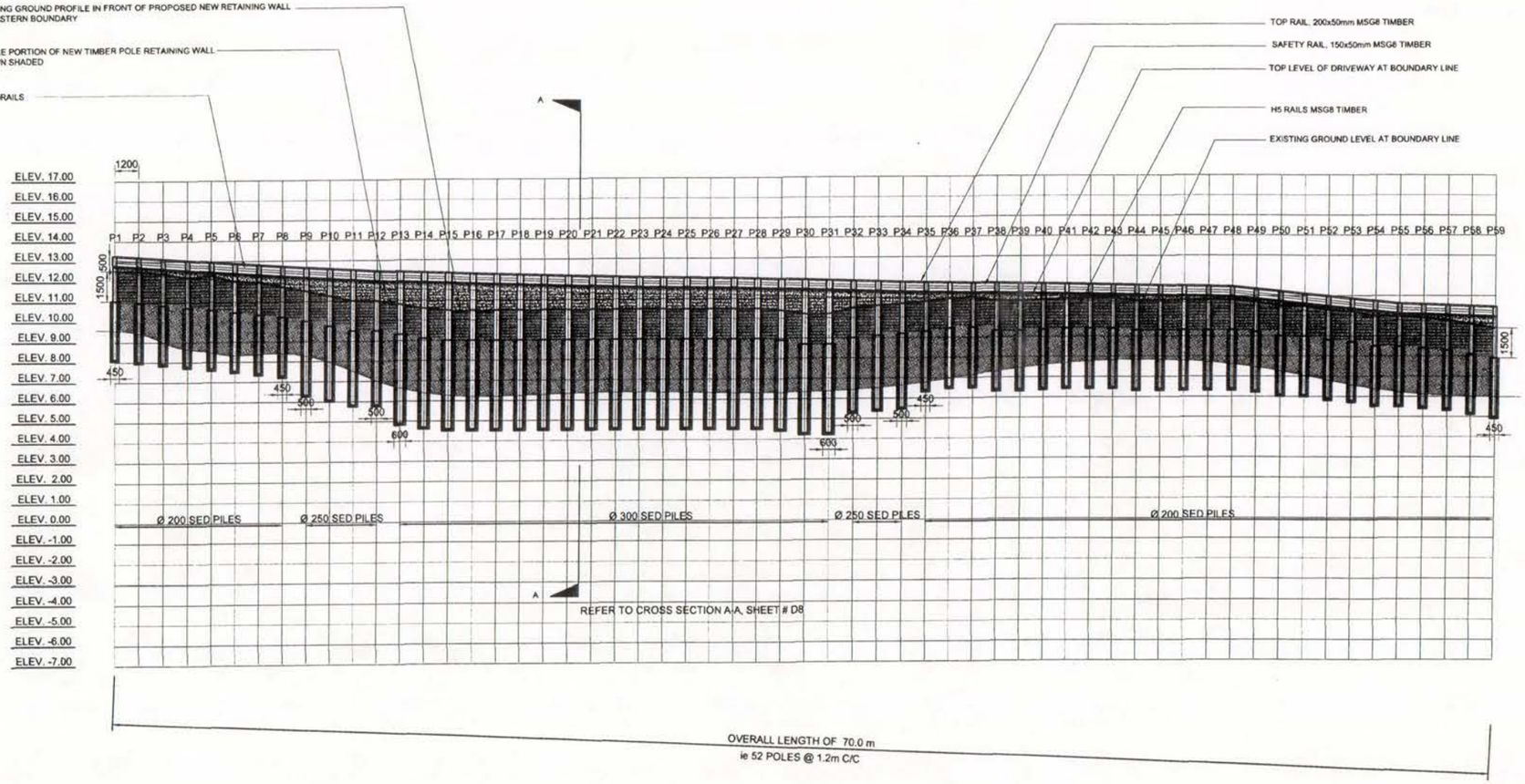


SECTION B-B CONNECTION OF EXISTING RETAINING WALL TO PROPOSED DRIVEWAY

SCALE 1:10

No.	Date	Revision Detail

PK ENGINEERING LIMITED CHARTERED PROFESSIONAL ENGINEERS	LEVEL 1 National Bank Building 90 Kerikeri road, P.O.Box 464 KERIKERI Tel. (09) 4073255 Fax. (09) 4073256 E-mail. pk.engin@xtra.co.nz	PROJECT: PROPOSED PROJECT Lot 3, 8 School Road, Paihia	CLIENT: ORMISTON PROJECT (OPTION B~ EXISTING RETAINING WALL TO BE TIED TO DRIVEWAY)	DRAWING: SECTION B-B	Drawn: JPD Checked: PK Date: APRIL 08 Scale: 1:10 This design and drawing is the copyright of P.K.Engineering Limited and is not to be reproduced without written permision	CAD FILE NAME: PROJECT No: 07 - 142	PAGE No: D9	A3



PILE MARK	ELEVATION AT BOUNDARY LINE: DRIVEWAY	EXISTING	SED PILE
P1	12.78	12.53	200
P2	-	12.50	200
P3	-	12.43	200
P4	-	12.25	200
P5	12.45	12.05	200
P6	-	12.00	200
P7	-	11.88	250
P8	-	11.73	250
P9	12.15	11.50	250
P10	-	11.25	250
P11	-	11.00	250
P12	11.88	11.00	250
P13		10.80	300
P14	-	10.63	300
P15	-	10.50	300
P16	11.21	10.50	300
P17	-	10.50	300
P18	-	10.50	300
P19	-	10.50	300
P20	-	10.50	300
P21	-	10.50	300
P22	-	10.50	300
P23	11.22	10.50	300
P24	-	10.50	300
P25	-	10.50	300
P26	-	10.50	300
P27	11.62	10.50	300
P28	-	10.50	300
P29	-	10.47	300
P30		10.35	300
P31	-	10.25	300
P32	-	10.50	250
P33	-	10.60	250
P34	11.27	10.70	250
P35		10.80	200
P36	-	10.89	200
P37	-	10.98	200
P38	-	10.80	200
P39	-	10.80	200
P40	-	10.80	200
P41	-	10.80	200
P42	-	10.80	200
P43	11.08	10.80	200
P44	-	10.80	200
P45	-	10.80	200
P46	-	10.80	200
P47	-	10.80	200
P48	10.98	10.80	200
P49	-	10.70	200
P50	-	10.50	200
P51	-	10.48	200
P52	-	10.30	200

LEGEND:

VISIBLE PORTION OF NEW TIMBER POLE RETAINING WALL SHOW SHADED, ABOVE EXISTING GROUND PROFILE

EXISTING GROUND PROFILE IN FRONT OF PROPOSED NEW RETAINING WALL ON EASTERN BOUNDARY

ELEVATION

SCALE 1:250

No.	Date	Revision Detail

PK ENGINEERING LIMITED
CHARTERED PROFESSIONAL ENGINEERS

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PROJECT:
PROPOSED PROJECT
Lot 3, 8 School Road, Paihia

CLIENT:
ORMISTON PROJECT
(OPTION A~ EXISTING RETAINING WALL NOT TO BE TIED TO DRIVEWAY)

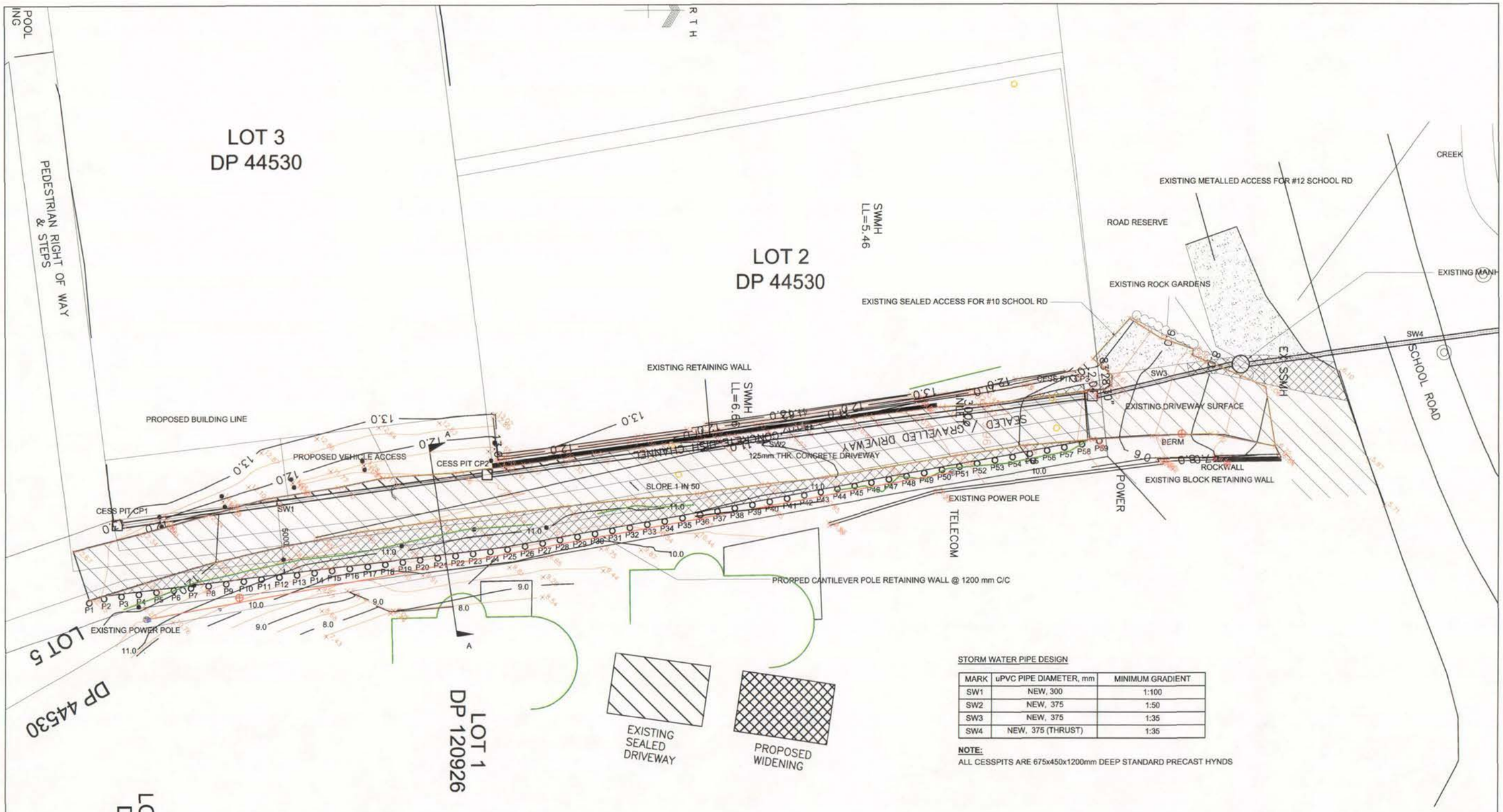
DRAWING:
ELEVATION

Drawn:	Checked:	Date:	Scale:	CAD FILE NAME:
JPD	PK	APRIL 08	1:250	

PROJECT No: 07 - 142

PAGE No: C4

A3



STORM WATER PIPE DESIGN

MARK	uPVC PIPE DIAMETER, mm	MINIMUM GRADIENT
SW1	NEW, 300	1:100
SW2	NEW, 375	1:50
SW3	NEW, 375	1:35
SW4	NEW, 375 (THRUST)	1:35

NOTE:
ALL CESSPITS ARE 675x450x1200mm DEEP STANDARD PRECAST HYNDS

PK ENGINEERING LIMITED
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PROPOSED PROJECT
Lot 3, 8 School Road, Paihia

CLIENT:
ORMISTON PROJECT
(OPTION A~ EXISTING RETAINING WALL NOT TO BE TIED TO DRIVEWAY)

DRAWING:
PLAN SHOWING PROPPED POLE RETAINING WALL & STORM DRAINAGE (WITH CONTOUR)

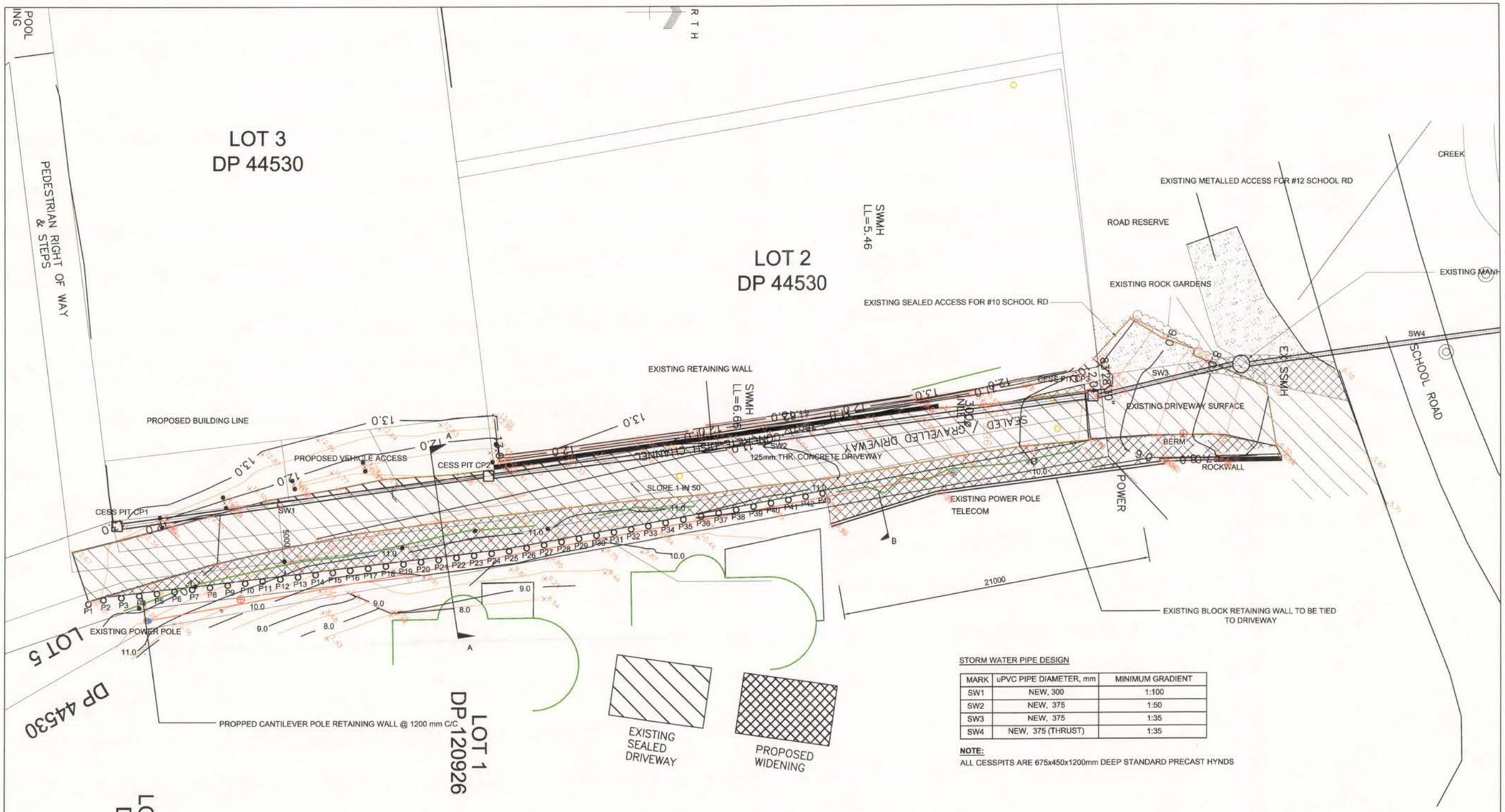
Drawn:	Checked:	Date:	Scale:	CAD FILE NAME:
JPD	PK	APRIL 08	1:250	

PROJECT No: 07 - 142

No.	Date	Revision Detail

PAGE No: C3

A3



STORM WATER PIPE DESIGN

MARK	uPVC PIPE DIAMETER, mm	MINIMUM GRADIENT
SW1	NEW, 300	1:100
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SW4	NEW, 375 (THRUST)	1:35

NOTE:
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No.	Date	Revision Detail

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PROJECT:
PROPOSED PROJECT
Lot 3, 8 School Road, Paihia

CLIENT:
ORMISTON PROJECT
(OPTION B~ EXISTING RETAINING WALL TO BE TIED TO DRIVEWAY)

DRAWING:
PLAN SHOWING PROPPED POLE RETAINING WALL & STORM DRAINAGE (WITH CONTOUR)

Drawn:	Checked:	Date:	Scale:	CAD FILE NAME:
JPD	PK	APRIL 08	1:250	

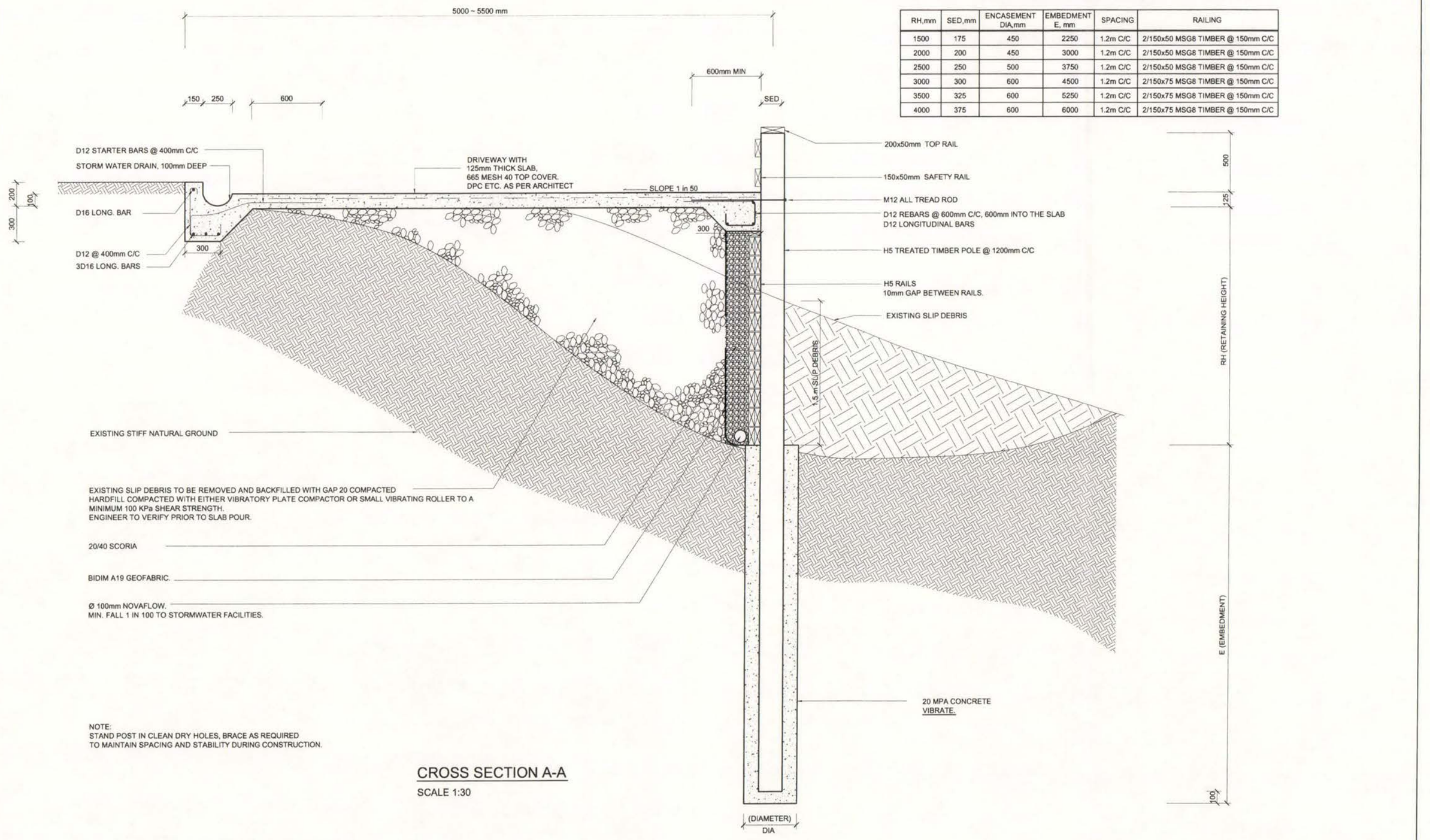
PROJECT No: 07 - 142

PAGE No: C3

A3

PROPPED CANTILEVER POLE RETAINING WALL DESIGN

RH,mm	SED,mm	ENCASEMENT DIA,mm	EMBEDMENT E, mm	SPACING	RAILING
1500	175	450	2250	1.2m C/C	2/150x50 MSG8 TIMBER @ 150mm C/C
2000	200	450	3000	1.2m C/C	2/150x50 MSG8 TIMBER @ 150mm C/C
2500	250	500	3750	1.2m C/C	2/150x50 MSG8 TIMBER @ 150mm C/C
3000	300	600	4500	1.2m C/C	2/150x75 MSG8 TIMBER @ 150mm C/C
3500	325	600	5250	1.2m C/C	2/150x75 MSG8 TIMBER @ 150mm C/C
4000	375	600	6000	1.2m C/C	2/150x75 MSG8 TIMBER @ 150mm C/C



NOTE:
STAND POST IN CLEAN DRY HOLES, BRACE AS REQUIRED
TO MAINTAIN SPACING AND STABILITY DURING CONSTRUCTION.

CROSS SECTION A-A

SCALE 1:30

PK ENGINEERING LIMITED
CHARTERED PROFESSIONAL ENGINEERS

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E-mail. pk.engin@xtra.co.nz

PROJECT:	CLIENT:	DRAWING:
PROPOSED PROJECT Lot 3, 8 School Road, Paihia	ORMISTON PROJECT (OPTION B~ EXISTING RETAINING WALL TO BE TIED TO DRIVEWAY)	PROPPED POLE RETAINING WALL DESIGN/ CROSS SECTION A-A

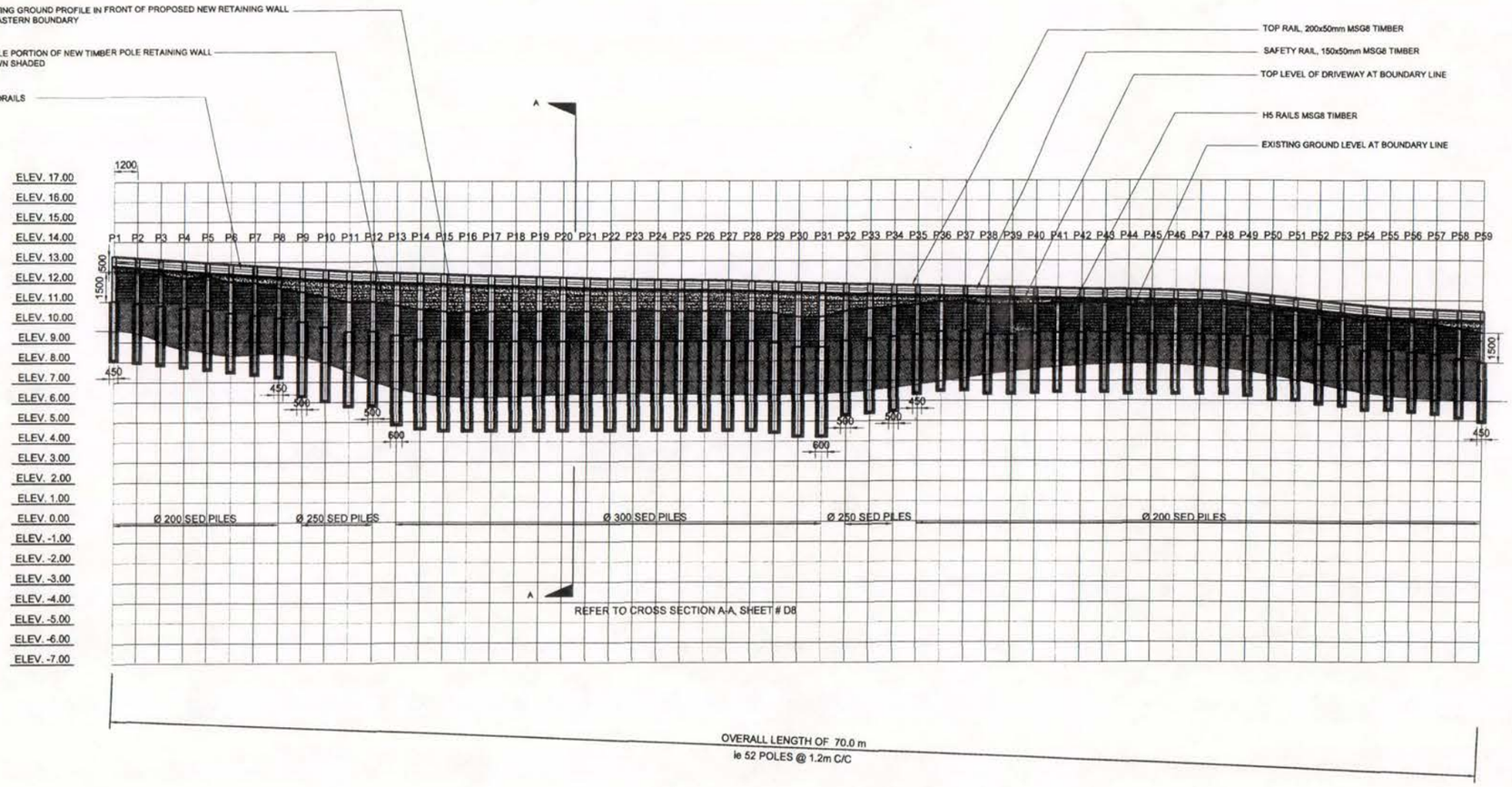
Drawn:	Checked:	Date:	Scale:	CAD FILE NAME:
JPD	PK	APRIL 08	1:30	

PROJECT No: 07 - 142

No.	Date	Revision Detail

PAGE No: D8

A3



PILE MARK	ELEVATION AT BOUNDARY LINE: DRIVEWAY	EXISTING	BED PILE
P1	12.78	12.50	200
P2	-	12.50	200
P3	-	12.41	300
P4	-	12.50	200
P5	12.45	12.35	100
P6	-	12.00	200
P7	-	11.68	250
P8	-	11.70	200
P9	12.15	11.90	250
P10	-	11.23	250
P11	-	11.00	250
P12	11.68	11.00	250
P13	-	10.80	300
P14	-	10.80	300
P15	-	10.50	300
P16	11.21	10.50	300
P17	-	10.50	300
P18	-	10.50	300
P19	-	10.50	300
P20	-	10.50	300
P21	-	10.55	350
P22	-	10.55	350
P23	11.17	10.50	300
P24	-	10.50	300
P25	-	10.00	500
P26	-	10.50	300
P27	11.62	10.50	300
P28	-	10.50	300
P29	-	10.40	300
P30	-	10.20	300
P31	-	10.20	300
P32	-	10.50	250
P33	-	10.40	250
P34	11.17	10.75	150
P35	-	10.80	200
P36	-	10.90	200
P37	-	10.90	200
P38	-	10.80	200
P39	-	10.80	200
P40	-	10.80	200
P41	-	10.80	200
P42	-	10.90	200
P43	11.08	10.80	200
P44	-	10.80	200
P45	-	10.80	200
P46	-	10.80	200
P47	-	10.80	200
P48	10.98	10.80	200
P49	-	10.70	200
P50	-	10.50	200
P51	-	10.40	200
P52	-	10.20	200

LEGEND:

VISIBLE PORTION OF NEW TIMBER POLE RETAINING WALL SHOW SHADED, ABOVE EXISTING GROUND PROFILE

EXISTING GROUND PROFILE IN FRONT OF PROPOSED NEW RETAINING WALL ON EASTERN BOUNDARY

ELEVATION

SCALE 1:250

PK ENGINEERING LIMITED
CHARTERED PROFESSIONAL ENGINEERS

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National Bank Building
90 Kerikeri road,
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PROJECT:
PROPOSED PROJECT
Lot 3, 8 School Road, Paihia

CLIENT:
ORMISTON PROJECT
(OPTION A~ EXISTING RETAINING WALL NOT TO BE TIED TO DRIVEWAY)

DRAWING:
ELEVATION

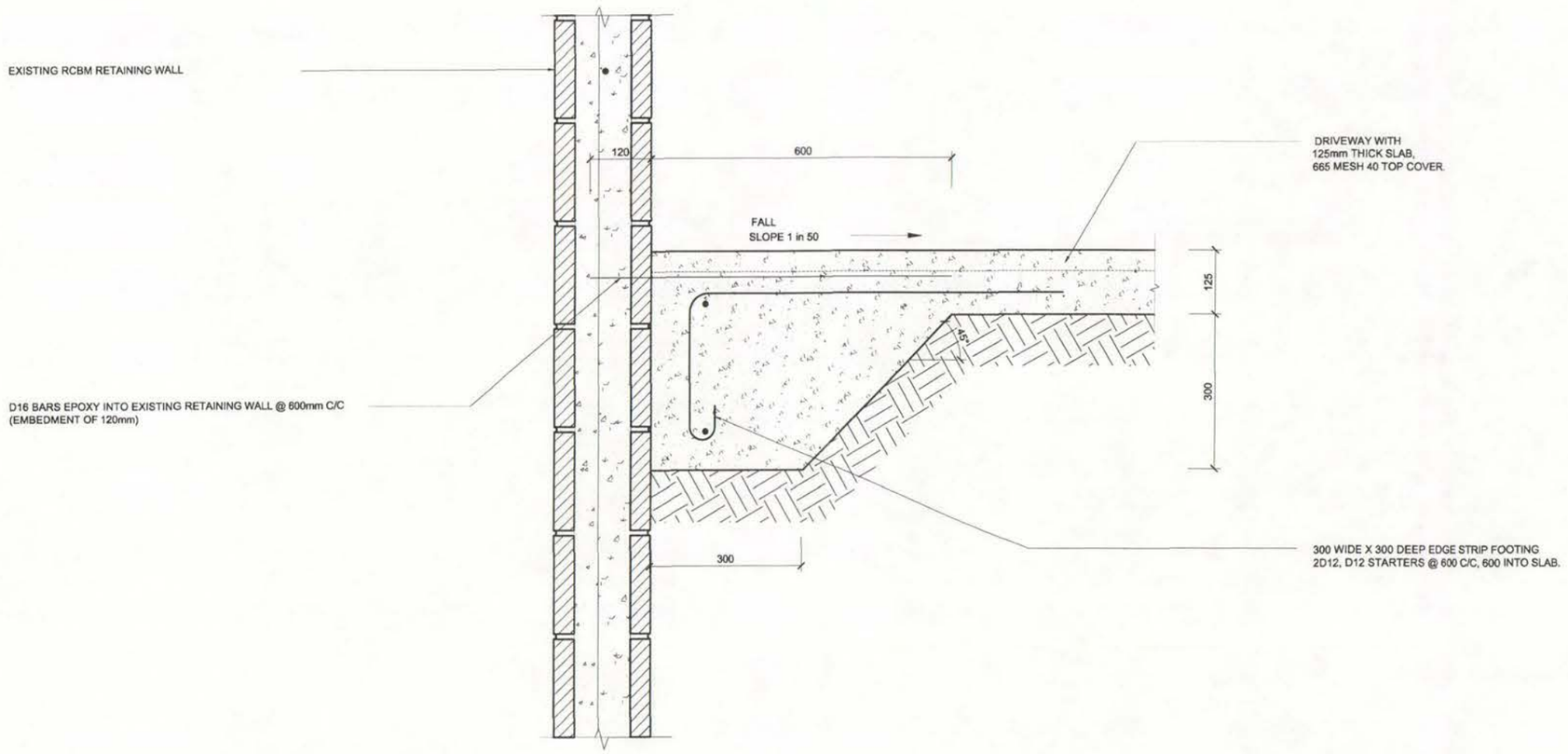
Drawn:	Checked:	Date:	Scale:	CAD FILE NAME:
JPD	PK	APRIL 08	1:250	

PROJECT No: 07 - 142

No.	Date	Revision Detail

PAGE No: C4

A3



SECTION B-B CONNECTION OF EXISTING RETAINING WALL TO PROPOSED DRIVEWAY

SCALE 1:10

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PROJECT: PROPOSED PROJECT
Lot 3, 8 School Road, Paihia

CLIENT: ORMISTON PROJECT
(OPTION B~ EXISTING RETAINING WALL TO BE TIED TO DRIVEWAY)

DRAWING: SECTION B-B

Drawn:	Checked:	Date:	Scale:	CAD FILE NAME:
JPD	PK	APRIL 08	1:10	

PROJECT No: 07 - 142

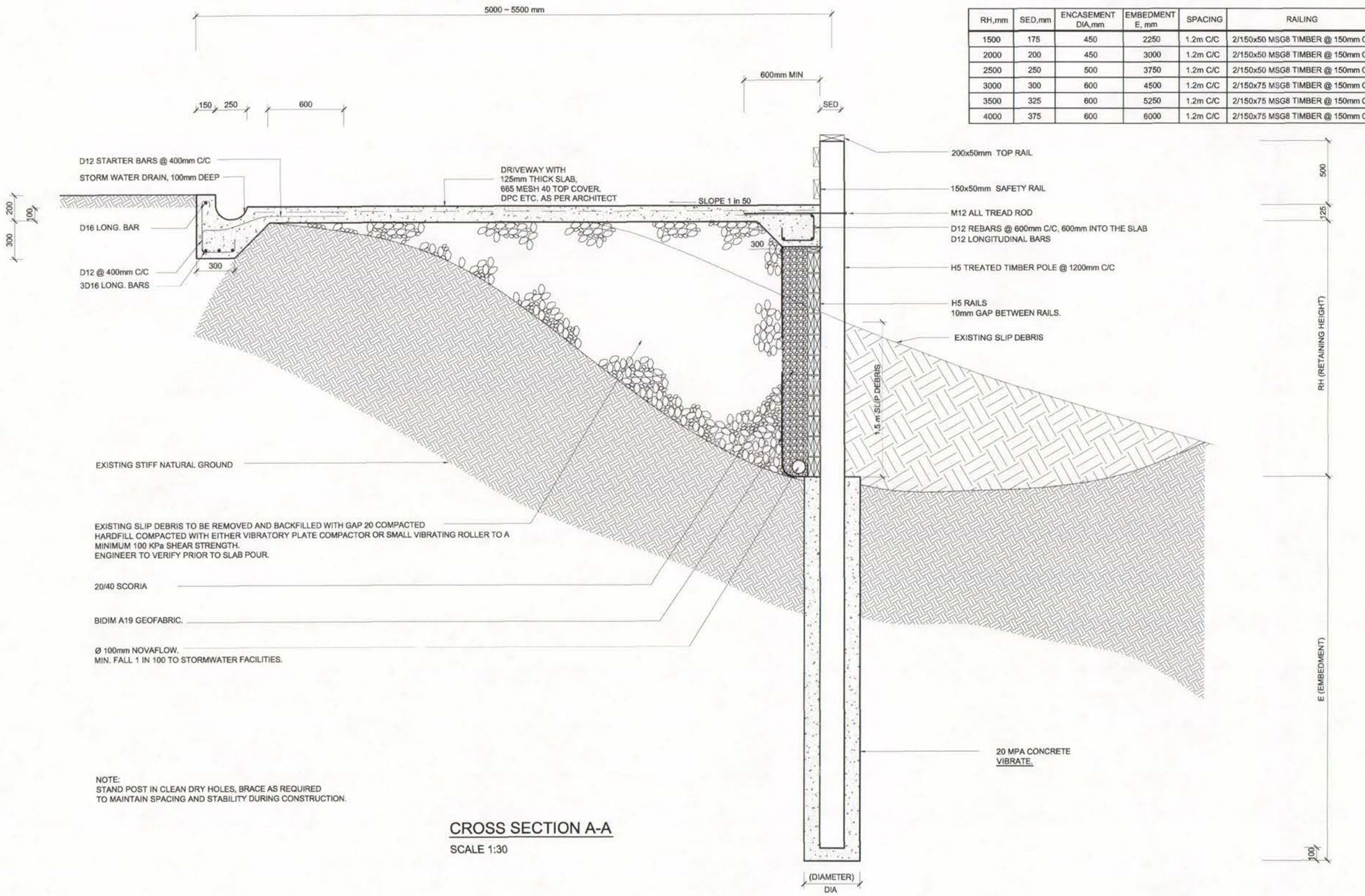
No.	Date	Revision Detail

PAGE No: D9

A3

PROPPED CANTILEVER POLE RETAINING WALL DESIGN

RH,mm	SED,mm	ENCASEMENT DIA,mm	EMBEDMENT E, mm	SPACING	RAILING
1500	175	450	2250	1.2m C/C	2/150x50 MSG8 TIMBER @ 150mm C/C
2000	200	450	3000	1.2m C/C	2/150x50 MSG8 TIMBER @ 150mm C/C
2500	250	500	3750	1.2m C/C	2/150x50 MSG8 TIMBER @ 150mm C/C
3000	300	600	4500	1.2m C/C	2/150x75 MSG8 TIMBER @ 150mm C/C
3500	325	600	5250	1.2m C/C	2/150x75 MSG8 TIMBER @ 150mm C/C
4000	375	600	6000	1.2m C/C	2/150x75 MSG8 TIMBER @ 150mm C/C



NOTE:
STAND POST IN CLEAN DRY HOLES, BRACE AS REQUIRED
TO MAINTAIN SPACING AND STABILITY DURING CONSTRUCTION.

CROSS SECTION A-A

SCALE 1:30

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PROJECT:
PROPOSED PROJECT
Lot 3, 8 School Road, Paihia

CLIENT:
ORMISTON PROJECT
(OPTION A~ EXISTING RETAINING WALL NOT TO BE TIED TO DRIVEWAY)

DRAWING:
PROPPED POLE RETAINING WALL DESIGN/ CROSS SECTION A-A

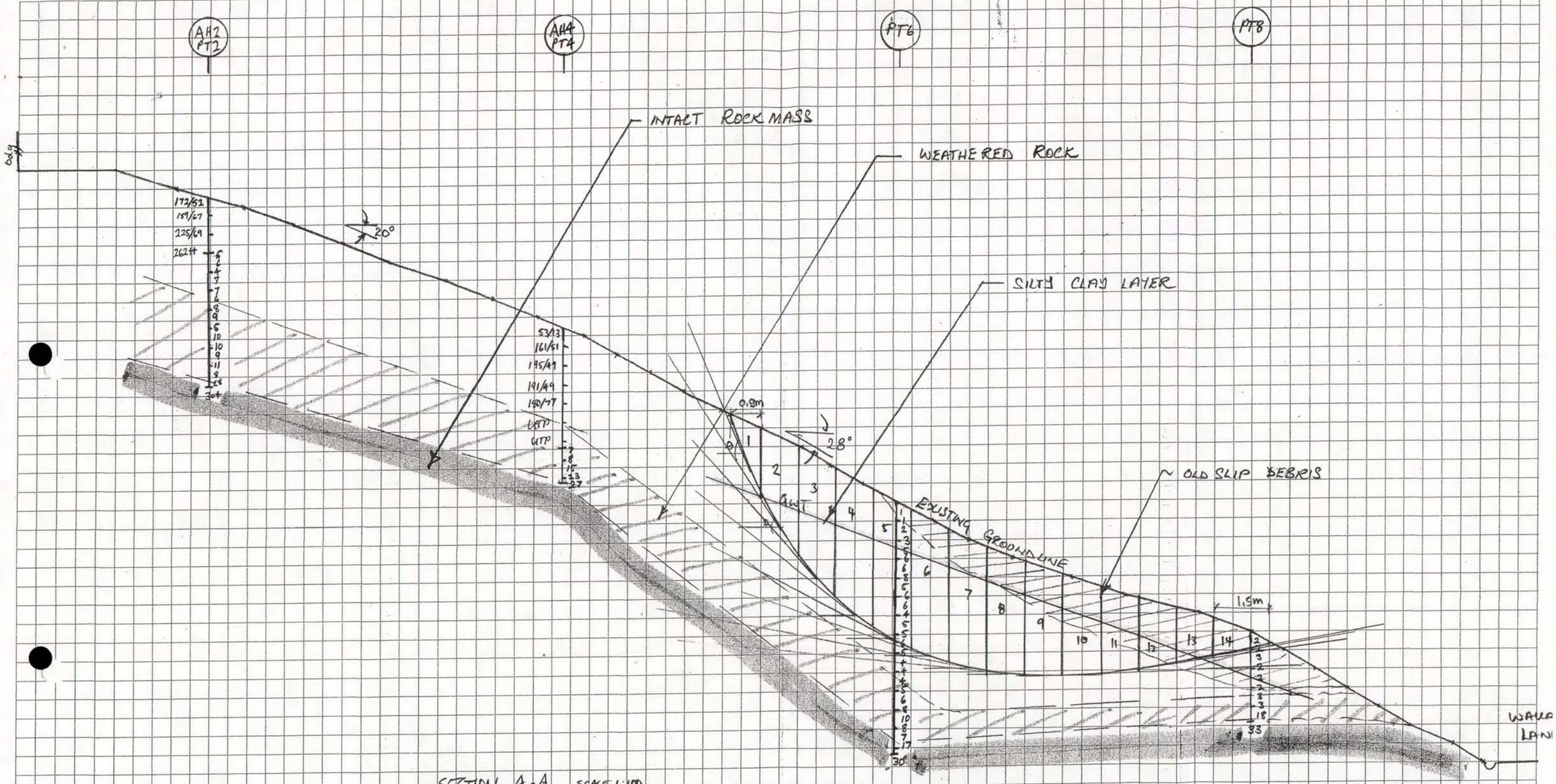
Drawn:	Checked:	Date:	Scale:	CAD FILE NAME:
JPD	PK	APRIL 08	1:30	

PROJECT No: 07 - 142

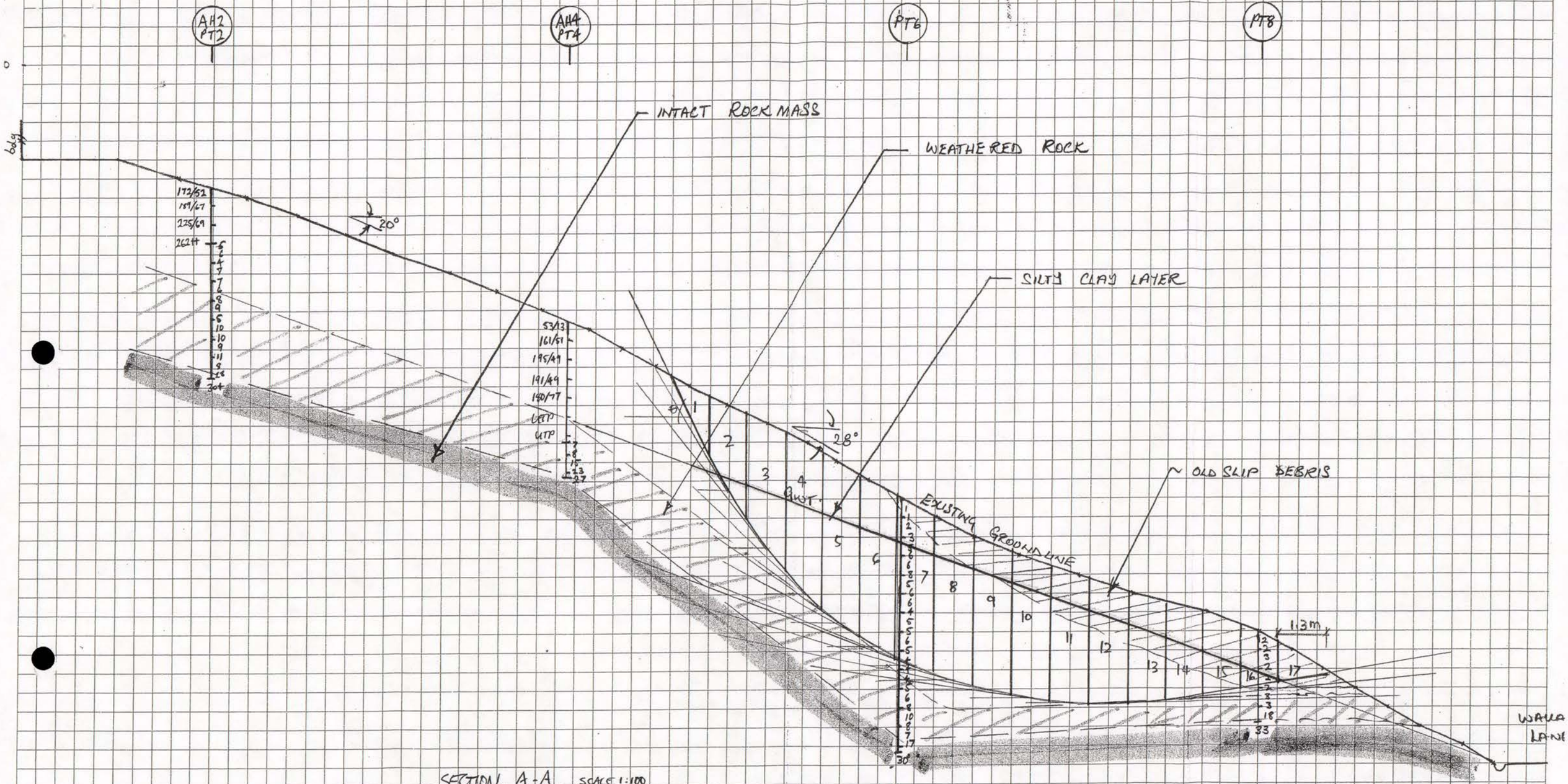
No.	Date	Revision Detail

PAGE No: D8

A3

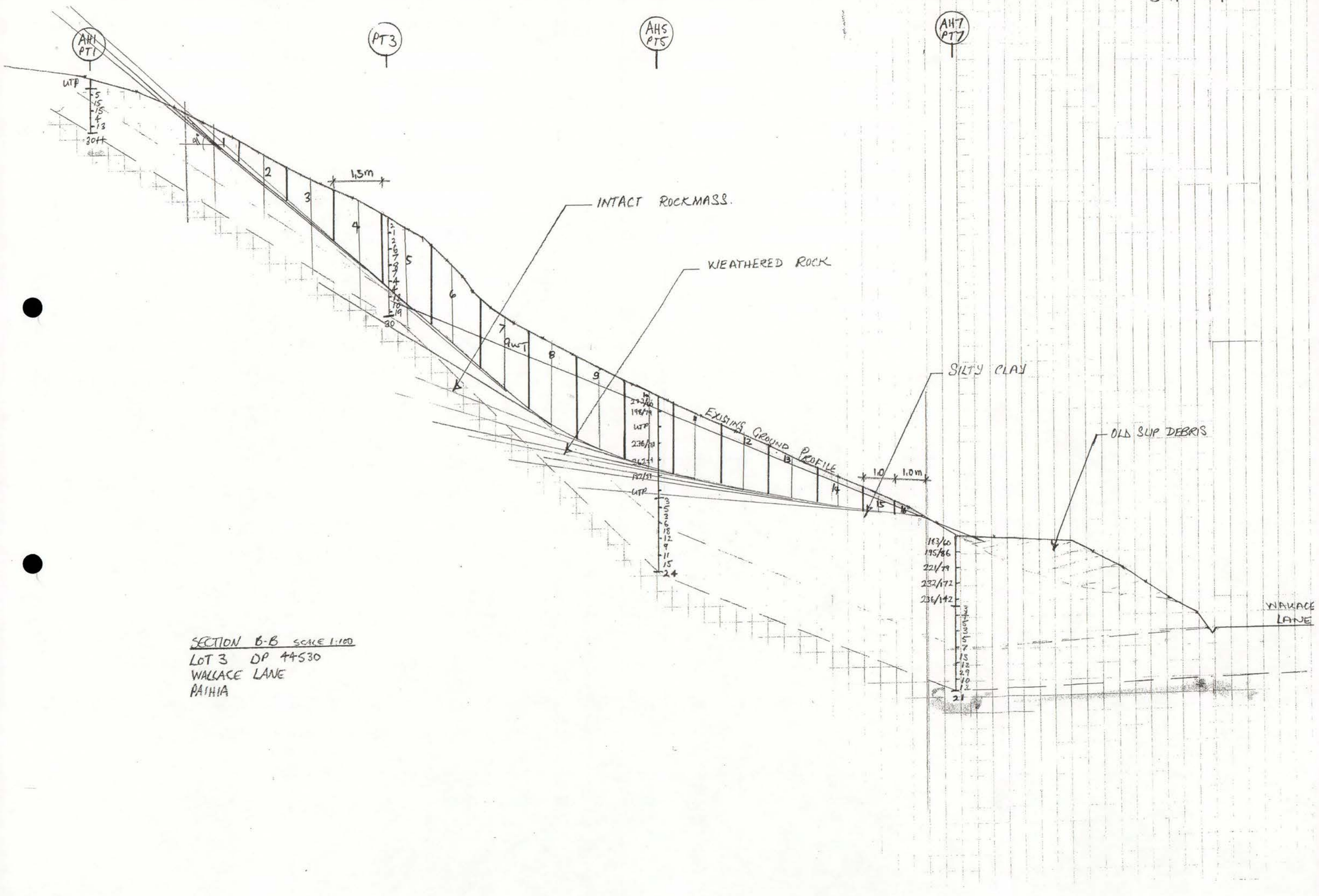


SECTION A-A SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA



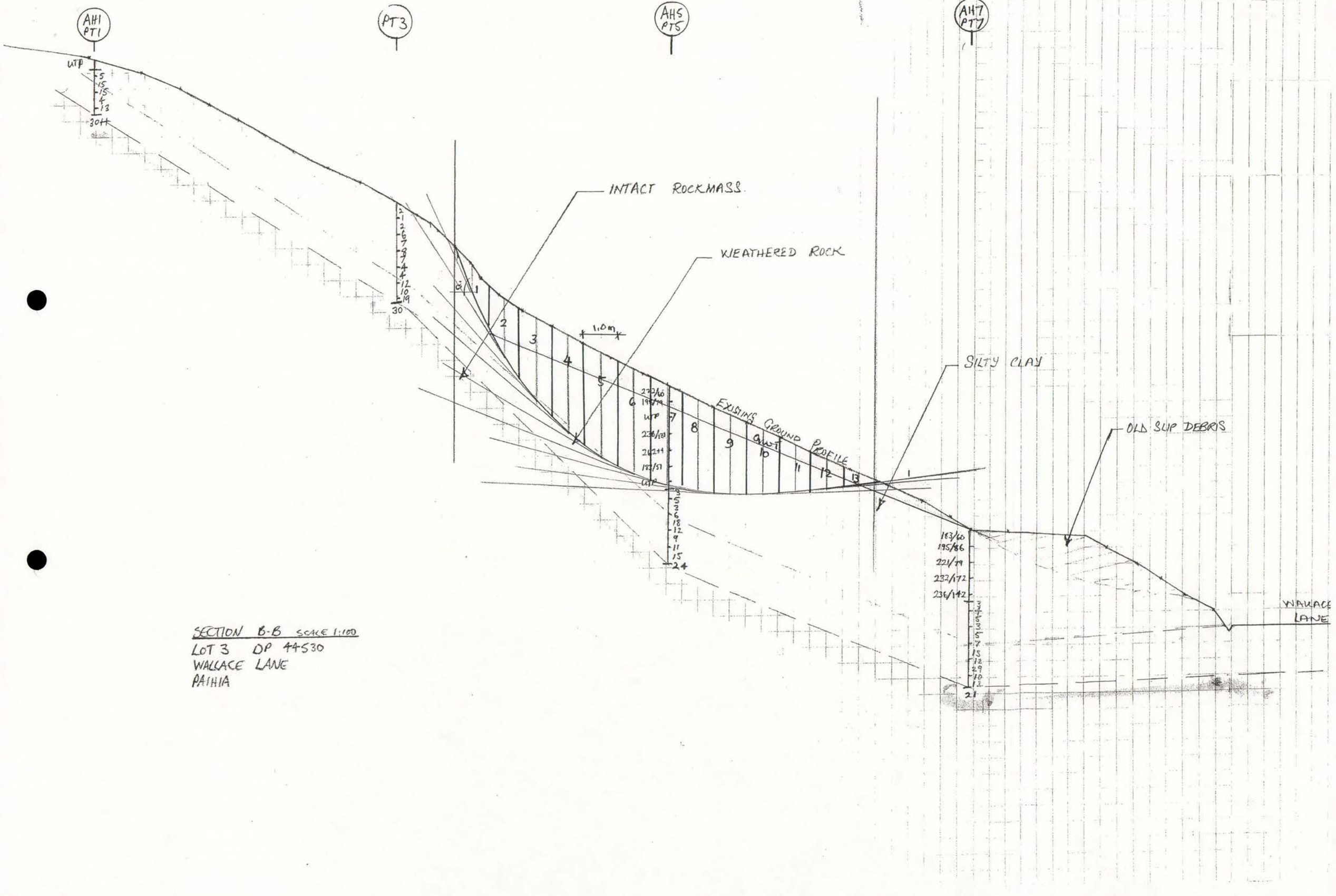
SECTION A-A SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA

SLIP B1 B30



SECTION B-B SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA

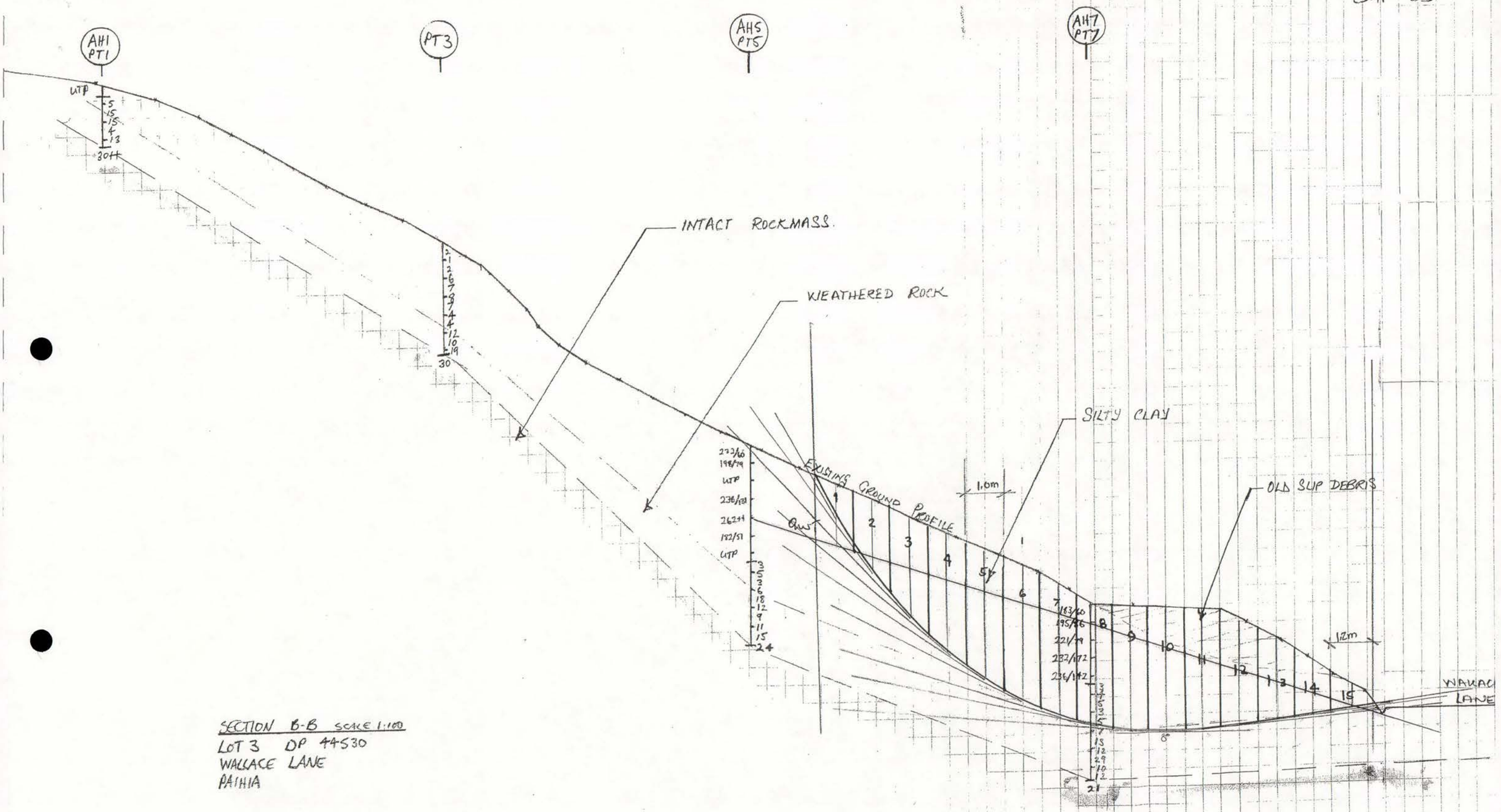
SUP B2



SECTION B-B SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA

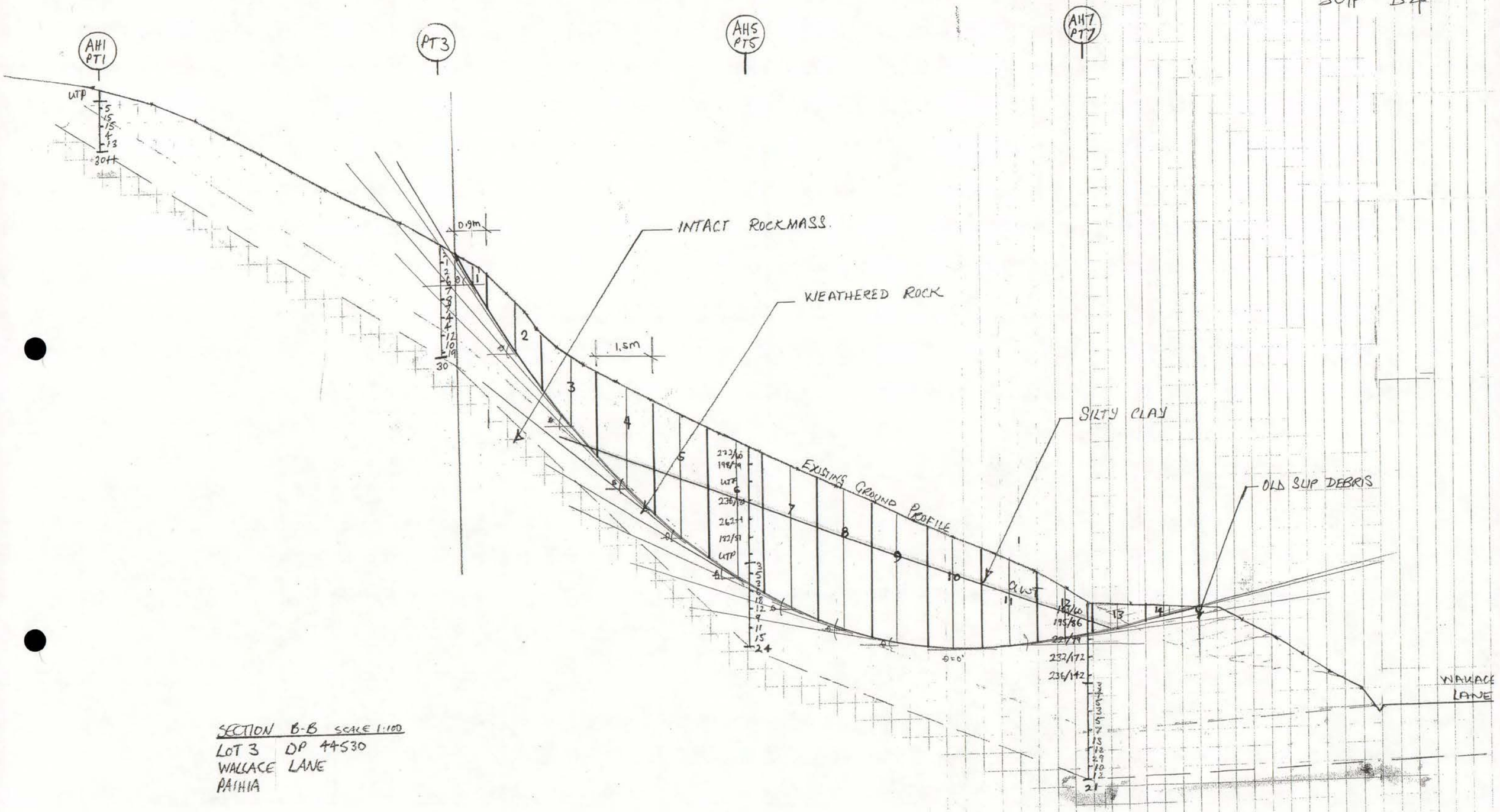
GORMACK CRAMPTON

SLIP B3



SECTION B-B SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA

SLIP B4



SECTION B-B SCALE 1:100
LOT 3 DP 44530
WALLACE LANE
PAIHIA

Pt 1
DP 15159

LOT 1
DP 44530

SCHOOL ROAD

LOT 2
DP 73026

LOT 3
DP 44530

LOT 2
DP 44530

LOT 1
DP 73026

RIGHT OF WAY IN FAVOUR OF 3 DP 44530

LOT 5 DP 44530

LOT 3 Blk I
DP 1217

LOT 1
DP 120926

No.	Revision Details	Date	No.	Revision Details	Date

Design
Survey RBH
Drawn RBH
Checked
Date August 2007
Scale 1: 250 (A3)

Job Title
SITE SURVEY
FOR
PAIHIA FAMILY TRUST
8 SCHOOL ROAD (WALLACE LANE)
PAIHIA

Easdale Surveyors Ltd
39 Meadowland Drive, Howick
Phone 09 534 8452
Fax 09 5375754
e-mail: surveyors@easdales.co.nz

Drawing Title:
EXISTING EASEMENT PLAN

File No.	Rev.	Dwg No.
7742	1	

LOT 1
DP 44530

LOT 2
DP 44530

LOT 1
DP 120926

LOT 3 Blk I
DP 1217

LOT 5 DP 44530

LOT 1
DP 73026

LOT 2
DP 73026

Pt 1
DP 15159

WOODEN RETAINING WALL

BLOCK WALL

PEG IN D/W

C.I. FENCE

TREE

TREE

TREE

DRAINAGE DITCH

HIGH VOLTAGE OVERHEAD POWER WIRES

APPROXIMATE RL OF MARSDEN ROAD ~ 4.8M

MAXIMUM HEIGHT (EXCLUDING SKYLIGHT) OF UNIT "A" DP 122747 RL=13.24

LEVELS ALONG SIDE OF MOTEL UNITS

EXISTING EAVE RL=14.90

NOVACOM OUTLETS IL=12.07 IL=12.14

POWER

WATER

DISC IN POST

SWIMMING POOL & DECKING

PEDESTRIAN RIGHT OF WAY & STEPS

173°12'30" 25.89

262°57'30" 40.99

82°57'30" 2.40

341°06'00" 22.38

161°06'00" 24.73

161°06'00" 24.35

77°09'04" 3.12

No.	Revision Details	Date	No.	Revision Details	Date

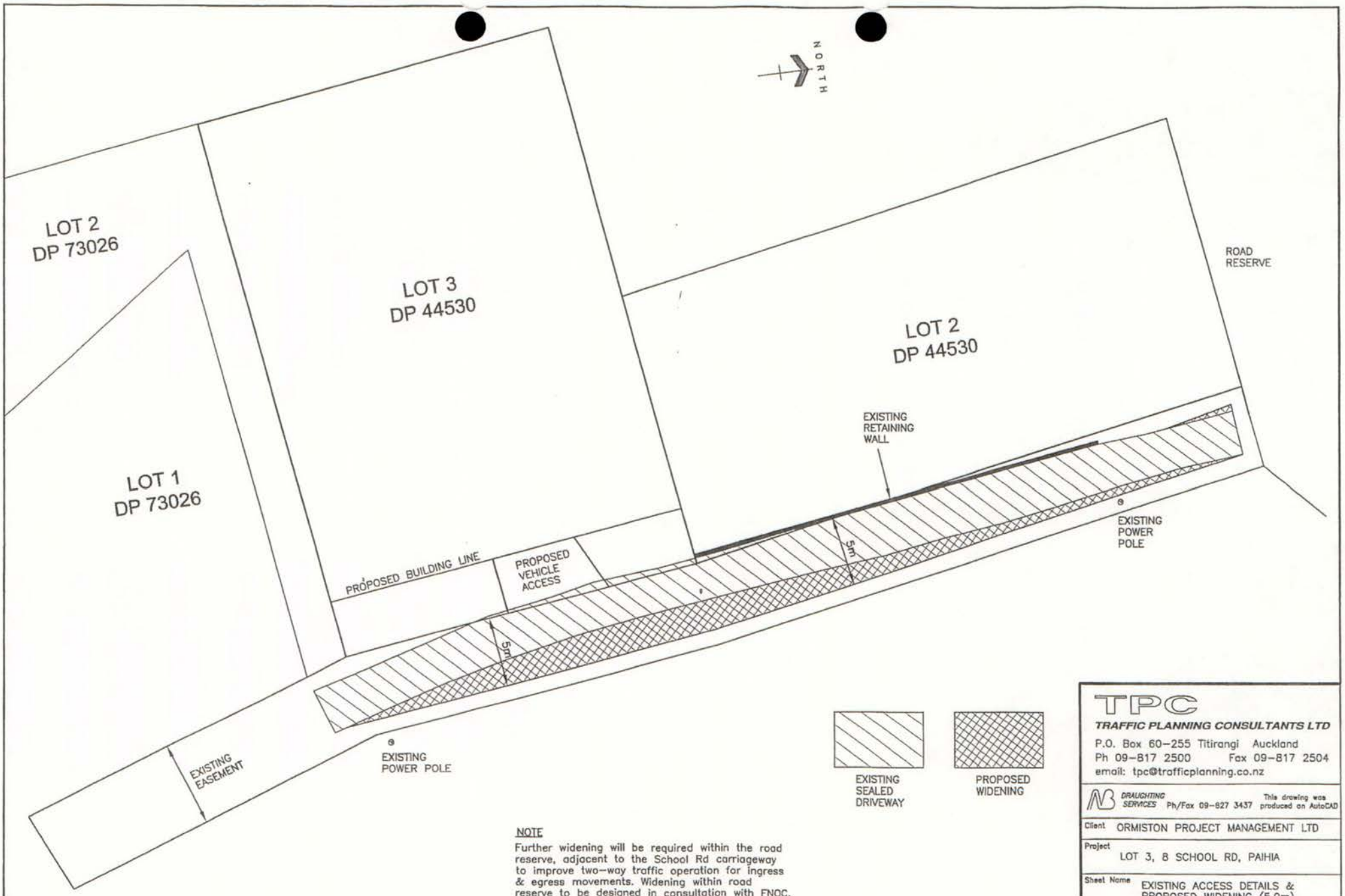
Design
Survey RBH
Drawn RBH
Checked
Date March 2005
Scale 1:200 (A3)

Job Title
SITE SURVEY
FOR
PAIHIA FAMILY TRUST
8 SCHOOL ROAD (WALLACE LANE)
PAIHIA

Easdale Surveyors Ltd
39 Meadowland Drive, Howick
Phone 09 534 8452
Fax 09 5375754
e-mail: surveyors@easdales.co.nz

Drawing Title:
TOPOGRAPHICAL PLAN

File No. 7742 | Rev. 1 | Dwg No.



NOTE

Further widening will be required within the road reserve, adjacent to the School Rd carriageway to improve two-way traffic operation for ingress & egress movements. Widening within road reserve to be designed in consultation with FNOC.

TPC
TRAFFIC PLANNING CONSULTANTS LTD
P.O. Box 60-255 Titirangi Auckland
Ph 09-817 2500 Fax 09-817 2504
email: tpc@trafficplanning.co.nz
DRAUGHTING SERVICES Ph/Fax 09-827 3437

This drawing was produced on AutoCAD

Client	ORMISTON PROJECT MANAGEMENT LTD
Project	LOT 3, 8 SCHOOL RD, PAIHIA
Sheet Name	EXISTING ACCESS DETAILS & PROPOSED WIDENING (5.0m)

Scale	1:250		DRAWING No.
Designed	D Phillp		07125-02
Drawn	N Baker	8.8.07	